From Students…
…to Professionals

The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2017
Course Goals

• 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

• TTh, 3:00-4:20 p.m., 1145 Engineering Building
• Presentations By
  ▪ Professor
  ▪ Teams
    o Status Reports
    o Formal Presentations
      ➢ Project Plan
      ➢ Alpha
      ➢ Beta
    o Project Videos
  ▪ Guest Speakers
All-Hands Meetings

- 01/10: Capstone Overview
- 01/12: Project Plan
- 01/17: Risks and Prototypes
- 01/19: Team Status Report Presentations
- 01/24: Schedule and Teamwork
- 01/26: Team Status Reports
- 01/31: Team Project Plan Presentations
- 02/02: Team Project Plan Presentations
- 02/07: Team Project Plan Presentations
- 02/09: Team Project Plan Presentations
- 02/14: Resume Writing and Interviewing
- 02/16: Creating and Giving Presentations
- 02/21: Team Alpha Presentations
- 02/23: Team Alpha Presentations
- 02/28: Team Alpha Presentations
- 03/02: Team Alpha Presentations
- 03/07: (Spring Break, No Meeting)
- 03/09: (Spring Break, No Meeting)
- 03/14: Team Status Reports
- 03/16: Team Status Reports
- 03/21: Design Day and the Project Videos
- 03/23: Camtasia Demo
- 03/28: Intellectual Property
- 03/30: Ethics and Professionalism
- 04/04: Team Beta Presentations
- 04/06: Team Beta Presentations
- 04/11: Team Beta Presentations
- 04/13: Team Beta Presentations
- 04/18: Status Reports
- 04/20: Status Reports
- 04/25: Project Videos
- 04/27: Project Videos and All Deliverables
- 04/27: Design Day Setup
- 04/28: Design Day
- 05/04: Project Videos
The Capstone Experience

Team Amazon

Department of Computer Science and Engineering
Michigan State University
Spring 2017
amazon
PLAY ALL OF YOUR MUSIC. JUST ASK.

echo $179.99
Team Amazon

Project Overview

ACRA: Amazon Customer Review Analyzer

• Functionalities
  ▪ Improve Amazon Customer Shopping Experience
  ▪ Enable More Informed Purchase Decisions
  ▪ Provide Automatic Analysis of Product Reviews

• Features
  ▪ Analyze and Categorize Product Reviews On
    o Product Quality
    o Shipping and Handling
    o Third-Party Seller
  ▪ Identify and Discard Irrelevant Reviews
  ▪ Review Similar Products
  ▪ Aggregate and Display Results

• Technologies
  ▪ Google Android Tablets and Phones / Java
  ▪ Apple iPads and iPhones (iOS) / Swift
  ▪ Amazon Product Advertising API
  ▪ Amazon Web Services
    o Storage Solution
    o Machine Learning
    o Lambda
  ▪ Natural Language Processing
  ▪ RESTful Web Services
Team Amazon
Jie Wan, Ian Whalen, Tess Huelskamp, Ankit Luthra, Jason Liu
Team Amazon
Project Plan Presentation

Screen Mockups

Amazon Customer Review Analyzer
ACRA is an app which can help customer classify and read reviews

LG TV

[Image of Amazon app interface]

[Image of LG TV screen mockups]

Project Plan Presentation

Screen Mockups
Team Amazon
Project Plan Presentation
Team Amazon
Project Plan Presentation

Architecture Diagram

- iOS
- API Gateway
- Lambda
- AML
- S3
- DynamoDB
- NLTK
Team Amazon
Project Plan Presentation
Team Amazon
Project Plan Presentation

Screen Mockups

Product Plan

Product Quality

Very Happy
By quirt27
Love the new TV. Picture is awesome and set up was quick and easy. Also love Amazon's enhanced delivery.....was very nice to have such a large...

Delighted with this!
By JAL
While I watch a lot of TV, I'd never claim to be an expert on the differences between models. So when the time came to buy a new one, I went...

It has a good crisp picture
By raz
Considering the price I paid which was a bit less than $1100.00, I will rate this 5 stars. It has a good crisp picture. With a larger screen I...

With normal HD stream...
By game_a_lot
Paul and I can't believe how quickly the week went by. It was so great to see you. Come visit us again soon and let us know how it goes...

Five Stars
By Jay
Very nice tv at good price. Great picture quality,
Team Amazon
Alpha Presentation

Search Results Page
Review Categories Page

Team Amazon
Alpha Presentation

Product Quality
Irrelevant

The Capstone Experience
Team Amazon
Alpha Presentation

Reviews Page

Product Quality

Very Happy
By quick2?
Love the new TV. Picture is awesome and set up was quick and easy. Also love Amazon’s enhanced delivery... was very nice to have such a large...

Delighted with this!
By JAL
While I watch a lot of TV, I’d never claim to be an expert on the differences between models. So when the time came to buy a new one, I went...

It has a good crisp picture
By raz
Considering the price I paid which was a bit less than $1100.00, I will rate this 5 stars. It has a good crisp picture. With a larger screen I...

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By Jay
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The Capstone Experience
Team Amazon
Beta Presentation

Home Page and Search Results
Team Amazon
Beta Presentation

Category Page and Similar Items
Team Amazon Beta Presentation
Team Amazon Beta Presentation

Review Page and Misclassified Button

---

**Solid router**

**KACRO**

- I have an old WRT54G that still functions.
- Feeling the need to upgrade, I went through an ASUS wireless N router and al...

**Linksys WRT54G wireless router**

John Bengston

- I bought this system to replace a Dell wireless router (TrueMobile 1200G, I think) I got for free with a Dell laptop a couple ye...

**Fantastic Router**

D.J. Dahi

- Previously I’ve been using an old westell modem/router sent to me by our ISP. The Westell would drop connection very frequ...

**good but old router**

Jimmy

- I’ve had this router for about five years now.
- Wireless G is out dated. My router is still functioning after five years but it was time...

**Using this router with Tomato Open So**

D. Brichter

- The network is perfect. You don’t have to...
The Capstone Experience

Team Auto-Owners

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Auto-Owners
INSURANCE
LIFE • HOME • CAR • BUSINESS
Team Auto-Owners
Project Overview

Location-Based Services Mobile App

• Functionalities
  ▪ Connect Auto-Owners Associates While Out in the Community
  ▪ Enable Innovative Customer Interactions
  ▪ Provide Mobile Access to Customer Information

• Features
  ▪ Support Role-Based Authentication and Authorization
  ▪ Handle Location Based on Address or GPS
  ▪ Enable Claims Submission
  ▪ Visualize Mapping of Customers Nearby
    o Policyholders
    o Claims
    o Proposals
  ▪ Provide Administrative Web Portal

• Technologies
  ▪ Google Android Tablets and Phones / Java
  ▪ Apple iPads and iPhones (iOS) / Swift
  ▪ Google Maps
  ▪ CSS / HTML / JavaScript / PHP
  ▪ Database Technologies
Team Auto-Owners

Project Plan Presentation

Screen Mockups
Team Auto-Owners
Project Plan Presentation
**Users**

<table>
<thead>
<tr>
<th>Id</th>
<th>Email</th>
<th>Password</th>
<th>Created</th>
<th>Modified</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td><a href="mailto:christp@msu.edu">christp@msu.edu</a></td>
<td>$2y$10$B8Z8$3x9v8$SW</td>
<td>1/23/17, 12:22 AM</td>
<td>1/23/17, 12:22 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>5</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/23/17, 1:47 AM</td>
<td>1/23/17, 1:47 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>6</td>
<td><a href="mailto:test@gmail.com">test@gmail.com</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:01 AM</td>
<td>1/24/17, 12:01 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>7</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:04 AM</td>
<td>1/24/17, 12:04 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>8</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:06 AM</td>
<td>1/24/17, 12:06 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>9</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:13 AM</td>
<td>1/24/17, 12:13 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>10</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:15 AM</td>
<td>1/24/17, 12:15 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>11</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:18 AM</td>
<td>1/24/17, 12:18 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>12</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:20 AM</td>
<td>1/24/17, 12:20 AM</td>
<td>View Edit</td>
</tr>
<tr>
<td>13</td>
<td><a href="mailto:test@msu.edu">test@msu.edu</a></td>
<td>$2y$10$SWZ8$3x9v8$SW</td>
<td>1/24/17, 12:21 AM</td>
<td>1/24/17, 12:21 AM</td>
<td>View Edit</td>
</tr>
</tbody>
</table>
Team Auto-Owners
Alpha Presentation
Team Auto-Owners
Alpha Presentation

Map Screen
Team Auto-Owners
Alpha Presentation

Policy Search and Display Screen

Alpha Presentation
Policy Search and Display Screen
Team Auto-Owners
Alpha Presentation

Legend Screen
Team Auto-Owners
Beta Presentation

Map View
# Team Auto-Owners

## Beta Presentation

### Android Legend View

<table>
<thead>
<tr>
<th>AutoOwners</th>
<th>POLICIES</th>
<th>CLAIMS</th>
<th>PROPOSALS</th>
</tr>
</thead>
</table>

#### Policy Type
- **All:**
- **Home:**
- **Auto:**
- **TPP:**
- **BOP:**

- Min Value: $\_\_\_\_\_\_\_\_\_\_
- Max Value: $\_\_\_\_\_\_\_\_\_\_
- Time Insured

#### Local Policies
- **Home:** 3
- **Auto:** 1
- **TPP:** 5
- **BOP:** 2
- **Local Claims:** 2
- **Local Proposals:** 4
- **Total Local Exposure:** 112019921

### AutoOwners

#### Proposal Type
- **All:**
- **Home:**
- **Auto:**
- **TPP:**
- **BOP:**

- Within X Days

#### Local Policies
- **Home:** 0
- **Auto:** 2
- **TPP:** 1
- **BOP:** 1
- **Local Claims:** 2

- **Local Proposals:** 4

- **Total Local Exposure:** 112019921

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The Capstone Experience
Do not delete this textbox.
It's used as a marker in VB code.

See VB Module UTL_PresentationSlidesSend2FB.

Team Auto-Owners
Beta Presentation
Team Auto-Owners

Beta Presentation

iOS Legend View

Policy Type
- All
- Home
- Auto
- TPP
- BOP

Min Value: $
Max Value: $

Insured for any time

Local Policies:
- Home: 3
- Auto: 1
- TPP: 5
- BOP: 2

Local Claims: 2
Local Proposals: 5
Exposure: $100000111999903

Claims
- All
- Open Claims
- Recently Submitted
- Recently Closed
- Under Investigation

Proposal Type
- All
- Home
- Auto
- TPP
- BOP

Within any time

Local Policies:
- Home: 3
- Auto: 1
- TPP: 5
- BOP: 2

Local Claims: 2
Local Proposals: 5
Exposure: $100000111999903

Local Policies:
- Home: 3
- Auto: 1
- TPP: 5
- BOP: 2

Local Claims: 2
Local Proposals: 5
Exposure: $100000111999903
The Capstone Experience

Team GE

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Industry Brief

Industrial Manufacturing

01 GE expands asset performance management suite with Meridium buy

02 Gaining from the Industrial IoT: Industrial Internet Report

03 Using Big Data to Help Manufacturers Optimize Operations

04 Changing the Game of Digital Industry

05 GE Navigates, Carefully, the Industrial Internet of Things
Team GE
Project Overview

PETT: Predix Enabled Toy Train

• Functionalities
  ▪ Visualize GE’s Digital Industrial Strategy and Transformation
  ▪ Demonstrate GE’s Cloud-Base Predix Platform
  ▪ Run N-Scale DCC Enabled Trains Autonomously

• Features
  ▪ Run Multiple Trains Independently
  ▪ Monitor Non-Train Based Events
    o Railroad Crossings
    o Items Falling on Tracks
  ▪ Control Color of GE Logo Lights
  ▪ Utilize GE’s Predix Platform
    o Create Predictive and Prescriptive Analytics
    o Keep System Running Issue Free
  ▪ Provide Interactive Educational Display

• Technologies
  ▪ Digital Command Control for Model Railroads
  ▪ Sensor Enablement and Automation
  ▪ Raspberry Pi’s, Arduinos, Intel Edison
  ▪ GE’s Predix Platform
  ▪ Apple iPads and iPhones (iOS) / Swift
  ▪ Google Android Tablets and Phones / Java
  ▪ RESTful Web Services

Detroit, Michigan
Team GE
Joshua Schwallier, Lucas Reynolds, Lama Aboubakr, Matt Sopata, Henok Alemayehu
Team GE
Project Plan Presentation

Train Layout

- Ultrasonic
- Weight
- Beam Breaker
- RFID Reader Writer
- Gyroscope
- Accelerometer
- Temperature
- Barometer

GE Logo Lights
Team GE
Project Plan Presentation
Team GE
Project Plan Presentation
Team GE
Project Plan Presentation

Screen Mockup

GE PETT: Predix Enabled Toy Train

- Train 1 Speed
- Train 2 Speed
- Atmospheric Pressure
- Train 1 Inventory
- Train 2 Inventory
- Temperature
Team GE
Alpha Presentation
Team GE
Alpha Presentation

Sensors – Beam Breakers
Team GE
Alpha Presentation
Sensors – RFID Module and Tags
Do not delete this textbox.

It's used as a marker in VB code.

See VB Module UTL_PresentationSlidesSend2FB.

Team GE
Alpha Presentation
Team GE
Alpha Presentation

Predix Dashboard

PARAMETER COMPARISON

- crank-frame-compressionratio
- crank-frame-dischargepressure
- crank-frame-suctionpressure
- crank-frame-maxpressure
- crank-frame-minpressure
- crank-frame-velocity
- crank-frame-temperature

02/17/2017 12:01:00 PM
02/19/2017 08:10:06 PM
Update
Team GE
Beta Presentation
Team GE
Beta Presentation

Crash Scenarios
Do not delete this textbox. It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.
Team GE
Beta Presentation

Predix Dashboard
Team GE
Design Day
The Capstone Experience

Team GM

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Unlocking the future.

General Motors continues to reinvent and redefine the possibilities of connected vehicle technology.

READ MORE
Employee Transportation Experience App

- Functionalities
  - Show Employee Where to Park on GM Campus
  - Determine Parking Space Characteristics
    - Garage
    - Metered
    - Badged
  - Display Available Shuttle Services

- Features
  - Interacts with Android Auto and Apple CarPlay
  - Leverages Geofencing
  - Provides Automatic Parking Management
  - Calls or Cancels a Lyft
  - Gives Directions to Buildings
  - Shows Shuttle Schedules

- Technologies
  - Android Auto
  - Apple CarPlay
  - Lyft API integration
  - Natural Language Processing
  - Google Maps API
Team GM
Brendan Carlson, Rob Cobau, Vince Cogswell, Phyllis Jin
Team GM
Project Plan Presentation

Screen Mockup
Team GM
Project Plan Presentation
Team GM
Project Plan Presentation

Architecture Diagram
Team GM
Project Plan Presentation
Team GM
Project Plan Presentation

Screen Mockups

- User Info
  - Enter your full name: Johnny Appleseed
  - Enter your email address: j.appleseed@gmail.com
  - What building do you work at? Design Building
  - What time do you come into work? 7:30 AM

- Where are you going?
  - Cadillac
  - Design Building
  - Design Dome
  - ID Center
  - Man A
  - Man B
  - Research & Development
  - Vehicle Engineering Center
Do not delete this textbox. It's used as a marker in VB code.

See VB Module UTL_PresentationSlidesSend2FB.
Team GM
Alpha Presentation

Login Screen
Team GM
Alpha Presentation

Building Selection

[Images of mobile phones showing a map and options such as Cadillac Building, Design Building, Design Dome, ID Center, Man A, Man B.]
Team GM
Alpha Presentation
Team GM
Alpha Presentation

Building Located
Team GM
Beta Presentation
Team GM
Beta Presentation

Home Page and Navigation
Team GM
Beta Presentation

Web Portal: Campuses Page
Team GM
Beta Presentation
Team GM
Beta Presentation

Web Portal: Add a Campus

[Image of a web portal displaying a form to add a campus]
The Capstone Experience

Team Humana

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Humana
Now is the time to enroll in a 2017 Medicare plan

Shop now
Team Humana
Project Overview

Humana Kids
• Functionalities
  ▪ Reduce Obesity in Kids
  ▪ Teach Kids and Parents About Nutrition
  ▪ Encourage Healthy Behavior in Kids
• Features
  ▪ Usable by 6 – 12 Year Olds
  ▪ Implement as Android Launcher
  ▪ Handle Various Interactions
    o Surveys for Parents and Kids
    o Tips for Parents
    o Quizzes for Kids
  ▪ Include Coins and Badges as Awards
  ▪ Utilize Natural Language Processing and Machine Learning
  ▪ Provide Web App for Parents
• Technologies
  ▪ Google Android Tablets and Phones / Java
  ▪ Android Studio
  ▪ Natural Language Processing
  ▪ Machine Learning
  ▪ Web Application Frameworks (Django, Ruby)
Team Humana
Project Plan Presentation

Screen Mockups
Team Humana
Project Plan Presentation
Team Humana
Project Plan Presentation

Architecture Diagram

- Android Kids App
- Server
  - Web Application Server (Humana Employee)
  - Web Application Server (Parent)
- Humana Kids App
- API
  - Web Application Server (Humana Employee)
  - Web Application Server (Parent)
Team Humana Alpha Presentation
Team Humana
Alpha Presentation

Survey Pop-up
Team Humana
Alpha Presentation
HUMANA KIDS

What do I need to use Humana Kids?
All you need is an android device to download the Humana Kids.

What Humana Kids Is:
Humana Kids is a program created by Humana to help teach children how to live a healthy lifestyle. A lifetime of healthy living will provide an individual with more energy, confidence, and discipline, which is why it is so important to develop these skills at a young age. Humana kids will provide you with as much information on how to live a healthy lifestyle, and will help you present it in a way that a child will respond to. This website will be used to track the health trends of your child, and will give you information and tips on how to help him/her in areas that could use improving.

How To Use Humana Kids:
First you will have to create an account, which will require you to take an initial survey about your health habits. Once you are done with that, you will be able to create an account for everyone of your children. After creating an account you will be asked to take a questionnaire estimating health trends for your child. After that just download the Humana Kids app onto an android phone, and let your child use it to fill out the surveys.

Already Registered?
Just click the Sign In button above to see your child home page!

How to Register!
Team Humana
Beta Presentation

Mobile App

The Capstone Experience
Team Humana
Beta Presentation

Challenge Pop-Up

Challenge!

How many vegetables can you name in 30 seconds?

GO

2 seconds left!

Challenge Review!

Did you complete this challenge?
Be honest!

NO YES
See VB Module UTL_PresentationSlidesSend2FB.
Team Humana
Beta Presentation

Web App: Admin Graph

HUMANA KIDS ADMIN

Age Distribution
There are 13 kids enrolled

- 31%
- 23%
- 15%
- 15%
- 8%
- 8%
- 6%
- 6%
- 5%
- 4%
- 11
- 10
- 9
- 8
- 7

Age Charts  Gender Charts  Time Graph  Survey Responses Chart  Challenge Completion Rate  Average Category Scores
The Capstone Experience

Team Meijer

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Rewards

Get rewarded for the way you shop at Meijer, plus earn extra savings with Pharmacy and mCard Rewards. Rewards apply when you enter your mPerks ID and PIN at checkout.
MyMeijer: Crowdsource Shopping

• Functionalities
  ▪ Improve In-Store Shopping Experience Immediately
    o Feedback from Customers
    o Response by Store Team Members
  ▪ Provide Companion Mobile Apps
  ▪ Reward Users for Participation

• Features
  ▪ Link with mPerks Account
  ▪ Support Various Feedback
    o Item Out-of-Stock by Scanning UPC
    o Concern with Cleanliness via Location Tracking
    o Request for Assistance
  ▪ Provide Web App for Corporate Scoreboard

• Technologies
  ▪ Xamarin Mobile App Development
  ▪ Bluebird Mobile Device Development
  ▪ Microsoft .NET Framework
  ▪ Microsoft Visual Studio Team Server
  ▪ Microsoft Azure Services
  ▪ C#, ASP.NET MVC, ASP.NET Web API, HTML 5, .NET 5
  ▪ Hockey App for Deployment
  ▪ Meijer Web Services
  ▪ SQL Server / Mongo Database
  ▪ App Insights for Analytics

Team Meijer
Project Overview

Grand Rapids, Michigan
Team Meijer
Project Plan Presentation

Screen Mockups

- Home
  - Clipped Coupons
    - Browse for coupons
  - Earned Rewards
    - Browse available rewards
  - 2017 Savings
    - From Coupons, Rewards & Promos
  - Earn by Reporting!
    - Report Out of Stock Items and Spills

- Reporting
  - Report Item out of Stock
  - Report Incident
  - View Reported Items
Team Meijer
Project Plan Presentation
Team Meijer
Project Plan Presentation

Screen Mockup
Team Meijer
Alpha Presentation

Shopper Application
Team Meijer
Alpha Presentation

Meijer Team Member App
Team Meijer
Alpha Presentation
Team Meijer
Alpha Presentation

East Lansing, 48823 Store Logistics for Meijer

- Spills
- Responses
- Average Response Time

This is Out of Stock this Week
This is Spills this Week

Frequently Reported Out of Stock

- Cambell's Tomato Soup
- Ziploc Gallon Freezer Bags
- Breyers Ice Cream
- Kraft String Cheese
Team Meijer
Beta Presentation
Team Meijer
Beta Presentation

Consumer App
Team Meijer
Beta Presentation

Meijer Associate App

- Signed in as Robert Smith
- Out of Stock - Aisle 5
  - New
  - Scotch Magic Tape
- Out of Stock - Aisle 5
  - New
  - College Ruled Notebook
- Out of Stock - Aisle 1
  - In Progress
  - Four Pocket Folder
- Out of Stock - Aisle 1
  - In Progress
  - Pentel Eraser
- Spill - Aisle 1
  - In Progress
  - Spilled beer on aisle one.

- Signed in as Robert Smith
- Out of Stock - Aisle 5
  - New
  - Scotch Magic Tape
- Out of Stock - Aisle 5
  - New
- You have 1 new report
  - Spilled water
- Four Pocket Folder
- Out of Stock - Aisle 1
  - In Progress
  - Pentel Eraser
- Spill - Aisle 1
  - Spilled beer on aisle one.
Team Meijer
Beta Presentation
Team Meijer
Design Day
The Capstone Experience

Team Michigan State University
Team Michigan State University
Project Overview

CATAlyst: Mapping CATA Routes and Buses in Real-Time

• Functionalities
  ▪ Map CATA Bus Routes
  ▪ Show Location of Buses in Real-Time

• Features
  ▪ View Map of All Available Routes
  ▪ See Current Location of All Buses
  ▪ Predict Bus Arrival Time
  ▪ Filter by Route Number and/or Destination
  ▪ Display Bus Stops Nearest the User
  ▪ Enable Users to Upload Personal Schedules

• Technologies
  ▪ Apple iPads and iPhones (iOS) / Swift
  ▪ Google Android Tablets and Phones / Java
  ▪ Global Positioning Systems
  ▪ RESTful Web Services

Information Technology Services
East Lansing, Michigan
Team Michigan State University
Jimmy Mkude, Charlie Ward, Cathy Dinsmoor, James Dodge, Tom Beaver
Team Michigan State University
Project Plan Presentation

Screen Mockups
Team Michigan State University
Project Plan Presentation

Architecture Diagram

CATA

CATA Reader

MySQL

API Layer

Response

Request

Response

Query

Server

Inputs data, delete old data

Android Application

iOS Application
Team Michigan State University
Project Plan Presentation
Team Michigan State University
Project Plan Presentation

Screen Mockups
Team Michigan State University
Alpha Presentation
Team Michigan State University
Alpha Presentation

Home Screen
Team Michigan State University
Alpha Presentation

Scheduled Directions
Team Michigan State University Alpha Presentation

Displaying Next Bus Arrival
Route Filtering Drop-Down
Team Michigan State University
Beta Presentation

Schedule Input
Do not delete this textbox. It's used as a marker in VB code.

See VB Module UTLPresentationSlidesSend2FB.
Team Michigan State University
Design Day
The Capstone Experience

Team Microsoft

Department of Computer Science and Engineering
Michigan State University
Spring 2017
The new Surface family
To do great things, you need powerful devices.

LEARN MORE >
SHOP NOW >
Intune Company Portal Helper Bot

- Functionalities
  - Provide Automated Help for Intune Users
  - Walk Through Common Scenarios
  - Use Natural Language Processing Bot

- Features
  - Gather Text, Audio and Video Input from User
  - Convert Natural Language to Search Terms
  - Create Bot to Determine the Problem
  - Present Resources for Problem Resolution
  - Use Microsoft Bot Framework
  - Support Android, iOS and Windows Devices

- Technologies
  - Google Android Tablets and Phones / Java
  - Apple iPads and iPhones (iOS) / Swift
  - Microsoft Windows / C#
  - Microsoft Bot Framework
  - Natural Language Processing
  - RESTful Web Services
Team Microsoft
David Saksa, Lefan Zhang, Ramon Niebla, Anh Nguyen, Nick Bunton
Team Microsoft
Project Plan Presentation

Screen Mockup
Team Microsoft
Project Plan Presentation

Architecture Diagram
Hi! How can I help you?

Whenever I try to see if a device is up to security compliance the app crashes.

Oh no! I couldn’t find any articles, would you like to report this so our engineers can look into this?

Yes, please.

Ok, is there any additional information you would like to include? You can also include a screen capture of where you were encountering the problem.

Ok, whenever I click on a device and I am in the Device Details menu, I click on “Check compliance” the app closes.

Thank you, I’ll get this information to our engineering team right away to get this resolved for you.
Here are some articles that I think will help you.

- Enroll your device in Intune all (https://docs.microsoft.com/en-us/intune/EndUser/enroll-your-device-in-intune-all/)
my app keeps crashing

Oh no! Please click on the Email button, which will send the bug report to our team.
Team Microsoft Alpha Presentation

See VB Module UTL_PresentationSlidesSend2FB.
Bug Report

From: anhpnguyen.an@gmail.com
To: Nick Bunton

Bug Report

Please provide some information about the bug:

Pleased | Please | Please
--- | --- | ---
1 | 2 | 3
4 | 5 | 6
7 | 8 | 9
0 | Q | W
E | R | T
Y | U | I
O | P
A | S | D
F | G | H
J | K | L
Z | X | C
V | B | N
M | ❌ | 🔴
Team Microsoft Beta Presentation
Company Portal Helper Bot

Hi! How can I help you?

how do I enroll a user?

Based on my previous experiences, these links should help you:
- Decide how to enroll devices
- Choose how to enroll devices
- Enable MFA secure authentication

how do I install company portal app?

Based on my previous experiences, these links

Ask a question!
Company Portal Helper Bot

how do i install company portal app?

Based on my previous experiences, these links should help you:
- Install and sign in to the Intune company portal app iOS
- Install the company portal app Android
- Start with a paid subscription to Microsoft Intune step 7

when i click on the check compliance button, the app crashes

This may be a new issue.

Ask a question!
Team Microsoft Beta Presentation
The Capstone Experience

Sending a Bug Report

- Please provide some information about the bug.
- From: anhnguyen.an@gmail.com
- To: Nick Bunton
- Subject: Bug Report

Company Portal Helper Bot

standard-devices/standard-devices/en-US/7.09.png

Beta Presentation
Team Microsoft
Design Day
The Capstone Experience

Team Mozilla

Department of Computer Science and Engineering
Michigan State University
Spring 2017
### Improvements to Firefox’s about:preferences

- **Functionalities**
  - Improve Firefox’s about:preferences
  - Make about:preferences Easier to Use
  - Ensure Changes Have Appropriate Impact

- **Features**
  - Implement User Experience Specifications
  - Make More Internally Consistent
  - Reorganize about:preferences Sections
  - Enable Measurement of Effects of Changes
  - Add Search Capability

- **Technologies**
  - XUL
  - XHTML
  - JavaScript / EcmaScript 2016 & 2017
  - CSS
  - IRC
  - Bugzilla
  - Mercurial
Team Mozilla
Avalon Long, Ian Ferguson, Manotej Meka, Zack Herrick
# Team Mozilla

## Project Plan Presentation

### General
- Browser
- Startup
- Search Engines
- Tabs
- Accessibility
- Language
- Fonts & Colours
- Browsing

### Downloads & links
- Downloads
- File Type Handler
- Link Type Handler

### Privacy & Security
- History
- Forms & Passwords
- Private Browsing
- Tracking Protection
- Pop-ups
- Notifications
- Location bar
- Security Options
- Certificates
- DRM Content
- Connection

### Firefox Account
- Sync Options

### Updates
- Firefox Updates
- Automatically Update
- Reports (Data Choices)
Team Mozilla
Project Plan Presentation

Architecture Diagram
Team Mozilla
Project Plan Presentation
Team Mozilla
Project Plan Presentation

Screen Mockup

History

Clear your recent history
- Remember my browsing and download history
- Allow storing cookies and site data:
  - Always
  - Except for 3rd-party cookies
  - Except for non-visited 3rd-party cookies

Cookies and site data are currently 30 MB in disk space

- Clear history when Firefox closes

Forms & Passwords

- Remember search and form history
- Remember logins and passwords for sites
- Use a master password

Private Browsing

- Always use private browsing mode
Team Mozilla
Alpha Presentation

Preferences Tab Reorganization
Team Mozilla
Alpha Presentation
Preferences Search Functionality
Team Mozilla
Alpha Presentation
Team Mozilla
Alpha Presentation

Preferences Search Functionality

Search Results

Sorry! No results are found for the searched word
Need help? Visit Firefox Support
Team Mozilla
Beta Presentation

Tab Reorganization
Team Mozilla
Beta Presentation

Search Functionality
Team Mozilla
Beta Presentation

Search Suggestions
Team Mozilla Design Day

It's used as a marker in VB code.
The Capstone Experience

Team MSUFCU

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Banking with Amazon’s Alexa and Apple’s Siri

- Functionalities
  - Expand Digital Banking Offerings
  - Build Amazon Alexa Service
  - Develop Apple Watch App

- Features
  - Handle Voice Input
    - Amazon Alexa
    - Apple Siri
  - Support Amazon Echo and Apple Watch
  - Provide Access to Various Information
    - User Accounts (Balances, Recent Transactions, ...)
    - MSUFCU Branches (Locations, Hours, ...)
    - MSUFCU Products (Mortgage Rates, Auto Loan Rates, ...)
  - Create Middleware Layer
    - MSUFCU Databases
    - Alexa and Siri
  - Build Administrative Web Portal

- Technologies
  - Amazon Echo
  - Amazon Skills Kit
  - Apple iPads and iPhones (iOS) / Swift
  - Apple WatchOS
  - CSS / HTML / JavaScript / PHP
  - MySQL
Team MSUFCU

Project Plan Presentation

Apple Watch Mockups
Do not delete this textbox. It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.

Team MSUFCU
Project Plan Presentation
Team MSUFCU
Project Plan Presentation

Architecture Diagram
Team MSUFCU
Project Plan Presentation
Alexa, ask MSUFCU how much I have in my checking account

Please state your authentication PIN

1 2 3 4

Thank you. Your current checking balance is $2345.67
Team MSUFCU
Alpha Presentation
Team MSUFCU
Alpha Presentation

Apple Watch Interface

- Welcome, Dr. D
  - Check My Balances
  - Account History
  - Transfer Money

- Login
- FAQs
- Quick Balance
Team MSUFCU
Alpha Presentation

Alexa Card
Team MSUFCU
Alpha Presentation
Team MSUFCU
Alpha Presentation

Android Watch Interface
See VB Module UTL_PresentationSlidesSend2FB.
Team MSUFCU
Beta Presentation

Apple Watch Interface

- Login
- FAQs
- Nearest ATM

- Cancel

- Your Accounts
  - Auto Loan
    - $372.00
  - Spartan Saver
    - $3071.32
  - Totally Green Ch...
    - $1187.16

- Recent Transactions
  - Payment To Auto... Apr 02, 2017, 11:51
    - $60.00
  - Deposit From Tot... Apr 01, 2017, 22:01
    - $40.00

- Transfer Summary
  - To: Totally Green Ch...
  - From: Spartan Saver
  - Amount: $60
    - Confirm
    - Cancel

- Transaction Complete
  - Okay
Team MSUFCU
Beta Presentation

Android Watch Interface
Team MSUFCU
Beta Presentation
Alexa Card

Team MSUFCU
Beta Presentation
The Capstone Experience

Team Rook

Department of Computer Science and Engineering
Michigan State University
Spring 2017
UNIFIED INCIDENT MANAGEMENT
Team Rook
Project Overview

FORCE Integration Tool with Alert Correlation

• Functionalities
  ▪ Monitor, Detect and Eliminate Security Threats
  ▪ Ingest Security Alerts into Rook’s FORCE Platform

• Features
  ▪ Normalize Disparate Inputs to JSON
    o Firewalls
    o Intrusion Detection Systems
    o Endpoint Detection and Response Systems
  ▪ Store Credentials and Contexts Securely
  ▪ Correlate Alerts During Ingestion
    o Leverage Machine Learning
    o Pre-screen for Additional Human Analysis
  ▪ Provide Administrative Web App
    o Configure API Connectors
    o Resource Scheduling
    o Query API Endpoint to Request Alerts

• Technologies
  ▪ CSS / HTML / JavaScript / React / Redux
  ▪ Python / Python Django
  ▪ Ubuntu Linux
  ▪ MySQL / DynamoDB / Elasticsearch
  ▪ RESTful Web Services
  ▪ Machine Learning
## Project Plan Presentation

### Screen Mockup

**Welcome back, *insert employee name***

<table>
<thead>
<tr>
<th>Add connection</th>
<th>Edit Cases</th>
<th>Make case</th>
<th>Add to case</th>
</tr>
</thead>
</table>

**API A**

**API B**

- Alert type
- Time
- IP address
- Other fields
- Etc.

**Visual dividing space**

- Each of these are alerts

**Name of tool or ‘Force’**

**LOG OFF**
Team Rook
Project Plan Presentation
Team Rook
Project Plan Presentation

Screen Mockup
## Team Rook
### Alpha Presentation

### Alerts Page

![Alerts Page Image]

**FORFORCE PIT**

<table>
<thead>
<tr>
<th>Company</th>
<th>IP Address</th>
<th>Date/Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company 1</td>
<td>62.14.233.98</td>
<td>2016-08-15 11:14</td>
</tr>
<tr>
<td>Company 2</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 3</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 4</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 5</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 6</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 7</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 8</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 9</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 10</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
<tr>
<td>Company 11</td>
<td>test ip</td>
<td>TEST TIME</td>
</tr>
</tbody>
</table>
Team Rook
Alpha Presentation

Configuring an API
Team Rook
Alpha Presentation
Scikit-Learn Clustering on Test Data
Team Rook
Beta Presentation
Team Rook
Beta Presentation
Team Rook
Beta Presentation
One of the Best in the U.S.

We are one of the top children’s hospitals for care in cancer, nephrology and urology.
Resident Physician Tracking

• Functionalities
  ▪ Assist Resident Physicians Becoming Doctors
  ▪ Enable Residents to Track Their Shift Times

• Features
  ▪ Create Native Mobile Apps for Residents
  ▪ Send Notifications When Approaching Time Limits
  ▪ Allow for Automatic and Manual Input of Times
  ▪ Ensure Adheres to Federal Time Limit Mandates
  ▪ Provide Administrative Portal for Resident Coordinator
  ▪ Support Both Google Android and Apple iOS

• Technologies
  ▪ Apple iPads and iPhones (iOS) / Swift
  ▪ Google Android Tablets and Phones / Java
  ▪ CSS3 / HTML5 / Angular 2 / TypeScript
  ▪ Microsoft .NET Core / C#
  ▪ Microsoft Framework Core
  ▪ Microsoft SQL Server
  ▪ GitHub

Team Spectrum Health
Project Overview

Grand Rapids, Michigan
Team Spectrum Health
Hao Chen, Katie Foss, Matt Lamb, Matt Hannan
Team Spectrum Health
Project Plan Presentation

Screen Mockup
Team Spectrum Health
Project Plan Presentation
Team Spectrum Health
Project Plan Presentation

Architecture Diagram

iOS

RESTful

android

RESTful

Microsoft Azure

.NET Foundation

Entity Framework

SQL Server

Angular

The Capstone Experience
Team Spectrum Health
Project Plan Presentation
Team Spectrum Health
Project Plan Presentation

Screen Mockup

Resident Tracking

Shift Tracking

Start: 00:00
Duration: 00:00

Restrictions

30 min break after...: 20 min
Shift must end after...: 10 hours

Reset | Submit

Lectures | Shifts | Skills

Manual Shift Entry

Start: 1/2/2017 9:00 PM
End: 1/3/2017 10:30 PM

Fri Jan 27 | 7 | 14 AM
Sat Jan 28 | 8 | 15 AM
Today | 9 | 16 PM
Mon Jan 30 | 10 | 17 AM
Tue Jan 31 | 11 | 18 PM

Reset | Submit

Lectures | Shifts | Skills
Team Spectrum Health
Alpha Presentation
Team Spectrum Health
Alpha Presentation

Android: Shift Tracking Features

- Timer
  - Start: 09:27 PM
  - Duration: 00:08
  - Restrictions:
    - 30 min break after: 20 min
    - Shift must end after: 10 hours

- Manual Time Entry
  - Assignment Definition: Daily Check In
  - Training Location: Grand River Su..

- Shift Log
  - Start: 1/16/16 10:00AM
  - End: 1/17/16 1:00AM
  - Location: Children's Hospital
  - Assignment: Peds
  - 1/19 2016:
    - Start: 8:00 AM
    - Stop: 9:00 PM
  - 1/20 2017:
    - Start: 8:00 AM
    - Stop: 9:00 PM
  - 1/21 2018:
    - Start: 8:00 AM
    - Stop: 9:00 PM
  - 1/22 2018:
    - Start: 8:00 AM
    - Stop: 9:00 PM
Team Spectrum Health Alpha Presentation
# Team Spectrum Health

## Alpha Presentation

![Web Portal](image.png)

### Shifts Information Table

<table>
<thead>
<tr>
<th>User ID</th>
<th>Start Time</th>
<th>End Time</th>
<th>Location ID</th>
<th>Assignment ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>02/14/2017 12:33:00</td>
<td>02/14/2017 17:33:00</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>02/14/2017 16:37:29</td>
<td>02/14/2017 18:37:29</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>02/14/2017 15:37:56</td>
<td>02/14/2017 18:37:00</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>02/14/2017 16:54:53</td>
<td>02/14/2017 18:54:53</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>02/14/2017 16:57:28</td>
<td>02/14/2017 18:57:28</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>02/13/2017 09:30:00</td>
<td>02/13/2017 10:30:00</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>02/13/2017 08:30:00</td>
<td>02/14/2017 16:30:00</td>
<td>8</td>
<td>8</td>
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<tr>
<td>9</td>
<td>02/14/2017 17:20:56</td>
<td>02/14/2017 19:20:56</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>02/12/2017 00:00:00</td>
<td>02/12/2017 02:00:00</td>
<td>18</td>
<td>14</td>
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<td>3</td>
<td>02/12/2017 02:00:00</td>
<td>02/12/2017 04:00:00</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>12</td>
<td>02/15/2017 00:03:41</td>
<td>02/15/2017 02:03:41</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
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<td>02/15/2017 01:04:02</td>
<td>02/15/2017 03:04:02</td>
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<td>99</td>
<td>02/15/2017 21:33:13</td>
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<td>02/15/2017 21:33:13</td>
<td>02/15/2017 23:33:13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>02/15/2017 19:46:54</td>
<td>02/15/2017 21:46:54</td>
<td>3</td>
<td>22</td>
</tr>
<tr>
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<td>02/15/2017 19:47:20</td>
<td>02/15/2017 21:47:20</td>
<td>3</td>
<td>22</td>
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<tr>
<td>99</td>
<td>01/17/2017 16:36:00</td>
<td>01/17/2017 18:36:00</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>99</td>
<td>01/17/2017 18:09:00</td>
<td>01/17/2017 22:09:00</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>
Team Spectrum Health
Beta Presentation

Shift Timer Screen

---

Timer

- Start: 05:46 PM
- Duration: 03:47
- Assignment Definition: Away Rotation (A.)
- Training Location: ABC Pediatrics P.

Your shift must end in:

23:56:13

---

Resident Tracking

- Stop: 8:15 PM
- Duration: 00:00:12
- Assignment: Baxter Comm Ctr (...
- Location: ABC Pediatrics PC

RESTRICTIONS
- Your shift must end in: 23:59:47

Reset Submit

---
Team Spectrum Health
Beta Presentation

Manual Entry Screen

Manual Time Entry

<table>
<thead>
<tr>
<th>Assignment Definition</th>
<th>Baxter Comm Ctr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Location</td>
<td>ABC Pediatrics P.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start</th>
<th>Stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar</td>
<td>Mar</td>
</tr>
<tr>
<td>Apr</td>
<td>Apr</td>
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<tr>
<td>May</td>
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<td>11</td>
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<tr>
<td>12</td>
<td>12</td>
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</tbody>
</table>

Reset | Submit

Resident Tracking

<table>
<thead>
<tr>
<th>Start</th>
<th>4/2/17, 5:38 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri</td>
<td>Mar 31, Th 36</td>
</tr>
<tr>
<td>Sat</td>
<td>Apr 1, 4, 37 AM</td>
</tr>
<tr>
<td>Today</td>
<td>5, 38 PM</td>
</tr>
<tr>
<td>Mon</td>
<td>Apr 3, 6, 39</td>
</tr>
<tr>
<td>Tue</td>
<td>Apr 4, 7, 40</td>
</tr>
<tr>
<td>End</td>
<td>4/2/17, 8:09 PM</td>
</tr>
</tbody>
</table>

Assignment | Baxter Comm Ctr...
Location    | ABC Pediatrics PC
Reset       | Submit

The Capstone Experience
Team Spectrum Health
Beta Presentation

Admin Web Portal
Team Spectrum Health Design Day
The Capstone Experience

Team TechSmith

Department of Computer Science and Engineering
Michigan State University
Spring 2017
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

Teacher’s Virtual Toolbelt

• Functionalities
  ▪ Improve the Teaching of Classical Mechanics
  ▪ Use Augmented Reality with Microsoft’s HoloLens

• Features
  ▪ Create HoloLens App and Website and Web Service
  ▪ Stream HoloLens Experience to Website
  ▪ Support Hand Gestures and Voice Commands
  ▪ Enable Lesson Planning and Delivery Using Website
  ▪ Provide Various Holograms
    o 2D/3D Shapes Like Arrows, Lines Squares and Circles
    o Text
    o Reference Materials Like Wikipedia Articles
  ▪ Implement Data Store as Web Service

• Technologies
  ▪ Microsoft HoloLens App Development
  ▪ Unity Game Engine
  ▪ Microsoft Azure Cloud Computing
  ▪ ASP.NET MVC
  ▪ CSS / HTML / JavaScript / PHP

TechSmith
Okemos, Michigan
Team TechSmith
Yang He, Alex Crimin, Ryan Cornillie, Zeke Zandbergen
Team TechSmith
Project Plan Presentation

Screen Mockups

CSE 101: Lesson 3

Chat Box
Submit your questions and feedback to the instructor.

Submit

This lesson is currently unavailable.

Return Home
Team TechSmith
Project Plan Presentation
Team TechSmith
Project Plan Presentation
Gravity

Gravity, or gravitation, is a natural phenomenon by which all things with mass are brought toward (or gravitate toward) one another, including planets, stars and galaxies. Since energy and mass are equivalent, all forms of energy, including light, also cause gravitation and are under the influence of it.

https://en.wikipedia.org/wiki/Gravity
Do not delete this textbox. It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.
The Capstone Experience

Team TechSmith
Alpha Presentation

Student Lesson Selection

Image of a web interface showing a student page where a user named Alex Crimin is enrolled in courses CSE 260 and CSE 101. The interface includes options to view lessons for each course.
Team TechSmith
Alpha Presentation

Student Lesson View

Teach's Virtual Toolbelt

PHY 184: Lesson 2

Student Questions

Katherine Stevenson
What causes different seasons?

Brandon Wolfe
How does the moon affect tides?

Jame Hary
What is the force of gravity on the moon?

Suzanne Marshall
When does a lunar eclipse occur?

Ask a Question

Quiz

What is the mass of the Earth?

- 3.141 x 10^10 kg
- 5.972 x 10^24 kg
- 1.989 x 10^30 kg
- 1.983 x 10^30 kg

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Team TechSmith
Alpha Presentation

Teacher Using HoloLens
Team TechSmith 
Beta Presentation

It's used as a marker in VB code.

See VB Module UTL_PresentationSlidesSend2FB.
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Beta Presentation

Student Lesson View Page
Team TechSmith
Beta Presentation

HoloLens Spacetime Demo
Lesson Quiz Results

Question: Who published the theory of General Relativity?

Options:
1: Kepler
2: Galileo
3: Einstein
4: Copernicus

Showing Question: Who published the theory of General Relativity?
Team TechSmith
Design Day
The Capstone Experience

Team TWO MEN AND A TRUCK

Department of Computer Science and Engineering
Michigan State University
Spring 2017
TWO MEN AND A TRUCK®

“Movers Who Care®”
We've changed our colors to honor those who have served our country this Veterans Day.

We're the professionals you can trust.

Movers Who Care.
The Capstone Experience

Team TWO MEN AND A TRUCK
Project Overview

Mobile Mini Movers Who Care

- Functionalities
  - Entertain Kids During a Move
  - Provide Moving/Racing Game

- Features
  - Design Fun Moving/Racing Game
    - Like Hill-Climb Racing and Bad Piggy's
    - Start with Flatbed Truck Loaded with Boxes
    - Boxes May Fall Off
      - Stops and Starts
      - Bumps
      - Hills
    - Goal: Finish Race Quickly without Losing Boxes
  - Include Various Components
    - 2-Dimensional
    - Side Scrolling
    - Multiple Levels
    - Physics Based

- Technologies
  - Use Unity Game Engine
  - Support Both Google Android and Apple iOS
  - Mobile Game Design
  - Apple iPads and iPhones (iOS) / Swift
  - Google Android Tablets and Phones / Java
  - Unity Game Engine / C#
Connor McDermott, Travis Nichols, Curtis Notarantonio, Kai Wang, Jordan Ng
Project Plan Presentation

Game Flow:

Main Menu

Level Select

Level Overview

Credits

Upgrade Store

Level

Placement Phase

Driving Phase

Scoring
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Project Plan Presentation
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Project Plan Presentation

Architecture Diagram

Deployment:

Android Build

Unity Game Engine
C# Scripting

Revise

iOS Build
Through Xcode

Test on Multiple
Android Devices

Test on Multiple
iOS Devices

Google Play Store

App Store
Team TWO MEN AND A TRUCK
Project Plan Presentation
Team TWO MEN AND A TRUCK
Project Plan Presentation

Screen Mockup

You Win!
Boxes Delivered: 0/0
Final Score: 4

Timer: 0:20.6

Main Menu

BRAKES

GAS
Team TWO MEN AND A TRUCK
Alpha Presentation
Team TWO MEN AND A TRUCK
Alpha Presentation

Gameplay on Android
Team TWO MEN AND A TRUCK
Alpha Presentation

Gameplay on iOS
See VB Module UTL_PresentationSlidesSend2FB.

Team TWO MEN AND A TRUCK
Alpha Presentation
Mobile Mini Movers Who Care

Edit coins: (cheat)

Current coins: $50

Tools

$20

Trucks

Back
Team TWO MEN AND A TRUCK
Beta Presentation

Game Play
Team TWO MEN AND A TRUCK Beta Presentation
Win Screen

Timer: 0:30.0

Great

Boxes Delivered: 1/2
Time Bonus: 20
Final Score: 15

Restart

Main Menu

BRAKES

GAS

Team TWO MEN AND A TRUCK
Beta Presentation
Team TWO MEN AND A TRUCK Design Day
The Capstone Experience

Team Union Pacific

Department of Computer Science and Engineering
Michigan State University
Spring 2017
Union Pacific bridges are safe for the freight traffic they carry, as well as motorists and pedestrians. Our safety focus starts with more than 38,000 inspections annually to ensure the structural integrity for each bridge. For our employees, these inspections are more than just a job. Learn more about UP’s detailed inspection process.

Steel Giants Promise Safe Passage
Learning New Train Routes

• Functionalities
  ▪ Familiarize Conductors and Engineers with New Routes
  ▪ Use Augmented Reality (Rather Than “Actual Reality”)
  ▪ Save Railroads Millions of Dollars

• Features
  ▪ Combine Indexed Locomotive Video with Track Data
  ▪ Create AR-Like Overlay of Routes for Mobile Devices
  ▪ Include Various Overlay Data
    o Track Labels
    o Switch Information
    o Gradients
    o Compass Directions
    o Speed Limits
  ▪ Target Apple iOS, Google Android and Microsoft Windows

• Technologies
  ▪ Apple iPads and iPhones (iOS) / Swift or Objective-C
  ▪ Google Android Tablets and Phones / Java
  ▪ Microsoft Windows / C#
  ▪ Unity Game Engine
  ▪ OpenCV
  ▪ WebGL
Team Union Pacific
Matthew Schleusener, Nick Summers, Kangjie Mi, Jon Wild
Team Union Pacific

Project Plan Presentation

Screen Mockups

Railroad AR Simulator
Railroads
- Northern Railroad
- Eastern Railroad
- Western Railroad
- Transpacific Railroad
Team Union Pacific Project Plan Presentation
Team Union Pacific
Project Plan Presentation

Architecture Diagram
Team Union Pacific
Project Plan Presentation
Team Union Pacific
Project Plan Presentation

Screen Mockup
Team Union Pacific
Alpha Presentation

Image Recognition Breakdown

![Image of a train track and buildings]

![Notepad window with data]

Data:

```
0 0.355859 0.672222 0.063281 0.400000
1 0.664844 0.650694 0.065625 0.565278
```
Team Union Pacific
Alpha Presentation

Overlay Module
Team Union Pacific Alpha Presentation
Team Union Pacific
Alpha Presentation

Google Map of Train Route
Team Union Pacific
Beta Presentation

Learning New Train Routes

Your Personal Conductor

Region
-------
Service Unit
-------
Subdivision
-------

Submit

NAME
FROM MP
TO MP
Team Union Pacific
Beta Presentation

Learning New Train Routes

MSU Part 1

Video
Map View

Standing_Signal
Standing_Signal

Distance: 3.46
Mile Post: 5.02

Video Page

The Capstone Experience
Team Union Pacific
Beta Presentation

Map View
Team Union Pacific Design Day
The Capstone Experience

Team Urban Science

Department of Computer Science and Engineering
Michigan State University
Spring 2017
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

Real Time Ad Campaign Management Platform

• Functionalities
  ▪ Optimize Dealership Marketing Campaigns in Real Time
  ▪ Make Modification Recommendations
  ▪ Enable Tactical Decisions and Actions

• Features
  ▪ Analyze Real-Time In-Flight Digital Marketing Data
    o Consumer Engagement
    o Demographic Inclusion
    o Delivery Effectiveness
    o Overall Performance
    o Return on Investment
  ▪ Leverage Machine Learning to Recommend Actions
  ▪ Enable Changes to Active Campaign Variables

• Technologies
  ▪ Microsoft .NET Core 1.0
  ▪ Docker
  ▪ Machine Learning
  ▪ Real Time Recommendation Engine
    o Microsoft Cognitive Services
    o Neo4J
Team Urban Science
Hang Zhang, Anthony Orr, Zach Heick, Yoseph Radding
Team Urban Science
Project Plan Presentation

Screen Mockup
Team Urban Science
Project Plan Presentation

Architecture Diagram

Data Services

HTTP

Public Internet

HTTP Requests

Ajax Requests via HTTP

Websockets

Notifier

HTTP (POST)

Database Connector

Data Retrieval

Control Panel

Database

NET Foundation

NET Foundation

NET Foundation
Team Urban Science Project Plan Presentation
Team Urban Science
Project Plan Presentation

Screen Mockup
## Campaigns

<table>
<thead>
<tr>
<th>Campaign</th>
<th>ID</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campaign 1</td>
<td>001</td>
<td>Dodge</td>
</tr>
<tr>
<td>Campaign 2</td>
<td>010</td>
<td>Dodge</td>
</tr>
<tr>
<td>Campaign 3</td>
<td>011</td>
<td>Dodge</td>
</tr>
<tr>
<td>Campaign 4</td>
<td>100</td>
<td>Dodge</td>
</tr>
<tr>
<td>Campaign 5</td>
<td>101</td>
<td>Dodge</td>
</tr>
<tr>
<td>Campaign 6</td>
<td>110</td>
<td>Dodge</td>
</tr>
<tr>
<td>Campaign 7</td>
<td>111</td>
<td>Dodge</td>
</tr>
</tbody>
</table>
Team Urban Science
Alpha Presentation

Account Log In
Team Urban Science
Alpha Presentation

Database Visualization Sample

![Database Visualization](image)
Team Urban Science
Beta Presentation

Create Select Geography
Team Urban Science Design Day
The Capstone Experience

Team Whirlpool

Department of Computer Science and Engineering
Michigan State University
Spring 2017
What are you looking for?

See why our new refrigerator is the

Team Whirlpool
Project Overview

Commercial Laundry Dashboard

• Functionalities
  ▪ Enable Commercial Laundry Teams to Monitor Equipment
  ▪ Show How Whirlpool Products are Functioning
  ▪ Send Alerts for Equipment Issues

• Features
  ▪ Provide Dynamic and Intuitive Interface
  ▪ Login via Whirlpool Google Accounts
  ▪ Implement Backend using Google App Engine
  ▪ Create Responsive Frontend for Cross-Platform Use
  ▪ Support Apple iOS, Google Android and Web Browsers

• Technologies
  ▪ Apple iPads and iPhones (iOS) / Swift
  ▪ Google Android Tablets and Phones / Java
  ▪ CSS / HTML / JavaScript / PHP
  ▪ Google App Engine
  ▪ Apache Cordova
  ▪ RESTful Web Services
Team Whirlpool
Yuqi Xiao, Ryan Feldman, Nico Vergara, Mike Babiarz, Domenic Belcastro
# Team Whirlpool

## Project Plan Presentation

### Screen Mockup

**Commercial Laundry Dashboard**

<table>
<thead>
<tr>
<th>Admin</th>
<th>Trade Partner</th>
<th>Location</th>
<th>Appliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>1,465 Total Machines</td>
<td>1,125 Machines Online</td>
<td>340 Machines Offline</td>
</tr>
<tr>
<td>DTN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cedar Village</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>View</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **View Map**

![Graphs and Charts]

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Do not delete this textbox. It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.

Team Whirlpool
Project Plan Presentation
Team Whirlpool
Project Plan Presentation

Whirlpool API

- Provides information about machines

Backend App/API

- API that provides specific information for our apps

API Database

- Stores data for API

Front end application for viewing and changing what the viewer can see and do

iOS, Android & Web App
Team Whirlpool
Project Plan Presentation
Team Whirlpool

Project Plan Presentation

Screen Mockup
Team Whirlpool
Alpha Presentation
Filter Menu
Team Whirlpool
Alpha Presentation

Side Menu Custom Dashboards
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See VB Module UTL_PresentationSlidesSend2FB.

Team Whirlpool
Alpha Presentation
Team Whirlpool
Beta Presentation
Team Whirlpool
Beta Presentation

Main Dashboard with Map
Team Whirlpool
Beta Presentation

Data Options and Questions

**Search**
- **USAGE**
  Statistics about average and total cycle usage.
- **ERROR CODES**
  Information about reoccurring error codes.
- **CONNECTIVITY**
  Status information about washers and dryers.
- **AVAILABILITY**
  Status information for current machine availability.

**Availability**
- Cycle in progress
- Motor running
- Service door open
- Vault door open
- Water level full
- Locked/unlocked
Team Whirlpool
Beta Presentation
## Notifications

<table>
<thead>
<tr>
<th>Notification Type</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
Team Whirlpool
Design Day
The Capstone Experience

Team Yello

Department of Computer Science and Engineering
Michigan State University
Spring 2017
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

YelloVision: Career Fair Augmented Reality Experience

• Functionalities
  ▪ Improve Career Fair Experience for Recruiters and Candidates
  ▪ Preview Information about Companies and Open Positions
  ▪ Search by Company Logo Using Phone Camera

• Features
  ▪ Design like Pokeman Go for Career Fairs
  ▪ Identify Companies by Logo Image
  ▪ Display Various Information
    o Company Name
    o Majors Desired
    o Locations
    o “More Details”
  ▪ Pan Information by Moving Phone
  ▪ Support both iPhones and Android Phones

• Technologies
  ▪ Apple iPads and iPhones (iOS)
  ▪ Swift or Objective-C / Apple Xcode
  ▪ Google Android Tablets and Phones
  ▪ Java / Android Studio
Team Yello
Project Plan Presentation

Screen Mockups
Team Yello
Project Plan Presentation

Architecture Diagram

- iOS/Android Interface
  - User preference management
  - search majors for matches

- Vuforia API
  - Capture Company Logo
  - Present Company Info
  - Cloud Recognition

- Target Image Database
Team Yello
Project Plan Presentation
Team Yello
Project Plan Presentation

Screen Mockup


Looking for Computer Science Students

Both Full Time and Internship opportunities available
Do not delete this textbox. It's used as a marker in VB code.

See VB Module UTL_PresentationSlidesSend2FB.
Team Yello
Alpha Presentation

Scan Logo
Search Companies
Team Yello
Alpha Presentation

Image Recognition
Team Yello
Alpha Presentation
<table>
<thead>
<tr>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicago Skyline Manufacturing</td>
</tr>
<tr>
<td>Lake Michigan Partners</td>
</tr>
<tr>
<td>Michigan Ave Retail</td>
</tr>
<tr>
<td>Millennium Park Bank</td>
</tr>
<tr>
<td>Navy Pier Products, Inc.</td>
</tr>
<tr>
<td>Water Tower Consulting Group</td>
</tr>
</tbody>
</table>
Team Yello
Beta Presentation
Logo Recognition

Team Yello
Beta Presentation

Chicago Skyline Manufacturing
Chicago, IL

Software Engineer, Test Engineer
Software Engineer, Test Engineer
Team Yello
Beta Presentation
Team Yello
Beta Presentation

Sharing Companies
The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2017
The Capstone Experience Lab
The Capstone Experience Lab
The Capstone Experience Lab
View of Spartan Stadium
The Capstone Experience

Design Day Award Winners

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 Koepppe and Elizabeth Klee of Urban Science
The Capstone Experience

Design Day Award Winners

April 28, 2017
All-Hands Design Day, April 28, 2017
Auto-Owners Exhibition Award

Team TechSmith, Spring 2017

Teacher’s Virtual Toolbelt
Alex Crimin, Zeke Zandbergen, Yang He, Ryan Cornillie

Presented by Scott Lake of Auto-Owners Insurance
MSU Federal Credit Union Praxis Award
Team Union Pacific, Spring 2017
Learning New Train Routes
Matthew Schleusener, Kangjie Mi, Nick Summers, Jon Wild
Presented by Liam Petraska of MSU-Federal Credit Union
TechSmith Screencast Award
Team Amazon, Spring 2017
ACRA: Amazon Customer Review Analyzer
Jie Wan, Jason Liu, Ian Whalen, Ankit Luthra, Tess Huelskamp
Presented by Wendy Hamilton of TechSmith
Urban Science Sigma Award
Team Michigan State University, Spring 2017

CATAlyst: Mapping CATA Buses in Real-Time
Charlie Ward, Cathy Dinsmoor, Tom Beaver, Jimmy Mkude, James Dodge
Presented by Linda Koepppe and Luke Mercier of Urban Science
The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2017
Auto-Owners
INSURANCE
LIFE • HOME • CAR • BUSINESS
TWO MEN AND A TRUCK

“Movers Who Care”
yello