

MICHIGAN STATE

U N I V E R S I T Y

08/30: Capstone Overview

The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering
Michigan State University

Fall 2017



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

Capstone Overview

➤ Course Logistics

- Client Projects
- Course Logistics (Continued)

CSE 498, Collaborative Design

- “The Capstone Experience”
- Instructors
 - Dr. Wayne Dyksen (“Dr. D.”)
 - Jonny Dowdall
 - James Mariani
- Class Meetings
MW, 3:00-4:20pm, [1279 Anthony](#)
- [Syllabus](#)
- Web Site
 - capstone.cse.msu.edu
 - Check it often.
- Email
 - Check it often.
 - Read it thoroughly and carefully!



Course Goals

[1 of 3]

- Give You Experience In
 - Real World
 - Corporate Setting
- Start Your Transition
 - From Student...
 - ...To Professional

Course Goals

[2 of 3]

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



Course Goals

[3 of 3]

- Build a Significant Software System
- Work in a Team Environment
- Learn New Tools and Environments
- Build and Administer Systems
- Develop Your Communication Skills
- Develop Interview Talking Points
- Learn to Do Stuff on Your Own
- Etc...



Project Deliverables

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

See [Major Milestones](#).



All-Hands Meetings

Presentations By

- Dr. D.
- TAs
- Teams
 - Status Reports
 - Formal Presentations
 - Project Plan
 - Alpha
 - Beta
 - Project Videos
- Guest Speaker(s)



All-Hands Meetings Agendas

- 08/30: Capstone Overview
- 09/04: (Labor Day, No Meeting)
- 09/06: Project Plan
- 09/11: Risks and Prototypes
- 09/13: Team Status Report Presentations
- 09/18: Team Project Plan Presentations
- 09/20: Team Project Plan Presentations
- 09/25: Team Project Plan Presentations
- 09/27: Team Project Plan Presentations
- 10/02: Resume Writing and Interviewing
- 10/04: Career Gallery
- 10/09: Schedule and Teamwork
- 10/11: Creating and Giving Presentations
- 10/16: Team Alpha Presentations
- 10/18: Team Alpha Presentations
- 10/23: Team Alpha Presentations
- 10/25: Team Alpha Presentations
- 10/30: Design Day and the Project Videos
- 11/01: Camtasia Demo
- 11/06: Intellectual Property
- 11/08: Ethics and Professionalism
- 11/13: Team Beta Presentations
- 11/15: Team Beta Presentations
- 11/20: Team Beta Presentations
- 11/22: Team Status Reports ← Nota Bene
- 11/27: Team Beta Presentations
- 11/29: Team Status Reports
- 12/04: Project Videos
- 12/06: Project Videos and All Deliverables
- 12/07: Design Day Setup
- 12/08: Design Day
- 12/11: Project Videos



Urban Science Capstone Lab

- 3352 EB
- Door Lock
 - Electronic Keypad
 - Code = #####
 - Do Not Give Out to Other Students
- Systems
 - Up to Four per Team
 - Two 27" iMacs
 - One Dell Rack-Mounted Server (Optional)
 - One Mac Book Pro (Optional)
 - Team 100% Responsible
 - Building
 - Maintaining
 - Securing
 - Backing Up
- Books
- WiFi
 - SSID: CSE498, CSE498 5MHz
 - Key: ???????
- Conference Area
 - Team Meetings
 - Client Conference Calls
 - Google [Conference Calendar](#)
- Appliances
 - Water Cooler/Heater
Nota Bene: The water cooler is not connected to a drain. Do not pour things into it, like rinsing out your water container.
 - Whirlpool Refrigerator
 - Cold Water From Bottled Water
 - Ice From Bottled Water
 - Microwave
 - Keurig Coffee Maker
- Lockable Storage
 - One Drawer Per Team
 - As Needed
 - Assigned by Dyksen and TAs
 - Obtain Keys from CSE Office



Scheduled Lab Times

- No Formal Lab Sessions
- “Credit” for Scheduled Weekly Meetings
 - Team Meetings
 - Client Conference Calls
 - Triage Meetings with TAs
- Meeting Times TBA With
 - Team
 - Client
 - TAs
- Students must be available to meet in person.
 - Team Meetings
 - Triage Meetings
 - Client Conference Calls



CSE498 Prerequisites

Must Have Successfully Completed

- Tier I Writing Requirement
- CSE335
- CSE410
- Another 400-Level CSE Course Other Than CSE491

Capstone Overview

✓ Course Logistics

➤ Client Projects

• Course Logistics (Continued)



Team / Project Generalities

[1 of 3]

- Clients
 - Vary in Size and Type
 - Client contacts/mentors are “volunteers.”
- Team Contact Person
 - Picked By Team
 - Main Point of Contact for Client

Team / Project Generalities

[2 of 3]

- Project Types
 - All Significant Software Development
 - Vary in Specifics
- Project Level of Difficulty
 - Hard Enough
 - But Not too Hard
- Deliverable
 - To the Client
 - By the Due Date



Team / Project Generalities

[3 of 3]

- Challenges
 - Very Short, Unforgiving Time Line
 - Client Contact
 - Team Dynamics
 - Project Plan (in Three Weeks)
 - Entirely New...
 - Languages
 - Environments
 - API's
 - SDK's
 - Processes
 - Protocols
 - Etc.
 - Project Management
 - Etc...



Project Specifics

- Vary
 - Type
 - Current State of Specificity
- Challenge
 - Connect with Client
 - “Nail Down” the Project
 - Hard Enough
 - Not too Hard
 - Avoid Feature Creep
 - Course Feature, Not Bug



Intellectual Property and Non-Disclosure Agreements

- Intellectual Property Agreement
 - You agree to assign ownership of intellectual property that may be created as a result of your project to your client.
 - Copyrightable Program Code
 - Patentable “Ideas”
 - Most clients will require an IP agreement.
- Non-Disclosure Agreement
 - You agree not to disclose client confidential information.
 - Most clients will require an NDA.
- To date...
 - Most code has not gone directly into production.
 - No patents have resulted.
- Use agreements provided by MSU.
- Always Contact Dr. D. Before Signing Anything



Project Teams

- Team Amazon
- Team Auto-Owners
- Team Avata
- Team Ford
- Team GM
- Team Humana
- Team Meijer
- Team Michigan State
- Team Microsoft
- Team Mozilla
- Team MSUFCU
- Team Phoenix
- Team Rook
- Team Spectrum Health
- Team Symantec
- Team TechSmith
- Team TWO MEN AND A TRUCK
- Team Union Pacific
- Team Urban Science
- Team Yello

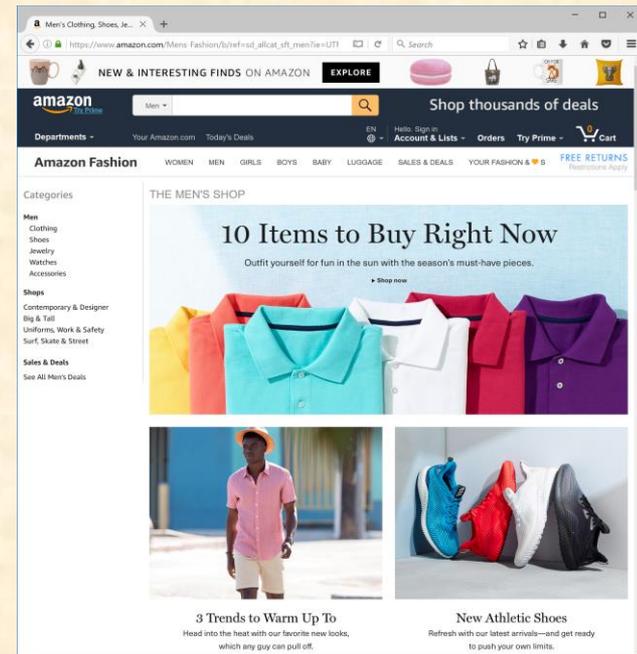


Team Amazon

Project Overview

Faia: Fashion Artificial Intelligence Assistant

- Functionalities
 - Create Innovative Fashion Shopping Experience
 - With Virtual Personal Stylist
- Features
 - Create and Manage Shopper Profile
 - Interact with Faia via Texting
 - Give Personalized Fashion Recommendations
 - Leverage AI to Learn and Adapt to Shopper Preferences
 - Provide “Save for Later” and “Add to Cart”
 - Integrate with Prime Wardrobe
- Technologies
 - Amazon Web Services (AWS)
 - Compute Services
 - Database Services
 - Machine Learning
 - Amazon Lex
 - Amazon Product Advertising API
 - Amazon Simple Notification Services (SNS)
 - Twilio APIs



Seattle, Washington
Detroit, Michigan

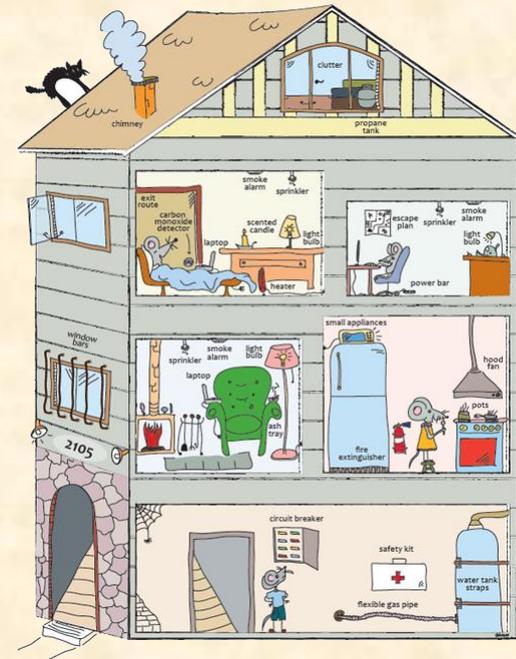


Team Auto-Owners

Project Overview

House of Hazards

- Functionalities
 - Teach Homeowners About Home Safety
 - With a Virtual Reality Game
 - Using an Oculus Rift
- Features
 - Design and Build Time-Based Virtual Reality Game
 - Build Virtual Model of Single-Family Home
 - Display Various Scenarios Inside and Outside
 - Hazardous
 - Safe
 - Innocuous
 - Support Various Levels of Difficulty
 - Provide Limited Hints
 - Use Randomization for Varied Experiences
 - Show Review Panel At Game End
- Technologies
 - Unity Game Engine
 - Oculus Rift
 - Oculus Rift Touch Controllers
 - Oculus Rift Sensor



Auto-Owners
INSURANCE

LIFE • HOME • CAR • BUSINESS

Lansing, Michigan

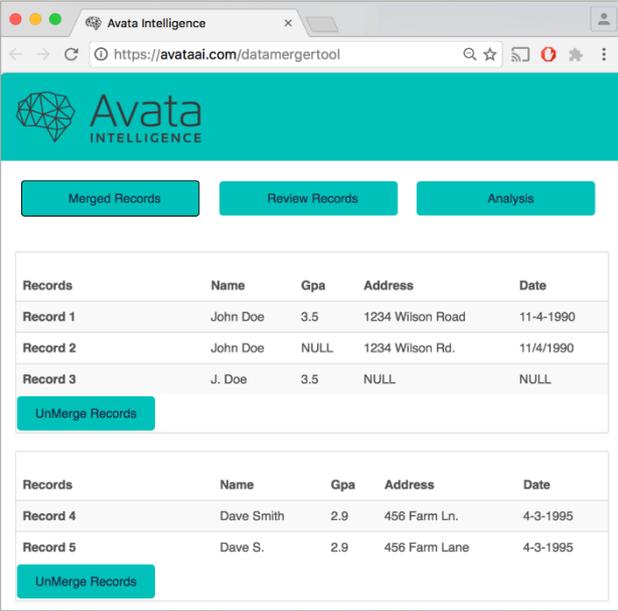


Team Avata

Project Overview

Security Analytics Suite: Configuration Setup Tool

- Functionalities
 - Transform and Ingest Various Data Formats
 - Into Ava for Public Safety Solution
 - To Reduce Customer Acquisition Cost and Time
- Features
 - Design and Build Interactive User Interface
 - Provide Way to Map User's Taxonomy to Avata's Taxonomy
 - Use ReactJS for Mapping User Interface
 - Draw on Map
 - Capture Date and Time Ranges
 - Create Hierarchical Ontologies
 - Support JSON, SQL and MySQL Configurations
- Technologies
 - React JS
 - Java 8
 - Spring Boot framework
 - Hibernate Framework
 - JSON, SQL and MySQL
 - ArcGIS Mapping Tools
 - RESTful Web Services



The screenshot shows a web browser window with the URL <https://avataai.com/datamergertool>. The page features the Avata Intelligence logo and three main buttons: 'Merged Records', 'Review Records', and 'Analysis'. Below these buttons, there are two data tables. The first table has three records, and the second table has two records. Each record includes a name, GPA, address, and date.

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

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



Team Ford

Project Overview

Ford Smart Parking

- Functionalities
 - Notify Drivers of Nearby Available Parking Spaces
 - That Fit Their Model Vehicle
 - Using Ford's Sync 3
- Features
 - Create and Manage User Profiles
 - Enable User Flagging of Open Parking Spaces
 - Dimensions
 - GPS Location
 - Timestamp
 - Integrate with Google Tango
 - Send Notifications to Sync 3
 - Receives Notifications of Available Spaces
 - Notifies Remote Server When Space Taken
 - Design and Build Sync 3 App
- Technologies
 - Lenovo Phab 2 Pro
 - Google Android Tablets and Phones / Java
 - Google Tango
 - Java 2 Platform Enterprise Edition (J2EE)
 - Sync 3 Emulator and AppLink
 - Microsoft SQL Server 2016



Dearborn, Michigan



Team GM

Project Overview

Automated Video Workplace Safety System

- Functionalities
 - Alert Employees of Safety Issues and Situations
 - Using Computer Analysis of Real-Time Camera Feeds
- Features
 - Design and Build Web and Mobile Apps
 - Utilize Camera to Watch Area of Concern
 - Leverage Image Recognition and Machine Learning (ML)
 - Identify People and Personal Protective Equipment (PPE)
 - Helmet
 - Eye Protection
 - Hearing Protection
 - Vest
 - Determine Safety Alerts
 - Send to Mobile App
 - Record in Centralized Database
 - Produce Summary Reports for Management
- Technologies
 - CSS / HTML / JavaScript / PHP
 - Google Android Tablets and Phones / Java
 - nVidia Deep Learning SDK
 - nVidia DGX-1 Deep Learning Hardware
 - Image Recognition
 - Machine Learning (ML)
 - Mobile Push Notifications



Detroit, Michigan
Warren, Michigan



Team Humana

Project Overview

MyHumanaBot

- Functionalities
 - Provide Instant Information to Customers
 - About Plans, Claims, Etc.
 - Via a Chatbot
- Features
 - Build and Design Two Web Apps
 - MyHumanaBot App
 - Humana Administrative App
 - Supports
 - Customer or Non-Customer
 - Logged In or Not Logged In
 - Handles Variety of Scenarios
 - Information About Plans
 - Claims Status
 - Humana Pharmacy Status
 - Finding a Doctor
 - Etc.
 - Incorporate Context
 - Maintain Conversation History
 - Account for Security
- Technologies
 - Microsoft C# / .NET
 - SQL / MySQL / Mongo Database
 - RESTful Web Services



Team Meijer

Project Overview

Meijer Fresh-ipes

- Functionalities
 - Streamline and Simplify Shopping
 - By Providing Meal and Menu Planning
 - Intelligently and Interactively
- Features
 - Track Customer Shopping History
 - Determine Likely Existing Household Ingredients
 - Recommend Range of Recipes
 - Ingredient Availability
 - Food Preferences
 - Create Shopping List for Missing Ingredients
 - Integrate with mPerks
- Technologies
 - Amazon Echo Show
 - Microsoft .NET Framework, C#, ASP.NET
 - Microsoft Azure Mobile Services
 - Microsoft Visual Studio Team Server
 - Xamarin
 - Meijer Web Services
 - Application Insights
 - Hockey App
 - SQL Server



meijer[®]

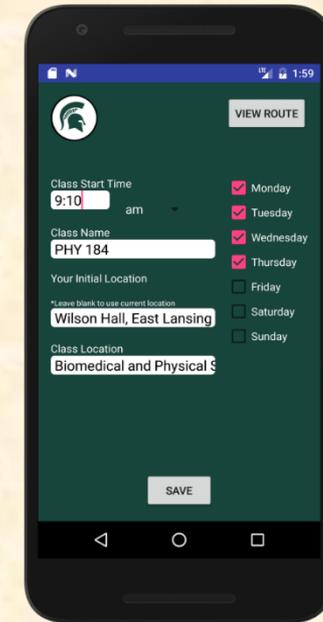
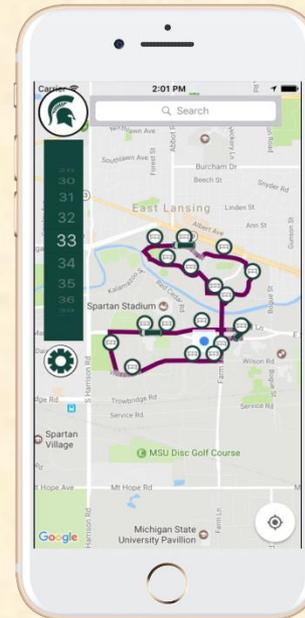
Grand Rapids, Michigan

Team Michigan State University

Project Overview

SEA: Spartan Experience App

- Functionalities
 - Enhance Student Experience
 - By Providing Information to Students
 - With Easy-to-Use Mobile App
- Features
 - Support Android and iPhone Natively
 - Utilize Amazon Web Services (AWS)
 - Any and All Of...
 - Provide Directions to Parking and Buildings
 - Show Cafeteria Menus
 - Display Campus Activities and Events
 - Show Emergency Phone Numbers
 - Provide News Feed and Twitter Feed
 - Create and Manage a Student Planner
 - Handle Course Search and Schedule Planner
 - Implement a Degree Navigator
 - Incorporate Existing CATA Bus Tracker
- Technologies
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - RSS News Feeds



Information Technology Services
East Lansing, Michigan

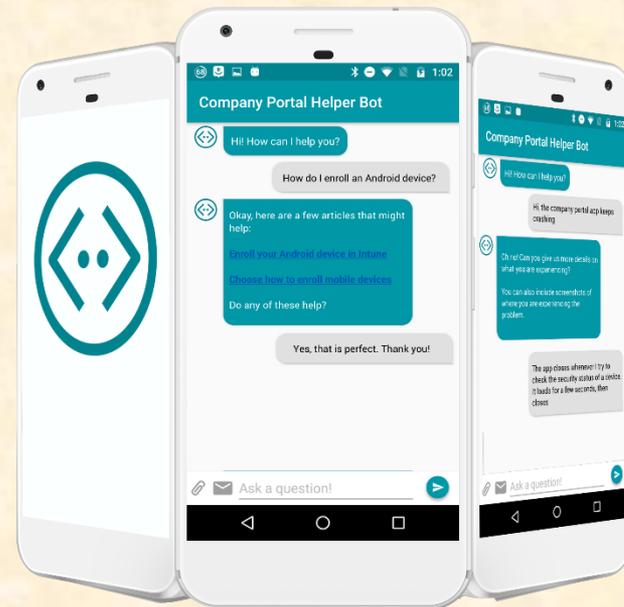


Team Microsoft

Project Overview

Enhanced Company Portal with Graph

- Functionalities
 - Enhance Android Company App
 - By Leveraging Microsoft Graph API
 - Making Customers More Productive
- Features
 - Use Only Microsoft Graph
 - For All Data
 - To Add Functionality Beyond Device Management
 - Provide Social Interaction
 - Organize Team Documents
 - Create Team Channels
 - Track Recently Used Files
 - Increase Usefulness Beyond Existing Portal
 - Refresh User Interface
- Technologies
 - Microsoft Intune
 - Microsoft Graph
 - Microsoft Windows / C#
 - Google Android Tablets and Phones / Java
 - Apple iPads and iPhones (iOS) / Swift
 - RESTful Web Services



Redmond, Washington

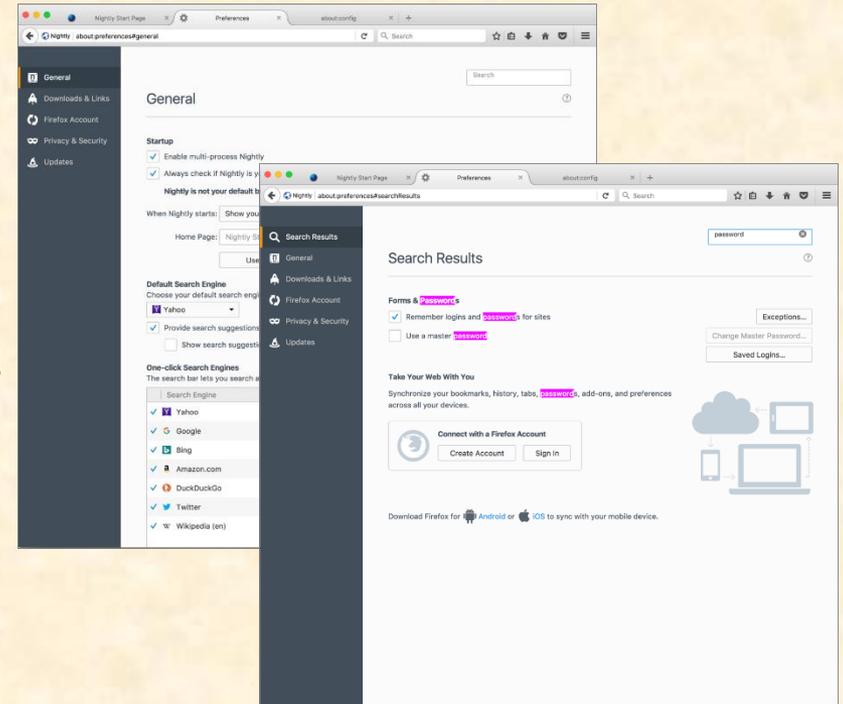


Team Mozilla

Project Overview

Taking Firefox Screenshots Testing Suite to 11

- Functionalities
 - Improve Firefox Screenshots Testing Suit
 - So Results Are More Readily Available
 - For Firefox Development Community at Large
- Features
 - Move Testing Suite from Tier 2 to Tier 3
 - Support Cropping Rules
 - Reduce Intermittent Failures and Difference Alerts
 - Produce Easily Consumable and Interpretable Test Results
 - Add New Testing States
- Technologies
 - CSS
 - JavaScript
 - Python
 - XUL / XBL
 - Mercurial
 - IRCCloud
 - Bugzilla
 - Review Board
 - Windows
 - OS X
 - Linux



Mountain View, California

Team MSUFCU

Project Overview

Digital Banking with Chatbots

- Functionalities
 - Provide Virtual Banking Assistance
 - Using a Chatbot
- Features
 - Handles Same Services As Live Chat Service
 - Leverage Natural Language Processing
 - Emulate Human-to-Human Interaction
 - Redirect Complex Requests to Customer Service Reps
 - Support Short Message Service (SMS) and iMessage
 - Integrate with Other MSUFCU Services
 - Website
 - Mobile App
 - Amazon's Alexa
 - Provide Web-Based Content Management System
- Technologies
 - Amazon Echo
 - Alexa Skills Kit
 - CSS / HTML5 / PHP / JavaScript
 - Google Android Tablets and Phones / Java
 - Apple iPads and iPhones (iOS) / Swift or Objective-C
 - MySQL
 - Short Message Service (SMS) and Apple's iMessage
 - Encryption based on SQL standards
 - Natural Language Processing (NLP)



Team Phoenix Group

Project Overview

OPEN v2.0: Smart Order Picking

- Functionalities
 - Enhance Warehouse Order Picking Process
 - Using Bluetooth Low-Energy Devices
- Features
 - Create Windows Tablet-Based Pick Ticket
 - Display Geolocation-Based Warehouse Map
 - Provide Bin Locations and Route Planning
 - Support Real-Time Shelf Counts
 - Handle Bar Codes
- Technologies
 - Microsoft Windows Presentation Foundation (WPF)
 - Microsoft .NET Framework
 - Microsoft C#
 - Microsoft Visual Studio 2015
 - Bluetooth Low Energy Devices
 - MySQL Server
 - Bar Code Scanning Technologies



O'Fallon, Missouri

Team Rook

Project Overview

Cloud Security Event Processing and Alerting Platform

- Functionalities
 - Analyze Cyber Security Events
 - Using a Serverless Architecture
 - That Scales to Millions of Events Per Day
- Features
 - Design and Build a Web App
 - Support Management of Correlation Rules
 - Edit Existing Rules
 - Examine Performance of New Rules
 - Detect and Notify When Alerts or Rules Triggered
 - Accommodate Increasing Scale Using Amazon Cloud
 - Integrate with Rook's Force Platform
- Technologies
 - Amazon Athena
 - Amazon Simple Email Services (SES)
 - Amazon Lambda
 - Amazon S3
 - Elasticsearch
 - Ubuntu 16.04
 - Python / Django
 - CSS / HTML / JavaScript / JSON
 - RESTful Web Services



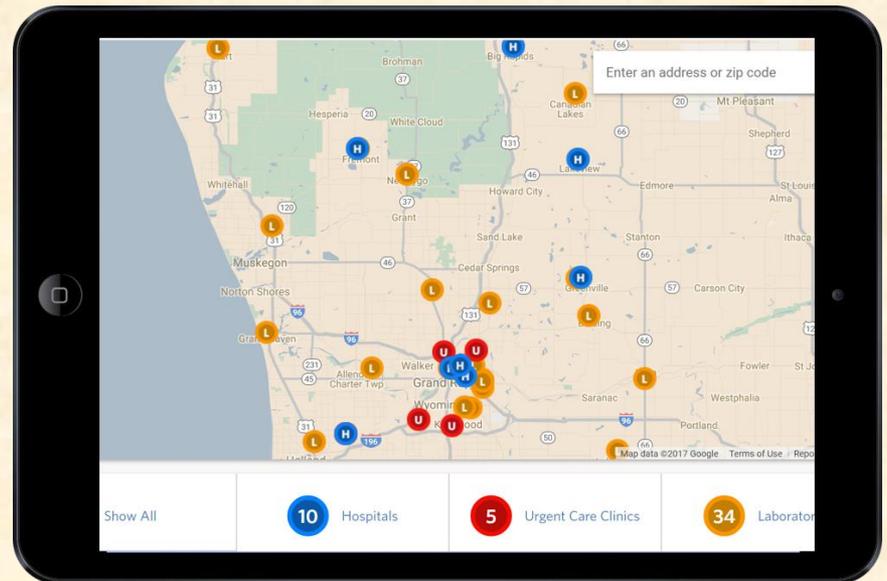
ROOK[®]
SECURITY
Indianapolis, Indiana

Team Spectrum Health

Project Overview

Spectrum Health Symptom Checker

- Functionalities
 - Recommend Spectrum Health Services to Patients
 - Based on Symptoms They Provide
- Features
 - Design and Build Web and Mobile Apps
 - Match Keywords with Symptoms
 - Recommend Health Service
 - eVisit
 - Urgent Care
 - Emergency Room
 - Enable Urgent Care Visit
 - Give Nearest Location
 - Reserve Place in Line
 - Leverage Machine Learning
 - Provide Administrative App
- Technologies
 - CSS / HTML / JavaScript / PHP
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - Microsoft C# / .NET
 - Entity Framework Core
 - Microsoft SQL Server



SPECTRUM HEALTH 

Grand Rapids, Michigan

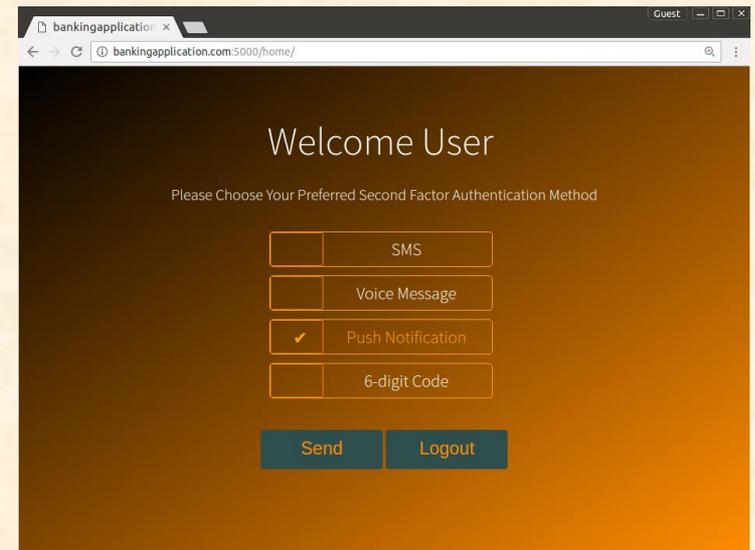


Team Symantec

Project Overview

Secure Application Layer API Proxy

- Functionalities
 - Provide RESTful API to Symantec's Multi-Factor System VIP
 - Via a Proxy Layer in Front of Native SOAP Layer
 - So Any RESTful Framework Can Integrate with VIP
- Features
 - Focus on User Centric Services
 - Management APIs
 - Authentication APIs
 - Query APIs
 - Preserve Parity Between SOAP and REST APIs
 - Implement a Versioning Scheme
 - Include "Jurisdiction Hash" (JHASH) as Path Parameter
 - Deliver Integration Tests
- Technologies
 - Symantec VIP and VIP Access Manager.
 - Simple Object Access Protocol (SOAP) Web Services
 - Representational State Transfer (REST) Web Services
 - StrongLoop / Node.js



Team TechSmith

Project Overview

TechSmith Director

- Functionalities
 - Explore Creating Video Scenes
 - With a User Friendly Voice Input Interface
 - Using Newer Cloud-Bases APIs
- Features
 - Design and Build a Web App
 - Support Natural Language Voice Input
 - “I’d like a beach background for my video.”
 - “Let’s place a man on the beach.”
 - “I’d like the man to walk along the beach.”
 - Leverage Microsoft Azure Cloud Computing
 - Store User and Project Information
 - Process Utterances (Voice Input)
 - Implement Speech to Text
 - Apply Natural Language Processing
 - Send Projects to Other Users for Feedback
- Technologies
 - Microsoft Azure Cloud Computing
 - Bing Image Search
 - SoundCloud API (For Music)
 - CSS / HTML / JavaScript
 - ASP.Net MVC or Node.js
 - Natural Language Processing (NLP)
 - SQL Database

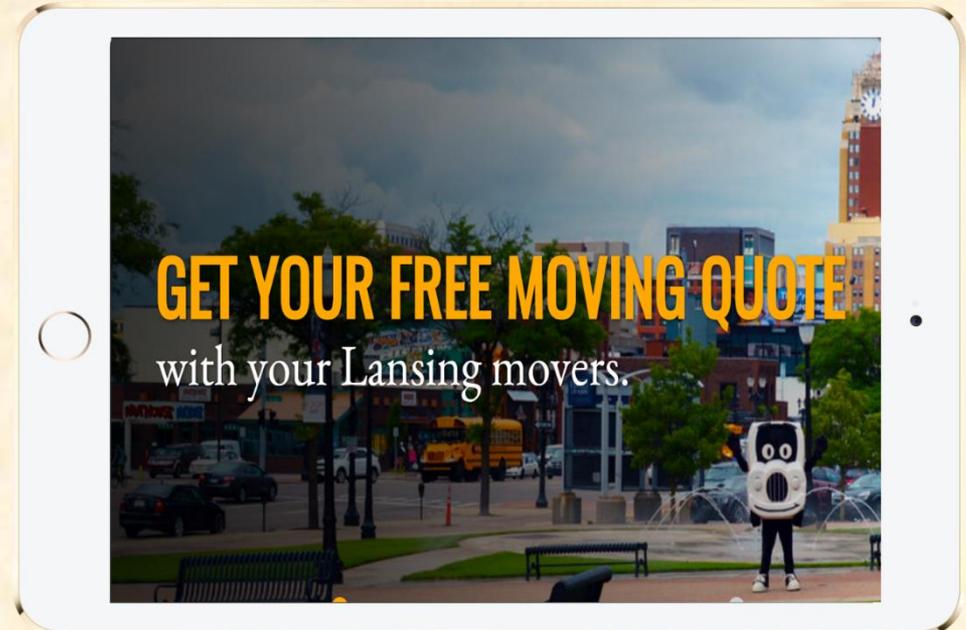


Team TWO MEN AND A TRUCK

Project Overview

Online Moving Estimator

- Functionalities
 - Provide In-Home Moving Estimate
 - Online Using Web App
- Features
 - Design and Build Web App
 - Provide Chat and Video Conference
 - Determine Room Inventory
 - From Video
 - Automatically
 - Estimate Moving Cost
 - Compute Load / Weight / Space on Truck
 - Use TMaaT Existing Algorithm
 - Integrate with Existing Quick Estimate Module
- Technologies
 - CSS / HTML / JavaScript / PHP
 - Video Conferencing
 - Image Processing and Pattern Recognition



Team Union Pacific

Project Overview

RailBuilder: The Great Race to Promontory

- Functionalities
 - Create Railroad Building Game
 - In 3D Representation of the World
- Features
 - Support Creation of Game Levels
 - Deploy as Microsoft Windows App
 - Include Topology and Land Classification
 - Place Scenery in Realistic Fashion
 - Use Terrain Grade and Elevation
 - Create Railroad Building Game
 - Between Two Locations in 3D
 - Using Limited Budget
 - Factoring Topology and Land Classification
 - Removing Scenery Where Rail is Laid
- Technologies
 - Unity Game Engine
 - Microsoft Windows
 - Microsoft C# / .NET
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - ArcGIS Mapping Tools



BUILDING AMERICA®

Omaha, Nebraska
Okemos, Michigan



Team Urban Science

Project Overview

KPI Recommendation and Action Application

- Functionalities
 - Answer User Free-Form Speech Input Question
 - By Correlating Question with Key Performance Indicators (KPIs)
- Features
 - Design and Build Mobile App
 - Visualize Selected KPIs
 - Show Actions Associated with Each KPI
 - Evaluate All Possible KPIs and Actions
 - Determine Best Answer to Question
- Technologies
 - Apple iPads and iPhones (iOS) / Swift
 - Google Android Tablets and Phones / Java
 - Microsoft .NET Core 1.0
 - Microsoft Cognitive Services
 - Speech
 - Language
 - Knowledge
 - Search



URBAN SCIENCE.

Detroit, Michigan



Team Yello

Project Overview

Automatic Resume Verification

- Functionalities
 - Verify Resume Information
 - Automatically and Instantly
- Features
 - Design and Build Two Web Apps
 - For Universities and Workplaces to Upload Credentials
 - For Candidates to Upload Resumes
 - Ensure Security and Privacy
 - Proof of Source
 - Proof of Existence / Timestamp
 - Proof of Work / Education / Military Service
 - Store and Access Credentials Using a Blockchain
 - Notify Candidates When Credentials Uploaded
 - Verify Resume Information Upon Uploading
 - Inform Recruiters re Resume Accuracy
- Technologies
 - Ruby on Rails
 - Blockchain
 - Transactional APIs



yello

Chicago, Illinois



First Assignments

- Read the Syllabus.
- Check out the Lab (3352 EB).
 - See if you can find it.
 - See if you can get in.
- Check out the Web Site.
- Research your Project.
 - Sponsor
 - Technologies



What's Next?

- Teams
 - Assignments by Email Tonight
 - Meet Initially by Tomorrow Afternoon
 - Lab Machine Assignments in Lab
 - Start Researching Technologies
 - Start Configuring Lab Machines
 - Team Photos
 - Wednesday, 09/07, After All-Hands Meeting
 - Dress Casual (But Appropriate)
 - Schedule for it.
- Client
 - Contact by Email by Tomorrow COB (Close of Business)
 - Conference Call or On-Site Meeting by Friday
 - Review Project Proposal



Capstone Overview

✓ Course Logistics

✓ Client Projects

➤ **Course Logistics (Continued)**



Urban Science Capstone Lab Machines

- Up to Four per Team
 - Two 27" iMacs
 - One Dell Rack-Mounted Server (Optional)
 - Connect to Outside World
 - Keep Secure
 - One Mac Book Pro (Optional)
- Operating Systems on iMacs and MBPs
 - Run macOS Sierra (High Sierra in ~ 2 Weeks?)
 - Install VMware Fusion (from [here](#))
 - Create Virtual Machines
 - Windows 10 VM from TAs
 - Others as Needed
 - Don't use Apple Boot Camp



Capstone Lab Miscellany

[1 of 2]

- Security
 - Keep lab doors closed.
 - Do not open doors for strangers
 - Do not give out door key code to others.
 - Do not invite non-capstone students to work in the lab with you.
 - Email Dr. D. if door becomes unlocked.
- Wireless
 - SSID: CSE498
 - Key: ???????
- Coffee
 - Some Provided by Dr. D.
 - Bed, Bath & Beyond (Get 20% Off Coupon)
- Game Playing / Video Watching
 - Not On Monitors Facing Hallway
 - Not If Other Team Members Need Machine



Capstone Lab Miscellany

[2 of 2]

- Do not “maniac” the wires and cables.
- Keep the lab neat and clean.
 - Lived In, Okay.
 - Messy, Not Okay.
- Respect other teams’ spaces.
- Garbage Containers
 - Empty the small one by the coffee maker into a larger one.
 - Put larger ones out in the hall at night if near full.
 - Put back in the lab in the morning if empty.
- Turn the lights out if you’re the last one out.
- Close the windows if you open them.
- Be careful with cabinet drawers; don’t “maniac” them.



Mobile Devices Available

- For Capstone Project Use
- By Team for the Semester
- iOS
 - 5 iPads
 - 1 iTouch
- Android
 - 1 Tablet
 - 1 Phone
- Surface Pro 3



Expectations & Workload

- Extremely High For Both
- Your MSU Career Capstone
- Addition to Your Personal Portfolio
- Experience Viewed Like an Internship
- Interview Talking Points
- Leverage Into a Job Offer



Schedules

- Schedules > All-Hands Meeting

- Schedules > Major Milestones

- 09/13: Status Report Presentations
- 09/18: Project Plan Presentations
- 10/16: Alpha Presentations
- 11/13: Beta Presentations
- 12/04: Project Videos
- 12/06: All Deliverables
- 12/07: Design Day Setup
- 12/08: Design Day

- Attendance is required.
- No excuses are accepted.
- Do not schedule anything including during these times interviews, travel home, etc.
- Will coordinate with your interviews.



Meeting Attendance

- Required
 - All-Hands (Class) Meetings
 - Team Triage Meetings
 - Team Meetings
 - Team Conference Call Meetings
- 5% of Final Grade
- Late == Absent
 - 1% of Final Grade for Each Unexcused Absence
 - Attendance Grade Can Be Negative (See Syllabus)
 - If > 5 Absences Team Contribution Grade May Be Affected ← Note change in syllabus.
- Almost No Excuses Accepted
 - One or Two Excused Possible for Interviews
 - Must Provide Information
 - Date, Company, Recruiter Name & Contact Info
 - In Advance
 - To Both Dr. D. and TAs
- Must Attend (No Excuses Accepted)
 - Your Team Presentations
 - All Project Video Viewing
 - Design Day

Do NOT schedule interviews.
Do NOT schedule ANYTHING.
Do NOT buy plane tickets.



Team Organization

- Up to Each Team
- Organize into Roles
 - Client Contact
 - Program Manager
 - Developer
 - Tester
 - Systems Administrator
 - Etc...
- Everyone must make technical contributions.



Team Dynamics

- Key to Success
- Significant Component of Course Grade
- Address Problems Immediately
 - Within Team
 - With Dr. D. and/or TAs
- Be Ready to Discuss During Interviews



Grading

[1 of 6]

• Team (70%)	
▪ Project Plan Document & Presentation	10
▪ Alpha Presentation	10
▪ Beta Presentation	10
▪ Project Video	10
▪ Project Software & Documentation	25
▪ Design Day	<u>05</u>
▪ Total	70
• Individual (30%)	
▪ Technical Contribution	10
▪ Team Contribution	10
▪ Team Evaluation	05
▪ Meeting Attendance	<u>05</u>
▪ Total	30



Grading

[2 of 6]

- Final Grade Sum Of...
 - Individual Total
 - % of Team Total Based on Team Contribution
- Grand Total =
(Individual Total)
+
(Team Total) * (Team Contribution) / 10.0
- *Nota Bene*: Your Team Contribution will have a very significant effect on your final grade.



Grading

[3 of 6]

Effect of Team Contribution					
Technical Contribution	Team Contribution	Team Evaluation	Meeting Attendance	Team Total	Grand Total
10	10	5	5	70	100
10	9	5	5	70	92
10	8	5	5	70	84
10	7	5	5	70	76
10	6	5	5	70	68
10	5	5	5	70	60
10	4	5	5	70	52
10	3	5	5	70	44
10	2	5	5	70	36
10	1	5	5	70	28
10	0	5	5	70	20

Nota Bene: Assumes Perfect Score In Every Other Category



Grading

[4 of 6]

Fall 2016 Grade Distribution	
Grade	Number
4.0 – 2.5	54
2.0	3
1.5	2
1.0	4
0.5	0
0.0	1



Unacceptable Excuses for Not Contributing

- They never asked me to do anything.
- They never let me do anything.
- I wrote 1000's of lines of code but they weren't included in the project.
- My features were not included in the project.
- I work 40 hours per week at my job.
- I live 60 minutes from MSU.
- I didn't want to work on this project team.
- I ranked this project 20 out of 20.
- I did a lot of research about stuff we never used.
- Etc...



Grading

[6 of 6]

- We reserve the right to make changes with sufficient notice.
- No special consideration will be given for final grades including but not limited to
 - status in any academic program including CSE,
 - financial aid,
 - rank in the armed forces,
 - job while a student at MSU,
 - job after anticipated graduation from MSU,
 - commute to MSU,
 - graduation,
 - mortgage,
 - wedding,
 - visa status,
 - ability to enroll in CSE498 next semester,
 - or anything else.



Integrity of Scholarship

- MSU's policies will be enforced.
- Individual and team work must be original.
- Violators...
 - ...will be referred to the appropriate deans.
 - ...may receive a grade of F in the course.



Using Resources

- Ok For “Help”
 - People
 - Past Capstone Teams
 - Other Capstone Teams
 - Faculty Members
 - Articles
 - Sample Code
 - Etc...
- Not Ok For “Entire” Project
- If Unsure, Ask Dr. D. and/or TAs



Using Existing Code

- Ok
 - Examples
 - Prototypes
 - Open Source Code
 - Fragments
 - Libraries
 - Utilities
- Not Ok
 - Vast Amounts of Your Project
 - Not Open Source
- Ask Client in Advance
- Document and Report All Existing Code Used
- Be Careful!
- If Unsure, Ask Dr. D. and/or TAs and/or Your Client



Design Day

- College of Engineering Event
 - Engineering Building
 - Friday, December 8, 2017
- Displays (Booths) of Design Projects
 - CSE Capstone
 - ECE Capstone
 - ME Capstone
 - Etc...
- Presentations and Awards
 - Panel of Judges
 - CSE Team Project Videos



Travel to Client

- Reimburse for Mileage for Personal Car
- Travel Within Michigan (Outside of Lansing)
 - Grand Rapids
 - Metro Detroit
- From East Lansing to Client and Back
- One Car Per Team Per Trip
- See Brenda in the CSE office in advance.



VISA

- Verified Individualized Services and Accommodations
- Let us know immediately.
- We will work with you.



Office Hours

- Any Time...
 - Visit: 3149 EB
 - Call: 353-5573
 - Email: (dyksen@msu.edu)
- Make Appointment

Capstone Overview

✓ Course Logistics

✓ Client Projects

✓ Course Logistics (Continued)

Questions?



What's ahead?

[1 of 3]

- Team Photos
 - Informal
 - After Meeting Today: Teams Amazon through Mozilla
 - After Meeting Wednesday: Teams MSUFCU through Yello
 - Formal
 - Dress code for presenting teams is business casual.
 - After Each Project Plan Presentation
 - Setup
 - Team Machines
 - Dell Server If Needed (Ask TAs)
 - Apple iMacs
 - Team Software
 - Microsoft Office
 - ❖ Word and PowerPoint
 - ❖ Microsoft Windows Version
 - Web Server
 - Code Repository
 - SDK's
 - Etc.
- Required.
Use Windows 10 VM.
- 



What's ahead?

[2 of 3]

All-Hands Meetings

- ~~08/30: Capstone Overview~~
- ~~09/04: (Labor Day, No Meeting)~~
- 09/06: Project Plan
- 09/11: Risks and Prototypes
- 09/13: Team Status Report Presentations
- 09/18: Team Project Plan Presentations
- 09/20: Team Project Plan Presentations
- 09/25: Team Project Plan Presentations
- 09/27: Team Project Plan Presentations



What's ahead?

[3 of 3]

- Team Status Report Presentations
 - PowerPoint Template
 - Due 4:00 a.m., Wednesday, September 13
 - 1 Week  Get on it, now!
 - Email to Dr. D.
 - Subject: Team <Company Name>: Status Report
Subject: Team Auto-Owners: Status Report
 - Attachment: team-<company-name>-status-report-presentation.ppt
Attachment: team-urban-science-status-report-presentation.ppt
- Dr. D. Will Combine Into Single PowerPoint
 - To Speed Things Up During Meeting
 - Do NOT Modify Master Slide
 - Must Use Windows Version of Microsoft Office
- Each Team Presents
 - Using Dr. D.'s Laptop
 - At Most 4 Minutes (Rehearse Timing)
 - Single or Multiple Presenters (Your Choice)

