

**MICHIGAN STATE**  

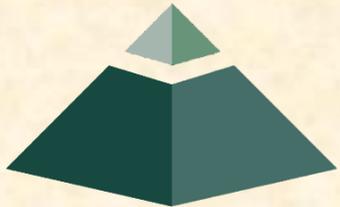
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**UNIVERSITY**

# The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*

# Course Goals

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- Build a Significant Software System
- Work in a Team Environment
- Learn New Tools and Environments
- Build and Administer Systems
- Develop Communication Skills
- Develop Interview Talking Points
- Consider Issues of Ethics and Professionalism



# Course Goals

---

- Teams of Students
- Build Significant Software System
  - Design
  - Develop
  - Debug
  - Document
  - Deliver
- For Corporate Clients
- In 15 (Short) Weeks



# Project Deliverables

---

- Project Plan Document & Presentation
- Alpha Presentation
- Beta Presentation
- Project Software & Documentation
- Project Video
- Design Day

See [Major Milestones](#).



# All-Hands Meetings

- MW, 3:00-4:20 p.m., 1145 Engineering Building
- Presentations By
  - Professor
  - Teams
    - Status Reports
    - Formal Presentations
      - Project Plan
      - Alpha
      - Beta
    - Project Videos
  - Guest Speakers



# All-Hands Meetings

08/31: Capstone Overview  
09/05: (Labor Day, No Meeting)  
09/07: Project Plan  
09/12: Risks and Prototypes  
09/14: [Status Report Presentations](#)  
09/19: Team [Project Plan Presentations](#)  
09/21: Team [Project Plan Presentations](#)  
09/26: Resume Writing and Interviewing  
09/28: Career Gallery  
10/03: Team [Project Plan Presentations](#)  
10/05: Team [Project Plan Presentations](#)  
10/10: Schedule and Teamwork  
10/12: Creating and Giving Presentations  
10/17: Team [Alpha Presentations](#)  
10/19: Team [Alpha Presentations](#)  
10/24: Team [Alpha Presentations](#)  
10/26: Team [Alpha Presentations](#)

10/31: [Design Day](#) and the [Project Videos](#)  
11/02: Camtasia Demo  
11/07: Intellectual Property  
11/09: Ethics and Professionalism  
11/14: Team [Beta Presentations](#)  
11/16: Team [Beta Presentations](#)  
11/21: Team [Beta Presentations](#)  
11/23: Team Status Reports  
11/28: [Beta Presentations](#)  
11/30: Team Status Reports  
12/05: [Project Videos](#)  
12/07: [Project Videos](#) and [All Deliverables](#)  
12/08: [Design Day Setup](#)  
12/09: [Design Day](#)  
12/15: [Project Videos](#)



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# *The Capstone Experience*

Team Amazon

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*

**amazon**





All [Search Bar]



Back to School

Sponsored by Lysol

Departments

Your Amazon.com

Today's Deals

Gift Cards & Registry

Sell

Help

Hello. Sign in

Your Account

Try Prime

Lists



Cart

# PLAY ALL OF YOUR MUSIC. JUST ASK.



PANDORA



echo \$179<sup>99</sup>



## Welcome

Sign in for the best experience

## Popular departments



## The dress shop



xfinity

XFINITY Home

A total home security and automation solution

# Team Amazon

## Project Overview

### Asa: Your Amazon Shopping Assistant

- Functionalities
  - Provide Personal Shopping Assistant
  - To Amazon
  - Via Messaging Apps
- Features
  - Learn Preferences of User
  - Support Shopping for User or Others
  - Handle Various Messaging Apps
    - Facebook Messenger
    - Slack
    - Twilio
- Technologies
  - Facebook Messenger Bot and Facebook APIs
  - Amazon SNS / Twilio
  - Slackbot API
  - Amazon Product Advertising API
  - Amazon Web Services (AWS)
    - Machine Learning
    - Storage Solution
    - Lambda
    - API Gateway
    - Node
  - RESTful Web Services
  - Natural Language Processing





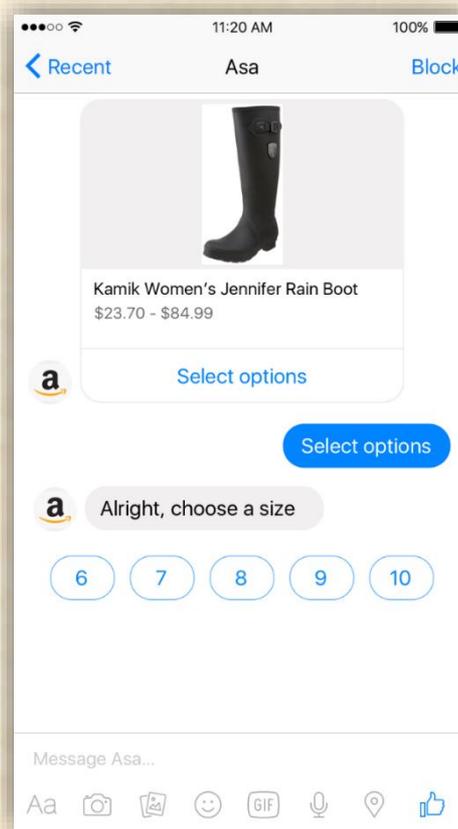
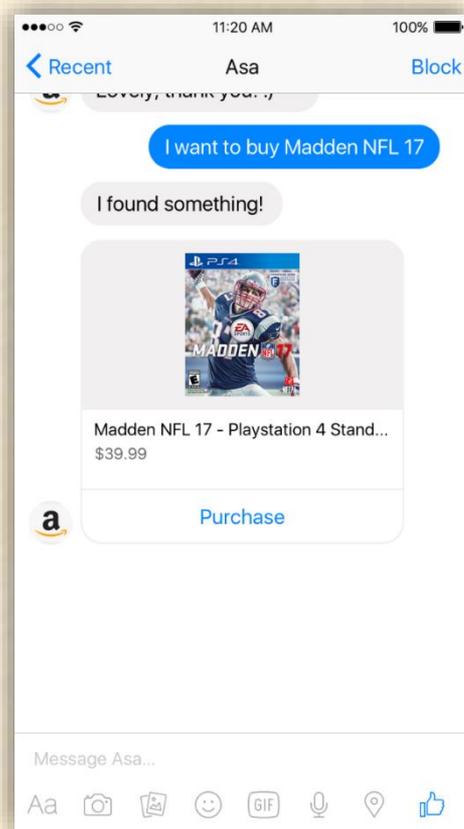
## Team Amazon

Yiming Li, Aaron Beckett, Renee Dennis, Evan Moran, Sam Chung

# Team Amazon Project Plan Presentation

e.

## Screen Mockups



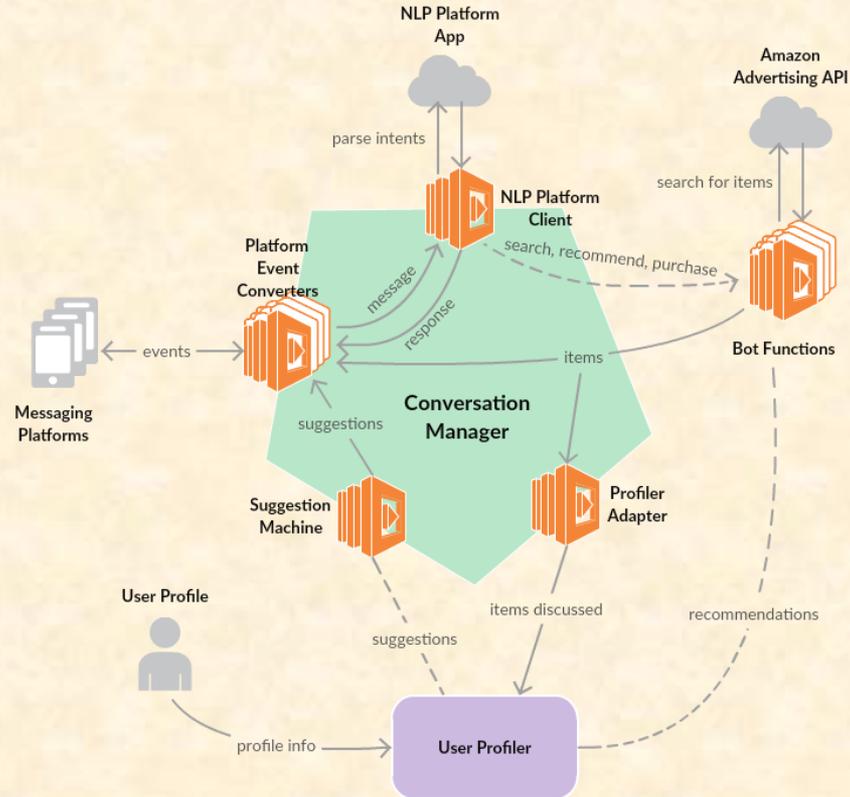


# Team Amazon Project Plan Presentation

# Team Amazon Project Plan Presentation

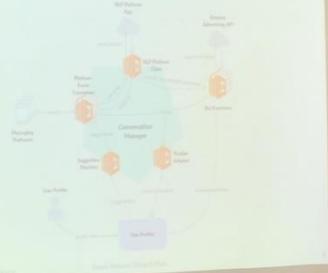
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## Architecture Diagram





# System Architecture

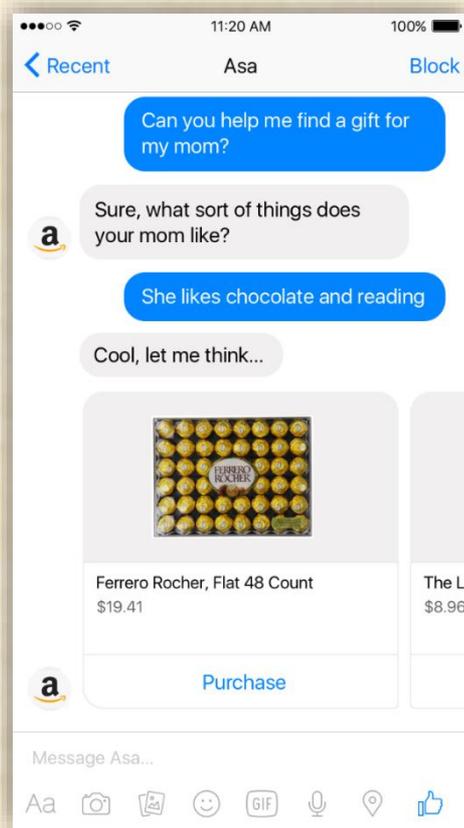
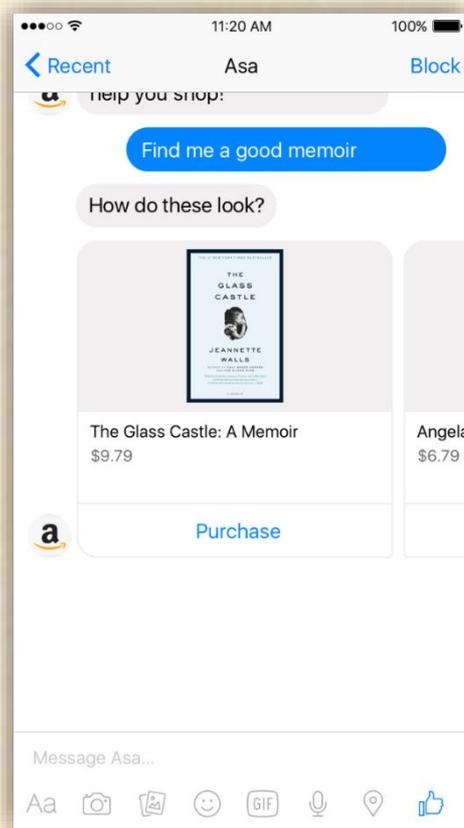


Team Amazon  
Project Plan Presentation

# Team Amazon Project Plan Presentation

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## Screen Mockups



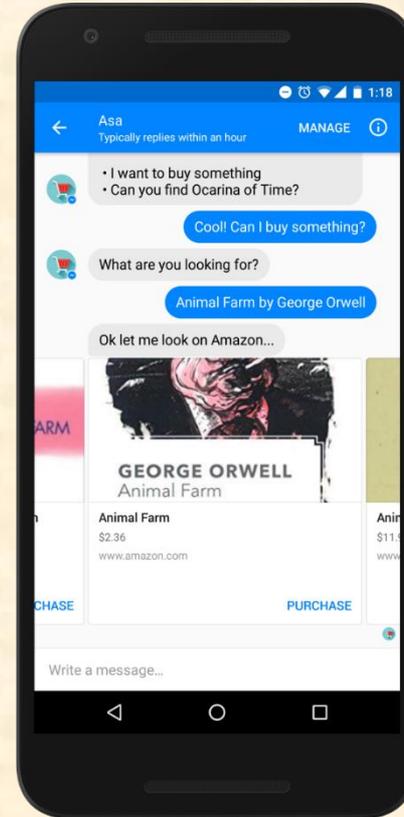
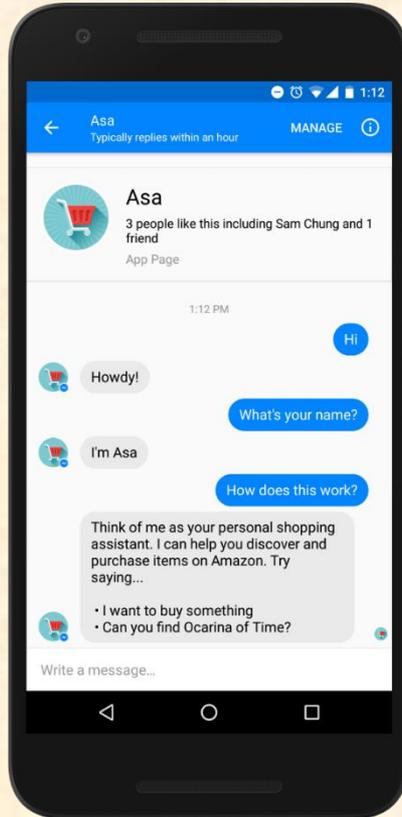


# Team Amazon Alpha Presentation

# Team Amazon Alpha Presentation

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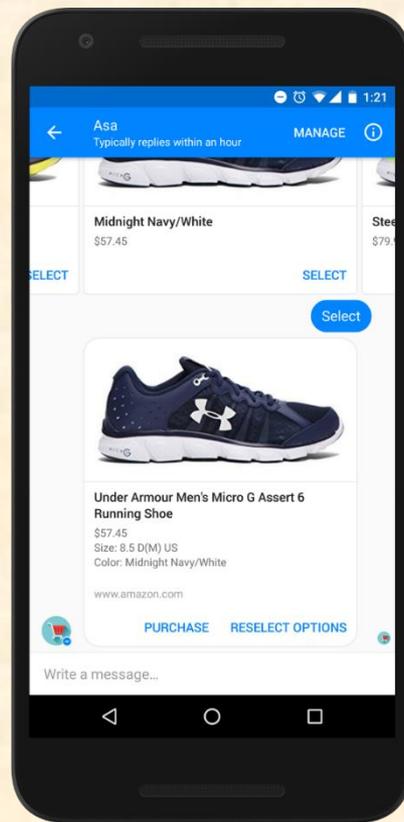
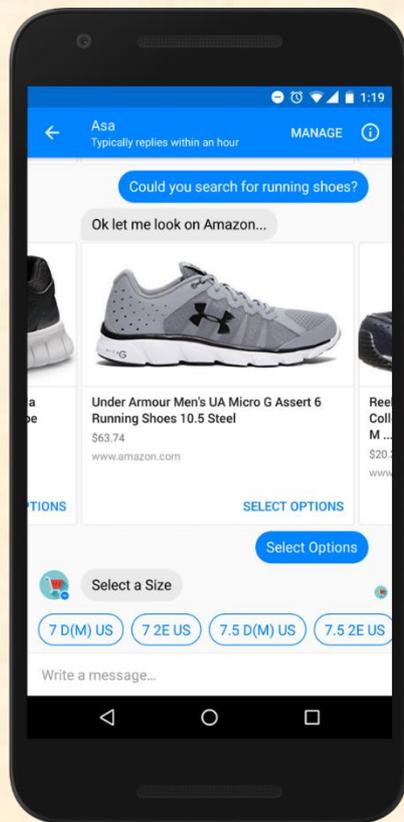
## Initiation and Item Search



# Team Amazon Alpha Presentation

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## Variation Selection

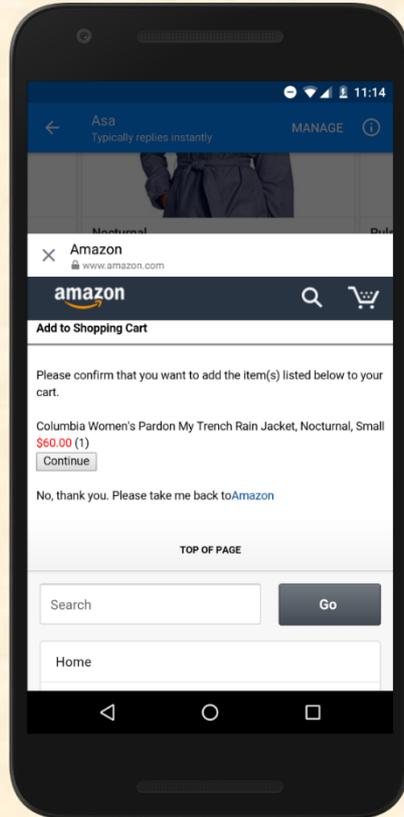




# Team Amazon Alpha Presentation

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## Purchase Cart



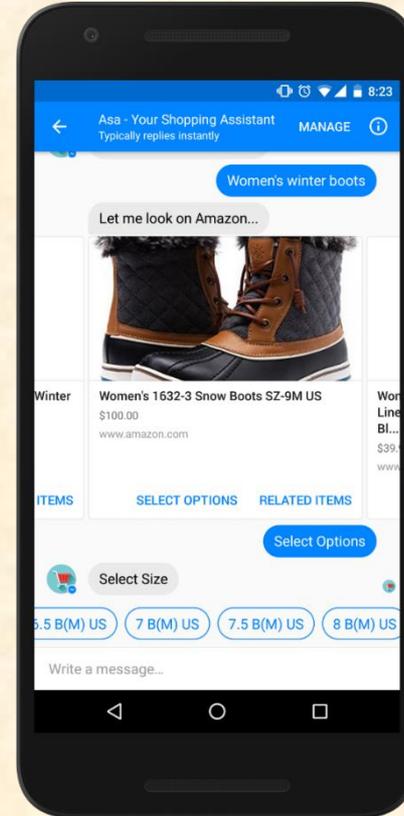
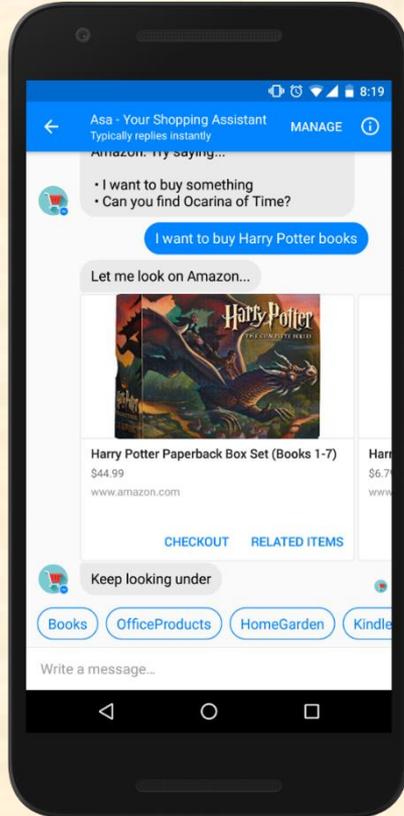


# Team Amazon Beta Presentation

# Team Amazon Beta Presentation

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## Purchasing Items



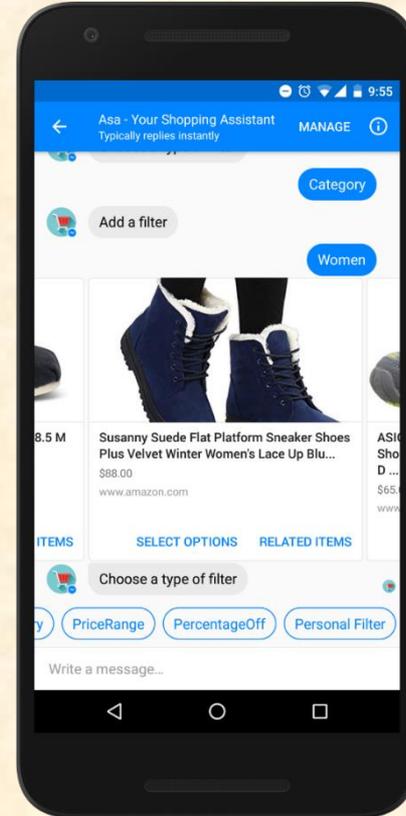
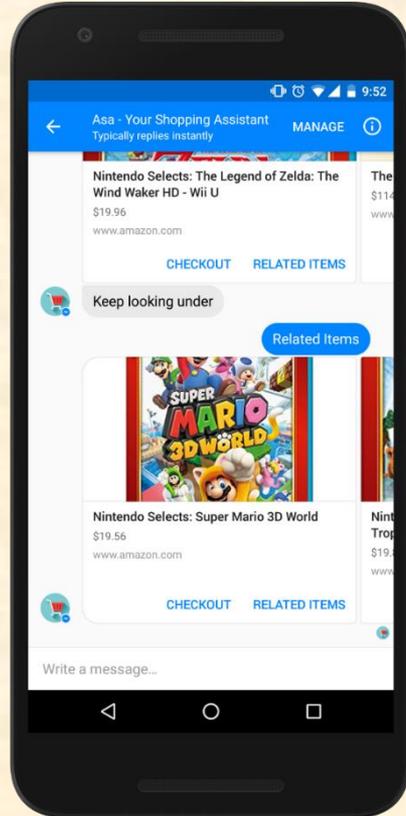
The Capstone Experience



# Team Amazon Beta Presentation

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## Related Items & Search Filtering



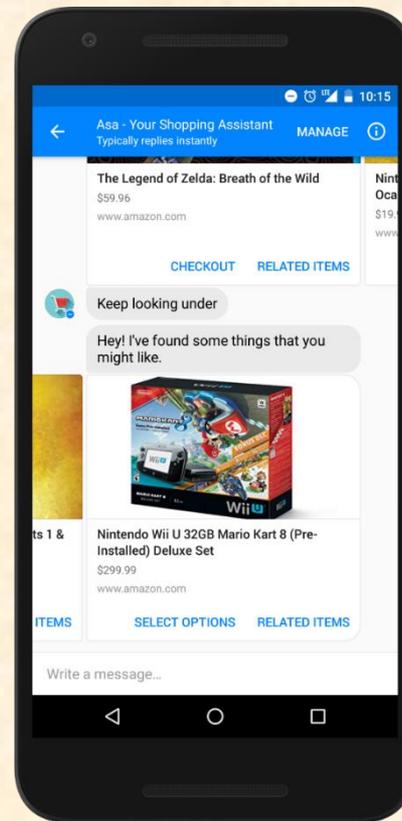
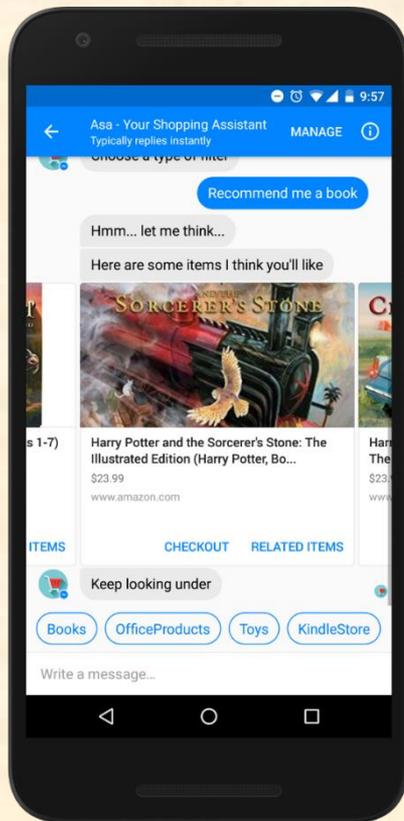


# Team Amazon Beta Presentation

# Team Amazon Beta Presentation

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## Recommendations & Suggestions





Team Amazon  
Design Day

MICHIGAN STATE  
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# *The Capstone Experience*

## Team Auto-Owners

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*

***Auto-Owners***

**INSURANCE**

**LIFE • HOME • CAR • BUSINESS**



Customer Center | Find a Career with Us

PRODUCTS ABOUT US CUSTOMER CLAIMS

Enter a Keyword 🔍

✓ FIND A LOCAL AGENCY



Enter a Zip Code

**FIND AN AGENT**

search by address

➤ CUSTOMER LOG IN

Highest in Customer Satisfaction

"Highest in Customer Satisfaction with the Auto Insurance Claims Experience according to J.D. Power\*\*"

Click for more information

LIFE



Life insurance, annuities, long term care and disability income protection are all products you will rely on many years into the future.

HOME



Regardless of which homeowners insurance fits your specific needs, Auto-Owners products are among the best in the industry.

CAR



"No Problem"<sup>®</sup> claims service with numerous claims offices serving our policyholders.

BUSINESS



We insure a variety of businesses, both large and small. Insurance is available to meet the specific needs of most businesses.

# Team Auto-Owners Project Overview

## Mobile Event App

- Functionalities
  - Provide Event Management Apps
  - For Associates, Agents and External Partners
  - Via Web and Mobile Apps
- Features
  - Provide Attendee Functionality
    - Build Personal Profile
    - Register for Events
    - Access Event Materials
    - Provide Feedback
    - View Newsfeeds
  - Support Administrative Functionality
    - Build, Edit and Update Events
    - Send Email and Text Messages
    - Build and Administer Event Surveys
    - Generate Reports
- Technologies
  - CSS / HTML / JavaScript / PHP
  - Apple iPads and iPhones (iOS) / Swift or Objective-C
  - Google Android Tablets and Phones / Java
  - Database Technologies (Microsoft SQL or MySQL)



Lansing, Michigan



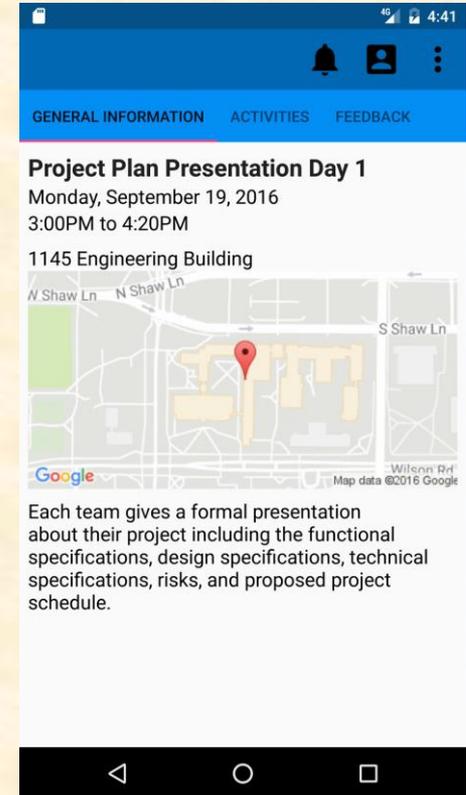
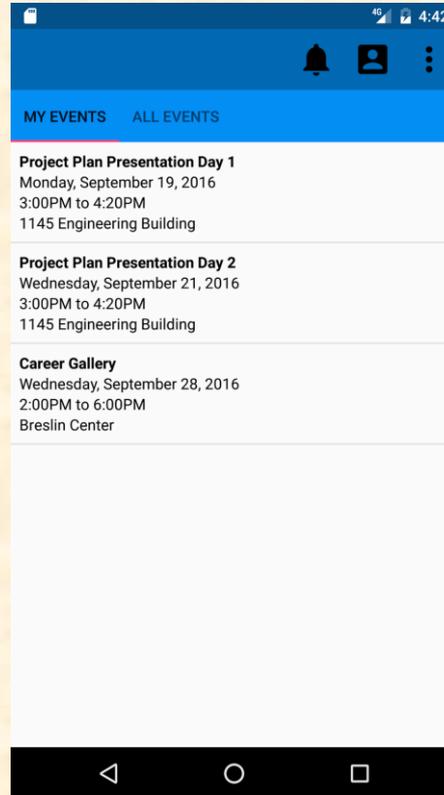
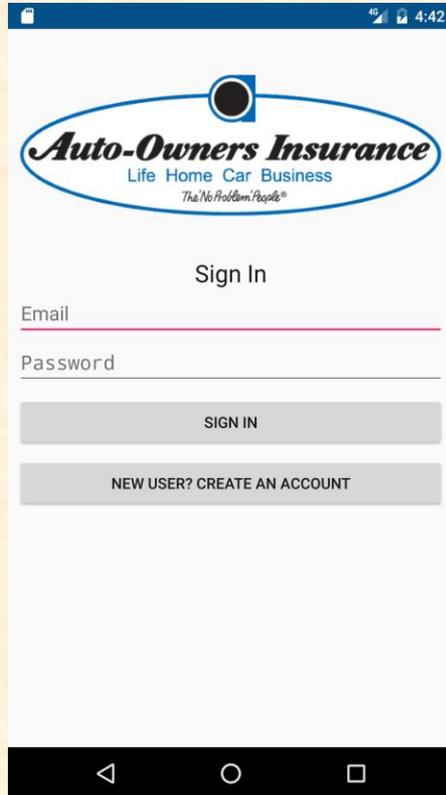
## Team Auto-Owners

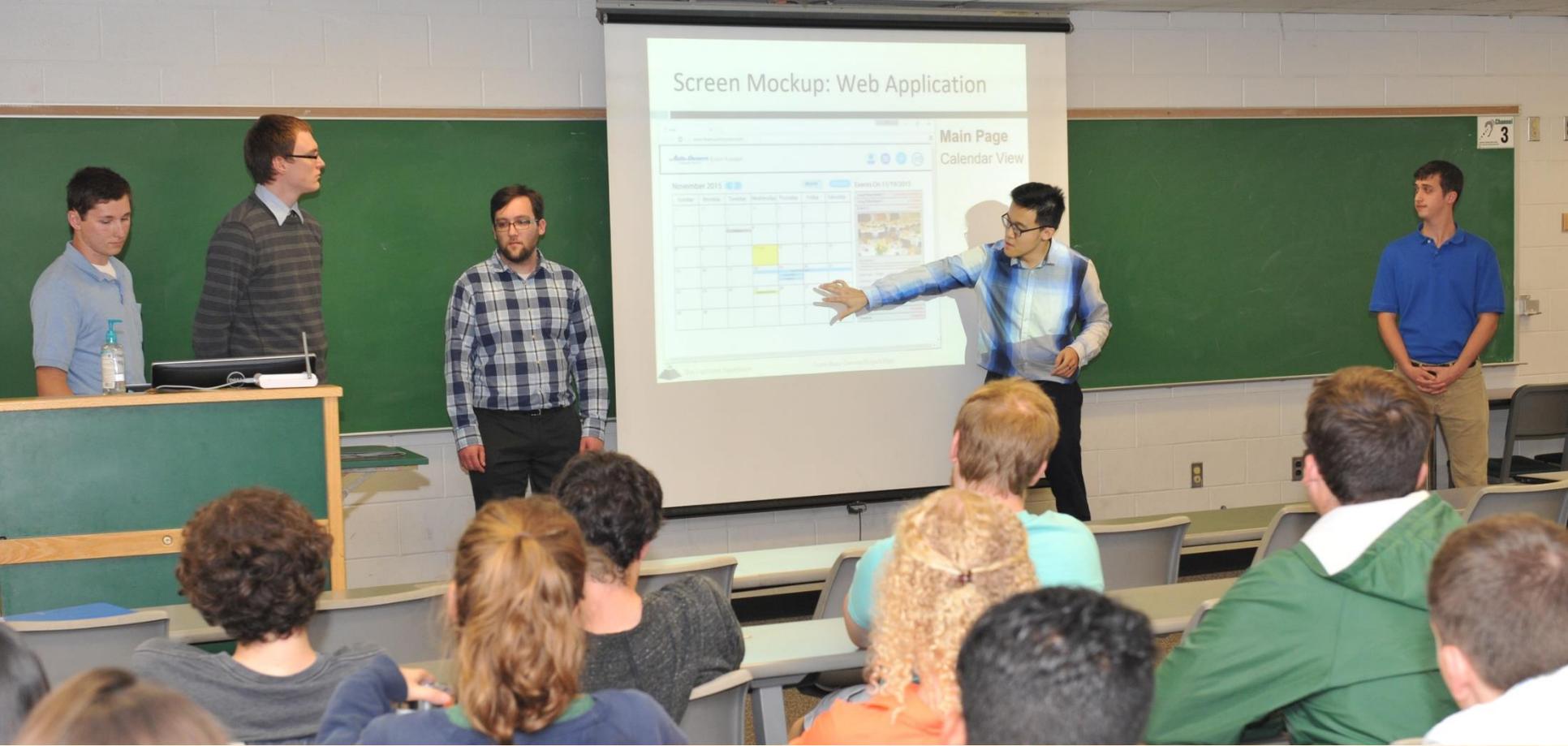
Allen Scheck, Tyler Smith, Matt Krease, Shen Li, Eddy Maxwell

# Team Auto-Owners Project Plan Presentation

e.

## Screen Mockups

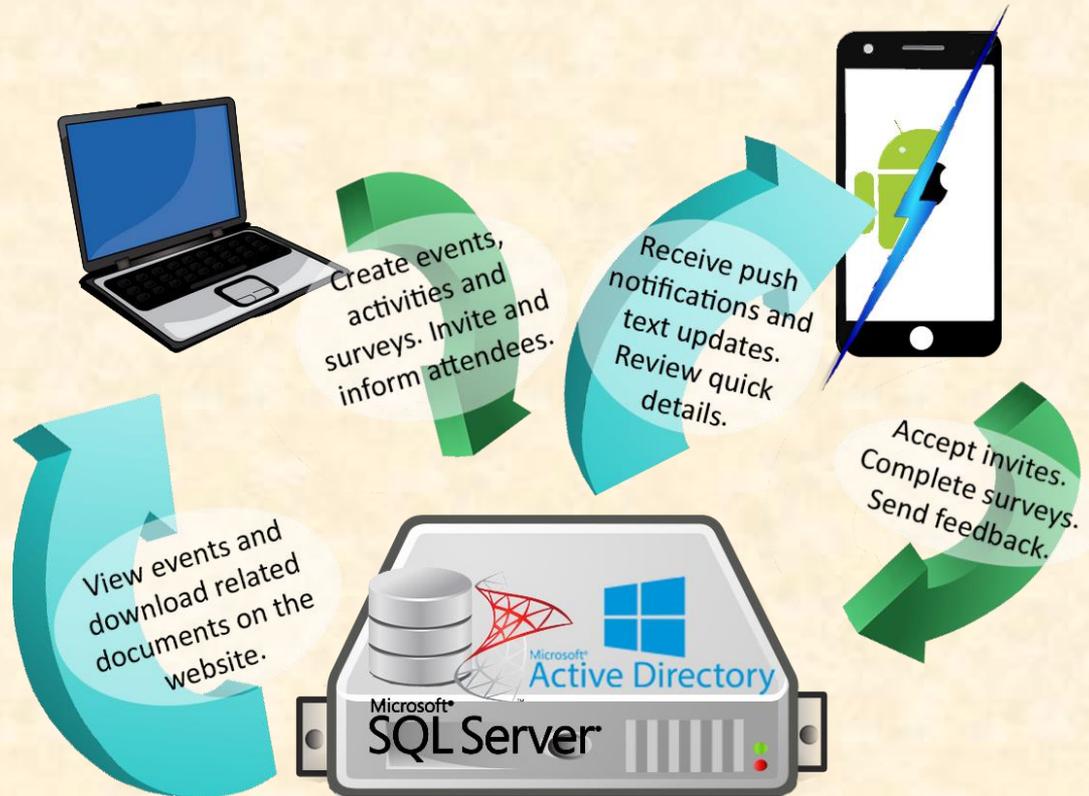




# Team Auto-Owners Project Plan Presentation

# Team Auto-Owners Project Plan Presentation

## Architecture Diagram





# Team Auto-Owners Project Plan Presentation

# Team Auto-Owners Project Plan Presentation

e.

Screen Mockup

The screenshot shows a web browser window displaying the 'Auto-Owners INSURANCE EVENT PLANNER' interface. The browser address bar shows 'www.teamauto-owner.com'. The page features a navigation bar with a logo and four icons: a person, a menu, a plus sign, and an envelope. Below the navigation bar, there is a calendar view for 'November 2015' with left and right navigation arrows. Two tabs, 'Month' and 'Agenda', are visible. The 'Month' tab is active, showing a list of events. The 'Agenda' tab is also visible, showing a detailed view for 'Event 2' on '11/19/2015'. The event details include a photo of a dining room, a description, start and end times, location, registration count, and an external link. A 'Register' button is prominently displayed at the bottom of the event details.

Event Name	Date
Long Time Event 1	11/18/2015
Long Title Event 1	11/19/2015
Event 2	11/20/2015
Event 3	11/21/2015
Event 4	11/22/2015
Long Time Event 2	11/23/2015-11/30/2015
Long Title Event 3	11/23/2015
Event 5	11/24/2015
Event 6	11/25/2015
Event 7	11/26/2015
	11/26/2015

**Event 2** 11/19/2015

**Discription:**  
Fusce a ornare purus. Quisjfreiejiosidj dsafdad fdsaf fdsadf sadf a at, djiitoidjkw,dfj wji f, ifjoiwj, dfhwioej,d sr fds afd sdf sadfsdf sadf ss sda.fsd,r,ds,ace,fwefw et,wa, fs,d ,sdf, sadf fdsafda fda fda ofsaf a...

Start Time: 10:00 End Time: 17:00  
Location: 1234 street st County ST 49294 [map](#)  
Registered: 16/80  
External Link: [www.thisisalink.com](http://www.thisisalink.com)

[Register](#)





# Team Auto-Owners Alpha Presentation

# Team Auto-Owners Alpha Presentation

e.

Website

The screenshot shows the Auto-Owners Insurance Event Planner interface. On the left, a sidebar titled "My Events" lists several events: Conference (10/11/2016 - 10/12/2016), Birthday (10/11/2016 - 10/12/2016), Travel (10/11/2016 - 10/12/2016), Music concert (10/11/2016 - 10/12/2016), and Meeting (10/11/2016 - 10/12/2016). Below this list are buttons for "Recent Attended" and "Next Week". The main area features a calendar for October 2016, with navigation tabs for "MONTH", "WEEK", "DAY", and "LIST". The calendar shows various events as colored bars across the days, including "All Day Ev...", "Long Event", "4p Repeating", "Conference", "+5 more", "7a Birthday P.", "4p Repeating", and "Click for Goo...".

UnderWriting Support: 1-800-238-2934 | Technical Support: 1-800-346-0346 x1850

The information gathered will be used for the sole purpose of providing an insurance rate proposal. Rates are subject to change based on company rate schedules and/or changes to any of the required rating information.

[Live Support](#)  
[Feedback & Comments](#)  
[Terms of Use and Private Policy](#)

**Auto-Owners**  
INSURANCE  
LIFE • HOME • CAR • BUSINESS

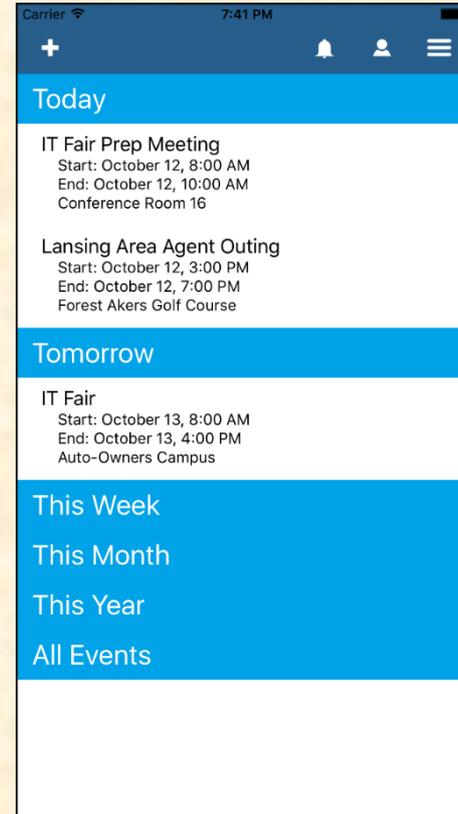
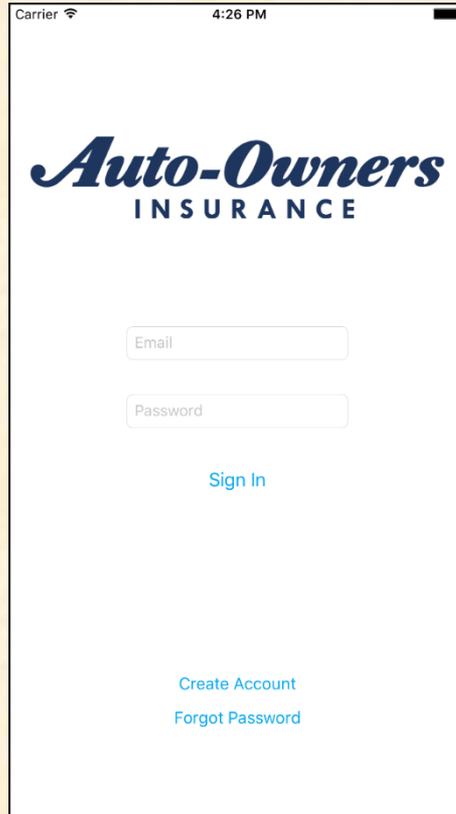
The Capstone Experience



# Team Auto-Owners Alpha Presentation

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iPhone/iPad App



The Capstone Experience



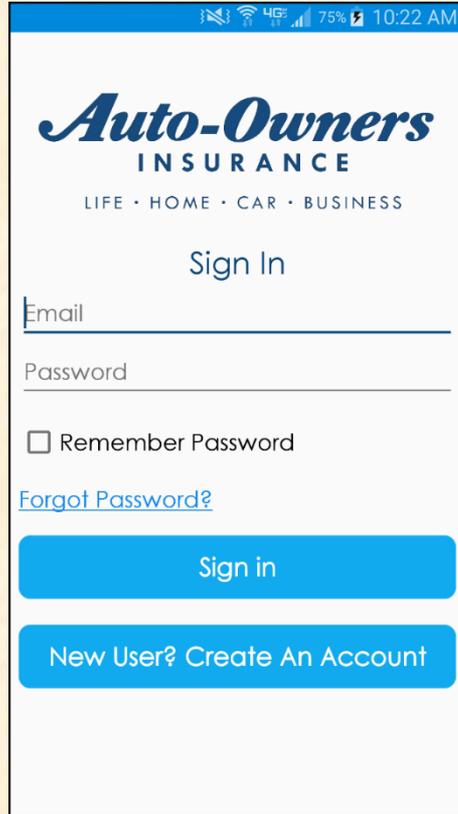


# Team Auto-Owners Alpha Presentation

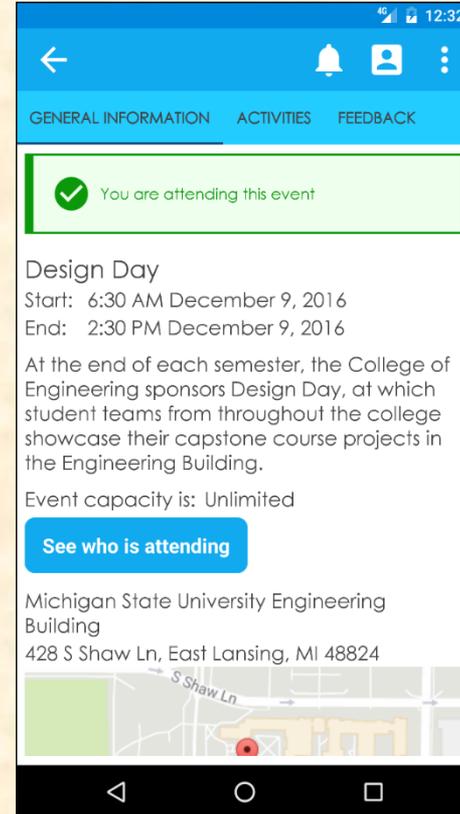
# Team Auto-Owners Alpha Presentation

e.

Android App



The screenshot shows the sign-in interface for the Auto-Owners Insurance app. At the top, the status bar displays signal strength, Wi-Fi, 4G LTE, 75% battery, and the time 10:22 AM. The app header features the "Auto-Owners INSURANCE" logo in a blue serif font, with "LIFE · HOME · CAR · BUSINESS" in a smaller sans-serif font below it. A "Sign In" button is centered. Below are input fields for "Email" and "Password". A checkbox labeled "Remember Password" is present, along with a blue link for "Forgot Password?". At the bottom, there are two large blue buttons: "Sign in" and "New User? Create An Account".



The screenshot shows the event details screen for "Design Day". The status bar at the top shows 4G LTE, battery, and the time 12:32. A blue navigation bar contains a back arrow, a notification bell, a profile icon, and a menu icon. Below the navigation bar are three tabs: "GENERAL INFORMATION", "ACTIVITIES", and "FEEDBACK". A green banner with a checkmark icon and the text "You are attending this event" is displayed. The event title "Design Day" is followed by the start and end times: "Start: 6:30 AM December 9, 2016" and "End: 2:30 PM December 9, 2016". A paragraph of text describes the event: "At the end of each semester, the College of Engineering sponsors Design Day, at which student teams from throughout the college showcase their capstone course projects in the Engineering Building." Below this, it states "Event capacity is: Unlimited" and a blue button labeled "See who is attending". The location is listed as "Michigan State University Engineering Building" and "428 S Shaw Ln, East Lansing, MI 48824". A map snippet at the bottom shows the location on "S Shaw Ln". The Android navigation bar is visible at the very bottom.

The Capstone Experience



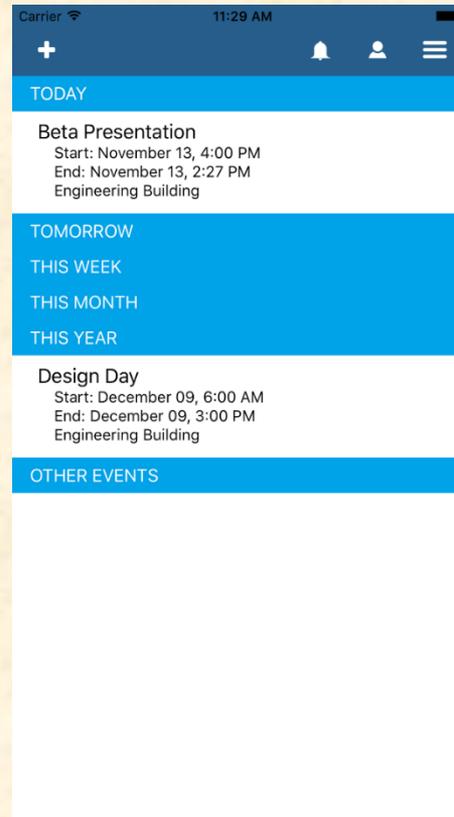
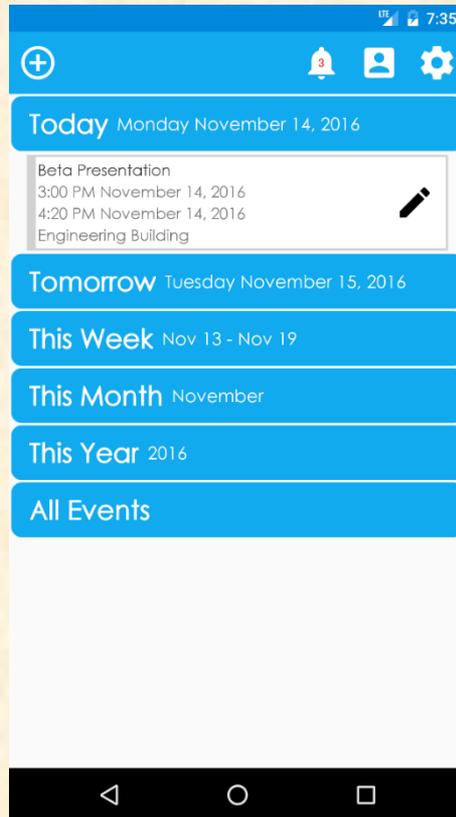


## Team Auto-Owners Beta Presentation

# Team Auto-Owners Beta Presentation

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## Mobile Application Events View



# Team Auto-Owners Beta Presentation

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## Website Calendar View

**Auto-Owners**  
INSURANCE

Home User Notifications +

**My Events**

- Design Day  
12/9/2016 - 12/9/2016
- Testing  
01/1/2017 - 10/26/2016
- Testing  
01/1/2017 - 10/26/2016
- Testing  
01/1/2017 - 10/26/2016

**Recent Attended**

November 2016

MONTH WEEK DAY LIST

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31 3p Test 5	1	2	3	4	
6	7	8	9	10	11 6a Design Day	
13	14	15	16	17	18	
20	21	22	23	24	25	
27	28	29	30	1	2	
4	5	6	7	8	9	

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**Auto-Owners**  
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# Team Auto-Owners Beta Presentation

# Team Auto-Owners Beta Presentation

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## Website Survey Creation

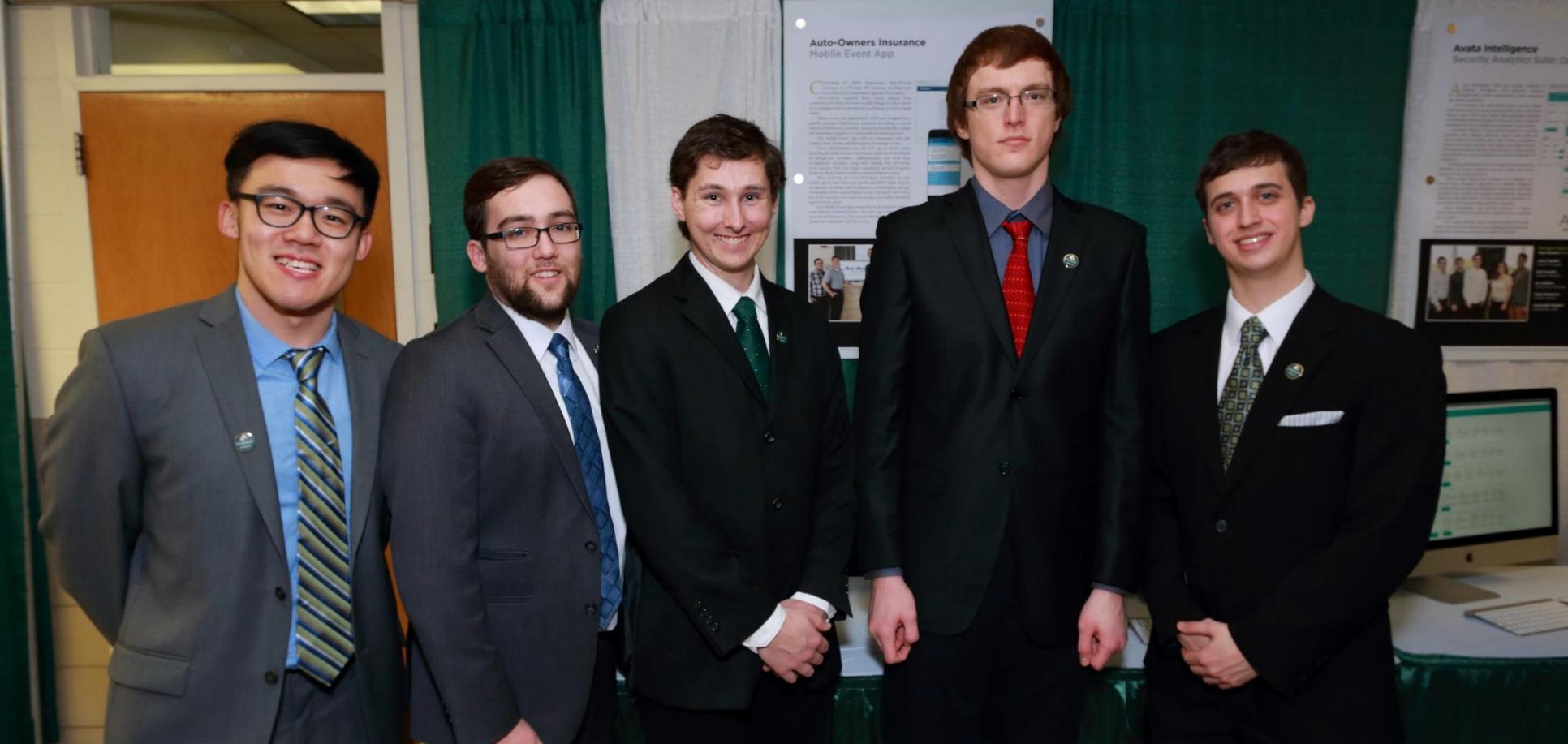
The screenshot displays the 'Survey Creation' interface within the 'Administrator Panel' of the Auto-Owners Insurance website. The page features a dark blue header with the company logo and navigation icons. Below the header, the 'Administrator Panel' includes links for 'Events', 'Add Event', 'Send Notification', and 'Survey'. The main content area is titled 'Survey Creation' and contains three question forms:

- Q1:** Title: 'WHAT IS YOUR GENDER'. Type: RadioGroup. Choices: 'MALE' and 'FEMALE'. Includes an 'ADD CHOICE' button.
- Q2:** Title: 'DO YOU LIKE OUR EVENT, WHY OR WHY NOT?'. Type: Text.
- Q3:** Title: 'PLEASE RATE OUR EVENT(6 WILL BE THE BEST)'. Type: Rate. Includes a star rating slider and an 'ADD QUESTION' button.

At the bottom of the page, there are links for 'Live Support', 'Feedback & Comments', and 'Terms of Use and Private Policy'. The footer features the Auto-Owners Insurance logo and the text 'LIFE • HOME • CAR • BUSINESS'.

The Capstone Experience





Team Auto-Owners  
Design Day

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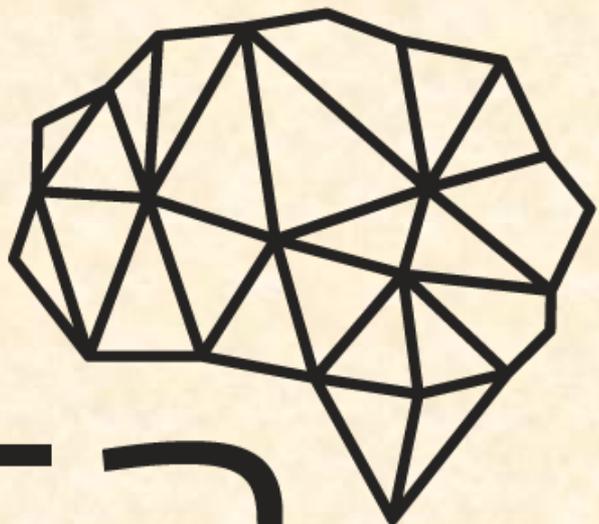
# *The Capstone Experience*

Team Avata

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016

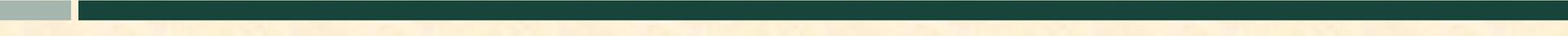


*From Students...  
...to Professionals*



Avata

INTELLIGENCE





# Advance Your Tomorrow with Data-Driven AI

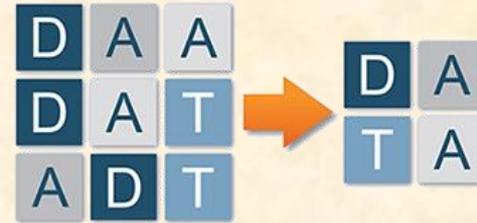
Avata Intelligence's solutions show organizations exactly when, where, and how to minimize risk, allocate

# Team Avata

## Project Overview

### Security Analytics Suite: Dataset Merger Tool

- Functionalities
  - Automatically Find and Merge Duplicate Records
  - Within and Across Security Datasets
- Features
  - Design and Implement Dataset Matching Algorithm
  - Allow Users Approval or Disapproval
  - Present Results Graphically and Textually
  - Build User Interface In ReactJS
  - Handle
    - Various Data Sources and Schema
    - Very Large Datasets
- Technologies
  - JavaScript / React JS
  - Java 8 / Spring Boot Framework / Hibernate Framework
  - SQL Server
  - Dataset Matching Algorithms
    - String Matching
    - Complex Error Code Matching
    - Lucene
    - Elastic Search





## Team Avata

Jonny Dowdall, Matt Scheffler, Zach Wellmer, Paige Henderson, Aasir Walajahi

# Team Avata Project Plan Presentation

## Screen Mockup

Reports

← → × 🏠 🔍

Merged Records | Records In Review | Analysis

🔍

Sort By | Sort Key 1 | Sort Key 2 | Sort Key 3

**Un-Merge**

Data Source	Field 1	Field 2	Field 3
Data Source 1	a	b	c
Data Source 5	e	f	g
Data Source 2	i	j	k

**Un-Merge**

Data Source	Field 1	Field 2	Field 3
Data Source 1	a	b	c
Data Source 1	e	f	g

**Un-Merge**

Data Source	Field 1	Field 2	Field 3
Data Source 1	a	b	c
Data Source 6	e	f	g

**Un-Merge**

Data Source	Field 1	Field 2	Field 3
Data Source 6	a	b	c
Data Source 5	e	f	g
Data Source 4	i	j	k

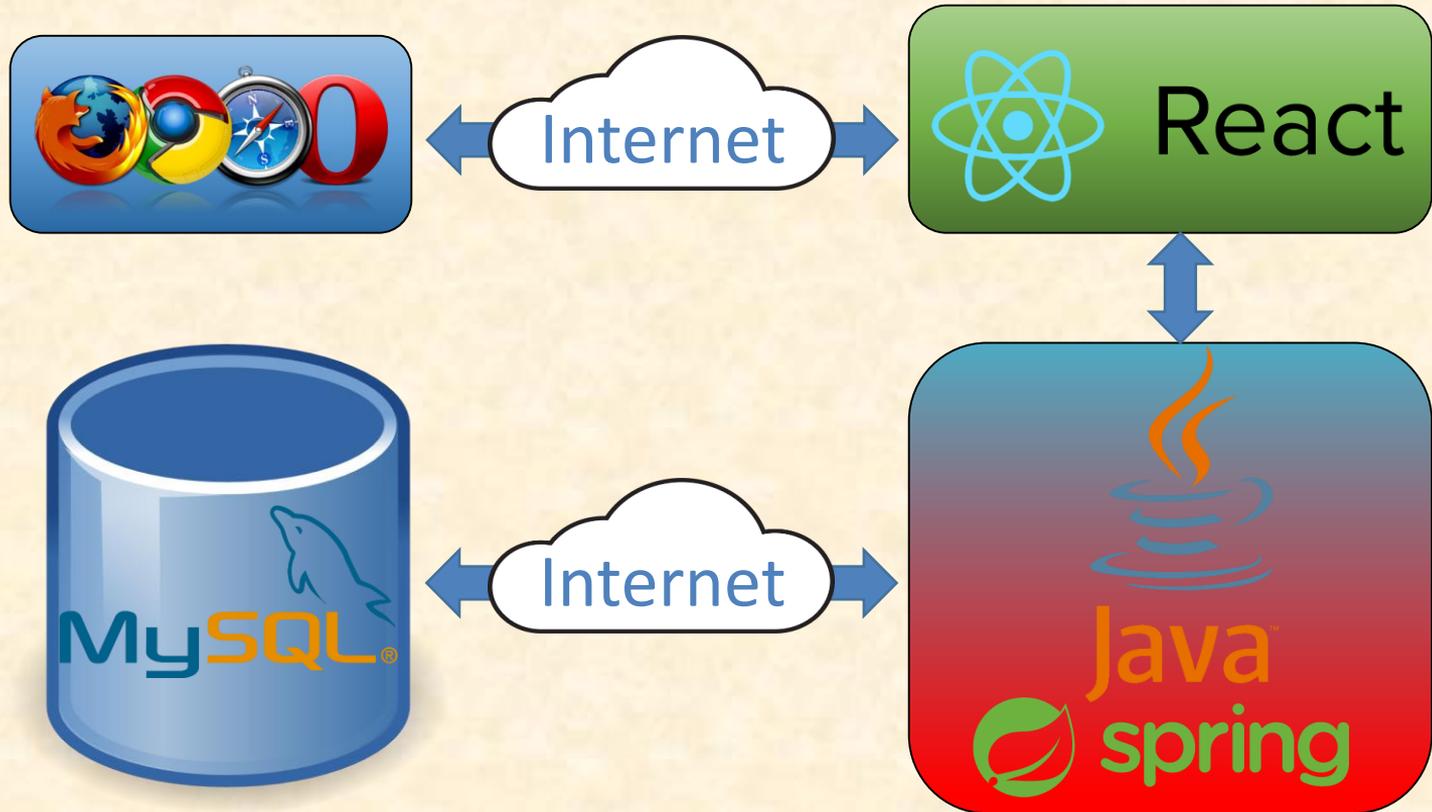




# Team Avata Project Plan Presentation

# Team Avata Project Plan Presentation

## Architecture Diagram





Team Avata  
Project Plan Presentation

# Team Avata Project Plan Presentation

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Screen Mockup



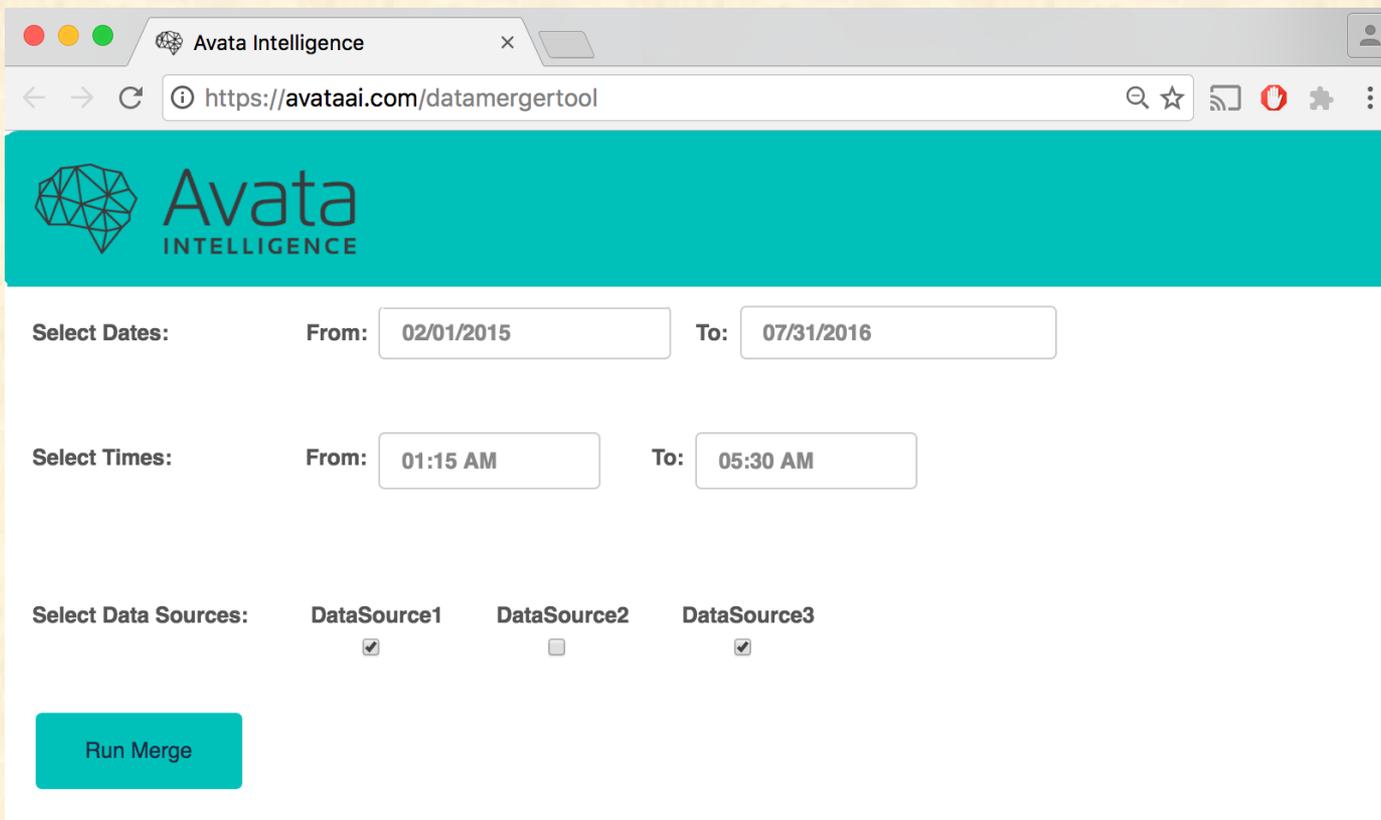


# Team Avata Alpha Presentation

# Team Avata Alpha Presentation

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Landing Page



The screenshot shows a web browser window with the address bar displaying "https://avataai.com/datamergertool". The page header features the Avata Intelligence logo on a teal background. Below the header, the interface is divided into three sections for configuration:

- Select Dates:** Includes "From:" and "To:" fields with input values "02/01/2015" and "07/31/2016" respectively.
- Select Times:** Includes "From:" and "To:" fields with input values "01:15 AM" and "05:30 AM" respectively.
- Select Data Sources:** Lists three data sources: "DataSource1" (checked), "DataSource2" (unchecked), and "DataSource3" (checked).

A teal "Run Merge" button is located at the bottom left of the configuration area.

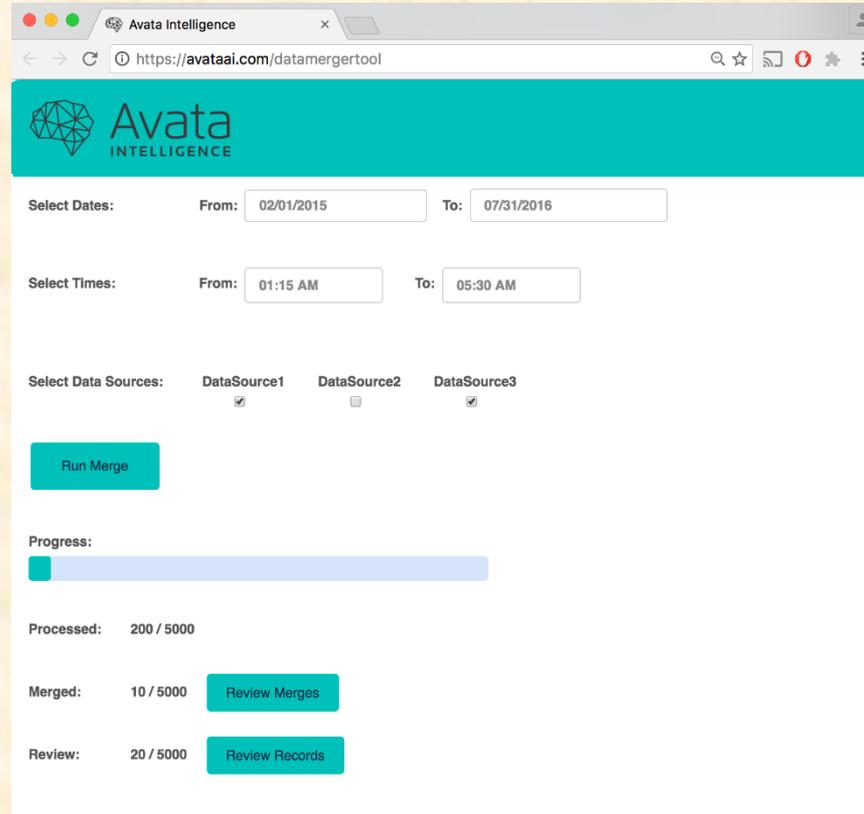
The Capstone Experience



# Team Avata Alpha Presentation

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## Merge Progress



The screenshot shows a web browser window with the Avata Intelligence logo and the URL `https://avataai.com/datamergertool`. The interface includes several configuration sections:

- Select Dates:** From: 02/01/2015, To: 07/31/2016
- Select Times:** From: 01:15 AM, To: 05:30 AM
- Select Data Sources:** DataSource1 (checked), DataSource2 (unchecked), DataSource3 (checked)

A teal **Run Merge** button is located below the configuration options. Below the button, a **Progress:** section features a horizontal progress bar that is approximately 20% full. Below the progress bar, the status is shown as **Processed: 200 / 5000**. At the bottom, there are two rows of status and action items:

- Merged: 10 / 5000** with a **Review Merges** button.
- Review: 20 / 5000** with a **Review Records** button.

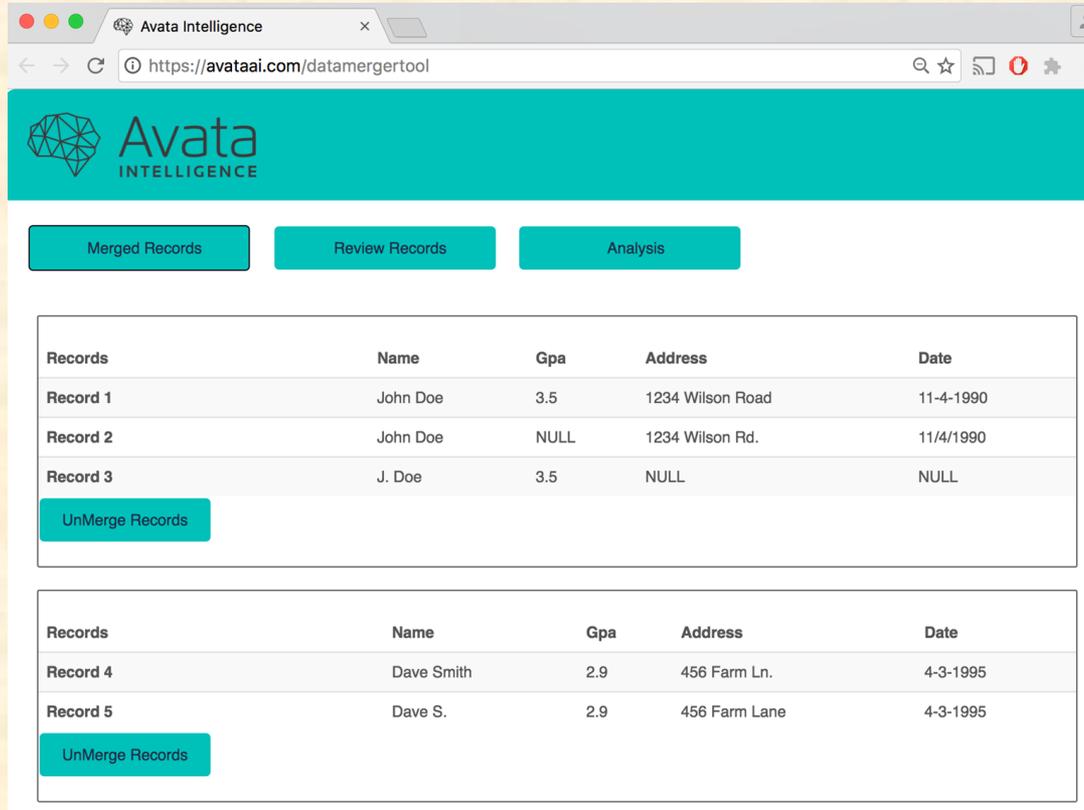




Team Avata  
Alpha Presentation

# Team Avata Alpha Presentation

## Merged Records



The screenshot shows a web browser window with the URL <https://avataai.com/datamergertool>. The page features the Avata Intelligence logo and three navigation buttons: "Merged Records", "Review Records", and "Analysis". Below the navigation is a table of merged records with columns for "Records", "Name", "Gpa", "Address", and "Date". There are two tables shown, each with an "UnMerge Records" button below it.

Records	Name	Gpa	Address	Date
Record 1	John Doe	3.5	1234 Wilson Road	11-4-1990
Record 2	John Doe	NULL	1234 Wilson Rd.	11/4/1990
Record 3	J. Doe	3.5	NULL	NULL

UnMerge Records

Records	Name	Gpa	Address	Date
Record 4	Dave Smith	2.9	456 Farm Ln.	4-3-1995
Record 5	Dave S.	2.9	456 Farm Lane	4-3-1995

UnMerge Records



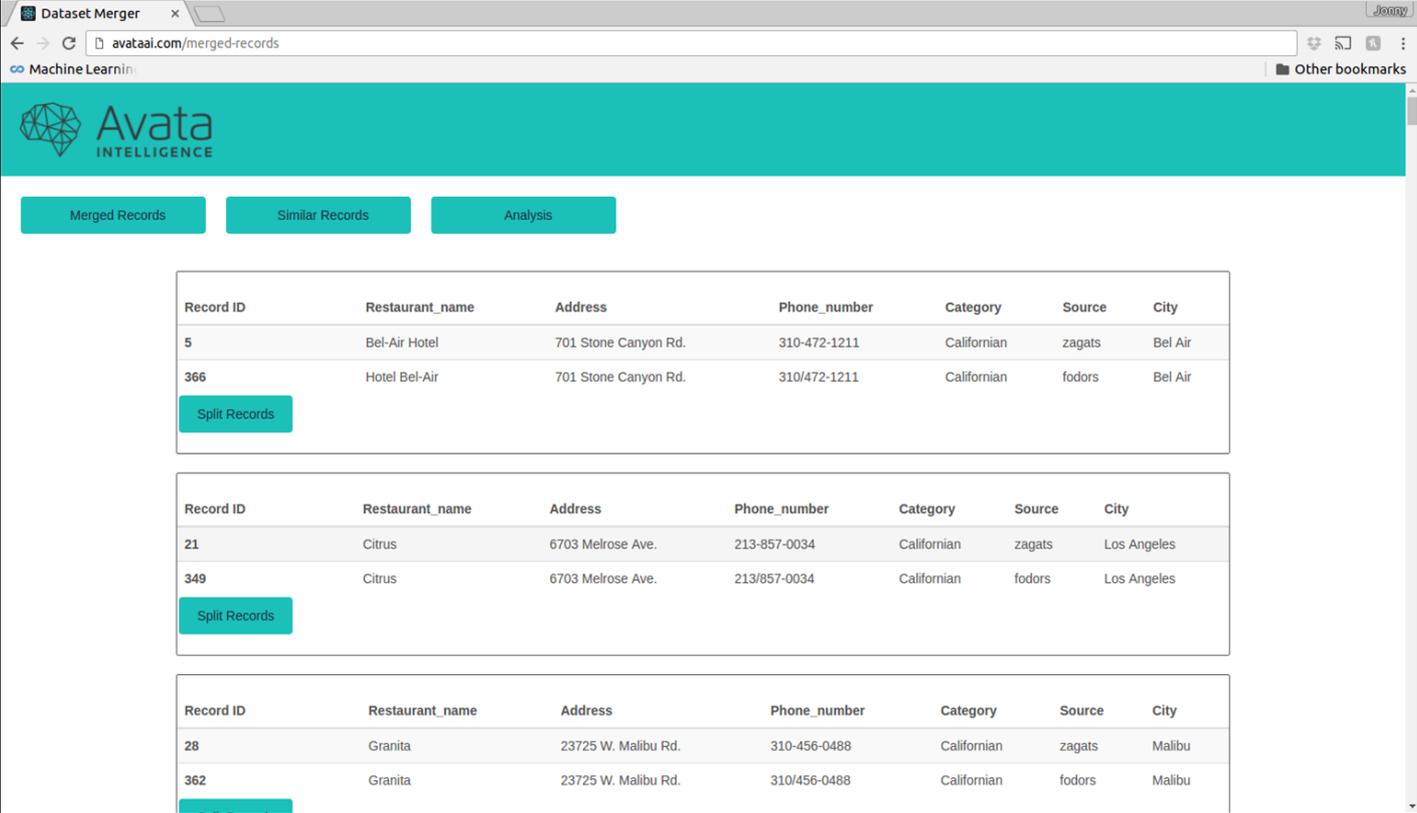


# Team Avata Beta Presentation

# Team Avata Beta Presentation

e.

## Merged Records Page



The screenshot shows a web browser window with the URL `avataai.com/merged-records`. The page features the Avata Intelligence logo and three navigation buttons: "Merged Records", "Similar Records", and "Analysis". The "Merged Records" button is active. Below the navigation, there are three tables of merged records, each with a "Split Records" button below it.

Record ID	Restaurant_name	Address	Phone_number	Category	Source	City
5	Bel-Air Hotel	701 Stone Canyon Rd.	310-472-1211	Californian	zagats	Bel Air
366	Hotel Bel-Air	701 Stone Canyon Rd.	310/472-1211	Californian	fodors	Bel Air

Split Records

Record ID	Restaurant_name	Address	Phone_number	Category	Source	City
21	Citrus	6703 Melrose Ave.	213-857-0034	Californian	zagats	Los Angeles
349	Citrus	6703 Melrose Ave.	213/857-0034	Californian	fodors	Los Angeles

Split Records

Record ID	Restaurant_name	Address	Phone_number	Category	Source	City
28	Granita	23725 W. Malibu Rd.	310-456-0488	Californian	zagats	Malibu
362	Granita	23725 W. Malibu Rd.	310/456-0488	Californian	fodors	Malibu



# Team Avata Beta Presentation

e.

## Similar Records Page

The screenshot shows a web browser window with the URL `avataai.com/similar-records`. The page header features the Avata Intelligence logo and three navigation buttons: 'Merged Records', 'Similar Records', and 'Analysis'. The main content area displays three tables of restaurant records, each with a pair of similar entries and two action buttons: 'Do Not Merge' and 'Merge Records'.

Record ID	Restaurant_name	Address	Phone_number	Category	Source	City
1	Arnie Morton's of Chicago	435 S. La Cienega Blvd.	310-246-1501	Steakhouses	zagats	Los Angeles
331	Arnie Morton's of Chicago	435 S. La Cienega Blvd.	310/246-1501	American	fodors	Los Angeles

Record ID	Restaurant_name	Address	Phone_number	Category	Source	City
2	Art's Deli	12224 Ventura Blvd.	818-762-1221	Delis	zagats	Studio City
332	Art's Delicatessen	12224 Ventura Blvd.	818/762-1221	American	fodors	Studio City

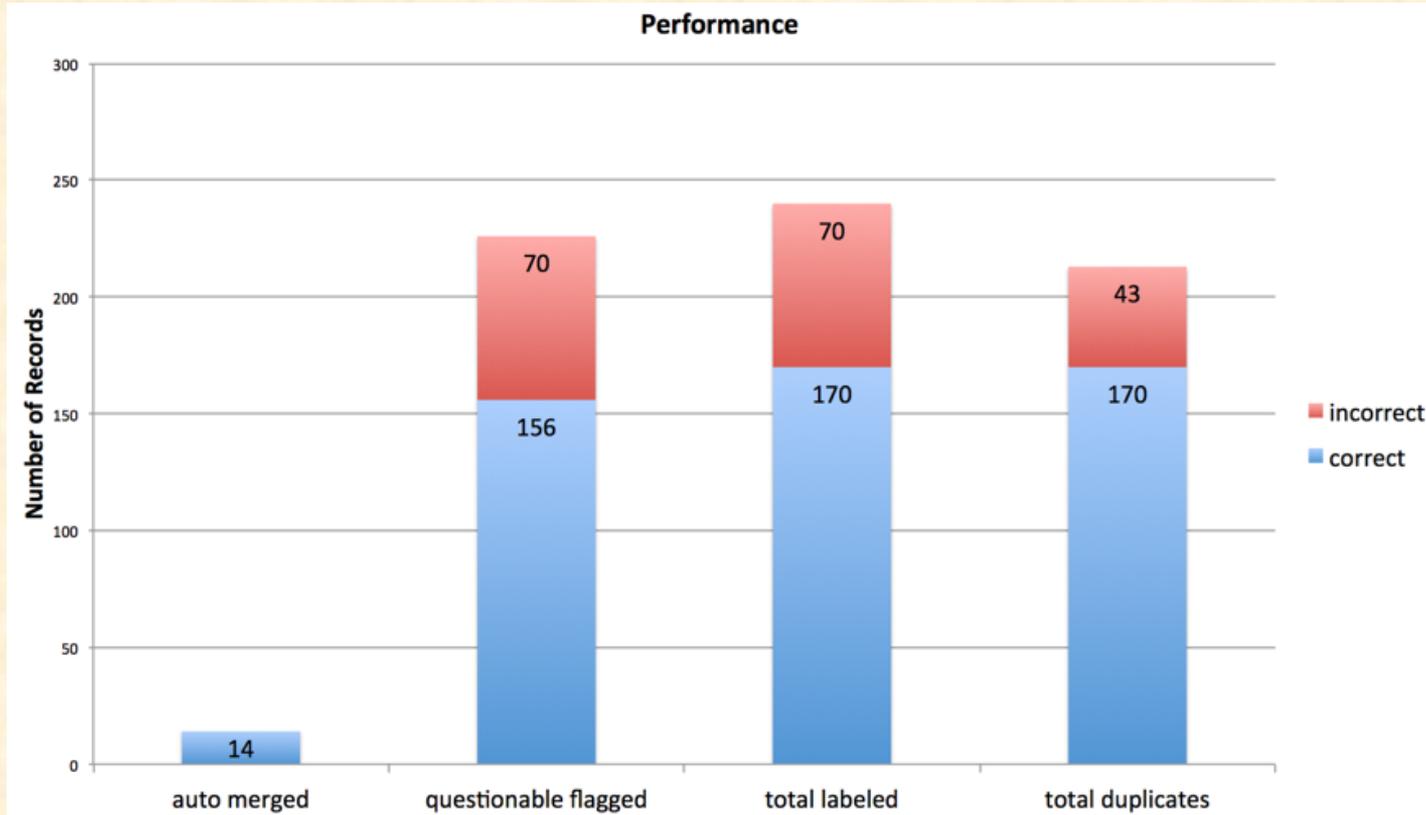
Record ID	Restaurant_name	Address	Phone_number	Category	Source	City
6	Belvedere The	9882 Little Santa Monica Blvd.	310-788-2306	Pacific New Wave	zagats	Beverly Hills
16	Cafe Blanc	9777 Little Santa Monica Blvd.	310-888-0108	Pacific New Wave	zagats	Beverly Hills



# Team Avata Beta Presentation

# Team Avata Beta Presentation

## Results





Team Avata  
Design Day

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# *The Capstone Experience*

Team Ford

Department of Computer Science and Engineering  
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# Team Ford Project Overview

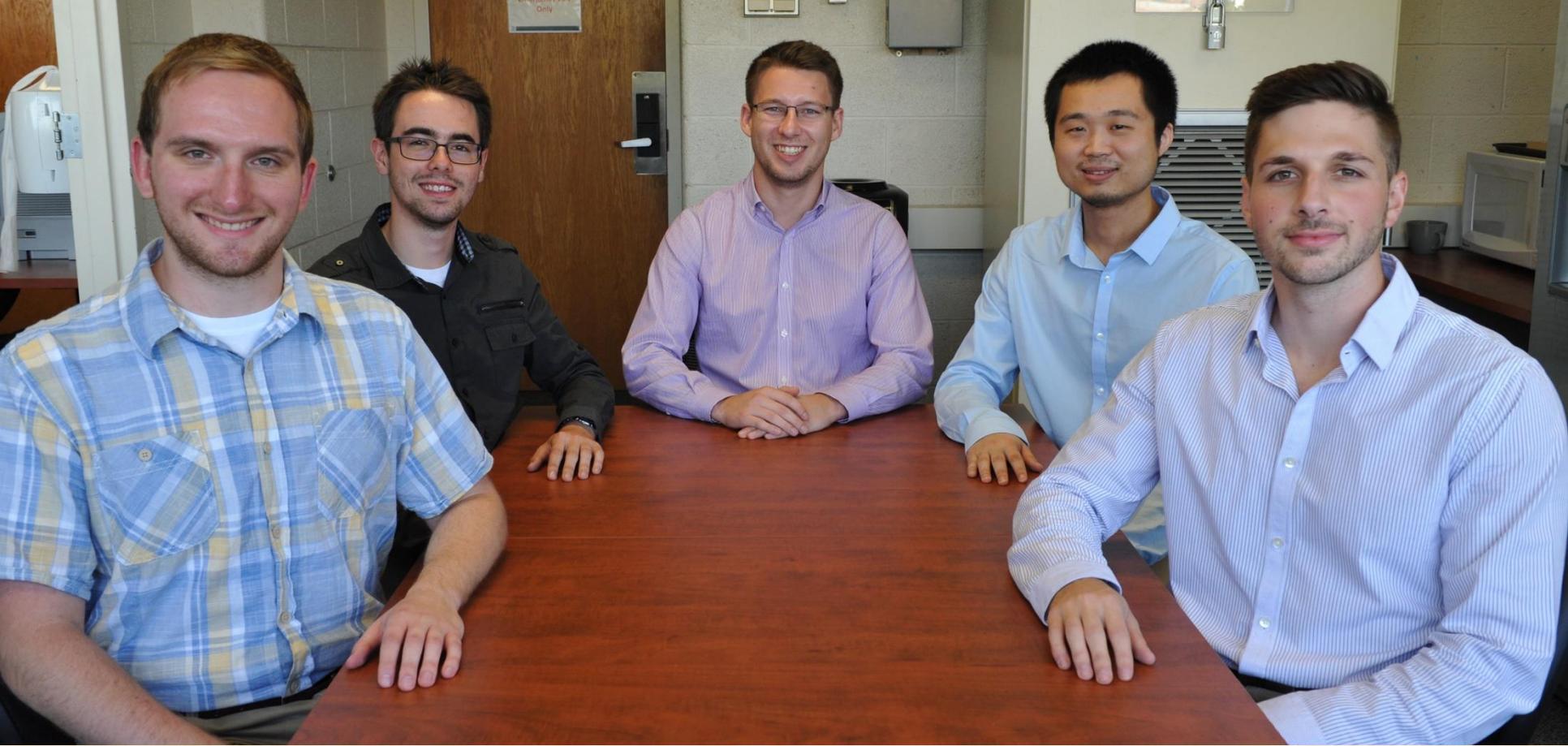
## Sync Calendar

- Functionalities
  - Provide In-Car Calendaring and To-Do Lists
  - That Integrates with Popular Services
  - By Leveraging Ford Sync AppLink
- Features
  - Provide Native Apps for Apple iOS and Google Android
  - Support Popular Calendaring and Task Software
    - Microsoft Exchange / Outlook
    - Google Calendar / Tasks
  - Handle Voice-Enabled Input
    - Read Remaining Events for Today
    - Add Calendar Event
    - Mark Task Complete
    - Etc.
  - Support Advanced Use Cases
    - Add Automatic Reminder to Refuel
    - Schedule Oil Change
    - Disable Manual Input When Vehicle In Motion
    - Etc.
- Technologies
  - Ford Sync 3 AppLink Emulator
  - Apple iPads and iPhones (iOS) / Swift or Objective-C
  - Google Android Tablets and Phones / Java
  - Microsoft SQL Server 2012



Dearborn, Michigan



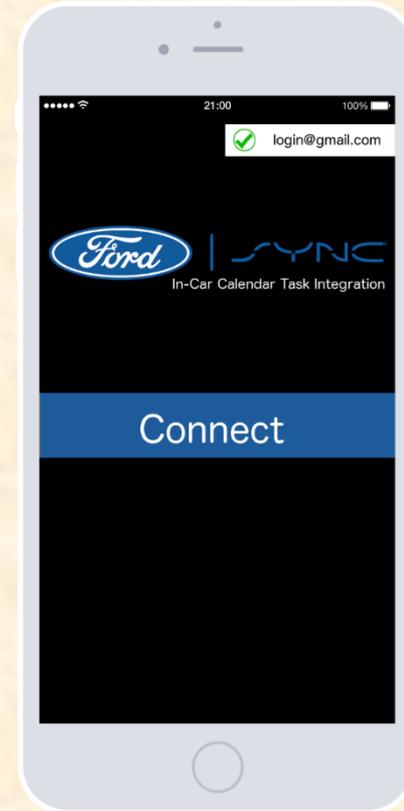
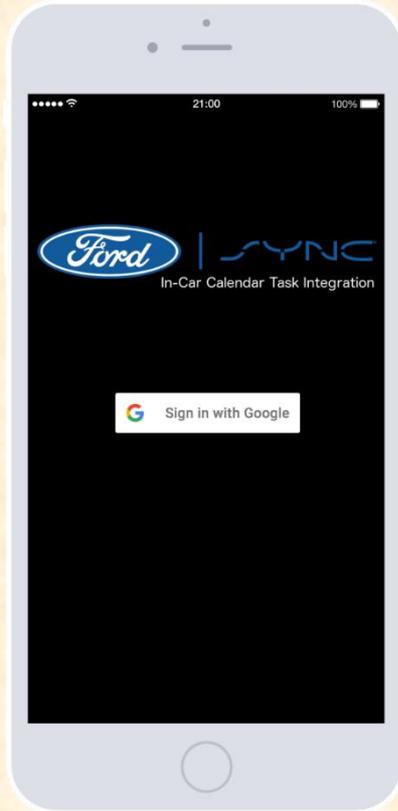


## Team Ford

Eric Pressey, Brett Durlock, Cam Rooks, Avery Yue, Jack Zaidel

# Team Ford Project Plan Presentation

## Screen Mockups





# Team Ford Project Plan Presentation

# Team Ford Project Plan Presentation

## Architecture Diagram



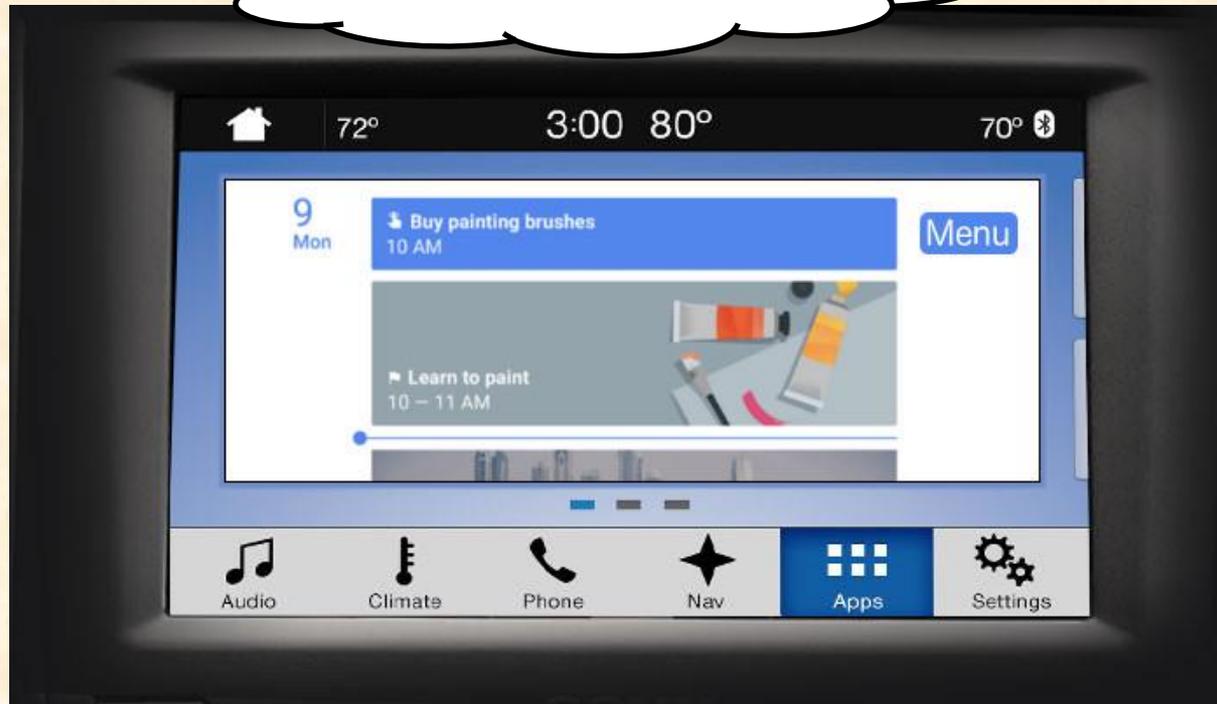


# Team Ford Project Plan Presentation

e.

Screen Mockup

“Show todays calendar”





# Team Ford Alpha Presentation

# Team Ford Alpha Presentation

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SYNC Calendar: Vehicle Screen

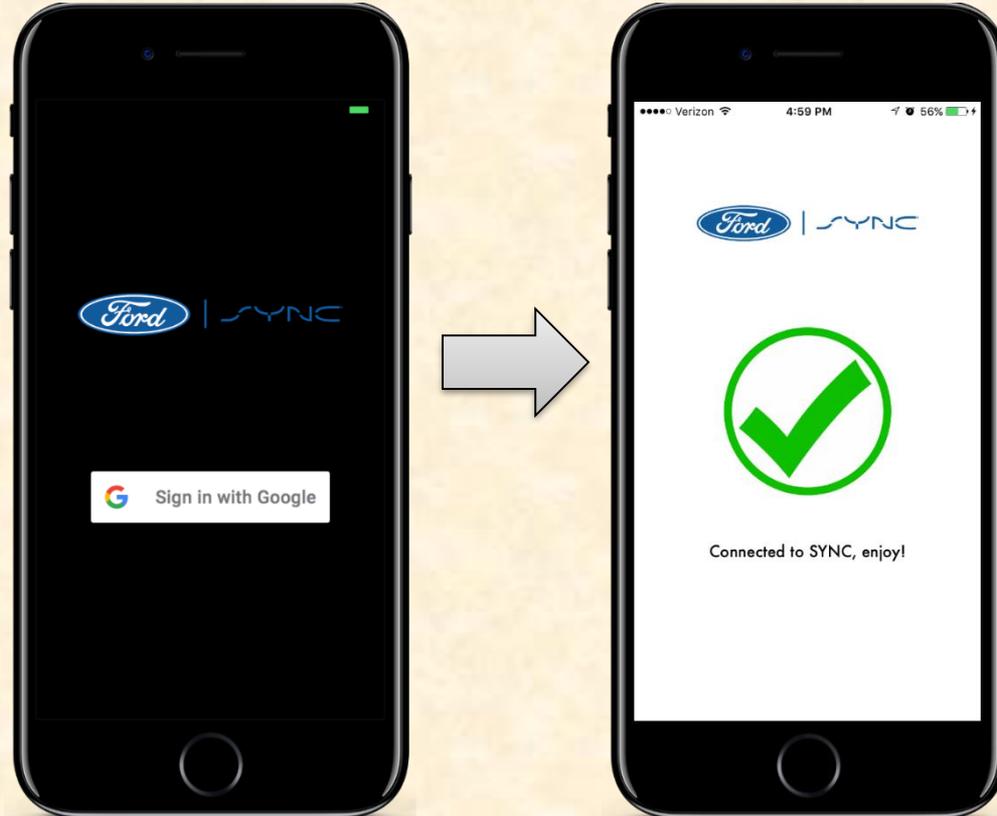


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# Team Ford Alpha Presentation

## SYNC Calendar – Phone Screen





Team Ford  
Alpha Presentation

# Team Ford Alpha Presentation

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## Administrative Web Portal

Search...

Dashboard

Charts

Tables

### Sync Calendar Admin Page

#### Dashboard

##### Most popular commands

Command	Command Count
Read Appointments	9
Read Calendar	3
Read Tasks	4

##### All Command Information

Command	ccount	vin	rpm	speed	lat	long	date
Read Appointments	1	18594568349523568	50	25	42.8754849	-85.4654223	
Read Appointments	2	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Appointments	3	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Appointments	4	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Tasks	1	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Tasks	2	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Tasks	3	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Tasks	4	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Calendar	1	18594568349523568	45	25	42.875151239	-85.465412341234	
Read Calendar	2	18594568349523568	45	25	42.875151239	-85.465412341234	

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# Team Ford Beta Presentation

# Team Ford Beta Presentation

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SYNC 3 – Vehicle Screen



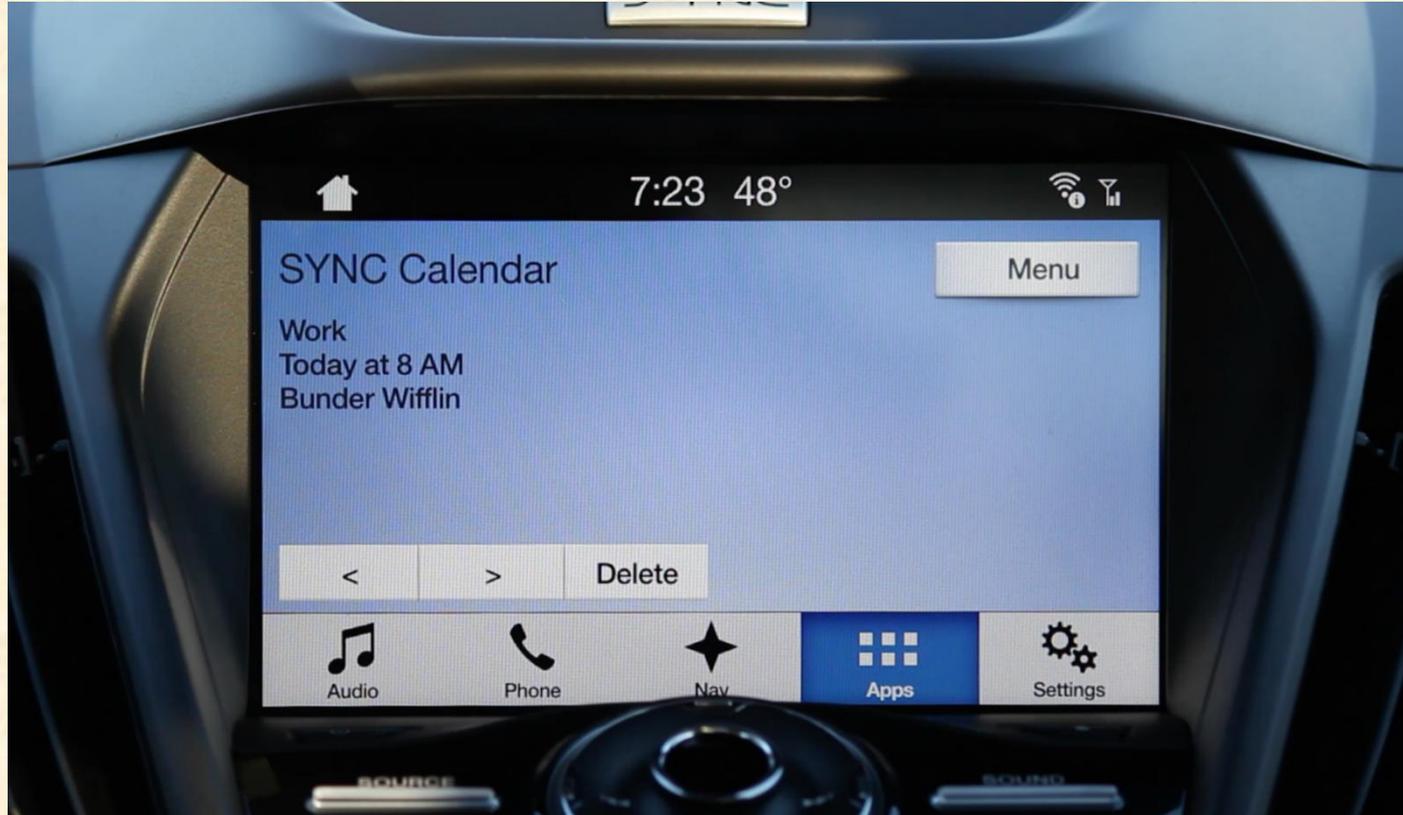
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SYNC 3 – Pulled Events Page



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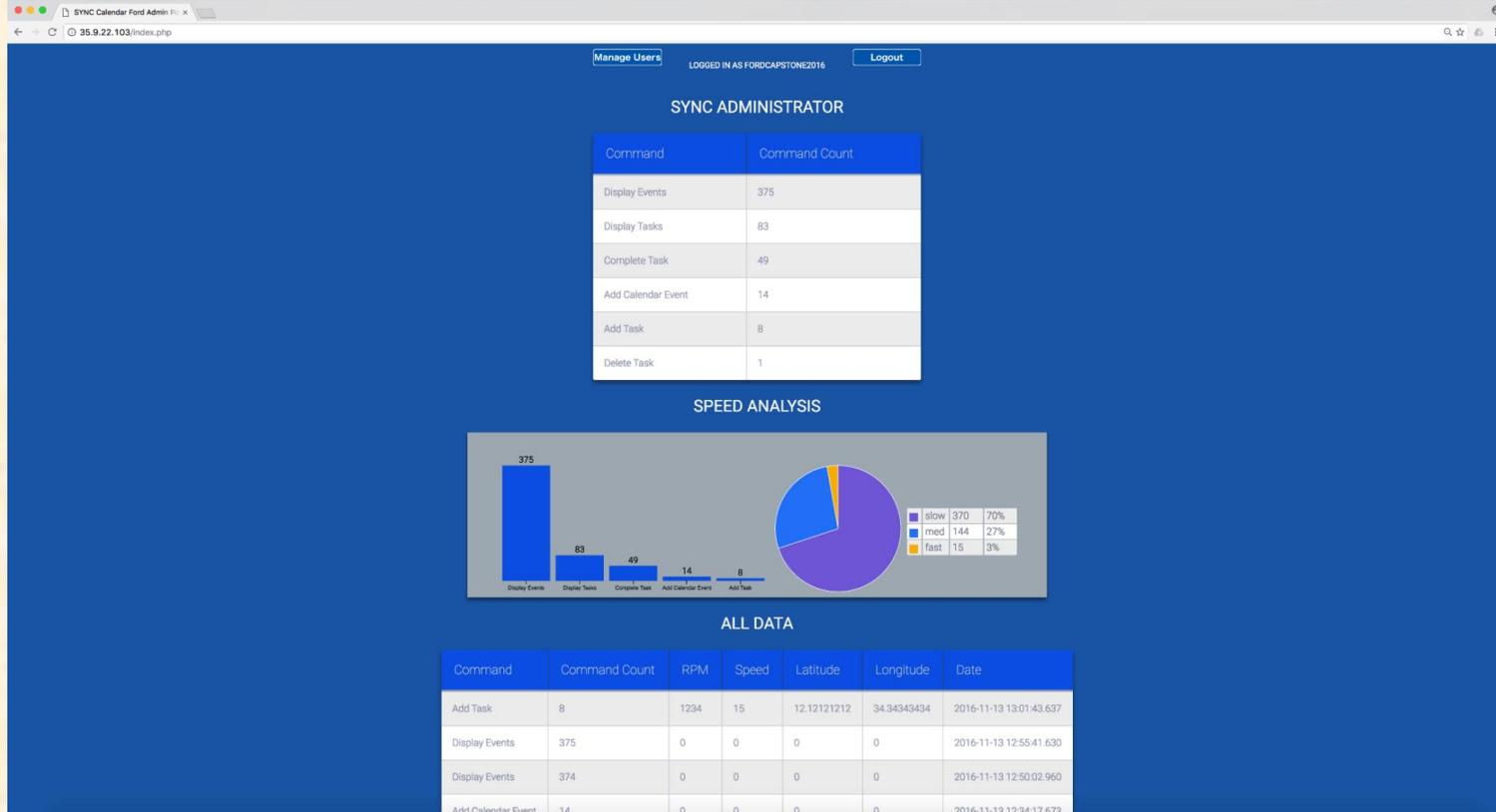


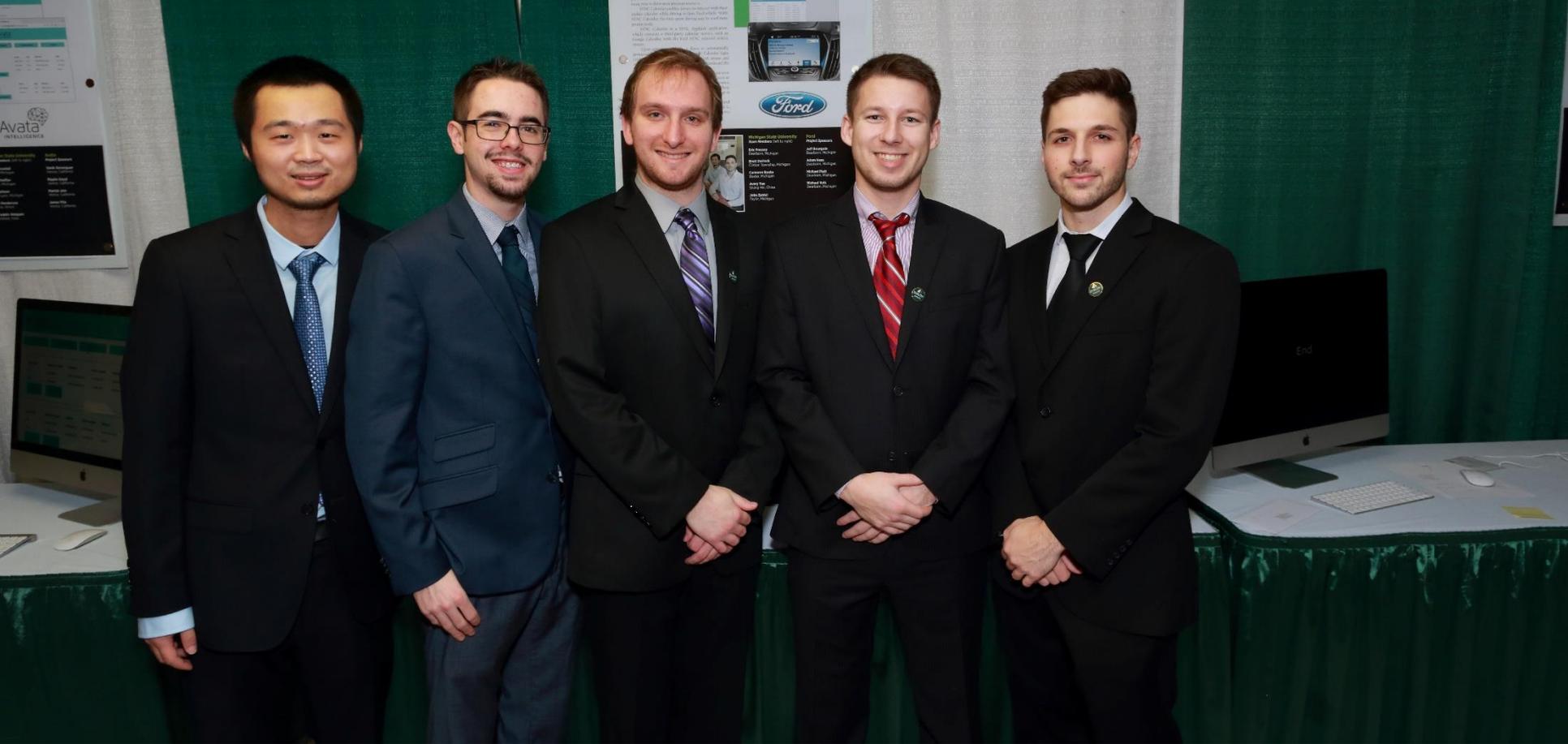
Team Ford  
Beta Presentation

# Team Ford Beta Presentation

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## Administrative Portal





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# *The Capstone Experience*

Team GM

Department of Computer Science and Engineering  
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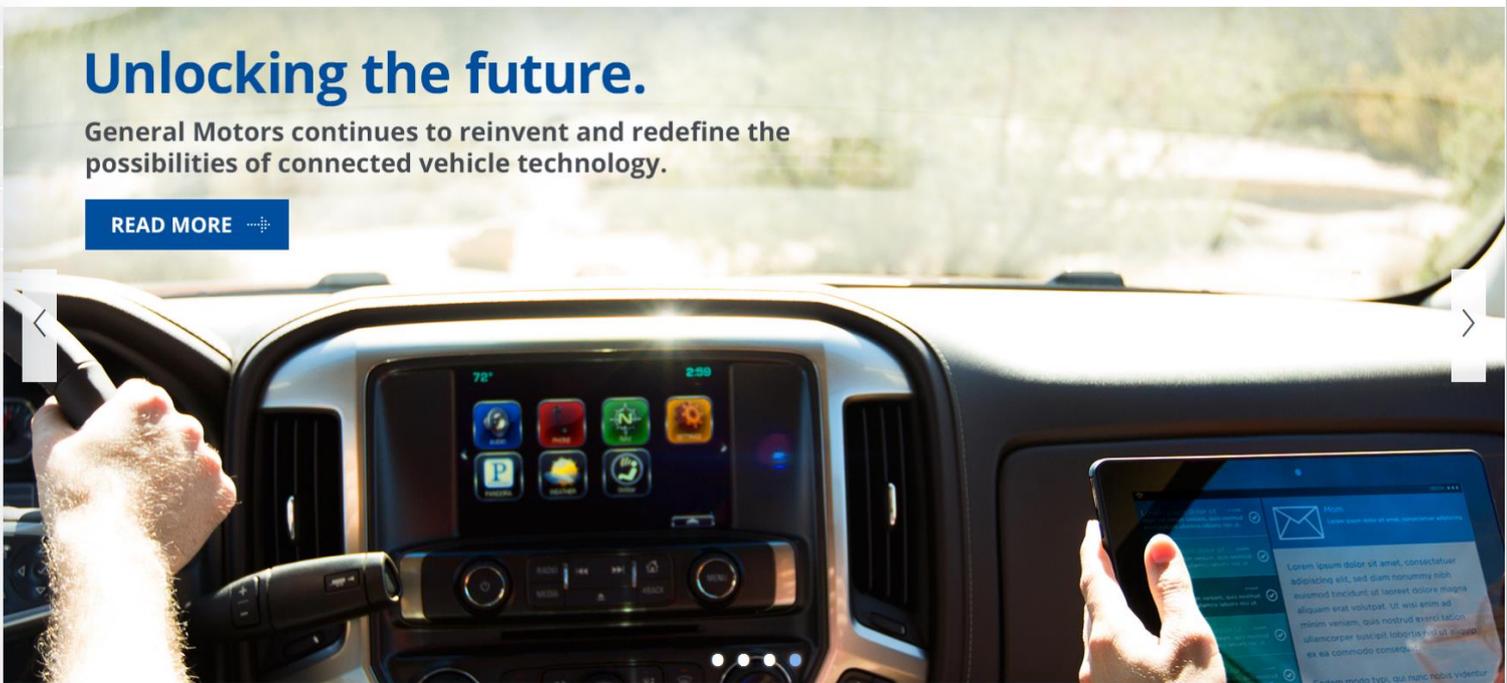
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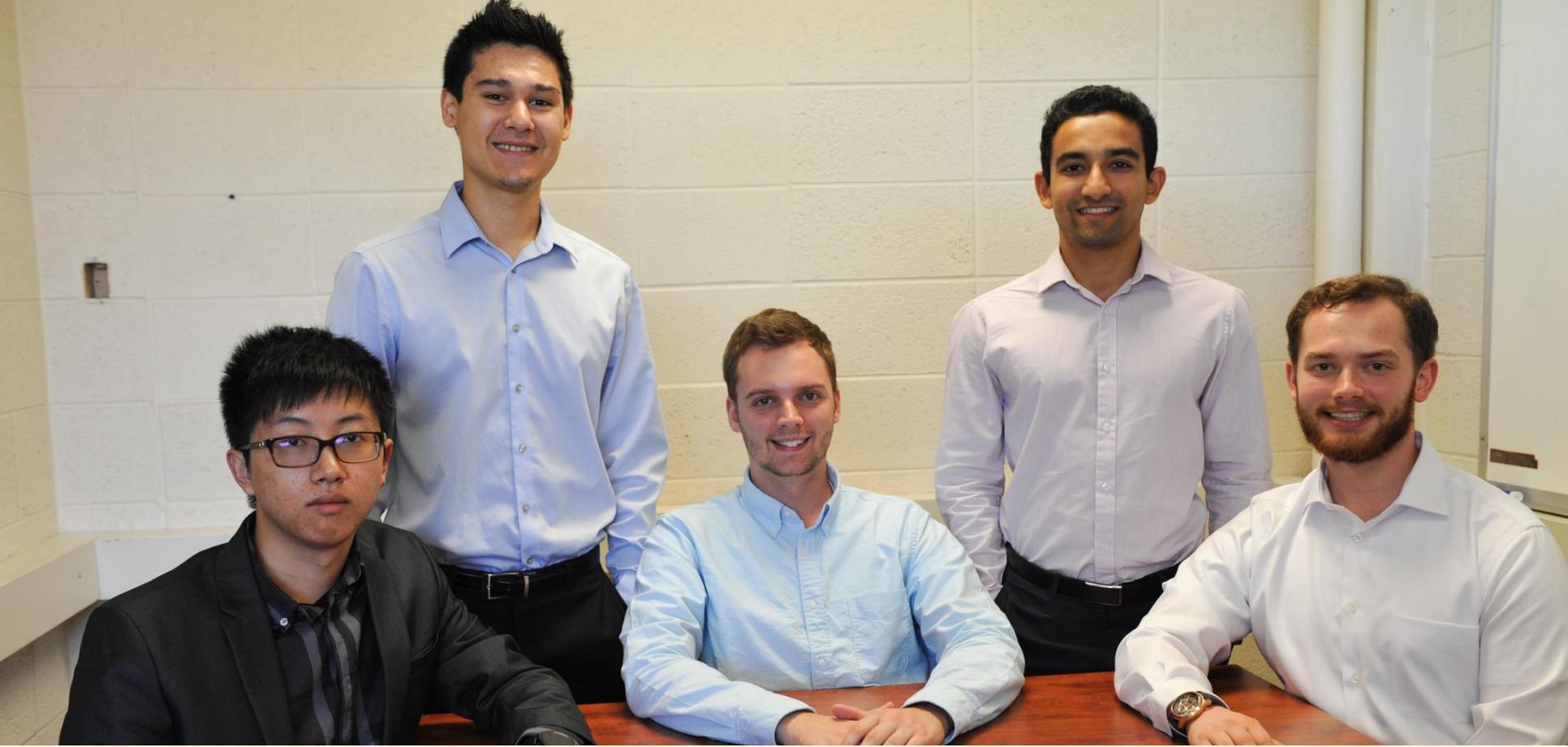
## Project Overview

### Gemini: Predictive Rich Cards

- Functionalities
  - Leverage Microsoft Cortana and Google Now Cards
  - To
    - Answer User-Initiated Queries
    - Deliver Predicted Information Proactively
  - Based on Search Habits of User
- Features
  - Provide Native Apps for Apple iOS and Google Android
  - Utilize Multiple Search Sources
  - Use Natural Language Web Services
  - Support Variety of Content
    - Action Items
    - Approvals
    - Workflows
    - Calendar Items
    - Etc.
- Technologies
  - Google Now Cards / Microsoft Cortana
  - Apple iPads and iPhones (iOS) / Swift or Objective-C
  - Google Android Tablets and Phones / Java
  - Microsoft SQL Server
  - Microsoft Azure Machine Learning Studio
  - Machine Learning and Artificial Intelligence Tools



Detroit, Michigan



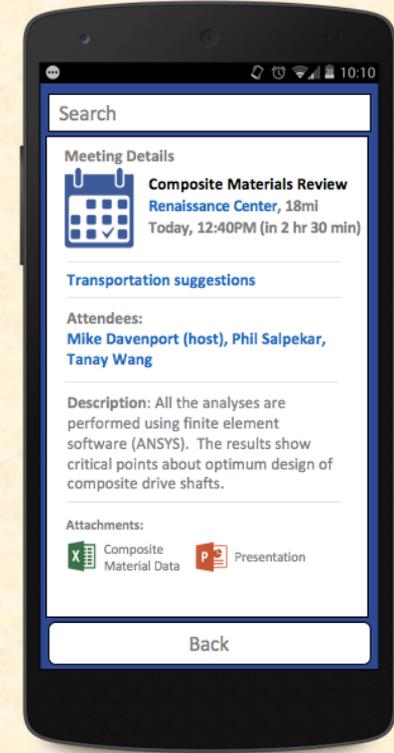
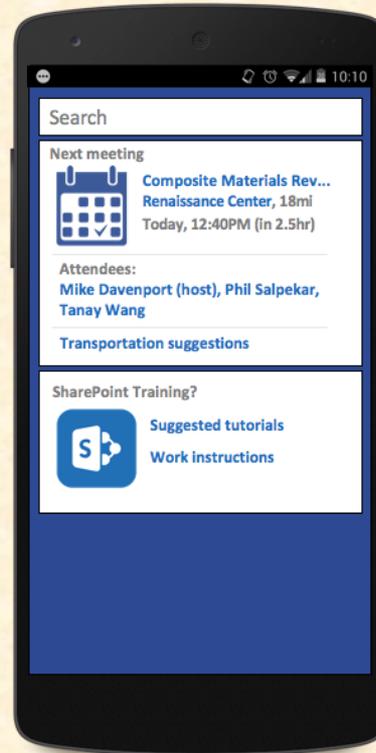
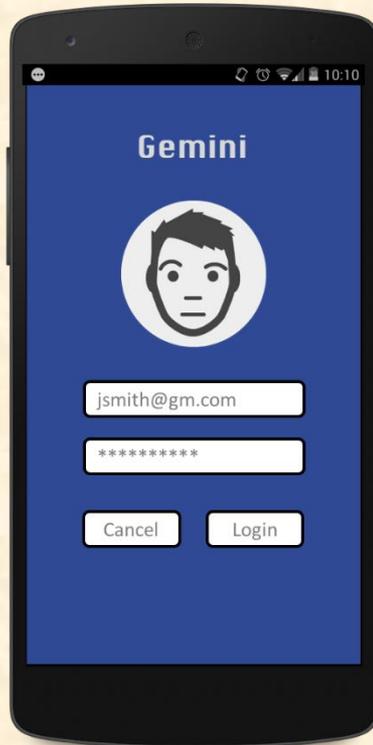
## Team GM

Runzhong Wang, Andrew Davenport, Phil Prescher, Tanay Salpekar, Mike Suszan

# Team GM Project Plan Presentation

e.

## Screen Mockups

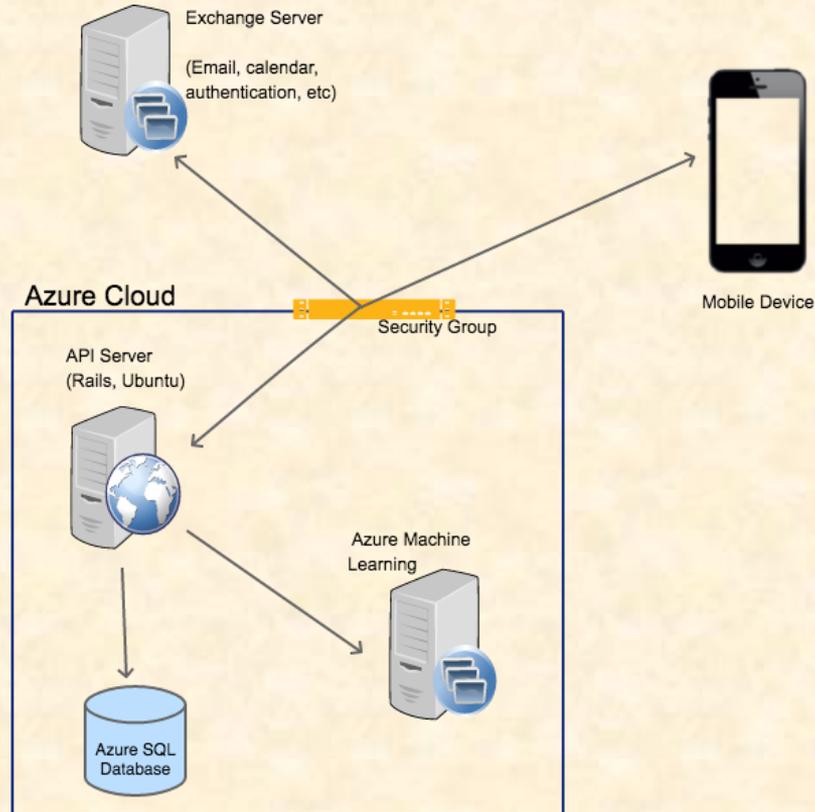




# Team GM Project Plan Presentation

# Team GM Project Plan Presentation

## Architecture Diagram



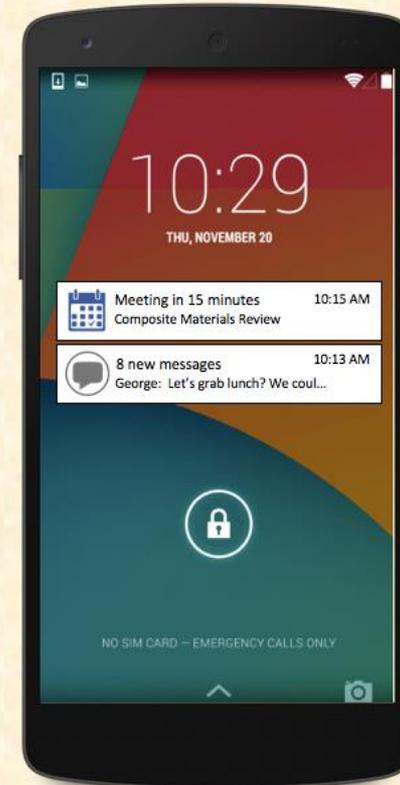
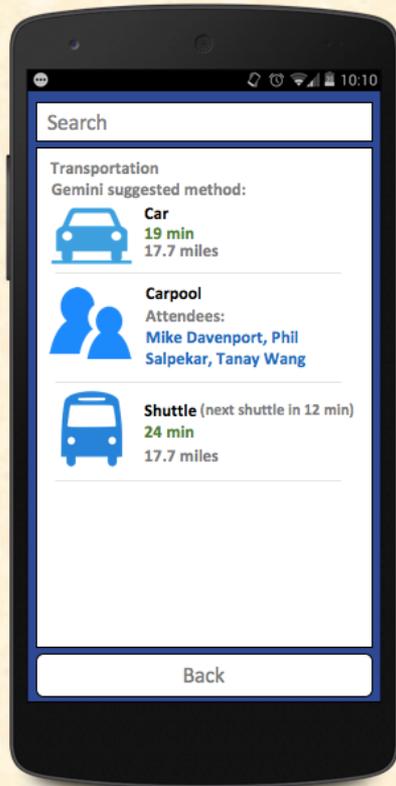


# Team GM Project Plan Presentation

# Team GM Project Plan Presentation

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Screen Mockup



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Team GM  
Alpha Presentation

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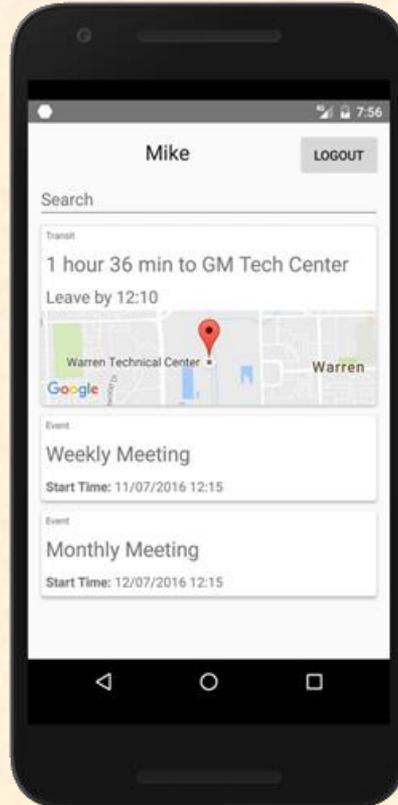
Gemini Login Slide



# Team GM Alpha Presentation

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Meeting Location



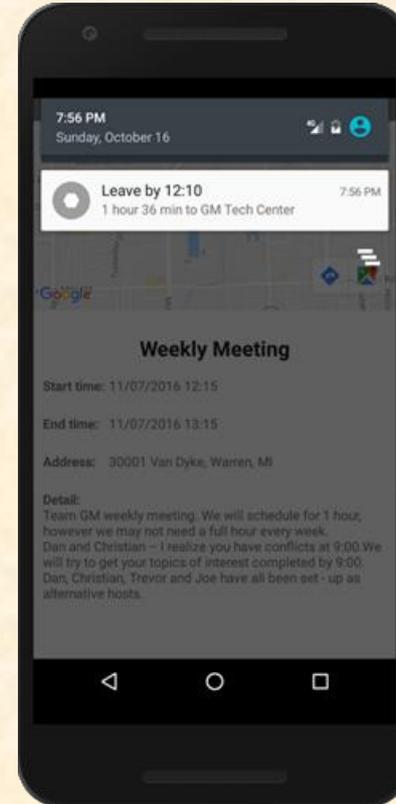
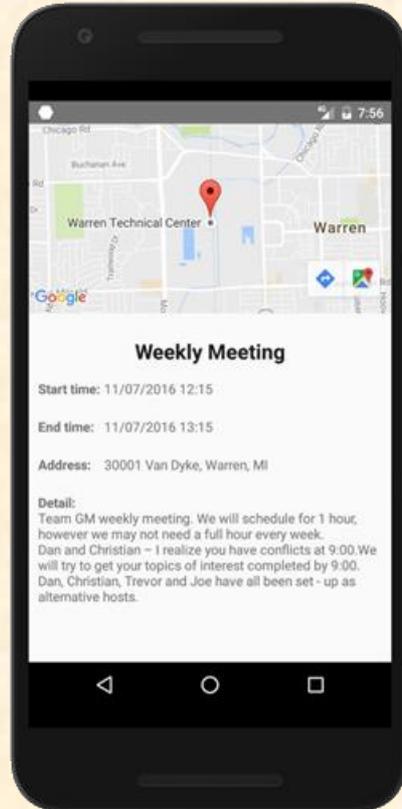


# Team GM Alpha Presentation

# Team GM Alpha Presentation

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## Meeting Details



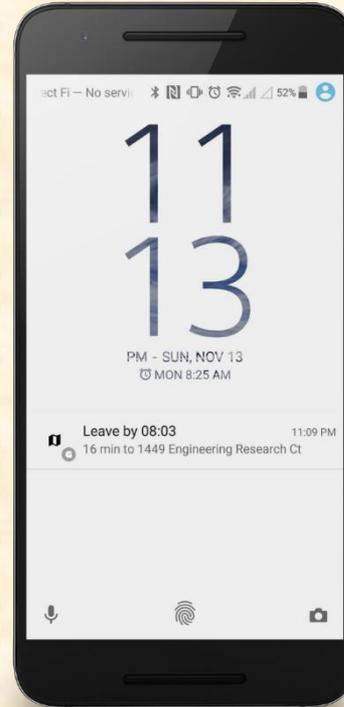
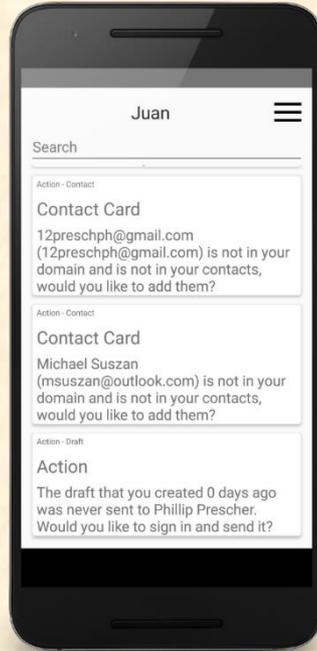


# Team GM Beta Presentation

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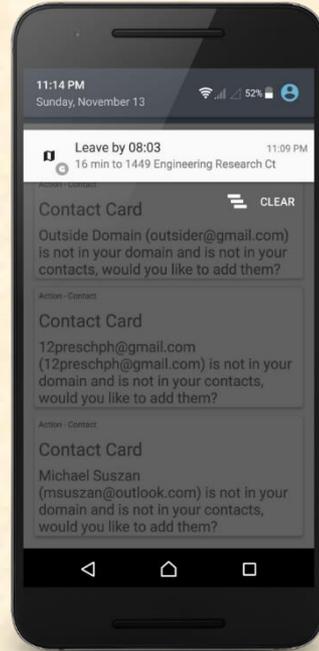
## Action Cards/New Event Card



# Team GM Beta Presentation

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## Status Notification/Login Screen



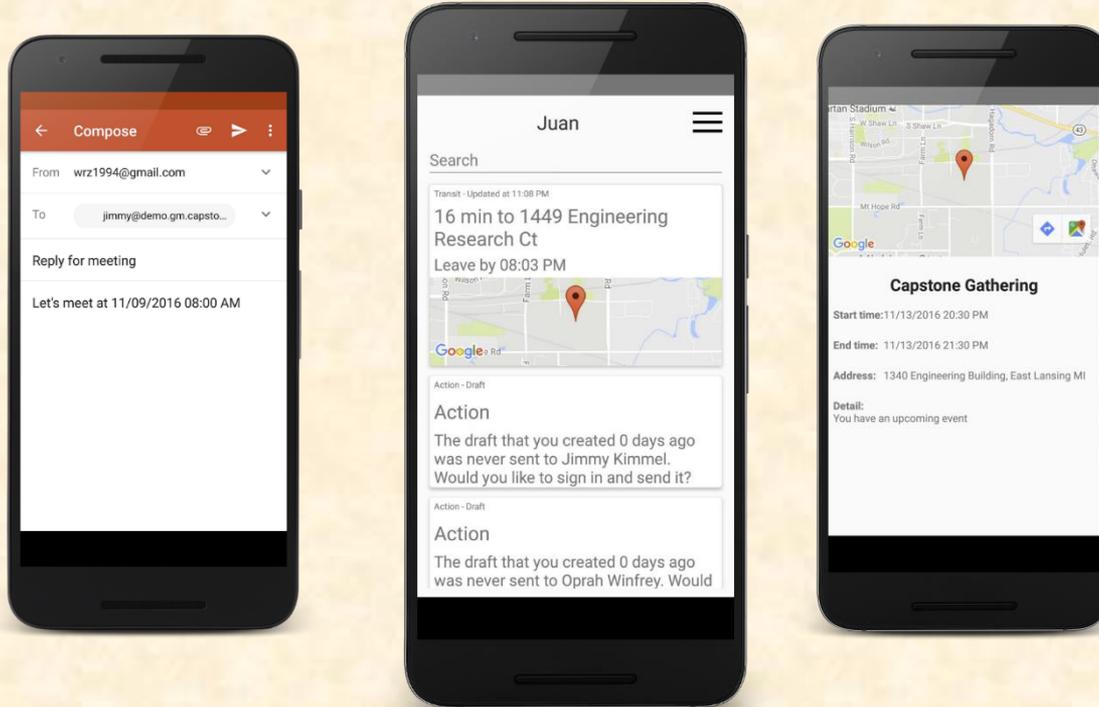


# Team GM Beta Presentation

# Team GM Beta Presentation

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## Email Template/New Event Cards





Team GM  
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Team Meijer

Department of Computer Science and Engineering  
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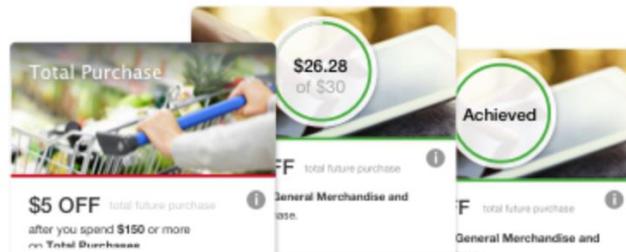
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from saving

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# Team Meijer Project Overview

## Intelligent Shopping List

- Functionalities
  - Generate Shopping List
  - Based on Recent Purchases
  - Via Meijer's mPerks
- Features
  - Auto-Generate Initial Shopping List
  - Provide Review and Refinement Capabilities
  - Handle Auto-Delivery of Purchases
  - Support both Apple iOS and Google Android Mobile Devices
  - Provide Back-End Administration Apps
- Technologies
  - CSS / HTML / JavaScript / PHP
  - Microsoft Azure / Azure Mobile Services
  - Microsoft SQL Server 2012
  - Microsoft C# / .NET MVC / ASP.Net
  - Meijer Web Services
  - Xamarin or PhoneGap or Swift / Java
  - Crashlytics



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Grand Rapids, Michigan



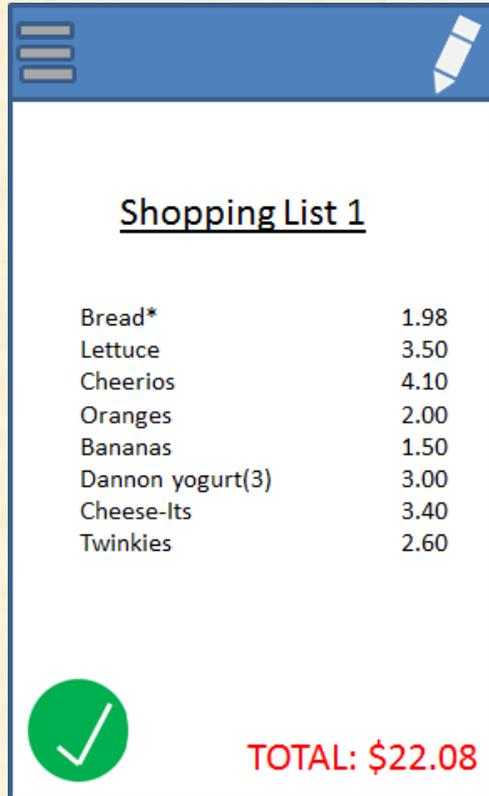


## Team Meijer

Alex Wziontka, Christina Harper, Lauren Antakli, Jacob Buckley, Adam Pruum

# Team Meijer Project Plan Presentation

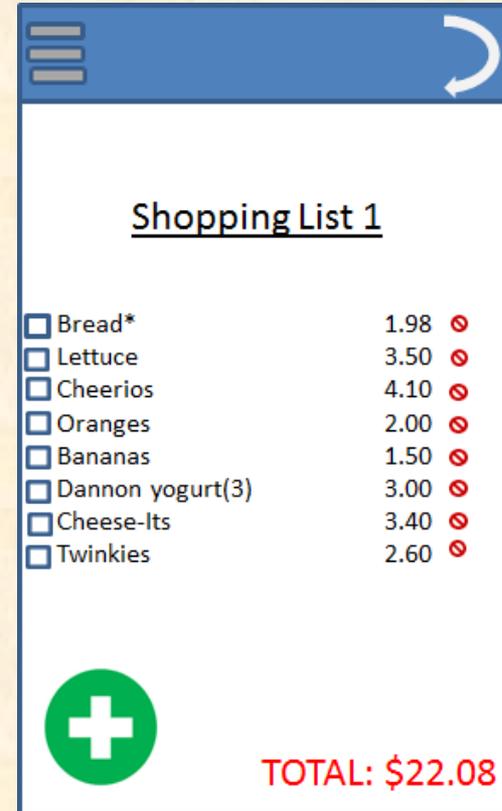
## Screen Mockups



Shopping List 1

Bread*	1.98
Lettuce	3.50
Cheerios	4.10
Oranges	2.00
Bananas	1.50
Dannon yogurt(3)	3.00
Cheese-Its	3.40
Twinkies	2.60

TOTAL: \$22.08



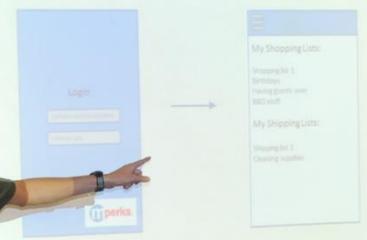
Shopping List 1

<input type="checkbox"/> Bread*	1.98	🔴
<input type="checkbox"/> Lettuce	3.50	🔴
<input type="checkbox"/> Cheerios	4.10	🔴
<input type="checkbox"/> Oranges	2.00	🔴
<input type="checkbox"/> Bananas	1.50	🔴
<input type="checkbox"/> Dannon yogurt(3)	3.00	🔴
<input type="checkbox"/> Cheese-Its	3.40	🔴
<input type="checkbox"/> Twinkies	2.60	🔴

TOTAL: \$22.08



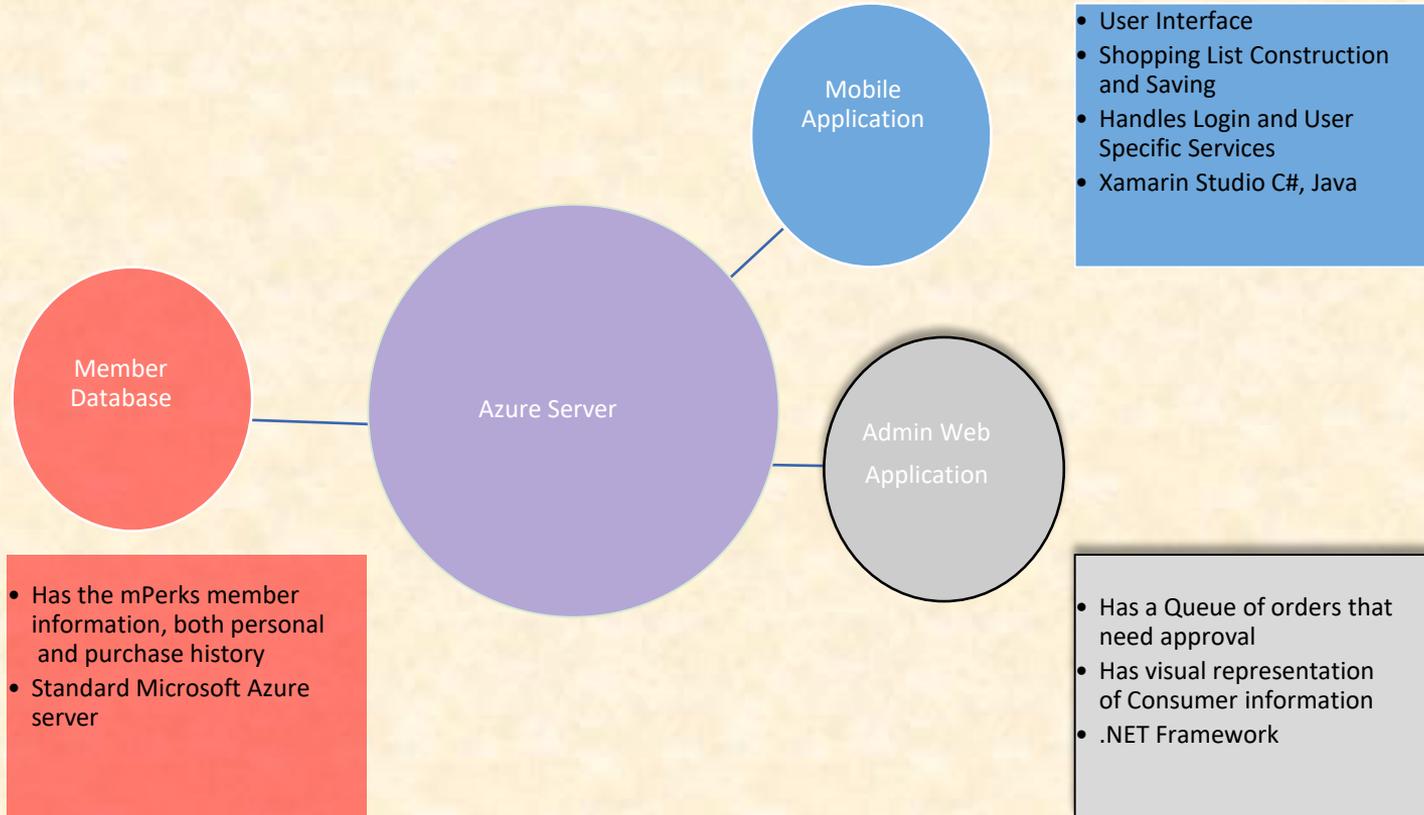
## Screen Mockup: Login and Home Screen



Team Meijer  
Project Plan Presentation

# Team Meijer Project Plan Presentation

## Architecture Diagram





Team Meijer  
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# Team Meijer Project Plan Presentation

## Screen Mockup

### Order History

Name	Email	Address	Date	
User 1	user1@gmail.com	1234 Road Ln	9/15/16	<input type="button" value="View Order"/>
User 2	user2@gmail.com	1234 Road Ln	9/15/16	<input type="button" value="View Order"/>
User 3	user3@gmail.com	1234 Road Ln	9/15/16	<input type="button" value="View Order"/>
User 4	user4@gmail.com	1234 Road Ln	9/15/16	<input type="button" value="View Order"/>
User 5	user5@gmail.com	1234 Road Ln	9/15/16	<input type="button" value="View Order"/>



meijer

LOGIN

Detroit  
Maker Faire  
#MakerFaireDetro

# Team Meijer Alpha Presentation

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## Web App: Order History

Meijer Web App   Order History   Register   Log in

### Order History

[Create New \(Development Only\)](#)

Find an order   Search

id	Store_Id	Customer_Id	date_received	date_completed	Status	
8	23	1	10/9/2016 12:00:00 AM	10/10/2016 12:00:00 AM	Pending	Details
9	2	1111	10/9/2016 6:00:00 AM	10/10/2016 6:00:00 AM	Complete	Details
10	1235	2367	10/12/2016 12:00:00 AM	10/15/2016 12:00:00 AM	Pending	Details



© 2016 - Meijer Smart Shopping List



# Team Meijer Alpha Presentation

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Web App: Edit Order

Meijer Web App

Order History

Register

Log in

## Edit

Order

Store\_Id

23

Customer\_Id

1

date\_received

10/9/2016 12:00:00 AM

date\_completed

10/10/2016 12:00:00 AM

Status

Completed

Save

[Back to List](#)

The Meijer logo consists of the word "meijer" in a lowercase, bold, red sans-serif font. The letter "i" has a blue dot above it.

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The Capstone Experience

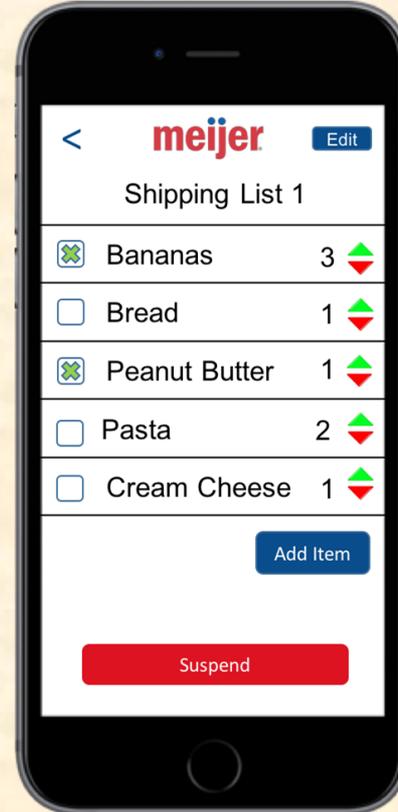
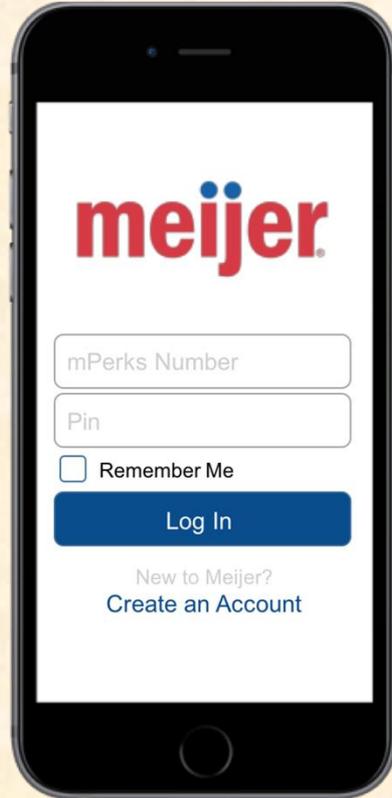


# Team Meijer Alpha Presentation

# Team Meijer Alpha Presentation

e.

Mobile App



The Capstone Experience





# Team Meijer Beta Presentation

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## Web App - Home Screen

Meijer Shipping Manager View Current Orders Hello wzionka@msu.edu Log off

Welcome to the Meijer Shipping Manager

### Top Products Ordered

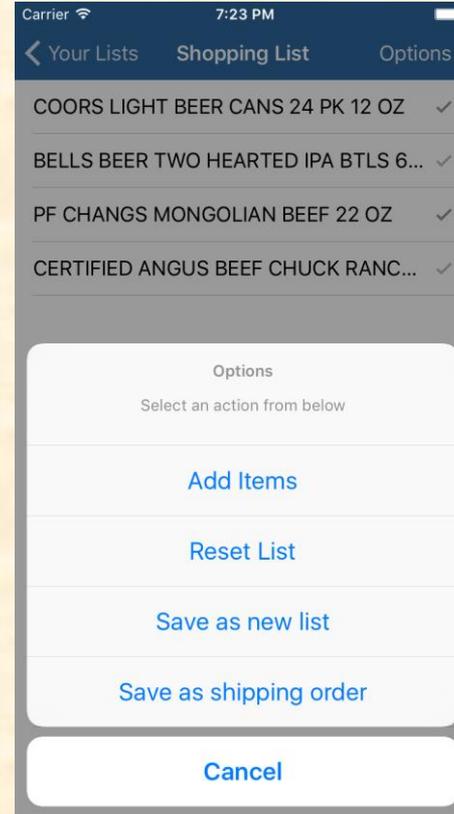
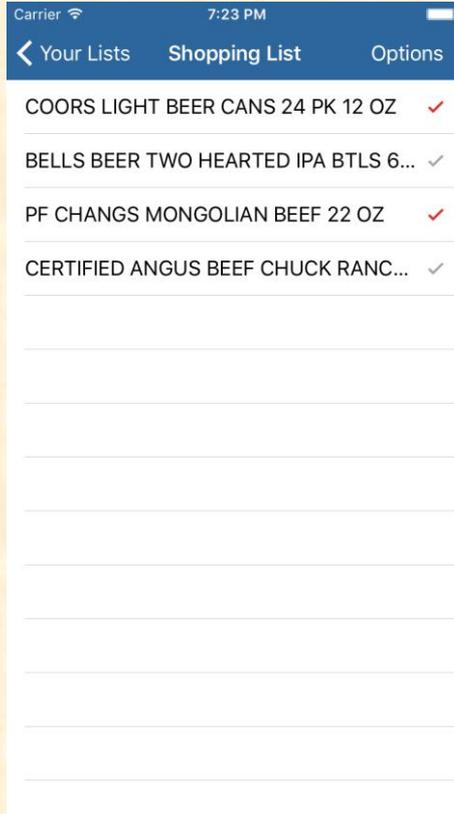
Rank	Product Name	Number of Times Ordered	Action
#1	COORS LIGHT BEER CANS 24 PK 12 OZ	9	Details
#2	MEIJER GROUND BEEF 85/15	7	Details
#3	BELLS BEER TWO HEARTED IPA BTLs 6 PK 12 OZ	6	Details
#4	BANANAS LB	6	Details
#5	SAMUEL ADAMS BEER SEASONAL MIX BTLs 12 PK 12 OZ	5	Details
#6	WHOLE BONELESS BUTTERFLY PORK LOIN S/O/N	5	Details
#7	MEIJER BREAD SPLIT TOP WHEAT 20 OZ	5	Details
#8	CERTIFIED ANGUS BEEF CHUCK RANCH STK BTLs	4	Details
#9	BUSCH SIGNATURE BEER BOTTLES 12 PK 12 OZ	4	Details
#10	SOCKEYE FILLET FRESH	4	Details



# Team Meijer Beta Presentation

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## Mobile App - Shopping List



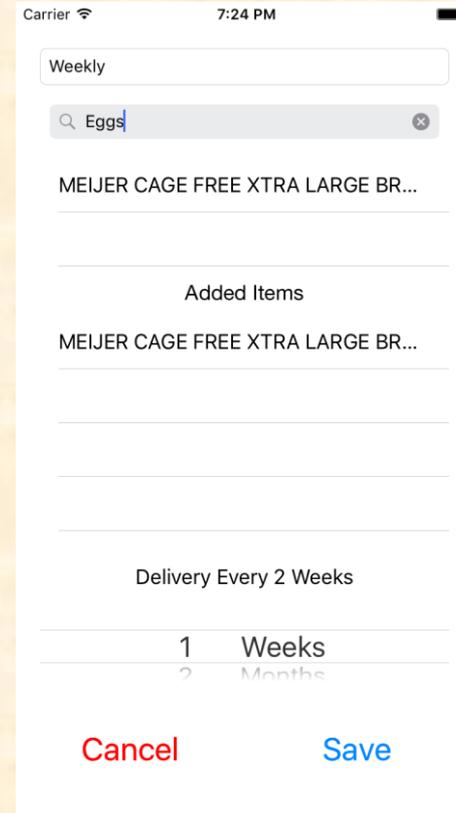
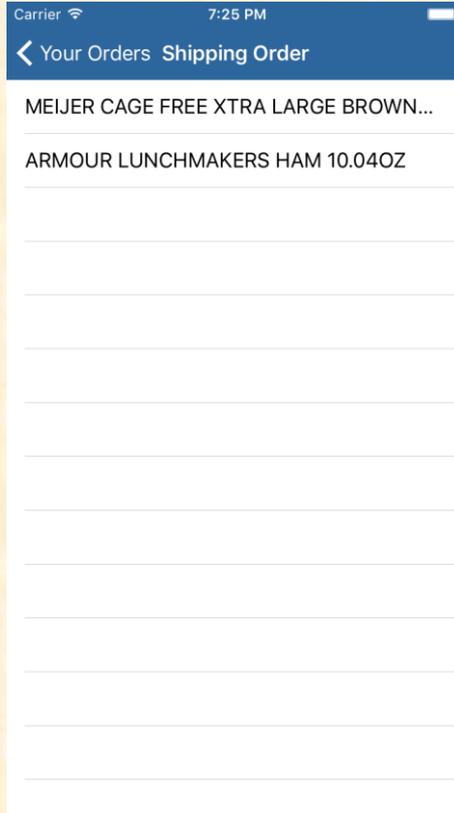


Team Meijer  
Beta Presentation

# Team Meijer Beta Presentation

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## Mobile App - Shipping Order





# Team Meijer Design Day

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Team Mozilla

Department of Computer Science and Engineering  
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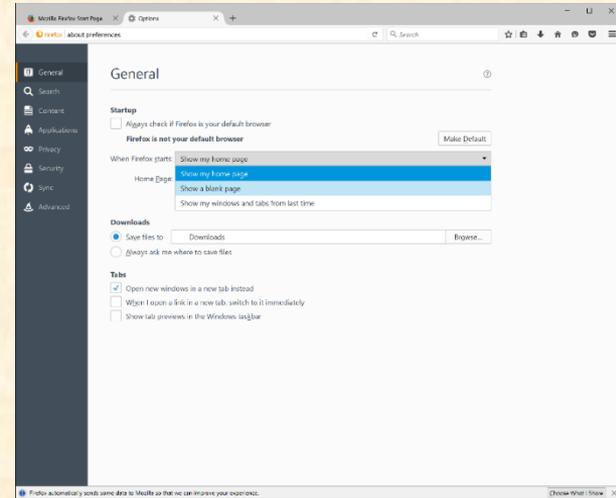
Download  
Firefox



# Team Mozilla Project Overview

## Improvements to Select Dropdown for Firefox

- Functionalities
  - Improve Firefox's Desktop <select> Dropdown
  - For Users Worldwide
- Features
  - Clarify Disabled States
  - Improve Readability
  - Increase Size of Items
  - Provide Search for Large Lists
  - Refactor for Firefox's New Multi-Process Architecture
- Technologies
  - CSS / HTML / JavaScript
  - JavaScript
  - XUL (XML User Interface Language)
  - C++
  - IRC
  - Mozilla's Bugzilla
  - Mercurial



Firefox®

Mountain View, California



## Team Mozilla

Jared Beach, Mark Golbeck, Tyler Maklebust, Miguel Wright, Fred Luo

# Team Mozilla Project Plan Presentation

Screen Mockup

Option 1

Option 2

Option 3

**Group**

Option 4

Option 5

Option 6

**Disabled Group**

Option 7

Option 8

Option 9

Option 10

Option 11

Option 12

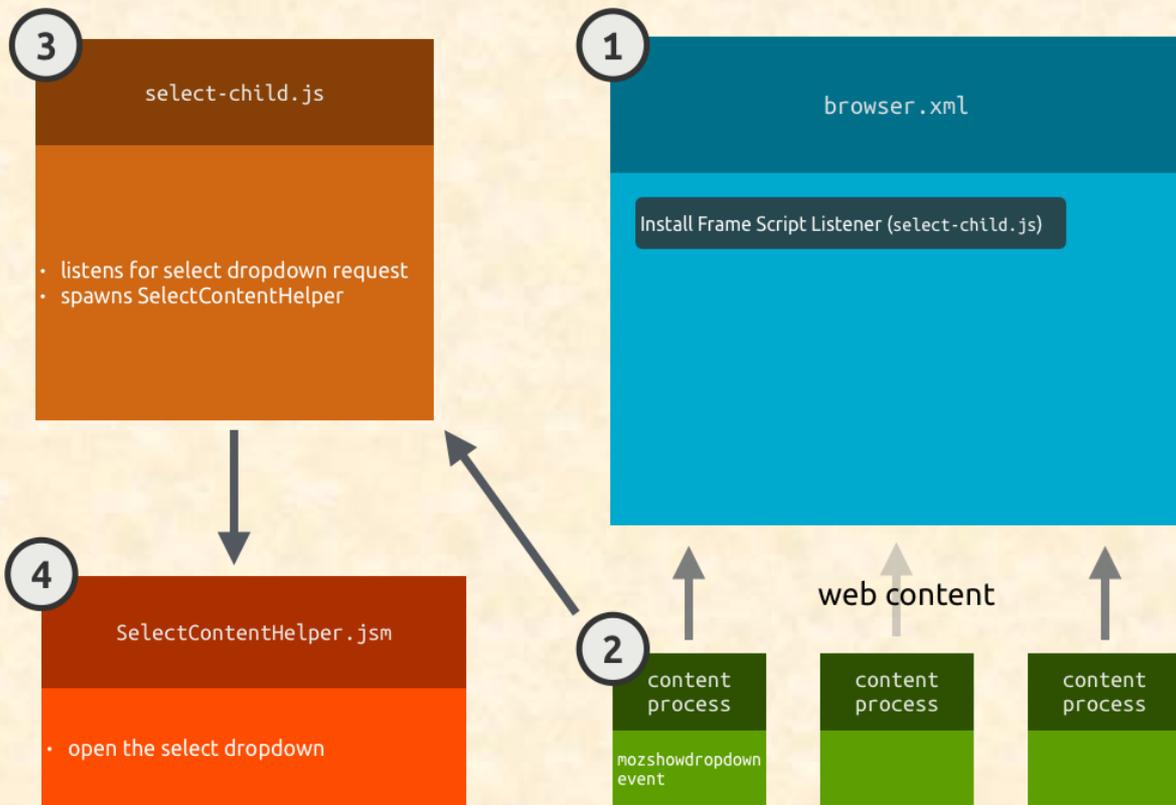




# Team Mozilla Project Plan Presentation

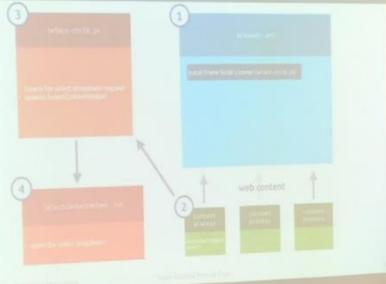
# Team Mozilla Project Plan Presentation

## Architecture Diagram





## System Architecture



Team Mozilla  
Project Plan Presentation

# Team Mozilla Project Plan Presentation

e.

Screen Mockup

Search

- Option 1
- Option 2
- Option 3
- Group**
- Option 4
- Option 5
- Option 6
- Disabled Group**
- Option 7
- Option 8
- Option 9
- Option 10
- Option 11
- Option 12
- Option 13
- Option 14
- Option 15
- Option 16
- Option 17
- Option 18
- Option 19
- Option 20
- Option 21

Group

- Group**
- Option 4
- Option 5
- Option 6
- Disabled Group**
- Option 7
- Option 8
- Option 9





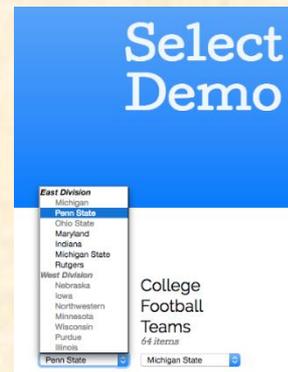
Team Mozilla  
Alpha Presentation

# Team Mozilla Alpha Presentation

## Preferences

Search:

Preference Name	Status	Type	Value
dom.select_popup_in_parent.enabled	default	boolean	false



Search:

Preference Name	Status	Type	Value
dom.select_popup_in_parent.enabled	user set	boolean	true



# Team Mozilla Alpha Presentation

## Old and New Styling

<b><i>East Division</i></b>
Michigan
<b>Penn State</b>
Ohio State
Maryland
Indiana
Michigan State
Rutgers
<b><i>West Division</i></b>
Nebraska
Iowa
Northwestern
Minnesota
Wisconsin
Purdue
Illinois

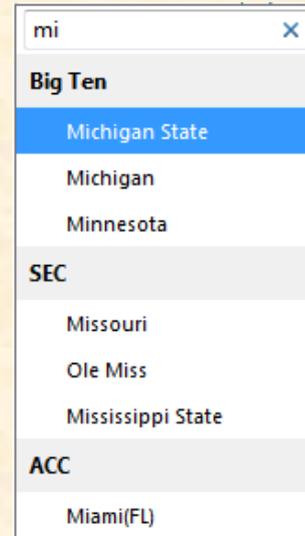
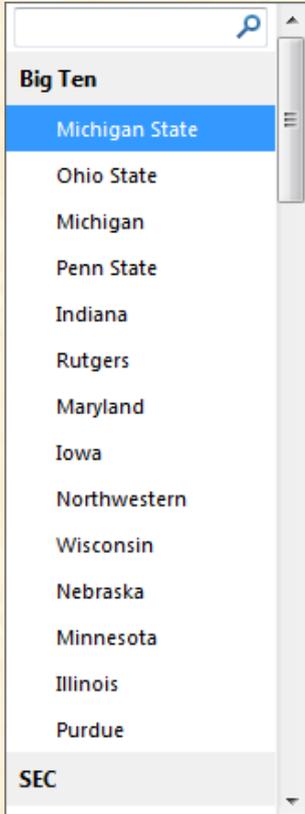
<b>East Division</b>
Michigan
<b>Penn State</b>
Ohio State
Maryland
Indiana
Michigan State
Rutgers
<b>West Division</b>
Nebraska
Iowa
Northwestern
Minnesota
Wisconsin
Purdue
Illinois





# Team Mozilla Alpha Presentation

## Dropdown with Search





# Team Mozilla Beta Presentation

# Team Mozilla Beta Presentation

## Backend Changes

Runtime Preference turned off: Results in single-process dropdown implementation while running in single-process mode

Search:

Preference Name	Status	Type	Value
dom.select_popup_in_parent.enabled	default	boolean	false



Runtime Preference turned on: Results in multi-process dropdown implementation while running in single-process mode

Search:

Preference Name	Status	Type	Value
dom.select_popup_in_parent.enabled	user set	boolean	true



# Team Mozilla Beta Presentation

## Updated Styling of Dropdown

### Old Dropdown Styling:

<b><i>East Division</i></b>
Michigan
<b>Penn State</b>
Ohio State
Maryland
Indiana
Michigan State
Rutgers
<b><i>West Division</i></b>
Nebraska
Iowa
Northwestern
Minnesota
Wisconsin
Purdue
Illinois

### New Dropdown Styling:

<b>East Division</b>
Michigan
<b>Penn State</b>
Ohio State
Maryland
Indiana
Michigan State
Rutgers
<b>West Division</b>
Nebraska
Iowa
Northwestern
Minnesota
Wisconsin
Purdue
Illinois





# Team Mozilla Beta Presentation

# Team Mozilla Beta Presentation

## Test Fixing & Rewriting

Linux opt	B Cpp GTest Jit1 Jit2 Mn Mn-e10s Wr X M (oth oth +27) M-e10s (E S bc2 <sup>4</sup> bc7 bc7 +24) R(+2) R-e10s(C) W(+5) W-e10s(+6) tc[tier 2](B)
Linux debug	B Cpp GTest Jit1 Jit2 Mn Mn-e10s Wr X1 X2 X3 X4 M (bc2 bc5 c3 c3 d16 <sup>2</sup> d17 mda +31) M-e10s (7 7 bc7 bc7 mda +18) R(+2) R-e10s(C) W(+10) W-e10s(+11) tc[tier 2](B)
Linux x64 opt	B Cpp GTest Jit1 Jit2 Mn Mn-e10s S Wr X M (oth oth +27) M-e10s (S S bc7 bc7 +24) R(+2) R-e10s(C) W(+5) W-e10s(+6) tc[tier 2](+6) tc(v) tc-Fxfr-l(en-US) tc-Fxfr-l-e10s(en-US) tc-Fxfr-r[tier 2](en-US) tc-Fxfr-r-e10s[tier 2](en-US) tc-M[tier 2](c3 bc6 +37) tc-M-e10s[tier 2](8 bc7 d16 <sup>2</sup> +30) tc-R[tier 2](Ru8 +14) tc-R-e10s[tier 2](R8 Ru8 +17) tc-W[tier 2](+14) tc-W-e10s[tier 2](+14) tc-X[tier 2](+8) tc-e10s[tier 2](Mn)
Linux x64 asan	tc(+7) tc-Fxfr-l(en-US) tc-Fxfr-l-e10s(en-US) tc-Fxfr-r[tier 2](en-US) tc-Fxfr-r-e10s[tier 2](en-US) tc-M(3 +37) tc-M-e10s(bc7 d16 <sup>2</sup> d16 d10 bc4 +29) tc-R(Ru8 +14) tc-R-e10s(R8 Ru8 +17) tc-X(+8) tc-e10s(Mn)
Linux x64 debug	S tc(Mn <sup>2</sup> +5) tc-Fxfr-l(en-US) tc-Fxfr-l-e10s(en-US) tc-Fxfr-r[tier 2](en-US) tc-Fxfr-r-e10s[tier 2](en-US) tc-M(c3 +37) tc-M-e10s(S bc7 +21) tc-R(Ru8 +14) tc-R-e10s(R8 Ru8 +17) tc-W(+14) tc-W-e10s(+14) tc-X(+10) tc-e10s(Mn)
OS X 10.7 opt	B S tc[tier 2](B)
OS X 10.7 debug	B S tc[tier 2](B)
OS X 10.10 opt	Cpp GTest Mn-e10s Wr X M (oth oth +27) M-e10s(4 4 bc7 bc7 +24) R(+3) R-e10s(+2) W(+5) W-e10s(+6)
OS X 10.10 debug	Cpp GTest Mn Mn-e10s Wr X M (oth oth +27) M-e10s(4 4 bc7 bc7 d12 d12 +23) R(+3) R-e10s(+2) W(+10) W-e10s(+11)
Windows XP opt	B
Windows XP debug	B
Windows 7 opt	Jit M(c1 oth oth c1) M-e10s(+2) R(+4) R-e10s(R-e10s)
Windows 7 debug	Jit M(oth oth c1) M-e10s(+2) R(+4) R-e10s(R-e10s)
Windows 7 VM opt	Cpp GTest Jit Mn Mn-e10s Wr X M (bc5 +23) M-e10s(1 4 4 bc7 bc7 +19) R(+2) R-e10s(C) W(+5)

Before – Orange/Red blocks are failed tests

Linux opt	B Cpp GTest Jit1 Jit2 Mn Mn-e10s Wr X M(+28) M-e10s(+26) R(+2) R-e10s(C) W(+5) W-e10s(+6) tc[tier 2](B)
Linux debug	B Cpp GTest Jit1 Jit2 Mn Mn-e10s Wr X1 X2 X3 X4 M(+34) M-e10s(+20) R(+2) R-e10s(C) W(+10) W-e10s(+10) tc[tier 2](B)
Linux x64 opt	B Cpp GTest Jit1 Jit2 Mn Mn-e10s S Wr X M(+28) M-e10s(+26) R(+2) R-e10s(C) W(+5) W-e10s(+6) tc[tier 2](+6) tc(v) tc-Fxfr-l(en-US) tc-Fxfr-l-e10s(en-US) tc-Fxfr-r[tier 2](en-US) tc-Fxfr-r-e10s[tier 2](en-US) tc-M[tier 2](+37) tc-M-e10s[tier 2](+33) tc-R[tier 2](+14) tc-R-e10s[tier 2](+19) tc-W[tier 2](+14) tc-W-e10s[tier 2](+14) tc-X[tier 2](+8) tc-e10s[tier 2](Mn)
Linux x64 asan	tc(+7) tc-Fxfr-l(en-US) tc-Fxfr-l-e10s(en-US) tc-Fxfr-r[tier 2](en-US) tc-Fxfr-r-e10s[tier 2](en-US) tc-M(+36) tc-M-e10s(+33) tc-R(+15) tc-R-e10s(+19) tc-X(+8) tc-e10s(Mn)
Linux x64 debug	S tc(+6) tc-Fxfr-l(en-US) tc-Fxfr-l-e10s(en-US) tc-Fxfr-r[tier 2](en-US) tc-Fxfr-r-e10s[tier 2](en-US) tc-M(+37) tc-M-e10s(+22) tc-R(+15) tc-R-e10s(+19) tc-W(+13) tc-W-e10s(+14) tc-X(+10) tc-e10s(Mn)
OS X 10.7 opt	B S tc[tier 2](B)
OS X 10.7 debug	B S tc[tier 2](B)
OS X 10.10 opt	Cpp GTest Jit Mn-e10s Wr X M(+28) M-e10s(+26) R(+3) R-e10s(+2) W(+5) W-e10s(+6)
OS X 10.10 debug	Cpp GTest Jit Mn Mn-e10s Wr X M(+28) M-e10s(+26) R(+3) R-e10s(+2) W(+10) W-e10s(+11)
Windows XP opt	B
Windows XP debug	B B
Windows 7 opt	Jit M(+2) M-e10s(+2) R(+4) R-e10s(R-e10s)
Windows 7 debug	Jit M(+2) M-e10s(+2) R(+4) R-e10s(R-e10s)
Windows 7 VM opt	Cpp GTest Jit Mn Mn-e10s Wr X M(+22) M-e10s(+21) R(+2) R-e10s(C) W(+5) W-e10s(+6) tc[tier 2](Cpp)
Windows 7 VM debug	Cpp GTest Jit Mn Mn-e10s Wr X M(+22) M-e10s(+21) R(+2) R-e10s(C) W(+10) W-e10s(+11) tc[tier 2](Cpp)
Windows 2012 opt	tc[tier 2](B)
Windows 2012 debug	tc[tier 2](B)
Gecko Decision Task opt	D

After – Green blocks are passed tests





Team Mozilla  
Design Day

MICHIGAN STATE  
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# *The Capstone Experience*

Team MSUFCU

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



F E D E R A L C R E D I T U N I O N

Building Dreams *Together*



OPEN AN ACCOUNT



ComputerLine Protected by TrulyU®

Username input field

Password input field

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Forgot Username? Forgot Password?

Routing Number 272479663 SWIFT Code MSUCUS44

CURRENT RATES

Auto Loan as low as 2.190% APR



Loans Home Loans Savings Business

Earn 50% More Cash Back While

# Team MSUFCU Project Overview

## Member Ratings and Reviews

- Functionalities
  - Add Ratings and Reviews Features
  - Of MSUFCU Products and Services
  - By MSUFCU Members
- Features
  - Provide Ability to
    - Rate Numerically Using Scale of 1 to 5
    - Write Comments By Username or Anonymously
  - Model After Amazon and iTunes
  - Support Multiple Platforms
    - Web App
    - Native Apple iOS and Google Android Apps
- Technologies
  - CSS / HTML / JavaScript / PHP
  - Apple iPads and iPhones (iOS) / Swift or Objective-C
  - Google Android Tablets and Phones / Java
  - WebGL
  - MySQL
  - Encryption Based on SQL Standards





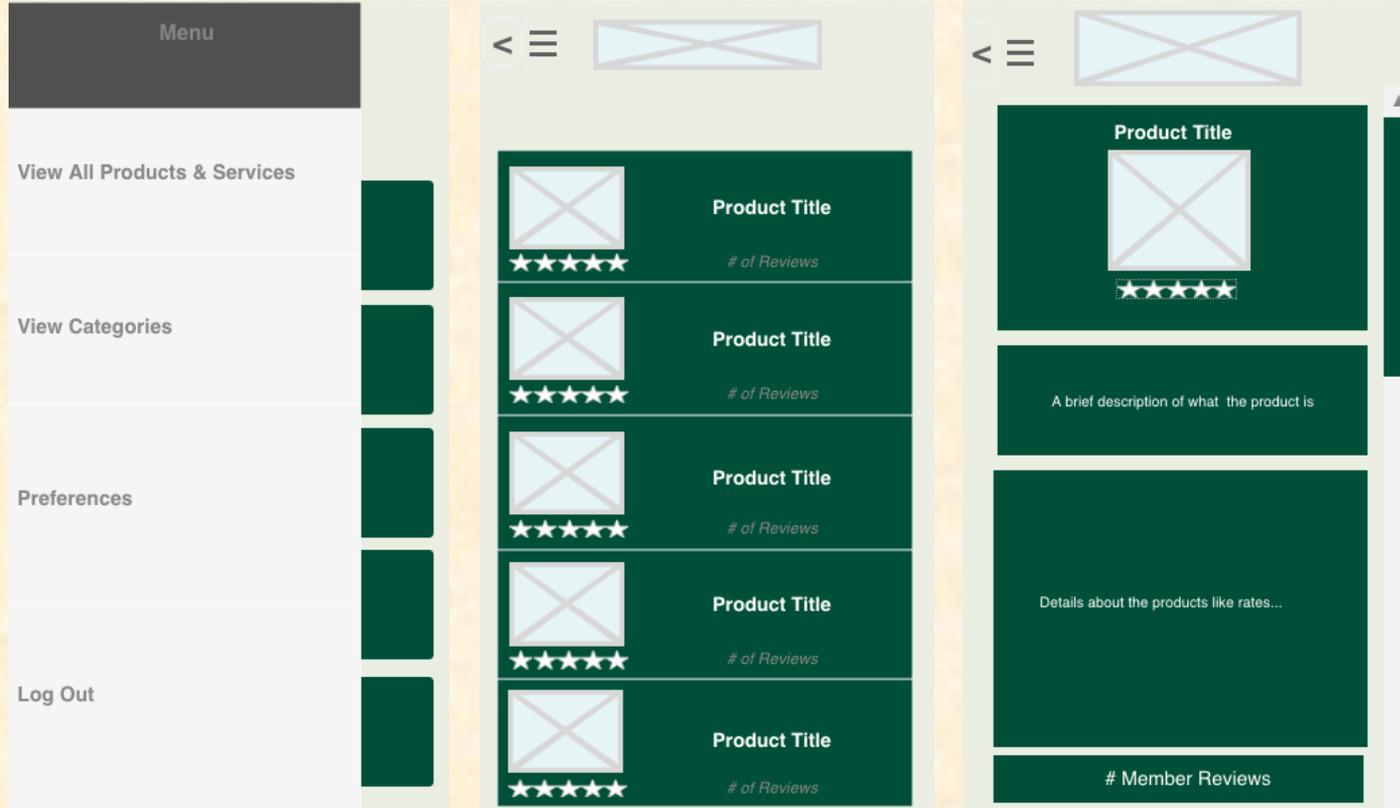
## Team MSUFCU

Mitch Frisbie, Joey Hollopter, Cameron Holmes, Mike Sagan

# Team MSUFCU Project Plan Presentation

e.

## Screen Mockup



The Capstone Experience

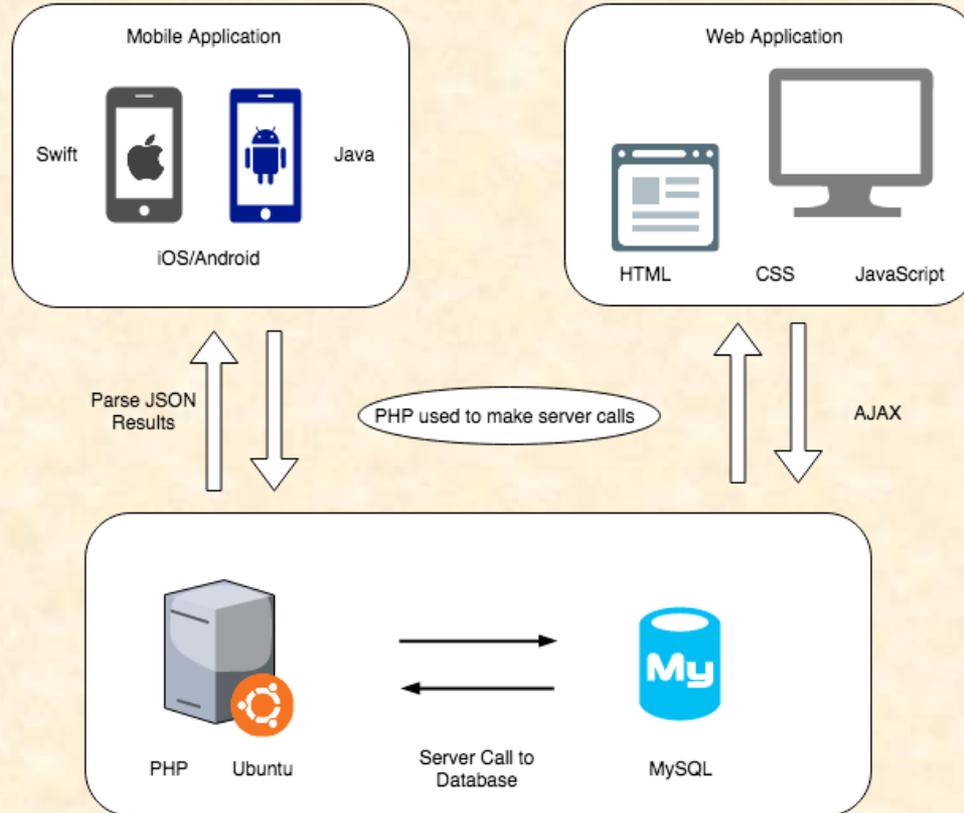




# Team MSUFCU Project Plan Presentation

# Team MSUFCU Project Plan Presentation

## Architecture Diagram

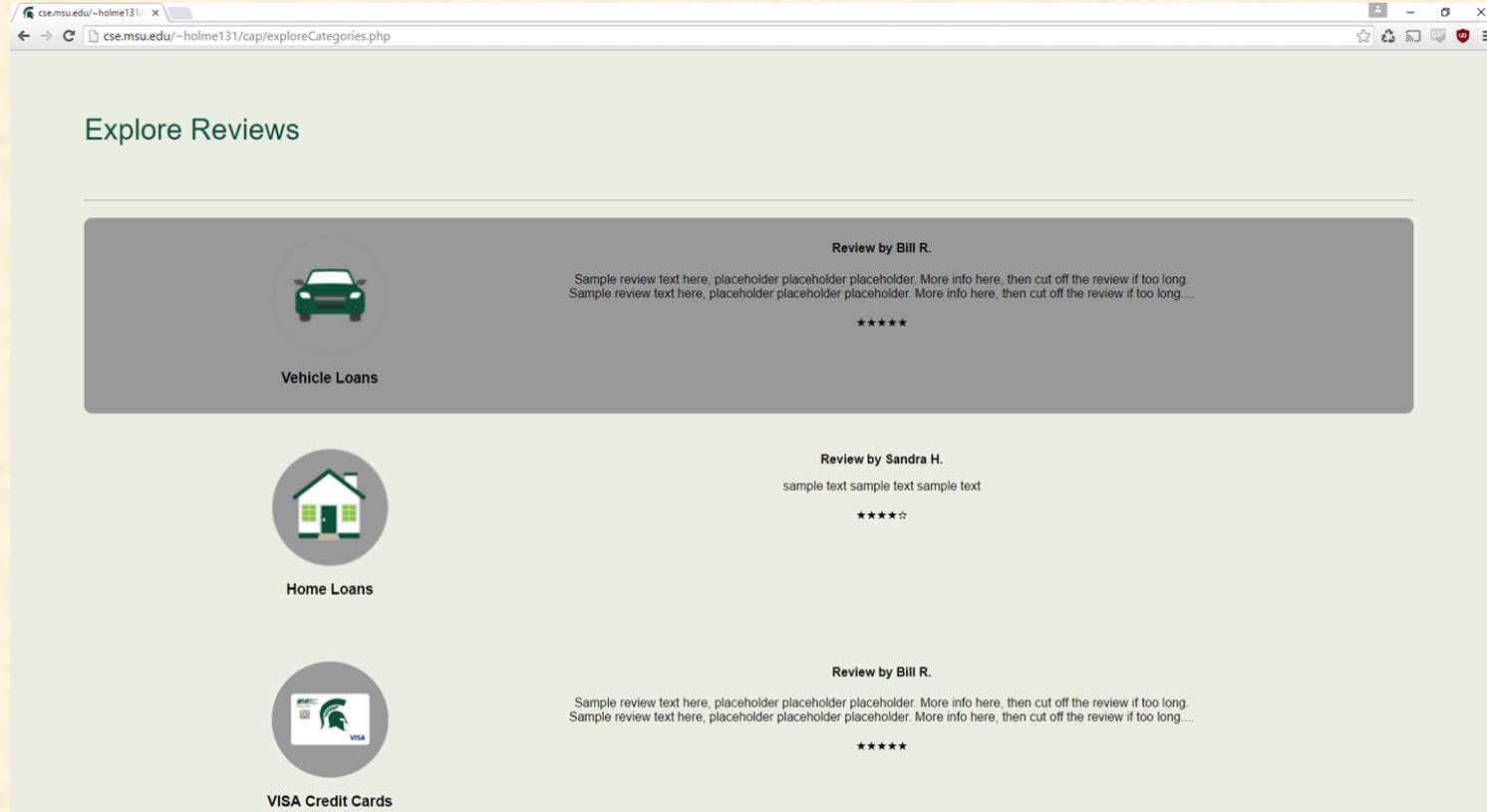




Team MSUFCU  
Project Plan Presentation

# Team MSUFCU Project Plan Presentation

## Screen Mockup





# Team MSUFCU Alpha Presentation

# Team MSUFCU Alpha Presentation

e.

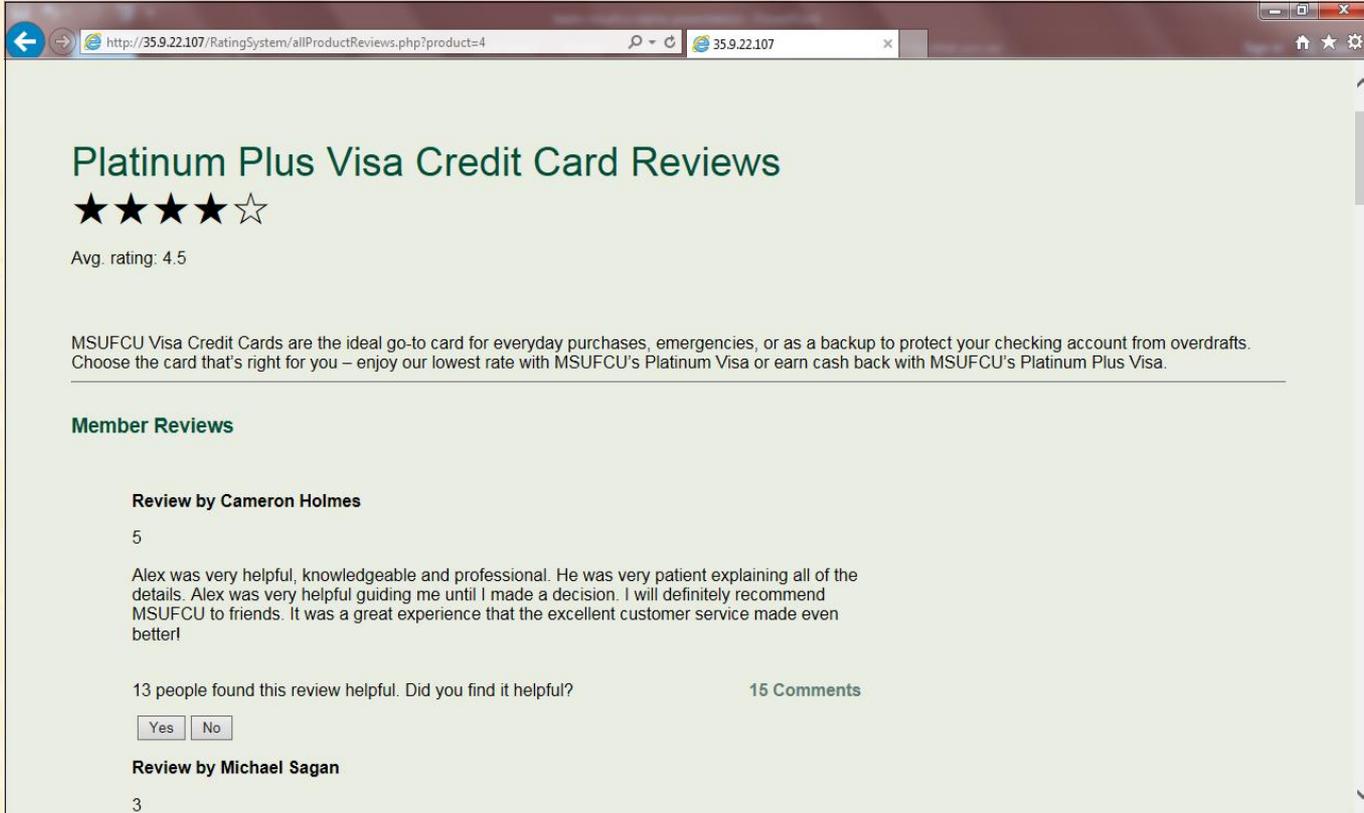
## iPhone/iPad Product Overview



# Team MSUFCU Alpha Presentation

e.

## Web App: Product Top Reviews



The screenshot shows a web browser window with the following content:

- Address bar: <http://35.9.22.107/RatingSystem/allProductReviews.php?product=4>
- Page Title: Platinum Plus Visa Credit Card Reviews
- Rating: ★★★★★ (4.5 stars)
- Avg. rating: 4.5
- Text: MSUFCU Visa Credit Cards are the ideal go-to card for everyday purchases, emergencies, or as a backup to protect your checking account from overdrafts. Choose the card that's right for you – enjoy our lowest rate with MSUFCU's Platinum Visa or earn cash back with MSUFCU's Platinum Plus Visa.
- Section Header: Member Reviews
- Review by Cameron Holmes: 5 stars. Text: Alex was very helpful, knowledgeable and professional. He was very patient explaining all of the details. Alex was very helpful guiding me until I made a decision. I will definitely recommend MSUFCU to friends. It was a great experience that the excellent customer service made even better!
- Interaction: 13 people found this review helpful. Did you find it helpful? (Yes/No buttons) 15 Comments
- Review by Michael Sagan: 3 stars





Team MSUFCU  
Alpha Presentation

# Team MSUFCU Alpha Presentation

## Android Category Listing



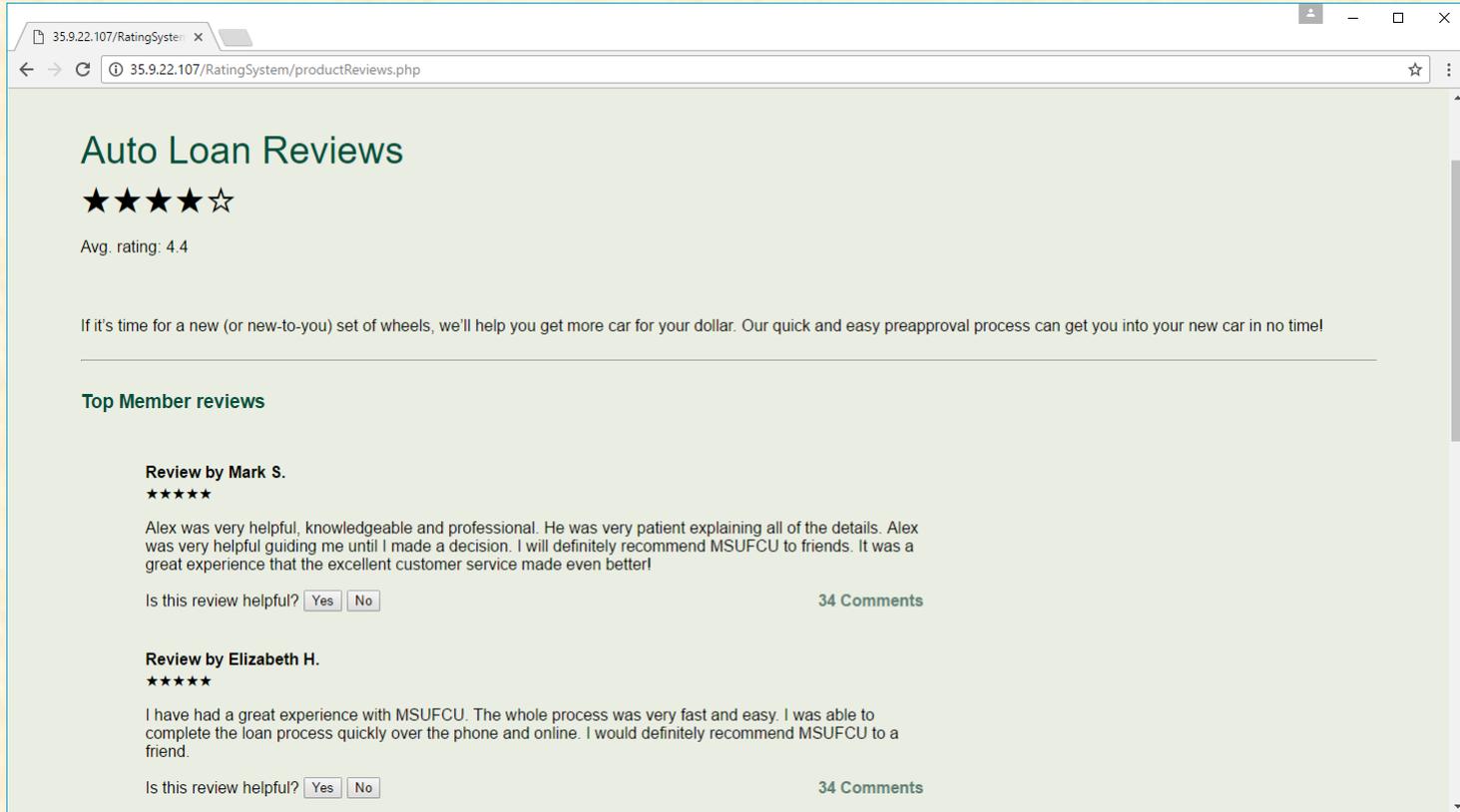


# Team MSUFCU Beta Presentation

# Team MSUFCU Beta Presentation

e.

Web



The screenshot shows a web browser window with the address bar displaying "35.9.22.107/RatingSystem/productReviews.php". The page content includes:

- Auto Loan Reviews**
- ★★★★☆
- Avg. rating: 4.4
- Text: "If it's time for a new (or new-to-you) set of wheels, we'll help you get more car for your dollar. Our quick and easy preapproval process can get you into your new car in no time!"
- Top Member reviews**
- Review by Mark S.** (★★★★★)  
Alex was very helpful, knowledgeable and professional. He was very patient explaining all of the details. Alex was very helpful guiding me until I made a decision. I will definitely recommend MSUFCU to friends. It was a great experience that the excellent customer service made even better!  
Is this review helpful?   [34 Comments](#)
- Review by Elizabeth H.** (★★★★★)  
I have had a great experience with MSUFCU. The whole process was very fast and easy. I was able to complete the loan process quickly over the phone and online. I would definitely recommend MSUFCU to a friend.  
Is this review helpful?   [34 Comments](#)

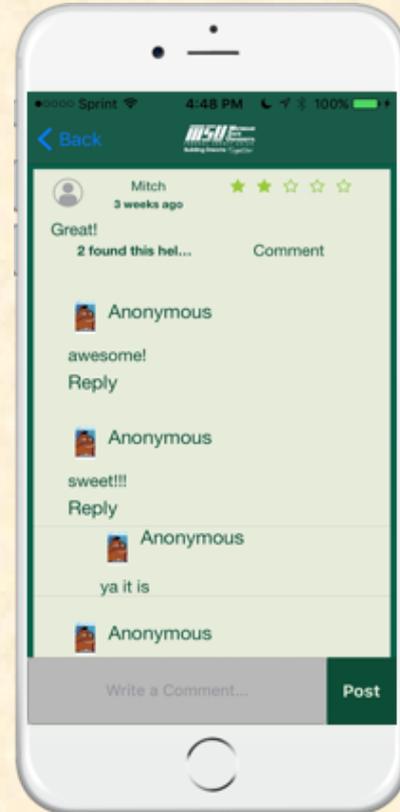
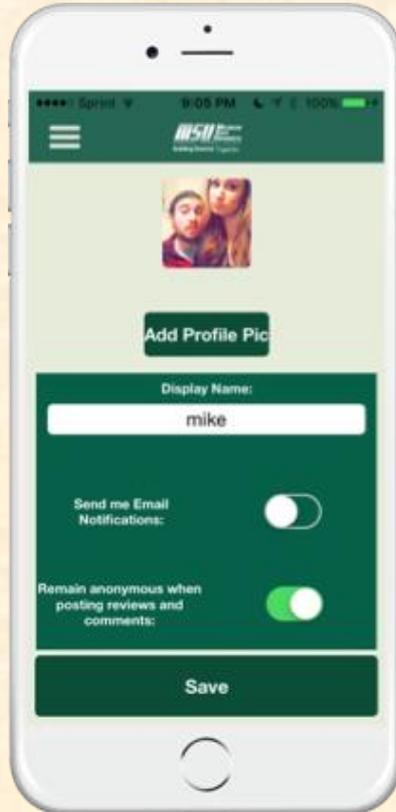
The Capstone Experience



# Team MSUFCU Beta Presentation

e.

Apple iPhone



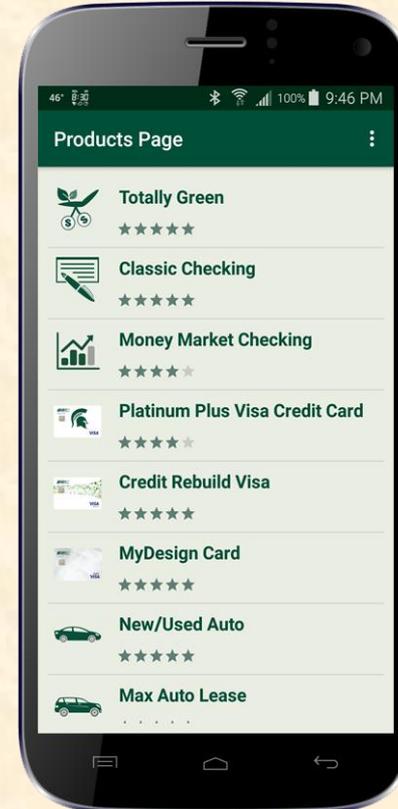
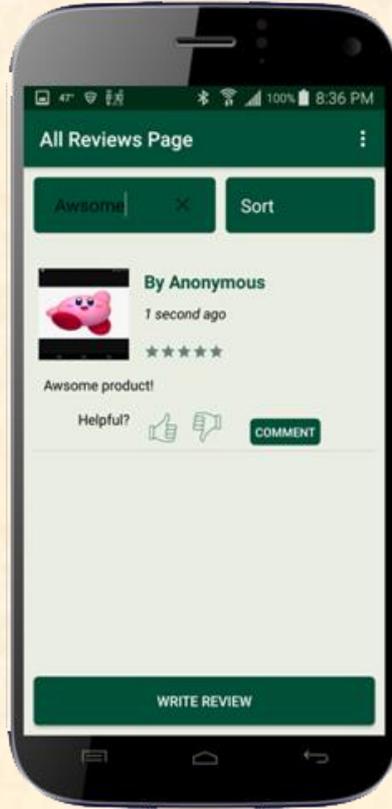
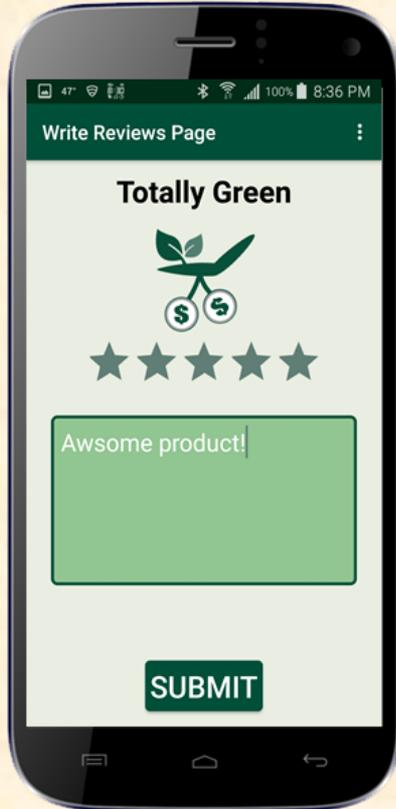


# Team MSUFCU Beta Presentation

# Team MSUFCU Beta Presentation

e.

Google Android



The Capstone Experience





Team MSUFCU  
Design Day

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# *The Capstone Experience*

## Team Quicken Loans

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*

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Engineered to **Amaze<sup>SM</sup>**

# Quicken Loans®

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Buy a House

Loan Options

Mortgage Rates

Calculators

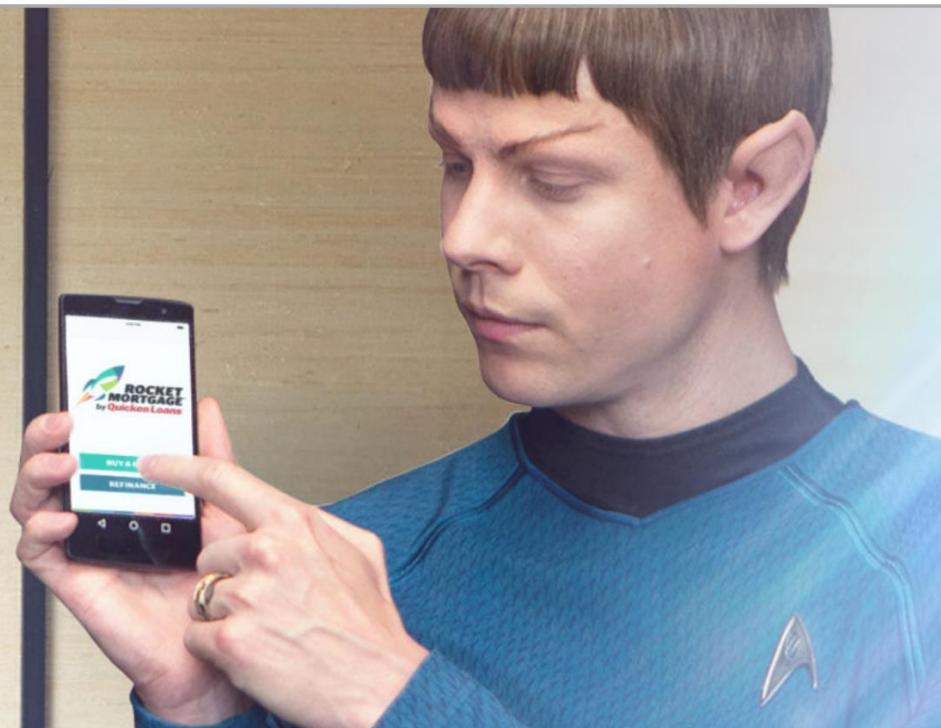
About Us

ZING! Blog



## FAST. POWERFUL. COMPLETELY ONLINE. THE LOGICAL CHOICE.

Start Rocket Mortgage



STAR TREK  
**BEYOND**  
NOW IN THEATERS

# Team Quicken Loans Project Overview

## Pharos: Hiring Process Automation

- Functionalities
  - Build Intelligence and Personality Test App
  - For Team Member Selection Process
  - To Minimize Subjectivity
- Features
  - Support Timed and Untimed Tests
  - Present Results Textually and Graphically
  - Align Test Outcomes with Internal Roles
  - Leverage
    - Data Science and Business Intelligence
    - Progressive Random Matrices
- Technologies
  - CSS / HTML
  - JavaScript / AngularJS
  - Microsoft C# / .NET
  - SQL Server
  - GitHub



**Quicken Loans**  
Engineered to **Amaze**<sup>™</sup>  
Detroit, Michigan





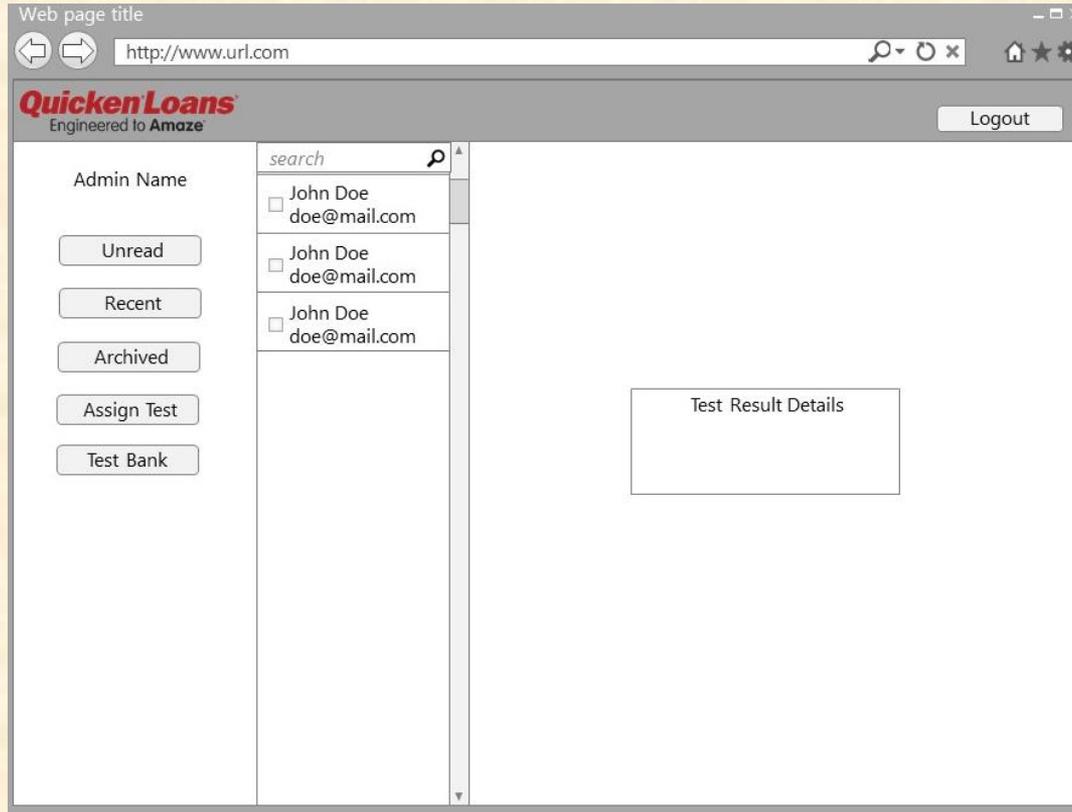
## Team Quicken Loans

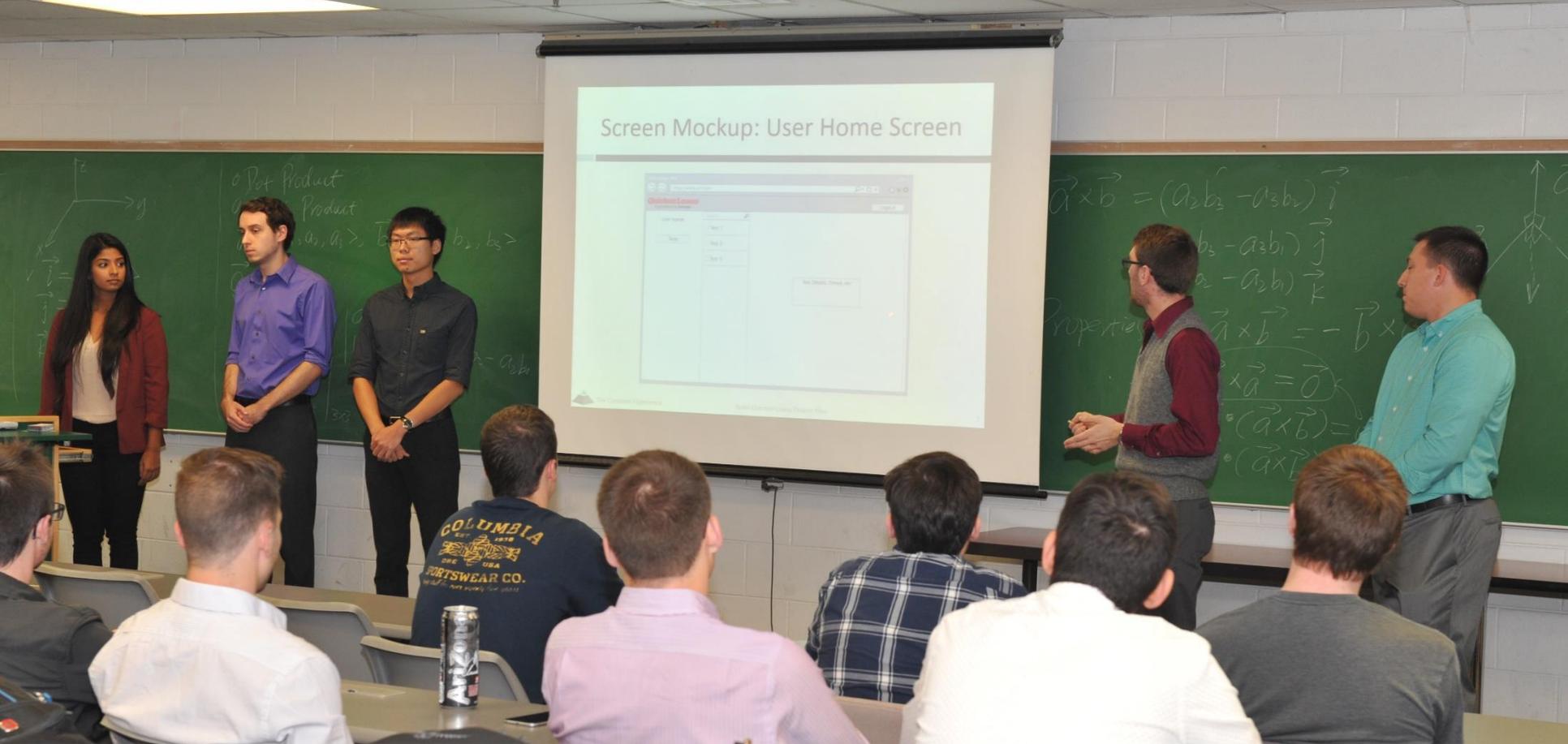
Andrew Davis, Tom Wang, Paul Lapczynski, Sonu Chinta, Dan Thompson

# Team Quicken Loans Project Plan Presentation

e.

Screen Mockup

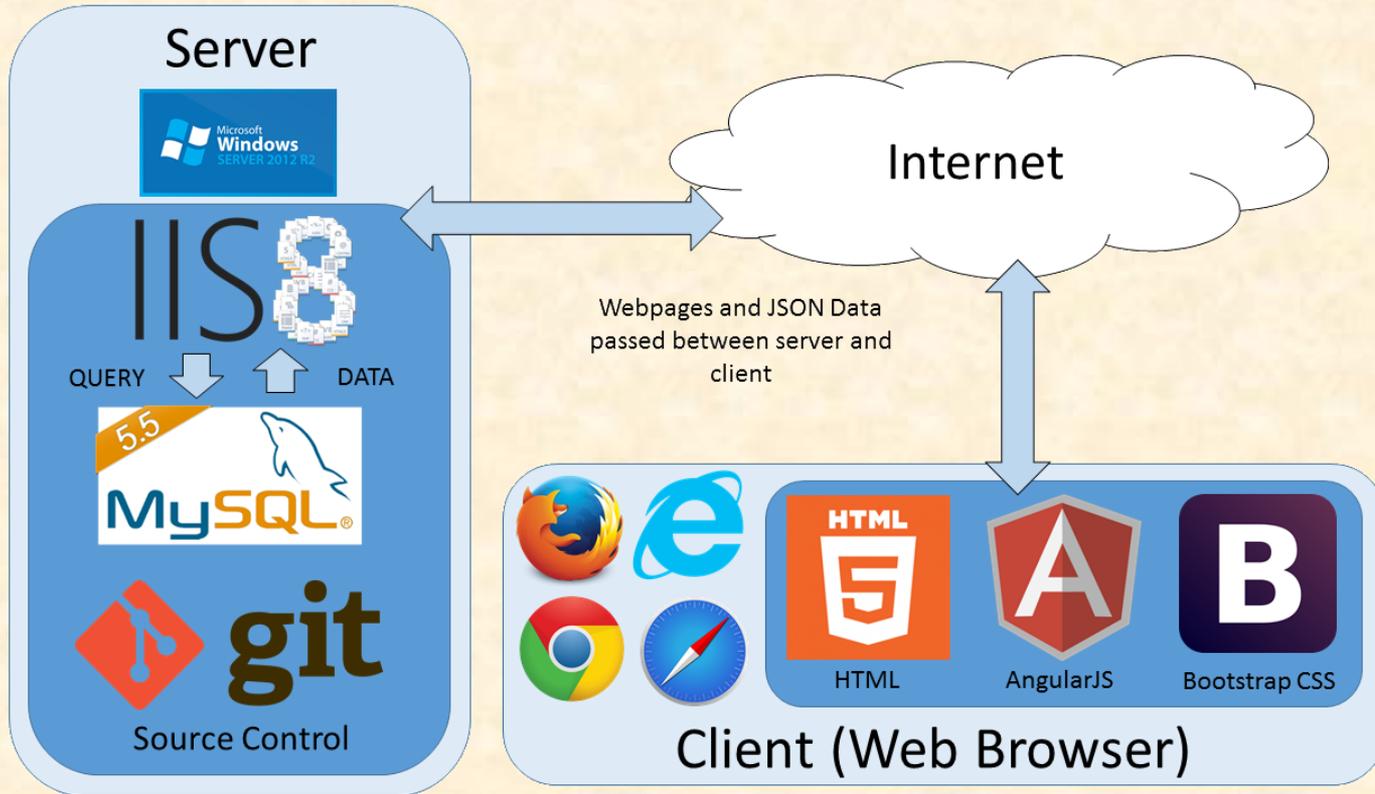


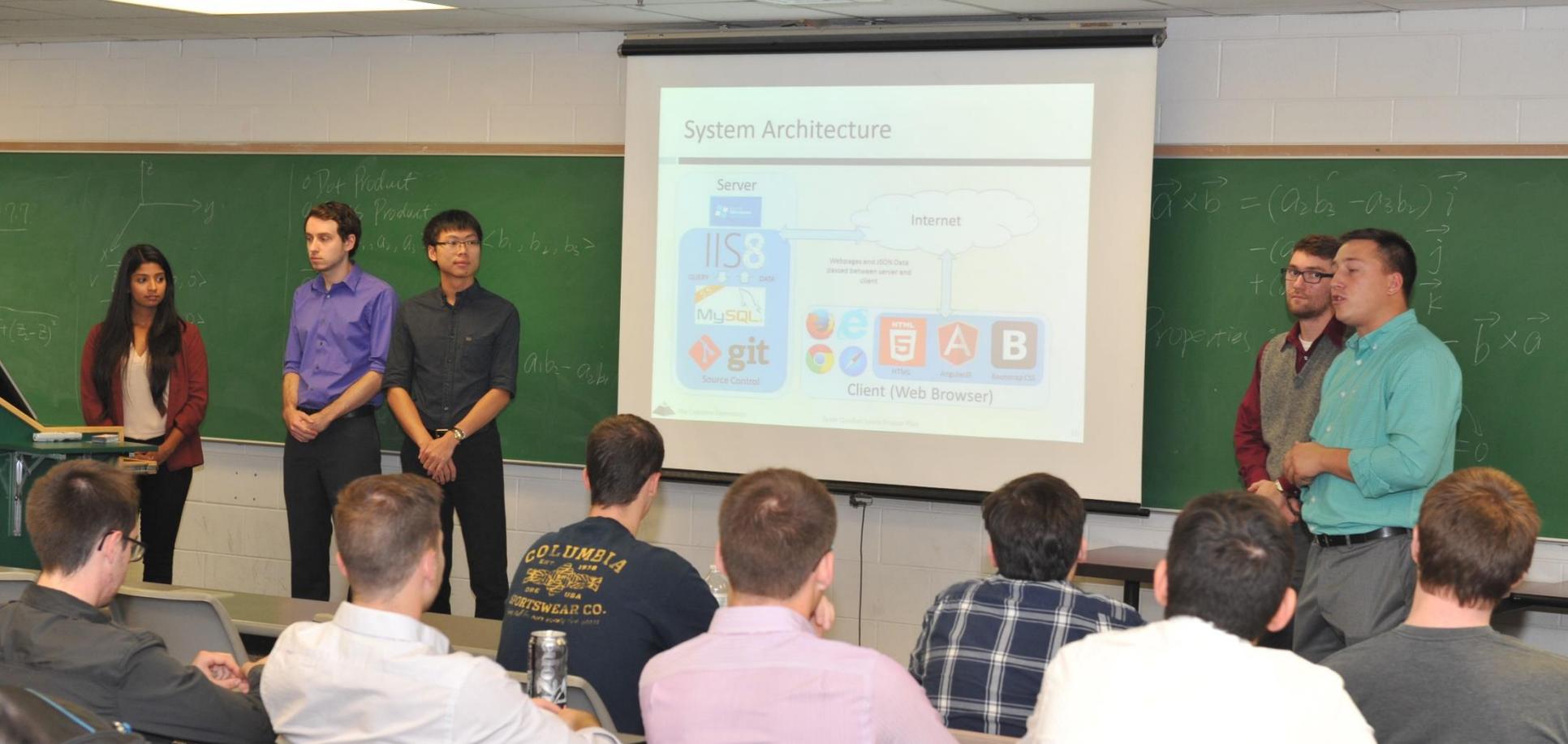


# Team Quicken Loans Project Plan Presentation

# Team Quicken Loans Project Plan Presentation

## Architecture Diagram



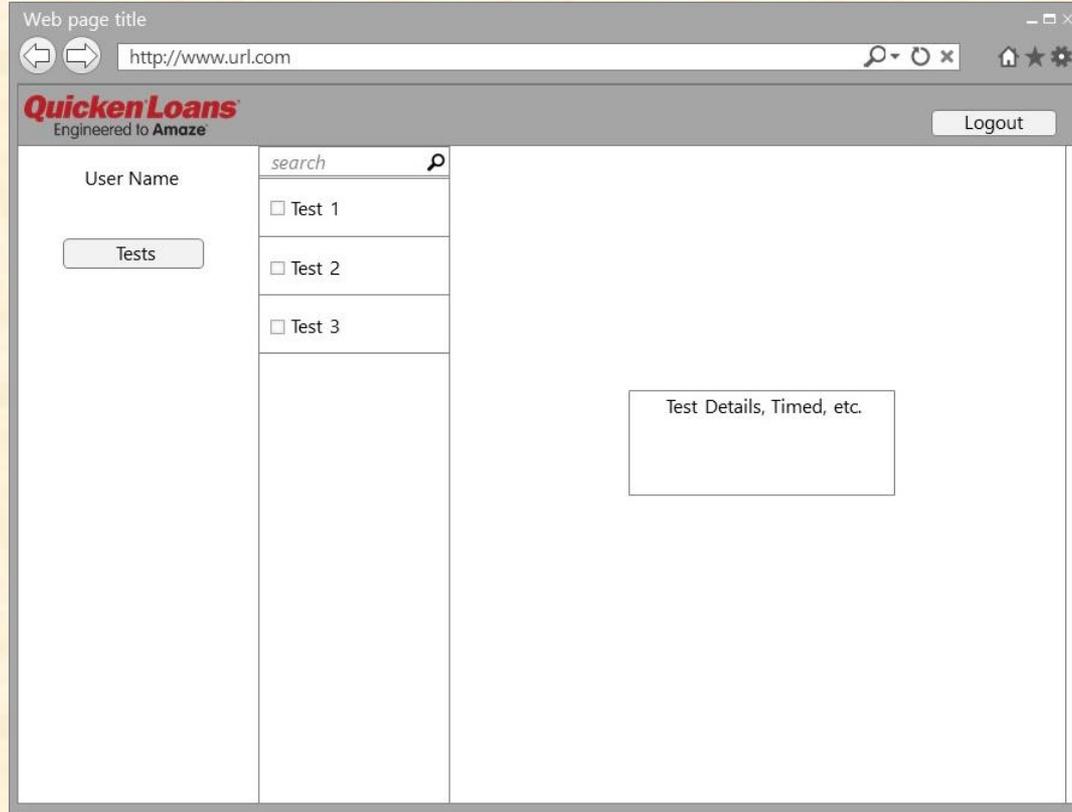


Team Quicken Loans  
Project Plan Presentation

# Team Quicken Loans Project Plan Presentation

e.

Screen Mockup





Team Quicken Loans  
Alpha Presentation

# Team Quicken Loans Alpha Presentation

e.

Recruit – Dashboard

The screenshot displays a web browser window with the URL [www.quickenloans.psychometrics.com](http://www.quickenloans.psychometrics.com). The page features a sidebar on the left with the Quicken Loans logo and the name 'Randolph Warner'. Below the name are two buttons: 'Tests' and 'Logout'. The main content area contains three identical test cards, each titled 'General Personality Test'. Each card includes a description: 'This is a test that let's us get to you know a little better!'. Below the description is a section labeled 'Personality Test' containing instructions: 'Answer each question on a scale from Very Accurate to very Inaccurate. Please answer as honestly as possible!'. Additional details for each test are 'One Page? Yes' and 'Time Limit: 0'. A 'Start Test' button is located at the bottom of each card.

The Capstone Experience



# Team Quicken Loans Alpha Presentation

Home Page - My ASP.NET x  
www.quickenloans.psychometrics.com

## General Personality Test

Answer each question on a scale of Very Accurate to Very Inaccurate. Please answer as honestly as possible.

I avoid tasks or jobs that involve dealing with people.

- Very Inaccurate
- Somewhat Inaccurate
- Neither
- Somewhat Accurate
- Very Accurate

I often worry about being criticized or rejected in social situations.

- Very Inaccurate
- Somewhat Inaccurate
- Neither
- Somewhat Accurate
- Very Accurate

I focus on career progression.



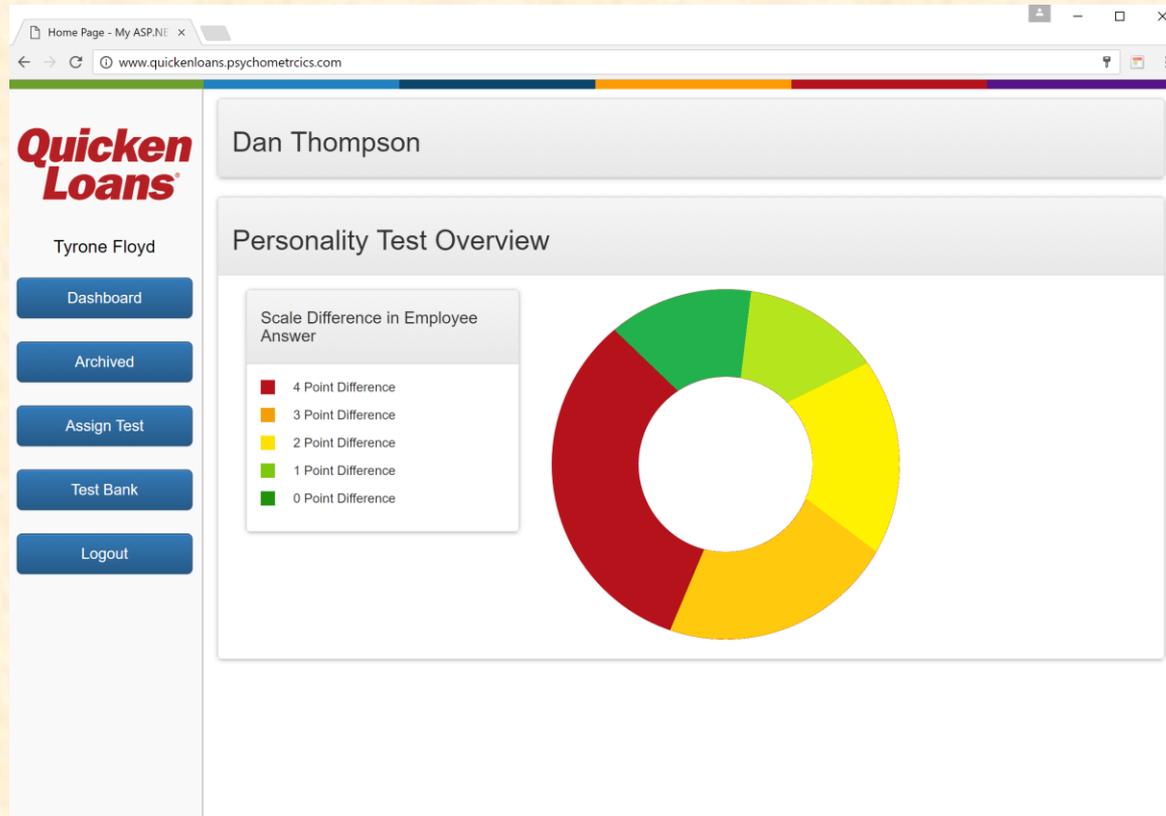


Team Quicken Loans  
Alpha Presentation

# Team Quicken Loans Alpha Presentation

e.

Administrator – View Results





# Team Quicken Loans Beta Presentation

# Team Quicken Loans Beta Presentation

e.

## Test Configuration

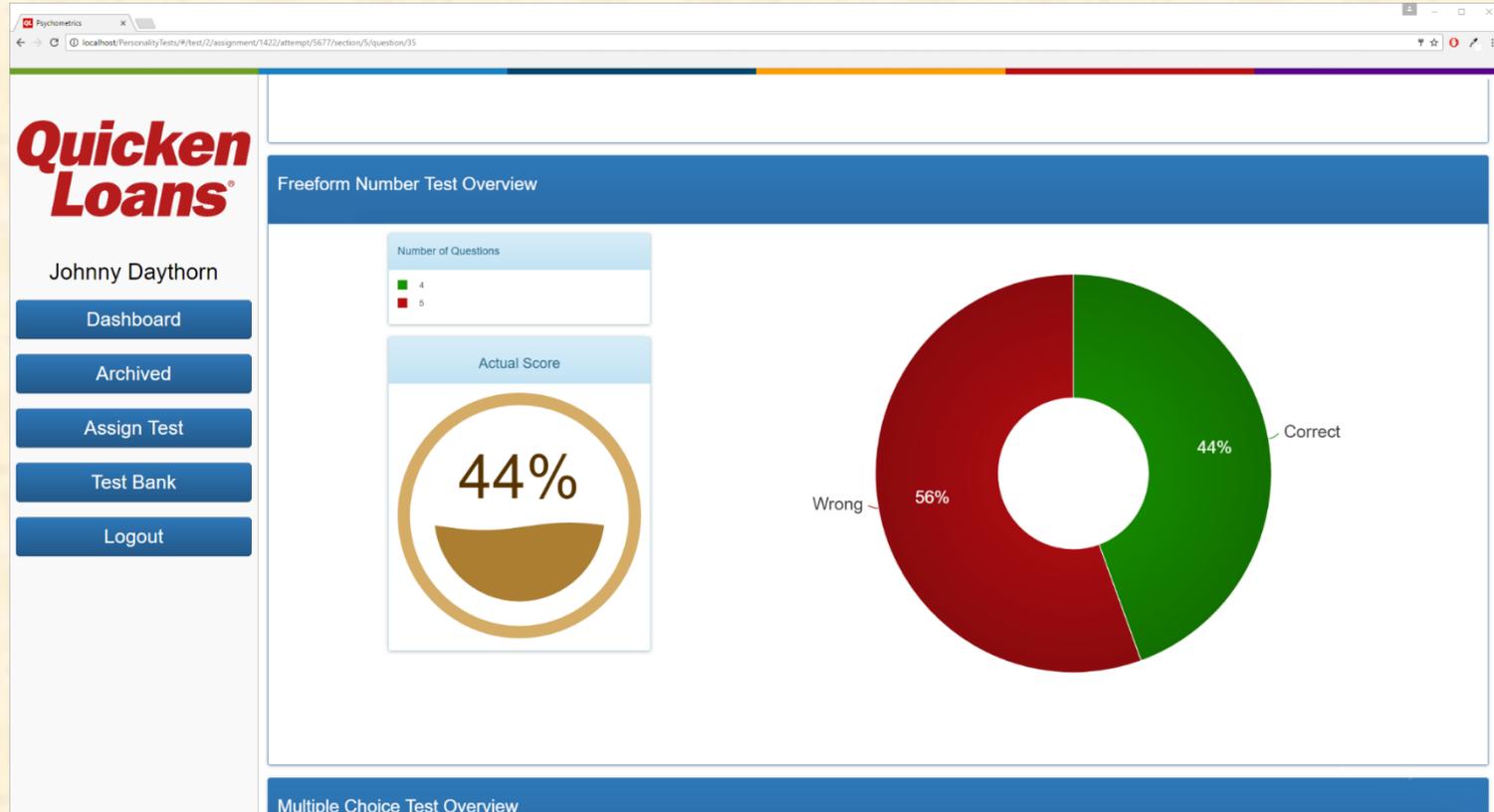
The screenshot displays the 'Test Configuration' interface within a web browser. The browser's address bar shows 'localhost/Personality/Tests/#/admin'. On the left, the 'Quicken Loans' logo is visible above the user name 'Paul Admin'. A vertical sidebar contains five navigation buttons: 'Dashboard', 'Archived', 'Assign Test', 'Test Bank', and 'Logout'. The main content area is titled 'Test Configuration' and is divided into three panels: 'Test Description', 'Sections', and 'Questions'. The 'Test Description' panel includes fields for 'Name' (containing 'Recruit Examination') and 'Description' (containing 'Enter description...'), along with a green 'Save' button. The 'Sections' panel features an 'Add Section' button, a 'Name' field (with 'Enter name...' placeholder), an 'Instructions' field (with 'Enter instructions...' placeholder), a 'Question Type' dropdown menu (set to 'Placeholder'), and a 'Time Limit' section with three input fields for 'H' (0), 'M' (0), and 'S' (0). A 'Select Section' button is located at the bottom of this panel. The 'Questions' panel shows a 'Section:' header, a 'Question Text' field (with 'Enter question text...' placeholder), and an 'Add Question' button.



# Team Quicken Loans Beta Presentation

e.

## Results Overview: Personality



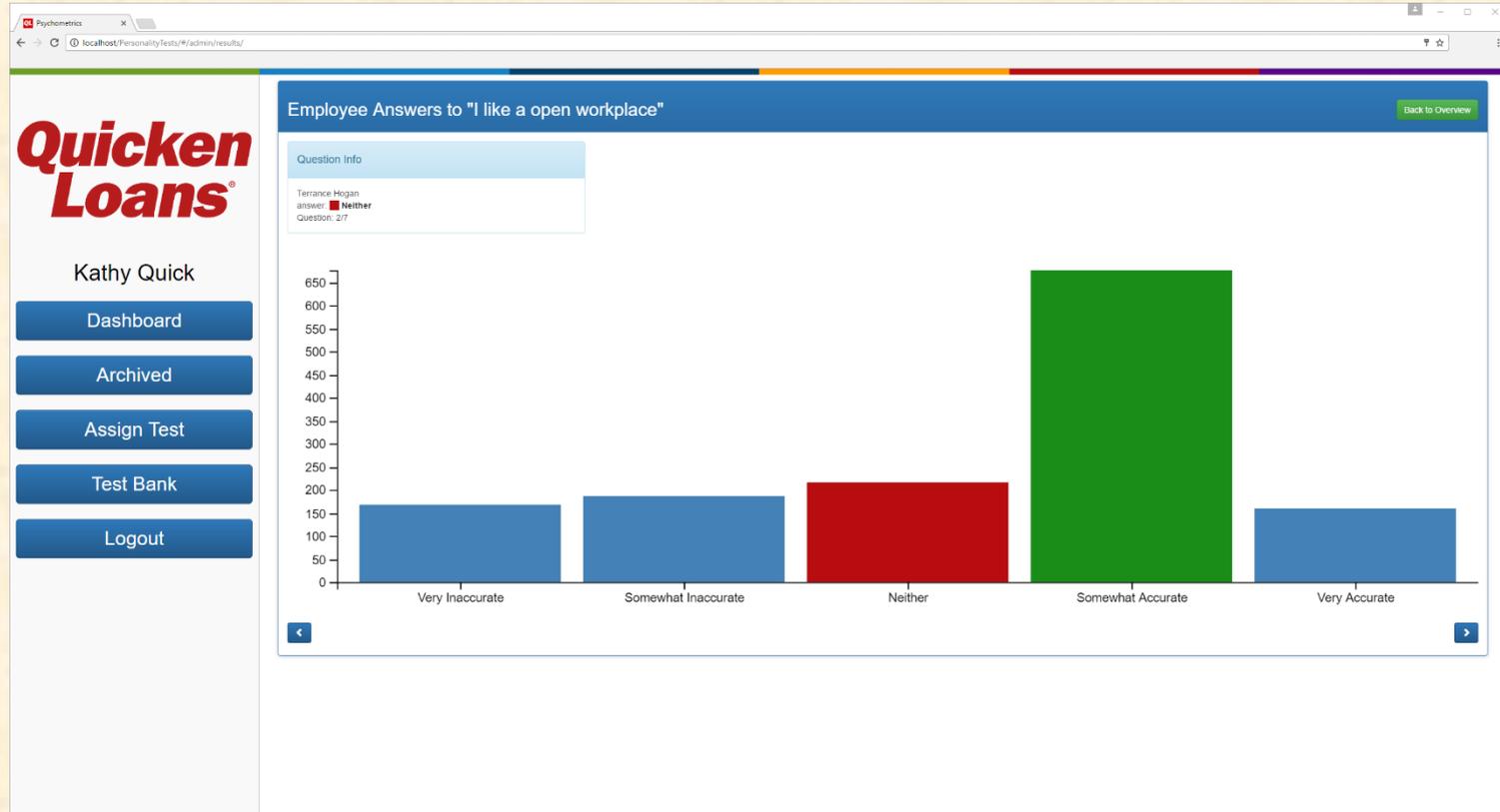


Team Quicken Loans  
Beta Presentation

# Team Quicken Loans Beta Presentation

e.

## Question Details





Team Quicken Loans  
Design Day

MICHIGAN STATE  
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# *The Capstone Experience*

Team Rook

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



**IRROOK<sup>TM</sup>**  
**SECURITY**



HOME

WHO WE ARE

WHAT WE DO

RESOURCES

CAREERS

CONTACT



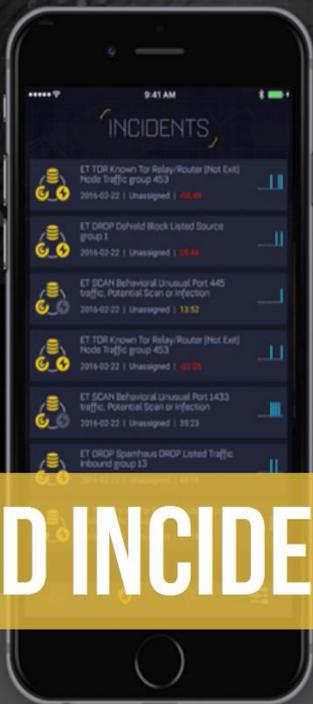
# WAR ROOM™

THE ONE-CLICK FORCE MULTIPLIER

Extending the FORCE+ platform, War Room™ provides real-time incident and crisis management for your entire team.



# UNIFIED INCIDENT MANAGEMENT



# Team Rook Project Overview

## Anomaly Detection Suite v2.0

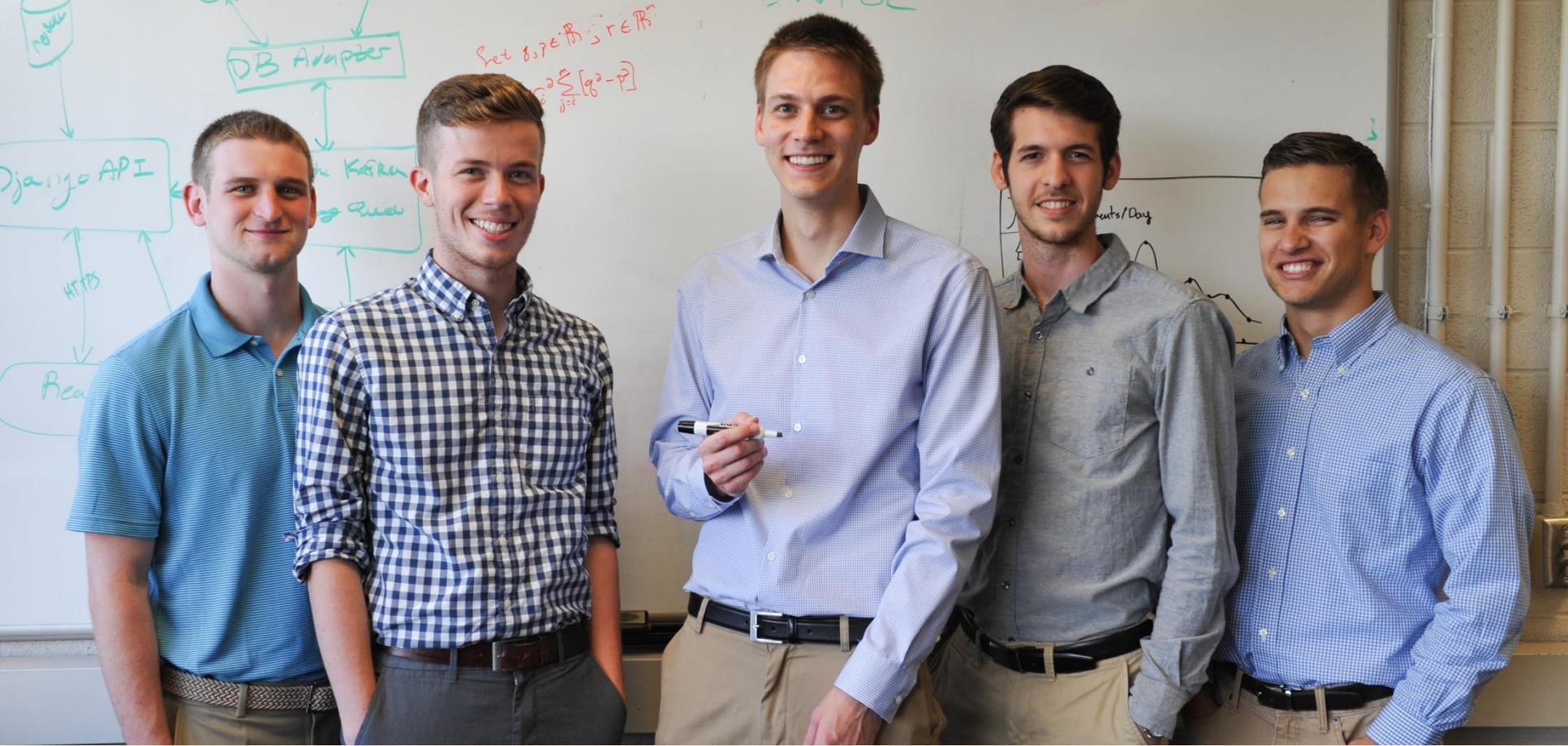
- Functionalities
  - Enhance Rook's Anomaly Detection Suite (ADS)
  - By
    - Adding Features to the Windows Agent
    - Creating a Linux-Based Agent
    - Creating an Apple OS X Agent
    - Building a Web Management Console
- Features
  - Improve Performance of Windows Agent
  - Design and Build New Agents
    - For Linux and Apple OS X
    - Based on Windows Agent Features
  - Add Encryption to Communication and Storage
  - Support Remote Updates
- Technologies
  - Operating Systems
    - Ubuntu Linux
    - Microsoft Windows x64 (7, 8 & 10)
    - Apple OS X (10.0 – 10.11)
  - PCAP Library (Packet Capture)
  - PF\_RING (Kernel Module for NIC Polling)
  - React.js (Management Console)
  - MySQL, SQLite
  - Machine Learning
  - Suricata (Network Monitoring Engine)
  - C (Agent/Server)



**ROOK**<sup>®</sup>  
**SECURITY**  
Indianapolis, Indiana

The Capstone Experience





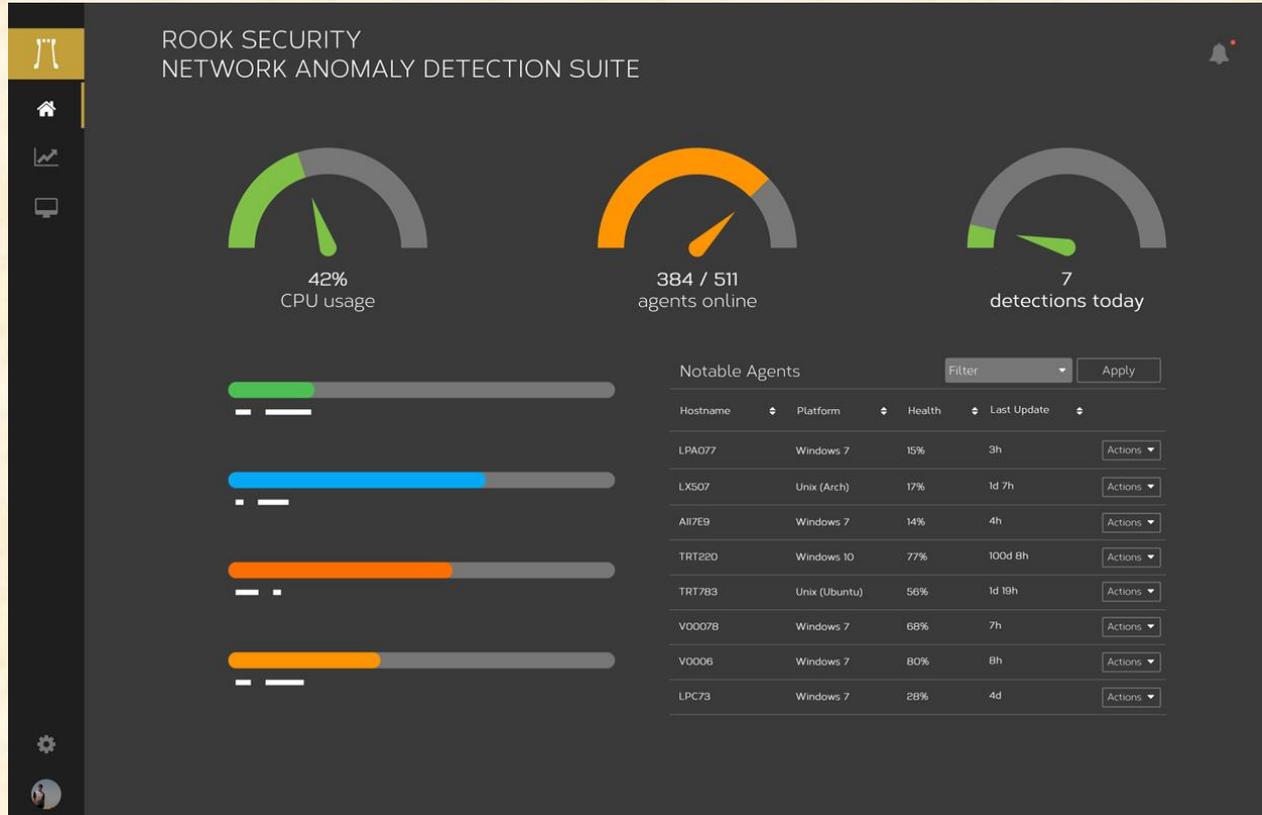
## Team Rook

Zach Rosenthal, Grant Levene, Brian Harazim, Cam Gibson, Andrew Werner

# Team Rook Project Plan Presentation

e.

Screen Mockup

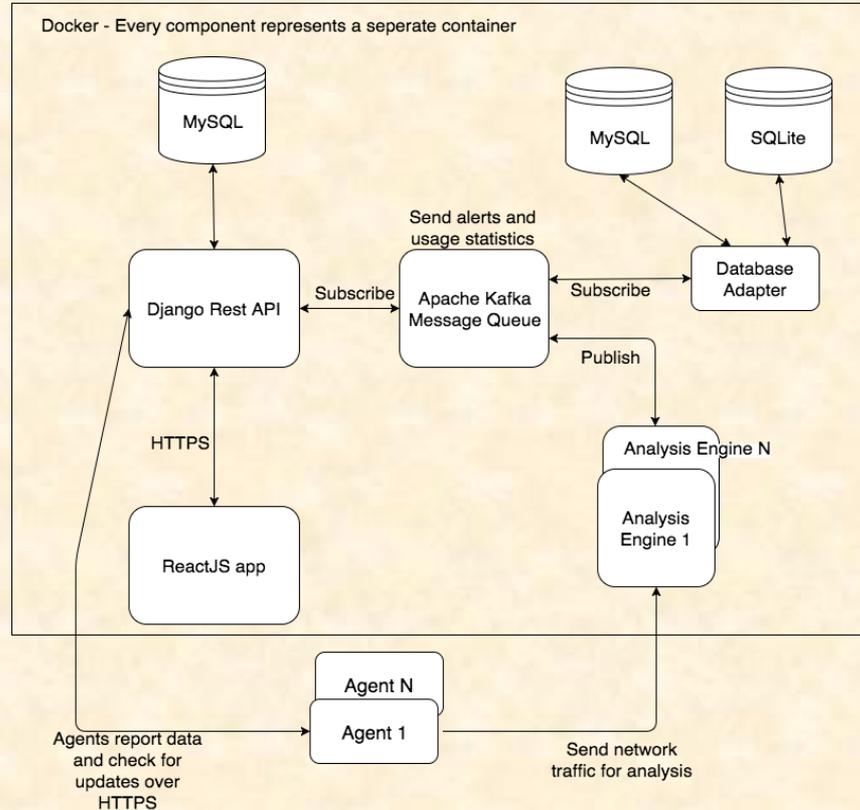




# Team Rook Project Plan Presentation

# Team Rook Project Plan Presentation

## Architecture Diagram





# Team Rook Project Plan Presentation

e.

Screen Mockup

The screenshot shows a dark-themed dashboard with a sidebar on the left containing navigation icons (home, line graph, monitor, settings, profile). The main content area is titled 'Network Agents' and features a table with columns for Hostname, Platform, Health, Last Update, Version, Department, User, Status, and Actions. A 'Filter' dropdown is located in the top right of the table area. The table lists eight agents with varying health percentages and statuses.

Hostname	Platform	Health	Last Update	Version	Department	User	Status	Actions
LPA077	Windows 7	15%	3h	1.2.3	Human Resources	zhe0201	Healthy	Actions
LX507	Unix (Arch)	17%	1d 7h	1.2.1	Quality Assurance	hdq1299	Needs Update	Actions
All7E9	Windows 7	14%	4h	1.2.3	Human Resources	jdk7792	Healthy	Actions
TRT220	Windows 10	77%	100d 8h	1.2.3	Mobile Techno..	lkd8721	Healthy	Actions
TRT783	Unix (Ubuntu)	56%	1d 19h	1.2.2	Systems	lei1998	Anomaly Detected	Actions
V00078	Windows 7	68%	7h	1.1.9	Database Admin..	lsk0865	Needs Update	Actions
V0006	Windows 7	80%	8h	1.0.1	Human Resources	zh0615	Needs Update	Actions
LPC73	Windows 7	28%	4d	1.2.3	Quality Assurance	yyz9434	Anomalies Detected	Actions



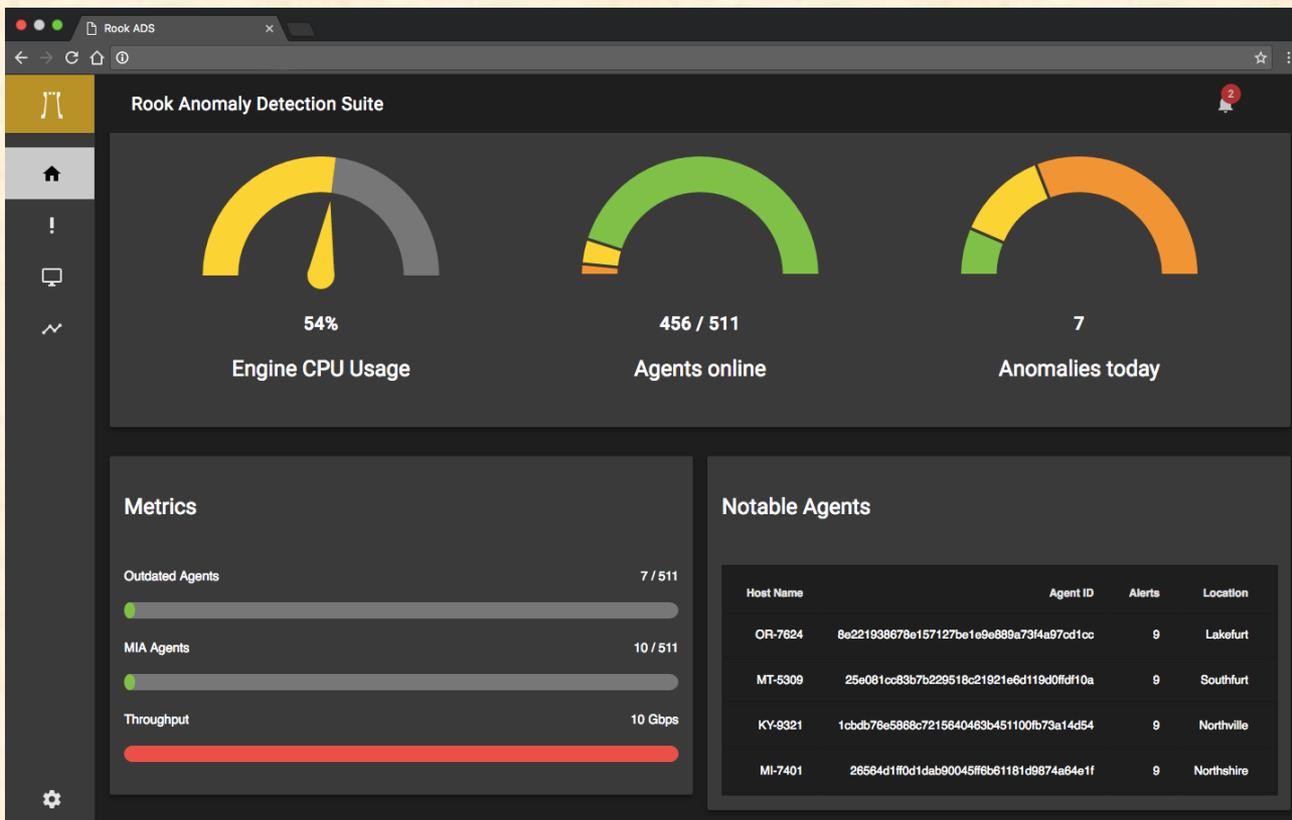


Team Rook  
Alpha Presentation

# Team Rook Alpha Presentation

e.

Dashboard: Home Page



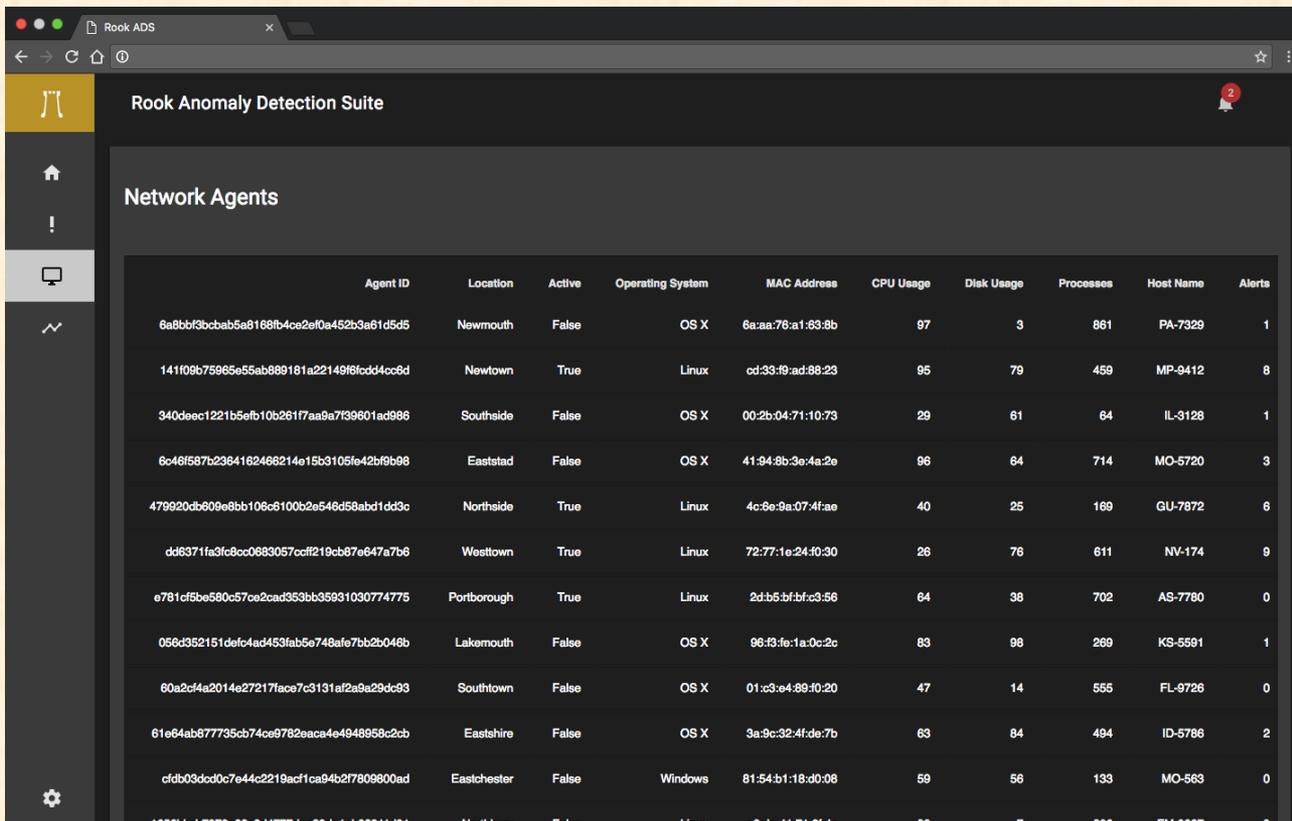
The Capstone Experience



# Team Rook Alpha Presentation

e.

Dashboard: Agent Management



The screenshot displays the 'Rook Anomaly Detection Suite' interface. The main content area is titled 'Network Agents' and contains a table with the following columns: Agent ID, Location, Active, Operating System, MAC Address, CPU Usage, Disk Usage, Processes, Host Name, and Alerts. The table lists 10 agents with their respective status and metrics.

Agent ID	Location	Active	Operating System	MAC Address	CPU Usage	Disk Usage	Processes	Host Name	Alerts
6a8bbf3bcab5a8168fb4ce2ef0a452b3a61d5d5	Newmouth	False	OS X	6a:aa:76:a1:63:8b	97	3	861	PA-7329	1
141f09b75965e55ab888181a22149f8fcd4cc9d	Newtown	True	Linux	cd:33:f9:ad:88:23	95	79	459	MP-9412	8
340deec1221b5efb10b2617aa9a7f39601ad986	Southside	False	OS X	00:2b:04:71:10:73	29	61	64	IL-3128	1
6c46f587b2364162468214e15b3105fe42bf9b98	Eaststad	False	OS X	41:94:8b:3e:4a:2e	96	64	714	MO-5720	3
479920db60e8bb106e6100b2e546d58abd1dd3c	Northside	True	Linux	4c:6e:9a:07:4f:ae	40	25	169	GU-7872	6
dd6371fa3fc0c0689057ccff219cb87e647a7b6	Westtown	True	Linux	72:77:1e:24:f0:30	26	76	611	NV-174	9
e781cf5be580c57ce2cad353b135931030774775	Portborough	True	Linux	2d:b5:bf:bf:c3:56	64	98	702	AS-7780	0
056d352151defc4ad453fab5e748afe7bb2b048b	Lakemouth	False	OS X	96:f3:fe:1a:0c:2c	83	88	269	KS-5591	1
60a2cf4a2014e27217face7c3131af2a9a29dc93	Southtown	False	OS X	01:c3:e4:89:f0:20	47	14	555	FL-9726	0
61e64ab877735cb74cc9782eaca4e4948958c2cb	Eastshire	False	OS X	3a:9c:32:4f:de:7b	63	84	494	ID-5786	2
ctdb03dcd0c7e44c2219acf1ca94b2f7809800ad	Eastchester	False	Windows	81:54:b1:18:d0:08	59	56	133	MO-563	0
1858b1b13929c82c04377274e90441b10991f101	Northbury	False	Linux	29:ae:f1:31:04:1e	89	7	908	FL-0827	0





Team Rook  
Alpha Presentation

# Team Rook Alpha Presentation

## Performance Statistics

%	image name	app name
81.7770	libsqlite3.so.0.8.6	analyze
100.000	libsqlite3.so.0.8.6	analyze

```

CPU: Intel Core/i7, speed 2792.93 MHz (estimated)
Counted CPU_CLK_UNHALTED events (Clock cycles when not halted) with a unit mask of 0x00 (No unit mask) count 100000
-----
samples %      image name          app name          symbol name
-----
435595  81.7770  libsqlite3.so.0.8.6  analyze          /usr/lib/x86_64-linux-gnu/libsqlite3.so.0.8.6
435595  100.0000  libsqlite3.so.0.8.6  analyze          /usr/lib/x86_64-linux-gnu/libsqlite3.so.0.8.6 [self]
-----
65420   12.2817  libc-2.19.so         analyze          /lib/x86_64-linux-gnu/libc-2.19.so
65420   100.0000  libc-2.19.so         analyze          /lib/x86_64-linux-gnu/libc-2.19.so [self]
-----
7589    1.4247  libpthread-2.19.so   analyze          pthread_mutex_unlock
7589    100.0000  libpthread-2.19.so   analyze          pthread_mutex_unlock
-----
7209    1.3534  libmysqldclient.so.18.0.0 analyze          /usr/lib/x86_64-linux-gnu/libmysqldclient.so.18.0.0
7209    100.0000  libmysqldclient.so.18.0.0 analyze          /usr/lib/x86_64-linux-gnu/libmysqldclient.so.18.0.0 [self]
-----
7013    2.3168  libpthread-2.19.so   analyze          pthread_mutex_lock
7013    100.0000  libpthread-2.19.so   analyze          pthread_mutex_lock
    
```

%	self	total	name
time us/call	us/call	us/call	
66.67	32.37	32.37	Many SQLite Query

Each sample counts as 0.01 seconds.

%	cumulative	self	calls	self	total	name
time	seconds	seconds		us/call	us/call	
66.67	0.02	0.02	618	32.37	32.37	
0.00	0.03	0.00	50195	0.00	0.00	test_result
0.00	0.03	0.00	12360	0.00	0.00	
0.00	0.03	0.00	3974	0.00	0.00	
0.00	0.03	0.00	3703	0.00	0.00	check_ip
0.00	0.03	0.00	3471	0.00	0.00	
0.00	0.03	0.00	3315	0.00	0.00	
0.00	0.03	0.00	3020	0.00	0.00	
0.00	0.03	0.00	2016	0.00	0.00	socket_tcp_open
0.00	0.03	0.00	1486	0.00	0.00	
0.00	0.03	0.00	919	0.00	0.00	
0.00	0.03	0.00	618	0.00	0.00	
0.00	0.03	0.00	618	0.00	0.00	



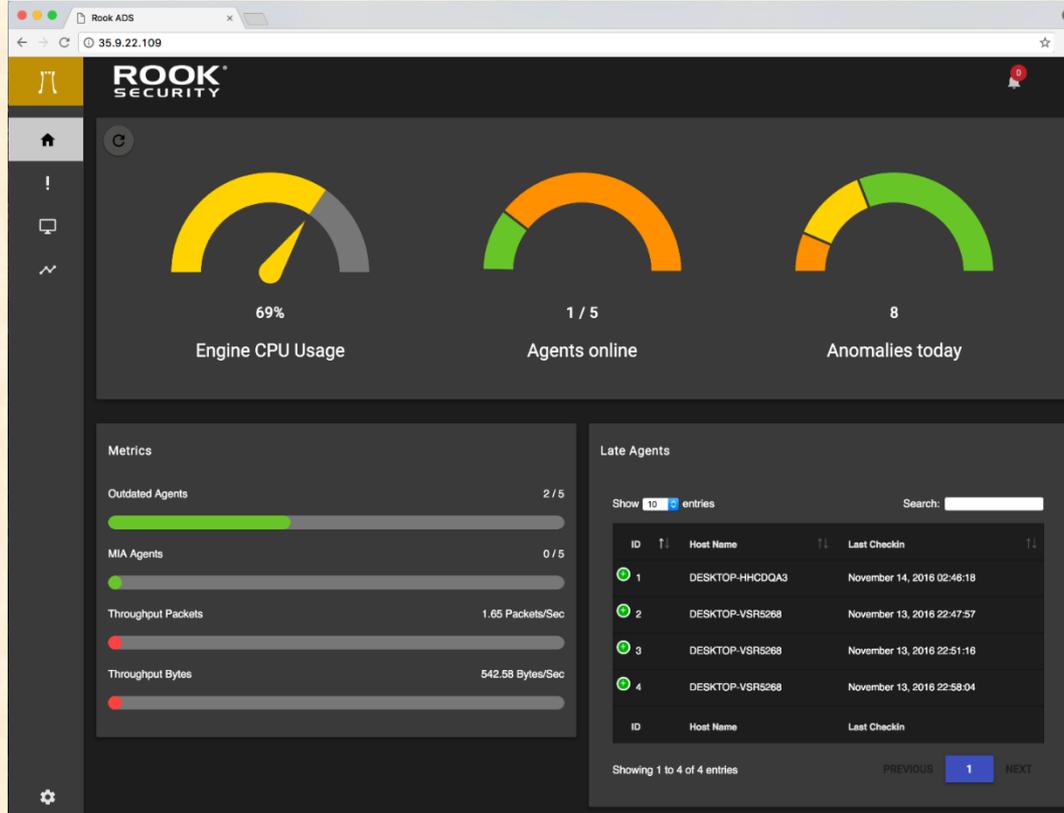


Team Rook  
Beta Presentation

# Team Rook Beta Presentation

e.

Dashboard: Home Page



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# Team Rook Beta Presentation

e.

## Dashboard: Agent Management

The screenshot shows the Rook Security dashboard for Agent Management. The browser address bar indicates the URL is 35.9.22.109/agents. The dashboard features a sidebar with navigation icons and a main content area titled "Network Agents".

Network Agents

Show 10 entries Search:

ID	Host Name	OS	CPU	MEM	Num. Processes	Disk Space	MAC	Current Version	Select Update
1	DESKTOP-HHCDQA3	Windows 10.0.14393	100%	55.1%	89	29.84%	00:0C:29:74:E1:82	1.0.0	1.0.0
2	DESKTOP-VSR5268	Windows 10.0.14393	62.61%	32.52%	77	47.49%	00:0C:29:E3:70:D5	1.2.1	1.2.1
3	DESKTOP-VSR5268	Windows 10.0.14393	73.98%	47.02%	83	47.49%	00:0C:29:F4:B6:78	1.2.1	1.2.1
4	DESKTOP-VSR5268	Windows 10.0.14393	100%	44.65%	80	47.49%	00:0C:29:D4:70:D1	1.2.1	1.2.1
5	ubuntu	Ubuntu 16.04.1 LTS	8.21%	90.32%	472	27.29%	00:0C:29:61:4F:D4	1.0.0	1.0.0

Showing 1 to 5 of 5 entries

PREVIOUS 1 NEXT

The Capstone Experience



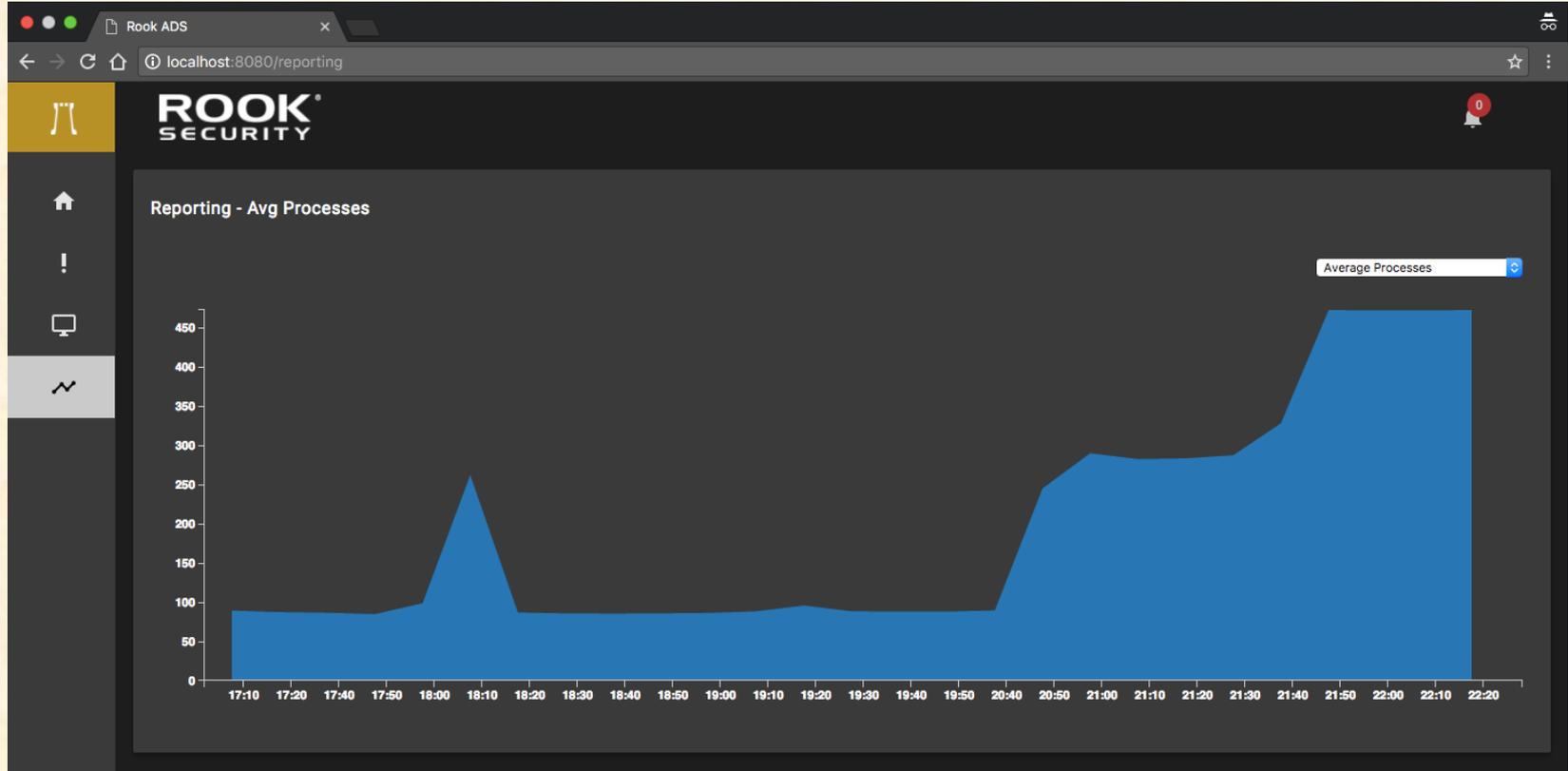


# Team Rook Beta Presentation

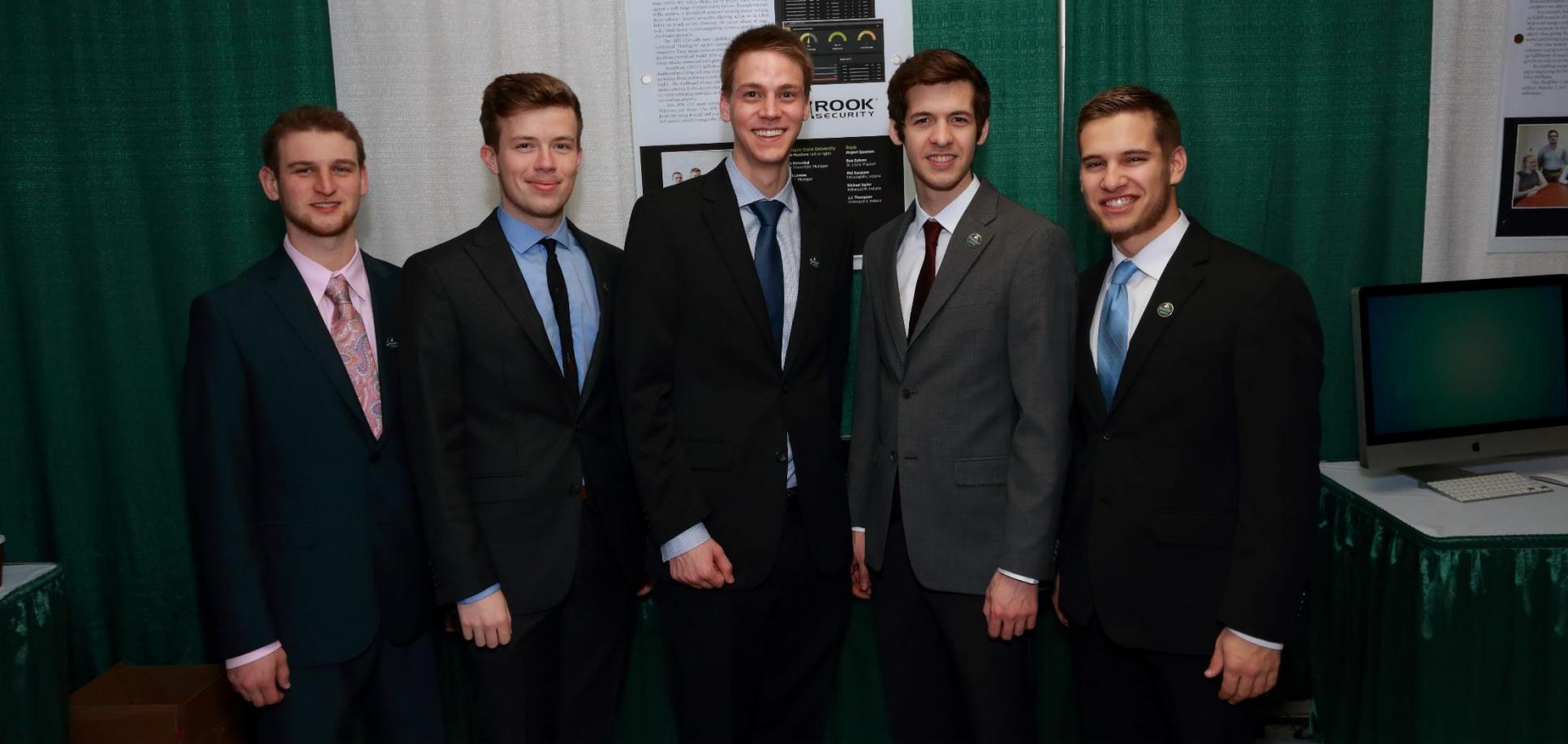
# Team Rook Beta Presentation

e.

Dashboard: Reporting



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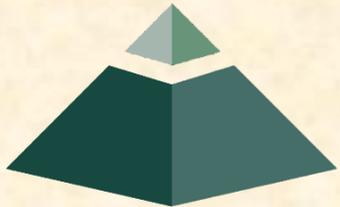
Team Rook  
Design Day

MICHIGAN STATE  
UNIVERSITY

# *The Capstone Experience*

## Team Spectrum Health

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*

**SPECTRUM HEALTH**





Search

Advanced Search

- [Home](#)
- [Who We Are](#)
- [Patients & Visitors](#)
- [Medical Services](#)
- [Quality](#)
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### MyHealth

Manage your health information from a secure online account.

[Enroll](#) [Sign-in](#)

### Locations

Select Type of Location

# Team Spectrum Health Project Overview

## Healthier Communities Time Banking

- Functionalities
  - Create Online Community Connecting
  - Homebound People in Need
  - With Volunteer Helpers
- Features
  - Create and Edit User Profiles
  - Request Services Needed
  - List Assets and Resources Offered
  - Track Accomplishments
  - “Bank” Volunteer Time
  - Gamify with Badging and Leader Boards
- Technologies
  - Progressive Web Apps
  - CSS / HTML
  - JavaScript / TypeScript
  - Microsoft Entity Framework
  - Microsoft C# / .NET
  - Microsoft SQL Server



**SPECTRUM HEALTH**

Grand Rapids, Michigan





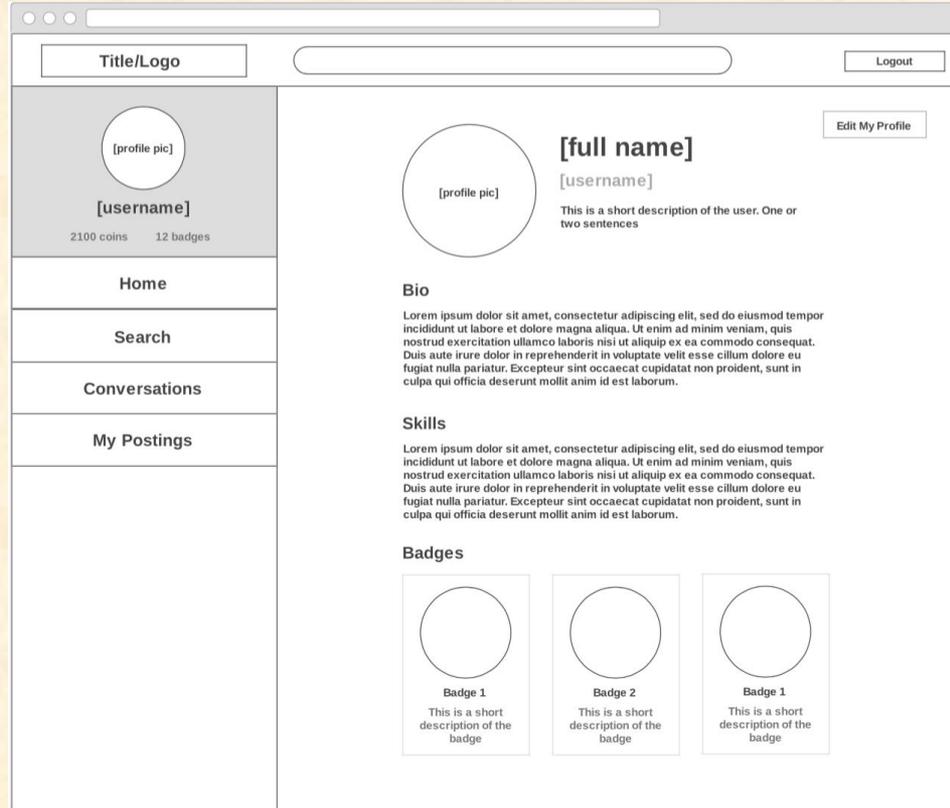
## Team Spectrum Health

Courtney Irwin, Liam McGrath, Caleb Eckman, Halle Dymowski, Shirley Li

# Team Spectrum Health Project Plan Presentation

e.

Screen Mockup

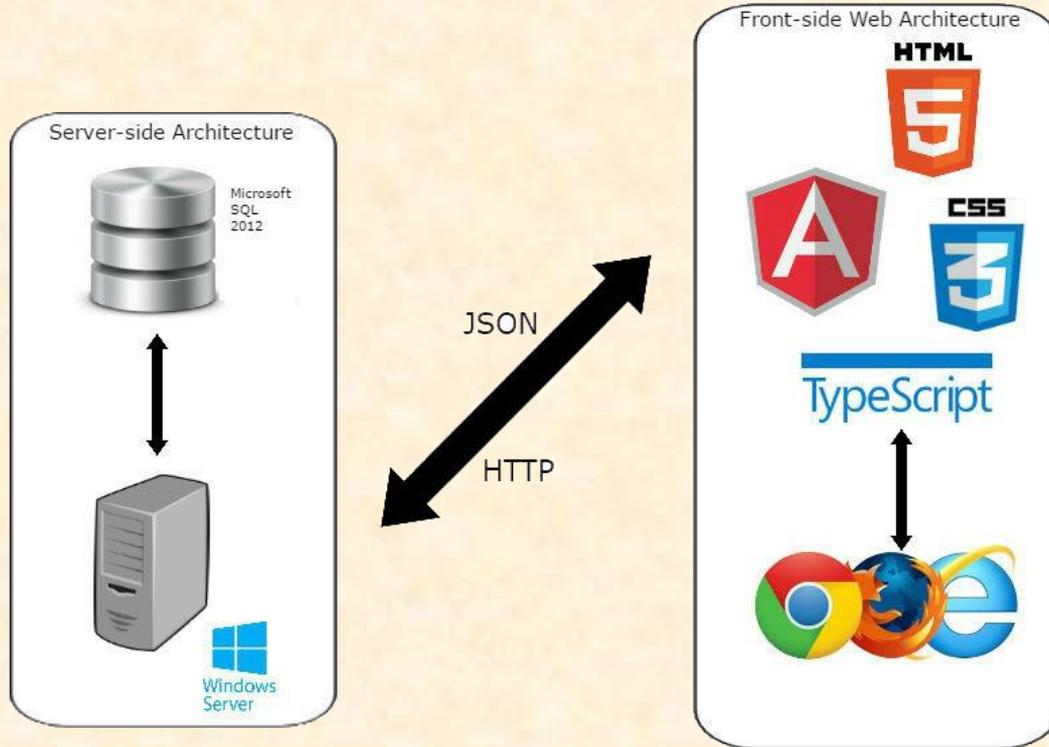


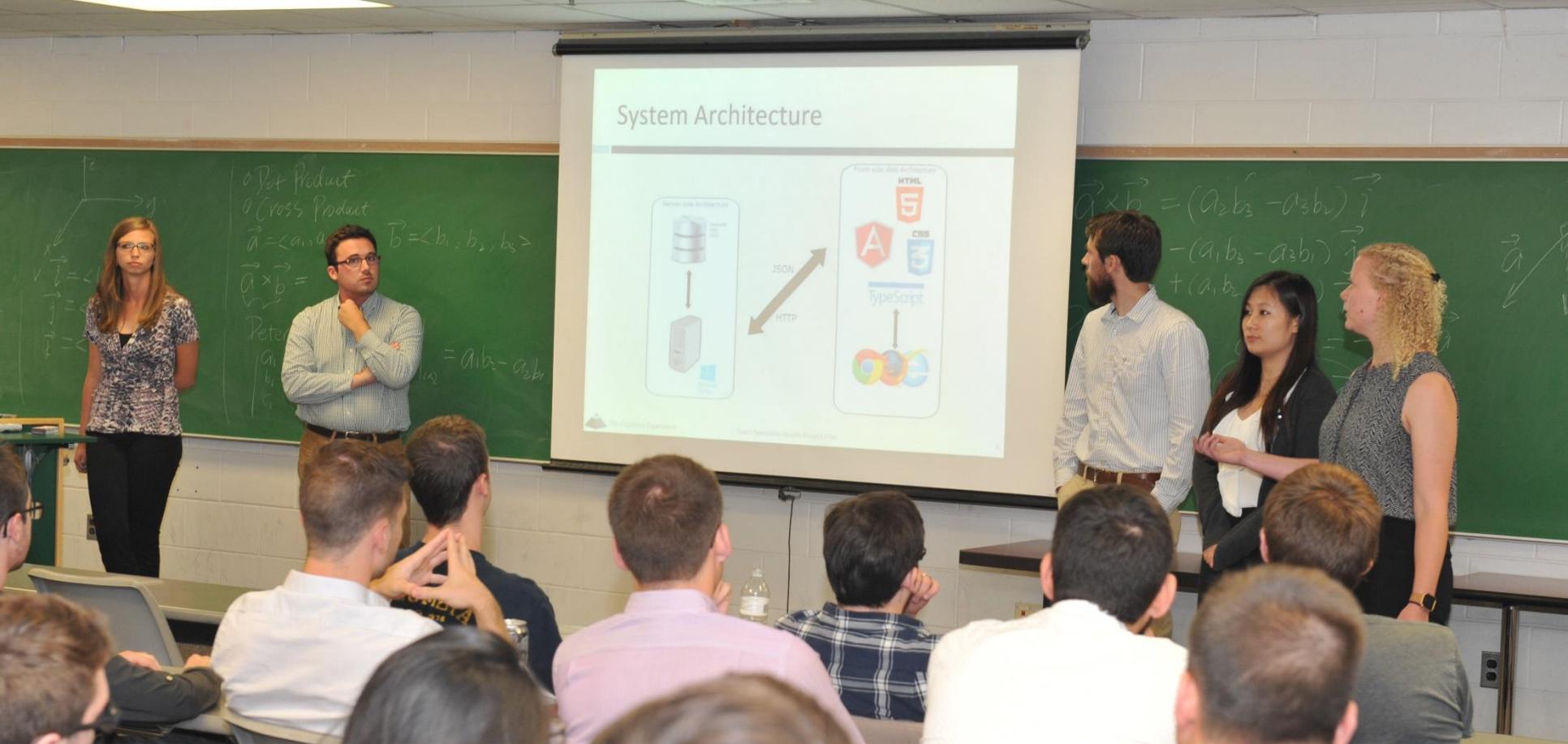


# Team Spectrum Health Project Plan Presentation

# Team Spectrum Health Project Plan Presentation

## Architecture Diagram

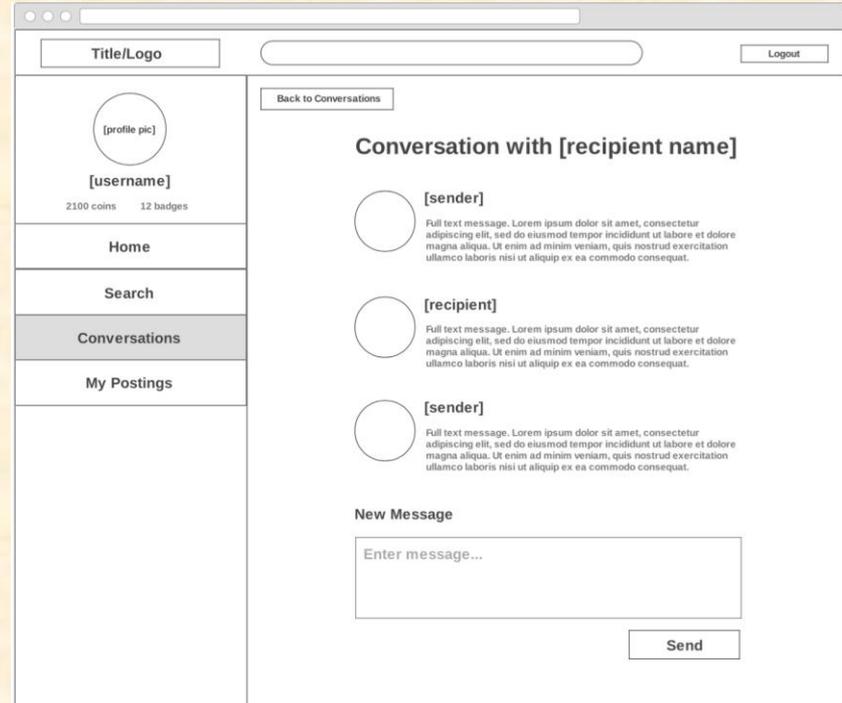
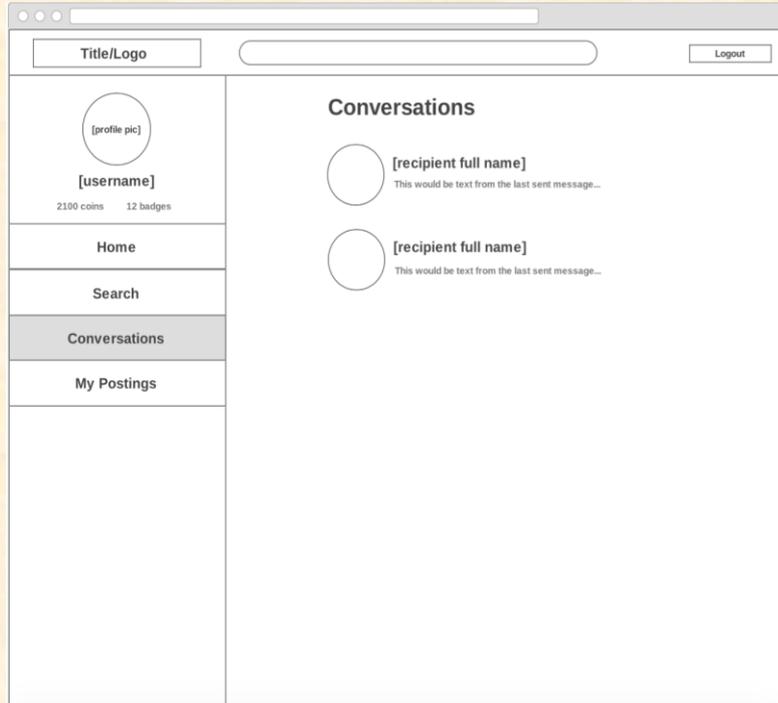




Team Spectrum Health  
Project Plan Presentation

# Team Spectrum Health Project Plan Presentation

## Screen Mockups





# Team Spectrum Health Alpha Presentation

# Team Spectrum Health Alpha Presentation

e.

Profile Page

Spectrum Health Time Banking

Logout



johnny1243

1200 Coins | 47 Badges

Home

Search

Conversations

My Postings



Johnny White

johnny1243

Father of four who enjoys hiking and fishing in my spare time.

### Skills

Gardening

Car Maintenance

Woodworking

Animal Care

Yardwork

Conversation

Cooking

Child Care

### Bio

I grew up on a small farm in southern New Hampshire. I spent most of my childhood tending to animals on my family's farm and doing chores around the house.

I went to school and got a mechanical engineering degree and worked in the auto industry for seven years. It was at this job that I met my lovely wife, Catherine. After our marriage we decided to move to Connecticut and start our very own contracting company.



# Team Spectrum Health Alpha Presentation

e.

## User Postings Page

### Spectrum Health Time Banking

Logout



**johnny1243**  
1200 Points | 3 Badges

- Home
- Search
- Conversations
- My Postings



#### Need help with my taxes

Time span: 1 hours

I'm pretty unsure about how to get my taxes submitted correctly. Does anyone have experience?

Accounting

Points: **100**

Edit post Remove post

---



#### New House Addition

Time span: 12 hours

I'm adding a master bathroom in my house and need an extra set of hands. If someone has plumbing experience that would be a plus.

Home Improvement Woodworking Plumbing Electrical Work

Points: **1200**

Edit post Remove post





# Team Spectrum Health Alpha Presentation

# Team Spectrum Health Alpha Presentation

e.

Conversation Page

Spectrum Health Time Banking

Logout



**johnny1243**

1200 Points | 3 Badges

Home

Search

Conversations

My Postings

[Back to Conversations](#)

## Conversation with Sara Johnson



**Johnny White**

Hello! I noticed your posting for some yardwork, and was hoping that I would be able to help you out with it.



**Sara Johnson**

Wow thanks for getting in touch with me. I can't believe it's fall already, my yard is COVERED in leaves.



**Johnny White**

I can't believe it either. I just got my own yard done.



**Sara Johnson**

That's great! When are you available this week?





# Team Spectrum Health Beta Presentation

# Team Spectrum Health Beta Presentation

e.

## Task Information Page

### Spectrum Health Time Banking

Logout



**johnny1243**  
1300 Points | 1 Badge

- Home
- Search
- Message
- Listings

[Back to Requests page](#)



### Lawn Mowing

Time span: 1 hours

I am going to be on vacation for 3 weeks, I would love it if someone could mow my lawn while I am away!

Yardwork Home Improvement

Points: **100**

Open      Requested      Confirmed      Completed



*[Sara Johnson](#) completed your request!*



# Team Spectrum Health Beta Presentation

e.

Conversations Page

### Spectrum Health Time Banking

Logout



**johnny1243**  
1300 Points | 1 Badge

- Home
- Search
- Message
- Listings

#### My Conversations

-  Sara Johnson
-  Tony Davis
-  Amina Nadir
-  Julie Murray





# Team Spectrum Health Beta Presentation

# Team Spectrum Health Beta Presentation

e.

## My Tasks Page

### Spectrum Health Time Banking

Logout



**johnny1243**  
1300 Points | 1 Badge

- Home
- Search
- Message
- Listings

[My Requests](#) [My Tasks](#)

---

**Pending Tasks** - Tasks which need to be accepted by the requester



**Help with Furniture Assembly**  
I received some new furniture from my friend in the mail, but it requires some assembly and ...  
300 points | 3 hours

---

**Confirmed Tasks** - You're confirmed to help with this task

---

**Completed Tasks** - Tasks you've completed for others

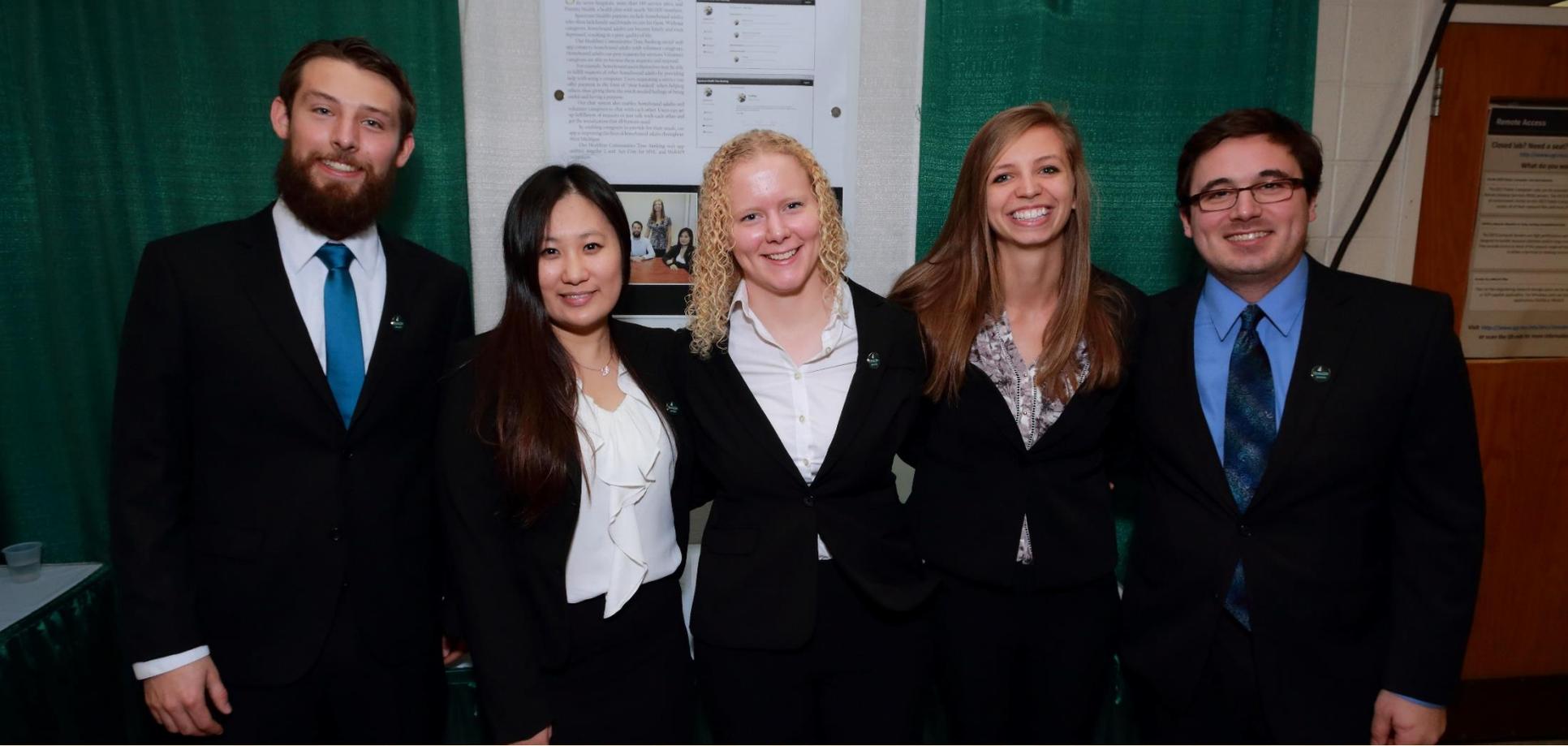


**Taxes**  
I need help doing my taxes  
100 points | 1 hours



**Yardwork**  
The weather is changing and I would like some help raking leaves in my yard  
0 points | 0 hours

The Capstone Experience



Team Spectrum Health  
Design Day

MICHIGAN STATE  
UNIVERSITY

# *The Capstone Experience*

Team Symantec

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



**Symantec**



📞 Call 1-888-821-1799

# Eliminate the Password

Improve ease of use without sacrificing security



  
Single sign-on with  
strong authentication

  
Identity-based  
Access Control

  
User  
Directory

[Request a Call](#)

Symantec gives you deep visibility and a single point of control for accessing data through a comprehensive solution that provides advanced information protection.

## Passwordless Authentication

For network, online, or mobile apps

## Extend Passwordless Authentication

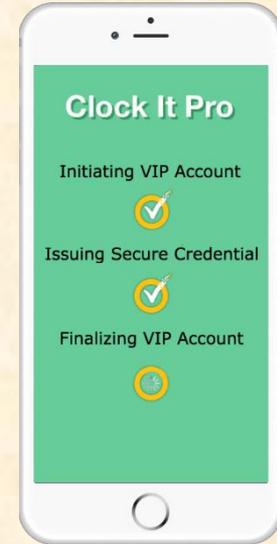
To all cloud-based apps

# Team Symantec

## Project Overview

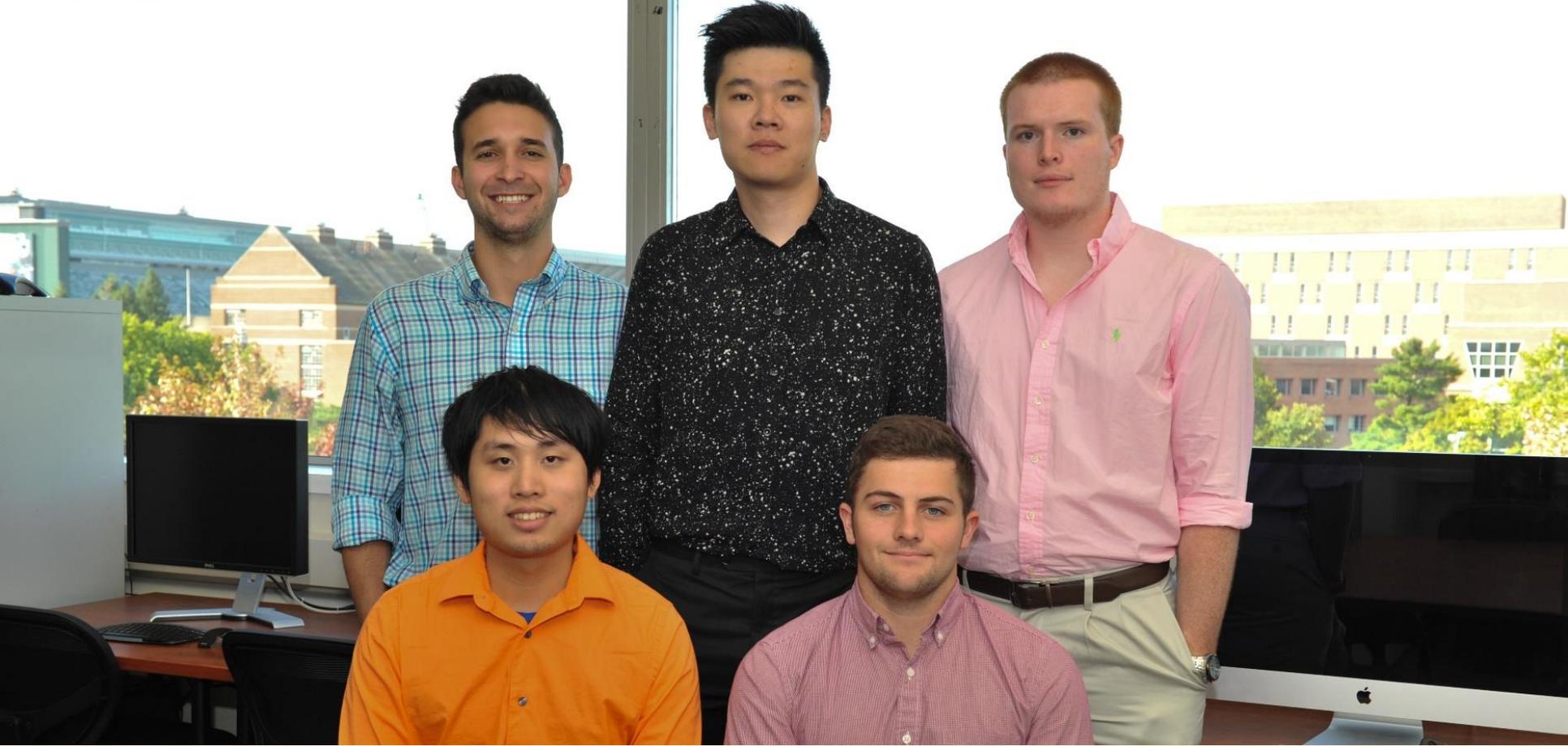
### Web Frameworks for Multi-Factor Authentication

- Functionalities
  - Design and Build Web Frameworks
  - For Multi-Factor Authentication
  - Using Symantec's Validation and ID Protection (VIP) Service
- Features
  - Support Leading Web Frameworks
    - Node.js
    - Python
    - Ruby
  - Handle
    - Self-Registration
    - Strong Authentication
    - Two-Factor Authentication via VIP Push
    - Logins by Users Across Multiple Websites
  - Provide SDKs on Symantec's GitHub
  - Build Sample Apps
- Technologies
  - Symantec Validation and ID Protection (VIP) Service
    - VIP Manager
    - VIP SDK Documentation
  - Java / Node.js / Python / Ruby
  - Apiary
  - GitHub



Mountain View, California





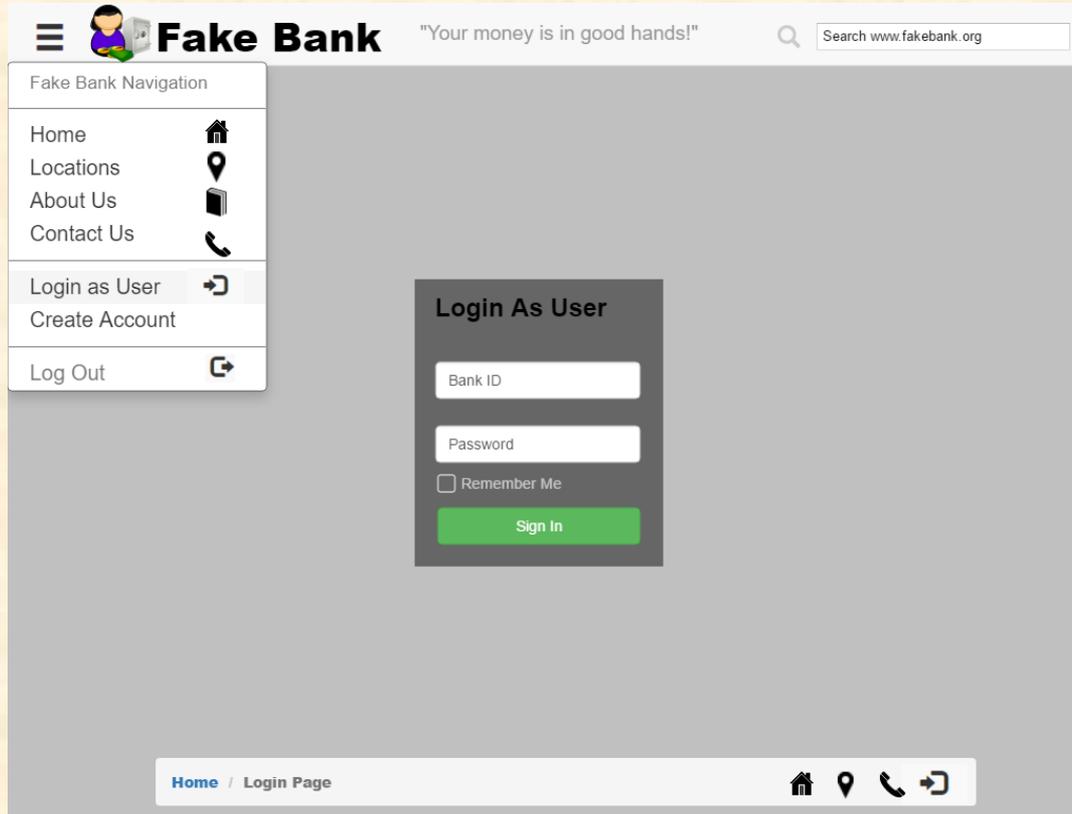
## Team Symantec

Gabe Morcote, Allen Huynh, Hanlin Ye, Jack Deters, Ryan Casler,

# Team Symantec Project Plan Presentation

e.

Screen Mockup



The Capstone Experience

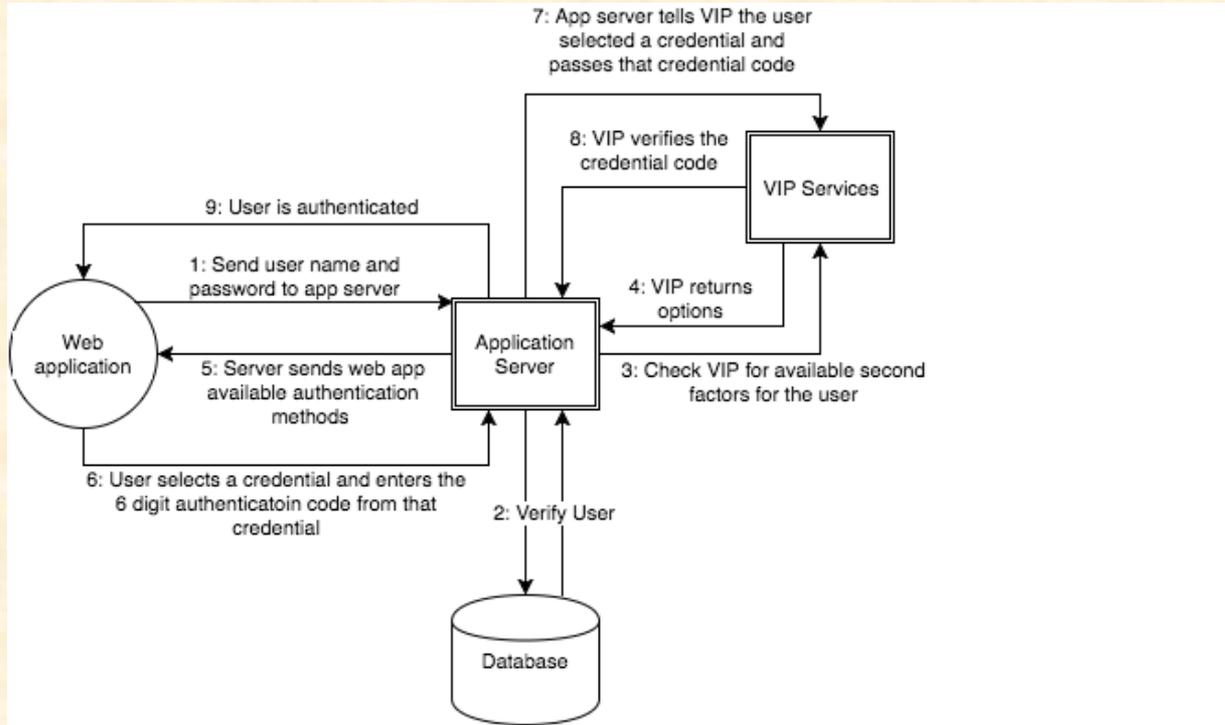




# Team Symantec Project Plan Presentation

# Team Symantec Project Plan Presentation

## Architecture Diagram

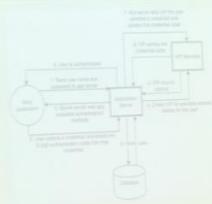


Authenticating a User via 6-digit Security Code





## System Architecture



Authenticating a User via a High Security Code

Team Symantec  
Project Plan Presentation

# Team Symantec Project Plan Presentation

e.

Screen Mockup

Search Gems... GEMS GUIDES CONTRIBUTE RYANRAMPAGE1

## soteria 0.0.1

Previous version Next version

A gem for authentication with Symantec VIP

VERSIONS:

**0.0.1** - September 13, 2016 (4 KB)  
[Show all versions \(2 total\) →](#)

AUTHORS:

Ryan Casler

OWNERS:

SHA 256 CHECKSUM:  
53e0b74374b610fd9b85d9ecade7cdef68fa2215ae57c59228bf471ea1ca2d5e

TOTAL DOWNLOADS  
**132**

FOR THIS VERSION  
**127**

GEMFILE:  
`gem 'soteria', '->`

**INSTALL:**  
`gem install soteria`

LICENSE:  
**MIT**

REQUIRED RUBY VERSION:  
**>= 0**

LINKS:

Download Command



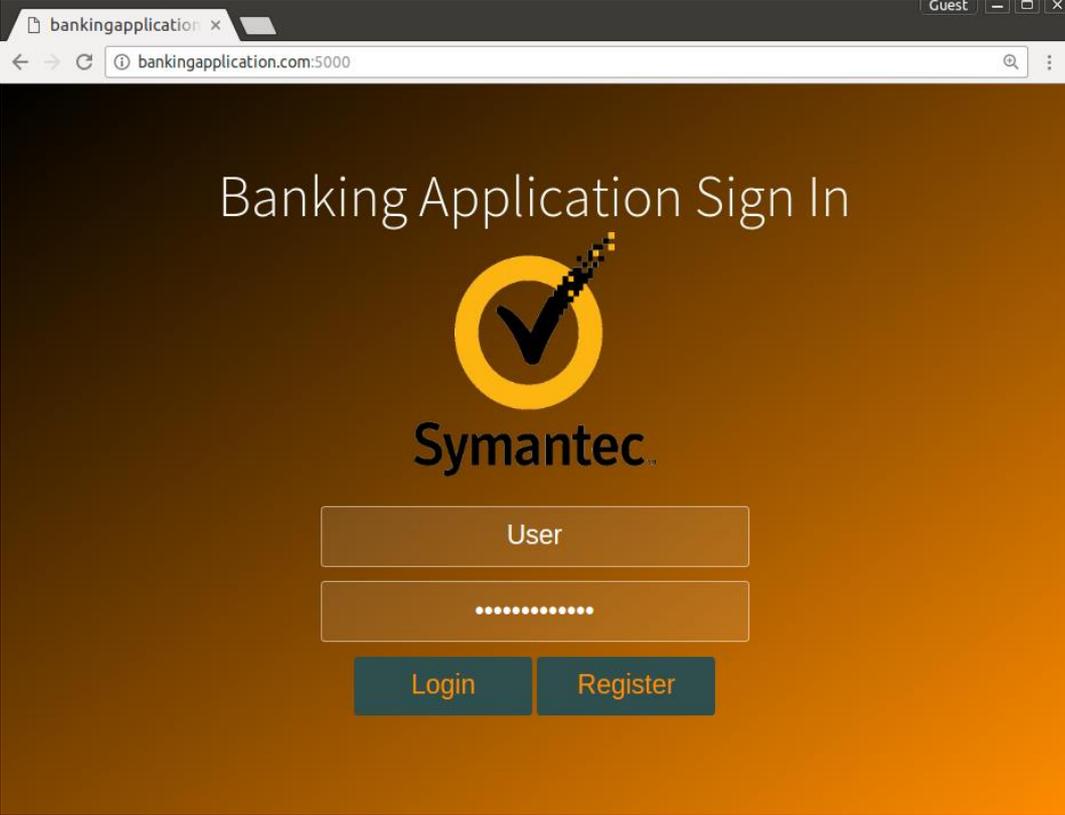


# Team Symantec Alpha Presentation

# Team Symantec Alpha Presentation

e.

Sample App Login



bankingapplication.com:5000

Banking Application Sign In



Symantec

User

.....

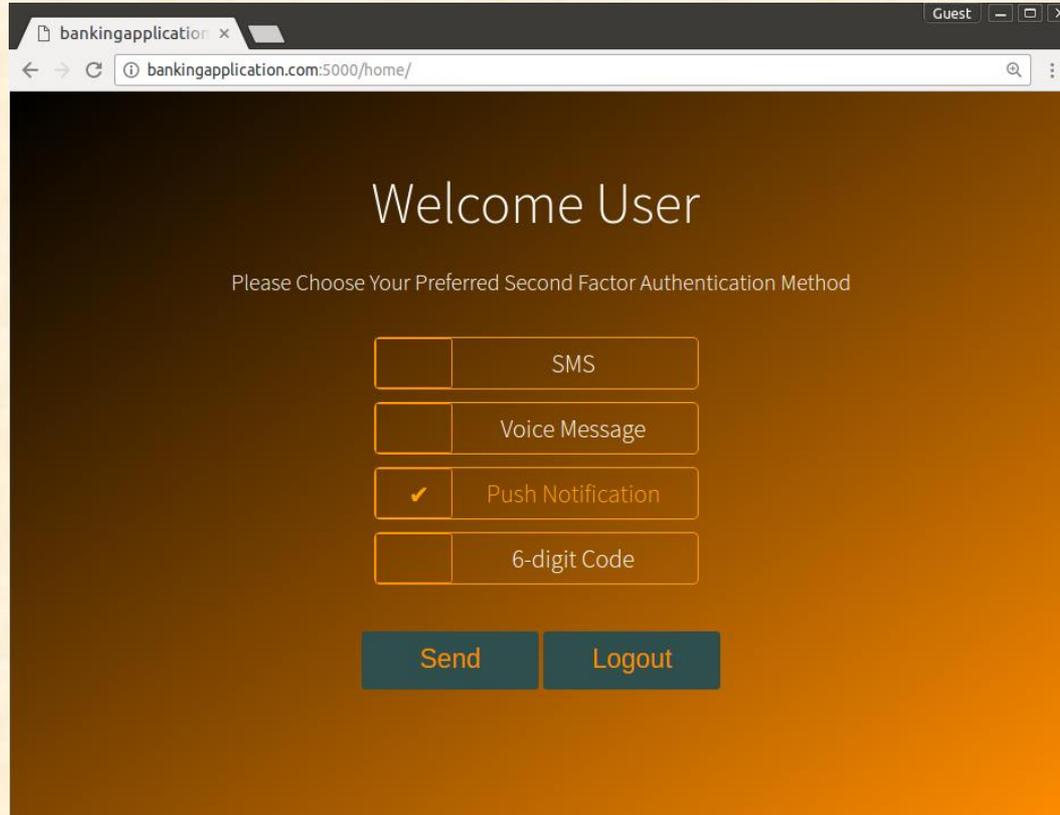
Login Register



# Team Symantec Alpha Presentation

e.

## Second Factor Selection



The screenshot shows a web browser window with the following elements:

- Browser tab: bankingapplication x
- Address bar: bankingapplication.com:5000/home/
- Page title: Welcome User
- Instruction: Please Choose Your Preferred Second Factor Authentication Method
- Four radio button options:
  - SMS
  - Voice Message
  - Push Notification
  - 6-digit Code
- Two buttons at the bottom: Send and Logout



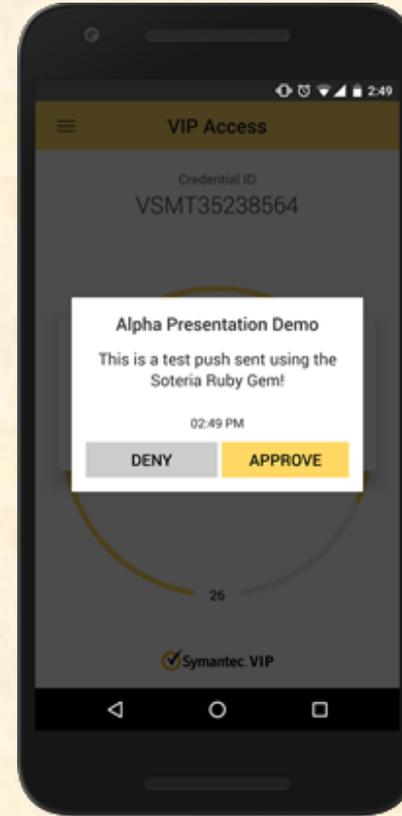


# Team Symantec Alpha Presentation

# Team Symantec Alpha Presentation

e.

## Push Received by User



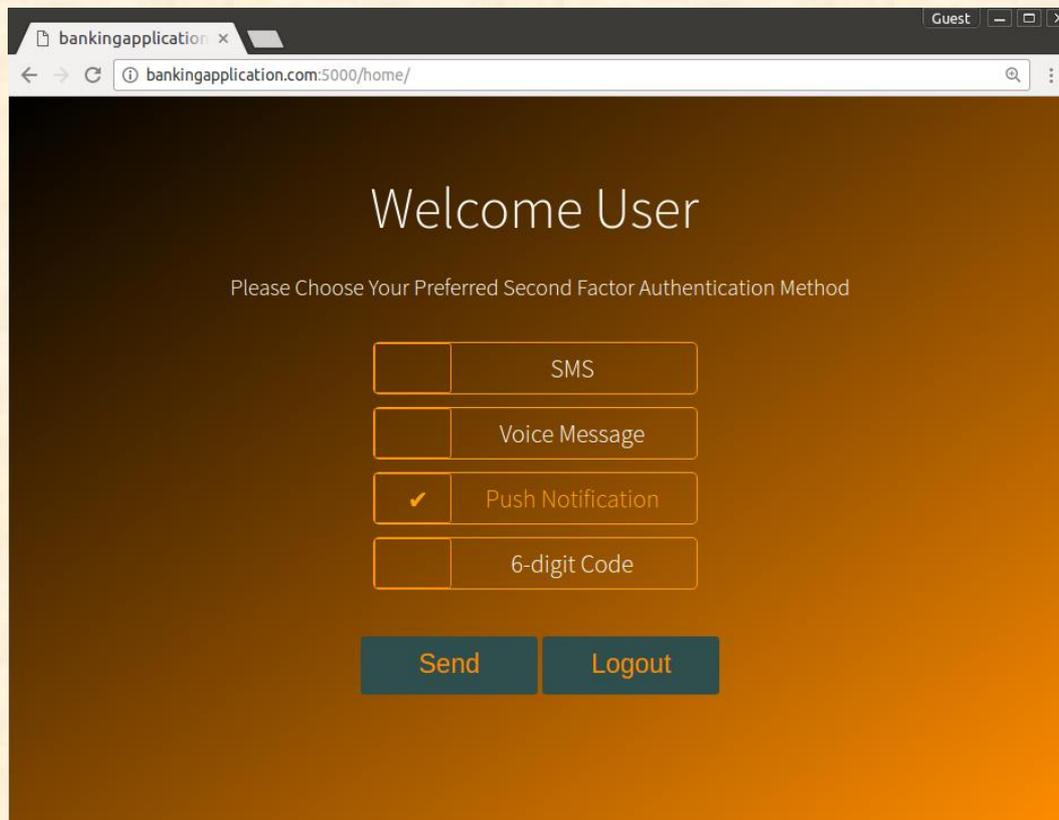


# Team Symantec Beta Presentation

# Team Symantec Beta Presentation

e.

## Second Factor Selection



The screenshot shows a web browser window with the following elements:

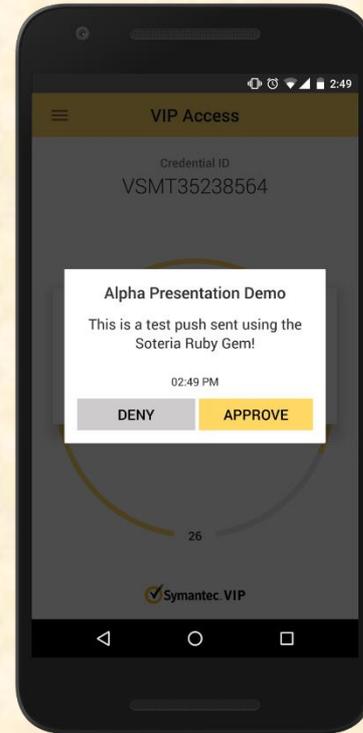
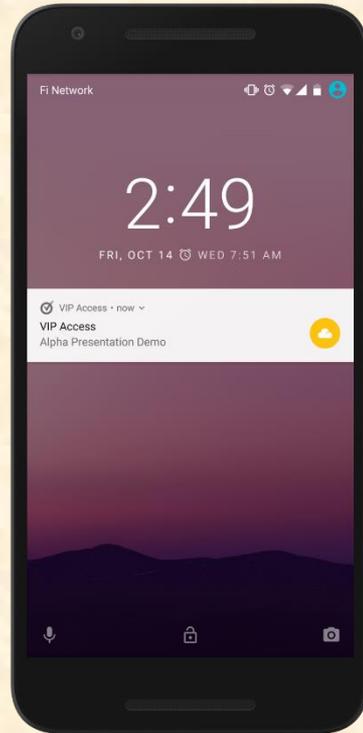
- Browser tab: bankingapplication x
- Address bar: bankingapplication.com:5000/home/
- Page title: Welcome User
- Instruction: Please Choose Your Preferred Second Factor Authentication Method
- Four selection options, each with a radio button:
  - SMS
  - Voice Message
  - Push Notification (selected, indicated by a checkmark)
  - 6-digit Code
- Two action buttons at the bottom: Send and Logout



# Team Symantec Beta Presentation

e.

## Push Received By User



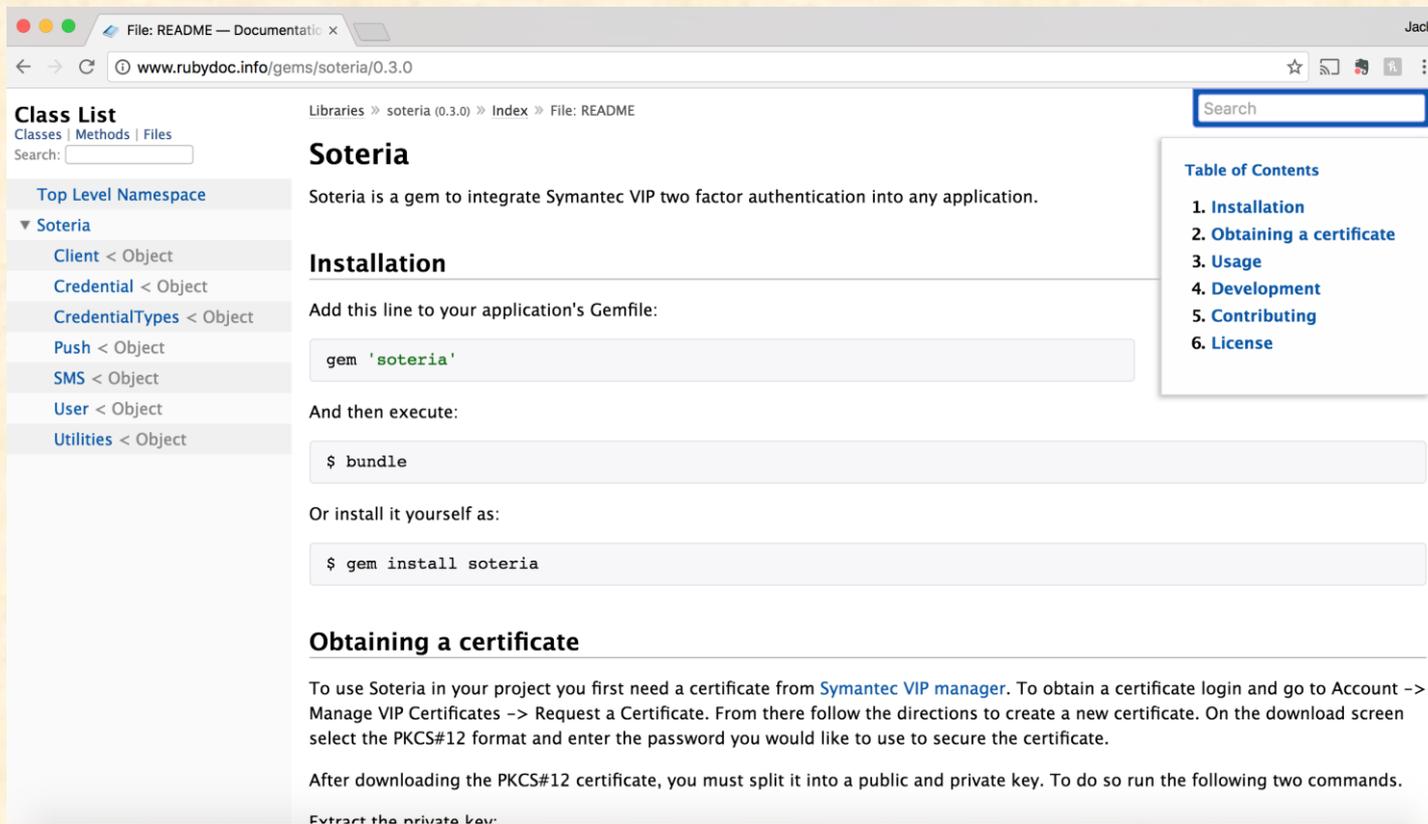


# Team Symantec Beta Presentation

# Team Symantec Beta Presentation

e.

## Ruby Gem Documentation



File: README — Documentatio x Jack

www.rubydoc.info/gems/soteria/0.3.0

Libraries » soteria (0.3.0) » Index » File: README

### Class List

Classes | Methods | Files

Search:

Top Level Namespace

- ▼ Soteria
  - Client < Object
  - Credential < Object
  - CredentialTypes < Object
  - Push < Object
  - SMS < Object
  - User < Object
  - Utilities < Object

## Soteria

Soteria is a gem to integrate Symantec VIP two factor authentication into any application.

### Installation

Add this line to your application's Gemfile:

```
gem 'soteria'
```

And then execute:

```
$ bundle
```

Or install it yourself as:

```
$ gem install soteria
```

### Obtaining a certificate

To use Soteria in your project you first need a certificate from [Symantec VIP manager](#). To obtain a certificate login and go to Account -> Manage VIP Certificates -> Request a Certificate. From there follow the directions to create a new certificate. On the download screen select the PKCS#12 format and enter the password you would like to use to secure the certificate.

After downloading the PKCS#12 certificate, you must split it into a public and private key. To do so run the following two commands.

Extract the private key:

Table of Contents

1. [Installation](#)
2. [Obtaining a certificate](#)
3. [Usage](#)
4. [Development](#)
5. [Contributing](#)
6. [License](#)





Team Symantec  
Design Day

MICHIGAN STATE  
UNIVERSITY

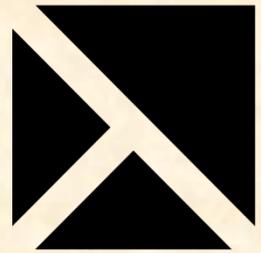
# *The Capstone Experience*

Team TechSmith

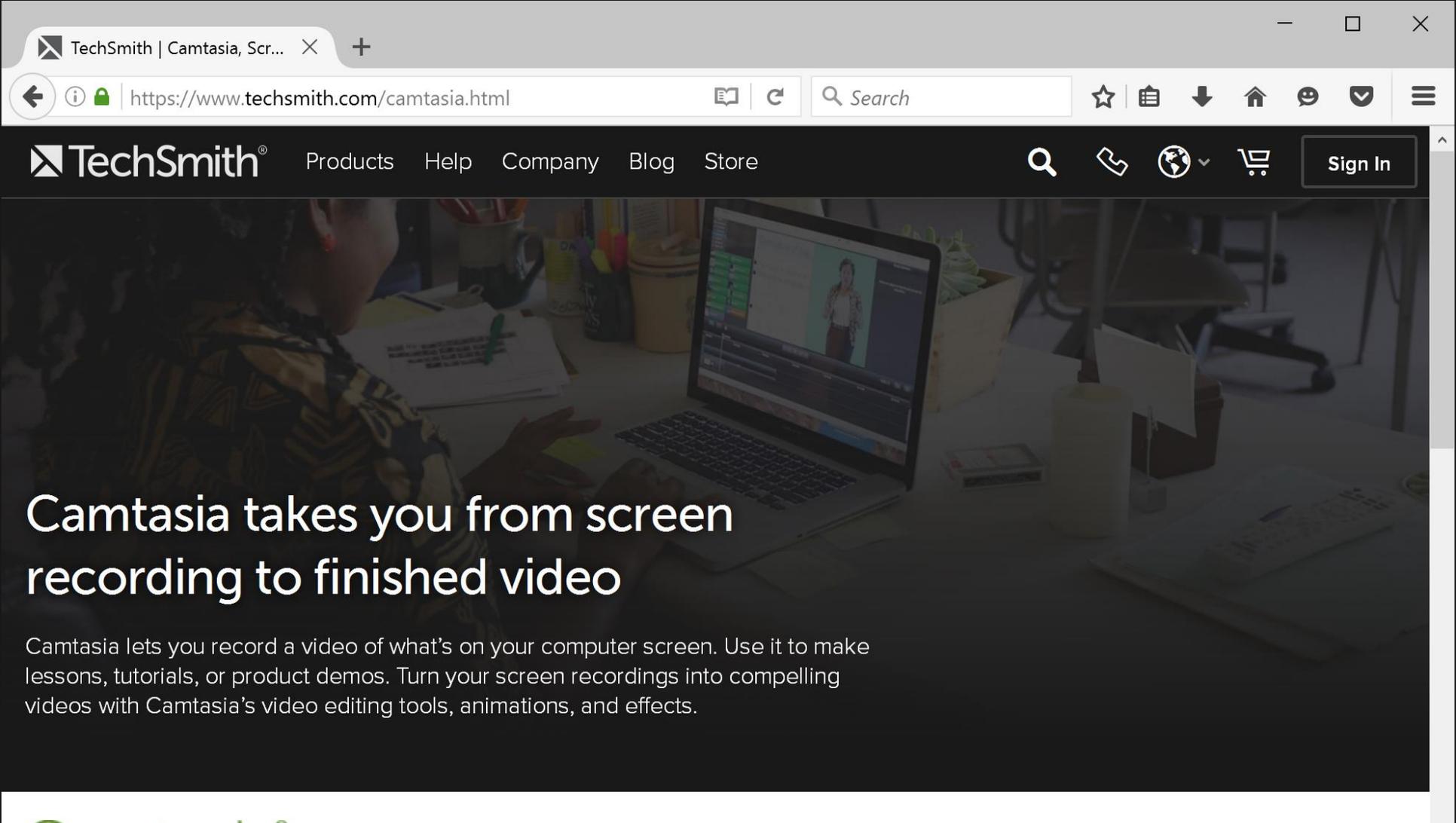
Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



TechSmith®



# Camtasia takes you from screen recording to finished video

Camtasia lets you record a video of what's on your computer screen. Use it to make lessons, tutorials, or product demos. Turn your screen recordings into compelling videos with Camtasia's video editing tools, animations, and effects.

# Team TechSmith Project Overview

## Video Sentiment Analysis

- Functionalities
  - Determine Video Viewer's Sentiments
  - While Viewing a Video
  - Automatically and Passively
- Features
  - Provide
    - Player for Video Viewer
    - Website for Video Author
  - Keep Track of Video Viewer Inputs
    - Speed Up?
    - Skip Ahead? Rewind?
    - Stop Before End?
  - Determine Viewer Emotions
    - Record Viewer with Web Camera
    - Process with Microsoft Cognitive Service Emotion API
  - Generate and Display Analytics
- Technologies
  - CSS / HTML / JavaScript / PHP
  - ASP.Net MVC
  - Microsoft C# / .NET and XAML
  - Microsoft Azure Cloud Computing
  - Windows 10 Universal Windows Platform Player
  - Windows Media Foundation
  - Microsoft Cognitive Services





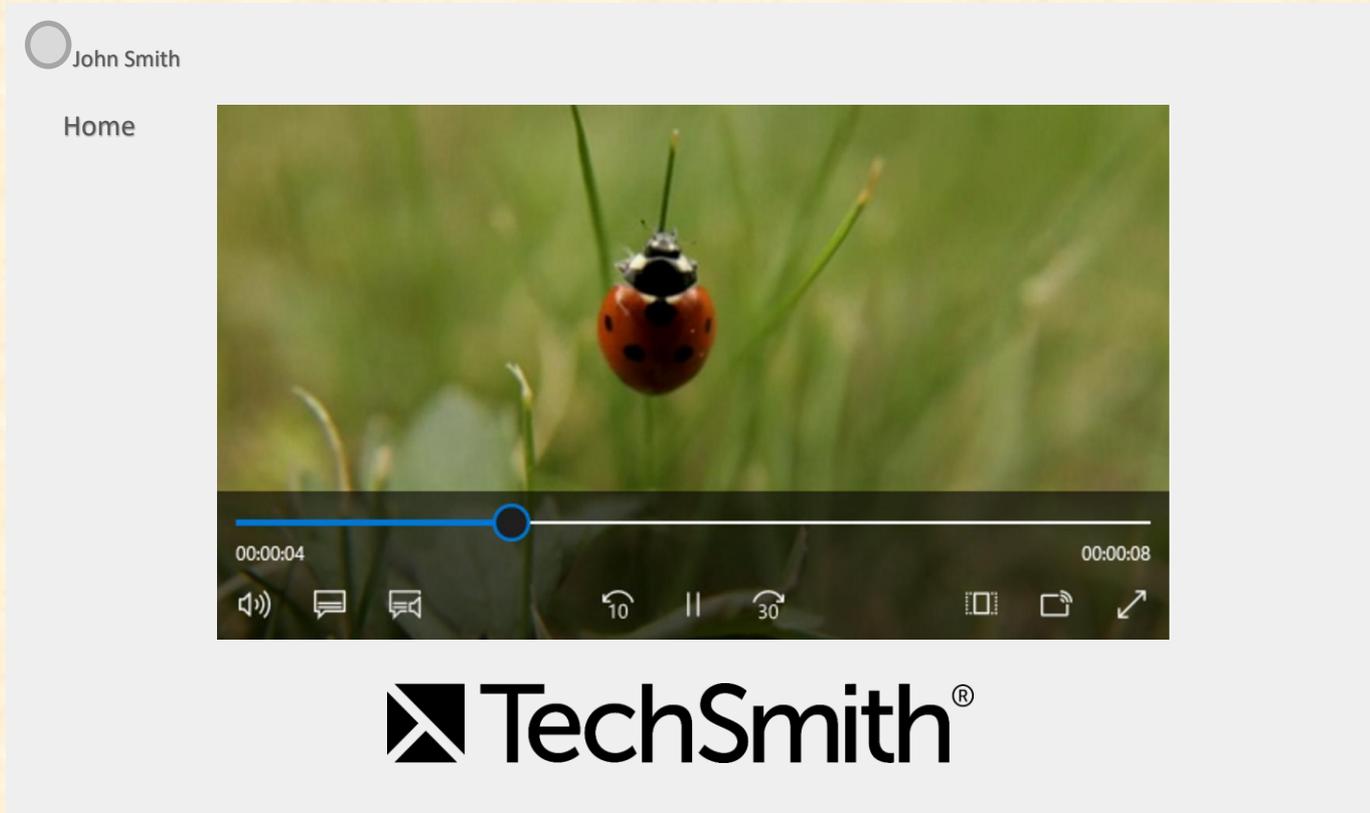
## Team TechSmith

D. Y. Choi, Corey Wisser, Alex Lambert, Kyle Seippel, Tony Capriglione

# Team TechSmith Project Plan Presentation

e.

Screen Mockup



The Capstone Experience

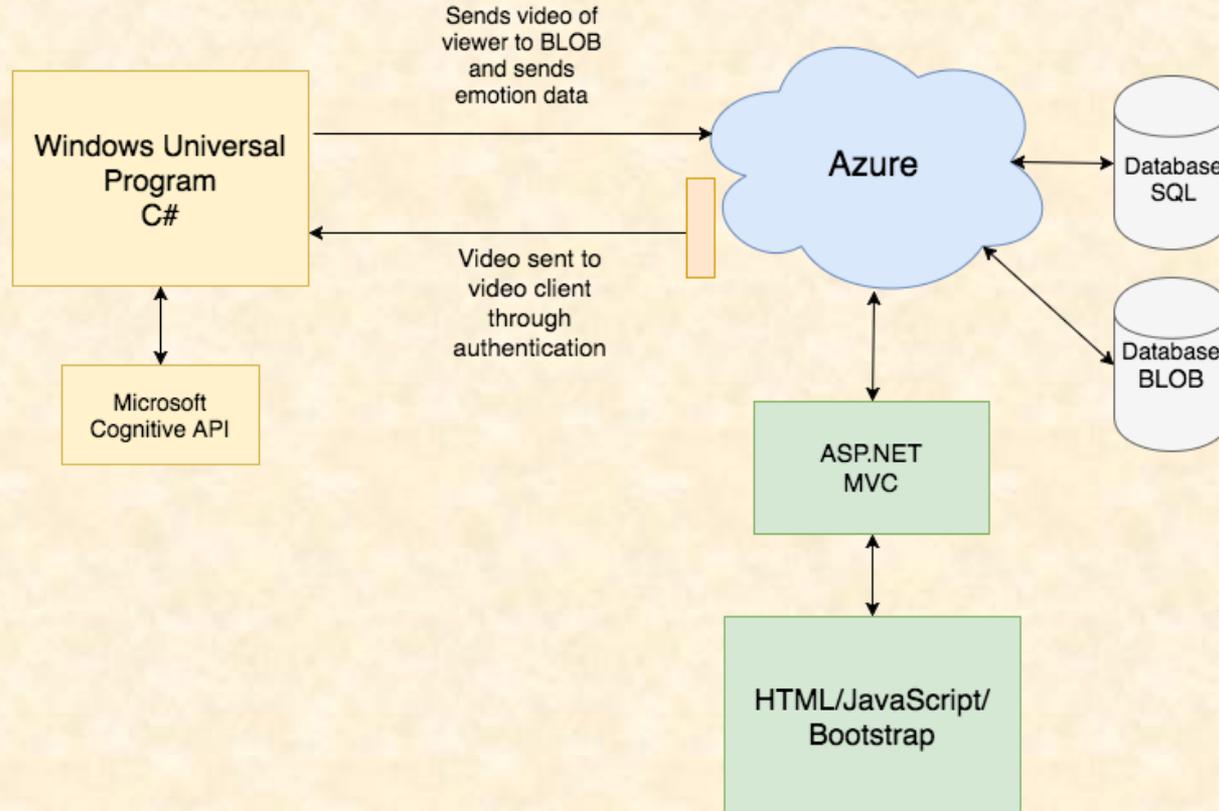


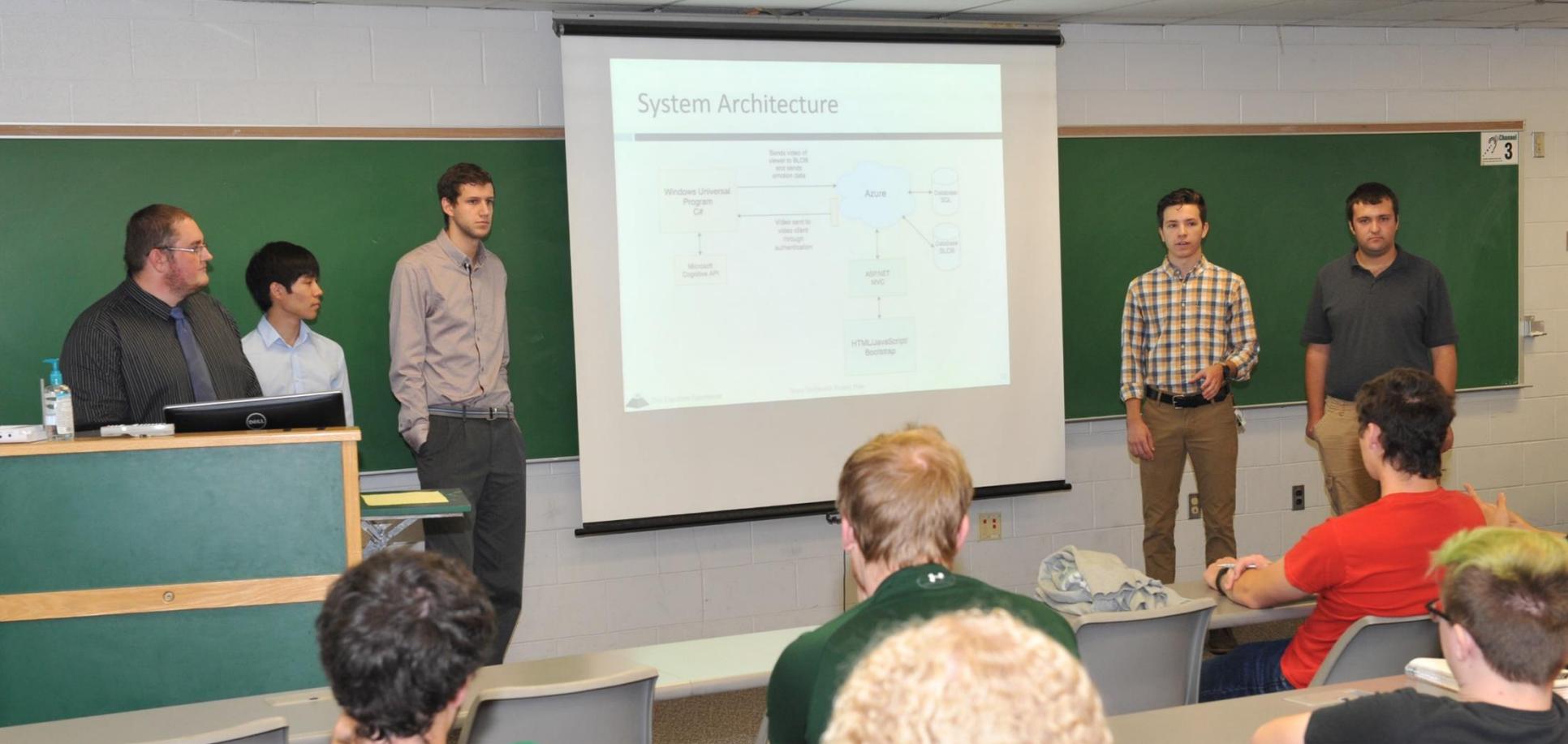


# Team TechSmith Project Plan Presentation

# Team TechSmith Project Plan Presentation

## Architecture Diagram



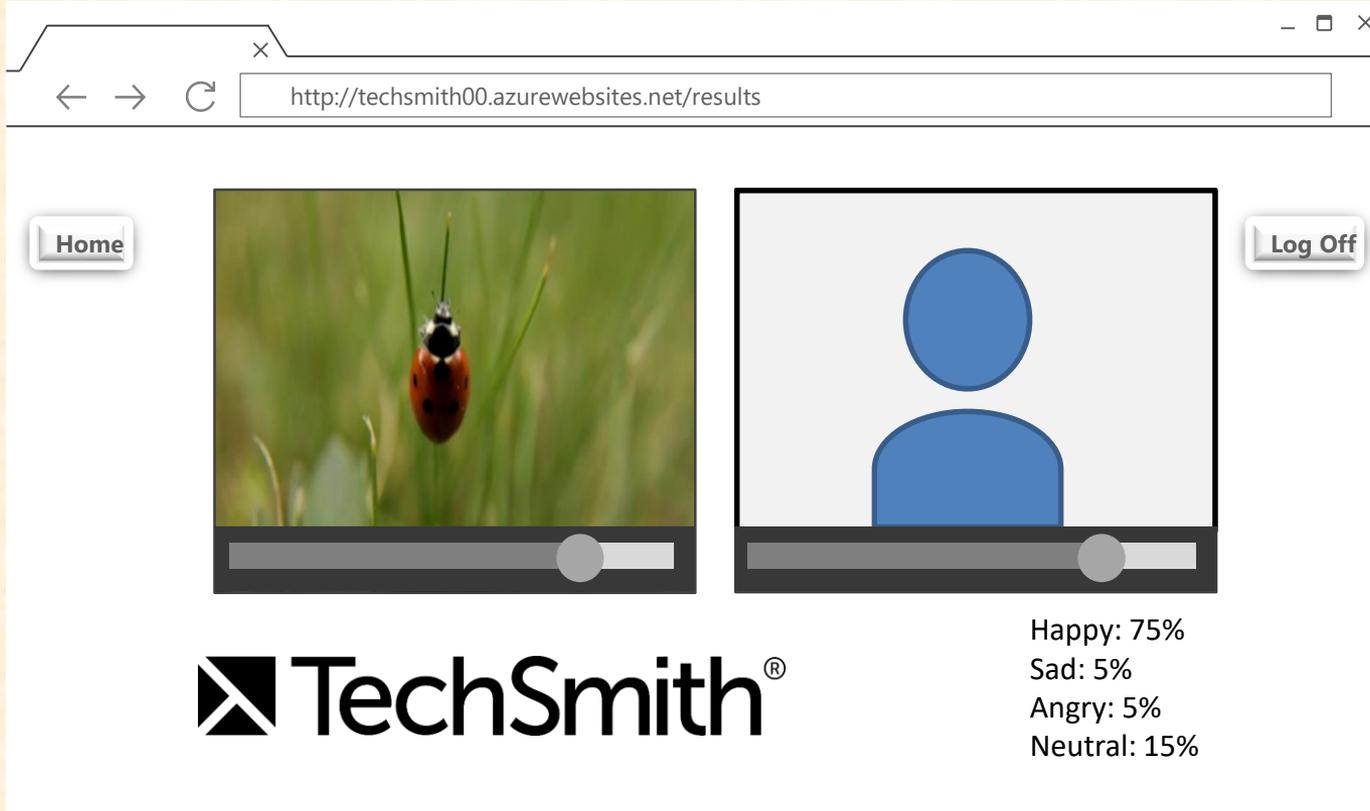


Team TechSmith  
Project Plan Presentation

# Team TechSmith Project Plan Presentation

e.

Screen Mockup



The Capstone Experience



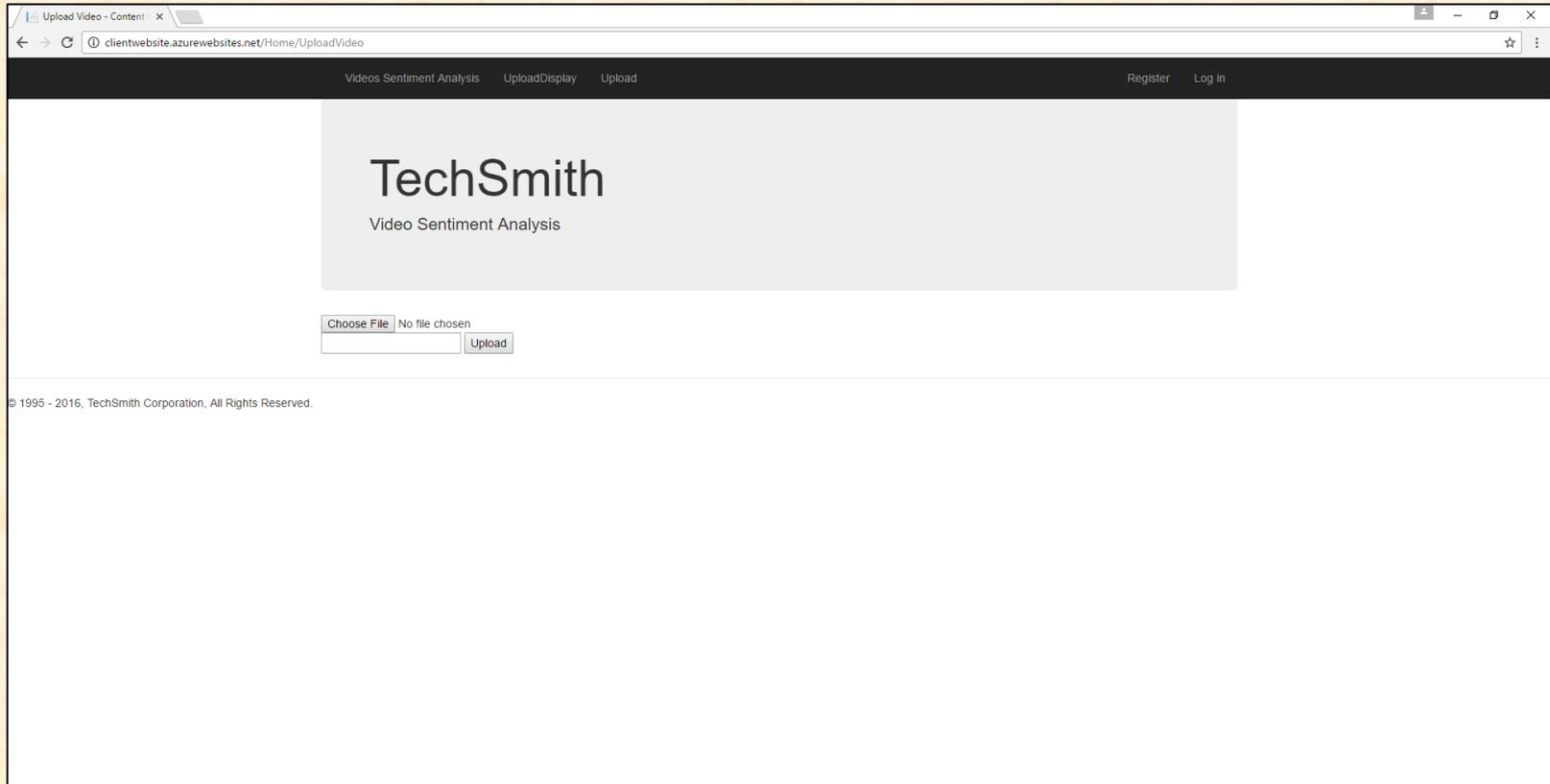


# Team TechSmith Alpha Presentation

# Team TechSmith Alpha Presentation

e.

## Video Upload Page



The screenshot shows a web browser window with the URL `clientwebsite.azurewebsites.net/Home/UploadVideo`. The page features a dark navigation bar with links for "Videos Sentiment Analysis", "UploadDisplay", "Upload", "Register", and "Log in". The main content area has a light gray header with the "TechSmith" logo and "Video Sentiment Analysis" text. Below this is a file upload interface with a "Choose File" button, a text input field containing "No file chosen", and an "Upload" button. At the bottom left, there is a copyright notice: "© 1995 - 2016, TechSmith Corporation, All Rights Reserved."



# Team TechSmith Alpha Presentation

e.

Video Player App



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Team TechSmith  
Alpha Presentation

# Team TechSmith Alpha Presentation

e.

## Emotional Analysis

The screenshot shows a web browser window with the URL <https://localhost:44361/Home/VideoView>. The application interface includes a navigation bar with links for "Videos Sentiment Analysis", "Video View", "UploadDisplay", "Upload", "Register", and "Log in".

Two video thumbnails are displayed side-by-side:

- Life in the City:** A cityscape at night. The video player shows a progress bar at 0:43 / 8:01.
- Tony Bishop:** A man smiling in an office setting. The video player shows a progress bar at 0:05 / 0:59.

To the right of the videos is an "Emotions" section with four icons and their corresponding percentages:

Emotion Icon	Percentage
Angry	10%
Neutral	25%
Sad	5%
Happy	60%





# Team TechSmith Beta Presentation

# Team TechSmith Beta Presentation

e.

## Emotional Analysis - Website

The screenshot displays a web interface for video analysis. At the top, there are navigation links: "Videos Sentiment Analysis", "Upload/Display", and "Upload". On the right, it says "Hello caprig2@msu.edu" and "Log off".

The main content area is divided into four sections:

- Snap Trouble**: A video player showing a football game. The field has a large yellow "M" logo. A scoreboard overlay shows "4th & 2", "21", "23+", and "00:06".
- Emotions**: A smiley face icon with "99%" next to it. Below it are control icons for play, stop, volume, and mute.
- choidon5**: A video player showing a man with glasses smiling.
- Viewers**: A list of viewer names: "Lambe168" and "Wisserco".

Below the main content is a "DataSummary" section with a table:

Event	Start	End
1 Pause	00:00:03	00:00:03
2 Play	00:00:03	00:00:03
3 Rewind	00:00:06	00:00:00
4 Fastforward	00:00:04	00:00:11
5 Pause	00:00:13	00:00:13
6 Play	00:00:13	00:00:13
7 Rewind	00:00:14	00:00:00
8 Fastforward	00:00:06	00:00:14

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e.

Home Screen – Video Player App



Home Screen – Video Player App

List of Available Videos:

TechSmith TechSmith TechSmith

MSU Wins MSU Wins Extenc World of Joy

Have Watched  Have Watched  Have Watched

 TechSmith®





# Team TechSmith Beta Presentation

# Team TechSmith Beta Presentation

e.

Video Player – Video Player App

ESPN

30

7 Mich St	6-0
21	
12 Michigan	5-1
23	
4th	:05
4th	8 2

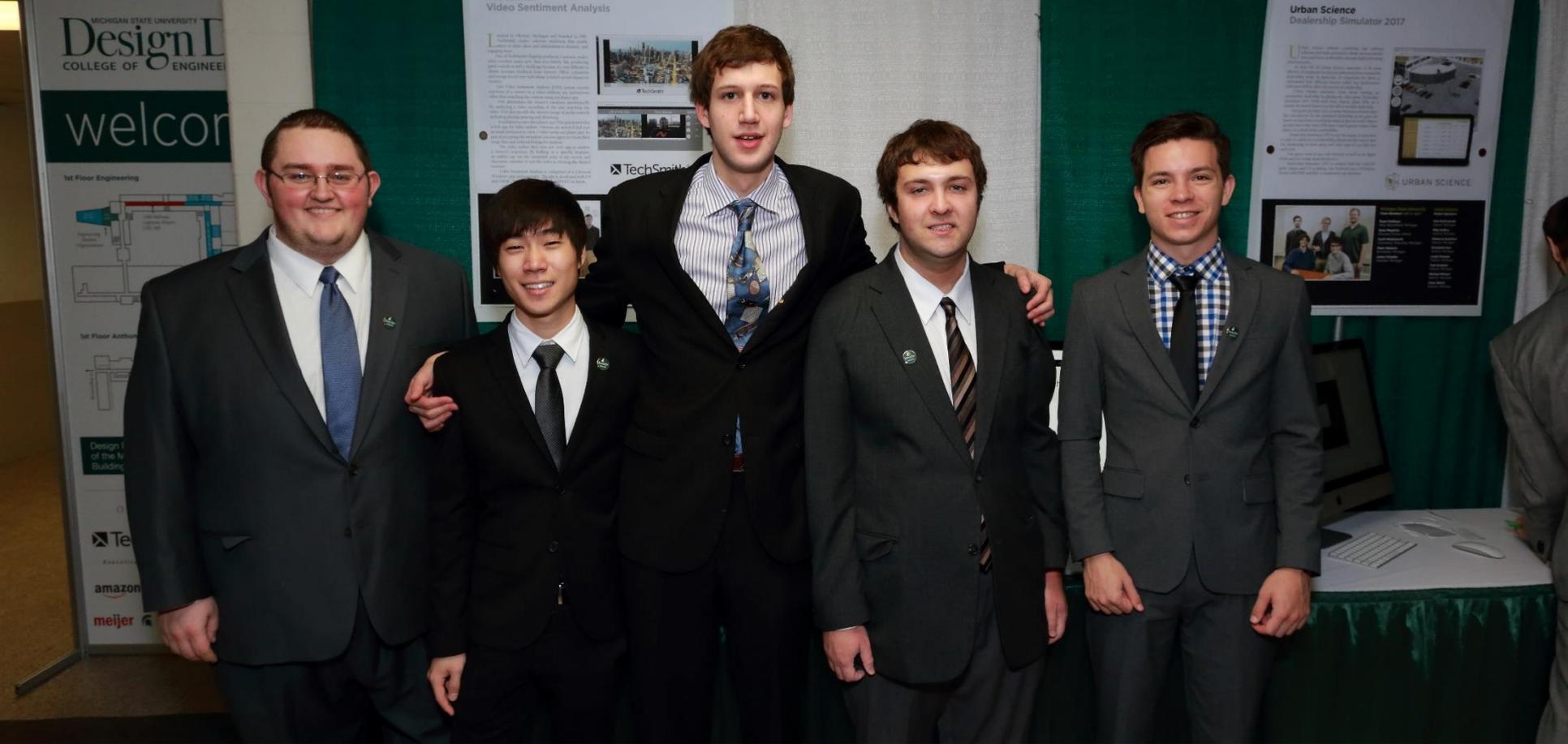
0:00:06

0:00:41

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The Capstone Experience





Team TechSmith  
Design Day

MICHIGAN STATE  
UNIVERSITY

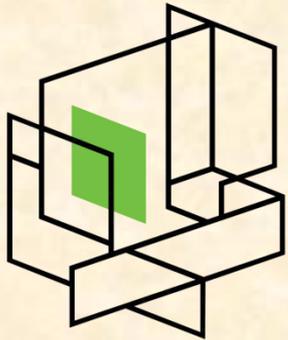
# *The Capstone Experience*

Team Urban Science

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



URBAN SCIENCE™

Automotive News interviewed Jim Anderson to better understand both sales effectiveness ratings and Urban Science. ✕

[LEARN MORE](#)



# WHEN WE LOOK AT THE MARKET, WE'RE THE ONLY ONES WHO SEE THE FULL PICTURE.

Every major OEM. Every major dealer body. In every nook, cranny and region, OEMs around the world trust the unique knowledge base and skill set of Urban Science. In the world's most complex business, we're a key partner for success in every part of their operations.

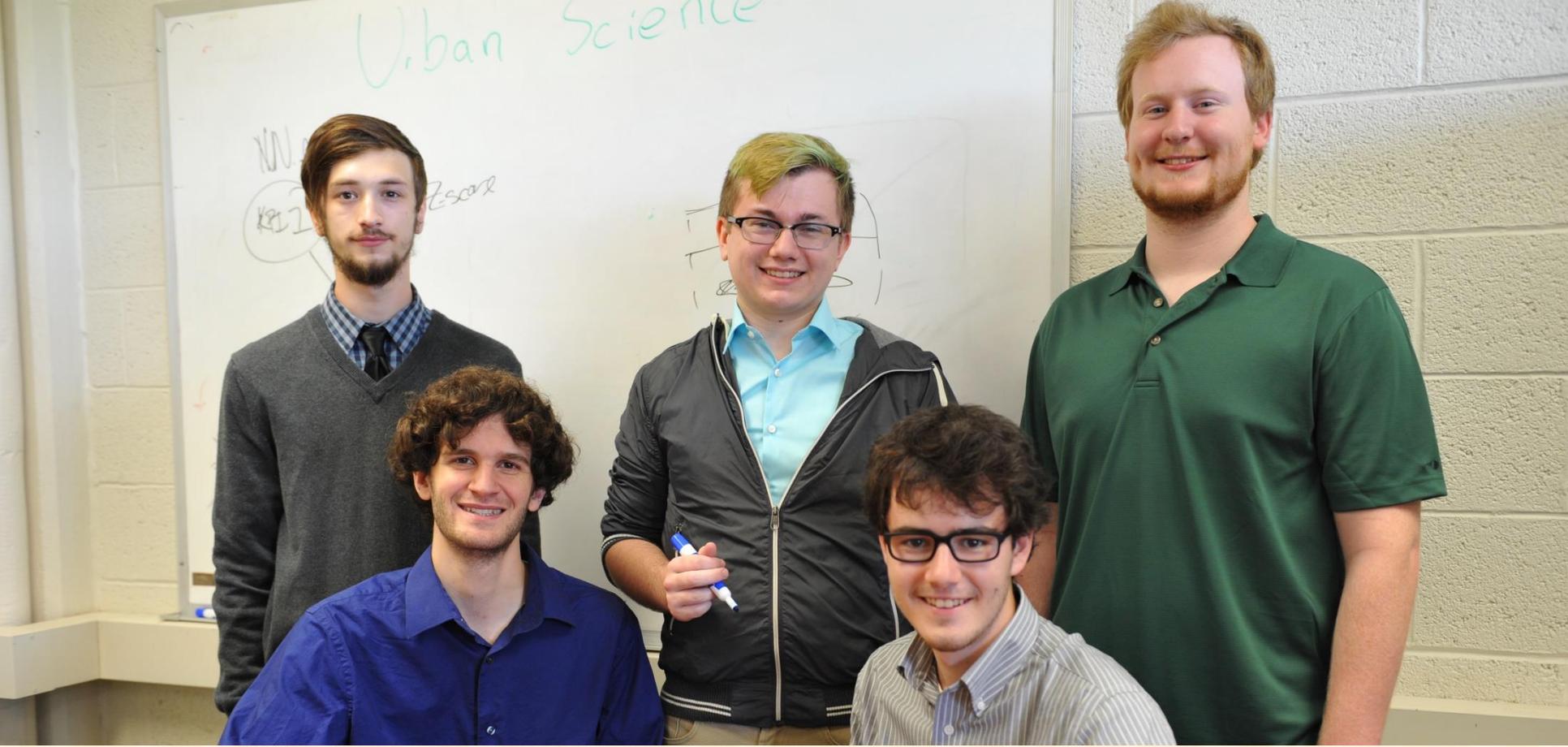
# Team Urban Science Project Overview

## Dealership Simulator 2017

- Functionalities
  - Educate Urban Science Associates
  - About Running a Successful Automobile Dealership
  - By Playing a Game
- Features
  - Allow Dealership Location Selection
    - Geographical Characteristics
    - Population Statistics
  - Manage Dealership Investments
    - Advertising and Marketing
    - Facilities
    - Service Department
  - Include Random “Life” Events
    - Manufacturer Rebates
    - Vehicle Recalls
    - Acts of Nature
  - Base on Rules Provided by Urban Science
  - Support Web App and Mobile Apps
- Technologies
  - Game Design and Implementation
  - Entity Game Framework
  - CSS / HTML / JavaScript
  - Apple iPads and iPhones (iOS) / Swift or Objective-C
  - Google Android Tablets and Phones / Java



URBAN SCIENCE.  
Detroit, Michigan

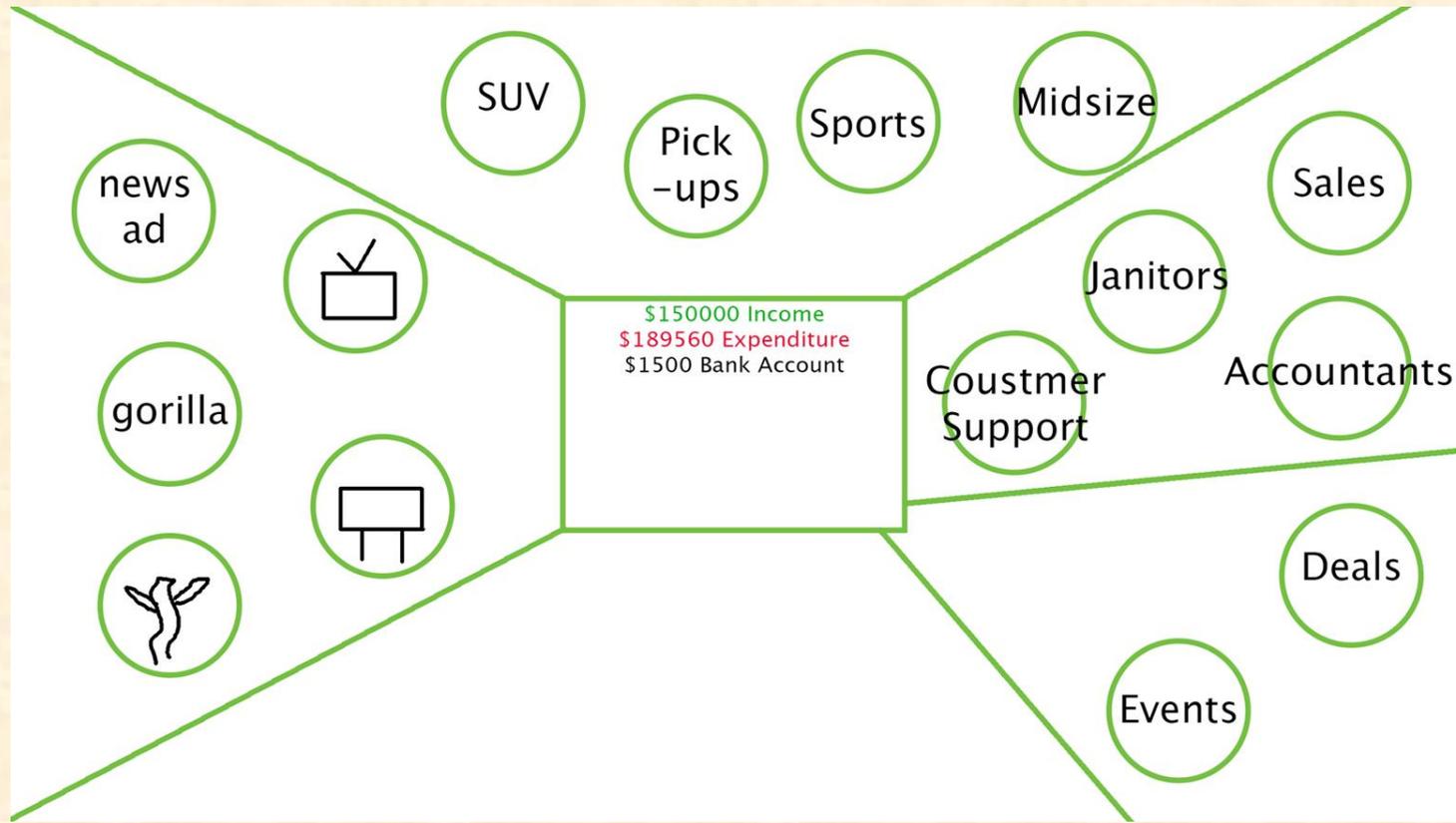


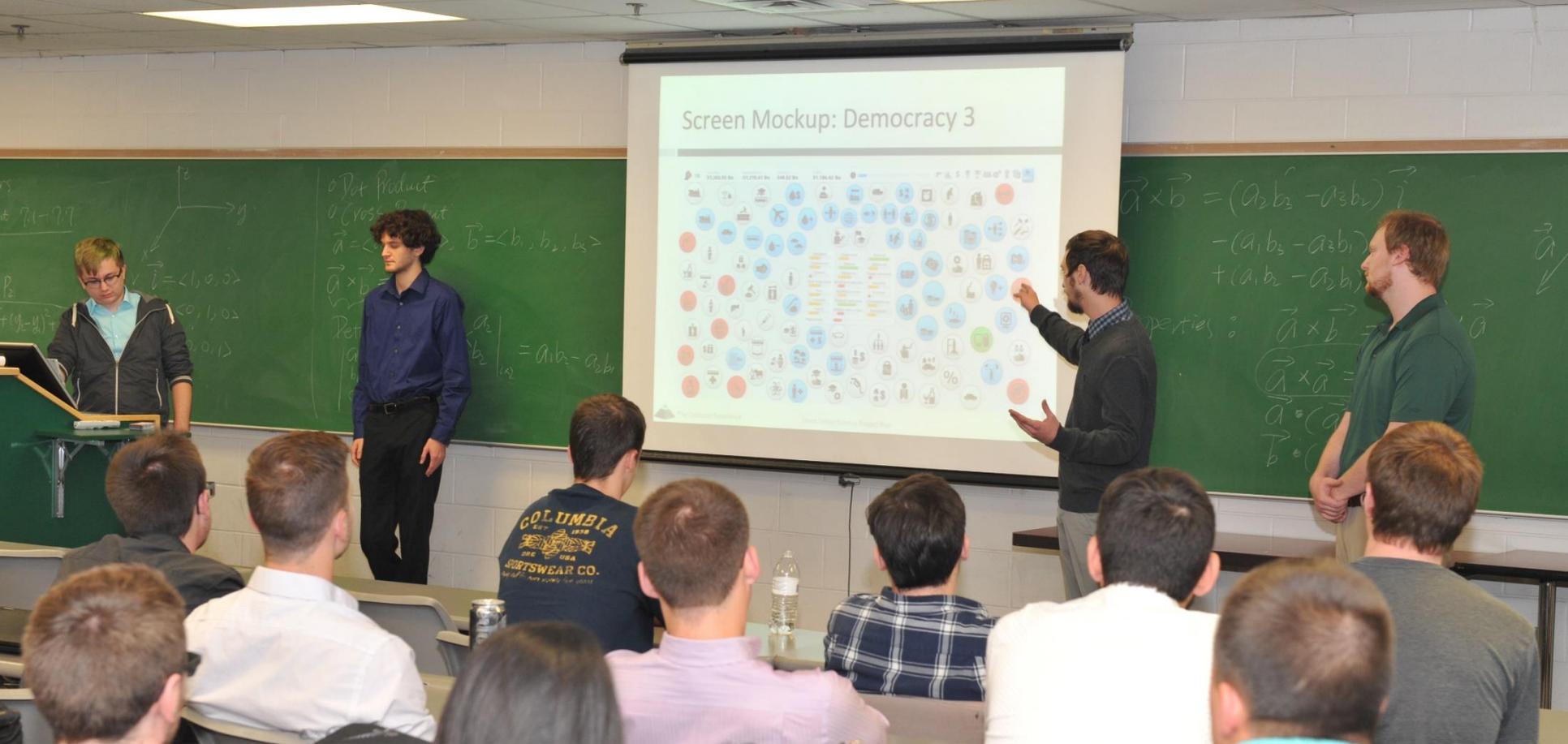
## Team Urban Science

Ryan Feldman, Ryan Magliola, Scott Holzknecht, Dean Gleason, Jonny Schuller

# Team Urban Science Project Plan Presentation

Screen Mockup





### Screen Mockup: Democracy 3



Dot Product  
Cross Product  
 $\vec{a} = \langle a_1, a_2, a_3 \rangle$   
 $\vec{b} = \langle b_1, b_2, b_3 \rangle$   
 $\vec{a} \times \vec{b} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \end{vmatrix} = (a_2b_3 - a_3b_2)\hat{i} - (a_1b_3 - a_3b_1)\hat{j} + (a_1b_2 - a_2b_1)\hat{k}$

$\vec{a} \times \vec{b} = (a_2b_3 - a_3b_2)\hat{i} - (a_1b_3 - a_3b_1)\hat{j} + (a_1b_2 - a_2b_1)\hat{k}$   
Properties:  $\vec{a} \times \vec{b} = -\vec{b} \times \vec{a}$   
 $\vec{a} \times \vec{a} = \vec{0}$   
 $\vec{a} \times (\vec{b} + \vec{c}) = \vec{a} \times \vec{b} + \vec{a} \times \vec{c}$

Team Urban Science  
Project Plan Presentation

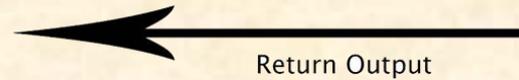
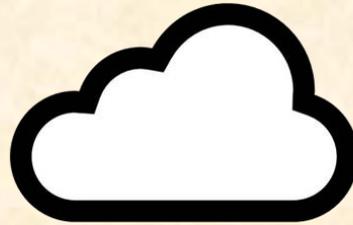
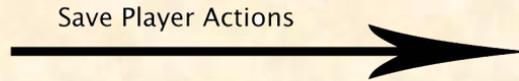
# Team Urban Science Project Plan Presentation

## Architecture Diagram



URBAN SCIENCE™

WebGL and Mobile App:



Server:

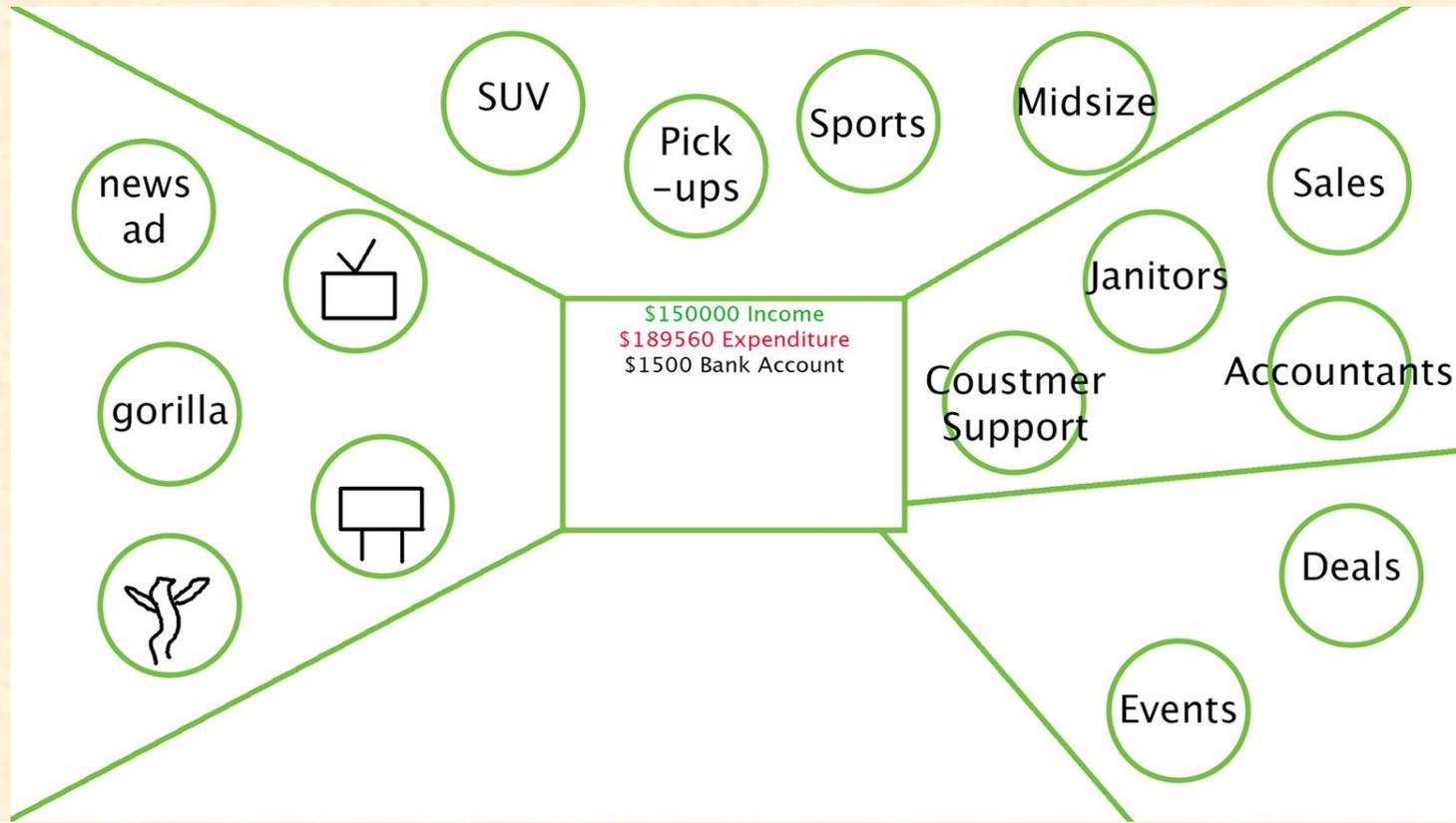


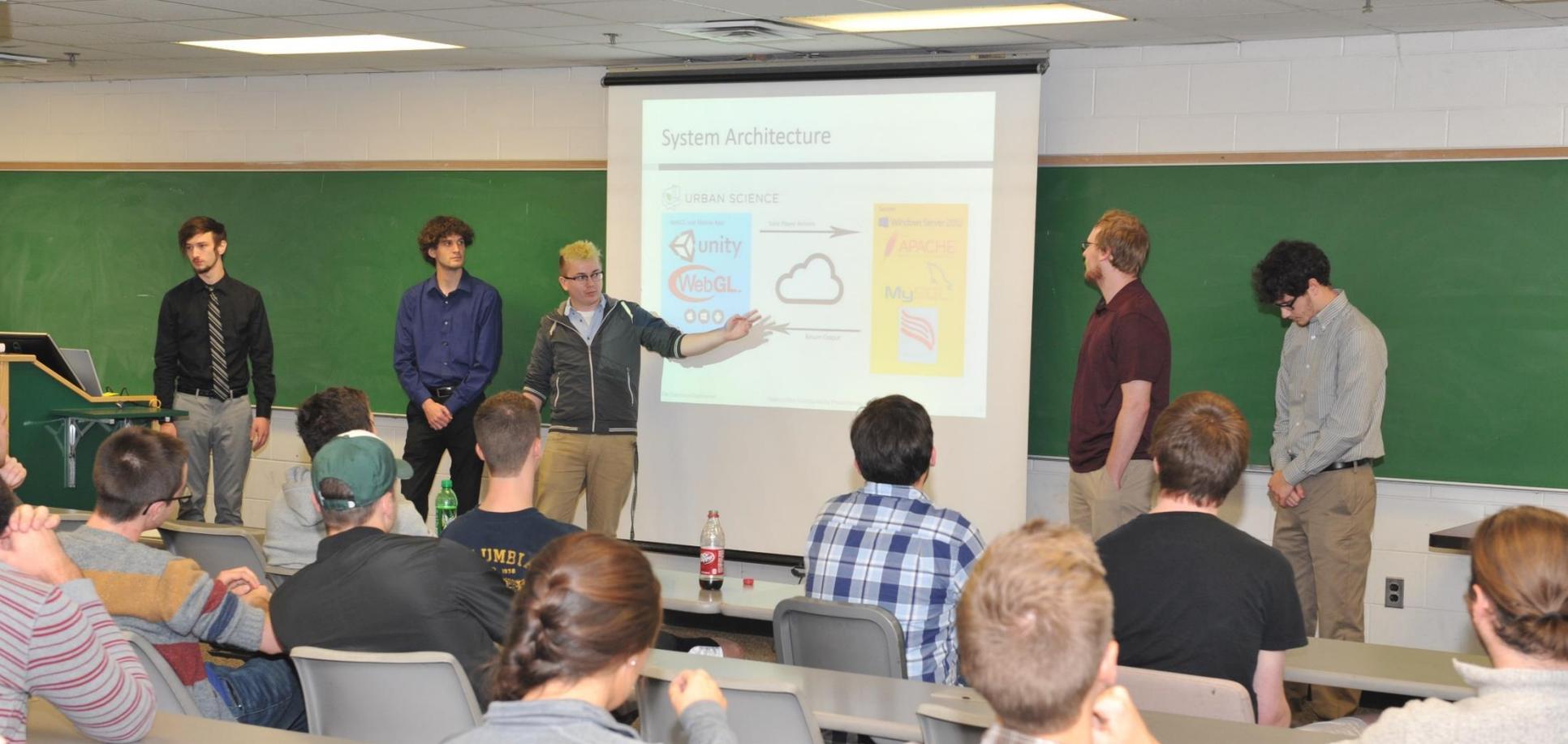


Team Urban Science  
Project Plan Presentation

# Team Urban Science Project Plan Presentation

Screen Mockup





Team Urban Science  
Alpha Presentation

# Team Urban Science Alpha Presentation

e.

Urban Scene



The Capstone Experience



# Team Urban Science Alpha Presentation

e.

## Leaderboard



URBAN SCIENCE  
DEALERSHIP SIMULATOR

RANK BY: **Total Sales**

### LEADERBOARD

Player	Total Sales	Monthly Income	Cars Sold	Cars/Month	Vehicles Serviced
Dave Mathews	\$2.1 Million	\$342,000	2,000	17	1
Steven Tyler	\$1.8 Million	\$322,000	1,743	20	14
Debby Collins	\$977,000	\$248,000	1,002	24	12
Mike Phillips	\$623,000	\$220,000	500	19	12
Niko Avera	\$246,000	\$102,000	60	1	0
Edward Johnson	\$100,000	\$40,000	23	23	0
Steve Brown	\$78,000	\$7,000	1	1	0

MESSAGE OF THE DAY

See how you rank against other players on the LEADERBOARD as you compete to improve your dealership's stats!

CLOSE





Team Urban Science  
Alpha Presentation

# Team Urban Science Alpha Presentation

## Small Car Inventory

The number of small cars a dealership has on hand at any given time.





# Team Urban Science Beta Presentation

# Team Urban Science Beta Presentation

e.

Urban Dealership



The Capstone Experience



# Team Urban Science Beta Presentation

## KPI Input Screen

\$2,000 — MONTHLY KPI INPUTS — MAY

MAY

<b>NEW CAR INVENTORY</b> 510 CARS	<b>NEW CAR GROSS PROFIT PER UNIT SOLD</b> \$1,013	<b>NEW CAR FINANCIAL CONTRACTS PEN(%)</b> 53%	<b>NEW CAR SERVICE CONTRACTS PEN (%)</b> 37%	<b>NEW CAR ADVERTISING (\$)</b> \$111,123
<b>USED CAR INVENTORY</b> 28 CARS	<b>USED CAR GROSS PROFIT PER UNIT SOLD</b> \$1,359	<b>USED CAR FINANCIAL CONTRACTS PEN(%)</b> 82%	<b>USED CAR SERVICE CONTRACTS PEN (%)</b> 74%	<b>USED CAR ADVERTISING (\$)</b> \$12,335
<b>SERVICE DEPARTMENT GROSS AS A % OF SALES</b> 72%	<b>SERVICE DEPARTMENT SERVICE LABOR RATE PER HOUR</b> 110	<b>SERVICE DEPARTMENT ADVERTISING (\$)</b> \$12,652	<b>SERVICE DEPARTMENT LABOR SALES PER RO</b> 132	<b>PARTS DEPARTMENT GROSS AS A % OF SALES</b> 34%
<b>PARTS DEPARTMENT ADVERTISING (\$)</b> \$8,796	<b>PARTS DEPARTMENT LABOR SALES PER RO</b> 159			

RESET DONE

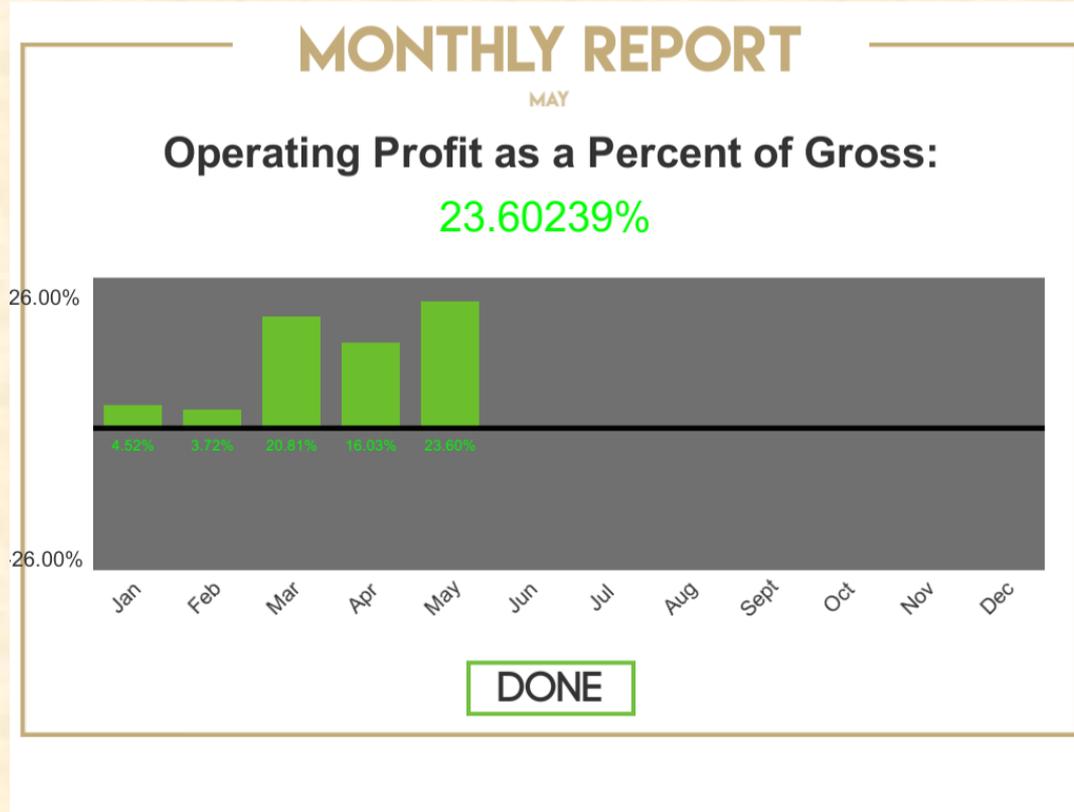


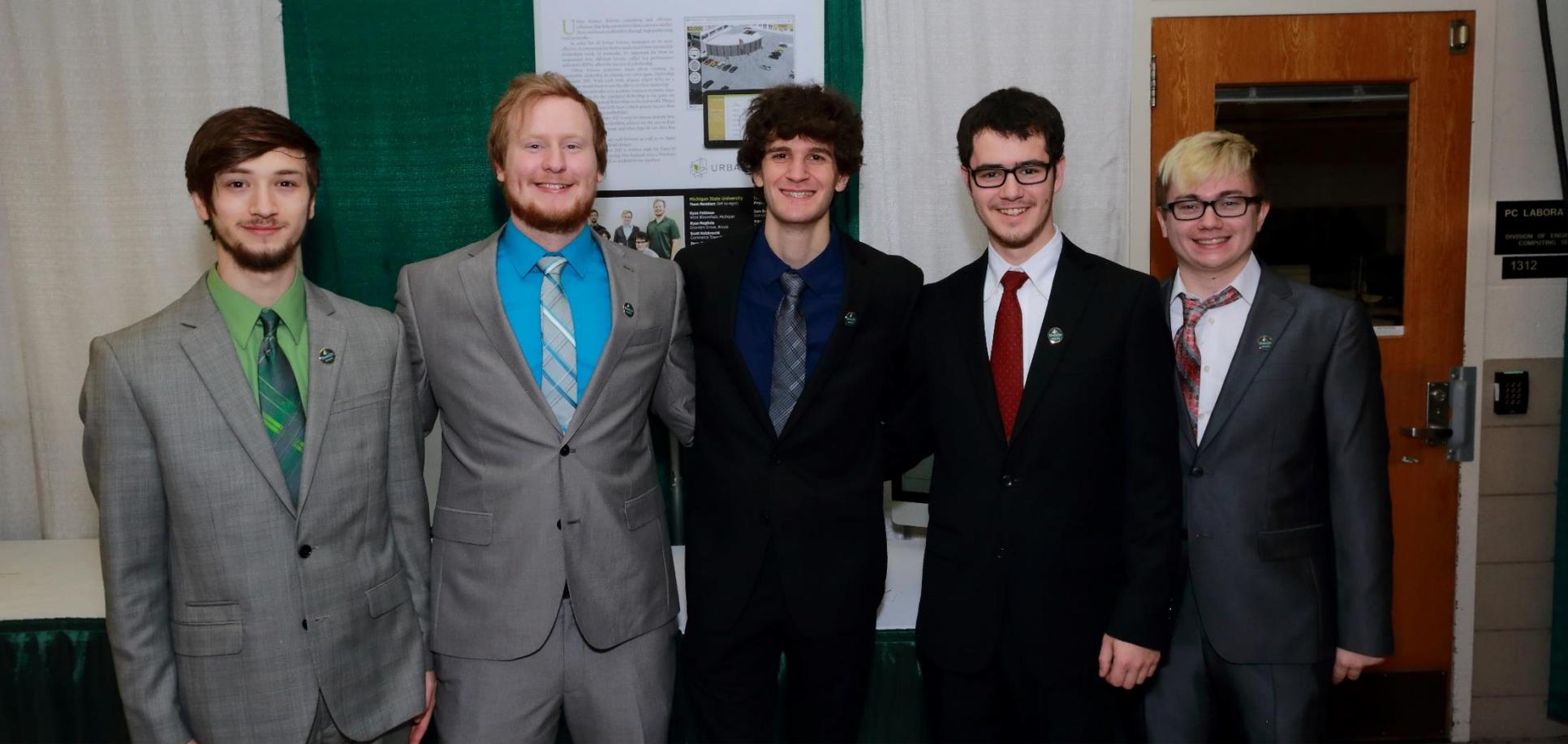


Team Urban Science  
Beta Presentation

# Team Urban Science Beta Presentation

Output Screen





Team Urban Science  
Design Day

MICHIGAN STATE  
UNIVERSITY

# *The Capstone Experience*

Team Whirlpool

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



**Whirlpool**

**CORPORATION**





PRODUCTS

OWNERS

EVERY DAY, CARE™

CHAT | FIND A RETAILER

LAUNDRY

KITCHEN

OTHER PRODUCTS

FEATURED INNOVATIONS

PARTS & ACCESSORIES

What are you looking for?

See why our new refrigerator is the

# Team Whirlpool Project Overview

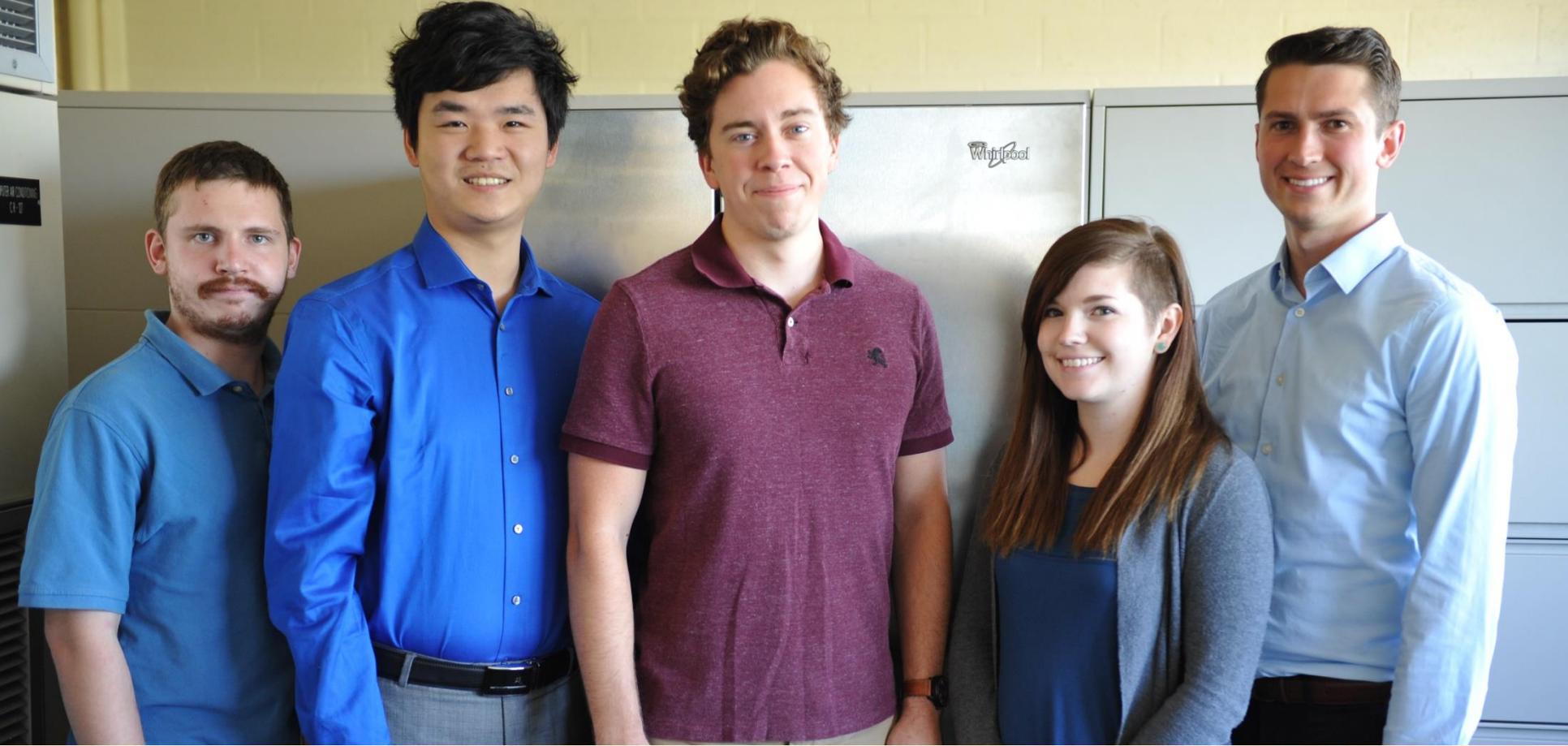
## Mooch

- Functionalities
  - Enable Food and Ingredient Sharing
  - Within Apartment or Condo Complex
  - Via Mobile Apps
- Features
  - Support Both Supply and Demand
  - Provide Browsing
    - What's available nearby?
    - What can I make?
  - Create Social Community
  - Handle
    - Virtual Currency
    - Trading, Selling or Giving Away
- Technologies
  - Apple iPads and iPhones (iOS) / Swift or Objective-C
  - Google Android Tablets and Phones / Java
  - Google App Engine
  - Google Analytics
  - RESTful Web Services



Benton Harbor, Michigan





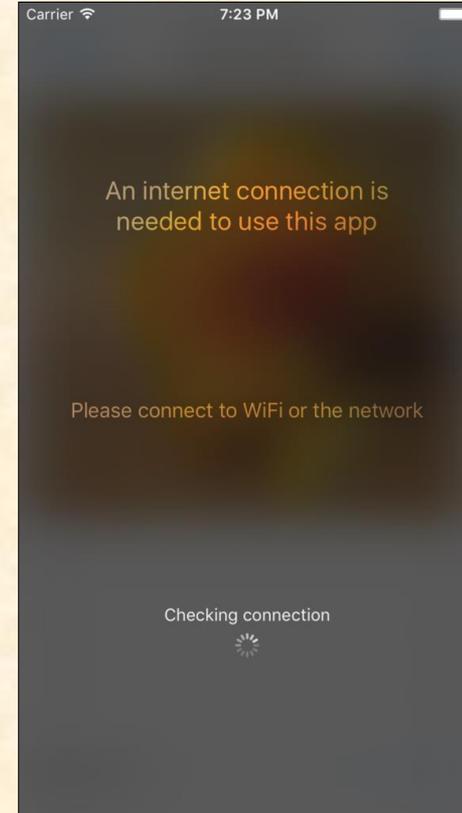
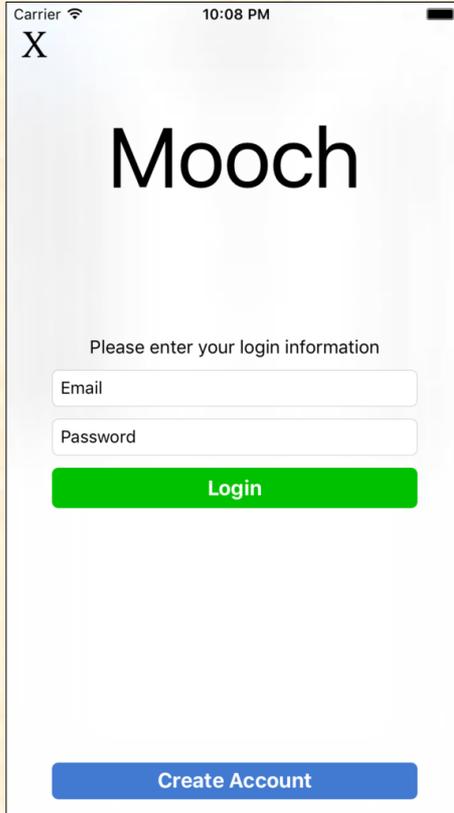
## Team Whirlpool

Caleb Swanson, Daniel Jiang, Noah Hines, Laura Robb, Adam Schoonmaker

# Team Whirlpool Project Plan Presentation

e.

## Screen Mockups

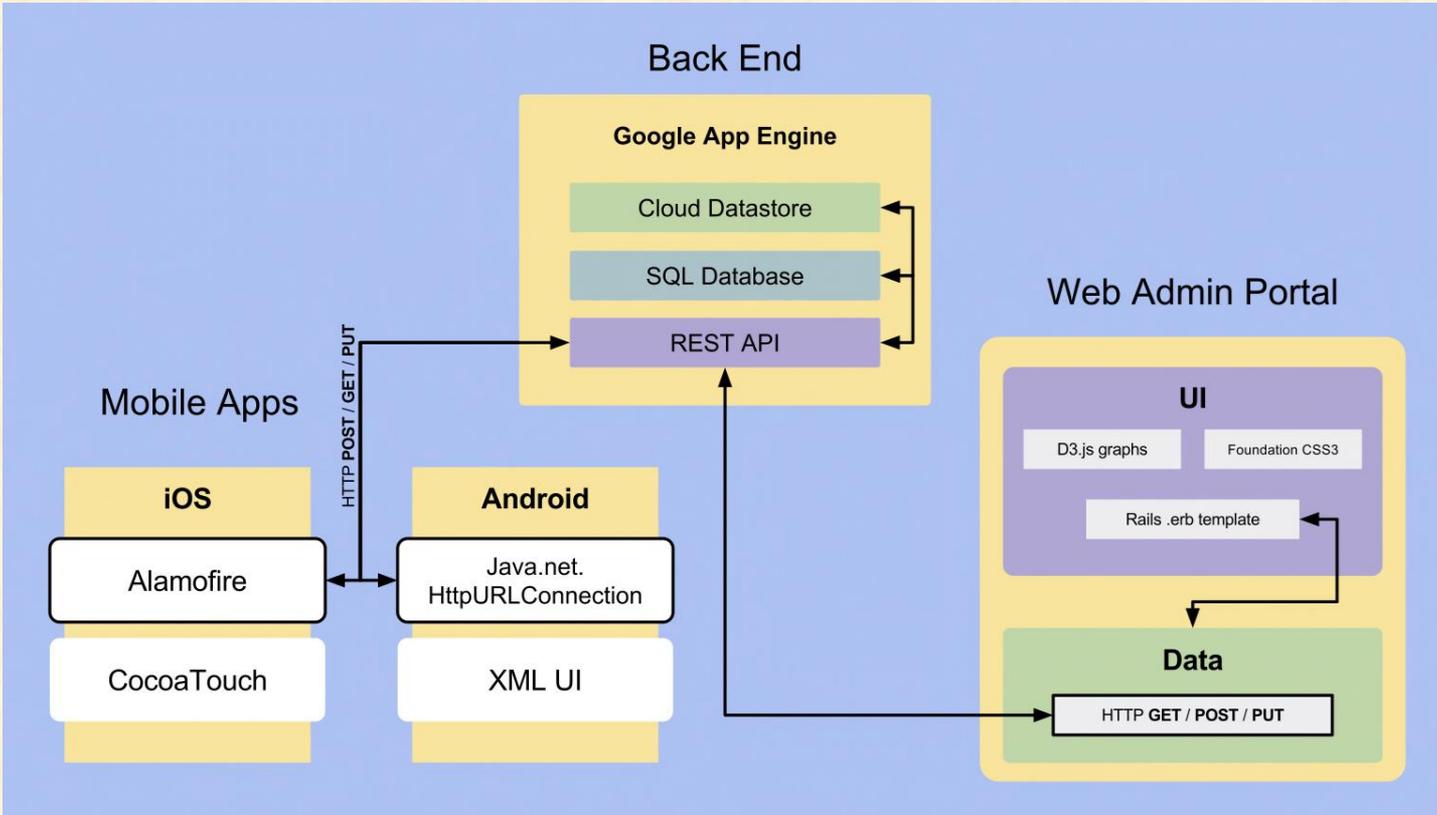




Team Whirlpool  
Project Plan Presentation

# Team Whirlpool Project Plan Presentation

## Architecture Diagram





Team Whirlpool  
Project Plan Presentation

# Team Whirlpool Project Plan Presentation

e.

## Screen Mockups

Carrier 6:54 PM

Profile	Listings	+
Listing 1	Tag1 \$1.69	by User 1
Listing 2	Tag2 \$3.37	by User 2
Listing 3	Tag3 \$5.06	by User 3
Listing 4	Tag4 \$6.75	by User 4
Listing 5	Tag5 \$8.44	by User 5

Carrier 10:09 PM

Cancel Create Listing Done



Title

Description

Tag

Price

Quantity: 1

- +



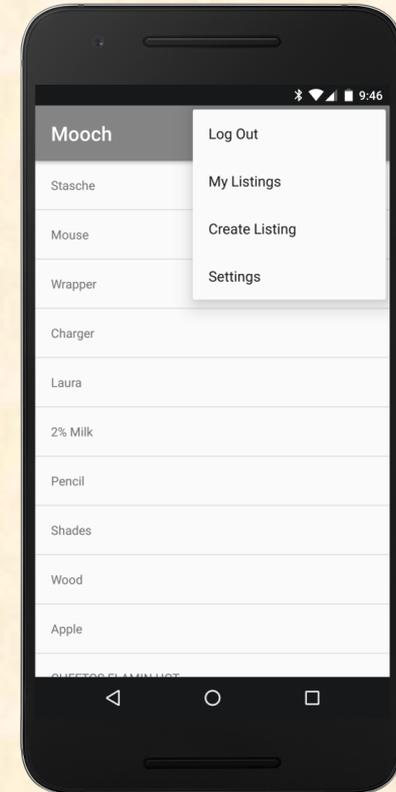
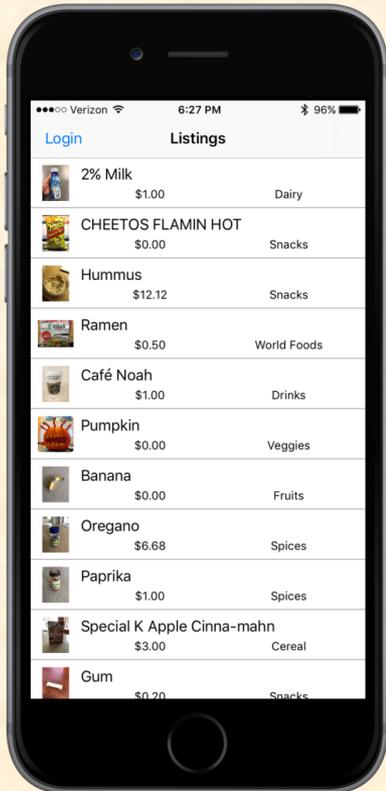


Team Whirlpool  
Alpha Presentation

# Team Whirlpool Alpha Presentation

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## Home Screen



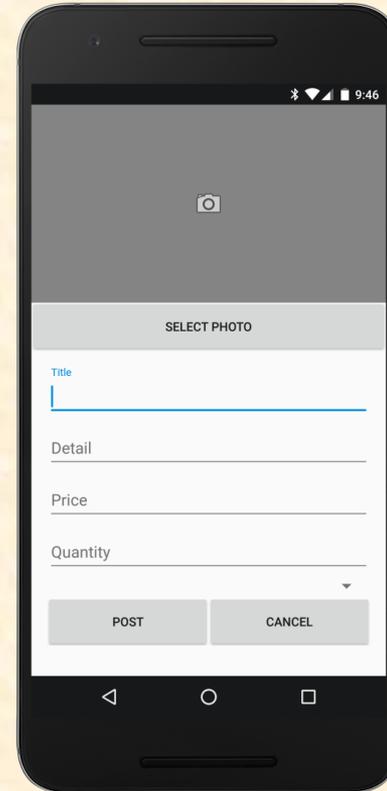
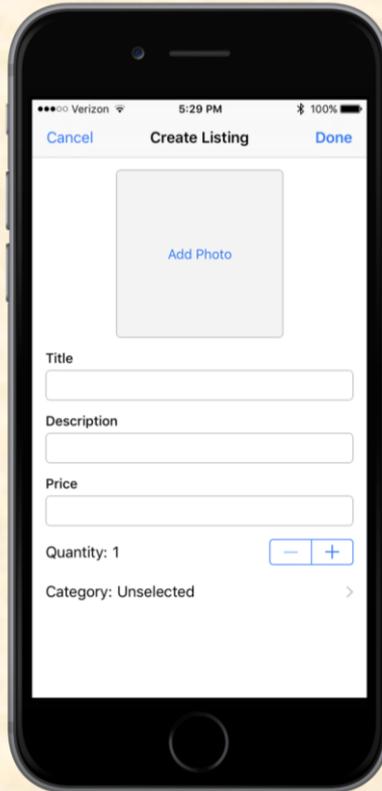
The Capstone Experience



# Team Whirlpool Alpha Presentation

e.

## Create Listing



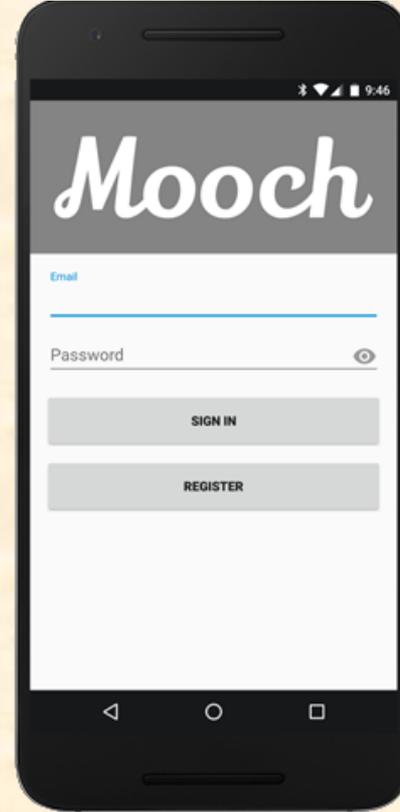
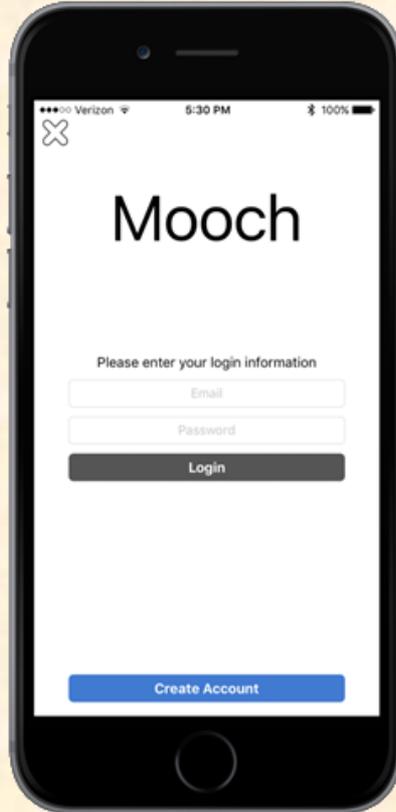


# Team Whirlpool Alpha Presentation

# Team Whirlpool Alpha Presentation

e.

Log In



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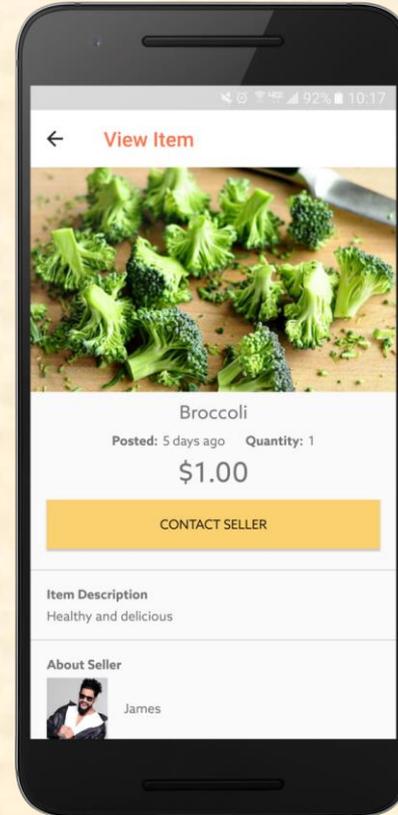
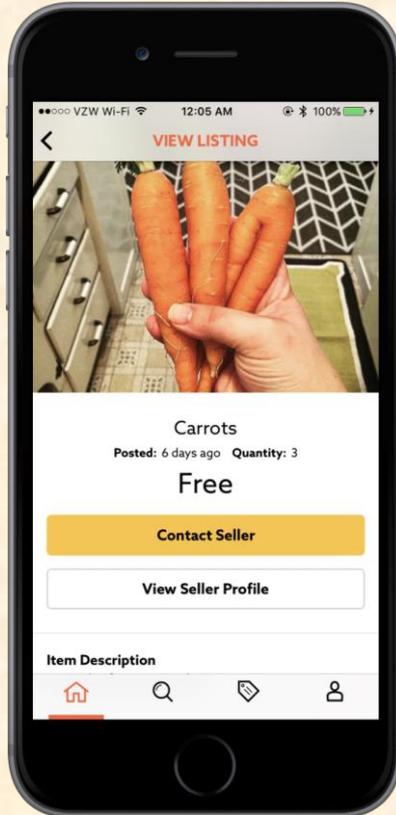


# Team Whirlpool Beta Presentation

# Team Whirlpool Beta Presentation

e.

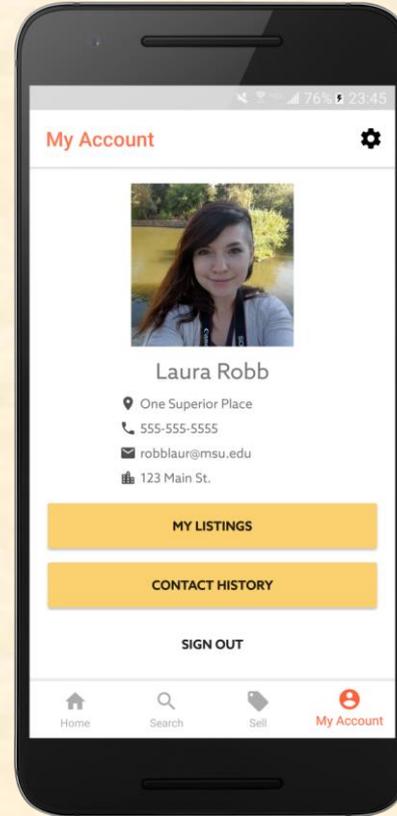
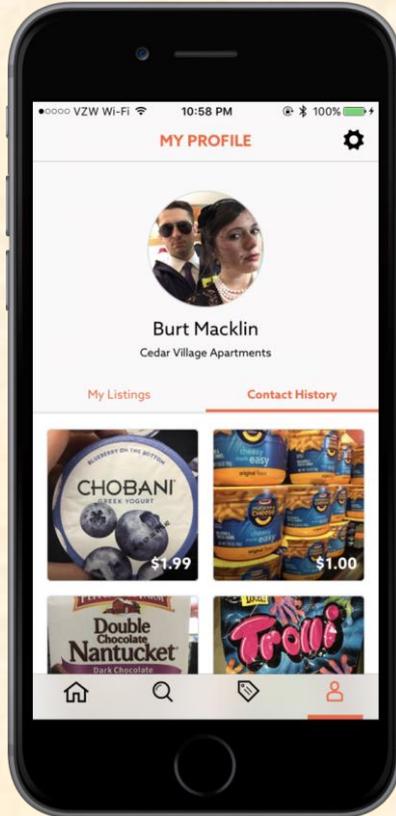
## Listing Details (iPhone and Android)



# Team Whirlpool Beta Presentation

e.

## User Account (iPhone and Android)



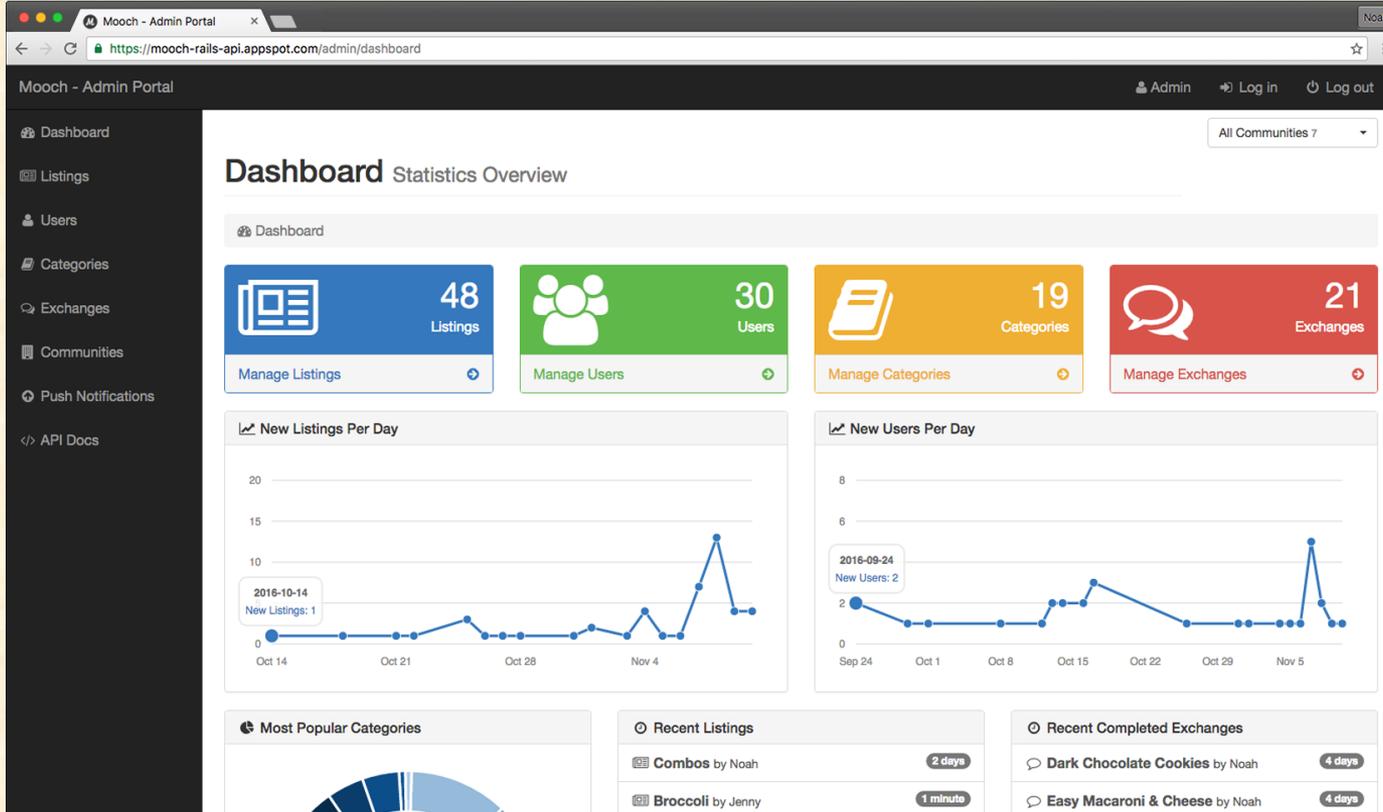


# Team Whirlpool Beta Presentation

# Team Whirlpool Beta Presentation

e.

## Web Admin Portal



The Capstone Experience





# Team Whirlpool Design Day

MICHIGAN STATE  
UNIVERSITY

# *The Capstone Experience*

Team Yello

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*

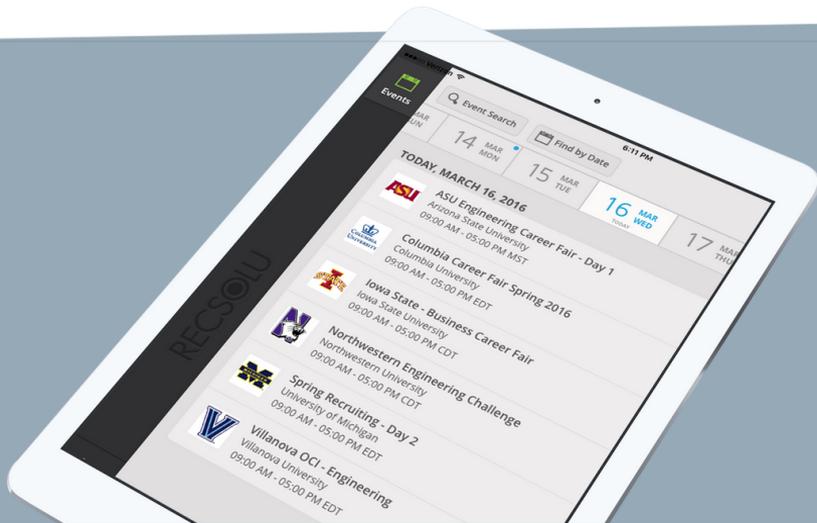
*yello*



# Campus Recruiting

Complete solution for robust campus recruiting teams

[REQUEST A DEMO](#)



Accurately report on the effectiveness of your campus recruiting efforts to make data-driven decisions on where to recruit in the future and why.

# Team Yello

## Project Overview

### Visualizing Dynamic Data Exploration

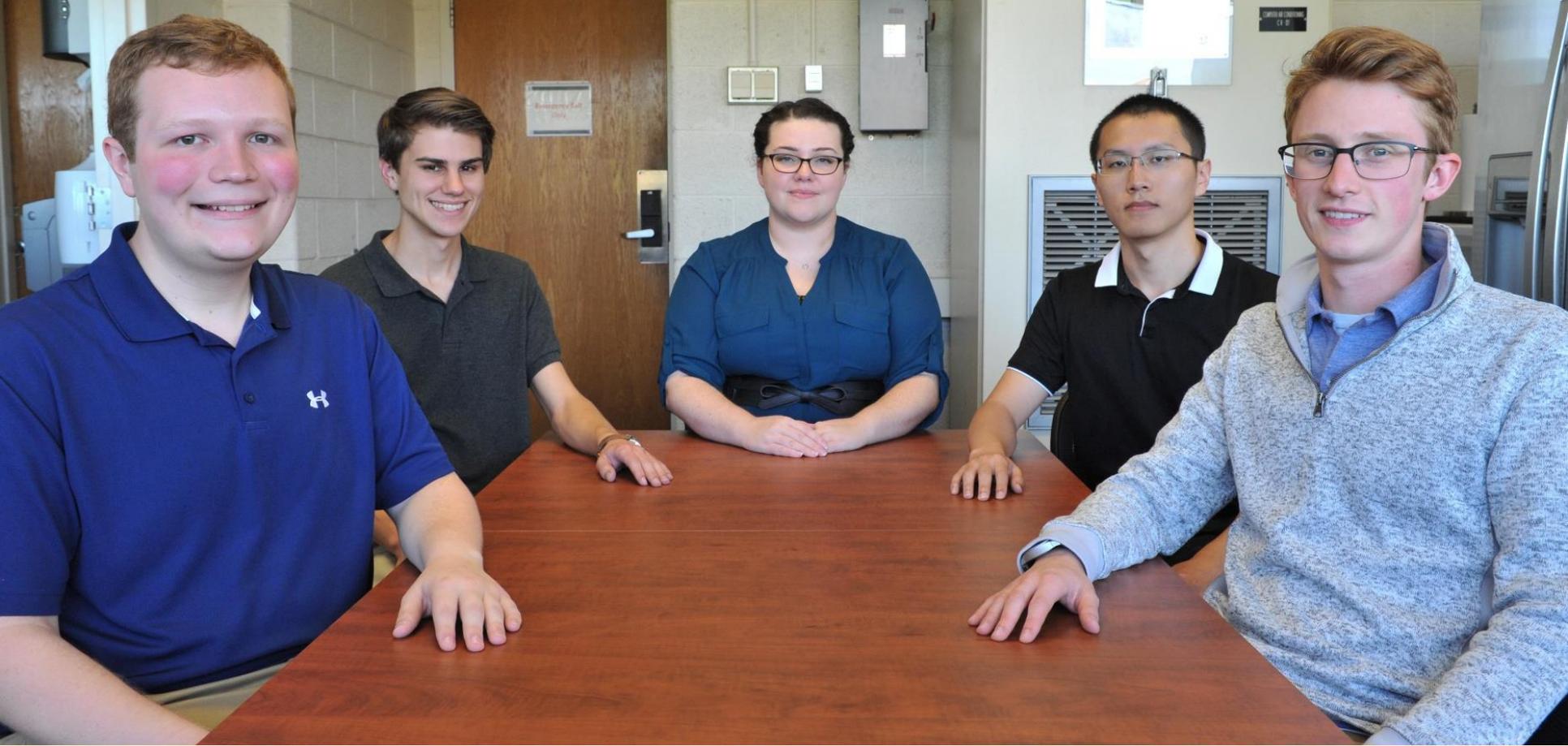
- Functionalities
  - Visualize Large, Multi-Dimensional Data
  - Interactively, Creatively and Intuitively
  - To Identify Insights and Trends
- Features
  - Provide Web App
  - Handle Very Large Data Sets
  - Leverage Various Visualization Techniques
    - Shape
    - Size
    - 3D
    - Color
    - Pan / Zoom
  - Enable Manipulation of Data
    - Filtering
    - Uploading
    - Exporting
  - Support Augmented Reality or Virtual Reality Hardware
- Technologies
  - CSS / HTML
  - JavaScript
  - D3.js
  - Ruby on Rails



yello

Chicago, Illinois





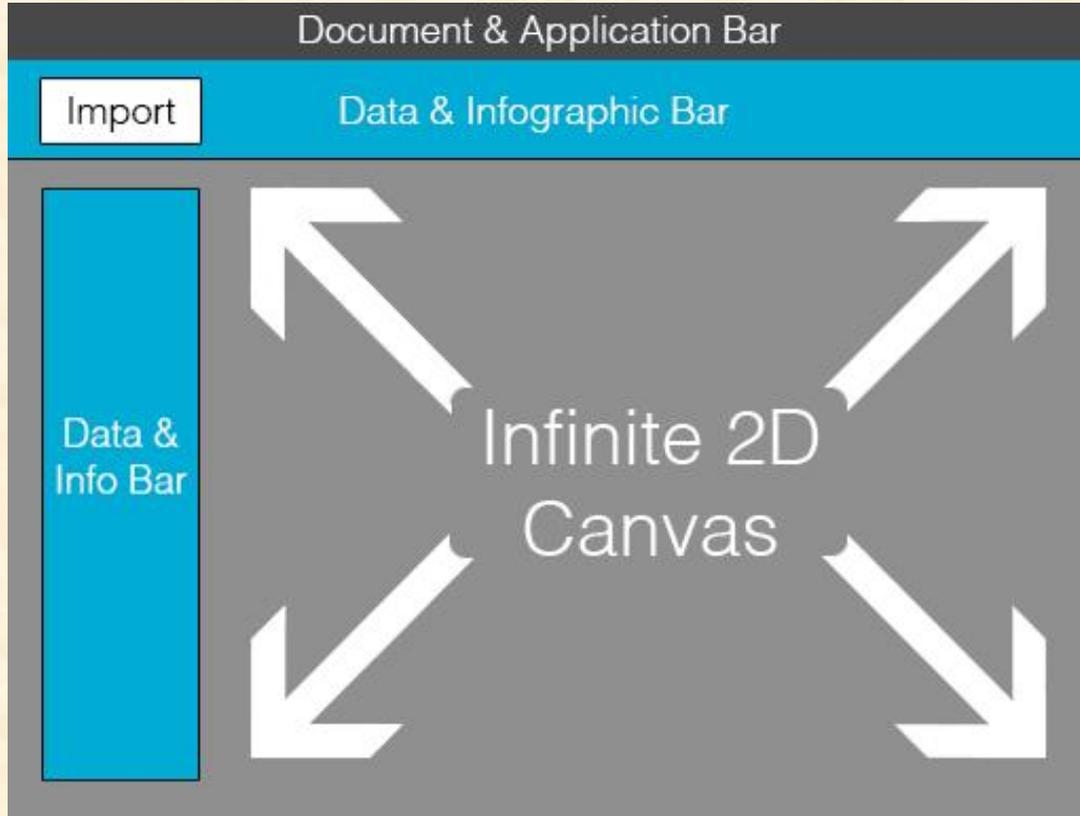
## Team Yello

Greg Spletzer, Matt Chebowski, Stephanie Winsky, Jim Wang, Jarrod Rougeau

# Team Yello Project Plan Presentation

e.

Screen Mockup

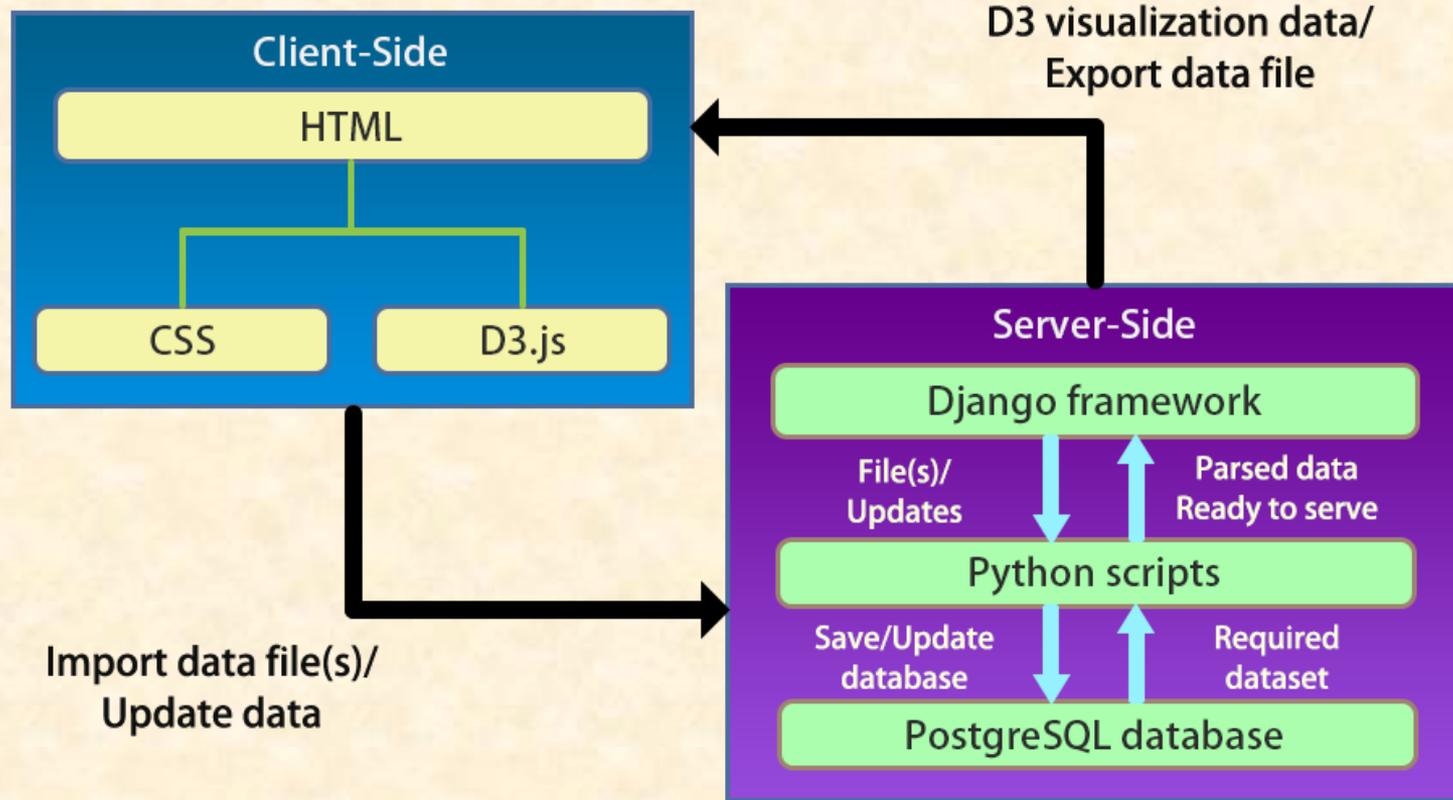


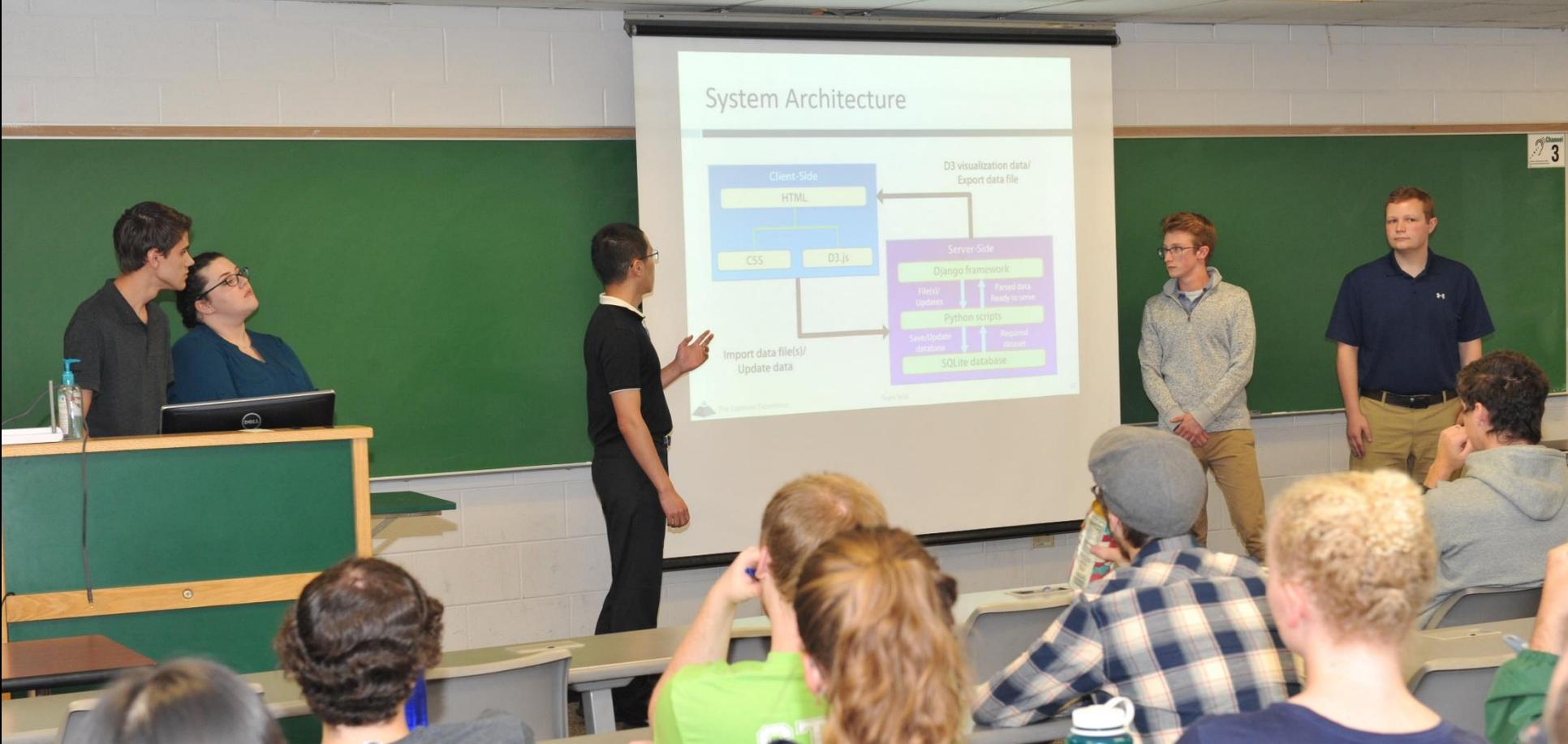


# Team Yello Project Plan Presentation

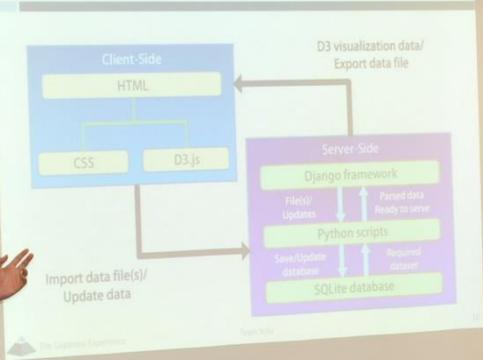
# Team Yello Project Plan Presentation

## Architecture Diagram





# System Architecture

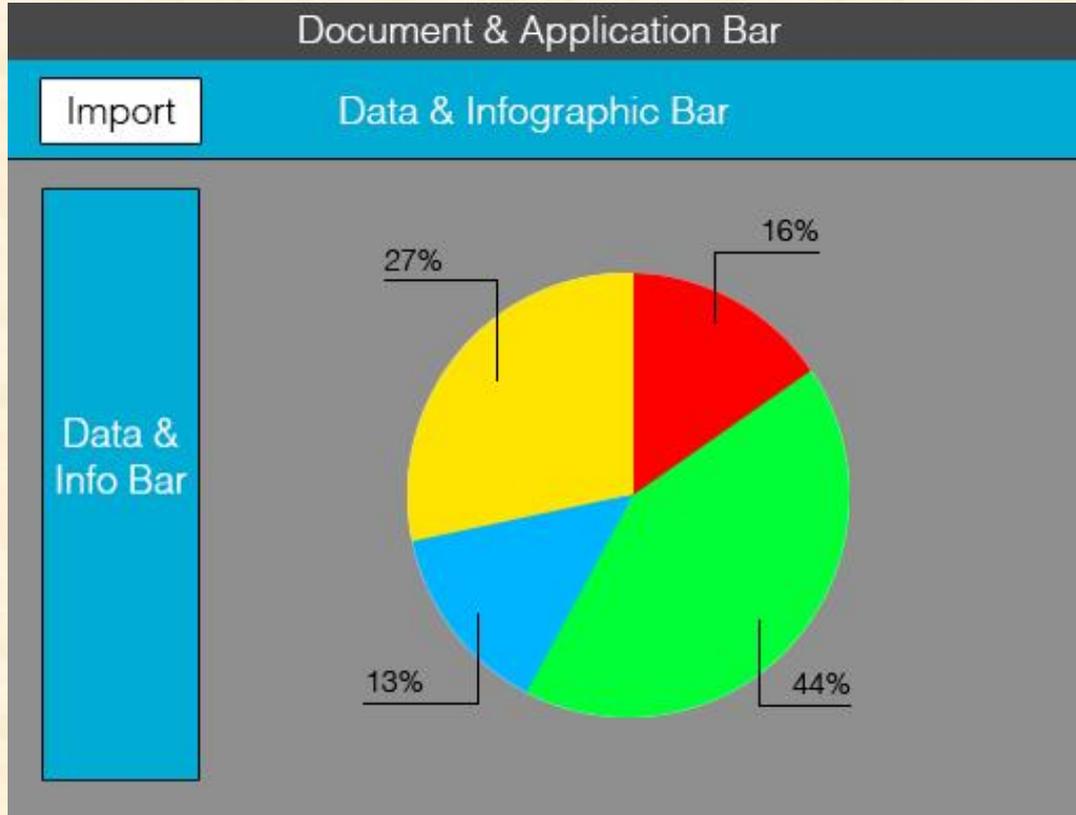


Team Yello  
Project Plan Presentation

# Team Yello Project Plan Presentation

e.

Screen Mockup





## Project Overview

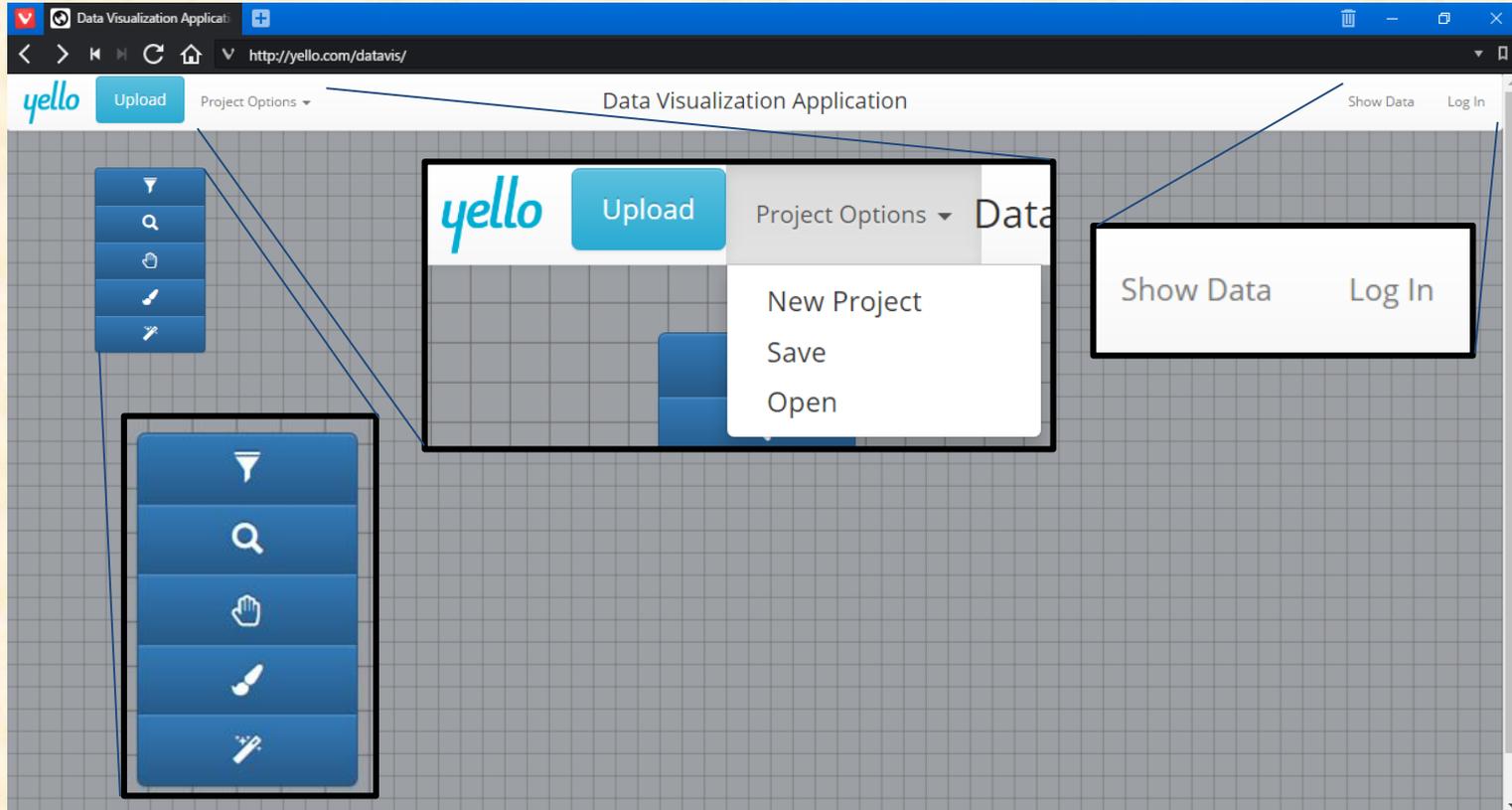
- Make large amounts of complex data easy to understand in a visual manner
- Make the application's canvas the focal point of use
- Available and unobtrusive toolbars

Team Yello  
Alpha Presentation

# Team Yello Alpha Presentation

e.

Main Page



The Capstone Experience



# Team Yello Alpha Presentation

e.

## Filter Data Selection

The screenshot displays a web browser window with the URL `http://yello.com/datavis`. The application interface includes a top navigation bar with the 'yello' logo, an 'Upload' button, and a 'Project Options' dropdown. The main content area features a donut chart on a grid background. A 'Filter Data' dialog box is open in the center, containing the following elements:

- Filter Data** (Title bar with a close button)
- Text: "Select which columns you would like to include in the data-visual."
- Three buttons: **Major**, **Year**, and **GPA**
- Text: "Filter by other options:"
- A search input field with a dropdown menu labeled "Filter by" and a search icon, followed by the text "Search term..."
- A **Submit Changes** button at the bottom right.

In the background, a donut chart is partially visible, and a 'Legend' checkbox is located on the right side of the chart area.



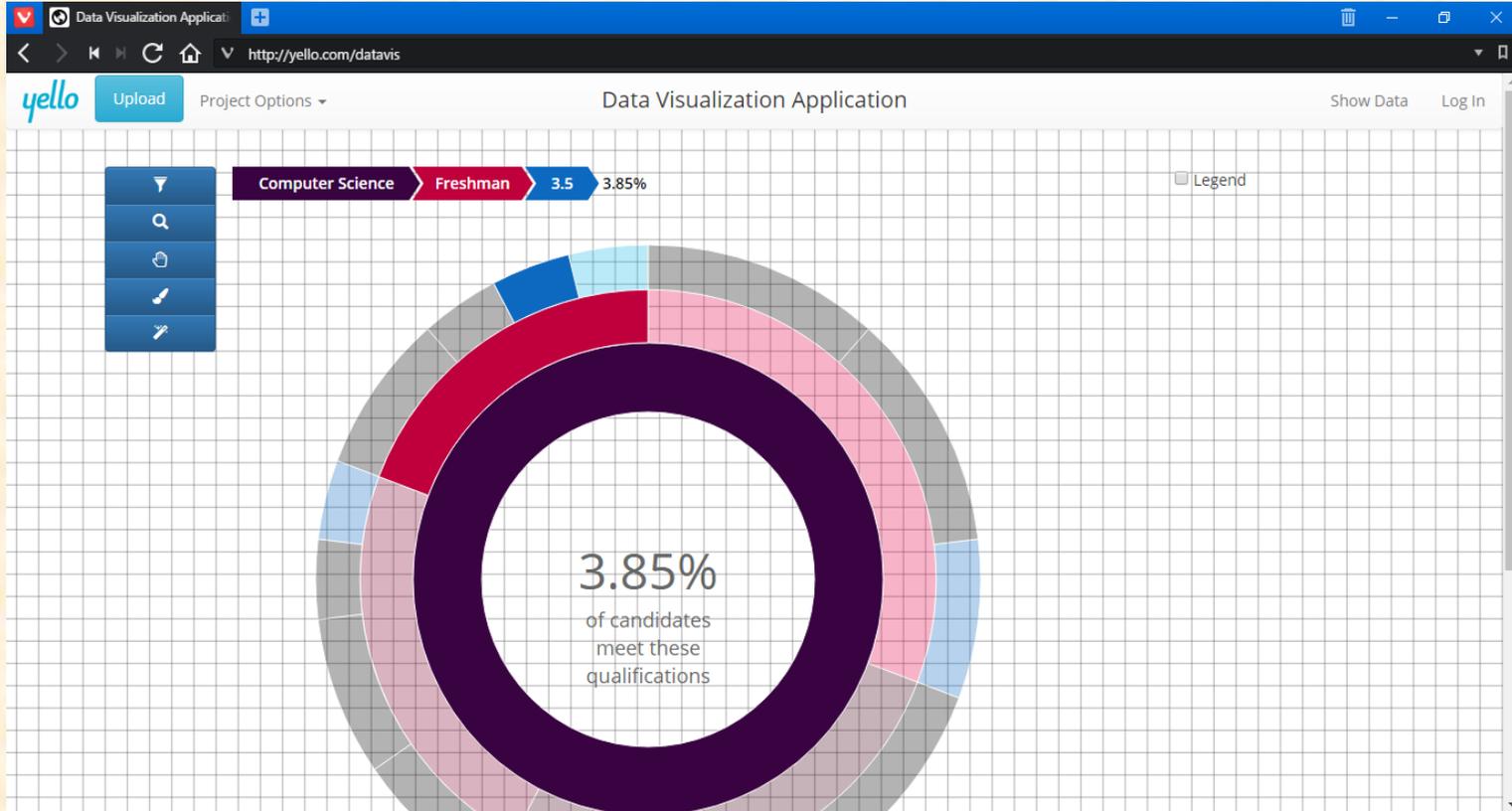


# Team Yello Alpha Presentation

# Team Yello Alpha Presentation

e.

## Data Visualization



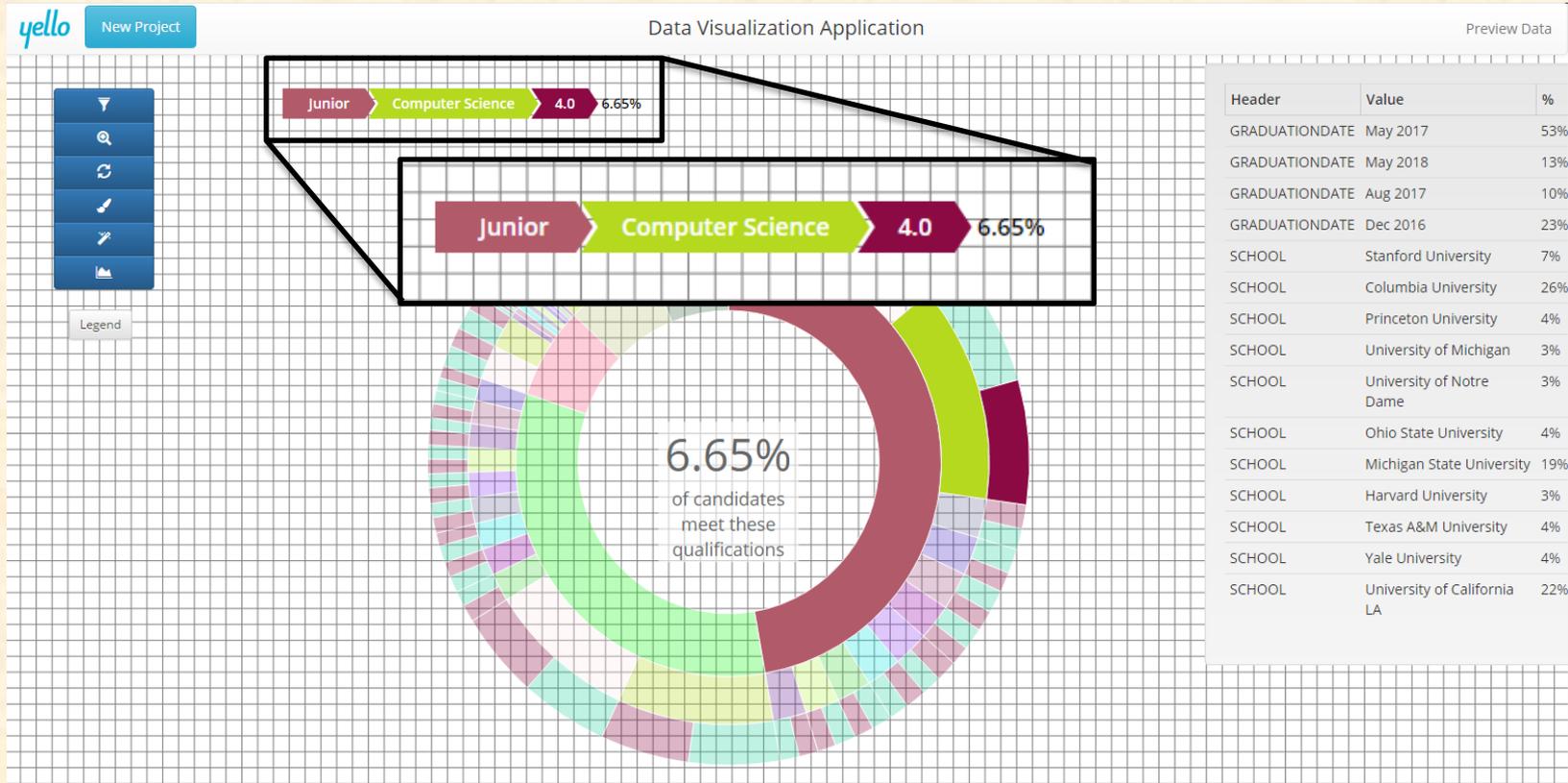


# Team Yello Beta Presentation

# Team Yello Beta Presentation

e.

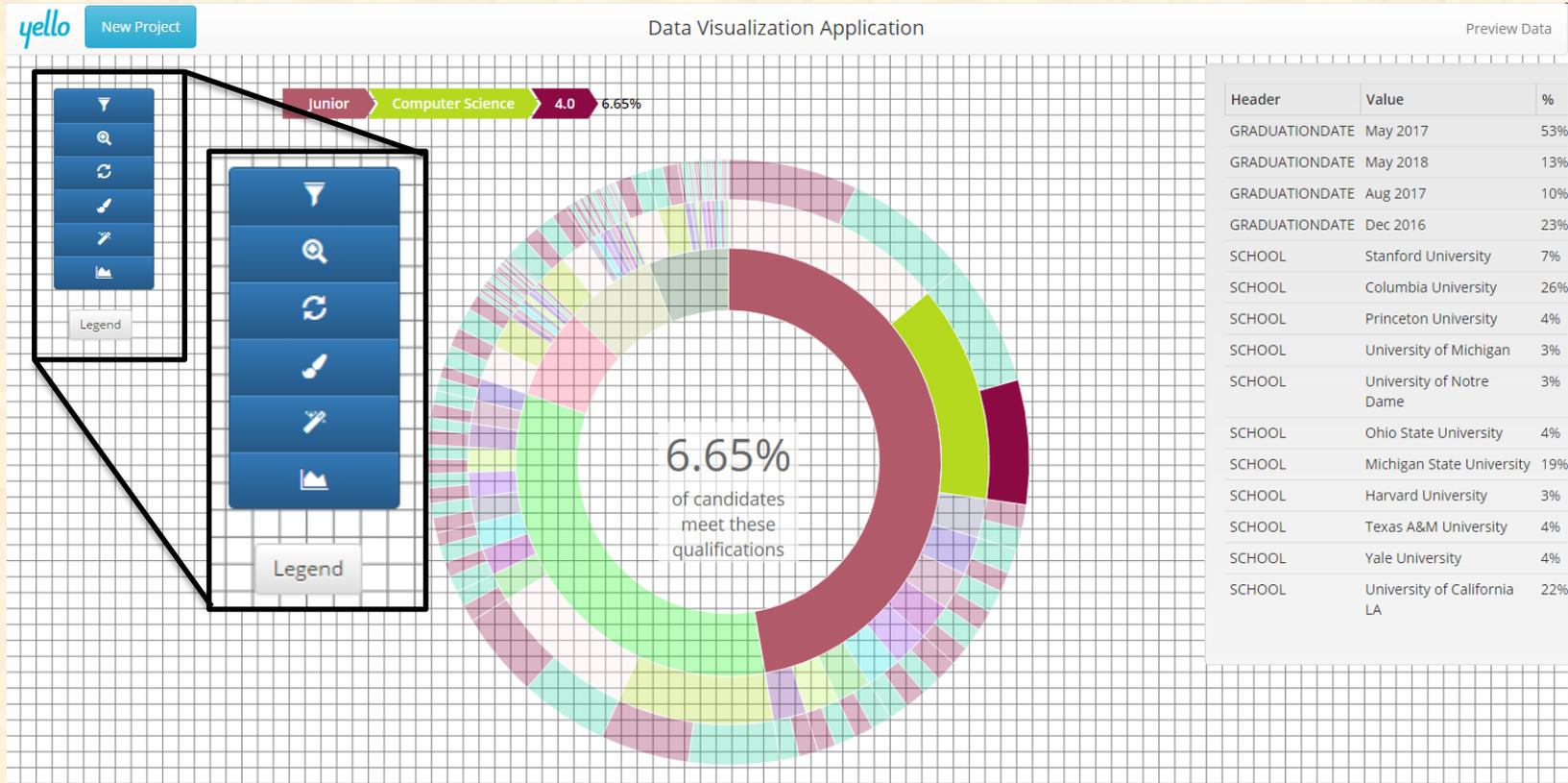
Canvas Area



# Team Yello Beta Presentation

e.

Toolbar

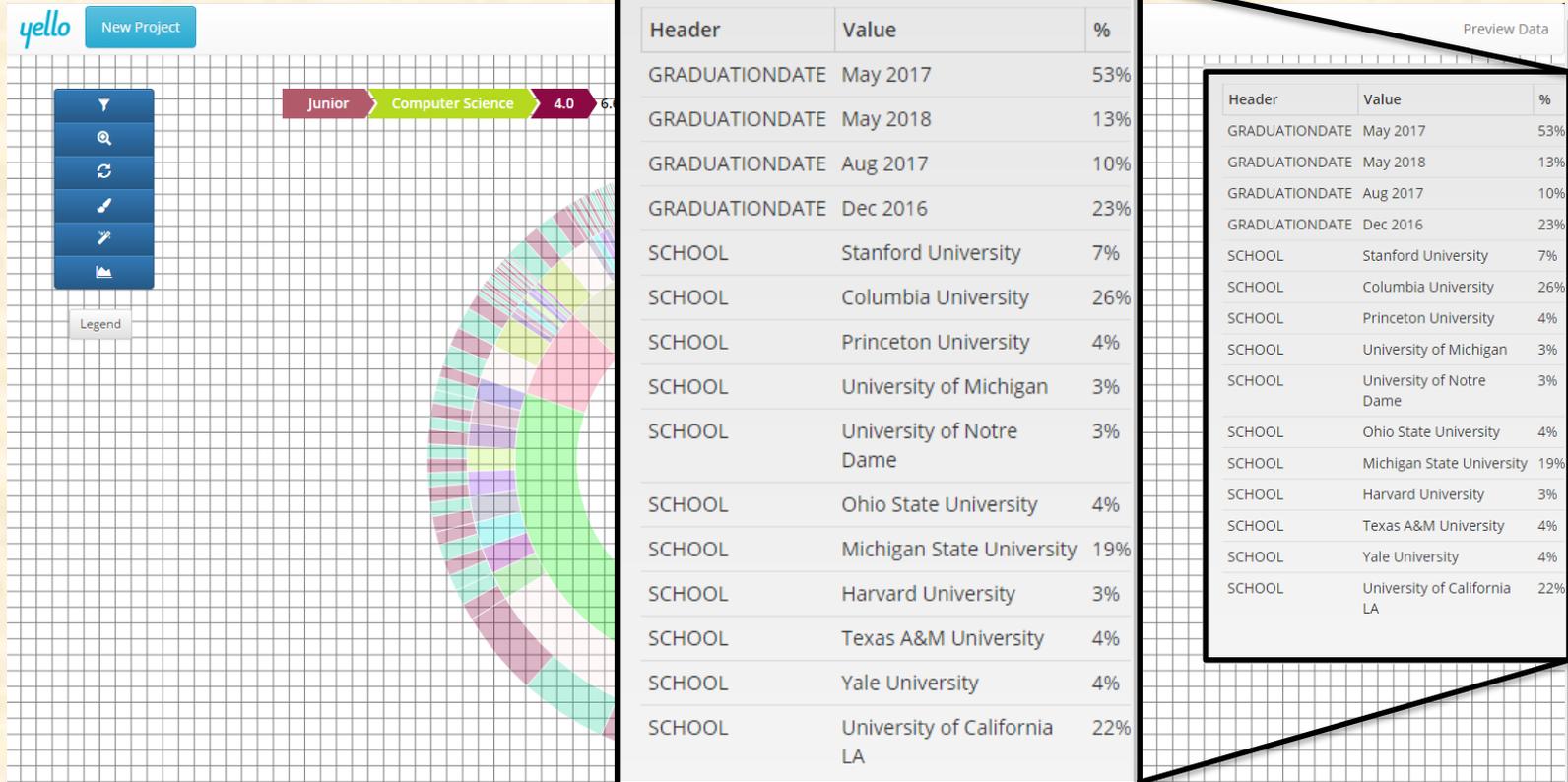


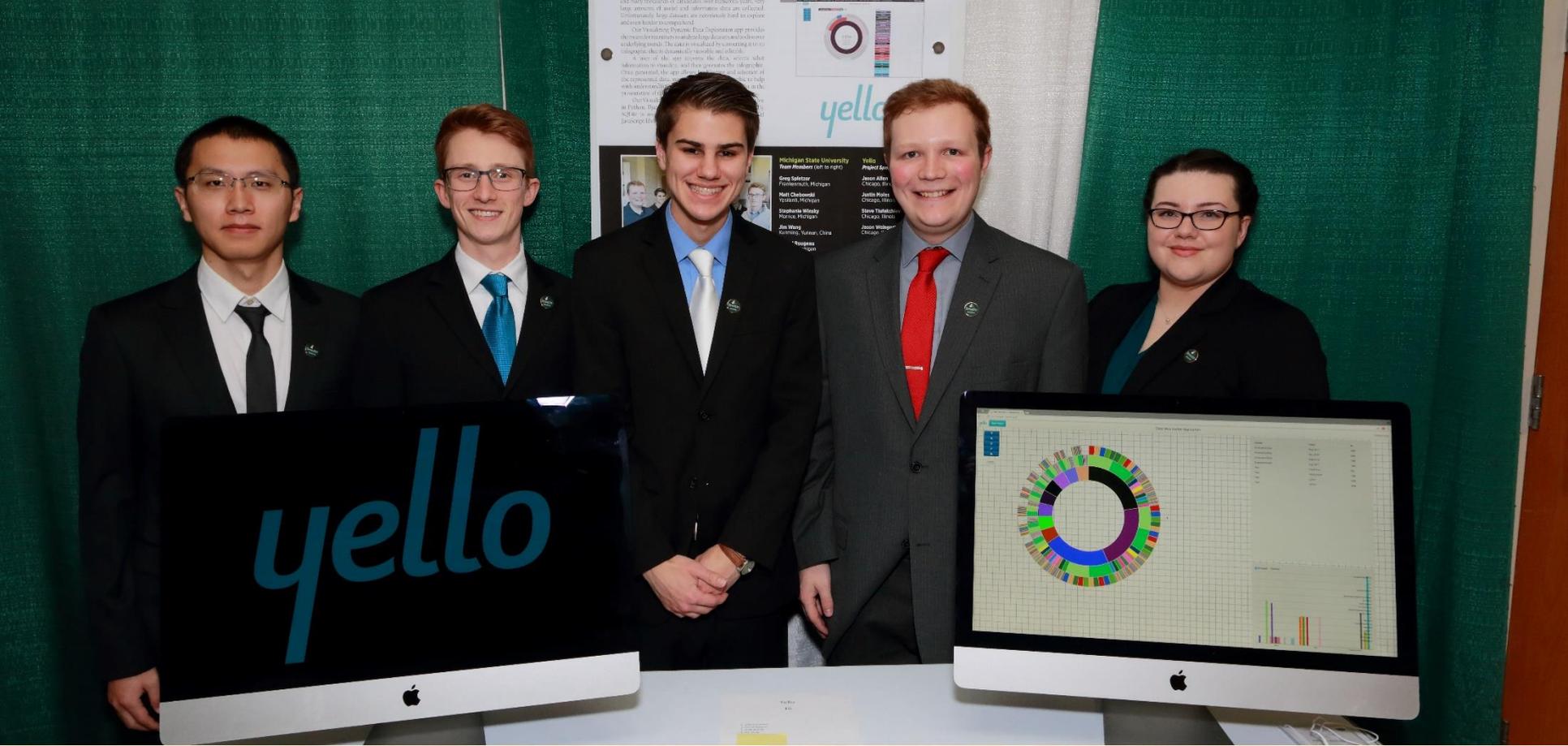


# Team Yello Beta Presentation

# Team Yello Beta Presentation

## Additional Data Text Box





Team Yello  
Design Day

MICHIGAN STATE  

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UNIVERSITY

# The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering  
Michigan State University  
Fall 2016



*From Students...  
...to Professionals*



# The Capstone Experience Lab



## The Capstone Experience Lab



The Capstone Experience Lab



## The Capstone Experience Lab



# The Capstone Experience Lab View of Spartan Stadium

**MICHIGAN STATE**  

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**U N I V E R S I T Y**

# The Capstone Experience

Design Day Award Winners

April 29, 2016



*From Students...  
...to Professionals*



All-Hands  
Design Day, April 29, 2016



# Auto-Owners Exhibition Award

Team Auto-Owners, Spring 2016

Catastrophic Claims Unit Mobilization

Nicole Lawrence, Jason Steele, Matt Wiechec, Nick Reuter

Presented by Scott Lake of Auto-Owners Insurance



# MSU Federal Credit Union Praxis Award

Team Union Pacific, Spring 2016

Oculus Rift Inspection and Training Tool

Sam Berndt, Grant King, Mitch Leinbach, Michael Aughton, William Norman  
Presented by Samantha Amburgey of MSU Federal Credit Union



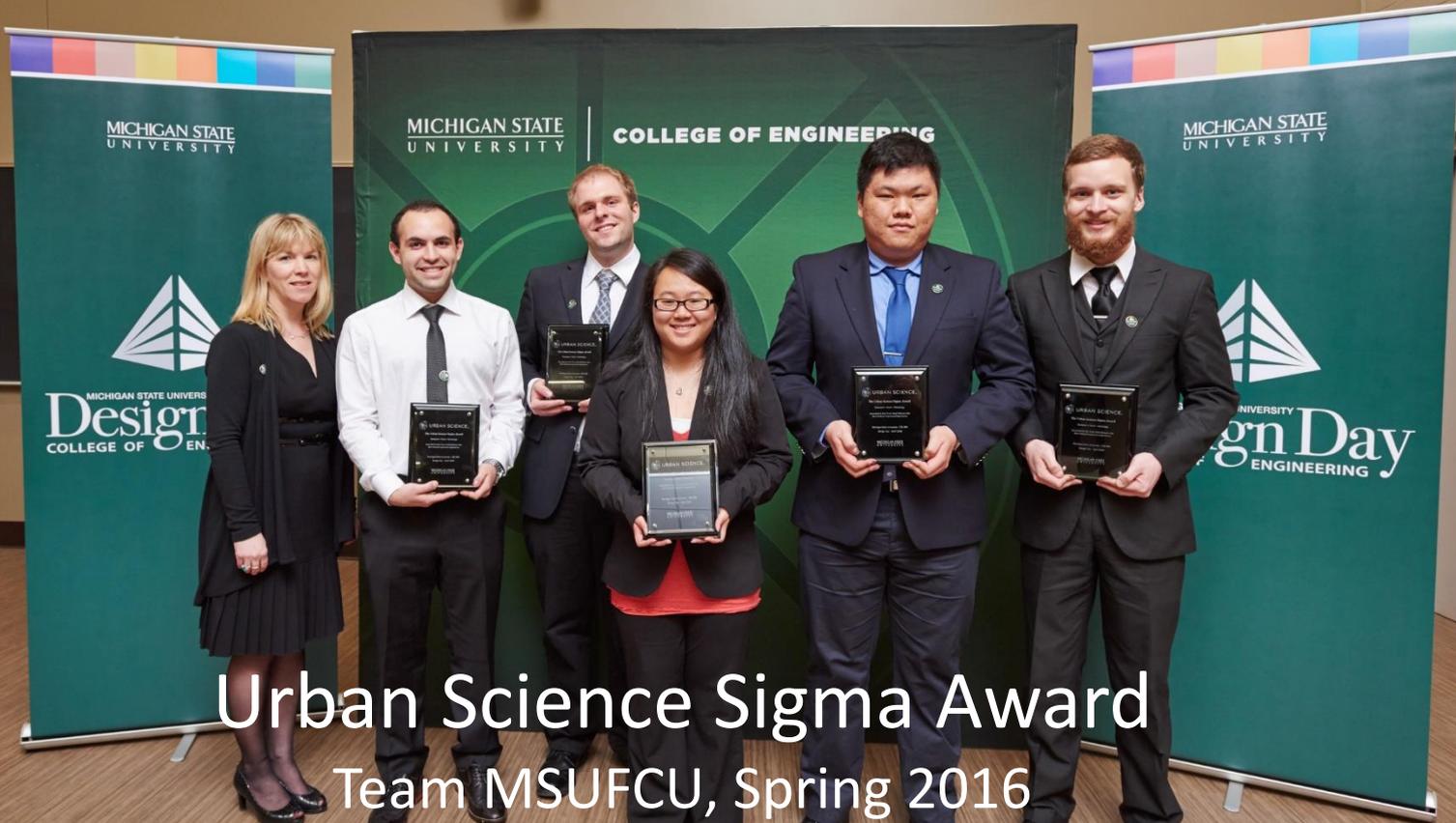
# TechSmith Screencast Award

Team GM, Spring 2016

IT Advocate Live Help

Jake Price, Jenna Sanocki, Shuhao Zhang, Zack Keith, Joe Dinkha

Presented by Dean Craven of TechSmith



# Urban Science Sigma Award

Team MSUFCU, Spring 2016

Money Smash Chronicle

Brandon Max, Wyatt Hillman, Amy Leung, Yuming Zhang, Cory Madaj

Presented by Elizabeth Klee of Urban Science

**MICHIGAN STATE**  

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**U N I V E R S I T Y**

# The Capstone Experience

Design Day Award Winners

December 9, 2016



*From Students...  
...to Professionals*



All-Hands  
Design Day, December 9, 2016



# Auto-Owners Exhibition Award

Team Whirlpool, Fall 2016

Mooch

Adam Schoonmaker, Noah Hines, Daniel Jiang, Laura Robb, Caleb Swanson

Presented by Scott Lake and Ross Hacker of Auto-Owners Insurance



# MSU Federal Credit Union Praxis Award

Team Rook, Fall 2016

Anomaly Detection Suite v2.0

Zach Rosenthal, Grant Levene, Brian Harazim, Cam Gibson, Andrew Werner

Presented by Samantha Amburgey of MSU Federal Credit Union

# TechSmith Screencast Award

Team Ford, Fall 2016

SYNC Calendar

Avery Yue, Brett Durlock, Jack Zaidel, Eric Pressey, Cam Rooks

Presented by Wendy Hamilton and Dean Craven of TechSmith



# Urban Science Sigma Award

Team Amazon, Fall 2016

Asa: Your Amazon Shopping Assistant

Sam Chung, Yiming Li, Aaron Beckett, Renee Dennis, Evan Moran

Presented by Linda Koeppe and Elizabeth Klee of Urban Science

MICHIGAN STATE  

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UNIVERSITY

# The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering  
Michigan State University  
Spring 2017



*From Students...  
...to Professionals*

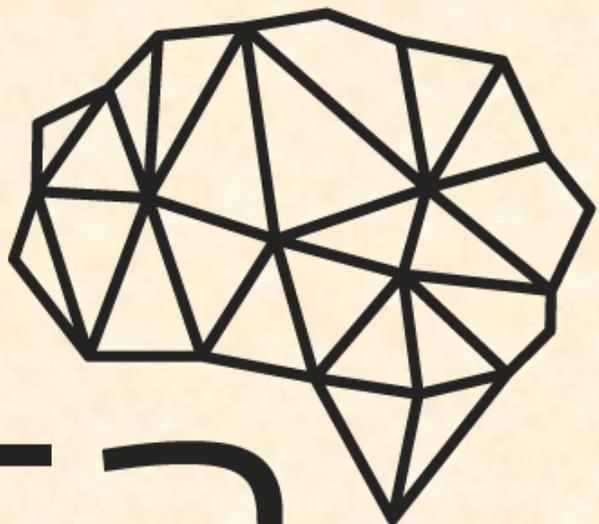
**amazon**



***Auto-Owners***

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**Firefox**<sup>®</sup>



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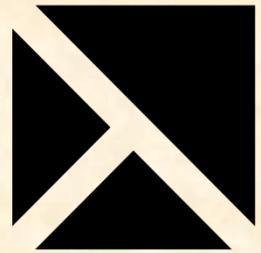


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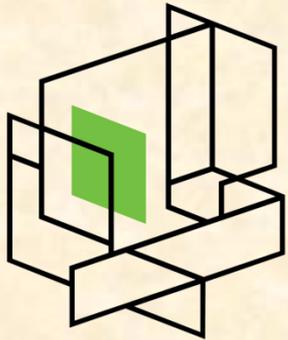
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*yello*