MICHIGAN STATE UNIVERSITY

01/16: Teams Status Reports

The Capstone Experience

Department of Computer Science and Engineering
Michigan State University

Spring 2020

From Students…
…to Professionals

Team Amazon

Status Report

[1 of 4]

Amazon Data Hub

- Project Overview
  - Searchable web catalogue of data sets
    - Through the extraction and generation of keywords from processing the data
  - Processes and stores video/image, audio, text files formats of various sizes
- Project Plan Document
  - Project Plan Outline shared and critiqued by client
    - Details the foundation and tech stack of the Data Hub
  - Roughly 50% of the Project Plan Document is completed
  - Meeting with client to discuss revisions on Friday

Team Amazon

Status Report

[2 of 4]

Amazon Data Hub

- Software
  - Various services from AWS
    - Lambda, EMR, Transcribe, Elasticsearch, DynamoDB
    - Status: Acquired AWS credentials, HelloWorld programs in development
  - Combination of PHP/React for the front end
    - Basic user login system and displaying a data set's collection
    - Status: Front end mocks ups have been started, expect initial mockups to be finished by next week

Team Amazon

Status Report

[3 of 4]

Amazon Data Hub

- Client Contact
  - First conference call was on January 10th
  - Recurring meetings every Friday at 1pm
- Team Meetings
  - The team has met five times in person
  - Recurring meetings on Mondays and Fridays in person
- Team Organization
  - Assigned roles for four major tasks (front end doubled up)
  - Client Contact/Project Manager - Austin Cozzo

Team Amazon

Status Report

[4 of 4]

Amazon Data Hub

Risks

- Scalability
  - Risk: The size of datasets can vary, possibly up to the size of PBs. Working with such a range of sizes is hard without distributed computing
  - Mitigation: one member of the team knows Elastic MapReduce well
- Variety in File Formatting
  - Risk: User uploading an accepted file in an unexpected layout with high uncertainty processing such a variety of files
  - Mitigation: Research the most popular formatting of a file type and at least one alternative formatting to support and/or checking for correct formatting
- Integration
  - Risk: The project is currently precisely segmented into four parts. Integrating these parts could pose a challenge.
  - Mitigation: We will be working out of one git and meeting very consistently

Team AppDynamics

Status Report

[1 of 4]

Segmented Data Anomaly Detection

- Project Overview
  - Detect abnormal application behavior (e.g., failed transactions, long response time) using unsupervised ML techniques and statistics.
  - Isolate the root cause(s) of anomalies from over 100+ user-defined application components using PCA and Cluster analysis.
  - Provide a user-friendly visual representation of the pattern of anomalous behavior (using D3.js.)
- Project Plan Document
  - Skeleton of each specification section is in place
  - Initial steps and descriptions are completed
  - Diagrams and in depth specifications are needed
  - ~15% Complete overall

Team AppDynamics

Status Report

[2 of 4]

Segmented Data Anomaly Detection

- Development Systems / Software
  - AppDynamics APM and Analytics(BizIQ) – provided by AppDynamics (API access is forthcoming as per client)
  - iMacs with VM 10 (will be completely operational after triage meeting later today)
  - PyCharm (will install on iMac later today after first triage)
  - WebStorm (will install on iMac later today after first triage)

Team AppDynamics

Status Report

[3 of 4]

Segmented Data Anomaly Detection

- Client Contact
  - Spoke with AppDynamics team on Jan. 14th.
  - Scheduled weekly meetings with AppDynamics (every Tuesday)
  - Received commitment to provide access to test data
- Team Meetings
  - We have met as a team 4 times.
  - Scheduled Weekly Meetings every Tuesday at 9 am.
- Team Organization
  - Program Manager: John Wagenmaker
  - Systems Administrator: Caleb Jenkins
  - UI Designer: Rui Aojia
  - ML Engineer: Andrés Columna
  - Client Contact: Titus Merriam

Team AppDynamics

Status Report

[4 of 4]

Segmented Data Anomaly Detection

Risks

- Risk 1
  - Description - Integrate with AppDynamics controller
  - Mitigation - AppDynamics will send a demo of the controller and Andres will work on it until it works. Michael Sickles from AppDynamics will also be available for support.
- Risk 2
  - Description – team members only have theoretical understanding of clustering/pattern recognition from machine learning classes.
  - Mitigation – Titus is currently taking two graduate-level ML courses. Andres will consult with CSE faculty who are knowledgeable on the subject.

Team Auto-Owners

Status Report

[1 of 4]

Phish Phinder

- Project Overview
  - Analyze emails to detect phishing and log accuracy
  - Help educate associates
  - Provide an Analytics Dashboard to view stats and logistics

- Project Plan Document
  - Skeleton document is made
  - Functional specifications mostly complete
  - Initial mockups for design started
  - Technical decisions not yet complete

Team Auto-Owners

Status Report

[2 of 4]

Phish Phinder

- Technology Stack
  - Both iMacs are set up with new passwords and have VMware Fusion 11 installed as well as Windows 10 VM.
  - Visual Studio successfully deploys applications to Outlook.
  - Git repositories configured and hosted on GitHub.
  - Discord set up for team communications.
  - MySQL for the database and Angular for the front-end.
  - Adobe XD for prototyping.

Team Auto-Owners

Status Report

[3 of 4]

Phish Phinder

- Client Contact
  - We met with our client for the first time on Friday, January 10 at the Auto-Owners Headquarters in Lansing, MI.
  - Weekly conference call with the client will be on Fridays at 9 AM.
- Team Meetings
  - The team has met twice last week and once so far this week.
  - There will be at least three team meetings a week. One on Friday after our conference call and two after the All-Hands meetings.
- Team Organization
  - Client Liaison – Gabrielle Singher
  - Project Manager – Jacob Loukota
  - Front-End Lead – Alex Larson
  - Back-End Lead – Hunter Hysni
  - Data Science Lead - Madison Bowden

Team Auto-Owners

Status Report [4 of 4]

Phish Phinder

Risks

- Creating an Accurate Phishing Detection Algorithm
  - The algorithm needs to catch all variations of phishing emails and differentiate between Spam, Suspected Phish, Confirmed Phish, and Innocuous.
  - Create varying testing emails having aspects ranging from obvious phishing tactics to subtle ones and make sure our algorithm catches all of these.
- Security Issues with Handling Associate Emails
  - Associate information is important to protect, and it is imperative that our solution handles the protection and security of the information accordingly.
  - Have log ins for everything that is publicly facing and do not move data unless needed.
- Integration of a Virus Detection Software
  - Instead of building our own virus detector, try to find one that we can integrate with our solution.
  - Research and ask contacts about virus detection software that could be used in our solution.

Team Bosch

Status Report

[1 of 4]

Classifying Target Vehicles for Adaptive Cruise Control

- Project Overview
  - Process video data
  - Automatically label target objects
    - ‘Target Object Present’
    - ‘Host Vehicle Changing lanes’
    - ‘Target Object Cutting Into Host Lane’
  - Develop user friendly front-end
- Project Plan Document
  - Draft skeleton of the project plan document
  - Determined project objective and target deliverables
  - Assigned roles to team members

Team Bosch

Status Report

[2 of 4]

Classifying Target Vehicles for Adaptive Cruise Control

- Development Systems / Software
  - Setup PyCharm/Miniconda
  - Setup Tkinter/Theano/OpenCV
  - Wrote hello world apps
  - Created git repository to store code

Team Bosch

Status Report

[3 of 4]

Classifying Target Vehicles for Adaptive Cruise Control

- Client Contact
  - Weekly meetings on Tuesday at 8AM
  - Have a meeting at Bosch facilities on Friday the 24th at 1PM
- Team Meetings
  - After class Tuesdays and Thursdays
- Team Organization
  - Assigned individual tasks and roles
  - Setup shared google drive

Team Bosch

Status Report

[4 of 4]

Classifying Target Vehicles for Adaptive Cruise Control

Risks

- Managing the large amount of data
  - Could take large amounts of time to process all the data
  - Plan to use computing cluster to speed up processing time
- Wasting computation just to overfit the data
  - Need to create a model that is generalizable to new data sets
  - Take preventative measures based on the machine learning model
- Working with Computer Vision
  - Learning to process and identify objects and events using computer vision
  - Will try to use a convolutional neural networks to analyze the data

Team Dow

Status Report

[1 of 4]

Manufacturing Avatar Plant Twin

- Project Overview
  - Gamify Sensor Assignment Process
  - Train an AI Model to Predict Sensor Placement
  - Using Interactive Visual Sensor Mapping
- Project Plan Document
  - Layout Planned
  - Short Descriptions for each Subheader
  - Waiting on additional information from the customer

Team Dow

Status Report

[2 of 4]

Manufacturing Avatar Plant Twin

- Server Systems / Software
  - Team is learning Microsoft Azure Cloud Services
  - Set up VMWare Fusion
- Development Systems / Software
  - Learning Microsoft Azure Web App
  - Planning out Front End Interface
  - Tested Small Hello World Application

Team Dow

Status Report

[3 of 4]

Manufacturing Avatar Plant Twin

- Client Contact
  - Talked with Client on Basics of Project
  - Planned Meetings for Future
- Team Meetings
  - Weekly Meeting
  - Schedule Additional Meetings as Necessary
- Team Organization
  - Awaiting more information before making decisions

Team Dow

Status Report

[4 of 4]

Manufacturing Avatar Plant Twin

Risks

- Technical Knowledge of Project Area
  - Our Team does not know Optimal Layout of Sensors
  - Continual Contact with Customer to Clear up any Misunderstandings
- Amount of Data
  - If not provided enough data, It will be difficult to train accurate AI model
  - Request as much information as we can from customer
- Needs to be Interactive
  - People will not use system if it is not engaging
  - Get feedback from client at various stages of development

Team Evolutio

Status Report

[1 of 4]

ERP Air Force: Conservative Threat Detection

- Project Overview
  - Prevent poaching of elephants in South Africa by identifying threats in drone footage and alerting rangers of threats
- Project Plan Document
  - We have formatted the project plan document
  - Created preliminary system architecture (awaiting client approval)
  - Created rough draft of one screen mockup
  - Disscused design specification with client

Team Evolutio

Status Report

[2 of 4]

ERP Air Force: Conservation Threat Detection

- Server Systems / Software
  - Ubuntu VM installed
  - Darknet Neural Network Architecture compiled
  - Hardware ordered
  - HPCC account created
- Development Systems / Software
  - Slack channel created
  - JIRA board created

Team Evolutio

Status Report

[3 of 4]

ERP Air Force: Conservation Threat Detection

- Client Contact
  - Had kickoff meeting with client on Tuesday (1/14)
  - Weekly call Tuesday's at 8:30AM
- Team Meetings
  - Triage meeting – Monday 4:25PM
  - Team meeting – Monday 4:40PM
  - Team has met six times
- Team Organization
  - Logan – Framework
  - Maddie – Back End
  - Jason – Front End
  - Drew – Perception
  - Li – Data Analysis

Team Evolutio

Status Report

[4 of 4]

ERP Air Force: Conservation Threat Detection

Risks

- Detect changes in the environment
  - Automatically identify fires, floods and other sudden changes in environment
  - Logan has worked with semantic segmentation and will consider using it on aerial terrain images
- Develop mobile application
  - Developing an application that can communicate in rural areas
  - Li is in an app development class and will consult with his professor
- Build vibration vest
  - Develop a silent wearable technology that is able to alert wearer of the location of imminent threats
  - Team has experience with RaspberryPi projects and will look into using them in a possible solution

Team Ford

Status Report

[1 of 4]

Ford Augmented Reality Owners Manual

- Project Overview
  - iOS App: 5% Complete
    - Digital Owners Manual Search
    - AR Owners Manual Serach
  - Web App: 5% Complete
  - Database: 10% Complete
- Project Plan Document
  - Executive Summary and Functional Specifications: 100% Complete
  - Digital and Technical Specifications: 10% Complete
  - Risk Analysis: 50% Complete
  - Schedule: 25% Complete

Team Ford

Status Report

[2 of 4]

Ford Augmented Reality Owners Manual

- Server Systems / Software
  - RESTful API – Tutorials Completed
  - AWS – Account and Roles Setup
    - RDS-SQL
    - S3
    - Lambda
    - EC2
- Development Systems / Software
  - Xcode – Setup on Mac
  - ARKit – AR Hello World Built
  - Swift – Hello World Built
  - React JS – Tutorials and Research

Team Ford

Status Report

[3 of 4]

Ford Augmented Reality Owners Manual

- Client Contact
  - Initial Requirements Meeting
  - Weekly Thursday Meeting Scheduled
  - Client Slack
- Team Meetings
  - 6 All Team Meetings
  - Weekly All Team Meetings Scheduled
- Team Organization
  - Shawn
    - Client Contact
    - RESTful API
  - Johnny
    - iOS App/AR
  - Shadman
    - iOS App/AR
  - Torrin
    - Web App/Database
  - Ryan
    - iOS App/AR
    - Database

Team Ford

Status Report

[4 of 4]

Ford Augmented Reality Owners Manual

Risks

- AR Detection
  - Accurate data for AR mapping of vehicle targets
  - Use mapped data from client of 1 specific vehicle as a baseline
- App is less convenient than the physical copy
  - Using the physical owner's manual is more efficient than the app
  - Execute user experience testing amongst a diverse group
- Loss of access from loss of connectivity
  - Access to owner's manual is loss because there is poor or no connection
  - User will identify the vehicle(s) they interact with, app will locally store respective owner's manual data

Team GM

Status Report

[1 of 4]

Open Source Intel

- Project Overview
  - Discovery, collection and analyses of information gathered from public sources.
  - GM intellectuel property will include credentials, secret keys/API keys, ETC.
  - The platform includes discovery and potential threat/vulnerability assessment capabilities for GM.
- Project Plan Document
  - Project Plan Document skeleton was drafted and circulated.
  - Functional/Design Specs discussed; F-Specs documented.
  - Functional Specs polished and added to P-Plan doc.

Team GM

Status Report

[2 of 4]

Open Source Intel

- Server Systems / Software
  - Rack server configured with NixOS Linux.
  - Test ELK (Elasticsearch and Kibana) server started for evaluation.
- Development Systems / Software
  - Both iMacs configured with Brew and Nix.
  - Python open source libraries such as Beautiful Soup and Requests.
  - GitHub Configured for SCM and project planning.
  - GroupMe for communication.

Team GM

Status Report

[3 of 4]

Open Source Intel

- Client Contact
  - 1st 30min Meeting at 2:30pm 1/10/2020.
    - Reoccurring 30 min meetings scheduled for Fridays at 1:30pm ET.
- Team Meetings
  - Team met three times in person so far to discuss logistics and establish roles.
  - Established in-person meeting schedule and meet virtually as desired.
- Team Organization
  - Ben Buscarino assigned client contact and infrastructure.
  - Will Crecelius assigned project management and infrastructure.
  - Taylor Zachar assigned client contact.
  - Igli Ndoj assigned project management.
  - Qiming Ren assigned domain expert and infrastructure.

Team GM

Status Report [4 of 4]

Open Source Intel

Risks

- Lack of direction
  - Misinterpreting functionality.
  - Verify specifics with client so there is no miscommunication on either parties.
- Resource Limitations
  - Lack of access to financial resources for licenses to applications.
  - Identifying project budget and further discussing funding options.
- Identifying problematic content
  - Assuring how to classify public data as dangerous or benign.
  - Obtaining a hard definition and examples of what illicit content is.
- Developing “Helpful” Algorithms
  - We don’t want to write code which is already obsolete by GM’s prior work.
  - Or… We don’t want to waste time on solutions which they have already tried.
  - Developing efficient algorithms (time constraints).

Team Harvard Law School

Status Report

[1 of 4]

StackLife 2.0: Library Search and Display Tool

- Project Overview
  - Full Stack Application for Search and Display of Islamic bibliographic info
  - Filter all Harvard Law Library contents
  - Structure the data and store it
  - Provide visualization of analytics related to bibliographic resources

- Project Plan Document
  - Made schedule for the semester as well as milestones
  - Created outline
  - Looked at last semester's example
  - 20 % completed

Team Harvard Law School

Status Report

[2 of 4]

StackLife 2.0: Library Search and Display Tool

- Server Systems / Software
  - AWS RDS
  - MySQL
- Development Systems / Software
  - Python/Flask
  - HTML/CSS/Javascript
  - Considering React for more flexible UI design

Team Harvard Law School

Status Report

[3 of 4]

StackLife 2.0: Library Search and Display Tool

- Client Contact
  - Met with Client Friday 1/10, Wednesday 1/15
  - Scheduled weekly meeting Wednesdays at 12pm
  - Professor Rabb is on international travel and unable to make first two meetings
- Team Meetings
  - Team has met more than a few times
  - Weekly meetings on Fridays at 12pm
- Team Organization
  - Database – Jake and Brandon
  - Front end UI - Allison
  - Back end - Zian

Team Harvard Law School

Status Report

[4 of 4]

StackLife 2.0: Library Search and Display Tool

Risks

- Database Structure
  - Many records with complicated attributes
  - Minimize the amount of tables needed
- Database Speed
  - We must handle 14 million records – the entirety of Harvard's Law Library
  - Add indices where needed for fast retrieval of records
- User Friendly Front End
  - Flask wasn't created to make beautiful webpages
  - Incorporate Javascript libraries (possibly React)
- Data conversion/migration from previous semester
  - MARC-21 is a complicated format, previous semester's group converted to CSV and migrated some data into a database
  - Not sure about correctness, must verify parsing/migration scripts

Team Herman Miller

Status Report

[1 of 4]

Measuring Workspace Impact on Employee Experience

- Project Overview
  - Determine the effectiveness of office spaces
  - Develop mobile application to input sentiment from employees
  - Incorporate natural language processing tool in mobile application
  - Aggregate sentiment and utilization data via analytics platform

- Project Plan Document
  - Our Project Plan document is still a work-in-progress
  - We have started working on it since January 9th
  - We have written about 800+ words so far
  - Our Project Plan is about 50% complete

Team Herman Miller

Status Report

[2 of 4]

Measuring Workspace Impact on Employee Experience

- Server Systems / Software
  - Created a Git repository and OneDrive for file storage
  - Herman Miller will be giving us access to AWS by the end of week
- Development Systems / Software
  - Installed VMware Fusion on desktops
  - Installed / Tested PyCharm, PhpStorm, Android Studio, XCode
  - Created a Trello board to stay up to date with tasks
  - Started up Slack channel with Herman Miller contacts
  - Discussed potential Sentiment Analysis tools to use

Team Herman Miller

Status Report

[3 of 4]

Measuring Workspace Impact on Employee Experience

- Client Contact
  - We have talked / met with our client
  - Our weekly client meetings are every Monday or Tuesday between 9:00 am to noon
- Team Meetings
  - Our team has met thrice so far
  - Our weekly team meetings are every Thursday from 10:30 am to noon
- Team Organization
  - Jake Baum: Project Manager and Client Contact, AWS Developer
  - Lynn Dai: Sentiment Analysis Developer
  - Marla Defensor: Web Developer
  - Sophie Frankel: iOS Developer
  - John Nguyen-Tran: Android Developer

Team Herman Miller

Status Report

[4 of 4]

Measuring Workspace Impact on Employee Experience

Risks

- Risk 1
  - AWS data management
  - Work with Herman Miller AWS Manager for guidance
- Risk 2
  - Employee cooperation and participation
  - Gamify the application to give incentives for employee use
- Risk 3
  - Real-time implementation with beacons
  - Prototyping and field-testing beacons
- Risk 4
  - Sentiment analysis data manipulation
  - Research sentiment analysis tools and demos

Team Learning A-Z

Status Report

[1 of 4]

Sandwich Builder Parts of Speech Guessing Game

- Project Overview
  - Teach kids the parts of speech of different words
  - Using a website & mobile game
- Project Plan Document
  - Sections have been divided among team members
  - Outline of the project plan has been created
  - Created a tentative schedule for the project

Team Learning A-Z

Status Report

[2 of 4]

Sandwich Builder Parts of Speech Guessing Game

- Server Systems / Software
  - MySQL Database on a lab server storing vocabulary words; Pending
  - Web Server for uploading the web application; Pending
  - Lab Server for protected data obtained
- Development Systems / Software
  - PhpStorm IDE installed on iMacs
  - Node.JS installed on iMacs
  - Xcode for iOS development installed on iMacs

Team Learning A-Z

Status Report

[3 of 4]

Sandwich Builder Parts of Speech Guessing Game

- Client Contact
  - Scheduled weekly meetings on Fridays
  - Got word list from client
- Team Meetings
  - Scheduled weekly meetings every Tuesdays and Fridays
- Team Organization
  - Harry Mathon – Backend Developer
  - Raunak Shivkumar – Backend Developer
  - Aarish Medhora – Frontend Developer
  - Sam Zielinski – Frontend Developer; Client Contact
  - Yibei Huang – Backend Developer

Team Learning A-Z

Status Report

[4 of 4]

Sandwich Builder Parts of Speech Guessing Game

Risks

- Web Server
  - Create a web server for hosting the website
  - Look at online resources, and get help from previous capstone group
- Migration
  - Migration to iOS Mobile Development
  - Start iOS development early, and be prepared for changes
- Scalability
  - Will the application work for varying group sizes
  - Extensive testing with students

Team Lockheed Martin Space

Status Report

[1 of 4]

SmartSat™ Satellite App Store

- Project Overview
  - Centralized access point for discovering and using SmartSat™ applications/services (Apps & SDKs)
  - Allow for program re-usability & portability across many computer architectures
  - Leverage CI for increased usability
  - Allow for multiple delivery methods (URL of repository, tarballs)
- Project Plan Document
  - System Architecture diagram in progress
  - Requirements Elicitation in progress
  - Use Case Diagram, Domain Model complete
  - Prototype 70-80% complete

Team Lockheed Martin Space

Status Report

[2 of 4]

SmartSat® Satellite App Store

- Server Systems / Software
  - Ubuntu Desktop 18.04.03 Installed, remote access enabled
  - Flask backend programs being written to get acclimated
  - PostgreSQL database being researched
- Development Systems / Software
  - Windows 10 VM with Office is running
  - Discord server for team communications setup
  - React js being tested for web app UI
- Testing Systems / Hardware
  - Nvidia Jetson compute chip & Zynq board have been inventoried

Team Lockheed Martin Space

Status Report

[3 of 4]

SmartSat® Satellite App Store

- Client Contact
  - The team met with Josh Davidson (Lockheed Client Contact) on 01/10/2020
  - Meetings between the team & client will take place every Friday @ 2:00pm
- Team Meetings
  - The team met last Thursday (01/09/2020) after All-Hands and this past Monday (01/13/2020) in 3340 EB
  - Our team meetings take place every Monday @ 7:00 pm.
- Team Organization
  - Delegating tasks for project plan
  - Assigning team development roles upon completion of requirements phase

Team Lockheed Martin Space

Status Report

[4 of 4]

SmartSat® Satellite App Store

Risks

- Risk 1
  - Changes in requirements
  - Regular client validation, UI components as first key consensus point
- Risk 2
  - Unfeasible timeline for project milestones
  - Regular team correspondence
- Risk 3
  - Continuous Integration Server implementation
  - Researching common solutions, I.e. Jenkins
- Risk 4
  - Security of confidential data
  - Secure data transmission channels setup

Team MaxCogito

Status Report

[1 of 4]

Identity Based Communication and Content Services

- Project Overview
  - Understanding problem and solution (100%)
  - Appointment of responsibilities/specializations (100%)
  - Research/testing of required technologies (60%)
- Project Plan Document
  - In progress (60% complete overall)
  - Overall architecture (100%)
  - 90% ready to finish

Team MaxCogito

Status Report

[2 of 4]

Identity Based Communication and Content Services

- Server Systems / Software
  - AWS (0%)
  - CentOS 7 VMs set up locally (100%)
- Development Systems / Software
  - Apache Tika 1.23 on local (100% running w/ example)
  - ElasticSearch 7.5 on local (50%, installation complete, but no example)
  - Apache James 3.4 on local (100% running w/example)
    - Includes custom “hello world” mailet
  - Spring Boot 2.2.2 on local (100% running w/ example)
    - Includes example CRUD endpoints w/ PostgreSQL integration
  - Kafka 2.4.0 on local (90%, installation and configuration complete, working on producer/consumer)

Team MaxCogito

Status Report

[3 of 4]

Identity Based Communication and Content Services

- Client Contact
  - Met twice in person (~6 hours)
  - Conference call: Mondays 4:30-5:00
- Team Meetings
  - Mondays 5:40-6:40
  - Met 5 times in person
- Team Organization
  - Slack – scheduling meetings, sharing resources, etc.
  - Trello – tracking project process

Team MaxCogito

Status Report

[4 of 4]

Identity Based Communication and Content Services

Risks

- Integration of Systems
  - Compatibility issues when integrating systems (developed in parallel).
  - Early attempts at configuring different systems to communicate.
- Lack of experience with technology
  - Little-to-no experience with given technologies
  - Early delegation of technology exploration (creation of proof of concepts)
- Deployment
  - AWS deployment of microservices can be *complex*
  - Start out with basic EC2 instance deployment

Team Meijer

Status Report

[1 of 4]

Reducing Shoplifting Using Machine Learning

- Project Overview
  - Using previously installed sensors to detect shoplifters
  - Use data and machine learning to obtain an accurate decision
  - Determine certain behaviors based on movement
  - Organizing and presenting data in a easily-understood format
- Project Plan Document
  - We first generated a skeleton of the project plan document on Friday, January 10.
  - A first draft for summary/introduction as well as functional specifications has been written.
  - The document is approximately 5% done
  - Drafting mock-up UI

Team Meijer

Status Report

[2 of 4]

Reducing Shoplifting Using Machine Learning

- Server Systems / Software
  - Registered for git repository, which runs on Microsoft Azure
- Development Systems / Software
  - Downloaded Microsoft Visual Studio Community
  - Downloaded Splunk, which will help organize and visualize data

Team Meijer

Status Report

[3 of 4]

Reducing Shoplifting Using Machine Learning

- Client Contact
  - We contacted the client Wednesday, January 8, and have scheduled a meeting for Friday at 3 p.m. in the lab.
  - We have been in contact with Team Meijer hoping to meet sooner if their schedule allows to discuss the provided technology.
- Team Meetings
  - First met on Wednesday, January 8 to discuss assignments, set up our workspace and initiate contact with the client.
  - Scheduled for weekly meetings, each Tuesday after class. Most recent meeting discussed status report, assigning topics moving forward.
- Team Organization
  - We've been granted access from Team Meijer to their Azure DevOps page, which includes project management tools.
  - Figured out team members' strengths and weaknesses

Team Meijer

Status Report

[4 of 4]

Reducing Shoplifting Using Machine Learning

Risks

- Risk 1
  - Our sensors accuracy has a tolerance of 6-8 inches, which may be difficult to isolate behaviors that signify shoplifting that are separated from ordinary shopping
  - Brainstorm less precise behavior that might signify shoplifting
- Risk 2
  - Defining shopping behaviors that would indicate shoplifting while minimizing personal biases that may not be reflective of true shoplifting behavior, reinforced by a lack of true data associated with real shoplifters
  - Request data or material that help recognize behavior of shoplifters
- Risk 3
  - Linking a machine learning platform to a cloud database
  - Researching Microsoft Azure
- Risk 4
  - Presentation and organization of data
  - Familiarization with Splunk, creating a potential UI

Team Michael Sadler Foundation

Status Report

[1 of 4]

GameChang3rs Supplemental Games

- Project Overview
  - Create a lightweight and easy to use game environment that will help students both to engage with online materials and complete a series of legacy building tasks.
  - The GameChang3rs program has high school students (the ambassadors) directly engage elementary school students to help them build their own legacies.
  - This program will help students maintain and update their work on the core six pillars of the program between visits from their ambassadors.
  - The program can be monitored and tracked by teachers and the foundation
- Project Plan Document
  - Project Plan Document is currently 10% done
  - We have completed the Cover Page, Table of Contents, and Executive Summary

Team Michael Sadler Foundation

Status Report

[2 of 4]

GameChang3rs Supplemental Games

- Server Systems / Software
  - MySQL – Database, currently not up and running
- Development Systems / Software
  - Angular – HTML 5 Framework
  - TypeScript – JavaScript
  - Unity – Game Engine

Team Michael Sadler Foundation

Status Report [3 of 4]

GameChang3rs Supplemental Games

- Client Contact
  - Emailing clients whenever we have any questions or clarifications about anything
  - Met with clients Monday, Jan. 13
  - Scheduled to meet them every Friday at 3:00 pm in person or through zoom starting next Friday.
- Team Meetings
  - Team met 3 times since the start of this project
  - Team will meet two times a week, one time either Monday or Wednesday, and every Friday.
- Team Organization
  - Tristan: Game Designer/Programmer and Client Contact
  - Lina: Database and Game Designer
  - Matt: Frontend and UI
  - Yuheng: Frontend and UI
  - Daniel: Game Programmer and Program Manager

Team Michael Sadler Foundation

Status Report

[4 of 4]

GameChang3rs Supplemental Games

Risks

- Risk 1
  - FERPA and User Security
  - Have either the user create a username that doesn't have any connection to themselves or have a button that randomly generates a username given a list of usernames. Salt and hash passwords.
- Risk 2
  - Difference between game designers and game users
  - Ask for feedback from similarly-aged children and do research on games popular for the 6 to 14-year old range
- Risk 3
  - Scope Creep and locking down project specifics
  - Receiving information from the clients, meeting with clients and group to lock down game ideas as soon as possible.

Team MSU CSE

Status Report

[1 of 4]

Using Sensors to Study Human Behavior

- Project Overview
  - Develop infrastructure and software that streams sensor data to a server
  - Provide a platform for researchers to access sensor data in near real-time
  - Design a meeting space, hiding the sensors so they are unnoticeable to people in the room

Project Plan Document

- Outline produced
- 15% completed; Executive Summary completed

Team MSU CSE

Status Report

[2 of 4]

Using Sensors to Study Human Behavior

- Server Systems / Software
  - Ubuntu 18.04 – Installed
  - Flask Python web microframework – Project structured
  - Nginx web server – Not yet configured
  - MySQL database – Installed, communicating with app
- Development Systems / Software
  - Remote development via VS Code Remote Dev extensions
  - Development environment uses exact same architecture production environment – Working, need more VPS's
  - Git and GitLab

Team MSU CSE

Status Report

[3 of 4]

Using Sensors to Study Human Behavior

- Client Contact
  - Weekly meetings on Thursday in Dr. Ghassemi's office
- Team Meetings
  - Four official meetings so far; weekly meetings on Sunday afternoons and after Wednesday Triage meetings
  - Communicating through Slack
- Team Organization
  - Roles:
    - Rainier Devolder – Client Contact & database
    - Merryn Marderosian – Front-end
    - Ben Seeger – Internet of Things
    - Lianghao Shu, Taylor Whitacre – Back-end

Team MSU CSE

Status Report

[4 of 4]

Using Sensors to Study Human Behavior

Risks

- Interfacing with various kinds of sensors
  - Can the Raspberry Pi support the different kinds of sensors we need to use?
  - Mitigation: Research and testing
- Concurrency as a result of near real-time computing
  - Concurrent database connections; multiple Raspberry Pi's live-streaming; near-real time viewing on a web browser
  - Mitigation: Research and testing
- Lots of data
  - Collecting, transporting, buffering audio, video, thermal, etc
  - Mitigation: Research and testing

Team Michigan State University ITS

Status Report

[1 of 4]

Degree Navigator

- Project Overview
  - View Completed Courses
  - Track Progress Toward Graduation
  - Plan Upcoming Schedules
  - Support Edge Cases
    - Dual Majors
    - Cognates / Minors
    - Honors Options
  - Show Ramifications of Changing Degree
- Project Plan Document
  - Divided sections for writing and editing
  - Gather better use cases for end user with survey

Team Michigan State University ITS

Status Report

[2 of 4]

Degree Navigator

- Server Systems / Software
  - Experimenting with various AWS frameworks
  - Considering using serverless architecture
- Development Systems / Software
  - Using Swift for iOS Development
  - Using Kotlin for Android Development
  - Using React/HTML/CSS for Front-end Web Development, Node.js for Back-end Development
  - Creating basic “Hello World” apps to familiarize ourselves with these languages and environments

Team Michigan State University ITS

Status Report

[3 of 4]

Degree Navigator

- Client Contact
  - Had our initial meeting with client and set up weekly meetings in person
  - Attending design workshop with our client
- Team Meetings
  - Two weekly meetings
  - Extra availability outside of those meetings
  - Created a Slack for team communication
- Team Organization
  - iOS Developer, Android Developer, Web App Developer, 2 Back-end Developers

Team Michigan State University ITS

Status Report

[4 of 4]

Degree Navigator

Risks

- Screen Dimension Difference (Web VS Mobile)
  - The screen on a mobile device is much smaller than the screen of a monitor, but the user should have a similar experience regardless of platform
  - Design with mobile in mind first and work our way up to bigger screens from there
- Unfamiliarity with AWS
  - General unfamiliarity throughout whole team with AWS and ensuring that backend integrates with both mobile and web app
  - Familiarizing ourselves with AWS and assigning two team members to work with the backend
- Coordinating with what MSU IT already has in place
  - No access to real MSU data, so we need to create mock data ourselves
  - Keeping great communication with our client ensuring that what we create can be both easily integrated to current systems and used in the future

Team Mozilla Firefox

Status Report

[1 of 4]

No More Yellow Screen of Death in Firefox

- Project Overview
  - Migrate DTD files -> Fluent for US English
  - Write scripts to translate into other languages
- Project Plan Document
  - Plan to concretize our high-level ideas in client meeting
  - Will write the rough draft Monday

Team Mozilla Firefox

Status Report

[2 of 4]

No More Yellow Screen of Death in Firefox

- Server Systems / Software
  - N/A
- Development Systems / Software
  - Firefox Nightly build
  - Visual Studio/Atom
  - Mozilla Phabricator
  - Mercurial

Team Mozilla Firefox

Status Report

[3 of 4]

No More Yellow Screen of Death in Firefox

- Client Contact
  - Mini-hackathon last weekend
  - Weekly meetings on Zoom Friday's 10-11am
- Team Meetings
  - Four already
  - Weekly meeting on Mondays 5-6
- Team Organization
  - Individually assigned tasks by mentors
  - Matrix to communicate internally & w/ clients

Team Mozilla Firefox

Status Report

[4 of 4]

No More Yellow Screen of Death in Firefox

Risks

- How can we create a script to translate our Fluent files to other languages?
  - Inputting Fluent files to a Python script and outputting Fluent files for other languages
  - Looking through the Mozilla documents to create a Python script
- What if our migration script breaks an underlying part of the codebase?
  - Creating our migration script for our Fluent files
  - Debug then ask clients for advice

Team MSUFCU

Status Report

[1 of 4]

Achieve It

- Project Overview
  - Provide financial education in a controlled game environment for children
  - Enable and assist child players in setting and achieving financial goals
  - Separate interfaces for child players and parent admins
  - Usable across Android, iOS, web, and voice assistant platforms
- Project Plan Document
  - Project plan document 30% complete, next meeting with MSUFCU to establish specifics for plan document completion

Team MSUFCU

Status Report

[2 of 4]

Achieve It

- Server Systems / Software
  - Set up Google Firebase and finalizing decision on fitness of MSFCU data schema with Firebase
  - Decided on hosting using Google Cloud and ran a test deploy
- Development Systems / Software
  - Android Studio is installed and operational
  - Xcode is installed with developer account set up
  - Adobe XD has been set up to start drafting UI mockups
  - Set up ReactJS development environment

Team MSUFCU

Status Report

[3 of 4]

Achieve It

- Client Contact
  - Met with client at MSUFCU HQ
  - Scheduled weekly meetings for Friday Mornings at MSUFCU
- Team Meetings
  - 2 Team Meetings in first week
  - Scheduled weekly meetings after class on Tuesdays
- Team Organization
  - Ben St John: Project Manager & Backend Developer
  - Ben Carroll: Android Developer
  - Michael Jajou: iOS Developer
  - Rachel Hamilton: Web Developer

Team MSUFCU

Status Report

[4 of 4]

Achieve It

Risks

- Educational Content
  - Need for accurate financial education content to fulfill educational purpose
  - MSUFCU team is working on providing some of their content from other educational efforts
- Voice Assistants
  - No one on our team has prior experience or knowledge in building applications for voice assistants
  - Possible removal from scope
- Lack of Specifications
  - Beyond the general idea and use case, there is not a specific structure provided
  - Look into other financial educational apps and draft up some mock-ups and discuss with MSUFCU team

Team Place Technology

Status Report

[1 of 4]

Predictive Support Module

- Project Overview
  - Place Technology: Salesforce partner
  - Extend PlaceCPM to enable customer support.
  - Logging pipeline accessible by customer support to aid customers problems
- Project Plan Document Status
  - Full outline has been created
  - 4/6 sections currently complete
    - Executive Summary, Functional Specifications, Risk Analysis, and Schedule
  - 2/6 sections currently started/in review
    - Design and Technical Specifications

Team Place Technology

Status Report

[2 of 4]

Predictive Support Module

- Server Systems / Software
  - AWS
  - ELK Stack
    - Logstash, Elasticsearch, Kibana
- Development Systems / Software
  - Salesforce/Apex on VS Code

Team Place Technology

Status Report

[3 of 4]

Predictive Support Module

- Client Contact
  - Conducted two preliminary meetings with main client
  - Conducted meeting with developers
- Team Meetings
  - Team has formally met four times
  - Team will continue to meet 2-3 times a week
- Team Organization
  - Program Manager: Mithuun Srinivasan
  - Client Contact: Brian Dokas
  - Developer: Kingston Tran
  - Tester: Angela Satullo
  - Systems Administrator: Lin Cheng

Team Place Technology

Status Report

[4 of 4]

Predictive Support Module

Risks

- Salesforce Experience
  - Description: The Salesforce platform requires extensive research and development history; the limited time available to gain Salesforce experience may prove to be a challenge.
  - Mitigation: Being able to balance productive development and learning the Salesforce platform will prove to be a crucial skill that we all must develop over the course of the semester.
- Pipeline Connection Issues
  - Description: Multiple frameworks to must be pipelined together and act in conjunction. Problems have arose connecting AWS and the ELK stack. This may prove to be a challenge moving forward with this project.
  - Mitigation: To reduce the severity of this risk in the ability to progress, the organization of the development is going to be crucial. Over the course of the project, the team must practice doing good work and keeping all the components of the project organized.

Team Principal AAL

Status Report

[1 of 4]

ARIN Application Launcher

- Project Overview
  - Web tool for employees
  - View and launch applications
  - Request access to new applications
  - Admins can manage requests and create new applications
- Project Plan Document
  - Sections have been delegated
  - 25% has been written

Team Principal AAL

Status Report

[2 of 4]

ARIN Application Launcher

- Server Systems / Software
  - AWS – requested
  - Lambda – working on sample project
  - Flask for local server – setup
  - S3 – storage
- Development Systems / Software
  - GitHub – repo provisioned
  - React – working on sample project

Team Principal AAL

Status Report

[3 of 4]

ARIN Application Launcher

- Client Contact
  - Client contact assigned
  - Weekly meetings on Thursdays
  - Shared storage drive set up
- Team Meetings
  - Weekly meeting set up
  - Slack set up
- Team Organization
  - Roles assigned

Team Principal AAL

Status Report

[4 of 4]

ARIN Application Launcher

Risks

- Inexperience Serverless architecture - medium
  - No team member has worked with serverless architecture
  - Complete tutorials and learn through sample project
- Integrating with App Clients' Systems - high
  - App launcher needs to integrate with existing applications, which are diverse and may have diverse interfaces
  - Continuously integrating small pieces at a time
- Inexperience with oauth
  - No team experience with Cognito
  - Review documentation and learn through sample project

Team Principal IPC

Status Report

[1 of 4]

Investment Portfolio Construction

- Project Overview
  - Determine how to construct, store, and pass objective functions and constraints into an existing optimization engine
  - Create a user interface for saving and loading optimization parameters and running the portfolio construction
- Project Plan Document
  - Created project plan outline
  - Drafted the executive summary
  - Started the functional specifications
  - Created a schedule

Team Principal IPC

Status Report

[2 of 4]

Investment Portfolio Construction

- Server Systems / Software
  - Amazon Web Services – Waiting for console access from client
    - Lambda
    - S3
    - API Gateway
    - DynamoDB
- Development Systems / Software
  - Angular JavaScript Framework w/ Principal Style Components
  - Deployment to AWS S3 for hosting
  - Github repository for development

Team Principal IPC

Status Report

[3 of 4]

Investment Portfolio Construction

- Client Contact
  - Had first call with client on Friday, January 10th
  - Scheduled weekly conference calls on Friday at 1-2 PM EST
- Team Meetings
  - Meeting each Tuesday after the all-hands meeting
  - Met in person three times already and established GroupMe and Discord for online communication
- Team Organization
  - File sharing set up through OneDrive and client's Box account
  - Team roles established
  - Using Trello for project management and sprints

Team Principal IPC

Status Report [4 of 4]

Investment Portfolio Construction

Risks

- **Compatibility with team's existing optimization engine**
  - We need to design a method for passing constraints, objective functions, and data to their existing optimization engine in a compatible way.
  - We will work with the client so that the method can be tested early on their existing optimizer.
- **Serverless Architecture Model (SAM)**
  - The application will not be dependent on servers to run but will rather only run when the user interacts with the application, so nothing in the application can be server-dependent.
  - We will plan the separate static elements (locally available data) and dynamic elements (elements that require data beyond what is available locally) before implementation.
- **API Gateway**
  - The application's functionality is dependent on the API-driven communication between the front-end interface and the application back-end.
  - We will ensure API requests work using test functions that pass sample data through the gateway.
- **Compatibility with other Principal team user model**
  - Assignment to world views in our project relies on the implementation of user groups and how they store data in another capstone project.
  - We will communicate with Principal and the other team to understand what data will be available to decide user groups.

Team Proofpoint

Status Report

[1 of 4]

Predictive Engine for Long Term Malware Detonation

- Project Overview
  - Automate malware identification to optimize long term analysis
  - Filter out redundant samples and focus on malware of interest
  - Design a Web App to monitor and manage the sample analysis
- Project Plan Document
  - Project plan created and shared between team
  - Cover page created
  - Project description written
  - 5%-10% done

Team Proofpoint

Status Report

[2 of 4]

Predictive Engine for Long Term Malware Detonation

- Server Systems / Software
  - Currently waiting on access to Proofpoint VM lab
  - Installing and testing Cuckoo analysis software
  - Initial configuration of OPNsense
- Development Systems / Software
  - Installed and tested Python 2.7
  - Configured Windows 10 VM on Macs
  - Angular 2+ installed and test app running

Team Proofpoint

Status Report

[3 of 4]

Predictive Engine for Long Term Malware Detonation

- Client Contact
  - Met with client twice via video chat, preliminary talks for in-person meeting
  - Team meetings scheduled for Fridays and Tuesdays
- Team Meetings
  - Assigned team lead and development roles
  - Initial architecture discussion and planning
  - Set long-term and short-term goals for project completion
- Team Organization
  - Sam and Geoff – virtualization and automation
  - Izzy, Josh, and Alex – Web application

Team Proofpoint

Status Report [4 of 4]

Predictive Engine for Long Term Malware Detonation

Risks

- Risk 1
  - Miscategorization of malware into wrong groups for optimization
  - Create a system that checks most aspects of malware before categorizing
- Risk 2
  - Only one team member has experience with virtual firewall integration to Cuckoo
  - More experienced team member will work with less experienced team members
- Risk 3
  - How to run and manage a Cuckoo instance and integrate our Web app with the API
  - Practicing with the software and organizing use of the Client's setup
- Risk 4
  - Documentation for Cuckoo is poorly written and improperly maintained
  - Plans to speak with Proofpoint's sandbox experts for guidance

Team Technology Services Group

Status Report

[1 of 4]

Machine Learning Document Classification and Redaction

- Project Overview
  - Identify and redact Personal Information (PII) in documents
  - Implementing with Azure
  - Using Machine Learning(ML)
- Project Plan Document
  - Working on the screen mockups currently.
  - Functional and Technical specifications almost complete, more to be added as team becomes more familiar with Azure.

Team Technology Services Group

Status Report

[2 of 4]

Machine Learning Document Classification and Redaction

- Server Systems / Software
  - Centralized server in the process of discussing best options with client, not setup.
  - Apache TomCat local development servers running on most team members local devices. Working on others to get to 100%.
  - Working through issues of TomCat configuration similar to client's to run their OpenContent software.
- Development Systems / Software
  - In the process of getting access to SuggestR software from client.
  - Microsoft Azure instance being set up with our client. Not complete, but should be soon.

Team Technology Services Group

Status Report

[3 of 4]

Machine Learning Document Classification and Redaction

- Client Contact
  - Meeting every Friday at 11 am
  - Have met 4 times
- Team Meetings
  - Meeting Monday/Wednesday at 4:30 pm
  - Have met 5 times
- Team Organization
  - Machine Learning and Back-end team
  - JavaScript front-end team

Team Technology Services Group

Status Report [4 of 4]

Machine Learning Document Classification and Redaction

Risks

- Which Azure Machine Learning environment would work best, if any would?
  - Time consuming process of testing each environment to find the best solution.
  - Mitigation: Upfront research for the most integratable environment.
- Sample documents from client have not arrived.
  - PDFs that will need to be redacted may not arrive on time to begin testing. Number of documents from client might not be enough.
  - Mitigation: Creating/Downloading our own PDF documents for testing purposes.
- Redaction confidence level
  - Current client software can find metadata with strong confidence. In dealing with PII redaction the confidence level will need to be much higher.
  - Mitigation: Making sure to benchmark our Machine Learning continuously throughout development.

Team TechSmith

Status Report

[1 of 4]

Smart Camera

- Project Overview
  - Mobile app to assist amateur filmmakers
  - Website to manage scripts
  - Framing of shots, feedback of lighting quality, ‘green screen’
- Project Plan Document (10%)
  - Sketches of 70% of screen mockups
  - 80% of the functional specifications
  - Simple system architecture diagram
  - A few major risks and possible mitigations

Team TechSmith

Status Report

[2 of 4]

Smart Camera

- Server Systems / Software
  - Github repository hosted by TechSmith functional
  - Azure directory is set up

- Development Systems / Software
  - Xcode and Visual Studio downloaded and tested
  - Docker downloaded but being researched

Team TechSmith

Status Report

[3 of 4]

Smart Camera

- Client Contact
  - On-site meeting completed on 1/10
  - Weekly meetings Friday @ 1:30 pm using Skype
- Team Meetings
  - Three in-person meetings completed
  - Friday @ 1:00 pm & immediately following the client meeting
- Team Organization
  - Mobile App – Amy, Omo, and Nathan
  - Web Services – Zhaolin, Drew

Team TechSmith

Status Report

[4 of 4]

Smart Camera

Risks

- Limited Screen Real Estate
  - Displaying the script without disturbing screen view and teleprompter speed
  - Vocal recognition, manual scroll, auto scroll settings
- Working with older devices
  - Dealing with less advanced sensors in the phone
  - Visual warning that features might not be available
- Inexperience with film creation
  - What is ‘good’ framing? What constitutes good lighting quality?
  - Reach out to connections with more knowledge on the subject

Team United Airlines Airport Operations

Status Report [1 of 4]

Ground Safety Action Program and QC Audit Center

- Project Overview
  - Submit, Manage, and Track Ground Safety Action Program Forms
  - Submit, Manage, and Track Quality Control Audit Forms
  - Integrate applications with existing EtQ web application
- Project Plan Document
  - Executive Summary completed
  - Functional Specifications, and Technical Specifications Complete

Team United Airlines Airport Operations

Status Report [2 of 4]

Ground Safety Action Program and QC Audit Center

- Server Systems / Software
  - N/A
- Development Systems / Software
  - XCode, Swift, Texture Library
  - Application has been created and stored in GitHub
  - EtQ Database
  - Currently working to learn the environment

Team United Airlines Airport Operations

Status Report [3 of 4]

Ground Safety Action Program and QC Audit Center

- Client Contact
  - Had Conference Calls on Friday Jan 10th and Jan 15th
  - Weekly meetings are scheduled Wednesdays at 10:30AM
- Team Meetings
  - Team has met in person 5 times
  - Weekly team meetings scheduled on Wednesday at 10AM
- Team Organization
  - Josh(front-end GSAP Form), Camille(client contact & front-end QC Form), Ivan(back-end QC Form), Tudor(back-end QC Form), Allison(back-end GSAP Form)

Team United Airlines Airport Operations

Status Report [4 of 4]

Ground Safety Action Program and QC Audit Center

Risks

- Integrating application with EtQ
  - UAL uses a web app running on top of an EtQ database, and our team has insufficient knowledge of EtQ
  - Get access to the current web app to review EtQ
- Oracle Access Manager (OAM)
  - Understanding how to integrate with an iOS app and getting permissions from client
  - Discuss with client how OAM works and work on getting access
- Admin ability to globally update forms
  - When an admin updates a form in EtQ, it needs to update everywhere
  - Research possibilities and discuss alternatives
- Multiple interests for the project
  - The app will be used by 2 separate teams for 2 separate purposes
  - Keeping close contact with both teams to be able to satisfy both parties

Team United Airlines Safety

Status Report

[1 of 4]

Virtual Reality Aircraft Walkaround

- Project Overview
  - Help train technicians to identify aircraft issues
  - Use VR and iPad app to simulate aircraft issues anytime and anywhere
  - Provide many scenarios, aircraft and defect types
  - Create instructor portal to manage simulations
- Project Plan Document
  - Made skeleton project plan document
  - Everyone is assigned sections
  - Followed United Airlines color scheme
  - ~10-15% complete

Team United Airlines Safety

Status Report

[2 of 4]

Virtual Reality Aircraft Walkaround

- Server Systems / Software
  - VMWare installed but not set up
- Development Systems / Software
  - Unity for all development, currently working with United Airlines for license
  - Android SDK, need to download
  - Need an Apple Developer License

Team United Airlines Safety

Status Report

[3 of 4]

Virtual Reality Aircraft Walkaround

- Client Contact
  - Had two meetings with client
  - Planning regular meetings
  - Planning site visit in Chicago
- Team Meetings
  - Had two team meetings
  - Scheduled regular weekly team meetings
- Team Organization
  - Will split into iPad and VR teams
  - Divided up project plan document

Team United Airlines Safety

Status Report

[4 of 4]

Virtual Reality Aircraft Walkaround

Risks

- Making same application for two different platforms
  - Need same functionality for VR headset and iPad app
  - Constant communication within team
- Receiving models
  - The project is contingent on the airplane model
  - Work piece by piece, ask for at least one, not all at once, constant contact
- Testing
  - We don’t know enough about airplanes to know if defects, locations are accurate
  - Visit to Chicago, have them check, constant checking in with client
- Different performance for iPad and VR
  - Quest isn’t as powerful as iPad
  - Scale everything for Oculus

Team United Airlines Training

Status Report

[1 of 4]

Training Scheduling and Optimization System III

- Project Overview
  - Manage United Airlines Technical Operations Training by scheduling classes and instructors using web and mobile applications
  - Optimize course scheduling
  - Use machine learning to gain insight on scheduling patterns
  - Improve application performance
- Project Plan Document
  - Project Plan Document created Jan. 10th
  - Screen Mockup is in progress- rough draft based on existing app
  - Discussed Project Plan details with client at Jan. 16th meeting
  - 5% is complete

Team United Airlines Training

Status Report

[2 of 4]

Training Scheduling and Optimization System III

- Server Systems / Software
  - Configured initial Azure test server
  - Instantiated Azure SQL database
  - Created AWS test server to mirror Azure Virtual Machine
- Development Systems / Software
  - Configured .Net Core and Swift on iMacs
  - Installed and configured Visual Studio, Xcode
  - Waiting on Meeting and ISO to configure Windows VM

Team United Airlines Training

Status Report

[3 of 4]

Training Scheduling and Optimization System III

- Client Contact
  - Met with client over the phone last Friday
  - Established weekly conference calls on Thursdays at 1:00pm
- Team Meetings
  - Met in person thrice and established means of communication (GroupMe and Discord)
  - Scheduled weekly team meetings at 2:00pm on Fridays
- Team Organization
  - Sean - Client Contact and Full Stack Developer
  - George - Project Manager and Dev-Ops Engineer
  - Sam - Full Stack Developer
  - Amanda - Data Scientist and Front-End Developer
  - Wei – Back-End Developer

Team United Airlines Training

Status Report

[4 of 4]

Training Scheduling and Optimization System III

Risks

- Risk 1
  - Lack of experience with mobile app development
  - Building test applications to get started and learn Swift
- Risk 2
  - Machine Learning integration timeline and testability
  - Research potential solutions and how to use ML to our benefit
- Risk 3
  - Scope creep with administration capabilities
  - Weekly clarification of goals and a solid project plan document
- Risk 4
  - Cross platform integration risks with iOS and Android
  - Migrate Android functionality to new iOS app

Team Urban Science

Status Report

[1 of 4]

AutoHook Mobile Redemption Tool

- Project Overview
  - Develop Current Web-Only Voucher Redemption on Mobile
  - Implement Voucher Search Functionality
  - Create Admin Dashboard for Statistics and Visibility
  - Build Barcode Scanner for Quick Voucher Redemption
- Project Plan Document
  - Document Created
  - Document Formatted

Team Urban Science

Status Report

[2 of 4]

AutoHook Mobile Redemption Tool

- Server Systems / Software
  - .NET Framework 4.8 planned
  - Apache http planned
  - Microsoft SQL Express planned
  - Mono Potentially
- Development Systems / Software
  - Node.js Webpack Configured
  - Angular 8+ Tested

Team Urban Science

Status Report

[3 of 4]

AutoHook Mobile Redemption Tool

- Client Contact
  - Met With Clients Through Call
  - Scheduled Weekly Call With Client
- Team Meetings
  - Team Has Met Twice
  - Weekly Meeting Scheduled
- Team Organization
  - Client Contact: Devin Hook
  - Infrastructure: Justin Perry

Team Urban Science

Status Report

[4 of 4]

AutoHook Mobile Redemption Tool

Risks

- Risk 1
  - Lacking Microsoft server access license
  - Contacting TA / Looking at Linux stack with Mono as an alternative
- Risk 2
  - Unsure if it is possible to read barcode from JavaScript only web app
  - Justin is investigating currently and prototyping

Team Vectorform

Status Report

[1 of 4]

Rumble Test Suite

- Project Overview
  - Based off a previous Capstone project
  - Update neural net algorithm
  - Create iOS app for developers to connect the Rumble device to the Wifi
- Project Plan Document
  - Initial functional specifications have been laid out
  - Created initial screen mockup for iOS app
  - Initial system architecture diagram created
  - Will begin working on existing algorithm once given access

Team Vectorform

Status Report

[2 of 4]

Rumble Test Suite

- Server Systems / Software
  - Connect to MQTT server – Not Done
- Development Systems / Software
  - Apple ID for each team member - Done
  - Install Arduino IDE - Done
  - Install Driver - Done
  - Set up ESP32 library - Done
  - Test project to see scanning for Wi-Fi - Done
  - Install required libraries – Done

Team Vectorform

Status Report

[3 of 4]

Rumble Test Suite

- Client Contact
  - **Jeff Meador**, Chris Cornish, Anthony Laurain, Josh Parmenter
  - Friday 10am meetings with client
  - In-person meeting at Vectorform headquarters in Royal Oak on Friday, Jan 24
- Team Meetings
  - 5 team meetings so far
  - 3-4 a week (every Tuesday, Thursday after class, Fridays)
- Team Organization
  - Anna Quenon – Mobile app
  - Hyeungsuk Kim – Servers
  - Reis Wiedemann – Neural Net Algorithm
  - Andreas Frame – Web development

Team Vectorform

Status Report

[4 of 4]

Rumble Test Suite

Risks

- Risk 1
  - Recognizing whether to stick with a neural net or switching to a different algorithm
  - Prioritizing the testing of the algorithm
- Risk 2
  - Improving on a previous group's uncommented code
  - Go back through and comment on the existing code as well as contacting the previous Vectorform group
- Risk 3
  - Identifying when the Rumble device needs to be recalibrated
  - Test in multiple real-world environments
- Risk 4
  - Recognizing when the Rumble device is disconnected from the Wi-Fi or when there is no Wi-fi available
  - Test early and send a push notification to the user from the backend