The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2018
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., 1279 Anthony Hall
- Presentations By
  - Professor
  - Teams
    - Status Report Presentations
    - Formal Presentations
      - Project Plan
      - Alpha
      - Beta
    - Project Videos
  - Guest Speakers
All-Hands Meetings

- 01/09: Capstone Overview
- 01/11: Project Plan
- 01/16: Risks and Prototypes
- 01/18: Schedule and Teamwork
- 01/23: Team Status Report Presentations
- 01/25: Team Status Report Presentations
- 01/30: Team Project Plan Presentations
- 02/01: Team Project Plan Presentations
- 02/06: Team Project Plan Presentations
- 02/08: Team Project Plan Presentations
- 02/13: Resume Writing and Interviewing
- 02/15: Creating and Giving Presentations
- 02/20: Team Alpha Presentations
- 02/22: Team Alpha Presentations
- 02/27: Team Alpha Presentations
- 03/01: Team Alpha Presentations
- 03/06: (Spring Break, No Meeting)
- 03/08: (Spring Break, No Meeting)
- 03/13: Team Status Report Presentations
- 03/15: Team Status Report Presentations
- 03/20: Design Day and the Project Videos
- 03/22: Camtasia Demo
- 03/27: Intellectual Property
- 03/29: Ethics and Professionalism
- 04/03: Team Beta Presentations
- 04/05: Team Beta Presentations
- 04/10: Team Beta Presentations
- 04/12: Team Beta Presentations
- 04/17: Status Report Presentations
- 04/19: Status Report Presentations
- 04/24: Project Videos
- 04/26: Project Videos and All Deliverables
- 04/26: Design Day Setup
- 04/27: Design Day
- 05/03: Project Videos
The Capstone Experience

Team Accenture

Department of Computer Science and Engineering
Michigan State University
Spring 2018
NEW ISN’T ON ITS WAY.
WE’RE APPLYING IT RIGHT NOW.

Accenture is answering real business challenges for our clients through innovation and deep industry knowledge. Here’s how.
Team Accenture
Project Overview

AMAP: Automated Malware Analysis Platform

• Functionalities
  ▪ Automate Analysis of Malware
  ▪ Provide All-Inclusive Platform

• Features
  ▪ Ingest Malware Samples
  ▪ Decode Configuration Settings
  ▪ Recover Malware Artifacts
  ▪ Create Relationships in iDefense Platforms
  ▪ Save Payloads in Malware Repository

• Technologies
  ▪ Accenture iDefense Malware Repository
  ▪ Accenture iDefense IntelGraph
  ▪ Database Technologies
    o MongoDB
    o mySQL
  ▪ Python
Team Accenture
Griffin Metevia, Sam Kling, Julian Ellis, Andrew Mitchell, Teng Xu
Team Accenture
Project Plan Presentation

Screen Mockup: Malware Search
Team Accenture
Project Plan Presentation

Architecture Diagram

AMAP Modules

iDefense
Part of Accenture Security

Malware Database

AMAP Dashboard

Data Server

python

mongoDB, django

HTML, CSS, JS

Amazon Web Services
Team Accenture
Project Plan Presentation

Screen Mockup: AMAP Dashboard

Malware Processed Per Hour

Container Status

- Starting Up: 4%
- Running: 18%
- Idle: 2%
## Team Accenture Alpha Presentation

### Current Process Status Page

![Screenshot of a web application interface with processes listed](Image)

**Processes**

<table>
<thead>
<tr>
<th>#</th>
<th>SHA256</th>
<th>MDS</th>
<th>Overall Progress</th>
<th>Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>b3d9caef5ecfb226bcbdbdf83f9353135e5b6950e94aecd879e66edfaaf53467f38299</td>
<td>eb6b8b584704e2fb5996e6a8831a5e</td>
<td>18-1-27 1:54:24</td>
<td>View</td>
</tr>
<tr>
<td>2</td>
<td>dff02aca124264f8e5f5f9c735e46e9f65d511ee7752db290a9af2eac3d4dd</td>
<td>4871e4752b9d67662ac9435b84014391dc</td>
<td>18-2-2 1:19:32</td>
<td>View</td>
</tr>
<tr>
<td>3</td>
<td>dc7f89f1a43c0a62ac42e6a26f7664ec0eab166637bed46</td>
<td>35018a1f022c8ad937765c97377b3</td>
<td>18-2-3 1:32:45</td>
<td>View</td>
</tr>
<tr>
<td>4</td>
<td>2e1126bf5a26af2d3f45e125359e5779f26a473d49904d7497b6105</td>
<td>9490ede8704112753dd688957f10b159b</td>
<td>18-2-3 4:00:23</td>
<td>View</td>
</tr>
<tr>
<td>5</td>
<td>9ac3acc0d46a70884091364b52e135346ca78153b2f8f1e477d6bcb36f5abe</td>
<td>68b3296a3893e34099c97c738ad5c9c940</td>
<td>18-2-5 12:52:02</td>
<td>View</td>
</tr>
</tbody>
</table>
Team Accenture
Alpha Presentation
Team Accenture
Alpha Presentation
Dashboard
Team Accenture
Beta Presentation

AMAP Wizard

AMAP Wizard

AMAP is Currently Running

Config Options:
- Time between each pull from database: 10 seconds
- Files retrieved during each pull: 1

Active Modules:
- ratdecoder
- file-type
- SHA256
- sha1
- Cuckoo

Return to Dashboard  Quit AMAP
### My Modules

<table>
<thead>
<tr>
<th>Module</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ratdecoder</td>
<td>Update</td>
<td>Delete</td>
</tr>
<tr>
<td>file-type</td>
<td>Update</td>
<td>Delete</td>
</tr>
<tr>
<td>SHA256</td>
<td>Update</td>
<td>Delete</td>
</tr>
<tr>
<td>sha1</td>
<td>Update</td>
<td>Delete</td>
</tr>
<tr>
<td>Cuckoo</td>
<td>Update</td>
<td>Delete</td>
</tr>
</tbody>
</table>
Team Accenture
Beta Presentation

AMAP Dashboard

- Todays Processed Files
- New Malicious Files: 1125
- New Non-Malicious Files: 500
- Average Processing Time
- Time: 3.5 minutes

- File Types
- Windows Executable
- Microsoft Office Documents
- Other

- Malware Processed Per Hour
- New Malware Samples Per Hour
Team Accenture @ Design Day
Andrew Mitchell, Teng Xu, Julian Ellis, Griffin Metevia, Sam Kling
A warm welcome
Inviting guest room ideas

Recommended deals: Last-Minute Deals
See all deals

Holiday savings

90th Anniversary Limited-Edition DVD Giftset
AMPED: Amazon Marketplace Podcast Earnings Detection

- **Functionalities**
  - Play Podcasts
  - Show Listeners Related Amazon Products
  - Support Listener’s Favorite Content Producer

- **Features**
  - Create Integrated Audio Player
  - Enable Uploading of Podcast by Producer
  - Transcribe Speech to Text
  - Comprehend Content
  - Find Related Amazon Products
  - Package Results Into API for Player

- **Technologies**
  - AWS Compute & Database Services
  - Amazon Transcribe
  - Amazon Comprehend
  - Amazon Item Search
  - Amazon Queuing and Notification Services
  - Amazon Elastic Beanstalk and API Gateway
Team Amazon
Project Plan Presentation

Screen Mockup: Web App Dashboard
Team Amazon
Project Plan Presentation

Architecture Diagram

Amazon RDS
- Store data
- Retrieve data

Web Application
- Request data
- JSON response
- Retrieve file contents
- Store file

Python Django API
- Running on an EC2 Instance

Lambda Microservices
- Transcribe
- Comprehend
- Product Search

Update job progress
Add job to respective queue
Begin Transcribe
Begin Comprehend
Begin Product Search
Team Amazon
Project Plan Presentation
Team Amazon
Project Plan Presentation
Screen Mockup: Podcast Details Page
Team Amazon
Alpha Presentation
Team Amazon
Alpha Presentation

AMPED Dashboard

Plant Money

The economy, sustained, with storms and surprises. Imagine you could call up a friend and say, “Meet me at the bar and tell me what’s going on with the economy.” Now imagine that’s actually a fun evening. That’s what we’re going for at Planet Money. People seem to like it.

<table>
<thead>
<tr>
<th>Title</th>
<th>Length</th>
<th>Status</th>
<th>Updated Time</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What America Sells To The World</td>
<td>2.45 mins</td>
<td>Completed</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>Episode 821: The Other Davos</td>
<td>63.39 mins</td>
<td>Completed</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>Janet Yellen's Mystery Story</td>
<td>16.36 mins</td>
<td>Transcribing</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>Weed GDP</td>
<td>82.48 mins</td>
<td>Failed</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>The Black Car Fund</td>
<td>17.00 mins</td>
<td>Failed</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>Episode 820: Pi Is For Phosphorus</td>
<td>70.48 mins</td>
<td>Transcribing</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>Amazon, IPOs And The Queen Of The Demonweb Pits</td>
<td>96.51 mins</td>
<td>Comprehending</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>A Mafia Story With a Twist</td>
<td>88.00 mins</td>
<td>Completed</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
<tr>
<td>Episode 819: Tax Me If You Can</td>
<td>22.14 mins</td>
<td>Failed</td>
<td>2018-02-20 01:15:25</td>
<td>🎧 📖</td>
</tr>
</tbody>
</table>
The Capstone Experience

Team Amazon
Alpha Presentation

Product Detail Page
### AMPED Dashboard

#### Plant Money

The economy, explained, with stories and surprises. Imagine you could call up a friend and say, “Meet me at the bar and tell me what’s going on with the economy.” Now imagine that’s actually a fun evening. That’s what we’re going for at Planet Money. People seem to like it.

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<td></td>
</tr>
</tbody>
</table>
Team Amazon
Beta Presentation

Podcast Library
Team Amazon
Beta Presentation

Product Display

FIRE TV STICK WITH ALEXA VOICE
REMOTE
$39.99

Check the following products to support your favorite podcast.
Team Amazon @ Design Day
Dillon Stock, Zach Whitener, Cam Korzecke, Chess Luo, Hansheng Zhao
The Capstone Experience

Team Aptiv

Department of Computer Science and Engineering
Michigan State University
Spring 2018
APTV
Making mobility work

We design it. Engineer it. Enable it.

Unifying the power of mobility.
Team Aptiv
Project Overview

CMS: Cybersecurity Management System

- Functionalities
  - Automate Aptiv’s Cybersecurity Process
  - Visualize and Analyze Data Trends

- Features
  - Modules for all Cybersecurity Processes
    - Threat Analysis and Risk Assessment
    - Vulnerability/Penetration Assessment
    - Mitigation Remediation
    - Incident Response
  - Database Visualizations and Analysis
    - Threats/Risks
    - Vulnerabilities
    - Incidents
    - Mitigations
  - Provide Communication Through Task Manager and Request System

- Technologies
  - ASP.NET (C#)
  - CSS/HTML
  - MS SQL
  - Synopsys Protecode
  - Microsoft Azure
Team Aptiv
Dillon Brown, Clayton Peters, Ashtaan Rapanos, Winton Qian, Wei Jiang
Team Aptiv
Project Plan Presentation

Screen Mockup: Vulnerability Assessment

CSGW > Vulnerability Assessment
Status: Complete

Components 19
Vulnerable 9
No known vulnerabilities 10

Vulnerabilities 160
Critical 38
Major 114
Minor 8

Licenses 9
Copyleft 2
Permissive 6
 LGPL 1
Proprietary 0

Component
openssl 1.0.1c
getlib 2.17

CVSS >= 7.0 CVSS >= 4.0 CVSS < 4.0 Historical Triaged Clean
Vulnerabilities
15 59 0 108
14 27 0 49
Team Aptiv
Alpha Presentation

Dashboard
Team Aptiv
Alpha Presentation

Product Dashboard
Team Aptiv
Alpha Presentation
Project Page
Team Aptiv
Beta Presentation
Product Page
Team Aptiv @ Design Day
Winton Qian, Dillon Brown, Ashtaan Rapanos, Clayton Peters, Wei Jiang
The Capstone Experience

Team Auto-Owners

Department of Computer Science and Engineering
Michigan State University
Spring 2018
For What Matters Most

Insurance built around your needs by a local independent agent

FIND AN AGENT FOR A QUOTE

Why choose an independent agent?

Pay Your Bill

Report a Claim

Policies to Meet Your Needs
Team Auto-Owners
Project Overview

IMAGINE: IMAGe INtake Experience

• Functionalities
  ▪ Evaluate Physical Environments (for Insurance Purposes)
  ▪ Leverage Virtual Reality
  ▪ Create Virtual Environments Using Spherical Camera

• Features
  ▪ Support Image Import From Spherical Camera
  ▪ Classify the Environment
  ▪ Detect and Identify Objects
  ▪ Create Virtual Environment
  ▪ Provide Playback, Navigation and Inspection
  ▪ Build and Display Inventory View

• Technologies
  ▪ Unity Game Engine
  ▪ Oculus Rift and Touch Controllers
  ▪ Oculus Rift Sensor
  ▪ Ricoh Theta V Spherical Camera
  ▪ Image Processing and Recognition

The Capstone Experience

Auto-Owners
INSURANCE
LIFE • HOME • CAR • BUSINESS
Lansing, Michigan
Team Auto-Owners
Project Plan Presentation

Screen Mockup: Web Application
Team Auto-Owners
Project Plan Presentation
Team Auto-Owners

Project Plan Presentation

Screen Mockup: VR User Interface
Team Auto-Owners
Alpha Presentation

Web: Inventory List

Inventory View

Smith Home
324 Maple Street

<table>
<thead>
<tr>
<th>Image</th>
<th>Object</th>
<th>Room</th>
<th>Characteristics</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>sink</td>
<td>bathroom #1</td>
<td>Pedestal</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Shower/Tub</td>
<td>Bathroom #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Mirror</td>
<td>Bathroom #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bed</td>
<td>Bedroom #1</td>
<td>Queen</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Drawer</td>
<td>Bedroom #1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Team Auto-Owners
Alpha Presentation

Object Detection
Team Auto-Owners Alpha Presentation
Team Auto-Owners
Alpha Presentation

VR: Selecting Object Nodes
Team Auto-Owners Beta Presentation
Team Auto-Owners
Beta Presentation
Website Environments Page
Team Auto-Owners
Beta Presentation
Object Recognition Bounding Boxes
Team Auto-Owners
Beta Presentation

VR Object Nodes and Info Display
Team Auto-Owners @ Design Day
Reece Cole, Nick Frederick, Xinyun Zhao, Zack Geizer, Sean Larabell
The Capstone Experience

Team Dow

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Team Dow
Project Overview

Virtual Reality Simulation for Railcar Loading

• Functionalities
  ▪ Teach How to Load a Railcar Safely
  ▪ Via First Person Virtual Reality Game

• Features
  ▪ Support Two Levels of Difficulty
    o Non-Certified
    o Certified
  ▪ Handle Various Scenarios
    o Normal Filling
    o Response to Spills
  ▪ Manage Player Points
    o Award for Positive Actions
    o Deduct for Negative Actions
  ▪ Enable Interaction with Game Objects
    o Personal Protective Equipment (PPE)
    o D-Rails
    o Slide Valves
  ▪ Use Audio to Indicate When Action Needed
  ▪ Simulate Different Weather Conditions
  ▪ Provide Feedback to Player at Game End

• Technologies
  ▪ Unity Game Engine
  ▪ Vive and Touch Controllers
  ▪ Vive SDK
  ▪ Microsoft .NET / C#
  ▪ Xamarin
Team Dow
Kyle White, Matthew Smith, John Yoo, JD Hayward, David Wang
Team Dow
Project Plan Presentation

Screen Mockup: The Loading Area
Team Dow
Project Plan Presentation
Team Dow
Project Plan Presentation

Software

3DS MAX
Audacity
C#

Hardware

STEAM VR
VRTK

Language

SDK

Assets

The Capstone Experience
Team Dow
Alpha Presentation

Load Arm and Spreader
Team Dow
Alpha Presentation
Team Dow
Alpha Presentation

Derailer
Team Dow
Beta Presentation
Team Dow
Beta Presentation

Load Arm and Spreader
The Capstone Experience

Team Dow
Beta Presentation

Derail
Team Dow @ Design Day
Matthew Smith, David Wang, Kyle White, John Yoo, JD Hayward
The Capstone Experience

Team DRIVEN-4

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Driven To Enable Your Success!

We are technology leaders who were in your shoes yesterday. We can help you achieve your PLM, IoT & CyberSecurity journey like no-one else.
Team DRIVEN-4
Project Overview

2020 Business in a Box

• Functionalities
  ▪ Develop Futuristic Business Environment
  ▪ Base on Internet of Things (IoT) Architecture
  ▪ Target 2020 and Beyond

• Features
  ▪ Model Five to Ten Components
  ▪ Connect Components via WiFi
  ▪ Validate and Verify Design via Simulation
  ▪ Develop Manufacturing Processes and Artifacts
  ▪ Demonstrate Capabilities for Collaboration and Integration
  ▪ Utilize Various Product Development Software Systems

• Technologies
  ▪ Computer Aided Design (CAD) / Siemens NX and PTC CREO
  ▪ Product Lifecycle Management (PLM) / Siemens Teamcenter and PTC Windchill
  ▪ Design Simulation Tools / PTC and Siemens
  ▪ Factory Floor Simulation / Siemens
  ▪ IoT Platforms / PTC ThingWorx and Siemens MindSphere
  ▪ 3D Printing
  ▪ Conveyor and Sight System
  ▪ Augmented and Virtual Reality (VR/VR) / PTC Thingworx Studio
Team DRIVEN-4
Nick Mikelsavage, Brian Pinsky, Charles Carroll, Betty Wu, Sam Coffey
Team DRIVEN-4
Project Plan Presentation

Screen Mockup: Manufacturing
Team DRIVEN-4
Project Plan Presentation
Team DRIVEN-4
Project Plan Presentation
Team DRIVEN-4
Project Plan Presentation

Screen Mockup: AR Service
Team DRIVEN-4
Alpha Presentation
Team DRIVEN-4
Alpha Presentation

Manufacturer’s Web Portal Dashboard
Team DRIVEN-4
Alpha Presentation
Customer Mobile Application
Team DRIVEN-4
Alpha Presentation
Team DRIVEN-4
Alpha Presentation

3D Model for Augmented Reality
Team DRIVEN-4
Beta Presentation

Manufacturer Dashboard
## Team DRIVEN-4

### Beta Presentation

#### Device Simulator and AR

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Running</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master Bedroom</td>
<td>Matress</td>
<td>✔️</td>
</tr>
<tr>
<td>Main Laundry</td>
<td>Washer</td>
<td>✔️</td>
</tr>
<tr>
<td>Bad Device 1</td>
<td>Broken Accelerometer</td>
<td>✔️</td>
</tr>
<tr>
<td>Bad Device 2</td>
<td>Dying Batteries</td>
<td>✔️</td>
</tr>
<tr>
<td>Hacker</td>
<td>Malicious Device</td>
<td></td>
</tr>
<tr>
<td>Second Bedro...</td>
<td>Matress</td>
<td></td>
</tr>
</tbody>
</table>

- **Add New Device**
- **Stop All**
- **Save Devices**
- **Load Devices**
Team DRIVEN-4 @ Design Day
Nick Mikelsavage, Charles Carroll, Sam Coffey, Betty Wu, Brian Pinsky
The Capstone Experience

Team GM

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Team GM
Project Overview

Plato: DevBot for Microsoft Teams

- Functionalities
  - Create and Manage Virtual Machines
  - Manage and Run Test Cases
  - Target GM Developers

- Features
  - Provide Single Unified Environment
  - Integrate with Microsoft Teams
  - Design Simplified User Controls
  - Use Natural Language Processing

- Technologies
  - CSS / HTML5 / JavaScript
  - Microsoft
    - .NET / C#
    - Bot Framework
    - Language Understanding Intelligent Services (LUIS)
    - Team Foundation Server
    - Teams / O365
    - Azure
  - Natural Language Processing (NLP)
  - RESTful Web Services and JSON
Team GM
Alex Lepird, Tao Tao, Simeon Goolsby, Matthew Eaton, Colin Coppersmith
Team GM
Project Plan Presentation

Screen Mockup: VM Creation

Baron
- ID: V000002389
- OS: Ubuntu
- Memory: 120GB
- Cores: 4
- Status: Running

Can do! Here's your virtual machine with ID V000002389:

ID: V000002389
OS: Ubuntu
Memory: 120GB
Cores: 4
Status: Running

Cancel
Confirm

Start a new conversation, use @ to mention someone
Team GM
Project Plan Presentation
Team GM
Project Plan Presentation

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

Screen Mockup: Web Dashboard

- Microsoft Azure
- Microsoft Azure
- Visual Studio Team Foundation Server

- Azure Bot Service
- .NET Framework
- Microsoft Teams

The Capstone Experience
Team GM
Alpha Presentation

VM Creation Through Bot
Team GM
Alpha Presentation
Virtual Machines Dashboard
Team GM
Alpha Presentation

Information on Clicked Test

The Capstone Experience
Team GM
Beta Presentation
Team GM
Beta Presentation
Virtual Machines Dashboard
Team GM
Beta Presentation

Tests Dashboard
Team GM
Beta Presentation
Team GM

Beta Presentation

Creating a VM

Colin Coppersmith (MSU) 11:33 PM

gm-plato create a debian virtual machine with 16gb of ram and 4 cores and a 256gb hard drive

Collapse all

gm-plato 11:33 PM
I can help you create a virtual machine! Let’s get started.

What would you like to name your virtual machine?

Colin Coppersmith (MSU) 11:33 PM

gm-plato CoolDebianVM

gm-plato 11:33 PM
Would you like to create a Debian VM with 16GB of RAM, 4 Cores, and 256GB of hard disk space?

Colin Coppersmith (MSU) 11:33 PM

gm-plato yes

gm-plato 11:33 PM
OK! Your virtual machine has been created! Click ‘start’ to start it!

CoolDebianVM

OS: Debian
RAM: 16GB
Cores: 4
Disk Space: 256GB
Status: New
Team GM @ Design Day
Tao Tao, Simeon Goolsby, Alex Lepird, Matthew Eaton, Colin Coppersmith
The Capstone Experience

Team Herman Miller

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Team Herman Miller
Project Overview

Adjust: Augmented Reality Chair Adjustment

• Functionalities
  ▪ Simplify Adjusting High Performance Office Chair
    ○ Ergonomic
    ○ “Developer Chair”
  ▪ Use Chatbot to Explain How

• Features
  ▪ Automatically Identify Chair via Photo
  ▪ Provide Step-by-Step Instructions
  ▪ Customize to User’s Ergonomic Needs
  ▪ Support Apple iOS and Google Android Devices
  ▪ Leverage Facebook Messenger

• Technologies
  ▪ Apple iOS / Swift
  ▪ Google Android / Java
  ▪ Image Processing and Recognition
  ▪ Natural Language Processing (NLP)
  ▪ Facebook Messenger
Team Herman Miller
Kevin Gaban, Mike Bremiller, Kyle Kinsey, Jacob Weber, Han Huang
Team Herman Miller
Project Plan Presentation

Screen Mockup: Identifying Chair

Tap the "Adjust" button and sit in your chair to begin guided adjustment.

Aeron (remastered)
Team Herman Miller
Project Plan Presentation

Architecture Diagram

3D assets → Model Target Generator → Camera Input

Vuforia matches model target to camera input

Unity displays appropriate interactive 3D model

iOS Builds ← Xcode

Android Builds

The Capstone Experience
Team Herman Miller
Project Plan Presentation

Screen Mockup: Interactive 3D Model

Step 1: Height Adjustment
Locate and tap the highlighted height adjustment level on your Aeron chair.
Team Herman Miller
Alpha Presentation
Interactive Model
Front handles on the right and left sides of the seat.

In the proper position, you will have approximately three-fingers of clearance between the back of your knees and the seat edge.

To Increase or Decrease Depth: Lift your thigh weight from the front of the seat. Gently lift up the front handles on the right and left sides to disengage the lacking seat depth adjustment. Slide seat forward or back into proper depth for use; then release downward to lock the seat.
Step 1: Height Adjustment

Return to Camera  Back  Next

Team Herman Miller
Alpha Presentation
The Capstone Experience
Team Herman Miller
Alpha Presentation

Main Menu

- **Camera**: Use your phone's camera to detect your Herman Miller chair.
- **Gallery**: Select from our gallery of Herman Miller office chairs.
- **About Us**: Learn more about Herman Miller and our range of products.
Team Herman Miller
Beta Presentation

Chair Detection Interface
Getting Started...

Sit all the way back in your seat.

Make sure your entire back is making contact with the backrest.

Let's Go!
Team Herman Miller
Beta Presentation
Team Herman Miller
Beta Presentation

Firebase Analytics Dashboard
Team Herman Miller @ Design Day
Kevin Gaban, Jacob Weber, Mike Bremiller, Kyle Kinsey, Han Huang
The Capstone Experience

Team Meijer

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Santa Bucks are back!
last time this year!

save over $50
on any PS4 Pro*
Team Meijer
Project Overview

Thrifty: Personal Shopping Assistant

• Functionalities
  ▪ Streamline Shopping Experience
  ▪ Leverage Mobile App
  ▪ Interact by Voice or Chatting

• Features
  ▪ Create Mobile Apps
    o Apple iOS
    o Google Android
  ▪ Determine Product Information
    o Location in Store
    o Stock
    o Sale
    o Coupon
  ▪ Compare Prices to Other Stores
  ▪ Integrate with mPerks
  ▪ Send Notifications to In-Store Team Members

• Technologies
  ▪ Microsoft
    o .NET Framework (C# / ASP.NET)
    o Bot Framework
    o Language Understanding Intelligent Service (LUIS)
    o Azure
    o Application Insights
    o Visual Studio
  ▪ Xamarin
  ▪ Meijer Web Services
  ▪ SQL Server / MongoDB
Team Meijer
Emerson Chen, Zach Richardson, Megan Lippert, Jacob Bonesteel, Aaron Carlso
Team Meijer
Project Plan Presentation

Screen Mockup: Chat Interface

Hi, I'm Thrifty, your personal shopping assistant. Feel free to ask me anything, or you can tap this message for some more options.

Ask Thrifty

mPerks  Help

These are some of the FAQ's tap one to begin your search.

"Is there a coupon for ___?"

"Is ___ in stock?"

"What are the competitor prices for ___?"

"Where can I find ___?"

Ask Thrifty

mPerks  Help
Team Meijer
Project Plan Presentation
Team Meijer
Project Plan Presentation

Architecture Diagram

- iOS
- Apple Speech
- Android
- Google Speech

Bot Framework

Azure
- mperks
- SQL
- Competitor Pricing

LUIS
- BLUEBIRD
Team Meijer
Project Plan Presentation
Screen Mockup: Functionality

- Soda Pop
  - Coca-Cola
  - Pepsi
  - Dr. Pepper

- Out-Of-Stock
  - Click here to alert a Meijer Team Member

- Coupon Available

- Competitor Prices

- Ask Thrifty
  - mPerks
  - Help

- Coca-Cola: 24 pk
  - $7.99 ea
  - Aisle 12

- Competitor Prices on a 24 pack of Coke.
  - Coca-Cola: 24 pk
    - Meijer: $7.99
    - Walmart: $7.99
    - Kroger: $7.99
    - Target: $8.99

The Capstone Experience
Team Meijer
Alpha Presentation

Home Screen
Hi, I'm Thrifty, your personal shopping assistant! Feel free to ask me anything, or you can tap this message for some more options.

The following are some of the FAQs:

- Is there a coupon for ____?
- Is ____ in stock?
- What are the competitor prices for ____?
- Where can I find ____?

Ask Thrifty

These are some of the FAQs. Tap one to begin your search:

- "Is there a coupon for ____?"
- "Is ____ in stock?"
- "What are the competitor prices for ____?"
- "Where can I find ____?"
Team Meijer
Alpha Presentation

Product Page and Conversations
Team Meijer
Beta Presentation

Chat Interface

Hi, I'm Thrifty, your personal shopping assistant! Feel free to ask me anything, or you can tap the help button below for some more options.

is coke cheaper elsewhere

Here is what I found for our competitor's price:

Diet Coke - 20 oz, bottle
Meijer: $1.89
Target: $1.89
Walmart: $1.78

Coke Mexico - 12.0 oz
Meijer: $1.19
Target: $1.27

Ask Thrifty
Team Meijer
Beta Presentation

Product Page
Team Meijer
Beta Presentation
Team Meijer
Beta Presentation

mPerks
Team Meijer @ Design Day
Jacob Bonesteel, Aaron Carlso, Megan Lippert, Zach Richardson, Emerson Chen
The Capstone Experience

Team Michigan State University

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Team Michigan State University
Project Overview

Pulse: Classroom Engagement System

• Functionalities
  ▪ Provide Real-Time Feedback and Communication During Class
  ▪ Keep Track of Student Attendance

• Features
  ▪ Provide Web App for Instructors
    o Create Questions, Surveys and Quizzes
    o Open Questions and Quizzes at Specific Times
    o View and Save Results in Real Time
      ➢ Class Results with Charts and Graphs
      ➢ Individual Results
    o Push Content to Student Devices
    o View Student Questions and Comments
    o Track and View Class Attendance
  ▪ Provide Mobile App for Students
    o Answer Survey and Quiz Questions During Class
    o View Instructor-Posted Content
    o Post Questions and Comments
  ▪ Take Attendance with Mobile Devices via iBeacons

• Technologies
  ▪ Apple iOS / Swift
  ▪ Google Android / Java or Kotlin
  ▪ Amazon Web Services (AWS)
  ▪ iBeacons
Team Michigan State University
Owen McMahon, Adam Blaida, Lauren Malik, Yaqeen Al-Marhooon, David York, Andrew Schafer
Team Michigan State University
Project Plan Presentation

Android and iOS Design
Team Michigan State University
Project Plan Presentation

Architecture Diagram

- Estimote Beacons
- Mobile Student Client
- Sockets
- Instructor Web Client
- API Gateway
- Elastic Beanstalk
- EC2
- RDS
- SNS
- Amazon Web Services

The Capstone Experience
Team Michigan State University Project Plan Presentation
Team Michigan State University
Alpha Presentation

Question 1
00:20

Which university resides on the banks of the Red Cedar River?

- University of Michigan
- Wayne State University
- Michigan State University
- Oakland University

Submit

The Time Complexity of this Algorithm is:

- O(N)
- CONSTANT
- O(100N)
- O(N^2)

SUBMIT
The Time Complexity of this Algorithm is:

- $O(n)$
- Constant
- $O(n^2)$
- $O(\log N)$
Quiz on Friday has been moved. The quiz over ray tracing and OpenGL will be next week, Tuesday the 12th.

Problem Solved
Thanks for the help everyone!

Study Group
Would anyone like to meet to prepare for the quiz Friday?

Homework 2 Reminder
A lot of you have forgotten to change the app name from "app_nanne" to your username. If you were one of these forgetful souls, please resubmit.

Problems with Visual Studio
It is brought to my attention that many of you are having trouble with step8. Make sure you are using version 5.0 of OpenGL plugin.

Classroom Engagement App ALPHA
Team Michigan State University
Beta Presentation

Mobile - Forum
Team Michigan State University
Beta Presentation

Web Question View – Short Answer

The Capstone Experience
Team Michigan State University @ Design Day
David York, Andrew Schafer, Lauren Malik, Yaqeen Al-Marhoon, Owen McMahon, Adam Blaida
The Capstone Experience

Team Mozilla

Department of Computer Science and Engineering
Michigan State University
Spring 2018
The new **Firefox**

**Fast for good.**

With 2x the speed, built-in privacy protection and Mozilla behind it, the new Firefox is the better way to browse.

[Download Firefox](https://www.mozilla.org/en-US/firefox/download/new/)
Team Mozilla
Project Overview

Dark Theme Darkening

- Functionalities
  - Increase Customizability of Firefox
  - Leverage Firefox Quantum Theming API
- Features
  - Provide Ability to Customize New Areas
    - Menus
    - Sidebars
    - In-Product Pages
  - Apply CSS Custom Variables and JavaScript
  - Leverage Inter-Process Communication
    - Pass Messages
    - Between Privileged and Unprivileged Code
  - Support Apple macOS, Microsoft Windows and Linux
  - Ship with Future Release of Firefox

- Technologies
  - CSS
  - JavaScript
  - Python
  - XUL / XBL / HTML
  - Mercurial
  - IRCCloud
  - Bugzilla
  - Review Board
  - Microsoft Windows
  - Apple macOS
  - Linux

Mountain View, California
Team Mozilla
Vivek Dhingra, Connor Masini, Dyl Stokes, Bogdan Pozderca, Zhengyi Lian
Screen Mockup: In-Product Page
Team Mozilla
Project Plan Presentation

Architecture Diagram

Firefox Theme

Chrome Theme
Team Mozilla
Project Plan Presentation

Screen Mockup: Menus
The Capstone Experience

Team Mozilla

Alpha Presentation

Auto-Complete Styling
Team Mozilla
Alpha Presentation

Find Bar and Menu Styling
Team Mozilla
Beta Presentation
Address Bar Auto-Complete Styling
The Capstone Experience

Team Mozilla

Beta Presentation

Sidebar Styling
Team Mozilla
Beta Presentation
Team Mozilla
Beta Presentation
In-Product Page Styling
Team Mozilla @ Design Day
Vivek Dhingra, Zhengyi Lian, Connor Masini, Dyl Stokes, Bogdan Pozderca
The Capstone Experience

Team MSUFCU

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Digital Assistant and Personal Financial Coach

- **Functionalties**
  - Offer Personalized Financial Coaching Services
  - Use Digital Assistant

- **Features**
  - Answer Questions and Provide Recommendations
    - Can I afford to buy that?
    - How much can I spend at the store today?
    - What do people like me spend on rent?
  - Take Actions and Provide Services
  - Handle Text and Voice Input
  - Create Middleware API to MSUFCU
  - Analyze Anonymized Account and Transaction Data
  - Support Apple iOS and Google Android Devices
  - Integrate with Various Services
    - Facebook Messenger
    - Apple iMessage
    - Amazon Alexa
  - Provide Administrative Web Portal

- **Technologies**
  - CSS / HTML / PHP / JavaScript
  - Apple iOS / Swift
  - Google Android / Java
  - Facebook Messenger API
  - Apple iMessage
  - Amazon Echo / Alexa Skills Kit
  - Machine Learning (ML)
  - Natural Language Processing (NLP)
  - MySQL / Encryption Based on SQL Standards
Team MSUFCU
Project Plan Presentation

Architecture Diagram

Admin Portal

Middleware

MSUFCU SQLite Database

Amazon Alexa

iOS App, Android App, Amazon Alexa, Facebook Messenger, and iMessage

Building Dreams Together
Team MSUFCU
Project Plan Presentation

Screen Mockup: Web Admin Portal
Alexa, transfer $500 from my checking account to another checking account.

Welcome, Kathryn. How may I help you?

Please enter the account number of the account you would like to transfer to.

Please confirm transferring $500 from your checking account.
Team MSUFCU

Alpha Presentation

Android App

MSUFCU Chatbot

Avengers

MSUFCU Chatbot

Thanks! You are now logged in.

add expense

MSUFCU Chatbot

Which expense would you like to add?

rent

MSUFCU Chatbot

How much is your new expense?

120

MSUFCU Chatbot

Successfully added expense.
Team MSUFCU
Alpha Presentation
Team MSUFCU Beta Presentation
Team MSUFCU

Beta Presentation

Android and iOS Chatbots

MSUFCU Chatbot

Hello Beverly Crusher! How can I help you today?

what do people like me spend on groceries?

Edgar

Would you filter by age or income, Beverly?

Members in your income demographic spent an average of $613.34 last month on Groceries, Beverly. Is there anything else I can help you with?

Edgar

Hello Kathryn Janeway! How can I help you today?

Can I afford to buy a laptop

A 'laptop' costs about $539.99 according to Google Shopping. You should probably not be spending $539.99 anytime soon, Kathryn.
I see you spent $124.62 at RadioShack, Taco Bell, Toys ‘R’ Us a number of times last month, Elim. You could save $18.69 if you cut back just 15% over the next month and $224.28 if you continue this trend over the next year! Would you like me to help you implement this savings plan?
Team MSUFCU
Beta Presentation
Welcome, Kathryn. How may I help you?

Alexa, transfer $500 from my checking account to another checking account.

6000.

Please say the account number of the account you would like to transfer to.

Please say your Alexa PIN to confirm this transaction of $500 to account 6000.
Team MSUFCU @ Design Day
Patrick Dame, Rachel Beard, Michael Carter, Dallas Nowak, Dane Holmberg
The Capstone Experience

Team Phoenix Group

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Team Phoenix Group
Project Overview

Customer Service System with Chatbot

• Functionalities
  ▪ Enhance Customer Service Experience
  ▪ Ensure Easy Access to Product User Manuals
  ▪ Answer Customer Questions via Chatbot

• Features
  ▪ Create Web and Android Apps
  ▪ Manage Quick Reference Guides (QRCs)
    o Ingest by Photo or PDF
    o Determine Keywords via OCR
    o Search via Text and Voice
    o Display Like E-Book
  ▪ Provide Companion Administrative App
  ▪ Implement Chatbot on Corporate Website
    o Product Inventory
    o Available QRCs
    o Various Frequently Asked Questions (FAQs)
  ▪ Drive Customers to Contact Sales Reps

• Technologies
  ▪ CSS / HTML / PHP / JavaScript
  ▪ Google Android Tablets and Phones / Java
  ▪ Microsoft Bot Framework
  ▪ Microsoft Language Understanding Intelligent Service (LUIS)
  ▪ Docker
  ▪ Kubernetes
  ▪ MongoDB
  ▪ Optical Character Recognition (OCR)
Team Phoenix Group
James Finch, Sarah Fillwock, Dan Shumaker, Fatema Alsaleh, Aman Goshu
Team Phoenix Group
Project Plan Presentation

Quick Reference Guide Viewer

Search for QRG ...

advanced QRG search

Hello, Amanda

Add QRG

VERIFONE VX 680
XEVA440
RETAIL

First Data FD130
750FD130
RETAIL

VERIFONE VX 520
XEVA440
RESTAURANT

showing top viewed
Screen Mockup: QRG Edit Screen

Team Phoenix Group
Project Plan Presentation
Team Phoenix Group
Project Plan Presentation

Architecture Diagram

Chatbot

Microsoft Bot Framework

LUIS NLP

MongoDB Server

MongoDB Driver

Windows ASR

Desktop

Windows App

Windows OCR

Tablet
Team Phoenix Group
Project Plan Presentation
Team Phoenix Group
Project Plan Presentation

Screen Mockup: QRG Edit Screen

Quick Reference Guide Viewer

manufacturer
Verifone

terminal type
VX 680

application type
Retail

product number
0300034

version
XEVA440

Add comment ...

< >
Team Phoenix Group
Alpha Presentation

QRG Viewer View Screen

The Capstone Experience
Team Phoenix Group
Alpha Presentation
Team Phoenix Group
Alpha Presentation

Customer Service Chatbot

The Phoenix Group
Rising to New Levels in POS Delivery

Welcome to
The Phoenix Group

SEARCH PRODUCTS  BROWSE PRODUCTS  OUR SERVICES  ABOUT  LOGIN  TPG CANADA

Hello

Good day! This is the Phoenix Chatbot. How can I help you?

I would like to place an order

There are a few ways to order. Call 866-559-7672; Fax 636-329-1710; Email orders@phoenixgrouppos.com. After you have a TPG Customer ID, you can place an order through our TPG Elite online portal.

Ask something...
Team Phoenix Group
Beta Presentation
Team Phoenix Group
Beta Presentation

QRG Manager Application: Home Screen
Team Phoenix Group
Beta Presentation

QRG Manager Application: Administration Screen

![QRG Manager Administration Screen]

- User list:
  - James Abbott
  - Fatma Alsaleh
  - Lauren Anderson
  - Jackson Avery
  - Olivia Baker
  - Dan Bell
  - Mary Bunch
  - Jonny Dowdall
  - Bob Dyksen
  - Wayne Dyksen
  - Emily Enbody
  - Charles Erickson
  - Sarah Fillwock
  - James Finch
  - James Mariani
  - Erin Owen

- Search user field

- User permissions:
  - Lauren Anderson
    - Administrator
    - Add QRG
    - Modify/Remove QRG

- Buttons:
  - Delete User
Team Phoenix Group @ Design Day
Sarah Fillwock, James Finch, Aman Goshu, Fatema Alsaleh, Dan Shumaker
The Capstone Experience

Team Proofpoint

Department of Computer Science and Engineering
Michigan State University
Spring 2018
GARTNER MQ LEADER IN ENTERPRISE INFORMATION ARCHIVING FOR 6 YEARS RUNNING

GET THE GARTNER REPORT
Team Proofpoint
Project Overview

Next Generation Malware Analysis Platform

• Functionalities
  ▪ Process Millions of Malware Samples Daily
  ▪ Develop New and Innovative Techniques

• Features
  ▪ Build Lifecycle Processing Dashboard
  ▪ Leverage Many Malware Tools
  ▪ Create Malware Signatures Automatically
  ▪ Identify “Like” Samples and Clusters
  ▪ Visualize Malware Clusters
    o Provide Drill Down Capability
    o Show Signatures Created
  ▪ Prioritize Samples for Further Analysis

• Technologies
  ▪ Malware Sandboxing
  ▪ Network Intrusion Detection Systems (IDS)
  ▪ Statistical Analysis
Team Proofpoint
Graham Thomas, Yash Patel, Crystal Lewis, Brad Doherty, George Zhao
Team Proofpoint
Project Plan Presentation

Screen Mockup: Nodal Graph

<table>
<thead>
<tr>
<th>Flagged</th>
<th>Trojans</th>
<th>Rootkits</th>
<th>Worms</th>
<th>Viruses</th>
</tr>
</thead>
</table>

**Batch Information**
- Files Processed: 103/250
- Time Elapsed: 00:15:23
- Flagged Files: 15

**Flagged Files**
- TMP1CE2.TMP
- Memo.pdf
- DriverPack.exe
- Virus.exe
- NotSpyware.jar
Team Proofpoint
Project Plan Presentation
Team Proofpoint
Project Plan Presentation
Team Proofpoint
Alpha Presentation
## Analyzed Malware

<table>
<thead>
<tr>
<th>SID</th>
<th>File Name</th>
<th>File Type</th>
<th>Flagged?</th>
<th>YARA Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C6A13AFC583109680CCB54FB2B3D14E4BA06E9C7A363C884B1383C5EE81FAA</td>
<td>PE32 executable (DLL) (GUI) Intel 80386 (stripped to external PDB), for MS Windows</td>
<td>No</td>
<td>XMRIG_Miner</td>
</tr>
<tr>
<td>8</td>
<td>48678EC33D22C571774ACE303C4C771B46C8121FBE46AFA807E54787671DE13</td>
<td>PE32 executable (DLL) (GUI) Intel 80386 (stripped to external PDB), for MS Windows</td>
<td>No</td>
<td>XMRIG_Miner</td>
</tr>
</tbody>
</table>
In Depth Analysis of 6BDE693CE8EB45445C0B38E3DE3AF97E0D21C8D33E8408B52E711EA67ABFD27

### File Statistics and Information

<table>
<thead>
<tr>
<th>File Information</th>
<th>Statistic Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>File Extension</td>
<td>PE32+ executable (console) x86-64, for MS Windows</td>
</tr>
<tr>
<td>File Size</td>
<td>330.8 KB (330752 bytes)</td>
</tr>
<tr>
<td>Total Analysis Time</td>
<td>00:00:00.296</td>
</tr>
<tr>
<td>Static Analysis Time</td>
<td>00:00:00.296</td>
</tr>
<tr>
<td>Dynamic Analysis Time</td>
<td>00:00:00</td>
</tr>
</tbody>
</table>

### File Hashes

<table>
<thead>
<tr>
<th>Hash Types</th>
<th>File Hash</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE Hash</td>
<td>3N9K3gORTEU3IH0KToM1R4QxMV1Wk8qdfgJy4RF-+Nhjv4RN7EN0b21RAS15pq0M8+yf</td>
</tr>
<tr>
<td>SHA256</td>
<td>6BDE693CE8EB45445C0B38E3DE3AF97E0D21C8D33E8408B52E711EA67ABFD274</td>
</tr>
<tr>
<td>SHA1</td>
<td>8205F5POd4M9732H203936ETDC9C29AB8740676</td>
</tr>
<tr>
<td>MD5</td>
<td>09CB662A69194AB330F189C066EE3CBDB</td>
</tr>
</tbody>
</table>

### Similar Malware

<table>
<thead>
<tr>
<th>File Name</th>
<th>PE Hash</th>
</tr>
</thead>
<tbody>
<tr>
<td>317EB99D1F90BBB05AF36B3921C94BD109E0D9F63B0C1A4DE35ABA913E67</td>
<td>3N9K3gORTEU3IH0KToM1R4QxMV1Wk8qdfgJy4RF-+Nhjv4RN7EN0b21RAS15pq0M8+yf</td>
</tr>
<tr>
<td>4E33D223ED5CC5D3D1E5592AAB97792032CF3435962743E2C7E983B1E4</td>
<td>3N9K3gORTEU3IH0KToM1R4QxMV1Wk8qdfgJy4RF-+Nhjv4RN7EN0b21RAS15pq0M8+yf</td>
</tr>
<tr>
<td>6957CB02EB793BB7363C70866093D3CD4ACE35F777BA93F93377704277E78</td>
<td>3N9K3gORTEU3IH0KToM1R4QxMV1Wk8qdfgJy4RF-+Nhjv4RN7EN0b21RAS15pq0M8+yf</td>
</tr>
</tbody>
</table>
Team Proofpoint
Beta Presentation

Top 25 Yara Rules Matched Graph
Team Proofpoint @ Design Day
Yash Patel, Graham Thomas, George Zhao, Crystal Lewis, Brad Doherty
The Capstone Experience

Team Quicken Loans

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Providing Affordable Mortgages and Award-Winning Client Service for More than 30 Years
Fundamenta: Trust in New Home Construction

- Functionalities
  - Enable Collaborative New Home Construction
  - Include All Players
- Features
  - Create Responsive Web App
  - Allow Choice of Home Model, Exterior and Interior
  - Support Various Roles
    - Home Buyer
    - Builder
    - Multiple Contractors
    - City Inspector
  - Use Dynamic Workflow
  - Alert Players When Action Assigned or Due
  - Provide Full Transparency
    - Deliverables
    - Milestones
    - Workflow
    - Complete Transaction History
  - Utilize Blockchain for Storage
    - Home Buyer’s Build Requirements
    - Workflow Tasks
- Technologies
  - CSS / HTML / JavaScript / AngularJS
  - Microsoft .NET
  - Blockchain
  - Hyperledger
  - Microsoft Azure or Amazon Web Services (AWS)
Team Quicken Loans
Vishal Adusumilli, Riley Annis, Erin O'Hara, Turner Anderson, Jaiwant Bhushan
Team Quicken Loans
Project Plan Presentation

Screen Mockup: User Login

Fundamenta by Quicken Loans

Username
Enter a username...

Password
Enter a password...

Role
- Home Buyer
- Builder
- Contractor

Log In or Sign Up
Team Quicken Loans
Project Plan Presentation

Architecture Diagram

Web App
- React JS
- .NET Core
- Service Layer
- Database Layer
- SQL Server

Hyperledger
- Fabric
  - Blockchain
  - Chaincode
  - Blockchain State Storage
- Composer
  - Business Network Model
  - Transactions
  - Access Control
  - Identities
  - REST Server

SQL Database

REST API

Azure
Team Quicken Loans
Project Plan Presentation
Team Quicken Loans
Project Plan Presentation

Screen Mockup: Build Workflow

Fundamenta by Quicken Loans

House Options
- Model
- Exterior
- Interior

Conversation
- Home Buyer: How much longer?
- Builder: I'll let the contractor answer.
- Contractor: About 1 month left.
- Home Buyer: Great, thank you!

Cancel
Save
Submit
Team Quicken Loans
Alpha Presentation

Dashboard
Team Quicken Loans
Alpha Presentation

Build Status
Team Quicken Loans Beta Presentation
Team Quicken Loans
Beta Presentation

Dashboard
Team Quicken Loans
Beta Presentation

The Capstone Experience

Progress
Team Quicken Loans @ Design Day
Jaiwant Bhushan, Vishal Adusumilli, Erin O'Hara, Turner Anderson, Riley Annis
The Capstone Experience

Team Rook

Department of Computer Science and Engineering
Michigan State University
Spring 2018
OPTIMIZE SECURITY OPERATIONS

Force is a Security Operations Management Platform that equips your team for success by optimizing security resource workflows, metrics, and outcomes.
Team Rook
Project Overview

Endpoint Data Monitoring and Analysis Agent

• Functionalities
  ▪ Detect and React to Security Threats
  ▪ Capture and Analyze Agent Health Metrics and Log Files

• Features
  ▪ Create Endpoint Dashboard
    ○ Enable Remote Agent Configuration
    ○ Do Health Checks and Data Analysis
    ○ Display Health Check Information
    ○ Create Alert Thresholds.
  ▪ Store Metrics and Log Files
    ○ RESTful Endpoint
    ○ Amazon Simple Storage Service (S3)
    ○ Locally
  ▪ Implement State Awareness
  ▪ Support Cross Platform Compatibility
  ▪ Integrate with Rook’s Force Platform

• Technologies
  ▪ Force Platform
  ▪ Go
  ▪ JavaScript / JSON
  ▪ Python / Django
  ▪ React / Redux
  ▪ Ubuntu 16.04
  ▪ Amazon Simple Storage Service (S3)
  ▪ RESTful Web Services
Team Rook
Jeremy Specht, Bohao Gao, Vikram Thakur, Jared Clark, Drew Gilbertson
Team Rook
Project Plan Presentation

Screen Mockup: System Health

The Capstone Experience
Team Rook
Project Plan Presentation

Architecture Diagram

- Lambda
- S3 API
- Elasticsearch
- REST API
- React JS
- REST API
- Django
- REST API
- Local Storage
- Agents
- S3
Team Rook
Alpha Presentation

Force Platform
Team Rook
Alpha Presentation

Force Platform
Team Rook
Alpha Presentation
Team Rook
Alpha Presentation

Storage System
Team Rook
Beta Presentation
Team Rook
Beta Presentation

Agent Management Console

The Capstone Experience
Team Rook
Beta Presentation
Agent Configuration Tab

Agent Management Console

Change Interval:
- Current Interval: 100 seconds
- New Interval: [input field]
- Update

Log File Paths:
- [input fields]
- Save Changes

Add Path:
- Add
- Remove Path:
- Remove

Send Feedback
Team Rook
Beta Presentation
Windows Agent Product Validator

ROOK Agent System

Step 1: Please Choose your Operation System
- Unix
- Windows

Step 2: Please Input your Key
Key: [blank]

Step 3: Click “Submit” button to verify your ClientKey

Welcome to ROOK Agent
Team Rook @ Design Day
Jared Clark, Jeremy Specht, Bohao Gao, Vikram Thakur, Drew Gilbertson
The Capstone Experience

Team SpartanNash

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Volunteer Tracking System

- **Functionalities**
  - Simplify Tracking of Associate Volunteer Hours
  - Use Web and Mobile Apps

- **Features**
  - Create Apps for Volunteer Reporting
    - Web
    - Apple iOS
    - Google Android
  - Handle Various Inputs
    - Associate ID
    - Name and Location of Place
    - Type of Service
    - Number of Hours
  - Track Hours
  - Enable Photo and Video Uploading
  - Utilize Geolocation for Easy Location Reporting
  - Gamify with Badging and Leader Board
  - Send Notifications
    - Volunteers
    - Program Facilitators
  - Build Companion Web Administrative App

- **Technologies**
  - CSS / HTML / JavaScript
  - Apple iOS / Swift
  - Google Android / Java
  - React Native
  - MySQL

---

Team SpartanNash
Project Overview

Volunteer Tracking System

- **Functionalities**
  - Simplify Tracking of Associate Volunteer Hours
  - Use Web and Mobile Apps

- **Features**
  - Create Apps for Volunteer Reporting
    - Web
    - Apple iOS
    - Google Android
  - Handle Various Inputs
    - Associate ID
    - Name and Location of Place
    - Type of Service
    - Number of Hours
  - Track Hours
  - Enable Photo and Video Uploading
  - Utilize Geolocation for Easy Location Reporting
  - Gamify with Badging and Leader Board
  - Send Notifications
    - Volunteers
    - Program Facilitators
  - Build Companion Web Administrative App

- **Technologies**
  - CSS / HTML / JavaScript
  - Apple iOS / Swift
  - Google Android / Java
  - React Native
  - MySQL

---

SpartanNash
Grand Rapids, Michigan
Team SpartanNash
Project Plan Presentation

Screen Mockup

LeaderBoard

Timeline/Newsfeed
Lorem ipsum dolor sit amet et delectus
Lorem ipsum dolor sit amet et delectus

Username
Name

Feed
Team SpartanNash
Project Plan Presentation
Team SpartanNash
Project Plan Presentation

Screen Mockup

Username
Password
SIGN IN
Forget your Password?
Recover

Volunteer Form

Organization Name *
Enter The Organization Name

Volunteer Activity or Event Name *
Enter The Event Name

Area of support *
None selected

Area not on the list(optional)
Enter the areas

Commitment *
One Time

Date of Event *
01/29/2018

Hour of Event *

Message
Enter extra message here...
Submit →
Team SpartanNash
Alpha Presentation

Website Admin Panel
Team SpartanNash
Alpha Presentation

Newsfeed and Profile
Volunteer Tracking Form

Volunteer Hour Form

Organization Name

Volunteer Activity or Event Name

Area of Support: Advocacy

Commitment Type: One Time

Date Start of Event

Length of Volunteer Time (hours)

Please Describe Your Experience

Submit
Leaderboards
Team SpartanNash
Beta Presentation

Newsfeed

The Capstone Experience
Team SpartanNash @ Design Day
Abbott Wang, Tianyi Li, Aleks Bonev, Denis Andreev, Nino Candela
The Capstone Experience

Team Spectrum Health

Department of Computer Science and Engineering
Michigan State University
Spring 2018
SPECTRUM HEALTH
Team Spectrum Health
Project Overview

Spectrum Health Go

• Functionalities
  ▪ Improve Patient and Visitor Experience
  ▪ Help Navigate Spectrum Health Facilities

• Features
  ▪ Create Apple iOS and Google Android Apps
  ▪ Provide Real-Time On-Screen Directions
  ▪ Guide via Pre-Configured Waypoints
  ▪ Use Optical Character Recognition (OCR)
  ▪ Collect Anonymous Route Data
  ▪ Provide Administrative Web App
    - Create and Print Waypoints
    - Configure and Improve Routes
    - Add New Locations and Routes

• Technologies
  ▪ CSS / HTML / JavaScript
  ▪ Apple iOS / Swift
  ▪ Google Android / Java
  ▪ Microsoft .NET / C#
  ▪ Microsoft SQL Server
  ▪ Microsoft Azure
  ▪ GitHub / ZenHub
  ▪ Optical Character Recognition (OCR)
  ▪ Identity Server
Team Spectrum Health
Andrew Astakhov, Collin Skonieski, Rachel Polus, Pierce Neal, Xin Zhao
Team Spectrum Health
Project Plan Presentation

Screen Mockup: Android App
Team Spectrum Health
Project Plan Presentation
Team Spectrum Health
Project Plan Presentation

Screen Mockup: Web App

SPECTRUM HEALTH

SpectrumGO LOBBY Waypoint

Paths

To Operating Room
Directions: Turn left. Walk forward until Angle: 90
Update

To Nursing Ward
Update

To Cardiology
Directions: Turn around. Take the first Angle: 180
To Pharmacy
Update

Directions: Take the staircase on your Angle: 90
Update

Add Delete
Team Spectrum Health
Alpha Presentation
Team Spectrum Health
Alpha Presentation

iOS Application
Team Spectrum Health
Alpha Presentation

Android Application
Team Spectrum Health
Beta Presentation
Web Application Waypoint Page

SPECTRUM HEALTH

Waypoints At Engineering Building

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Name</th>
<th>QR Code</th>
<th>Edit</th>
<th>Manage Connections</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Building</td>
<td>Capstoned Lab</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Building</td>
<td>Room 3353</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Building</td>
<td>Room 3355 (Pantry)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering Building</td>
<td>Drinkin' Fountain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Home  Create New
Team Spectrum Health
Beta Presentation

Android Application
The Capstone Experience

Team Symantec

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Securing the Cloud Generation

Fueled by the world's largest civilian threat intelligence network

LEARN MORE

REPORT

Symantec Named a Leader in

REPORT

Gartner Positions Symantec as
Detecting Security Threats from User Authentications

- **Functionalities**
  - Detect Security Threats
  - Use Symantec Validation and ID Protection (VIP)
  - Visualize VIP Authentication Patterns

- **Features**
  - Ingest VIP Reporting Service Log Data
  - Create Operational Dashboard with Alerting
    - Number of Authentications Per Time Unit
    - Successful vs Failed Authentications
    - Unique Users Per Time Unit
    - Distribution of Risk Reasons
  - Create Security Dashboard and Alerting
    - Trends of Failed Authentications
    - Find Risky Users
    - Flag Increases in Credential Use
  - Integrate with Splunk Enterprise and Splunk Cloud

- **Technologies**
  - Symantec VIP Reporting Service
  - Splunk
  - Amazon Web Service (AWS)
  - RESTful Web Services
  - Elastic Search, Kibana, Logstash
  - Apache Spark
Team Symantec
Robert Novak, Abby Urbanski, Stephen Alfa, Keerthana Kolisetty, Echo Wu
Team Symantec
Project Plan Presentation

Screen Mockup: Dashboard in Splunk

Operational Trends
Panels that display basic statistics of VRF authentications

Authentications Across Different Device Types

Total Number of Authentications

Success vs. Failure Authentications

19,809

Number of Authentications Over Last Seven Days

Success vs Fall Attempts For Each Device Type
Team Symantec
Project Plan Presentation
Team Symantec
Project Plan Presentation
Team Symantec
Alpha Presentation

ELK Dashboard

Dashboard / Operational Dashboard

Search... (e.g. status:200 AND extension:PHP)

Record Count

6,226
Record Count

Number of Users

477
Number of Users

Authentication Status

- Success
- User does not have a...

Authentication per Hour

Number of Authentications

Users Created Over Time

The Capstone Experience
Team Symantec  
Alpha Presentation

ELK Alerting on Slack
**Team Symantec Beta Presentation**

**Splunk: Operation Trends Dashboard**

### Operational: Trends

**Total Authentications Per Day**
- Time Range: All time
- Count: 150,000

**Total Authentications Per Minute**
- Time Range: Previous week
- Chart showing hourly authentication trends over a week.
Team Symantec

Beta Presentation

Splunk: Geolocation Dashboard
Team Symantec
Beta Presentation

ELK: Operational User Analysis Dashboard
Team Symantec @ Design Day
Keerthana Kolisetty, Abby Urbanski, Echo Wu, Robert Novak, Stephen Alfa
The Capstone Experience

Team TechSmith

Department of Computer Science and Engineering
Michigan State University
Spring 2018
Create Powerful Visuals. No Design Skills Needed.

TechSmith makes it simple for everyone to create high-quality screenshots, screencasts, and videos.
Team TechSmith
Project Overview

Snagit and Camtasia Output Extensibility

• Functionalities
  ▪ Simplify Sharing of Media Produced by TechSmith Products
  ▪ Extend Output Capabilities of Snagit and Camtasia

• Features
  ▪ Use TechSmith Extensibility Framework
  ▪ Build Three Plugins
    o TechSmith Video Review
    o Wistia
    o Student Choice
  ▪ Design Highly Polished User Experience (UX)
  ▪ Provide Media Upload Service with Link
  ▪ Create Independent Test Harness

• Technologies
  ▪ Microsoft .NET / C#
  ▪ Windows Presentation Foundation (WPF)
  ▪ TechSmith Cloud SDK
  ▪ TechSmith Extensibility Framework (TEF)
  ▪ Managed Extensibility Framework
Team TechSmith
Ryan Schiller, Logan Arent, Collin Dillinger, Carter Chamberlain
Team TechSmith
Project Plan Presentation

Screen Mockup: Output Mockups
Team TechSmith
Project Plan Presentation

Architecture Diagram

TechSmith Desktop Applications

TechSmith Extensibility Framework

Test Harness

Windows Desktop

Snagit®

Camtasia®

WISTIA

TechSmith Video Review™

Imgur

Media Hosting APIs
Team TechSmith
Project Plan Presentation

Screen Mockup: Test Harness

Choose File ...

Output To:

- TechSmith Video Review
- Wistia
- Imgur

C:\Users\Capstone\Images\...
Team TechSmith

Alpha Presentation

SnagIt Share Menu
Team TechSmith
Alpha Presentation

TechSmith Video Review

TechSmith Video Review Output Options

- TechSmith Account
  - Logged in as: example@gmail.com
  - Learn more about TechSmith Accounts.

TechSmith Video Review
- Title: test
- Review-by Date: 2/28/2018
- Reviewer Prompt: Would love some feedback on the colors

Upload  Cancel
Team TechSmith
Beta Presentation

Updated Imgur Options
Team TechSmith
Beta Presentation

Updated Wistia Options

[Image of Wistia Output Options window]

[Image of Select a Project window]

Project: Wistia Beta Project

Created: Monday, February 25, 2018 5:08 PM
Updated: Sunday, April 1, 2018 10:38 PM
Media Count: 1
Name: Wistia Beta Project
Description: Storage for Wistia Beta media.

[Buttons: Upload, Cancel]
Team TechSmith
Beta Presentation

Beta Test Harness
Team TechSmith @ Design Day
Ryan Schiller, Logan Arent, Carter Chamberlain, Collin Dillinger
The Capstone Experience

Team Union Pacific

Department of Computer Science and Engineering
Michigan State University
Spring 2018
The Spirit Locomotive Honors U.S. Armed Forces

Locomotive No. 1943, The Spirit, spotlights Union Pacific's relationship with thousands of veterans who helped build America after defending the United States – a tradition dating back to the company's founding. Find out more.
Team Union Pacific
Project Overview

“Alexa, what’s my work schedule look like?”

• Functionalities
  ▪ Provide Information About Upcoming Work Assignments
  ▪ Utilize Voice Activated Digital Assistant
  ▪ Target Trainmen, Yardmen and Enginemen (TY&E)

• Features
  ▪ Create Suite of Mobile Apps
    o Responsive Design
    o Support Apple iOS and Google Android Devices
  ▪ Manage Users
    o Register
    o Identify
    o De-Activate
  ▪ Support All Major Voice Interfaces
    o Amazon Echo
    o Google Home
    o Apple Siri
    o Microsoft Cortana
  ▪ Use JSON Web Services
  ▪ Write Documentation for Each System

• Technologies
  ▪ Java
  ▪ JavaScript / AngularJS
  ▪ Amazon Echo
  ▪ Google Home
  ▪ Apple Siri
  ▪ Microsoft Cortana
  ▪ Natural Language Processing (NLP)
Team Union Pacific
Jared McMillan, Daniel Agbay, M Kim, David Hubble, Austin McGee
Team Union Pacific
Project Plan Presentation

Screen Mockup: Mobile Application
Team Union Pacific
Project Plan Presentation
Alexa, open the PST app.

Hello Sparty, what can I help for you today?

What’s my times out?

You are currently 4th out right now.

Thanks, that’s all.
Team Union Pacific
Alpha Presentation

Google Assistant Interaction

Sure. Getting the test version of my test app.

Hello Team Union Pacific, welcome to PSTechnologies Schedule App Alpha! You can request information about a train lineup or request your current position in the employee queue.

please show me train line up 1234

Ok! Here is information for lineup 1234. Train QWE456, departure time 9:00 a.m. Train ABC123, departure time 12:00 p.m. Train PIP987, departure time 1:00 p.m. Is there anything else I can do for you?

yeah what's my current position

Your current position is 10th.

Sure. Getting the test version of my test app.

Hello Team Union Pacific, welcome to PSTechnologies Schedule App Alpha! You can request information about a train lineup or request your current position in the employee queue.

please show me train line up 1234

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yeah what's my current position

Your current position is 10th.
Team Union Pacific
Alpha Presentation

Alexa Interaction

Alexa, open my PST app.
Welcome to PST application, you may request train lineup info or your queue position.
Show me train lineup 1234.
Here is train lineup 1234: MSU2018, departure time 10:00am, ABC123 departure time 3:00pm.
Would you like to check other things?
Yes, what's my position?
You are 5th.
Would you like to check other things?
Stop.
Team Union Pacific
Alpha Presentation

Web App Reporting Page
Hello Jared, welcome to PSTechnologies Schedule App Alpha! You can request information about a train lineup or request your current position in the employee queue.

Show me lineup 1234

Ok Jared, here is information for train lineup 1234: qwe456 at 09:00AM, abcd123 at 12:00PM, pip987 at 01:00PM. Is there anything else I can help you with?

Change my time format to Military time

Ok Jared, your time format is now Military time.

Show me lineup 1234

Ok Jared, here is information for train lineup 1234: qwe456 at 09:00, abcd123 at 12:00, pip987 at 13:00. Is there anything else I can help you with?
The Capstone Experience

Team Union Pacific
Beta Presentation

Change Username

I'd like to change what you call me

Ok! What would you like to change it to?

Daniel

Done, I'll now call you Daniel.

Goodbye

My test app left the conversation

Talk to my test app

Okay. Let's get the test version of my test app.

Hello Daniel, welcome to PSTechnologies Schedule App Alpha! You can request information about a train lineup or request your current position in the employee queue.
Team Union Pacific
Beta Presentation

Web App Dashboard
Team Union Pacific @ Design Day
David Hubble, Jared McMillan, Austin McGee, M Kim, Daniel Agbay
The Capstone Experience

Team Urban Science

Department of Computer Science and Engineering
Michigan State University
Spring 2018
EVERYONE HAS AN OPINION.
WE HAVE SCIENCE.

Since the day we started, we’ve been a force for change. We started with a problem to solve. We scrutinized it, developed a theory, tested it and applied the solution. And we have the same approach today, we listen to our clients’ needs and find a solution. We’re curious, objective, empirical and determined. Through this spirit, we invented The Power of 4™ formula to bring scientific discipline to the business world. It’s how we are Guiding Business Through Science.
Team Urban Science
Project Overview

Mobile Maestro

• Functionalities
  ▪ Control Maestro Exoskeletal Arm
  ▪ Use Mobile App with Voice Input

• Features
  ▪ Handle Various Arm Controls
    o Up, Down, Lock
    o Lock, Standby
  ▪ Provide Voice Control
    o Safe Word for Home/Reset Position
    o All Functions
  ▪ Implement Self-Leveling with Calibration
  ▪ Support Apple iOS and Google Android
  ▪ Collect Usage Statistics

• Technologies
  ▪ Maestro Exoskeletal Arm
  ▪ CSS / HTML / JavaScript
  ▪ Microsoft .NET / C#
  ▪ Apple iOS / Swift
  ▪ Google Android / Java
  ▪ Bluetooth Low Energy (BLE)
  ▪ Natural Language Processing (NLP)
Team Urban Science
Mustafa Jebara, Dane Rosseter, Samantha Oldenburg, Alex Wuillaume, Shun Ran
Team Urban Science
Project Plan Presentation

Screen Mockup: Home Screen
Team Urban Science

Project Plan Presentation

Architecture Diagram

Azure

Internet

SQL

Bluetooth

Commands

The Capstone Experience
Team Urban Science
Project Plan Presentation

Screen Mockup: Leveling Settings

Adjust leveling calibration

Raise

Lower
Team Urban Science
Alpha Presentation

No Buttons Active
Team Urban Science
Alpha Presentation

Up and Lock Active
Team Urban Science
Alpha Presentation

Setting Page
Team Urban Science
Beta Presentation
Main Page – No Buttons Active
Team Urban Science
Beta Presentation

Main Page – Up and Lock Active
Team Urban Science Beta Presentation
Team Urban Science

Beta Presentation

Auto Leveling Setup
Team Urban Science @ Design Day
Shun Ran, Dane Rosseter, Samantha Oldenburg, Alex Wuillaume, Mustafa Jebara
The Capstone Experience

Team USAA

Department of Computer Science and Engineering
Michigan State University
Spring 2018
WE PROUDLY SERVE MILITARY MEMBERS AND THEIR FAMILIES

Since 1922, we have stood by our members. We've provided years of guidance and assistance—from helping establish financial independence, to raising a family, to retirement.

WHO WE SERVE
Team USAA  
Project Overview

LIMElight: Life Insurance Made Easy

• Functionalities
  ▪ Obtain Life Insurance Quote
  ▪ Improve the Experience
    o For Applicant
    o For Insurer
  ▪ Decrease Duration, Complexity and Cost

• Features
  ▪ Provide Smooth User Experience
    o Responsive Web
    o Native Apple iOS and Google Android Apps
  ▪ Generate Personalized Quote
    o Use Minimal Inputs from Applicant
    o Leverage Machine Learning
    o Match Underwritten Premium Closely
  ▪ Create Health Record Blockchain
    o Controlled by Applicant
    o Ensure Privacy and Security
    o Accessible via RESTful API

• Technologies
  ▪ Apple iOS / Swift
  ▪ Google Android / Java
  ▪ Blockchain
  ▪ Machine Learning / Python
  ▪ Microsoft Azure
  ▪ RESTful Web Services
  ▪ JavaScript / REACT / Angular 2+ / Vue

San Antonio, Texas
Team USAA
Xingchi Zhou, Nathaniel Finley, Abe Ahmed, Mike Ronayne, Dong Lee
Screen Mockup: Quoting Process
Team USAA
Project Plan Presentation

Architecture Diagram
Team USAA
Project Plan Presentation

Screen Mockup: Patient Login
Quote Result

Quoted Monthly Payment

$60/Month

Quote ID

89437

Next Steps
Contact USAA today with your Quote ID to get started
800-531-USAA
Welcome Bob Jones

Your ID: bob@gmail.com

Your Authorized Practitioners

dr.kelly@sparrow.org  Revoke Access

Authorize A Practitioner

Here is a list of practitioners you may authorize

Dr. Ted Seuss  Authorize
Team USAA Beta Presentation
Get an Insurance Quote
Your Personalized Quote

Price
$60/Month

Quote ID
13611

Next Steps
Contact USAA today with your Quote ID to get started
1-800-531-USAA
Viewing Medical Record

Patient Name: Bob Jones
Medical Record Type: Emergency Encounter

Encounter Summary
Weight: 175 Lbs
Gender: Male
Height: 70 inches
Symptom I: Irregular Heartbeat
Symptom II: Chest Pain
Symptom III: Short of Breath
Medications Administered: Aspirin
Encounter Outcome: Transferred to Cardiac Unit
Age: 30

Edit Medical Record
Beta Presentation

Dataset Analysis

Risk Class 2
46% of Applicants
56% Accuracy

Risk Class 4
39% of Applicants
58% Accuracy
Team USAA @ Design Day
Xingchi Zhou, Nathaniel Finley, Dong Lee, Mike Ronayne, Abe Ahmed
The Capstone Experience

Team Yello

Department of Computer Science and Engineering
Michigan State University
Spring 2018
yello
Team Yello
Project Overview

InViAnTo: Interview Video Analysis Tool

• Functionalities
  ▪ Evaluate Video Interview Automatically
  ▪ Include Sentiment and Emotional Analysis

• Features
  ▪ Design and Build Web App
    o Record Live Video
    o Support Prerecorded Video
    o Enable Viewing and Rerecording by Applicant
  ▪ Transcribe All Recordings and Store with Video
  ▪ Apply Sentiment Analysis on Transcription
  ▪ Run Emotion Detection on Audio and Video
  ▪ Provide Administrative Web App
    o To View Results
    o By Hiring Team

• Technologies
  ▪ CSS / HTML / JavaScript / JSON
  ▪ Ruby on Rails
  ▪ Microsoft Azure Emotion API
  ▪ Microsoft Language Understanding Intelligent Services (LUIS)
  ▪ Machine Learning
    o TensorFlow
    o scikit-learn
Team Yello
Jonathon Zeitler, Leo Yao, Jenn Proos, Quan Zhou, Brian Wang
Team Yello
Project Plan Presentation

Screen Mockup: Staff Management Page

Yello Capstone
Michigan State University
CSE 498

Follow Us!

The Capstone Experience
Team Yello
Project Plan Presentation

Architecture Diagram

- PostgreSQL: Database
- open-tok: Video Capture
- Video Analysis
- Analysis Results
- Web Application
- Server

- HEROKU
- Azure
- Storage
- Video Indexer API
- Text Analytics API
- Emotion API
Team Yello
Project Plan Presentation
Team Yello
Project Plan Presentation

Screen Mockup: Interview Recording Page

Question 1
Talk about your self

Next Question
Facebook Web Designer

Question 2

Describe a situation where you had to work in a team that didn’t get on very well. What happened? What did you do and what role did you take? How did the situation evolve?
Team Yello
Alpha Presentation

Managing Interviews

Interviews
New Interview

Data Analytics Scientist
Author: Bob (bob@recruiter.co)
We are looking for a qualified data scientist to apply his or her expertise in quantitative analysis, data mining, and the presentation of data to see beyond the numbers and understand how our users interact with both our consumer and business products.

Facebook Web Designer
Author: Bob (bob@recruiter.co)
We are looking for an experienced developer to design and create web interfaces using JavaScript, HTML5, and CSS.

Google Software Engineer
Author: Susan (susan@recruiter.co)
We are looking for an engineer with extensive experience in web development.
Senior Test Engineer

We are looking for a quality assurance engineer to build out a set of modern test automation suites for Ruby and Java applications.

Question 1:
Think about an instance in which you came up with a project idea which was implemented primarily because of your efforts. What was it about? What was its outcome? What was your role?

Question 2:
Describe a situation in which you met a major obstacle in order to complete a project. How did you deal with it? What steps did you take?

Question 3:
Tell about an instance when you had to communicate a really bad piece of news to your supervisor or team members. How did you handle it? What was the outcome?

Invite Candidate
Invited Candidates

Name: Select a Candidate 1

Name
Email
Completed?

1 Invite
Uninvite
Taekwondo Instructor

Question 1

Do you have a national ranking? If so, what is it?

Time Limit: 00:30

Submit

Finish

Back to Interviews
Summary:

Emotion Score: 🧡 Joy
Sentiment Score: 0.7 (Positive)
Sentiment Variation: 0.07

Question 1:
Are you excited about working here?

Transcript Sentiment:
0.85 (Positive)
Transcript:
I am so excited about the work at Yellow! I love learning day! I love working on rail! I love Elasticsearch! It's awesome! I love Keith. 😊😊😊

Emotion:
Top Emotion: 😊 Joy
Team Yello @ Design Day
Brian Wang, Jenn Proos, Quan Zhou, Leo Yao, Jonathon Zeitler
The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2018
The Capstone Experience Lab
The Capstone Experience Lab
The Capstone Experience Lab
The Capstone Experience Lab
The Capstone Experience Lab

View of Spartan Stadium
The Capstone Experience

Design Day Award Winners

December 8, 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
Design Day Award Winners
April 27, 2018
Auto-Owners Exhibition Award
Team Phoenix Group, Spring 2018
Customer Service System with Chatbot
Aman Goshu, James Finch, Sarah Fillwock, Dan Shumaker, Fatema Alsaleh
Presented by Ross Hacker and Scott Lake of Auto-Owners Insurance
MSU Federal Credit Union Praxis Award
Team Amazon, Spring 2018
AMPED: Amazon Marketplace Podcast Earnings Detection
Zach Whitener, Cam Korzecke, Chess Luo, Dillon Stock, Hansheng Zhao, Hanzhong
Presented by Ben Maxim of MSU Federal Credit Union
TechSmith Screencast Award
Team Quicken Loans, Spring 2018
Fundamenta: Trust in New Home Construction
Riley Annis, Jaiwant Bhushan, Vishal Adusumilli, Turner Anderson, Erin O'Hara
Presented by Wendy Hamilton of TechSmith
Urban Science Sigma Award
Team Herman Miller, Spring 2018
Adjust: Augmented Reality Chair Adjustment Assistant
Kyle Kinsey, Han Huang, Jacob Weber, Kevin Gaban, Mike Bremiller
Presented by Elizabeth Klee, Nik Steel and Andrea Michaud of Urban Science
The Capstone Experience

Dr. Wayne Dyksen
Department of Computer Science and Engineering
Michigan State University
Spring 2018
accenture
yello