The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Fall 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

• MW, 3:00-4:20 p.m., 1279 Anthony Hall
• Presentations By
  ▪ Professor
  ▪ Teams
    o Status Reports
    o Formal Presentations
      ➢ Project Plan
      ➢ Alpha
      ➢ Beta
    o Project Videos
  ▪ Guest Speakers
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
- 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
- 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
The Capstone Experience

Team Amazon

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

echo $179.99
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)
    o Compute Services
    o Database Services
    o Machine Learning
  ▪ Amazon Lex
  ▪ Amazon Product Advertising API
  ▪ Amazon Simple Notification Services (SNS)
  ▪ Twilio APIs
Team Amazon
Zizhen Wang, Nikhil Ramu, David He, Dominic Zottolo, Danielle Schugars
Team Amazon
Project Plan Presentation

Screen Mockup
Team Amazon
Project Plan Presentation
Team Amazon
Project Plan Presentation

Architecture Diagram

SMS
- User Request
  - Query text
  - Response Text
  - Send initial recommendation to user

Twilio
- Response to User
  - Parsed User Input

Amazon Lex
- Recommendations and Responses

AWS Lambda
- Add to cart
- Clothing Request
- Recommendations

Faia Core
- Amazon Product API
- Product Information

Cloudwatch
- Monitors for new users

Amazon EC2
- php

Amazon Authentication
- Login

Web Form
- Store User Data
- User Preference Selections

RDS
- User Preferences

MySQL
- Additional Style Data

Amazon Machine Learning
Team Amazon
Project Plan Presentation
Team Amazon
Project Plan Presentation

Screen Mockup

Message:
Hi I'm Faia, your own personal fashion assistant! I can help you find clothes that match or compliment styles that you already like.

Message:
Here something you might like.

Message:
What do you think of this item? 😊 or 😞

Message:
It's ugly

Message:
Oh... Ok, thanks for the feedback. I'll make a better suggestion next time!

Message:
Let me know if there's anything else I can do for you or anything in particular you're looking for.

Message:
faia show me a cool hat

Message:
Would you like something like this?

Message:
yea thanks

Message:
Great! Here's where you would find it and items like it - Adidas Hat
Team Amazon
Alpha Presentation
Team Amazon
Alpha Presentation

Web Form: Questionnaire (Men)
Team Amazon
Alpha Presentation
Team Amazon
Alpha Presentation

Texting Interaction
Team Amazon Beta Presentation
Team Amazon
Beta Presentation

Questionnaire: Initial Style

Style Questionnaire
Please rate the following styles. This will help us understand your personal style profile and make accurate recommendations for you.
(You must like at least one of these styles!)

Tailored Traditionalist

King of R&R
Team Amazon

Beta Presentation

Questionnaire: Specific Clothing
Team Amazon Beta Presentation
Team Amazon
Beta Presentation

SMS Interaction

Hello Danielle. I’m Faia, your personal fashion assistant!
10:06 PM

Hello! 10:11 PM

Hello there! Try commands like: Show me a red athletic shoe! 10:11 PM

I want to buy a dress. 10:24 PM

Do you like what I found?: Savoir Faire Women's Ponte Roma Shift Dress With Neck Slit 16 Black 10:24 PM MMS
The Capstone Experience

Team Auto-Owners

Department of Computer Science and Engineering
Michigan State University
Fall 2017
Auto-Owners
INSURANCE
LIFE • HOME • CAR • BUSINESS
Highest in Customer Satisfaction

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

Click for more information
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
Team Auto-Owners
Fred Lee, Matt Drazin, Kenneth Stewart, Kevin Nickolai, Brian Wong
Team Auto-Owners
Project Plan Presentation

Screen Mockup

Auto-Owners Insurance

Easy  Medium  Hard
Team Auto-Owners
Project Plan Presentation
Team Auto-Owners
Project Plan Presentation

Architecture Diagram

Oculus Rift Headset

Senses Motions

Renders Game

Transfer data

Oculus Rift Touch Controller

Senses Motions/Controller input

Oculus Sensors

Project Plan Presentation

Architecture Diagram

Oculus Rift Headset

Senses Motions

Renders Game

Transfer data

Oculus Rift Touch Controller

Senses Motions/Controller input

Oculus Sensors
Team Auto-Owners Project Plan Presentation
Team Auto-Owners
Project Plan Presentation

Score: 200

Time Remaining: 1:23

Hints: 3
Team Auto-Owners
Alpha Presentation
Team Auto-Owners
Alpha Presentation

Scene View
Team Auto-Owners
Alpha Presentation

Gameplay

Score: 200
Time: 1:38
Hints: 2
Selection Mode: Hazard
See VB Module UTL_PresentationSlidesSend2FB.

Team Auto-Owners
Alpha Presentation
Team Auto-Owners

Alpha Presentation

Gameplay

Score: 200

Time: 1:38

Hints: 2

Selection Mode: Hazard
Score: 0

Task: Oh no! That helmet wasn’t a hazard. Follow the path to the next stand to try again.

Hints: 1

Team: Auto-Owners Beta Presentation
Team Auto-Owners
Beta Presentation

Scene View
Team Auto-Owners
Beta Presentation

Game House View
Team Auto-Owners
Beta Presentation
Team Auto-Owners
Beta Presentation

Game Interactions

- Hints: 0
- Goal Time: 2:34
- Score: 50
- Detector Mode: Passive
- Detector: None
- Time: 2:34
- Hint: This object seems strangely normal.
Team Auto-Owners Design Day
The Capstone Experience

Team Avata

Department of Computer Science and Engineering
Michigan State University
Fall 2017
Advance Your Tomorrow with Data-Driven AI

Avata Intelligence’s solutions show organizations exactly when, where, and how to minimize risk, allocate...
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
    o Draw on Map
    o Capture Date and Time Ranges
    o 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
Team Avata
Zack Lumley, Ashley Gagnon, Chantz Johnson, Meenu Sundararaju, Sean Edwards
Team Avata
Project Plan Presentation
Team Avata
Project Plan Presentation

Architecture Diagram

RES T

JSON

DB Queries
Team Avata
Project Plan Presentation
Team Avata
Project Plan Presentation

Screen Mockup
Team Avata
Alpha Presentation
Team Avata
Alpha Presentation

Information Setup: Roles & Modules

Client Configuration Tool

Roles and Modules

Select Roles:
- Chief
- Captain
- Major
- Sergeant
- Private

Select Modules:
- Heat Map
- Camera
- Topographical

MySQL

Export User Roles
Team Avata
Alpha Presentation

Information Setup: Shifts
What’s left to do?

- Finish UI
- Buttons
- Sidebars
- Encapsulate front-end data in format that back-end can consume
- Export MySQL/MySQL file
- Implement front-end validation for polygon overlapping
- Finish data hierarchy
- Geography
- Taxonomy
Team Avata
Alpha Presentation

Geography Setup
Team Avata Beta Presentation
Team Avata
Beta Presentation

Information: Shifts
Team Avata
Beta Presentation

Geography: Campuses
Team Avata
Beta Presentation
Team Avata
Beta Presentation

Geography: Beats
The Capstone Experience

Team Ford

Department of Computer Science and Engineering
Michigan State University
Fall 2017
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
    o Dimensions
    o GPS Location
    o Timestamp
  ▪ Integrate with Google Tango
  ▪ Send Notifications to Sync 3
    o Receives Notifications of Available Spaces
    o 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
Team Ford
Rahul Patel, Doug Kantor, Helena Narowski, Eric Wu, Cheng Jin
Team Ford
Project Plan Presentation  
Architecture Diagram
System Architecture
Team Ford
Project Plan Presentation

Screen Mockup
Team Ford
Alpha Presentation

Identify Spot

What is the status of the spot?
- Occupied
- Available

What is the size of the parking spot?
- Regular
- Compact

If you are in a parking garage, what is the max height? (If not, enter 0)

Feet

Inches

SUBMIT
Team Ford
Alpha Presentation

AR Parking
Team Ford
Beta Presentation
Team Ford
Beta Presentation
Find Parking Spots
Team Ford
Beta Presentation

Sync 3 Web
Team Ford Beta Presentation
Do not delete this textbox. It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.

Team Ford Design Day
The Capstone Experience

Team GM

Department of Computer Science and Engineering
Michigan State University
Fall 2017
Unlocking the future.
General Motors continues to reinvent and redefine the possibilities of connected vehicle technology.

READ MORE
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)
    o Helmet
    o Eye Protection
    o Hearing Protection
    o Vest
  ▪ Determine Safety Alerts
    o Send to Mobile App
    o 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
Team GM
Michael Peng, Marc Bellemare, Steve Levesque, Ike Uchendu, Damien Hong
### Recent Notifications

<table>
<thead>
<tr>
<th>Camera</th>
<th>Area</th>
<th>Time</th>
<th>Date</th>
<th>Manager</th>
<th>PPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>D</td>
<td>10:41AM</td>
<td>9/25/17</td>
<td>Bob Smith</td>
<td>Eye Protection</td>
</tr>
<tr>
<td>8</td>
<td>A</td>
<td>12:11PM</td>
<td>9/25/17</td>
<td>Bob Smith</td>
<td>Headwear</td>
</tr>
<tr>
<td>5</td>
<td>C</td>
<td>1:23PM</td>
<td>9/25/17</td>
<td>Bob Smith</td>
<td>Gloves</td>
</tr>
<tr>
<td>14</td>
<td>E</td>
<td>3:35PM</td>
<td>9/25/17</td>
<td>Jay Jones</td>
<td>Headwear</td>
</tr>
<tr>
<td>7</td>
<td>B</td>
<td>4:03PM</td>
<td>9/25/17</td>
<td>Jay Jones</td>
<td>Eye Protection</td>
</tr>
<tr>
<td>1</td>
<td>F</td>
<td>5:57PM</td>
<td>9/25/17</td>
<td>Jay Jones</td>
<td>Gloves</td>
</tr>
</tbody>
</table>
Team GM
Project Plan Presentation
Team GM
Project Plan Presentation

Screen Mockup
Team GM
Alpha Presentation
Team GM
Alpha Presentation
Pedestrian Object Detection
## General Motors

**Web Portal**

### Table

<table>
<thead>
<tr>
<th>Camera</th>
<th>Area</th>
<th>Time</th>
<th>Date</th>
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</thead>
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<tr>
<td>3</td>
<td>D</td>
<td>10:41 AM</td>
<td>9/25/2017</td>
</tr>
<tr>
<td>3</td>
<td>D</td>
<td>10:41 AM</td>
<td>9/25/2017</td>
</tr>
</tbody>
</table>

© 2017 General Motors
Team GM
Alpha Presentation
Team GM
Beta Presentation

Object Detection
<table>
<thead>
<tr>
<th>Camera Name</th>
<th>PPE Violated</th>
<th>Date</th>
<th>Violation Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>CameraA</td>
<td>vest</td>
<td>2017-11-09 14:19:54</td>
<td>View Violation Image</td>
</tr>
<tr>
<td>Muffler Rm Entr</td>
<td>vest</td>
<td>2017-11-09 18:02:45</td>
<td>View Violation Image</td>
</tr>
<tr>
<td>Muffler Rm Entr</td>
<td>vest</td>
<td>2017-11-10 16:42:43</td>
<td>View Violation Image</td>
</tr>
<tr>
<td>Muffler Rm Entr</td>
<td>vest</td>
<td>2017-11-10 16:47:04</td>
<td>View Violation Image</td>
</tr>
<tr>
<td>Muffler Rm Entr</td>
<td>vest</td>
<td>2017-11-10 16:48:31</td>
<td>View Violation Image</td>
</tr>
<tr>
<td>Muffler Rm Entr</td>
<td>vest</td>
<td>2017-11-10 16:49:17</td>
<td>View Violation Image</td>
</tr>
</tbody>
</table>

Team GM
Beta Presentation
Web Portal - Violations
Team GM
Beta Presentation
The Capstone Experience

Team Humana

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

Shop now
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 Humana
Tony Dionise, Madeline Levinson, Jason Thompson, Sharon Shi, Tynan Ford
Team Humana
Project Plan Presentation

Screen Mockup
Team Humana
Project Plan Presentation

Architecture Diagram

- Customer
- MyHumanaBot
- .NET Bot Framework
- C#
- Microsoft Azure
- SQL
- sql server 2016
- Humana Employee
- Dialogflow
- .NET Core
- Admin Web App
Team Humana
Project Plan Presentation
## MyHumanaBot Chat Log

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>User ID</th>
<th>Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep. 19, 2017 23:23</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 19, 2017 20:27</td>
<td>hpotter7</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 19, 2017 14:33</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 19, 2017 09:17</td>
<td>tford01</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 19, 2017 07:30</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 18, 2017 22:00</td>
<td>sharonshi</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 18, 2017 15:45</td>
<td>adfonse</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 18, 2017 10:57</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 18, 2017 01:32</td>
<td>thorn1078</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 17, 2017 19:02</td>
<td>mlevinson</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 17, 2017 11:15</td>
<td>guest</td>
<td>download</td>
</tr>
<tr>
<td>Sep. 17, 2017 09:37</td>
<td>johnsmith1</td>
<td>download</td>
</tr>
</tbody>
</table>
Team Humana Alpha Presentation
Team Humana
Alpha Presentation

Chat Widget
<table>
<thead>
<tr>
<th>Username</th>
<th>Date/Time 1</th>
<th>Date/Time 2</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>pnavarro</td>
<td>10/15/2017 5:58:16 PM</td>
<td>10/15/2017 5:56:38 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>tina</td>
<td>10/15/2017 6:28:43 PM</td>
<td>10/15/2017 6:29:20 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>User</td>
<td>10/15/2017 2:32:17 PM</td>
<td>10/15/2017 2:32:18 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>User</td>
<td>10/15/2017 2:37:02 PM</td>
<td>10/15/2017 2:37:29 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>User</td>
<td>10/15/2017 2:40:59 PM</td>
<td></td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>User</td>
<td>10/15/2017 2:43:24 PM</td>
<td>10/15/2017 2:51:35 PM</td>
<td>View Conversation Messages</td>
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<tr>
<td>User</td>
<td>10/15/2017 2:54:09 PM</td>
<td>10/15/2017 2:54:16 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>User</td>
<td>10/15/2017 2:54:58 PM</td>
<td>10/15/2017 2:55:04 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Pat</td>
<td>10/15/2017 8:39:47 PM</td>
<td>10/15/2017 8:43:29 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Pat</td>
<td>10/15/2017 8:43:45 PM</td>
<td>10/15/2017 8:44:10 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Pat</td>
<td>10/16/2017 1:53:33 AM</td>
<td>10/16/2017 1:53:45 AM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Pat</td>
<td>10/16/2017 1:53:59 AM</td>
<td>10/16/2017 1:54:00 AM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Guest</td>
<td>10/16/2017 2:00:23 AM</td>
<td>10/16/2017 2:00:24 AM</td>
<td>View Conversation Messages</td>
</tr>
</tbody>
</table>
Greetings, Tina! I am Humana Bot, I am here to answer your questions.

What is the status of my go365 account?

We must verify your identity before we move on.

What is your favorite color?

You are now verified

Your status is Platinum
Chat Widget

Team Humana
Beta Presentation

Chat

what claim do I have?

Your Claims With Humana
Your claims are shown below
Click on a claim to get more information!

4941568372

Claim #4941568372
Here is the information about your claim
Status: paid
Date of Service: 4/17/2016 12:21:32 AM
Claim Date: Tuesday, April 19, 2016
Paid Date: Wednesday, April 27, 2016
Amount Billed: $215.59
Amount: Plan Pays: $75.01
Amount Applied Deductible: $229.70
Co-Insurance: $11.88

Type your message...
### Team Humana

**Beta Presentation**

#### Admin Page

The image shows a screenshot of the Humana Admin Portal, with a section titled "Conversations." The portal displays a table with user names, start and end dates and times, and options to view and download conversation messages.

<table>
<thead>
<tr>
<th>User Name</th>
<th>Start Date Time</th>
<th>End Date Time</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tina</td>
<td>11/10/2017 18:14:56 PM</td>
<td>11/10/2017 18:15:37 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Guest</td>
<td>11/10/2017 18:10:46 PM</td>
<td>11/10/2017 18:11:17 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Guest</td>
<td>11/10/2017 18:08:27 PM</td>
<td>11/10/2017 18:10:02 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Pat</td>
<td>11/10/2017 17:49:26 PM</td>
<td>11/10/2017 17:49:20 PM</td>
<td>View Conversation Messages</td>
</tr>
<tr>
<td>Guest</td>
<td>11/10/2017 17:42:53 PM</td>
<td>11/10/2017 17:48:04 PM</td>
<td>View Conversation Messages</td>
</tr>
</tbody>
</table>
Team Humana Design Day
The Capstone Experience

Team Meijer

Department of Computer Science and Engineering
Michigan State University
Fall 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.
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

Team Meijer
Project Overview

Grand Rapids, Michigan
Team Meijer
Charles Heil, Dan Radler, Olive Miller, Justin Pearson, James Murray
Team Meijer
Project Plan Presentation

Screen Mockup

**Username**
My Pantry
Shopping List
Planned Meals
Recipe Box

**Suggestions**
Favorites
Search

1. Chicken Pot Pie
75% ingredients in pantry

2. Hot Dogs
20% ingredients in pantry

3. Apple Pie
10%

Try "Alexa, show me more."
Team Meijer
Project Plan Presentation
Team Meijer
Project Plan Presentation

Architecture Diagram

User
- iOS / Android

amazon echo

Microsoft .NET Framework

Data
- nutritionix Ingredient API
- Yummly Recipe API
- MS SQL Server

Testing
- POSTMAN
- Hockey App
- Insights for Analytics

Microsoft Azure
Team Meijer
Project Plan Presentation
Team Meijer
Project Plan Presentation

**My List**
- Butter
- Milk
- Eggs
- New Item

**My Pantry**
- Milk
  - Milk (Vitamin D)
  - Beef

**Recommended**
- Kiwi
- Butternut Squash
- Star Fruit

Screen Mockup

My Pantry
Recipes
My Favorites
My List
My Account
Team Meijer
Alpha Presentation

Android Shopping List

- Butter
- Milk
- Eggs
- New Item
- Kiwi
- Buttermilk Squash
- Star Fruit
Team Meijer
Alpha Presentation

iOS Shopping List

- Apples
- Bananas
- Squash
- New Item

Recommended

- Butter
- Milk
- Eggs
- Schezwan Sauce
Team Meijer
Alpha Presentation

Amazon Show Planned Meals

1. Chicken Pot Pie
2. Miso Soup
3. ...
Team Meijer
Beta Presentation
Team Meijer
Beta Presentation

Android Recipe View

The Capstone Experience
Team Meijer
Beta Presentation

Amazon Show Recipe View

Thai Salmon
Serves: 4 Servings
Prep: 15 Min
Cook: 5 Min

Time: 20 min Servings: 4
Rating: 4

Ingredients:
- 6 x 6 oz sockeye salmon fillets, skin on or off
- Pinch of salt
- 1/2 cup + 2 tbsp Thai sweet chili

The Capstone Experience
Team Meijer
Design Day
The Capstone Experience

Team Michigan State University

Department of Computer Science and Engineering
Michigan State University
Fall 2017
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
Team Michigan State University
Scott Swarthout, Ryan Johnson, Nayana Kodur, Patrick Pale, Roy Perryman
Team Michigan State University
Project Plan Presentation

Screen Mockup
Screen Mockups: Social & Campus Tabs

Social Tab:
- MSU Twitter Feed

Campus Tab:
- Buildings
- Parking lots
- Dining halls
- Sparty's

Team Michigan State University
Project Plan Presentation
Team Michigan State University
Project Plan Presentation

Architecture Diagram

External Data Feeds
- Maps/Places API: Building Info
- Web Scraping: Menus
  - JSON
  - TweePy
  - iCal File
- MSU Campus Events

Back End
- PostgreSQL
  - Buildings
  - Parking Lots
  - Schedules
  - Classes
  - Cafeteria Menus
- Amazon AWS
  - Python
  - REST API
  - API Gateway

Front End
- Android
- Apple
Team Michigan State University
Project Plan Presentation

Screen Mockup
Team Michigan State University
Alpha Presentation
Home View: Nearby Information

Team Michigan State University
Alpha Presentation

Events Nearby
12:03 PM  Haiga: The Poetry of Images
          LookOut Art Gallery Snyder Hall Second Floor
12:15 PM  Our Daily Work/ Our Daily Lives
          Brown Bag Series
          MSU Museum Auditorium
07:03 PM  People’s Law School: Homeland
          Security
          East Lansing Hannah Community Center

Dining Nearby
The Vista at Shaw
South Pointe at Case

Nearby Dining Halls
The Vista at Shaw
South Pointe at Case
Wilson Dining Hall

Nearby Events
12:00 PM  Haiga: The Poetry of Images
7:00 PM   People’s Law School: Homeland Security
Team Michigan State University
Alpha Presentation

Navigation Menu
Team Michigan State University Beta Presentation
Team Michigan State University
Beta Presentation

Home View: Nearby Information
Team Michigan State University Beta Presentation
Team Michigan State University
Beta Presentation

Grades View
Team Michigan State University
Design Day
The Capstone Experience

Team Microsoft

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

LEARN MORE ▸  SHOP NOW ▸
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
Team Microsoft
Jordan Green, Jason Yin, Matt Pasco, Mike Xiao, Mo Wang
Team Microsoft
Project Plan Presentation

Screen Mockup
Team Microsoft Project Plan Presentation
Team Microsoft Project Plan Presentation
Team Microsoft
Alpha Presentation

Login Page

 COMPANY PORTAL

Sign In

Work or school, or personal Microsoft account

Email or phone

Password

Sign in  Cancel

Can't access your account?
Other sign in options

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Got Questions? How to your IT professionals!

Call
(800)-120-5600

E-mail
it_fake@microsoft.com

Across the Great Wall we can reach every corner in the world

Good words
Team Microsoft
Beta Presentation

- **Company Administrator**
  - Company Administrator role has full

- **Team Microsoft**
  - Group for Team Microsoft Members

- **IT Support**
  - Group for IT Support Team Members

**My Groups**

**Team Microsoft**

- **Junda**
  - Email: yinjunda@CapstoneMSFT.onmicrosoft.com
  - Phone: +1 (234) 567-8900

- **Mike**
  - Email: mikelaog@CapstoneMSFT.onmicrosoft.com
  - Phone: +1 (234) 567-8900

- **Mo**
  - Email: mowang@CapstoneMSFT.onmicrosoft.com
  - Phone: +1 (234) 567-8900

- **Jordan**

**Groups Page**
Team Microsoft Design Day
The Capstone Experience

Team Mozilla

Department of Computer Science and Engineering
Michigan State University
Fall 2017
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
Team Mozilla
Mike Williams, Robin Miller, Chris Cho, Rand Mustafa
Team Mozilla
Project Plan Presentation
Team Mozilla
Project Plan Presentation
Team Mozilla
Alpha Presentation
Team Mozilla
Alpha Presentation
Team Mozilla
Alpha Presentation

Major Difference Detected
Team Mozilla
Alpha Presentation
Team Mozilla
Alpha Presentation

Subtle Difference Detected

Before Change

After Change

Difference
Cropped Region
Team Mozilla
Beta Presentation

Major Difference Detected
Team Mozilla
Beta Presentation

Subtle Difference Detected

Before Change

After Change

Difference
The Capstone Experience

Team MSUFCU

Department of Computer Science and Engineering
Michigan State University
Fall 2017
ComputerLine
Protected by TrulyU®

Username

Password

Sign In

Forgot Username? Forgot Password?

Routing Number 272479663
SWIFT Code MSUCUS44

CURRENT RATES

Auto Loan as low as 2.190% APR

Loans Home Loans Savings Business

Earn 50% More Cash Back While
Team MSUFCU
Project Overview

Digital Banking with Chatbots

• Functionalities
  ▪ Provide Virtual Banking Assistance
  ▪ Using a Chatbot

• Features
  ▪ Handles Same Services As Live Chat Service
  ▪ Leverage Natural Language Processing
    o Emulate Human-to-Human Interaction
    o Redirect Complex Requests to Customer Service Reps
  ▪ Support Short Message Service (SMS) and iMessage
  ▪ Integrate with Other MSUFCU Services
    o Website
    o Mobile App
    o 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 MSUFCU
Chuanyun Xiao, Josh Benner, Gus Fernandes, Cori Tymoszek, Syed Naqvi
Team MSUFCU
Project Plan Presentation

Screen Mockup
Screen Mockup: iMessage and FB Messenger

Team MSUFCU
Project Plan Presentation
"Alexa, what's my account balance?"

"Alexa, what time does MSUFCU open today?"

"Alexa, show me my last 5 transactions."

"Alexa, I can't access my bank account."
Hey, what’s my checking account balance?

Sure, account balance. Please say your 4 digit PIN.

It’s 6781.

Thanks. Your balance is $3,498.63
• Convenient
• Easy and fast
• 24/7 support
Team MSUFCU
Alpha Presentation
The Capstone Experience

Team MSUFCU

Alpha Presentation

Good day! I am the MSUFCU Chatbot.

Which share would you like to check? You can say Checkings, Savings, or the name of another share.

checkings

Your account balance is 35000
**Team MSUFCU**

**Beta Presentation**

Google Assistant and Alexa

Hey MSUFCU, what’s my checking account balance?

Alright, you want your account balance. Please say your 4 digit PIN.

It’s 6781.

Thanks. Your checking account balance is $3,498.63.
Team MSUFCU
Beta Presentation

- Convenient
- Easy and fast
- 24/7 support
Google Assistant and Alexa

- Hey MSUFCU, what's my checking account balance?
- Alright, you want your account balance. Please say your 4 digit PIN.
- It's 6781.
- Thanks. Your checking account balance is $1,488.63.

Team MSUFCU Beta Presentation

Team MSUFCU
Beta Presentation
Team MSUFCU
Beta Presentation

Web App
Team MSUFCU
Design Day
The Capstone Experience

Team Phoenix Group

Department of Computer Science and Engineering
Michigan State University
Fall 2017
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 Phoenix Group
Charlie Deneau, Evan Brazen, Bryce Corey, Austin Rix, Austin Littley
Team Phoenix Group
Project Plan Presentation

Screen Mockup
Team Phoenix Group
Project Plan Presentation
Team Phoenix Group
Project Plan Presentation

Architecture Diagram

- SQL
- DB Updater
- Bin Detailer
- Total Route
- Shortest Path

Bluetooth

Windows device
Team Phoenix Group
Project Plan Presentation
Team Phoenix Group
Project Plan Presentation

Screen Mockup
Team Phoenix Group
Alpha Presentation
Team Phoenix Group
Alpha Presentation

Administration Panel
Team Phoenix Group
Alpha Presentation

Map Order Fulfillment
Team Phoenix Group

Alpha Presentation

Inventory Map
Team Phoenix Group
Beta Presentation
Team Phoenix Group
Beta Presentation

Administration Panel

The Capstone Experience
Team Phoenix Group
Beta Presentation

Map Order Routing
Team Phoenix Group Beta Presentation
Team Phoenix Group
Beta Presentation

Map Order Fulfillment
Team Phoenix Group
Design Day
The Capstone Experience

Team Rook

Department of Computer Science and Engineering
Michigan State University
Fall 2017
ROOK SECURITY
WAR ROOM™
THE ONE-CLICK FORCE MULTIPLIER

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

Download on the Apple Store

UNIFIED INCIDENT MANAGEMENT
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 Exiting 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
Team Rook
Jake Fenton, Brian Jones, Alex Fall, Kaushik Sridasyam, Bradley Baker
Team Rook
Project Plan Presentation

Update Rule

Rule name: 
Architechure: 
Palo Alto
Occurances until alert: 12px
Rule specification json

Submit Cancel
Team Rook
Project Plan Presentation
Client Profile

Add Rule | Edit Rule | Delete Rule

Current Rules For Client

<table>
<thead>
<tr>
<th>Rule</th>
<th>Who To Contact</th>
<th>Last Broke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malicious Event</td>
<td><a href="mailto:bobbyD@gmail.com">bobbyD@gmail.com</a></td>
<td>20:00 DEC 2016</td>
</tr>
<tr>
<td>Bad Smelling</td>
<td><a href="mailto:support@rook.com">support@rook.com</a></td>
<td>14:30 Nov 2017</td>
</tr>
<tr>
<td>Too many</td>
<td><a href="mailto:stan@theman.com">stan@theman.com</a></td>
<td>22:30 Apr 22</td>
</tr>
<tr>
<td>Requests</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Client Contacts
Team Rook Alpha Presentation
Team Rook
Alpha Presentation

User Interface – Client Profile View

CUSTOMER SETTINGS

Customer Name:
Example Inc.

Email:
contact@example.org

Index Date Format:
YYYY:MM:DD

Local DB Name:
local.db

Whitelist by IP or domain
- notathreat.org
- 11.22.33.44

Add
Remove

CANCEL  SAVE CHANGES
Team Rook
Alpha Presentation

User Interface – Rule View

![Image of Rule View in Rook Security console](image-url)
Team Rook
Alpha Presentation

Client Profile Page
Team Rook
Beta Presentation
Team Rook
Beta Presentation

Rules Page
Team Rook Beta Presentation
Team Rook

Beta Presentation

Add/Edit Rule Modal
The Capstone Experience

Team Spectrum Health

Department of Computer Science and Engineering
Michigan State University
Fall 2017
SPECTRUM HEALTH
One of the Best in the U.S.
We are one of the top children's hospitals for care in cancer, nephrology and urology.
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

Team Spectrum Health
Project Overview

Spectrum Health Symptom Checker

Team Spectrum Health
Grand Rapids, Michigan
Team Spectrum Health
Silas Brumwell, Jose Hernandez, Morgan Muyskens, Josh Miles, Chris McGrath
Team Spectrum Health
Project Plan Presentation

Screen Mockup

Flu (Influenza)
Influenza, commonly known as "the flu", is an infectious disease caused by an influenza virus. Symptoms can be mild to severe. The most common symptoms include: a high fever, runny nose, sore throat, muscle pains, headache, coughing, and feeling tired. These symptoms typically begin two days after exposure to the virus and most last less than a week. The cough, however, may last for more than two weeks.

E-visit
E-visits let you video chat now with a Spectrum Health doctor

Schedule an Appointment
Want to see a doctor in person? Tap here to schedule an appointment

MedNow
Fill out a simple questionnaire and a doctor will respond in less than 24hours
Team Spectrum Health
Project Plan Presentation
Team Spectrum Health
Project Plan Presentation

Architecture Diagram

Admin Portal
Team Spectrum Health Alpha Presentation
## Conditions

<table>
<thead>
<tr>
<th>Name</th>
<th>Service</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acne</td>
<td>MedNow</td>
<td>blackheads, pimples, pustules, rosacea, whiteheads, zits, pizza-face, skin inflammation</td>
</tr>
<tr>
<td>Allergies</td>
<td>MedNow</td>
<td>hay fever, aversion, hypersensitivity, sensitivity, susceptibility, vulnerability, allergic reaction</td>
</tr>
<tr>
<td>Back Pain</td>
<td>MedNow</td>
<td>sore back, stiff back, lower back pain</td>
</tr>
<tr>
<td>Birth Control</td>
<td>MedNow</td>
<td>the pill, contraceptive, morning after pill, estrogen, progesterone</td>
</tr>
<tr>
<td>Bites and Stings</td>
<td>MedNow</td>
<td>bug bite, bee sting, snake bite</td>
</tr>
<tr>
<td>Joint Sprain</td>
<td>Urgent Care</td>
<td>sprain, strain, twisted ankle, strained wrist, sprained wrist</td>
</tr>
<tr>
<td>Cardiac Arrest</td>
<td>Emergency Department</td>
<td>heart attack, bad ticker, chest pain, heartburn</td>
</tr>
</tbody>
</table>

© 2017 - DiagnosisRouting.Admin
Team Spectrum Health
Alpha Presentation

iPhone App
Team Spectrum Health

Alpha Presentation

Android Application

[Images of two smartphones displaying the Spectrum Health application interface, showing features such as Symptom Checker and a recommended service based on symptoms.]
Team Spectrum Health
Beta Presentation

iOS Application

Joint Sprain
Based on your symptoms of: ankle

Recommended Service:

Urgent Care
Available on a walk-in, no appointment necessary basis. Or hold a place in line and we'll even text you when it's time to show up.

Urgent Care is not for emergencies. Dial 911 or go to the nearest ER for sudden symptoms

Nearest Location:

Alpine Emergency
Address:
100 Michigan St NE
Grand Rapids, MI 49503
Phone:
616-391-6220
Hours:
M-F: 8:00am - 8:00pm
Team Spectrum Health
Beta Presentation

Android Application

The Capstone Experience
Team Spectrum Health Beta Presentation
<table>
<thead>
<tr>
<th>Name</th>
<th>Service</th>
<th>Synonyms</th>
<th>Edit</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergies</td>
<td>MedNow</td>
<td>hay fever, aversion, hypersensitivity, sensitivity, susceptibility, vulnerability, allergic reaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back Pain</td>
<td>MedNow</td>
<td>sore back, stiff back, lower back pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth Control</td>
<td>MedNow</td>
<td>the pill, contraceptive, morning after pill, estrogen, progesterone</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>MedNow</td>
<td>bug bite, bee sting, snake bite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac Arrest</td>
<td>Emergency Department</td>
<td>heart attack, bad ticker, chest pain, heartburn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acne</td>
<td>MedNow</td>
<td>blackheads, pimples, pustules, rosacea, whiteheads, zits, pizza-face, skin inflammation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint Sprain</td>
<td>Urgent Care</td>
<td>sprain, strain, twisted ankle, strained wrist, sprained wrist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Problem</td>
<td>Emergency Department</td>
<td>severe diarrhea</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Team Spectrum Health Design Day
The Capstone Experience

Team Symantec

Department of Computer Science and Engineering
Michigan State University
Fall 2017
Symantec gives you deep visibility and a single point of control for accessing data through a comprehensive solution that provides advanced information protection.

**Passwordless Authentication**
For network, online, or mobile apps

**Extend Passwordless Authentication**
To all cloud-based apps
The Capstone Experience

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 Symantec
Steven Kneiser, Yili Luo, Jacob Carl, Lauren Allswede, TJ Kelly
Team Symantec
Project Plan Presentation

Screen Mockup

Enter VIP Two-Factor Code

123456
Submit

Client
Proxy
VIP

Authenticating...
Screen Mockup: Converting SOAP to REST

Returning SOAP Response

Returning REST Response
Team Symantec
Project Plan Presentation

Architecture Diagram

Client

Proxy

VIP

REST API Request

SOAP API Request

Proxy Certificate

REST API Response

SOAP API Response
System Architecture

Client

Proxy (REST)

VIP (SOAP)

REST API Request with access token

SOAP API Request with client ID

REST API Response

SOAP API Response

Back End

Front End
Team Symantec
Project Plan Presentation

Screen Mockup

Returning SOAP Response

Returning REST Response
Team Symantec
Alpha Presentation

Entering One-Time Password (OTP)

Security Code Verification

Please enter Security Code from your VIP credential.

Security Code: 645943

Don't have VIP two-factor authentication? Download the app.
Team Symantec
Alpha Presentation

Translation Process

Security Code Verification

Please enter Security Code from your VIP credential.

Security Code: [input field]

Cancel Continue

Don’t have VIP two-factor authentication? Download the app.

Converting to SOAP...
Team Symantec
Alpha Presentation

Final JSON Body

```json
{
  "credentialIdField": "SYMZ86142563",
  "credentialTypeField": 0,
  "credentialTypeFieldSpecified": true,
  "transactionIdField": null,
  "pushDetailField": null,
  "authContextField": null,
  "requestIdField": "1234567890",
  "statusField": "AAA",
  "statusMessageField": "Success",
  "detailField": null,
  "detailMessageField": null
}
```
Team Symantec
Beta Presentation
Team Symantec
Beta Presentation

Login Screen
Team Symantec
Beta Presentation

Add Credentials Page
Team Symantec
Beta Presentation
Team Symantec
Beta Presentation

Translation Process

Security Code Verification

Please enter Security Code from your VIP credential.

Security Code: 645943

Continue
Cancel

Don’t have VIP two-factor authentication? Download the app.

Converting Response...
See VB Module UTL_PresentationSlidesSend2FB.

Team Symantec Design Day
The Capstone Experience

Team TechSmith

Department of Computer Science and Engineering
Michigan State University
Fall 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.
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 TechSmith
Joe Freedman, Pranay Kandru, Kevin Ahn, Jake Heisey, Jared Ballance
Team TechSmith
Project Plan Presentation

Screen Mockup
Team TechSmith
Project Plan Presentation

Architecture Diagram
Team TechSmith
Project Plan Presentation
Team TechSmith
Project Plan Presentation

Screen Mockup
Projects Page

Create Project

- Graduation
- Man on a Beach
- Football
- Solar Eclipse
Team TechSmith
Beta Presentation

Projects Page

Projects Page
Create Project

Graduation
Beach Day
Interstellar
Capstone
Team TechSmith
Beta Presentation

Animation Editor Page
Team TechSmith
Beta Presentation
Do not delete this textbox. It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.

Team TechSmith
Design Day
The Capstone Experience

Team TWO MEN AND A TRUCK

Department of Computer Science and Engineering
Michigan State University
Fall 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.

TWO MEN AND A TRUCK
Movers Who Care.

FOR HOME  FOR BUSINESS  RESOURCES  REVIEWS  GET YOUR FREE QUOTE

Franchising  Careers  About Us  Press  Contact  877.263.6444
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
    o From Video
    o Automatically
  ▪ Estimate Moving Cost
    o Compute Load / Weight / Space on Truck
    o Use TMaaT Existing Algorithm
  ▪ Integrate with Existing Quick Estimate Module

• Technologies
  ▪ CSS / HTML / JavaScript / PHP
  ▪ Video Conferencing
  ▪ Image Processing and Pattern Recognition
Team TWO MEN AND A TRUCK
Leon Ye, Clay Wilson, Daria Tarasova, James Williams, Kevin Dittman
Team TWO MEN AND A TRUCK
Project Plan Presentation

Customer Portal

End Call
Team TWO MEN AND A TRUCK
Project Plan Presentation
Team TWO MEN AND A TRUCK
Project Plan Presentation

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

See VB Module UTL_PresentationSlidesSend2FB.
Team TWO MEN AND A TRUCK
Project Plan Presentation

Screen Mockup

- Monitors: 3
- Chairs: 3
- Keyboards: 2
- Mouses: 2

Total: $80

Retry
Team TWO MEN AND A TRUCK
Alpha Presentation
Team TWO MEN AND A TRUCK
Alpha Presentation
Web Video Chat
Team TWO MEN AND A TRUCK
Alpha Presentation

Android Mobile App
Team TWO MEN AND A TRUCK
Alpha Presentation

iOS Mobile App

Your Items:
LivingRoom
  chair x7
Office
  tvmonitor x2
Patio
  chair x5
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Beta Presentation
Team TWO MEN AND A TRUCK
Beta Presentation

Customer Landing Page
Team TWO MEN AND A TRUCK Beta Presentation
Team TWO MEN AND A TRUCK
Beta Presentation

Text / Video Chat Page
Team TWO MEN AND A TRUCK
Design Day
The Capstone Experience

Team Union Pacific

Department of Computer Science and Engineering
Michigan State University
Fall 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
RailBuilder: The Great Race to Promontory

• Functionalities
  ▪ Create Railroad Building Game
  ▪ In 3D Representation of the World

• Features
  ▪ Support Creation of Game Levels
    o Deploy as Microsoft Windows App
    o Include Topology and Land Classification
    o Place Scenery in Realistic Fashion
    o Use Terrain Grade and Elevation
  ▪ Create Railroad Building Game
    o Between Two Locations in 3D
    o Using Limited Budget
    o Factoring Topology and Land Classification
    o 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
Team Union Pacific
Trever Daniels, Declan McClintock, Jacob Young, Kyle Bush, Zachary Brenz
Team Union Pacific
Project Plan Presentation

Screen Mockup

Building Worlds On Rails
Team Union Pacific
Project Plan Presentation
Team Union Pacific
Project Plan Presentation

Architecture Diagram

Win State: Connect Two Rail Stations
Place Track On The Terrain
Show Off All The Technology In The Base Application
Manage Budget

Save Load

Local Storage File

Unity 3D

Terrain Texturing Algorithm
Save and Load File Generator
Asset Placement Algorithm
3D Terrain Height Generator

Terrain Generating Application
ZIP File Interpreter

Terrain Data

The Capstone Experience
Team Union Pacific
Project Plan Presentation

Screen Mockup

Asset Placement Density: 00
Asset Placement Overlap: 00
Asset Placement Spacing: 00

Reset Values
Apply Changes
Team Union Pacific
Alpha Presentation

Map Creator

Name:
Enter Name...
Density: 61
Overlap: 25
Spacing: 93

Pin 1: 42.742, -84.495
Pin 2: 42.727, -84.472
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Alpha Presentation

Map Editor

Map Editor

Cleveland
Detroit
East Lansing

New Map
Team Union Pacific
Alpha Presentation
Team Union Pacific
Alpha Presentation

Map Viewer
Team Union Pacific
Beta Presentation

Map Creator

Name:

Enter Name...

Density: 50
Texture Smoothing: 1
Elevation Smoothing: 5

Latitude: 42.5927 Longitude: -84.7586
Pin 1

Latitude: 42.884 Longitude: -84.3578
Pin 2

Save
Team Union Pacific
Beta Presentation

Realistic Terrain Generation
Team Union Pacific
Beta Presentation

Game Terrain Generation
Team Union Pacific
Design Day
The Capstone Experience

Team Urban Science

Department of Computer Science and Engineering
Michigan State University
Fall 2017
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

VDA: Virtual Dealership Advisor

• 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
    o Speech
    o Language
    o Knowledge
    o Search
Team Urban Science
Will Renius, James Grenfell, Daniel Oforidankwa, Eric Zhou, Harry Singh
Team Urban Science
Project Plan Presentation

Screen Mockup

Welcome to the Urban Science dealership improvement analyzer!

You asked me...

How can I improve my mid-size sedan sales in the Detroit area?

Is this correct?
Team Urban Science
Project Plan Presentation
Team Urban Science
Project Plan Presentation

Architecture Diagram

Xamarin Framework

ASP.NET MVC

ASP.NET Web API

Controller

Virtual Dealership Adviser API

AWS Servers

Dealership Databases

Keyword/KPI mappings

Microsoft Cognitive Services

Text Analytics API

Bing Speech API

HTTP Request/Response

GET/POST

Read Requests
Team Urban Science
Project Plan Presentation
Team Urban Science
Project Plan Presentation

Screen Mockup
Here is what we've found for: "how do i improve my car sales"

Car Dealer Sales

252
kpi percentile 59.2%
You are performing above average in this measurement. However, you can always find ways to improve. Click the button below to view actions you can take to improve your Car Dealer Sales

View Actions

Look below to see your most needed areas of improvement

Honda Truck Dealer Effectiveness

83
kpi percentile 4.0%
You are performing far below average on this measurement. Click the button below to view actions you can take to

Honda Total Insell

687
kpi percentile 4.4%
You are performing far below average on this measurement. Click the button below to view actions you can take to

Honda Car Dealer Effectiveness

428
kpi percentile 5.1%
You are performing far below average on this measurement. Click the button below to view actions you can take to

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Alpha Presentation
Team Urban Science
Alpha Presentation

KPI Page (iOS)
Team Urban Science
Alpha Presentation
Here are your Action Items:

Your Dealer Sales has a value of 120. Use Premium MMO to take a look at your sales effectiveness to determine the level of additional opportunity.

Your Dealer Sales has a value of 120. Evaluate Dealer Business Intelligence to determine how your profit compares to other dealers.

Your Dealer Sales has a value of 120. Leverage Sales Leads to find additional interest in your area.
Universal Motors, You are performing poorly on Dealer Sales

Look at the actions below for tips on improving your performance

Action 1
Your Dealer Sales has a value of 399. Use Premium MMO to take a look at your sales effectiveness to determine the level of additional opportunity.

Search Again | Take Action

Send Email

Action 2
Your Dealer Sales has a value of 399. Evaluate Dealer Business Intelligence to determine how your profit compares to other dealers.

Search Again | Take Action

Send Email
Team Urban Science
Beta Presentation

Actions Page (Android/iOS)

Here are your Action Items:

- Use Premium MMO to take a look at your sales effectiveness to determine the level of additional opportunity.
  - TAKE ACTION

- Evaluate Dealer Business Intelligence to determine how your profit compares to other dealers.
  - TAKE ACTION

- Leverage Sales Leads to find additional interest in your area.
  - TAKE ACTION

Action 1:
Use Premium MMO to take a look at your sales effectiveness to determine the level of additional opportunity.

Action 2:
Evaluate Dealer Business Intelligence to determine how your profit compares to other dealers.

Action 3:
Leverage Sales Leads to find additional interest in your area.

Action 4:
Optimize your inventory mix to meet consumer demand in your area.
The Capstone Experience

Team Yello

Department of Computer Science and Engineering
Michigan State University
Fall 2017
Campus Recruiting

Complete solution for robust campus recruiting teams

REQUEST A DEMO

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

Automatic Resume Verification

• Functionalities
  ▪ Verify Resume Information
  ▪ Automatically and Instantly

• Features
  ▪ Design and Build Two Web Apps
    o For Universities and Workplaces to Upload Credentials
    o For Candidates to Upload Resumes
  ▪ Ensure Security and Privacy
    o Proof of Source
    o Proof of Existence / Timestamp
    o 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
Team Yello
Wan Kim, Nathaniel Hagan, Giorgio Maroki, Brandon Burt, Ryan Nagy
Team Yello
Project Plan Presentation

Screen Mockup

Verify Portal - Main

http://verification.yello.co/credentialupload

University Credential Upload

Welcome, university/workplace!
Please Upload Credentials

Add Field
First Name: John
Last Name: Doe
e.g. GPA: 3.65

Upload
Team Yello
Project Plan Presentation
Team Yello
Project Plan Presentation

Architecture Diagram

- Users
- Institutions
- Web Application
- Database
- Master Node
- Blockchain
- Amazon Web Services
Team Yello
Project Plan Presentation

Screen Mockup

Job Postings

http://application.yello.co/postings

Dearborn, MI

Chicag,q, IL

Seattle, WA

New York, NY

East Lansing, MI

Detroit, MI

Apply

Hello, candidate!

Please Upload Resume

Upload

Settings
Team Yello
Alpha Presentation

Candidate Settings
Team Yello
Alpha Presentation
Team Yello
Alpha Presentation

Credential Upload

First Name: Thomas
Last Name: Jefferson
GPA: 4.0
Previous Position: President

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It's used as a marker in VB code. See VB Module UTL_PresentationSlidesSend2FB.
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Credential Upload
Team Yello
Beta Presentation

Candidate Application View
Team Yello
Beta Presentation
Team Yello
Beta Presentation

Candidate Job Posting View
Team Yello Design Day
The Capstone Experience

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

Design Day Award Winners

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

Design Day Award Winners

December 8, 2017
Auto-Owners Exhibition Award
Team Amazon, Fall 2017
Faia: Fashion Artificial Intelligence Assistant
David He, Dominic Zottolo, Zizhen Wang, Danielle Schugars, Nikhil Ramu
Presented by Ross Hacker and Scott Lake of Auto-Owners Insurance
MSU Federal Credit Union Praxis Award

Team Yello, Fall 2017

Automatic Resume Verification

Brandon Burt, Ryan Nagy, Giorgio Maroki, Nathaniel Hagan, Wan Kim

Presented by April Clobes of MSU Federal Credit Union
TechSmith Screencast Award
Team Union Pacific, Fall 2017

RailBuilder: The Great Race to Promontory
Declan McClintock, Jacob Young, Zachary Brenz, Kyle Bush, Trever Daniels

Presented by Matt Dupuis of TechSmith
Urban Science Sigma Award
Team Michigan State University, Fall 2017
SEA: Spartan Experience App
Nayana Kodur, Patrick Pale, Roy Perryman, Ryan Johnson, Scott Swarthout
Presented by Elizabeth Klee of Urban Science
The Capstone Experience

Dr. Wayne Dyksen

Department of Computer Science and Engineering
Michigan State University
Fall 2017
Humana
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