MICHIGAN STATE UNIVERSITY

# 01/28: Schedule and Teamwork

## The Capstone Experience

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Spring 2015

*From Students…*
*…to Professionals*

# Announcements 01/28

- Website Team Photo Names and Hometowns
- Capstone Lab
  - Door on Server Rack
  - Black Grommets
- Meeting Start Time
  - 2:55pm Presentation Days
  - 3:00pm Other Days
  - Late == Absent
  - Attendance 5% of Grade
- Alumni Distinguished Scholars
  - Friday, February 6 and 13
  - 1:30pm and 3:00pm
- Project Plan Examples on Downloads Page
- Issues? Problems? Questions?

# Schedule and Teamwork

- Schedule
- Teamwork

# Where do you start?

- Project Plan
- Prioritized Risks
- Feature Set(s)
- Fixed Milestones
  - Course
  - Client

Tradeoffs...

Features

vs.

Time

Are there fixed milestones in the "real" world?

# Schedules

- Schedules > All-Hands Meeting
- Schedules > Major Milestones
  - ~~01/26: Status Report Presentations~~
  - 02/02: Project Plan Presentations
  - 02/23: Alpha Presentations
  - 04/06: Beta Presentations
  - 04/27: Project Videos
  - 04/29: All Deliverables
  - 04/30: Design Day Setup
  - 05/01: Design Day

# Project Parts

- Break Down Project
  - Main Parts
  - Sub-Parts
  - Sub-Sub-Parts
  - Etc…
- Categorize
  - Risks
  - Dependencies (Particularly Risk Dependencies)
  - Priorities
- Worry About
  - Interfaces Between Parts
  - Integration of Parts

# Building A Project Schedule

- Start With Fixed Course Milestones
- Estimate Times for Tasks for Parts
  - Building
  - Integrating
  - Testing
- Assign Tasks to Team Members
- Must Keep Everyone Busy All the Time
- Use “Short” Deadlines (E.g., 2-3 Days) Why?
- Document and Track
  - Microsoft Project?
  - Collaboration Tool?

# Estimating Time for Tasks

- Rough Estimate
  - Intuition
  - Experience
- Refined Estimate
  - Prototype or Partial Build
  - Extrapolation
  - E.g., 2 Days to Build 1 → 6 Days to Build 3
- Keys
  - Be Realistic
  - Include Buffer Time if Unsure
- Adjust Schedule Accordingly

# Typical Build Cycle

Until Project Done Do

1. Divide Next Big Task Into Little Tasks
2. Assign Little Tasks to Team Members
3. Complete Little Tasks
   a. Implement
   b. Test
4. Integrate Little Tasks Into Big Task
5. Test Big Task

Very Important

High Priority Risks Get High Priority Scheduling

# Revision Control

- Versioning
  - Discrete “Internal” Versions (States)
  - May Correspond to Builds
- Revision Control Systems
  - Check Code In and Out
  - Mark Specific States as Versions
- Motivation
  - Build Breaks System
  - Revert to Earlier Build
  - Avoid Bridge Burning
- Examples
  - GitHub
  - Visual SourceSafe
  - GNU RCS (Revision Control System)

Can Be Serious Problem

# Living Schedule

- Schedule Is Dynamic
  - Unforeseen Problems
  - Added Features (Avoid Feature Creep)
  - Etc..
- Track Your Progress
  - Microsoft Project?
  - Collaboration Tool?
- Revisit Schedule Often
  - Weekly Team Meetings
  - Weekly Triage Meetings with Malcolm
  - Identify Slippage
  - Hold Each Other Accountable (or Contact Malcolm or Me)
  - Set Corrective Action
  - Adjust Schedule

# Schedule and Teamwork

✓Schedule

➢Teamwork

# 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 Malcolm
- Be Ready to Discuss During Interviews

# Grading

(1 of 2)

- Team (70%)
  - Project Plan Document & Presentation 10
  - Alpha Presentation 10
  - Beta Presentation 10
  - Project Video 10
  - Project Software & Documentation 25
  - Design Day 5
  - Total 70
- Individual (30%)
  - Technical Contribution 10
  - Team Contribution 10
  - Team Evaluation 5
  - Meeting Attendance 5
  - Total 30

# Grading

(2 of 2)

- 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.

# Team of Peers

Effective Team Members

- Relate as Equals
- Have Specific Roles and Responsibilities
- Respect Specific Roles and Responsibilities
- Empowers Individuals in Their Roles
- Have Specific Skills
- Hold Each Other Accountable
- Drive Consensus-Based Decision-Making
- Give All Members a Stake in the Project

# Potential Problems

Over and/or Under

- Bearing
- Qualified
- Achiever
- Etc…

# Mutual Responsibility

- You are your “brother’s/sister’s keeper”.
- Responsible For
  - Your Contribution

    **and**
  - Your Teammates’ Contributions
- What Won’t Work
  - “They never asked me to do anything.”
  - “They never let me do anything.”
  - “He/she never asked to do anything.”
  - “He/she never wanted to do anything.”
  - Etc...

# Team Evaluation Form

- 5% of Final Grade
- Rate Each Team Member

1. Describe the technical contributions (or lack thereof) of each team member, starting with you. That is, describe what each team member contributed as a software developer to your project. Be specific. Contributions may include things like architecture, design, algorithms, and code. Include comments about the quality of their work.
2. Describe the team contributions (or lack thereof) of each team member, starting with you. That is, describe what each team members contributed as a team member to your team. Be specific. Include comments about attendance at meetings, timeliness of completing work, commitment to the project, reliability, and effort put forth.
3. Whom do you feel did the best (either in effort or overall contribution to the team)? Why? Be specific.
4. Whom do you feel did the worst (either in effort or overall contribution to the team)? Why? Be specific.

# Team Problems

- Can Be
  - Really Hard
  - Awkward
  - Frustrating
  - Etc…
- Addressing Problems
  - ASAP
  - Directly
  - Respectfully
  - Maturely
- Resolving Problems
  - Internally First
  - See Dr. D. and/or Malcolm Next but ASAP (Don’t Wait)
- “Bad” Team Not an Acceptable Excuse

Potential For Bad Effect on 70% of Your Grade

# Grading

(3 of 3)

- 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,
  - graduation,
  - mortgage,
  - wedding,
  - visa status,
  - or anything else.

# Schedule and Teamwork

✓Schedule

✓Teamwork

# What's ahead? (1 of 2)

- All-Hands Meetings
  - ~~M, 01/26: Team Status Report Presentations~~
  - ~~W, 01/28: Schedule and Teamwork~~
  - M, 02/02: Team Project Plan Presentations
  - W, 02/04: Team Project Plan Presentations
  - M, 02/09: Team Project Plan Presentations
  - W, 02/11: Team Project Plan Presentations
  - M, 02/16: Resume Writing and Interviewing
  - W, 02/18: Creating and Giving Presentations
  - M, 02/23: Team Alpha Presentations

# What's ahead? (2 of 2)

- Project Plan Presentations
  - PowerPoint Template
    - Download Now
    - Read the Read Me Slide (Over and Over and Over…)
  - Submission
    - Both Project Plan Document and PowerPoint Slide Deck
    - Due 4:00 am., Monday, February 2 ← Panic!
    - See Submission Instructions in Template
  - Must Use
    - Microsoft Windows Word
    - Microsoft Windows PowerPoint
  - Presenting
    - 3 Teams Per Meeting Over 4 Meetings
    - Schedule Posted Sunday Evening
    - Strict 15 Minute Time Limit
    - Use Team Member Laptop
      - Bring Power Cord
      - Test In Meeting Room (in Advance)
    - Rehearse
    - 5% of Final Grade
    - Business Casual Dress
  - Formal Team Photos
    - Immediately Following Meeting
    - In Capstone Lab
  - Schedule Conflicts
    - Only for Interview Trips
    - Notify Dr. D. Well In Advance

***Nota Bene***

- Our all-hands meetings will begin at 2:55pm sharp.
- Everyone should be seated and ready to go.
- First presenting team should be up and ready to go.

# Read Me Carefully (Delete this slide.)

- Required Template
  - Do not edit the Slide Masters.
  - Do edit the Handout Master (6 Slides Per Page)
    - In the lower left footer, change <Company Name> to your company name.
    - In the lower left footer, change <Project Title> to your project title as found on our Projects web page.
  - Do not change the organization of slides.
  - You may duplicate slides as necessary but keep in mind that your presentation time is limited strictly to 15 minutes.
- Content
  - Do not include any company confidential information in your presentation since all presentations will be posted on the web site.
  - Submit your presentation to your client for approval at least two working days in advance.
  - Throughout the PowerPoint template, replace placeholders <…> with the appropriate information.
  - Edit the center footer by clicking the Header & Footer button on the Insert ribbon. Change <Company Name> in the footer to your company name as in “Team GM Project Plan”.
  - Delete the example Screen Mockups and System Architecture slides and this Read Me slide from your presentation.
- Presenting
  - Although the presentations are scheduled over the course of four meetings, all teams must be prepared to present on the first day scheduled, Monday, February 2.
  - The order of the presentations will be posted on our All-Hands Meetings page in the afternoon or evening of the day before the first day scheduled for presentations.
  - The time limit for your presentation is 15 minutes, which will be strictly enforced. Practice your presentation to ensure that you will finish within the allotted time.
  - All team members are required to dress business casual on the day of your presentation.
  - “Formal” team photos of the presenting teams will be taken in the Capstone Lab immediately following these all-hands meetings.
- Submission
  - Email both the project plan document and presentation to Dr. D. by 4:00 a.m., Monday, February 2.
  - For subject, use “Team <Company Name>: Project Plan” as in “Team Boeing: Project Plan”.
  - Attach the Word source file named “team-<company-name>-project-plan.docx” as in “team-urban-science-project-plan.docx”.
  - Attach the PowerPoint source file named “team-<company-name>-project-plan-presentation.pptx” as in “team-quicken-loans-project-plan-presentation.pptx”.

**DELETE ME.**

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# Project Plan

## <Project Title 36pt>

## The Capstone Experience


### Team <Company Name 24pt>

<Team Member 1 16pt>
<Team Member 2 16pt>
<Team Member 3 16pt>
<Team Member 4 16pt>
<Team Member 5 16pt>

Department of Computer Science and Engineering
Michigan State University


Spring 2015

*From Students…*
*…to Professionals*

# Functional Specifications

- Point 1
- Point 2
- Point 3
- Etc…

This is your project overview.

Describe what problem your project solves.

Answer the question “What does your project do?”

This is your “elevator pitch”.

**DELETE THIS TEXT BOX.**

# Design Specifications

- Point 1
- Point 2
- Point 3
- Etc…

Articulate a summary of your project's major features as well as its overall design.

**DELETE THIS TEXT BOX.**

# Screen Mockup: <Title>

You may include as many screen mockups as you have like, but you must include at least two examples.

To include more than two, you can duplicate this slide as many times as necessary.

Give each mockup slide a title.

See below for examples and instructions.

**DELETE THIS TEXT BOX.**

# Screen Mockup: <Title>

You may include as many screen mockups as you have like, but you must include at least two examples.

To include more than two, you can duplicate this slide as many times as necessary.

Give each mockup slide a title.

See below for examples and instructions.

**DELETE THIS TEXT BOX.**

# Screen Mockup

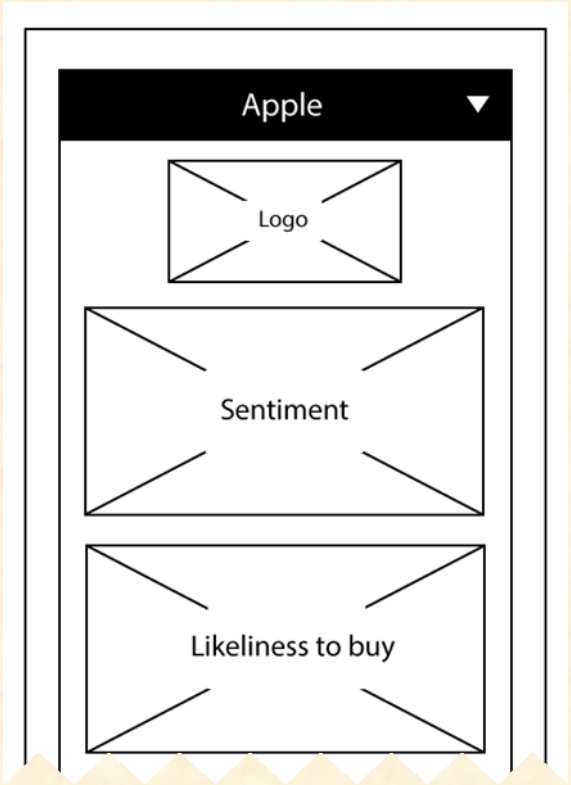
Notes on Making Your Mockups
**Delete this slide.**

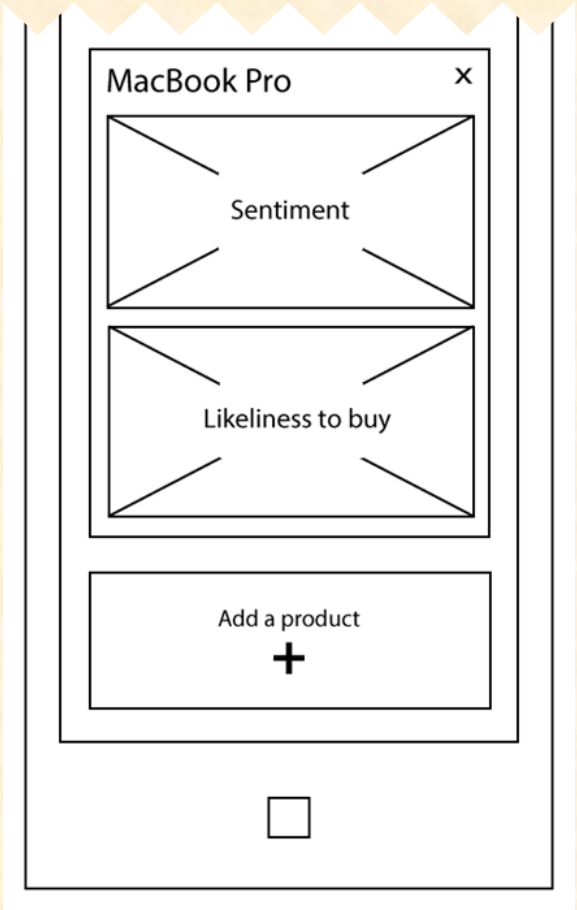
- Ensure that your mockups are…
  - readable (size-wise),
  - have the correct aspect ratio,
  - scalable, and
  - centered vertically (between the green bar in the title and the footer) and horizontally (Use Home > Arrange > Align).
- In PowerPoint use Home > Arrange > Group to group the objects in your mockup into a single object that can be copied-and-pasted (and scaled).

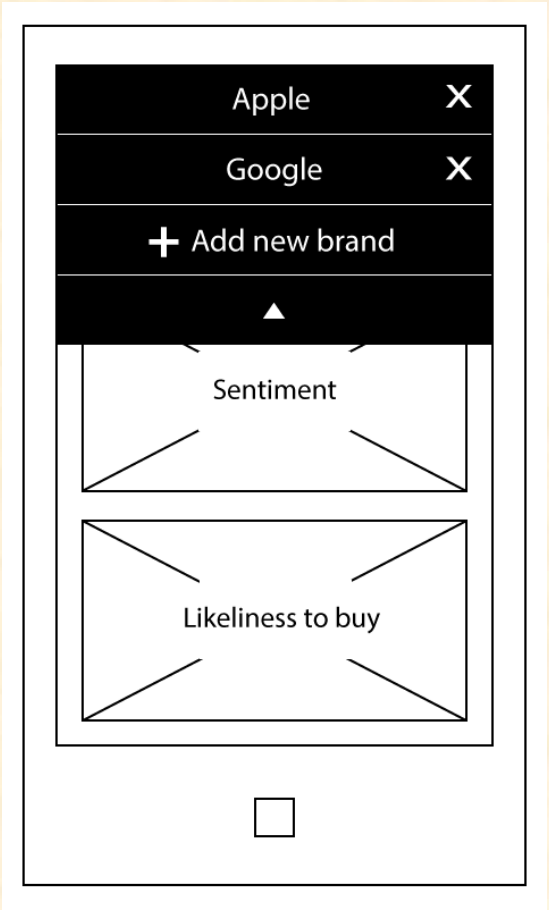
**DELETE ME.**

**Delete this slide.**

# Screen Mockups: Phone Interface

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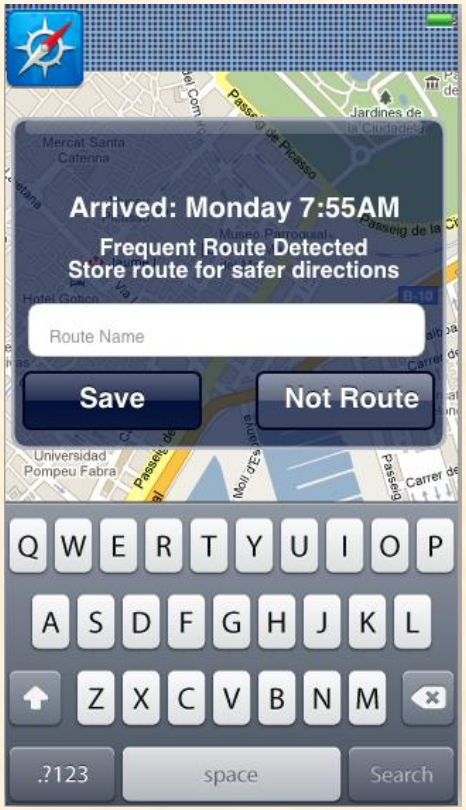
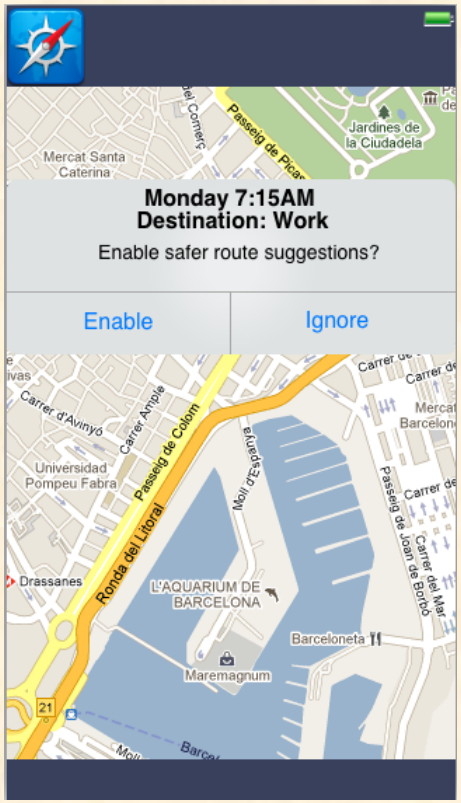
**Delete this slide.**

# Screen Mockup: iOS Application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# Technical Specifications

- Point 1
- Point 2
- Point 3
- Etc…

List the technical components of your project.

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# System Architecture

Show a diagram that illustrates the overall architecture of your project including how all of the parts and pieces are connected and interact.

See below for examples and instructions.

**DELETE THIS TEXT BOX.**

# System Architecture

Notes on Making Your Diagram
**Delete this slide.**

- Ensure that your diagram is…
  - readable (size-wise),
  - has the correct aspect ratio,
  - scalable, and
  - centered vertically (between the green bar in the title and the footer) and horizontally (Use Home > Arrange > Align).
- In PowerPoint use Home > Arrange > Group to group the objects in your diagram into a single that can be copied-and-pasted.
- Use Paint.NET to make the background of your diagram transparent.
  - Download and install it from www.getpaint.net.
  - Copy your diagram into Paint.NET.
  - Select Tool > Magic Wand.
  - Click on a background area.
  - Push the Delete button (on your keyboard).
  - The background area should be a checkerboard pattern.
  - (N.B.: Paint.NET was a capstone project at the University of Washington.)

**DELETE ME.**

# System Architecture

Example System Architecture
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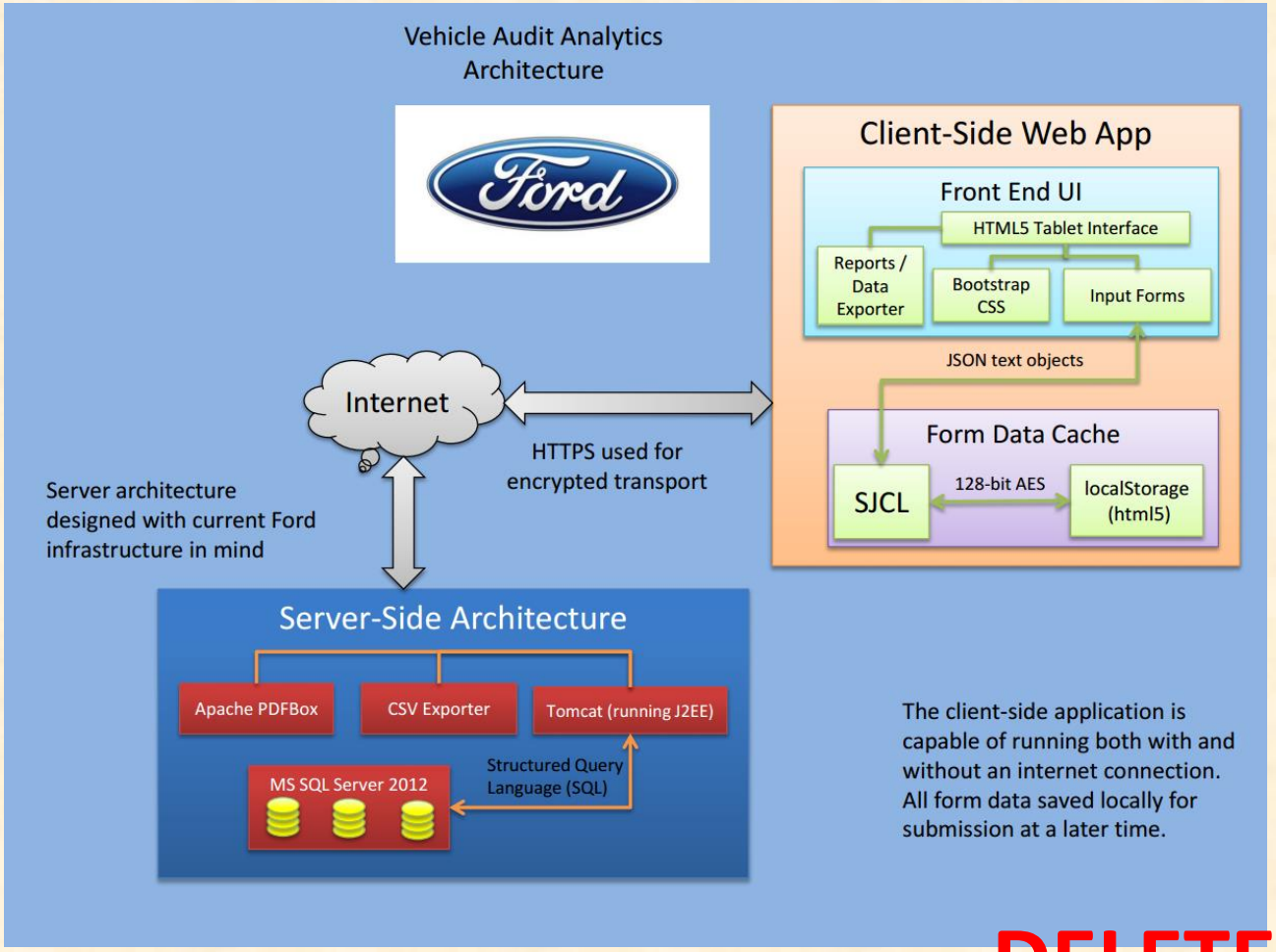
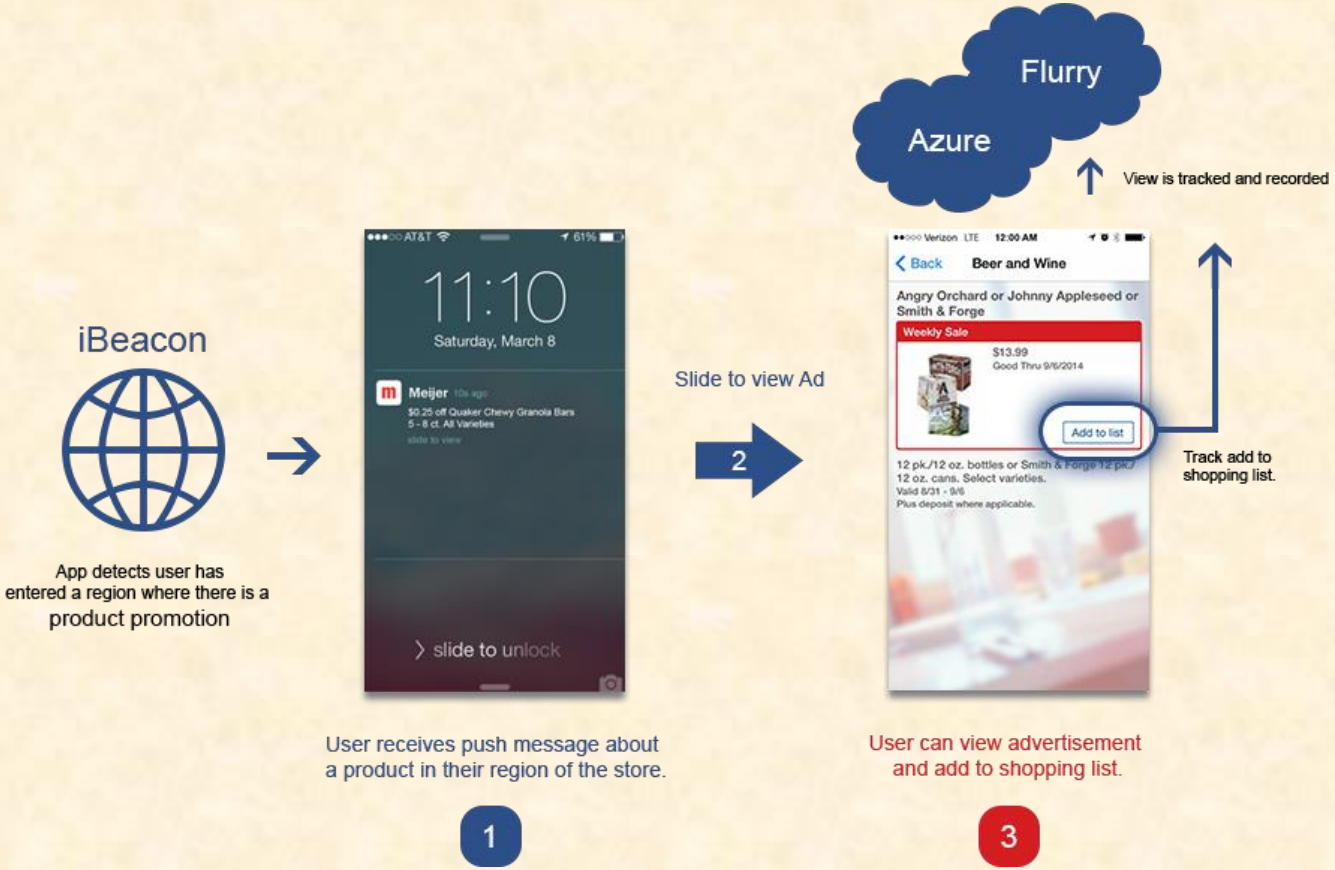



**DELETE ME.**

# System Architecture

Example System Architecture
**Delete this slide.**

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# System Components

- Hardware Platforms
  - Point 1
  - Point 2
  - Point 3
  - Etc…
- Software Platforms / Technologies
  - Point 1
  - Point 2
  - Point 3
  - Etc…

List your hardware and software platforms including all of the technologies that your project will use.

**DELETE THIS TEXT BOX.**

# Testing

- Point 1
- Point 2
- Point 3
- Etc…

Articulate your plans for testing your software system.

List any tools that you plan to use.

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# Risks

- Risk 1
- Risk 2
- Risk 3
- Risk 4
- Etc…

Articulate your major risks.

For each risk, describe what the risk is and how you plan on mitigating it.

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