MICHIGAN STATE UNIVERSITY

01/20: Team Status Report Presentations

The Capstone Experience

Dr. Wayne Dyksen
James Mariani
Luke Sperling
Brenden Hein

Department of Computer Science and Engineering
Michigan State University
Spring 2022

From Students…
…to Professionals

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Ally P2P Lending Platform

The Capstone Experience

Team Ally

Mark Brandly
Nick Lim
Sonali Reddy
Rothwan Sufyan
Rocco Wu
Johannes Shin

Department of Computer Science and Engineering
Michigan State University

Fall 2021

From Students…
…to Professionals

Team Ally

Status Report

[1 of 4]

Ally P2P Lending Platform

- Project Overview
  - Ethereum Blockchain based P2P lending platform
    - Enables quicker loan processing time
  - Removes the middleman
  - Incorporation of Smart Contracts for disbursements, transfers, and repayments
  - Develop a user-friendly UI for Ally customers
- Project Plan Document
  - Have created a rough outline
  - Less than 10% complete
  - Will gather more information from sponsor

Team Ally

Status Report

[2 of 4]

Ally P2P Lending Platform

- Server Systems / Software
  - Node Server
  - Using Solidity to build Smart Contracts
  - Go Ethereum(Geth)
- Development Systems / Software
  - React
  - Hard Hat/Truffle
  - VS Code

Team Ally

Status Report

[3 of 4]

Ally P2P Lending Platform

- Client Contact
  - Have met once already for formal introduction(1/13)
  - Have scheduled weekly meetings for Fridays
- Team Meetings
  - Have met 3 times
  - Have scheduled weekly meetings for after class on Tuesdays and Fridays
- Team Organization
  - Web App Team
  - Ethereum/Solidity Team

Team Ally

Status Report

[4 of 4]

Ally P2P Lending Platform

Risks

- Converting between dollars and ether
  - Smart Contracts do not transfer fiat currency
  - Discuss it with sponsor for clarification
- What user data should be stored
  - Whether or not it should be stored on the blockchain itself
  - Learn more about the limitations of smart contracts
- Possible gas fees
  - Our code on the blockchain could accumulate high gas fees
  - Utilizing a private blockchain network
- Sponsor is also new to the technology
  - Unsure of what is the best approach of the project design
  - Lots of online resources to learn from

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Status Report Presentation

Amazon Shop Smart: Web Extension for Shopping

The Capstone Experience

Team Amazon

Jiashang Cao
Richard Huang
Emma Sickelsteel
Jimmy Warner
Hithesh Yedlapati
Tianli Zhou

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Amazon

Status Report

[1 of 4]

Amazon Shop Smart: Web Extension for Shopping

- Project Overview
  - Build a price history database
    - Alert user when price criteria are met
  - Recognize and categorize products
    - Compare Amazon prices to the other retailer the user is viewing
  - Provide smooth UX
- Project Plan Document
  - Sections of the document have been outlined
  - Executive summary is complete (Overall around 10% completed)
  - Completed tasks will be logged into the schedule section every week

Team Amazon

Status Report

[2 of 4]

Amazon Shop Smart: Web Extension for Shopping

- Server Systems / Software
  - Amazon Web Services (AWS)
    - DynamoDB
    - QuickSight
    - Status: Everyone has access AWS management console
- Development Systems / Software
  - JavaScript
  - Lambda (Serverless programming platform)
  - Chrome web store

Team Amazon

Status Report

[3 of 4]

Amazon Shop Smart: Web Extension for Shopping

- Client Contact
  - We had met with the Amazon sponsors.
  - Communication with the client through Slack.
- Team Meetings
  - Weekly meetings with the customer is scheduled for Friday at 10:30 am on Amazon Chime.
  - We've had 3 meetings so far.
  - The weekly triage meeting is held on Tuesday, 9:40 am.
- Team Organization (Features and roles subject to change)
  - Customer Liaison (Hithesh Yedlapati)
  - Track product price history and store into database (James Warner)
  - Check product price if it has decreased and send email notification (Richard Huang)
  - Identify other retailer site's product to see if they exist at Amazon and pop up to inform the user (Tianli Zhou)
  - Extension UX (Emma Sickelsteel)
  - Data visualization (Jiashang Cao)
  - Trend recognition (All)

Team Amazon

Status Report

[4 of 4]

Amazon Shop Smart: Web Extension for Shopping

Risks

- Reception of Data
  - Description: No existing price data accessible
  - Mitigation: Waiting for Amazon to provide internal API, if not we will create our own Database
- Quantity of Retailers
  - Description: Check which retailers the extension should support
  - Mitigation: Clarify with client during next meeting after we present our plans
- Web browser compatibility
  - Description: Decide on which browsers should be supported and make sure the extension is identical on both
  - Mitigation: Clarify with client during next meeting, research compatibility requirements

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Status Report Presentation

Wildfire Risks Forecasting Tool

The Capstone Experience

Team Anthropocene Institute

Jingxian Chen
Andrew Haas
Andrew McDonald
Ben Miller
Jamie Schmidt
Nathan Woods

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Anthropocene Institute

Status Report

[1 of 4]

Wildfire Risks Forecasting Tool

- Project Overview
  - Simulate wildfires ignited under user-specified conditions.
  - Predict the resulting economic damages.
  - Convey the information impactfully to a diverse audience.
  - Incorporate the most current data available.
- Project Plan Document
  - Formatting, Title Page, and Table of Contents complete.
  - Hosted in OneDrive; all team members have edit access and have tested making changes to the document.

Team Anthropocene Institute

Status Report

[2 of 4]

Wildfire Risks Forecasting Tool

- Server Systems / Software
  - No servers created yet.
- Development Systems / Software
  - Active team GitHub repository with contributions from several members.
  - Active team Trello board spun up for project management.
  - Anaconda dependency management incorporated with Python 3.9 virtual environment configured.
  - Demo Python Flask web app successfully implemented.

Team Anthropocene Institute

Status Report

[3 of 4]

Wildfire Risks Forecasting Tool

- Client Contact
  - Two meetings completed with director and project manager.
  - Weekly conference calls scheduled for Monday, 9 p.m.
- Team Meetings
  - Three meetings completed.
  - Weekly team meetings scheduled for Monday, 10 p.m.
- Team Organization
  - Agile workflow with weekly sprints, managed through Trello
  - Wildfire Modeling: Andrew H. & Jamie; Data and DevOps: Nathan & Jingxian; Front End: Andrew M. & Ben

Team Anthropocene Institute

Status Report

[4 of 4]

Wildfire Risks Forecasting Tool

Risks

- Risk 1
  - Prohibitive computational complexity of wildfire modeling.
  - Mitigation: Reduce resolution, use AWS compute in backend, implement parallelism and research other optimizations.
- Risk 2
  - Data API query latency may lead to poor user experience.
  - Mitigation: Cache climate data to avoid redundant web API queries; provide loading messages to avoid user frustration.
- Risk 3
  - Uncertainty of end-user
  - Mitigation: Meet with CalFire and other VC contacts to identify key user stories.

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Status Report Presentation

RecruiTrack

The Capstone Experience

Team Auto-Owners

Michael Liu
Sophie Martin
Ken Michalak
Andrew Nader
Jacob Riggs

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Auto-Owners

Status Report

[1 of 4]

RecruiTrack

- Project Overview
  - Improve resource management for Auto-Owners' recruiters with web application
  - Automate data collection to reduce manual effort for recruiters
  - Track data about how Auto-Owners' recruiters spend their time and resources
- Project Plan Document
  - Haven't started document
  - Have viewed project plan examples on website
  - Working with sponsor to develop UI mockups

Team Auto-Owners

Status Report

[2 of 4]

RecruiTrack

- Server Systems / Software
  - Spring Boot application created, displays “Hello World”
  - Local Microsoft SQL database set up
  - Hosting of database and web app not set up yet
- Development Systems / Software
  - Angular framework for the frontend is downloaded
  - VSCode for IDE is downloaded
  - Software for SQL development not set up yet

Team Auto-Owners

Status Report

[3 of 4]

RecruiTrack

- Client Contact
  - Scheduled weekly meeting for Fridays at 9:30 AM
  - Have met with sponsors 2 times
- Team Meetings
  - Scheduled weekly meeting Mondays at 7PM
  - Have met as a team 4 times
- Team Organization
  - Jacob is the main contact for our sponsor
  - Sophie and Jacob will be working on frontend
  - Ken, Michael, and Andrew will be working on backend

Team Auto-Owners

Status Report

[4 of 4]

RecruiTrack

Risks

- Risk 1
  - Setting up an accessible online database for the team
  - Mitigate by researching cloud services
- Risk 2
  - Compatibility of web app with Auto-Owners' system
  - Mitigate by discussing the most compatible technologies and getting recommendations on how to host the web app for easy transition
- Risk 3
  - Creating a secure database environment
  - Mitigate by researching modern security measures

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Status Report Presentation

Remote Energy Distribution Payment Platform

The Capstone Experience

Team Caxy Interactive

Jakob Therkelsen
Connor Mears
Akshaan Garg
Jesse Stroster
Olivia Qiu
Avery Lyu
Department of Computer Science and Engineering
Michigan State University

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From Students…
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Team Caxy Interactive

Status Report

[1 of 4]

Remote Energy Distribution Payment Platform

- Project Overview
  - Develop a payment and messaging backend architecture
    - Twilio, Stripe, Express, Heroku (all initialized)
  - Allow for access and payment of off-grid energy
    - Arduino charging station prototype
  - Work with a charging station to encrypt messages and distribute power
- Project Plan Document
  - General headers, table of contents, cover page complete
  - Risks started, two risks identified
  - Rest of report is not complete, some sections are assigned

Team Caxy Interactive

Status Report

[2 of 4]

Remote Energy Distribution Payment Platform

- Server Systems / Software
  - Express - JS backend framework, initialized and pushed
  - Mongoose DB - nosql database, initial cluster spun up
  - Heroku – cloud hosting, initialized with express app
- Development Systems / Software
  - Twilio – basic messaging (greeting) implemented
  - Visual Studio Code - working for everyone and synced w/ Git repository

Team Caxy Interactive

Status Report

[3 of 4]

Remote Energy Distribution Payment Platform

- Client Contact
  - Met on 1/14 with Caxy Interactive and Energy Well
    - Weekly meetings TBD
  - Meeting in-person w/ David (CSO) the week of 1/27 to get hardware components (Arduino charging station prototype).
- Team Meetings
  - Met 5 times so far, including our Client and Triage meetings
  - Meeting at least once a week, on Sundays
- Team Organization
  - Jesse -> Database
  - Akshaan -> API development
  - Olivia -> API development for payment. Main Client Contact
  - Avery -> Database + backend development
  - Connor -> DevOps + configuration (Dependencies, Server Hosting, etc.)
  - Jakob -> Backend + Arduino integration

Team Caxy Interactive

Status Report

[4 of 4]

Remote Energy Distribution Payment Platform

Risks

- Ambiguity user accounts
  - There are unknowns concerning how we want to approach setting up user accounts on a limited SMS-based interface
  - Discuss with client to identify key app functionalities and limitations
- Available payment technology
  - The country of Cameroon has limited support with payment options such as Stripe. With limited internet access, multiple options need to be considered
  - Build a backend general enough that can allow for any payment API to be easily integrated

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Status Report Presentation

3D Scene Reconstruction of Vehicle Accidents

The Capstone Experience

Team CSAA Insurance Innovation

Owen D'Aprile
Lisa Lipin
Varsha Narmat
Kaan Salt
Angelo Savich
Wendy Wu

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
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Team CSAA Insurance Innovation

Status Report

[1 of 4]

3D Scene Reconstruction of Vehicle Accidents

- Project Overview
  - Established requirement criteria
  - Environment, library, and data sample setup
  - Initial model training
  - Planned approach
- Project Plan Document
  - Software and hardware specifications
  - UI specifications
  - Technical constraints
  - Testing
  - Initial Schedule

Team CSAA Insurance Innovation

Status Report

[2 of 4]

3D Scene Reconstruction of Vehicle Accidents

- Server Systems / Software
  - Does not require dedicated servers
  - Use Docker for backend (model creation, texture mapping)
    - Easy to deploy
- Development Systems / Software
  - Unity for front end (scene display, annotations)
  - Run on desktop operating systems supported by Unity
  - Run on regular PC VR HMDs

Team CSAA Insurance Innovation

Status Report

[3 of 4]

3D Scene Reconstruction of Vehicle Accidents

- Client Contact
  - First Meeting with Client – January 14th
  - Weekly Conference call on Tuesdays - 2 meetings with client so far
  - No in person meetings with client
- Team Meetings
  - Weekly meetings on Wednesdays
  - Meet regularly – after class, after client calls and regular weekly meetings
- Team Organization
  - Each role: Leader and Deputy
  - PM: Angelo, Lisa; C/I L: Varsha, Lisa; PF: Lisa, Angelo
  - FE-L: Owen, Varsha; BE-L: Wendy, Angelo; UX/UI L: Varsha, Wendy; TL: Kaan, Owen
  - Project Plan Assignments: Lisa-ToC/Summary; Angelo-Technical; Varsha-Functional; Wendy-Testing/Schedule; Kaan-Risks; Owen-Design

Team CSAA Insurance Innovation

Status Report

[4 of 4]

3D Scene Reconstruction of Vehicle Accidents

Risks

- Risk 1
  - Do not know the values of the vehicle model
  - Start working on the values of the vehicle model by the client and then working on the demo and research to figure out what values are needed
- Risk 2
  - Final UI design is not fully determined (scope)
  - Need to finalize a concept so we can determine if we can finish on time
- Risk 3
  - Do not know how the model handles light reflections such as from windows
  - Start working on demos with light reflection and modify the code accordingly
- Risk 4
  - The model depth map looks inaccurate needs refining
  - Start working on improvements on the base model supplied by the client

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Status Report Presentation

General RAte Calculation Environment IDE

The Capstone Experience

Team Delta Dental Knowledge Science 1

Hyunmin Kim
Joseph Nagy
Anthony Rodeman
Qinghao Shen
Justin Swinehart

Department of Computer Science and Engineering
Michigan State University

Fall 2021

From Students…
…to Professionals

Team Delta Dental Knowledge Science 1

Status Report

[1 of 4]

General RAte Calculation Environment IDE

- Project Overview
  - Develop IDE for proprietary rate calculation language GRACE
  - Implement intellisense, syntax highlighting, error checking, and code navigation
  - Usable as a VSCode library plugin
- Project Plan Document
  - Created a template
  - Designated tasks to team members
  - Will review plan with client Tuesday, Jan. 25

Team Delta Dental Knowledge Science 1

Status Report

[2 of 4]

General RAte Calculation Environment IDE

- Server Systems / Software
  - No relevant server systems/software.
- Development Systems / Software
  - Angular: Installed and running
  - ANTLR: Installed and awaiting grammar
  - Monaco Editor: Installed. Needs to be integrated into Angular

Team Delta Dental Knowledge Science 1

Status Report

[3 of 4]

General RAte Calculation Environment IDE

- Client Contact
  - Weekly meetings on Tuesdays at 2:00 PM through Teams
  - Met twice already, but haven't met one of the contacts yet
- Team Meetings
  - Tuesdays and Thursdays at 6:00 PM through Teams
  - Met three times so far
- Team Organization
  - Client Contact – Justin Swinehart
  - Front end – Justin Swinehart, Anthony Rodeman
  - Back end – Hyunmin Kim, Joseph Nagy, Qinghao Shen

Team Delta Dental Knowledge Science 1

Status Report

[4 of 4]

General RAte Calculation Environment IDE

Risks

- Risk 1
  - Integrate three systems (Angular, Monaco, ANTLR) in one program
  - Divide core concerns for each system and prototype system solutions individually
- Risk 2
  - We do not know our users. How do we design software for a userbase we have no information about?
  - Emphasize accessibility for user interface. Use client as line of communication to potential userbase.
- Risk 3
  - GRACE language has not been fully deployed and has no exhaustive documentation
  - We will contact the person who oversaw GRACE development

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Status Report Presentation

General Rate Calculation Environment Shell

The Capstone Experience

Team Delta Dental Knowledge Science 2

Dylan Boyd
Kyle Ernster
Huy Nguyen
Justin Park
David Robbins
Yang Zhao

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Michigan State University

Spring 2022

From Students…
…to Professionals

Team Delta Dental Knowledge Science 2 Status Report

[1 of 4]

General Rate Calculation Environment Shell

- Project Overview
  - Find open source or build, with ANTLR, a command line interface
  - Determine command line syntax
  - Parse commands & interact with Client's in-house GRACE core libraries
  - Allow interaction with environment (load, save files, change directory, etc.)
- Project Plan Document
  - Very beginning of project plan started (<10% complete)
  - Plan to have 50% done by Monday

Team Delta Dental Knowledge Science 2 Status Report

[2 of 4]

General Rate Calculation Environment Shell

- Server Systems / Software
  - No servers required for our project
- Development Systems / Software
  - Both iMacs have VMWare Fusion
  - Every team member has a Java IDE
  - Every team member has written a Java program

Team Delta Dental

Knowledge Science 2

Status Report

[3 of 4]

General Rate Calculation Environment Shell

- Client Contact
  - Met with our client twice and scheduled weekly meetings Wednesdays 4:30-5:30.
  - Decided no in-person meeting was necessary.
- Team Meetings
  - Our team has met twice so far and will meet for a third time Friday.
  - Scheduled weekly meetings Friday 2-3pm
- Team Organization
  - Client Contact - Kyle Ernster
  - Program Manager – Yang Zhao
  - Front End Developer – Huy Nguyen
  - Back End Developer – Justin Park
  - Tester – David Robbins
  - System Admin – Dylan Boyd

Team Delta Dental

Knowledge Science 2

Status Report

[4 of 4]

General Rate Calculation Environment Shell

Risks

- Risk 1
  - Understanding an open-source CLI framework and identifying what makes one better than others for the purposes of project
  - Research various Java CLI frameworks and attempt to understand the differences between each one to determine the best fit for our project.
- Risk 2
  - We do not have access to the GRACE libraries and are unsure as to how to integrate our code with it when the time comes
  - We can do our best to understand language processing so when we do gain access the transition will be smoother
- Risk 3
  - Creating readable and intuitive syntax that is clear to our client
  - Look into syntax typically used for Java based projects and communicate with our sponsor as to what they are looking for.

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Status Report Presentation

ERP Reserve Preservation Platform

The Capstone Experience

Team Evolutio

Jake Lankfer
Stefan Najor
Matthew DeLanoy
Riley Thompson
Braedyn Lettinga
Jinxuan Zhang

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
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Team Evolutio

Status Report

[1 of 4]

ERP Reserve Preservation Platform

- Project Overview
  - Designing a web application platform for convenient access to information across the reserve
  - Ranger work scheduling, security and alert systems, and (potentially) a geographical overview of elephant locations
- Project Plan Document
  - We've created a simple "hello world" React.js/Flask foundation
  - We've met with the project sponsors to discuss features that are in scope of the project, and we are currently planning on approaches to tackling the problems posed by these features
  - Created skeleton of project plan – title page, table of contents, split work amongst group

Team Evolutio

Status Report

[2 of 4]

ERP Reserve Preservation Platform

- Server Systems / Software
  - Tentatively planning to use AWS or MSU phpMyAdmin
- Development Systems / Software
  - React + Flask framework: tested basic function
  - Github: Repository created, and Flask/React framework created
  - Python 3.9

Team Evolutio

Status Report

[3 of 4]

ERP Reserve Preservation Platform

- Client Contact
  - Initial meeting on January 14th
  - Weekly meetings, Fridays at 4:30 pm – 5:30 pm

Team Meetings

- Met four times
- Meet at least two times a week based on team availability

- Team Organization
  - Everyone: Frontend development
  - Jake, Braedyn: Backend development/databases
  - Jinxuan Zhang: Homepage
  - Jake, Braedyn: User authentication/ranger certification quizzes
  - Matthew: Ranger work scheduling
  - Riley: Security and alert systems
  - Stefan: Security cameras

Team Evolutio

Status Report

[4 of 4]

ERP Reserve Preservation Platform

Risks

- Live Data Streams
  - Streaming live footage on our platform
  - Replacing the provided static video footage with a live stream
- GPS Data Security
  - Elephant and Rhinoceros data is highly sensitive with them being poached at a high rate
  - Login, MFA, face-to-face exchange of information
- Difficulty aligning with ERP branding with frontend
  - All group members with limited experience with frontend development
  - Spend time collectively and separate brushing up on frontend skills
- Vague project proposal provided
  - Original project proposal gives numerous requirements that may not be met while other requirements are key
  - Discuss as a collective team to decide scope of what we can carry out in a semester

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Status Report Presentation

High Frequency Data Ingestion

The Capstone Experience

Team GM

Dave Yonkers
David Karlavage
Kory Gabrielson
Yunxiang Zhang
Kevin Zhong
Joseph Kasza

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Spring 2022

From Students…
…to Professionals

Team GM

Status Report

[1 of 4]

High Frequency Data Ingestion

- Project Overview
  - Create a CSV data generator to simulate the creation of network telemetry files
  - Compute summary statistics for each telemetry file
  - Ingest summary statistics to the database
  - Visualize data from the database as well as any processing statuses or errors
- Project Plan Document
  - Outline has been created

Team GM

Status Report

[2 of 4]

High Frequency Data Ingestion

- Server Systems / Software
  - Microsoft Network Attached Storage (NAS) server is up and running on iMac #1
    - Network communications have been successful outside of the virtual machine and on the EGR network
  - Microsoft SQL Server is not yet up and running, but will be shortly
- Development Systems / Software
  - Decisions regarding software platform have been made
    - Data generator and data analysis will be written in Python
    - Data ingestion and NAS communication will be written in C# or other .NET languages
  - Team members have begun learning the new languages, techniques, and development systems required for .NET and Python visualization

Team GM

Status Report

[3 of 4]

High Frequency Data Ingestion

- Client Contact
  - Weekly meetings scheduled for 3:00pm EST on Fridays
    - Already completed our first meeting
  - Received a more detailed project description from the client
- Team Meetings
  - Weekly meetings are scheduled for 11:40am EST on Mondays (and as necessary)
    - The team has met four times already
- Team Organization
  - Kory, Joey, and Kevin are working on .NET environment for data ingestion
  - Felix and David are working on a data generator prototype
  - Dave is working on getting the servers up and will lead logging/visualization efforts

Team GM

Status Report

[4 of 4]

High Frequency Data Ingestion

Risks

- Replicating the Bottleneck
  - We may not be able to replicate GM's file I/O bottleneck issue with the NAS
  - We may be able to artificially create a bottleneck by limiting VM resources
- Working Around Hardware/Network Constraints
  - GM believes that an ideal solution that may not exist due to hardware and network constraints
  - If so, find the optimal solution given the current hardware and network constraints
- Status Logging Congestion
  - Introducing system and ingestion logging may unintentionally introduce congestion to the SQL server
  - The logging tables will need to be made efficient or an entirely new method of logging will need to be investigated

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Status Report Presentation

Global Business Services Customer Satisfaction

The Capstone Experience

Team Kellogg's

Ben Person
Dhiloj Vigneswaran
Henry Xu
Kathy Gu
Sarah Funk

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Kellogg's

Status Report

[1 of 4]

Global Business Services Customer Satisfaction

- Project Overview
  - Redesign user interface of Global Business Services Customer Satisfaction Survey
  - Determine a more optimal dissemination method
  - Build user behavior collection into survey
    - Time spent on each question
    - Questions completed/not completed
    - Sequence of clicks
  - Automate the creation of graphs and other visual elements to display data collected
  - Allow for automatic English to Spanish translation and vice versa
- Project Plan Document
  - In beginning stages
  - Have basic outline completed
  - Sections assigned to each team member
  - 10% complete

Team Kellogg's

Status Report

[2 of 4]

Global Business Services Customer Satisfaction

- Server Systems / Software
  - Amazon S3 – Explored, but sponsor only requires we be compatible with the existing system
- Development Systems / Software
  - Microsoft Office 365 Suite – Set up and familiar
  - Tableau – Tested and explored on local machines
  - R-Studio & R-Shiny – Tested and explored on local machines

Team Kellogg's

Status Report

[3 of 4]

Global Business Services Customer Satisfaction

- Client Contact
  - 2 meetings already
  - Weekly meeting – Tuesday at 1 pm
- Team Meetings
  - 2 meetings already
  - Weekly meeting - Tuesdays at 6 pm
- Team Organization
  - Trello & Git Repo created
  - Project Manager/Client Contact - Henry
  - UI Designer - Dhiloj
  - User Researcher - Kathy
  - R-Studio Specialists – Ben, Henry
  - Tableau Specialists – Kathy, Sarah

Team Kellogg's

Status Report [4 of 4]

Global Business Services Customer Satisfaction

Risks

- Survey Translation in Spanish
  - The survey needs to have an automated method for translating the survey between English and Spanish
  - We have looked into opensource R-Shiny tools for easier Spanish translation
- Test Data
  - We quickly need access to a subset of data or test data for development purposes
  - Set deadline with client to ensure we have data for development purposes
- Survey Aesthetic Disagreements
  - Client may not approve of initial redesigns of the survey
  - Make mock-ups early for client's feedback and continuously revise
- Survey User Perception
  - May not imminently have access to test users to ensure survey meets expectations or corresponding analytics
  - Communication with client to ensure test users are identified in advance so we can get analytic data early

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Status Report Presentation Athenaeum

The Capstone Experience

Team Kohl's

Lucas Barron
Ryan Felten
Jason Israilov
Tim Kowalski
Jacob Mackay
Bryan Vi

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From Students…
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Team Kohl's

Status Report

[1 of 4]

Athenaeum

- Project Overview
  - Centralized platform for the Kohl's Dev teams
  - Discussion board and to facilitate discussions
  - Reduce redundancy of questions
  - Provides easy access to past issues and their solutions
- Project Plan Document
  - We have discussed project specs with Kohl's Platform Team
  - We have created mock-up for website UI
  - Created project plan skeleton

Team Kohl's

Status Report

[2 of 4]

Athenaeum

- Server Systems / Software
  - Google Cloud Platform
- Development Systems / Software
  - React / JS
  - MySQL – Initial database
  - Flask – Hello World

Team Kohl's

Status Report

[3 of 4]

Athenaeum

- Client Contact
  - Met once with client contact (Will White)
  - Weekly meetings on Thursdays
- Team Meetings
  - Four only-team meetings
  - Twice a week
- Team Organization
  - Back-end: Bryan, Tim, Lucas
  - Front-end/Website: Jason, Jacob, Ryan

Team Kohl's

Status Report [4 of 4]

Athenaeum

Risks

- Google Cloud Platform
  - Storing essential data on the cloud, database, hosting
  - Further research on Google Cloud Platform and how to connect
- Web Development
  - Developing scalable website, no prior experience
  - Research/Tutorials on web development
- Kohl's Integration
  - Starting from scratch, but must use same frameworks as Kohl's
  - Working closely with Kohl's Team

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Status Report Presentation
SmartSat™ Satellite App Store

The Capstone Experience

Team Lockheed Martin Space

Cody Lowen
Sirena Ly
Matthew Harper
Quinton Farrar
Mike Kilmurray
Kaleb Koebel

Department of Computer Science and Engineering
Michigan State University

Fall 2021

From Students…
…to Professionals

Team Lockheed Martin Space

Status Report

[1 of 4]

SmartSat™ Satellite App Store

- Project Overview
  - Extend automated testing capabilities to support performance polling and resource utilization measurements.
  - Add dependency support to the SmartSat App Store (Track Dependencies and verify an Apps dependencies are installed before installing new app).
  - Stretch goal for this project is to create a RESTful API with token authentication support to automate app store functionality.
  - Add support for site mirroring and site backup.
- Project Plan Document
  - Project plan document headers has been created
  - Required hardware and software has been listed
  - Table of contents created
  - Tentative schedule for the next week has been planned

Team Lockheed Martin Space

Status Report

[2 of 4]

SmartSat™ Satellite App Store

- Server Systems / Software
  - SIE accounts have been created and 2FA has been set
  - In process of exploring the backend (Postgresql)
  - Still waiting on access to Lab
- Development Systems / Software
  - All members have a VM and are in process of building the app store and applications
  - In the process of accessing the frontend (React)
  - Have connected to assigned IMacs, but the computers have a slow connection

Team Lockheed Martin Space

Status Report

[3 of 4]

SmartSat™ Satellite App Store

- Client Contact
  - We have met with our client Monday 1/17/2022 and Wednesday 1/19/2022.
  - Weekly client meeting Wednesday's at 12:00pm.
- Team Meetings
  - Our team has met three times.
  - Scheduled meetings for Tuesdays at 11:40am and Friday's at 5:00pm.
- Team Organization
  - Customer Liaison – Cody
  - Front-End Development – Cody, Kaleb, Quinton
  - Back-End – Cody, Matthew, Kaleb, Sirena, Mike
  - Embedded Systems – Sirena, Mike, Matthew
  - DevOps – Cody, Quinton

Team Lockheed Martin Space

Status Report

[4 of 4]

SmartSat™ Satellite App Store

Risks

- Risk 1
  - No member can completely and successfully run the application yet
  - Redownloading modules and rebuilding
- Risk 2
  - Nexus repository unfamiliarity
  - Contact sponsor with questions about the nexus
- Risk 3
  - Poor documentation to start up
  - Improve upon the documentation for future uses
- Risk 4
  - No access to the front end yet
  - Debug what dependencies are incorrect or missing

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Advancing PreK-12 Educational Opportunities

The Capstone Experience

Team Malleable Minds

Temi Agbebi
Noah D'Arcy
Alex Ralya
Siyuan Rong
Travis Walton

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Malleable Minds

Status Report

[1 of 4]

Advancing PreK-12 Educational Opportunities

- Project Overview
  - A review aggregator for educational programs that cater to the user's choice of career (e.g programmer, photographer, hawking)
  - Pathway into a new career or professional venture through multifaceted educational resources
  - Community driven and interactive platform
- Project Plan Document
  - Reviewed examples as a team
  - Notes outlining project plan categories
  - We have not begun any category write ups yet
  - Still brainstorming ideas

Team Malleable Minds

Status Report

[2 of 4]

Advancing PreK-12 Educational Opportunities

- Server Systems / Software
  - Early AWS research & training in progress (hosting)
  - Setup local Elastic Beanstalk tools for AWS deployments
  - AWS architecture already configured by sponsor
- Development Systems / Software
  - All members now have access to GitHub repository
  - Local repo cloning & environment setup *in progress*
  - Trello board configured for Agile/workflow
  - React.js training before sponsor meeting

Team Malleable Minds

Status Report

[3 of 4]

Advancing PreK-12 Educational Opportunities

- Client Contact
  - Discussed project overview at first meeting
  - Will be meeting Thursday at 8:00 PM (... more in future?)
- Team Meetings
  - We meet twice a week; on Tuesday and Sunday
  - We have met three times so far via zoom and teams
- Team Organization
  - Backend = Siyuan and Alex
    Frontend = Temi, Noah, and Travis
  - Finalize role specifics after reviewing detailed project technical scope with sponsor

Team Malleable Minds

Status Report

[4 of 4]

Advancing PreK-12 Educational Opportunities

Risks

- Risk 1
  - Working with existing code
  - Research, testing, debugging, and meeting with client
- Risk 2
  - Correct local dev environment setup **for all team members** (Windows + Mac)
  - Sponsor meetings & tool demos
- Risk 3
  - Project organization and workflow
  - Trello, Google Drive, Discord, Agile

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Blockchain Based Vaccine Passport System

The Capstone Experience

Team MaxCogito

Moez Abbes
Daniel Adu-Djan
Andrew Decrem
Alex Holt
Samgar Kali
Lucas Sariol

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team MaxCogito

Status Report

[1 of 4]

Blockchain Based Vaccine Passport System

- Project Overview
  - Creating a wallet to hold Elliptic-Curve key pairs that allow a user to communicate with the etherium blockchain
  - Creating a smart contract that runs on the etherium virtual machine that records and stores vaxxine information for users
  - Create a Spring Boot Application that allows administrative entities to record users informatino onto the blockchain
  - Optional: Create an Android App that allows users to link their wallet and show proof of their vaccination
- Project Plan Document
  - Created Document, table of contents and some basic formatting
  - Roughly 2%

Team MaxCogito

Status Report

[2 of 4]

Blockchain Based Vaccine Passport System

- Server Systems / Software
  - AWS
    - Web Application Server
    - PostgreSQL Server
- Development Systems / Software
  - IntelliJ IDE, Maven, Web3j, Solidity
  - Google Chrome, Meta Mask
  - Truffle and Ganache
  - Everything has been downloaded and confirmed to be working by each member

Team MaxCogito

Status Report

[3 of 4]

Blockchain Based Vaccine Passport System

- Client Contact
  - Steve Akers
  - Every Thursday at 5pm (Online meetings)
- Team Meetings
  - Tuesdays at 5pm (Online meetings)
  - Arranged meetings
- Team Organization
  - Contact Person: Lucas Sariol
  - Web Application (backend API – Spring Boot, Database): Andrew Decrem & Daniel Adu-Djan
  - Web UI (Angular): Daniel Adu-Djan & Moez Abbes
  - Smart Contract: Lucas Sariol & Samgar Kali
  - User Wallet: Lucas Sariol & Alex Holt
  - Admin Wallet integration in Backend API: Alex Holt & Samgar Kali

Team MaxCogito

Status Report

[4 of 4]

Blockchain Based Vaccine Passport System

Risks

- Integrating smart contract with java app
  - Using web3j to get the java app and smart contract to work together
  - Researching examples from project sponsor
- Potential Software Failure
  - With so many different systems, and operating systems, its possible to have version and OS issues
  - Constant version checking, and ensuring that each ‘patch’ is working on all OS systems
- Creating the Smart Contract
  - Optimizing the smart contract to be as efficient as possible to ensure the lowest gas fees possible
  - Doing additional research and reviewing sponsors examples

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Meijer Smart Shopper

The Capstone Experience

Team Meijer

Bram Kineman
Farhadul Fahim
Jintian Chen
Ky Nguyen
Vijay Vatti

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Meijer

Status Report

[1 of 4]

Meijer Smart Shopper

- Project Overview
  - Integrate Alexa with Meijer
  - iOS, Android, and Web
  - Maintain Grocery List, Shopping Cart, Coupons
  - Check Product Availability
- Project Plan Document
  - Functional Specifications
  - < 5% done

Team Meijer

Status Report

[2 of 4]

Meijer Smart Shopper

- Server Systems / Software
  - Onboarded to Meijer Azure
- Development Systems / Software
  - Prototyping in Alexa Developer Console
  - Prototyping in IDEs: Visual Studio, xCode, Android Studio

Team Meijer

Status Report

[3 of 4]

Meijer Smart Shopper

- Chris Laske
  - Met once
  - Meeting once a week - Friday - 10:30am
- Team Meetings
  - 2 Meetings
  - Meeting twice a week – Mon 4:40pm/Wed 4:30pm
- Team Organization
  - Customer Liaison – Vijay ; Developer Operations - Bram
  - iOS – Vijay, Fahim ; Android – Ky, Chen ; Web - Bram

Team Meijer

Status Report

[4 of 4]

Meijer Smart Shopper

Risks

- Risk 1
  - Establishing project requirements and boundaries, allowing team to prioritize work
  - Agree upon with customer what features can be implemented during the semester
- Risk 1
  - Multi-word product indexing, ie. Kitty litter
  - Find all products with 2+ words, add to potential items
- Risk 2
  - Which product brand to add to list
  - Just basic string first, then user manually picks brand. Or determine based off purchase history

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Data-Driven Mechanic: Applications and Infrastructure

The Capstone Experience

Team Michigan State University CSE

Erik Ralston
Kaela Burger
Abhinav Thirupathi
Andrew Brua
Jianyu Deng

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Michigan State University CSE

Status Report

[1 of 4]

Data-Driven Mechanic: Applications and Infrastructure

- Project Overview
  - Develop iOS and Android apps to collect audio and accelerometer data of vehicles for collection of data and classification
  - Ability to annotate the collected data for training of algorithms
  - Ability to classify the data using previous trained algorithms and display the results to users
- Project Plan Document
  - Skeleton document made with relevant sections and table of contents
  - Completed the description of the current user interface

Team Michigan State University CSE

Status Report

[2 of 4]

Data-Driven Mechanic: Applications and Infrastructure

- Server Systems / Software
  - Flask Server: Skeleton is running on a local machine, will move over to iMac once remote connect is working again
  - Frontend/UI: Completed a design mockup
  - Database: Basic MySQL Database setup on local host
- Development Systems / Software
  - Github Repo: Finished setting up the repository
  - React Native Expo: Installed and created an hello world app
  - VS Code: Installed the IDE for editing the code

Team Michigan State University CSE

Status Report [3 of 4]

Data-Driven Mechanic: Applications and Infrastructure

- Client Contact
  - Client liaison Established
  - Weekly meeting established at 2-3PM on Fridays with client
- Team Meetings
  - Weekly meeting established at 5pm on Mondays
  - Group chats and communication set up
- Team Organization
  - Abhi Thirupathi: UI/Frontend Design & Github Repo
  - Kaela Burger: Backend Server & Client Liaison
  - Erik Ralston: UI/Frontend Implementation
  - Andrew Brua: Backend and Database Manager
  - Jianyu Deng: Frontend implementation

Team Michigan State University CSE

Status Report [4 of 4]

Data-Driven Mechanic: Applications and Infrastructure

Risks

- Accessing iOS and Android sensors with React Native
  - Using the React Native framework to access microphone and accelerometer for data on both iOS and Android
  - Use native development platforms for iOS and Android apps rather React Native framework
- Communication with Backend Classification Algorithm
  - Sending the audio and other data from the frontend to the backend algorithm using flask API cross platform
  - Send data to a SQL database and the flask API communicates with the database for data to be classified

MICHIGAN STATE UNIVERSITY

Status Report Presentation On-Premises ASR Pipeline for Michigan English

The Capstone Experience

Team Michigan State University Linguistics

Eden Seo
Jacob Caurdy
Jacob Theobald
Maria Irimie
Kyle Reinhart
Yichen Ding

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team MSU Linguistics

Status Report

[1 of 4]

On Premises ASR Pipeline for Michigan English

- Project Overview
  - Create & Integrate a speech-to-text model into an existing ASR pipeline to replace outsourced Google model
  - Ideally easily integratable across multiple projects
  - Includes features for private information detection, speaker diarization, language detection* and acoustic analysis*
- Project Plan Document
  - 25% completed
  - Initial list of specifications and risks
  - Model Architecture draft

* = Additional Features

Team MSU Linguistics

Status Report

[2 of 4]

On Premises ASR Pipeline for Michigan English

- Development Systems / Software
  - HuggingFace Python Libraries
  - Wav2Vec
  - TensorFlow
  - Docker
  - GitHub
- Other Technologies
  - MI Diaries Database

Team MSU Linguistics

Status Report

[3 of 4]

On Premises ASR Pipeline for Michigan English

- Client Contact
  - Dr. Betsy Sneller: sneller7@msu.edu
  - Russ Werner: wernerru@msu.edu
- Team Meetings
  - Client Meeting: Every Friday at 2:30 PM
  - Group Meeting: Every Friday at 5:30 PM
- Team Organization
  - Freelance & Tester: Jacob Caurdy
  - Model Developer: Yichen Ding, Maria Irimie
  - Executable: Eden Seo
  - Feature Developer: Kyle Reinhart, Maria Irimie

Team MSU Linguistics

Status Report

[4 of 4]

On Premises ASR Pipeline for Michigan English

Risks

- Risk 1
  - Not sure if enough hand-corrected data to train a working model
  - Discuss problem with client, can still create the architecture
- Risk 2
  - Getting HuggingFace working locally, not just Google Collab
  - Test and understand inner-workings of HuggingFace on our own systems to allow smooth development moving forward.

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Improve Firefox's Reader View

The Capstone Experience

Team Mozilla

Noel Lefevre
Jintao Hu
Chad Burnham
Tyler Kabaker
Emily Michaels
Steve Hagopian

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Mozilla

Status Report

[1 of 4]

Improve Firefox's Reader View

- Refining Reader View
  - Investigating and fixing issues on top sites
  - Writing tests to verify integrity of existing code
  - Fixing long-standing issues on the about:reader page
- Project Plan Document
  - Skeleton Doc has been created.
  - Roles have been assigned:
    - Steve: Functional Specifications
    - Emily: Executive Summary
    - All: Design Specifications
    - Noel: Risk Analysis
    - Tyler, Chad & Jintao: Technical Specifications
    - All: Schedule

Team Mozilla

Status Report

[2 of 4]

Improve Firefox's Reader View

- Server Systems / Software
  - Git as the Version Control System for the Readability Repo.
  - Mercurial as the Version Control System for the Mozilla Unified Repo.
- Development Systems / Software
  - VS Code IDE for development.
  - Mozilla Phabricator and Bugzilla for tracking bug resolutions.
  - Searchfox for searching Firefox source code.
  - Programming Languages for project: HTML, CSS, JavaScript.

Team Mozilla

Status Report

[3 of 4]

Improve Firefox's Reader View

- Client Contact
  - Weekly Conference Call: Mon 2:30pm-3:30pm
  - Hack Weekend(Jan 15th & 16th): 9:00am – 5:00pm
- Team Meetings
  - Weekly Team Meeting: Wed 4:00pm-4:30pm
  - Weekly Triage Meeting: Tues 5:20pm-5:40pm
- Team Organization
  - Jintao: Client Contact
  - Each Member will be treated like a “Developer”

Team Mozilla

Status Report

[4 of 4]

Improve Firefox's Reader View

Risks

- Navigating two code bases
  - We have both Git and Mercurial.
  - Communicating with clients to better learn when to use which base.
- Different OS
  - Some bugs might be OS specific (Windows / Mac / Linux).
  - Designate roles to determine who will work on OS specific bugs.
- Introducing New Bugs
  - We might introduce new bugs in our attempt to fix existing ones.
  - Regression Testing to confirm our code isn't broken.

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Financial Education Content Library

The Capstone Experience

Team MSUFCU

Alexander, Evan
Bakerson, Bailey
Liu, Haoyu
Masterson, Ian
Sitto, Matthew
Taft, Jason

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team MSUFCU

Status Report

[1 of 4]

Financial Education Content Library

- Project Overview
  - Create content library for financial education articles
  - Library must categorize the 1000+ articles by their content
  - Library can add new articles and easily search existing ones
  - Develop an API for licensed developer access
- Project Plan Document
  - The project plan document has been started
  - Started overview and system architecture
  - ~10% of the project plan complete

Team MSUFCU

Status Report

[2 of 4]

Financial Education Content Library

- Server Systems / Software
  - Mongo DB – Mac Server, To Be Installed
  - GitLab Runner – Installed, Setting-up
  - Webserver – To Be Installed
- Development Systems / Software
  - Languages – Python, Html5
  - Libraries – PyMongo, Scikit-learn
  - IDEs - PyCharm, PhpStorm

Team MSUFCU

Status Report

[3 of 4]

Financial Education Content Library

- Client Contact
  - Met with client Friday the 14th
  - Scheduled for weekly meetings Fridays
- Team Meetings
  - Up to two weekly meetings every Tuesday/Thursday as needed
  - Team has met twice
- Team Organization
  - Web/Git/DB: Evan/Bailey
  - Machine Learning: Matthew/Jason/Team
  - API/Smart Search: Liu/Ian

Team MSUFCU

Status Report

[4 of 4]

Financial Education Content Library

Risks

- Data
  - Need labeled data to train a supervised learning algorithm.
  - Meeting with MSUFCU later to see if they can provide data, if not we plan to look in public databases/scrape financial news websites to create our own
- ML Algorithm
  - Classification algorithm choice depends on dataset (number of data points, and reliability)
  - Meetings scheduled with multiple professors with expertise in ML to ask questions and get pointed in the right direction.
- Smart Search
  - How do we implement a search on a DB that returns result based on content and meaning, rather than on keyword matching?
  - Look at related technologies (Google, other financial news sites?) and continue researching NLP

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Team Member Mapping Application

The Capstone Experience

Team Rocket Companies

Mark Kim
Edwin Flores
Justin Vesche
Sam Walls
John Samsell

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Rocket Companies

Status Report

[1 of 4]

Team Member Mapping Application

- Project Overview
  - Web App designed for users to see fellow employees' geo information
  - Will use Rocket's Sift API to get employee information and display onto Google Maps using Google Maps API
  - Goal is for employees to feel more connected to one another, and be able to view nearby employees for social and professional reasons
- Project Plan Document
  - The Project Plan Document has been created
  - The Cover Page, Table of Contents, and Footers have been set up
  - Basic Outline Started
  - Roughly 5% completed

Team Rocket Companies

Status Report

[2 of 4]

Team Member Mapping Application

- Server Systems / Software
  - AWS-Cloud deployment
  - GitHub-Team collaboration
  - GitHub repository set up
- Development Systems / Software
  - JavaScript
  - React/Angular - "Hello World!"
  - Google API and Sift API

Team Rocket Companies

Status Report

[3 of 4]

Team Member Mapping Application

- Client Contact
  - Met twice
  - Weekly meetings: Fridays 1 pm
- Team Meetings
  - Project Plan Proposal was presented to Rocket
  - Meet Fridays after Client Meetings
- Team Organization
  - Front End: Justin Vesche, John Samsell, Mark Kim
  - Back End: Edwin Flores, Sam Walls
  - Point of Contact with Rocket: John Samsell

Team Rocket Companies

Status Report

[4 of 4]

Team Member Mapping Application

Risks

- Risk 1
  - Lack of clarity using/accessing sift API
  - Setting a meeting with a software developer, who is familiar with the API and will answer our team questions about it.
- Risk 2
  - Authentication with our Mapping Application
  - By possibly using an authentication API such as Okta, we can authenticate users to save time in developing code.
- Risk 3
  - Creating Chat widgets
  - As we approach closer to this feature, possibly use an SDK to help with this feature.
- Risk 4
  - Use of databases
  - After deciding how to use databases, keeping track of queries from various APIs we will decide in what way is the most efficiently we can use them.

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Smart Little Hunter of Fakes

The Capstone Experience

Team Scout

Lukas Nolta
D'angela Anderson
Mike McVey
Meghna Nair
Georgios Siozios
Yifeng Lu

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Scout

Status Report

[1 of 4]

Smart Little Hunter of Fakes

- Project Overview
  - Counterfeit product detection
  - Machine learning model
  - API
  - Web crawler
- Project Plan Document
  - Project plan created
  - Early project schedule
  - Technologies
  - Table of contents

Team Scout

Status Report

[2 of 4]

Smart Little Hunter of Fakes

- Server Systems / Software
  - Microsoft Azure SQL
  - Microsoft ML.NET
  - Microsoft Azure Cognitive Services
- Development Systems / Software
  - Able to create a blank hello world API on the web through Visual Studio using ASP.net and C#
  - Able to create a custom ML.NET model for testing. Understanding how to set up the data for ML.NET. And looking for how to consume a model in a ASP.NET app
  - Able to initialize and configure basic SQL database

Team Scout

Status Report

[3 of 4]

Smart Little Hunter of Fakes

- Client Contact
  - Lukas Nolta
  - Weekly conference calls with client @ 2:30pm Thursdays
- Team Meetings
  - Five team meetings to date
  - Weekly team meetings @ 5:30pm Mondays
  - Many other unscheduled meetings
- Team Organization
  - Azure SQL Database (Mike McVey, Luke Nolta)
  - ML.NET model (Dangela Anderson, Yifeng Lu)
  - Application Program Interface (Meghna Nair, Georgios Siozios)

Team Scout

Status Report

[4 of 4]

Smart Little Hunter of Fakes

Risks

- Microsoft Azure SQL Database
  - We need to create a SQL database and understand how to update, add, remove data
  - Lukas and Mike will conduct research on the topic and build prototype databases to better understand their use.
- Machine Learning Model
  - Need to build a model that learns based on images with manually entered user tags.
  - D'Angela and Lu have started building simple ML models using ML.NET to build a foundation on the subject.
- API
  - Our program must have an easy-to-use interface that ties together, the database and the model
  - Meg and Georgios have started developing what we think the user interface should look like. We plan to update the API as we receive feedback from our sponsors.
- Connections between the three branches of implementation
  - We need the model to train based on data in the SQL database. The model needs to be controlled through the API.
  - We will build a very basic prototype with all the necessary connections

MICHIGAN STATE UNIVERSITY

Status Report Presentation

ViSUI

The Capstone Experience

Team TechSmith

Jack Koby
Diego Marzejon
Scott Isaacson
Averi Justice
Erika Zheng
Jered Brophy

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team TechSmith

Status Report

[1 of 4]

ViSUI

- Project Overview
  - Video Editing Software Web Application
  - Simplified User Interface
  - Scrubbing
  - Export Finalized Edited Result
- Project Plan Document
  - We will successfully complete this on time
  - Specifications Document, Trello, Assigned Roles to Sections
  - Specifications and requirements written, further ideas discussed, just have to format and put on presentation
  - 20%

Team TechSmith

Status Report

[2 of 4]

ViSUI

- Server Systems / Software
  - Server up and running on Azure
  - Github repository with automatic deployment
  - No database, need to ask further at client meeting
- Development Systems / Software
  - Basic React webpage created
  - Computer Vision code started and recognizing text
  - User Interface Mockup created
  - Authentication researched and potentially solved

Team TechSmith

Status Report

[3 of 4]

ViSUI

- Client Contact
  - Met client on January 14th
  - Weekly Meetings Fridays at 2pm
- Team Meetings
  - Have met 3 times, weekly meetings on Wednesdays at 3pm
  - No in-person meetings discussed yet
- Team Organization
  - Trello Board
  - Agile Development Process

Team TechSmith

Status Report [4 of 4]

ViSUI

Risks

- Risk 1
  - Computer Vision works consistently with photos, applying this same logic to video files could be complex.
  - Try to recognize when something changes significantly enough to cause a scan. To many scans could significantly deteriorate the code.
- Risk 2
  - When scrubbing, where to create breaks for suggestions and edits. Many routes to go with this, must agree on a design.
  - Many different ideas going around, but we believe that we could take snippets of video and scan these rather than scanning every individual frame.
- Risk 3
  - Efficiency of the scrubbing process, must find the “sweet spot” of how many images we send to the Computer Vision.
  - Want to break up frames into groups that are large enough to increase efficiency but small enough to catch all changes.
- Risk 4
  - Storage, updating, and exporting of the database. Making sure that we can save video files, with their edits, at any point during production.
  - Potentially use state changes to determine when a file is edited so that we know when to update in the database.

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Railroad Data Visualization

The Capstone Experience

Team Union Pacific

Yufeng Li
Andrew Haakenson
Jared Surato
Paul Schulte
Ryan Piotrowicz

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team Union Pacific

Status Report

[1 of 4]

Railroad Data Visualization

- Project Overview
  - Data visualization tool
  - Train simulation tool produces data
  - Visualizing buff and draft forces
  - Input and storage of data
- Project Plan Document
  - Title Slide
  - Design Specifications
  - Functional Specifications
  - One rough screen mock up

Team Union Pacific

Status Report

[2 of 4]

Railroad Data Visualization

- Server Systems / Software
  - Logged into iMac
  - Downloaded SQL Server
  - Started to connect database to network
- Development Systems / Software
  - Angular project set up
  - Nebular added to Angular Project

Team Union Pacific

Status Report

[3 of 4]

Railroad Data Visualization

- Client Contact
  - First meeting scheduled for Friday
  - Received basic information from client via email
- Team Meetings
  - Three group meetings
  - Weekly meetings 5pm on Wednesdays
- Team Organization
  - Front-End – Jared, Andrew
  - Back-End – Paul, Ryan, Yufeng

Team Union Pacific

Status Report

[4 of 4]

Railroad Data Visualization

Risks

- Connecting front-end to back-end
  - How to properly interface with the API from the front end
  - Research Angular documentation for info
- Turning theory into implementation
  - Figuring out how to properly implement REST-style architecture
  - More research!
- Tools to for animated visualizations
  - Finding a visualization library which can display our data with respect to time
  - Research visualization libraries, starting with suggestions from our client
- Deciding what portions of the data are to be used
  - The input data is large with many different variables
  - Determine the key variables (buff, draft, speed, elevation)

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Performance Scorecard Automation

The Capstone Experience

Team United Airlines Airport Operations

Griffin Klevering
Danny Lee
Noah Little
Cynthia Trocinski
Guanzhang Zheng

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team United Airlines Airport Operations

Status Report

[1 of 4]

Performance Scorecard Automation

- Project Overview
  - Get safety data from Excel/SQL
  - Automatically generate PowerPoint from data
  - Create GUI for selecting data sources
  - Store trends between months of data
- Project Plan Document
  - Rough draft of executive summary
  - Risks and their possible solutions
  - Rough draft of schedule made

Team United Airlines Airport Operations

Status Report

[2 of 4]

Performance Scorecard Automation

- Server Systems / Software
  - Working with SQL databases
  - TIBCO Spotfire databases
  - No access to databases yet
- Development Systems / Software
  - Visual Studio set up for MS Office Development
  - C# and .NET Framework installed
  - WPF for GUI
  - Proof of concept

Team United Airlines Airport Operations

Status Report

[3 of 4]

Performance Scorecard Automation

- Client Contact
  - Initial Virtual Meeting on Friday, January 14
  - Future weekly meetings on Friday at 11:00am
- Team Meetings
  - Team has met four times
  - Team weekly meetings on Wednesdays at 10:00am along with as needed times
- Team Organization
  - Griffin – GUI
  - Danny – SQL
  - Noah – C# PowerPoint interop (export)
  - Cynthia – C# Excel interop (import)
  - Guanzhang – TIBCO Spotfire

Team United Airlines Airport Operations

Status Report

[4 of 4]

Performance Scorecard Automation

Risks

- Data fetching
  - How to fetch data from remote databases/excel
  - Potentially grab from backup databases
- Comparing trends
  - Using previous weeks data in current weeks report
  - Store relevant data separately for future comparisons
- Scorecard layout
  - Specified layout must be converted and usable by C#
  - Import layout directly from an example scorecard
- Data handling
  - What to do with missing/incomplete data
  - Scrub data, warn user if data is incorrect format

MICHIGAN STATE UNIVERSITY

Status Report Presentation

Audit Management System

The Capstone Experience

Team United Airlines Quality Assurance

Jack Baldwin
Gigi Padalec
Daniel Lee
Zihan Yang
Mary MacLachlan

Department of Computer Science and Engineering
Michigan State University

Spring 2022

From Students…
…to Professionals

Team United Airlines Quality Assurance

Status Report

[1 of 4]

Audit Management System

- Project Overview
  - iOS Application to manage audits and checklists
  - PDF Generation
  - Photo Capture
  - Web Scraping
- Project Plan Document
  - Distributed sections
  - 10% complete
  - Looked at the example

Team United Airlines Quality Assurance

Status Report

[2 of 4]

Audit Management System

- Server Systems / Software
  - AWS, SQL
  - Virtual machine running, server not started
  - Need to determine what exactly we need to use
- Development Systems / Software
  - SwiftUI
  - “Hello World” project created
  - GitLab repository started

Team United Airlines Quality Assurance

Status Report

[3 of 4]

Audit Management System

- Client Contact
  - Gigi
  - Met w/ sponsor 1/14
  - Scheduled weekly meetings on Tuesdays
- Team Meetings
  - Held 4 previous meetings
  - Wednesdays 5:30
  - Will meet more frequently if needed
- Team Organization
  - Gigi, Mary, and Zihan working on front-end
  - Daniel and Jack working on back-end

Team United Airlines Quality Assurance

Status Report

[4 of 4]

Audit Management System

Risks

- Backend
  - Not sure if we need to integrate AWS with SQL or if we can just use AWS
  - Discuss with sponsor tomorrow, reference previous semester's project
- Web Scraping
  - Not sure of the exact information needed to scrape from the FAA website
  - Discuss with sponsor tomorrow, reference previous semester's project
- Integrate SwiftUI with backend
  - How to interface SwiftUI with AWS
  - Complete research on the subject
- Audit Process
  - Need to know more specifics about the audit process and checklists
  - Discuss with sponsor tomorrow

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Status Report Presentation

United Airlines Training Forecast Model

The Capstone Experience

Team United Airlines Training

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Jerry Chang
Zachary Matson
Ethan Peterson
Rohit Vadlamudi

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Spring 2022

From Students…
…to Professionals

Team United Airlines Training

Status Report

[1 of 4]

United Airlines Training Forecast Model

- Project Overview
  - United Airlines wants a system that uses predictive modeling to determine where to focus efforts in training airport staff
  - The shape of the product around this model has been left open and we are still determining what form it will take
- Project Plan Document
  - We are still focused mainly on scoping out the project and determining what the final product will look like
  - There is little technical progress so far
  - Future progress depends on tightening the project definition

Team United Airlines Training

Status Report

[2 of 4]

United Airlines Training Forecast Model

- Server Systems / Software
  - Client uses Azure for cloud services
  - The client wants data to be stored in a Microsoft SQL DB
  - We are not planning to use our own servers
- Development Systems / Software
  - The team will develop the software/model with Python
  - Use excel file provided by United Airline to set up a database and use SQL to fetch necessary data
  - Possible frontend design with React

Team United Airlines Training

Status Report

[3 of 4]

United Airlines Training Forecast Model

- Client Contact
  - Met with client on Fri 1/14 and Wed 1/19
  - Weekly Virtual Meeting every Wed 2:30pm
- Team Meetings
  - Triage meetings scheduled for every Monday 5pm
  - Weekly team meeting Tuesday 6pm
- Team Organization
  - Client point of contact – Ian
  - Ian/Jerry focus on backend, Ethan on front and backend, Zach on server and frontend, Rohit on frontend

Team United Airlines Training

Status Report

[4 of 4]

United Airlines Training Forecast Model

Risks

- Risk 1
  - Unsure about intelligent systems and machine learning requirements
  - Have further meetings with United for clarification. Must work with the members who have experience with intelligent systems to gain a further understanding in that technical area.
- Risk 2
  - Limited experience with Azure cloud and configuring necessary database
  - Assigned team member to focus on cloud/infrastructure, investigating managed SQL database service from Azure
- Risk 3
  - Depending on project scope, we may have trouble evenly dividing work
  - We will augment the project and expand our skills as necessary to ensure that project work can be split amongst the team equitably
- Risk 4
  - Confused/Unsure about United's aviation terminology.
  - Ask further questions in Team meetings for clarification.

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Status Report Presentation

Customer Insights Dashboard

The Capstone Experience

Team Urban Science

Cody Maier
Allen Lin
Jacob Frank
Jeff Valentic
Md Samad
Claire Cherng

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Spring 2022

From Students…
…to Professionals

Team Urban Science

Status Report

[1 of 4]

Customer Insights Dashboard

- Project Overview
  - Concept of an **Opportunity Dashboard**
  - Take in **leads** that Urban Science filters and expands upon
  - Output palatable household-dealership relationship information through a quality dashboard
  - Majority of project will be the processing of incoming data using algorithms to determine the value of the opportunities
- Project Plan Document
  - 10% So Far – Functional and some Design Specifications
  - Divided up our roles

Team Urban Science

Status Report

[2 of 4]

Customer Insights Dashboard

- Server Systems / Software
  - MS SQL Server for communication with their servers
  - Dummy data being prepared on their end right now
  - No specific hardware requirements
- Development Systems / Software
  - Angular and Google Material Design (UI software pending)
  - Visual Studio 2019 / VS Code
  - Created Angular project and hello-world page
  - Created GIT repository

Team Urban Science

Status Report

[3 of 4]

Customer Insights Dashboard

- Client Contact
  - Met with client Tuesday, January 18th
  - Scheduled weekly meetings on Fridays at 4 PM
  - No in-person meetings
- Team Meetings
  - Met four times outside of client meeting so far
  - Scheduled weekly meetings on Wednesdays at 2 PM
- Team Organization
  - Main Point of Contact -> Allen
  - Front End -> Allen, Claire, Cody
  - Back End -> Jeff, Jacob, Md

Team Urban Science

Status Report

[4 of 4]

Customer Insights Dashboard

Risks

- Database Systems
  - Need to know the exact structure of their database systems
  - Receiving info about the structure of the database will mitigate this risk.
- Standard style
  - Urban Science follows a style which is their standard format for existing systems.
  - Existing Urban Science code can be used as examples, style guide was requested.
- Generate "Best" opportunity
  - Algorithm must categorize “important” information to work accurately. Currently, the parameters for the classification algorithm are unknown.
  - Understanding the parameters for the algorithm will mitigate this risk. The mode of classification can be developed by analyzing the “expected” outcomes of sample data.
- Sample data for testing
  - Need to know exact parameters and how many in order to set up our data structure.
  - Dummy Data already requested from Urban Science; they are compiling data.

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Status Report Presentation

Employee Recognition on Blockchain

The Capstone Experience

Team Vectorform

Tyler Brush
Jonathan Lee
Freddy Merlin
Ryan Shore
Elie Tom
Shan Xin

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Spring 2022

From Students…
…to Professionals

Team Vectorform

Status Report

[1 of 4]

Employee Recognition On Blockchain

- Project Overview
  - Employee recognition software built on the Blockchain using Solidity and integrated into Microsoft Teams
  - Give recognition, or "Kudos", to colleagues
  - Uses OpenAI to aggregate recognition messages into a summary for each employee
  - Utilizes a dashboard system using ReactJS and an active feed of all transactions
  - Modern leaderboard for the workplace

- Project Plan Document
  - In the starting phase of project planning
  - In the process of eliciting requirements from Vectorform

Team Vectorform

Status Report

[2 of 4]

Employee Recognition on Blockchain

- Server Systems / Software
  - SQL Database hosted on iMacs: in progress
  - Solidity smart contracts deployment: in progress
  - OpenAI API access from clients: clarifying requirements
- Development Systems / Software
  - Git Repository hosted by clients: in progress
- Trello task board: complete
- Microsoft Teams Integration: pending front-end/backend completion

Team Vectorform

Status Report

[3 of 4]

Employee Recognition on Blockchain

- Client Contact
  - Met once with our client to discuss project
  - Scheduled weekly meetings for Fridays at 11:30am
- Team Meetings
  - Met 3 times to divide roles and discuss architecture
  - Scheduled weekly meetings for Tuesday evenings
- Team Organization
  - Front-End Team: Working on dashboard architecture and design
  - Back-End Team: Working on blockchain and OpenAI implementation
  - "Full-Stack" Team: Working on both ends of the project

Team Vectorform

Status Report

[4 of 4]

Employee Recognition on Blockchain

Risks

- Incurring cost with smart contracts
  - Deploying smart contracts on the Ethereum networks incur 'Gas' fees. We would like to mitigate this as much as possible
  - It is possible to build our software on different frameworks to limit these fees
- Overall System Efficiency
  - The proposed system from the client seems to be resource intensive. An inefficient system could lead to more resources being consumed than needed. This would compound the initial risk related to cost
  - Establish the exact program specifications with client to ensure extraneous code isn't added

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Status Report Presentation

Recipe Progression Tracking

The Capstone Experience

Team Whirlpool

Ethan Miller
Tommy Hojnicki
Paul Johnecheck
Peizeng Kang
Winnie Yang
Jeff Lai

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Michigan State University

Spring 2022

From Students…
…to Professionals

Team Whirlpool

Status Report

[1 of 4]

Recipe Progression Tracking

- Project Overview
  - Data collection for machine learning algorithm
    - Identify current step of recipe
    - Learn optimal cooking method(s)
    - Provide user guidance while cooking
  - Develop an application to:
    - Collect user cooking data from a wearable device
    - Implement database for future training of reinforcement learning
- Project Plan Document
  - Status: Created outline using project specifics and architecture
    - Started Rough Draft
    - ~15% completed

Team Whirlpool

Status Report

[2 of 4]

Recipe Progression Tracking

- Server Systems / Software
  - iMac – Development
  - Database server for storing cooking data
- Development Systems / Software
  - WatchOS – Xcode application
    - Gyroscope, Accelerometer, Barometer, etc.
  - WatchOS companion

Team Whirlpool

Status Report

[3 of 4]

Recipe Progression Tracking

- Client Contact
  - Meeting 1 (1/13)
    - Overview of project
  - Meeting 2 (1/20)
    - Recurring every *Wednesday (6pm)
- Team Meetings
  - Weekly meetings (Monday + after client/triage)
- Team Organization
  - Client Liaison – Ethan Miller
  - Risk Research – Paul (database), Tommy (connectivity)

Team Whirlpool

Status Report

[4 of 4]

Recipe Progression Tracking

Risks

- Risk 1 - Data Storage Specifics
  - Research efficient storage solutions
    - Decide on server/database architecture
- Risk 2 – Data Connectivity
  - Getting data from wearable device to database
  - Companion app, bypass device, etc.