MICHIGAN STATE UNIVERSITY

01/22: Team Status Reports

The Capstone Experience

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Spring 2014

From Students…
…to Professionals

Team Auto-Owners

Status Report

(1 of 4)

Mobile Audit Itinerary

- Project Description
  - Collect Updated Policyholder information
  - Itinerary for Underwriting field service representatives
  - Able to fill out audit related forms online and offline
  - Present all appointments in the Itinerary on a map
- Project Plan Document
  - Outline done.
  - Plan is discussed.
  - 15%? completed.

Team Auto-Owners

Status Report (2 of 4)

Mobile Audit Itinerary

- Server Systems/Software
  - Install Operating System - Installed Ubuntu 12.04 100% done
  - Install Web Server - Installed Apache Tomcat7 and tested jsp functionality 100% done.
  - Install SSH Client - Installed OpenSSH, tested login via SSH Secure File Transfer and uploaded files to the server
  - Install Database - Install IBM DB2, have researched what it is and where to find it 10%.
- Development Systems/Software
  - Set up version control - Using MSU Gitlab, set up repository and versioning 100%
  - Obtain Editing Software - Using various solutions, Dreamweaver, Sublime, Eclipse, etc. 100%

Team Auto-Owners

Status Report (3 of 4)

Mobile Audit Itinerary

- Client Contact
  - Met with client in person Wednesday, January 15
  - Scheduled weekly conference calls every Wed. 2:30-3 pm
- Team Meetings
  - Have meetings every Monday and Wednesday after class..
  - Held 6 team meetings so far this semester.
- Team Organization
  - Garrett Stevenson elected to be Program Manager
  - Ladi Oyeleye elected to be Client Contact
  - Jacob Burger elected to be lead Developer

Team Auto-Owners

Status Report (4 of 4)

Mobile Audit Itinerary

Risks

- Setting Up DB2 database.
  - Auto-Owners uses a DB2 Database. We need to get one up and running on our server.
  - Lots of Google.
- Understanding the scope of the project.
  - There are many forms with visual basic built on top that will need to be integrated.
  - More client meetings to clear confusion and frequent prototyping.

Team Boeing

Status Report (1 of 4)

FlightGear++

- Project Description
  - Use OpenMQ to replace FG's existing multiplayer feature
  - Rewrite FG's weather simulation using different numerical methods
  - Create a series of python GUIs to improve usability
  - Modify the transition rules that dictate FG's internal state
- Project Plan Document
  - Rough, Rough Draft
  - Identified Purpose
  - Identified Functional Specifications (Confirmed with client)
  - Made a series of screen mock-ups (GUI)

Team Boeing

Status Report (2 of 4)

FlightGear++

- Server Systems / Software
  - Ubuntu Linux (80%)
  - Installed Core
- Development Systems / Software
  - IDE: MSVS 2010 (100%)
  - GitHub (100%)

Team Boeing

Status Report (3 of 4)

FlightGear++

- Client Contact
  - Jayson Vincent (Modeling & Simulation Software Engineer)
  - Weekly meetings Friday 4:00 pm
- Team Meetings
  - 5-6 days a week for 3 to 7 hours
- Team Organization
  - Each member assumed a lead role for the three components (graphics (Stumpos), networking(Marinetti), GUI(Ek))

Team Boeing

Status Report (4 of 4)

FlightGear++

Risks

- Networking
  - Creating a custom multiplayer mode
  - Mitigation: Learning OpenMQ and FG's existing protocol
- Python GUI
  - Interfacing Python GUI with FG
  - Mitigation: Reading the documentation and experimentation
- Graphics
  - Implementing Navier Stokes equations in such a way that it doesn't slow or crash the game
  - Mitigation: spectral methods (very fast) and performing error analysis (make sure the parameters are within bounds that ensure the method is stable)
- FG software
  - Understand the subsystems of FG and how they interact with each other
  - Make sequence diagrams, UMLs, object diagrams to understand how FG works
  - Read documentation online (FGWiki and FlightGear docs)

Team Ford

Status Report

(1 of 4)

Mobile Approver

- Project Description
  - Mobile Java web application
  - Used by managers to approve / reject requests
    - E.g. Timesheets, Purchasing, Travel, etc…
  - Multiple data sources
  - Native QR code scanning
- Project Plan Document
  - In progress, 20% complete
  - Functional requirements complete
  - Design requirements started
  - Technical requirements framed-in

Team Ford

Status Report

(2 of 4)

Mobile Approver

- Server Systems / Software
  - MS Active Directory: fully operational
  - MS SQL Server: fully operational
  - IBM WebSphere: host OS ready
  - Microsoft SharePoint: host OS ready, software obtained
- Development Systems / Software
  - Java J2EE: required by client, freely available
  - PrimeFaces: required by client, freely available
  - Eclipse / Websphere: obtained

Team Ford

Status Report (3 of 4)

Mobile Approver

- Client Contact
  - Weekly video conference
  - On site visit to Ford (date TBD)
- Team Meetings
  - 3 times per week – after class and triage meetings
- Team Organization
  - Nikhil Andrews: Client Contact, SharePoint
  - Anthony Russel: User Interface, QR Codes
  - Tony Cooke: Program Manager, infrastructure

Team Ford

Status Report (4 of 4)

Mobile Approver

Risks

- No Data or Interfaces
  - Impossible to design around
- SharePoint
  - Suggested by client to emulate internal platforms
  - Can be complicated (time killer)
  - Resolution: Early research. Will mitigate via Dr. D. if needed
- Native QR Code Scanning
  - Discreet, immature components
  - Resolution: Early research.

Team GM

Status Report

(1 of 4)

The Matrix: Vehicle Simulator System

- Project Description
  - Simulate Vehicles Moving Along a Route
  - For Testing GM Location-Based Apps
  - Accessible Via RESTful Web Service API
  - Web client
- Project Plan Document
  - About half done
  - Need mockups (REST, UML, Class Diagrams, User Interface)
  - Need to expand description and scope
  - Need to add Functional Specification

Team GM

Status Report (2 of 4)

The Matrix: Vehicle Simulator System

- Server Systems / Software
  - Windows Server 2012 – installed
  - IIS & Microsoft SQL – installed
- Development Systems / Software
  - Visual Studio 2013 & Windows 7 – installed
  - Github for Source Control – setup
  - Trello for Project Management – setup
  - Resharper tool for VS – pending license

Team GM

Status Report (3 of 4)

The Matrix: Vehicle Simulator System

- Client Contact
  - Weekly conference calls Monday at 4:15
  - Met once
  - No in-person meeting scheduled as of yet
- Team Meetings
  - Meet every Monday/Wednesday after Capstone for several hours
  - Crunch time on weekends if needed
- Team Organization
  - All Developers & Testers
  - Sam – Project Manager & Client Contact

Team GM

Status Report (4 of 4)

The Matrix: Vehicle Simulator System

Risks

- Risk 1
  - Working with the Google Maps and Tracks API
  - Mitigate by researching the API
- Risk 2
  - Scalability
  - Mitigate with stress tests and improving memory management if needed
- Risk 3
  - IIS persistent connections
  - Mitigate by following known methods for maintaining persistent connections.
- Risk 4
  - Performance for database calls
  - Mitigation by using performance tests

Team Google

Status Report

(1 of 4)

Change Management Software

- Project Description
  - Web Application built on Google App Engine
  - Submit/View/Edit Change Requests
  - Replaces and Improves on Legacy System
- Project Plan Document
  - Started
  - 30% written
  - Mockups not done

Team Google

Status Report

(2 of 4)

Change Management Software

- Server Systems / Software
  - Have not set up server – low priority
  - Working locally – app runs on google site
- Development Systems / Software
  - App Engine and Python SDK – working
  - Django and Webapp2 – deciding which to use
  - Github – repository and accounts set up

Team Google

Status Report

(3 of 4)

Change Management Software

- Client Contact
  - Established a conference call twice a week
  - Expecting client to visit in February
- Team Meetings
  - Scheduled meetings before each class
  - Week by week team work hours
- Team Organization
  - Assigned client contact and team manager
  - Technical Roles TBD

Team Google

Status Report (4 of 4)

Change Management Software

Risks

- Connectivity between App Engine and Data Store
  - We've never worked with App Engine before and need to be able to use Data Store in App Engine
  - Set up simple app using database
- Need to make a data model
  - Data model is going to be used in a schemaless database
  - Create and test a bare-bones model of a change request
- Python and Web Development
  - Team members have very little experience in Python and Web Development
  - Do tutorials/learn them
- Server
  - Not sure if we need to set up server/how it will affect our end product
  - Communicate with client and understand Data Store further.

Team Meijer

Status Report (1 of 4)

Mobile Customer Satisfaction Application

- Project Description
  - Provide Feedback About Shopping Experience
  - By Customers
  - Quickly and Easily
  - Via Mobile Devices
- Project Plan Document
  - Document has been started
  - Using format from lecture slides and a prior year's example
  - Currently 4 pages
  - Approximately 10% complete

Team Meijer

Status Report (2 of 4)

Mobile Customer Satisfaction Application

- Server Systems / Software
  - Microsoft Azure – cloud database to host website
    - We are waiting for response about further funding from our client
  - Visual Studio 2013 – for designing website and database
    - Downloaded. Website started though basic, database design started but not in code yet.
  - GitHub – to exchange files between our team and our Client
    - Account set up and added to. Acquired git client, learning how to use it.
- Development Systems / Software
  - Eclipse – Android development kit
    - It is downloaded
    - Made a test application

Team Meijer

Status Report (3 of 4)

Mobile Customer Satisfaction Application

- Client Contact
  - Successfully contacted client
  - Established weekly conference calls on Fridays from 10:30 to 11:30am.
  - Meeting in person at the capstone lab on Friday 1/24/2014 during usual conference time.
- Team Meetings
  - Scheduled meetings on Mondays from 4-5pm, but plan to meet as needed.
  - We have met 11 times thus far (every day but three).
- Team Organization
  - Project Manager – Kaleb Friskey
  - Client Contact – Taylor Jones
  - Information Management – Noor Ahmadkamel
  - Design, Development, Testing - All

Team Meijer

Status Report (4 of 4)

Mobile Customer Satisfaction Application

Risks

- Extracting data
  - We need to move data from the application to database.
  - Doing research into how to connect app to database.
- Code versioning
  - We will need to host versions of our android code that multiple people can access while also allowing us to go back to a prior version in case of emergency
  - Researching how to host and rollback to working version, looking into Git
- Store locator
  - We will need to be able to discover which store a customer was in
  - Contacted client, looking into JSON, RESTful Webservice to mimic how done with existing app
- Feature creep
  - Throughout planning and design, we have many opportunities to add more features to the product
  - Time management, prioritizing, and compromising with our client.

Team MSUFCU

Status Report

(1 of 4)

Mobile Financial Education App

- Project Description
  - Provide financial educational tools and resources
  - For university students
  - Via mobile devices
- Project Plan Document
  - Outlined document
  - Assigned tasks for sections of documents
  - Version 1.0 wireframes created
  - Created Google Doc of project plan

Team MSUFCU

Status Report (2 of 4)

Mobile Financial Education App

- Server Systems / Software
  - Windows OS Server: Not installed
  - Microsoft SQL: Not installed

- Development Systems / Software
  - Android Studio: Downloaded and blank project created
  - Gitlab: Repository Created and users added
  - Xcode: not installed yet, pending developer licensing
  - Photoshop: Acquired, used for wireframes

Team MSUFCU

Status Report

(3 of 4)

Mobile Financial Education App

- Client Contact
  - Met with client in person once
  - Talked with one of the clients on the phone
  - Have not set up weekly conference call time yet
- Team Meetings
  - Met four times
  - Meet twice per week
- Team Organization
  - Assigned Client contact, and Project Manager roles
  - Made list of member's strengths/weaknesses of each technology
  - Created shared calendar for course and internal deadlines

Team MSUFCU

Status Report (4 of 4)

Mobile Financial Education App

Risks

- Risk 1
  - No iOS experience within group
  - Make higher priority within workload
- Risk 2
  - Microsoft SQL integration with server
  - Learn how to integrate server with app on the backend
- Risk 3
  - Design decisions need approval prior to development; schedule limitations with MSUFCU
  - Keep back end separate from UI, and frequent communication
- Risk 4
  - Additional content needed from client for added functionality
  - Be persistent

Team Quicken Loans

Status Report

(1 of 4)

Mobile RFID Inventory Tracking System

- Keep track of when mobile devices are checked out
  - Use RFID tags attached to each mobile device
  - Users scan a badge to access a locked cabinet holding the devices
  - Front end system to monitor users and devices
  - Back end web services provide for front end
- Project Plan Document
  - 25% complete
  - Contains preliminary specifications

Team Quicken Loans

Status Report (2 of 4)

Mobile RFID Inventory Tracking System

- Server Systems / Software
  - Server running Windows server 2008 holding database, backend
  - Running SQL server management studio 2014
  - iMac, MacBook Pro running VMWare and Visual Studio
- Development Systems / Software
  - Speedway reader running Speedway Connect proprietary software
  - Badge reader runs in the absence of external software

Team Quicken Loans

Status Report (3 of 4)

Mobile RFID Inventory Tracking System

- Client Contact
  - Weekly conference calls at 9:30 AM on Fridays
  - Tentative visit to Quicken Loans on Feb. 21
- Team Meetings
  - Scheduled every Friday morning
  - Frequent impromptu meetings
- Team Organization
  - Flat organization

Team Quicken Loans

Status Report (4 of 4)

Mobile RFID Inventory Tracking System

Risks

- RFID Reader
  - Single source of information
  - Speedway Connect proprietary software has already been set up
- Badge Scanner
  - Required for tracking users in the system
  - Scanner is configured by default to be very simple
- Physical Locking device
  - System is a formality if the cabinet doesn't lock
  - ?????????
- Backend Webservice
  - Frontend must rely on a webservice
  - WCF is well-documented and understood

Team Quicken Loans

Status Report

(1 of 4)

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Team Quicken Loans

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Team Quicken Loans

Status Report (4 of 4)

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Team TechSmith

Status Report (1 of 4)

ClassView

- Project Description
  - Chrome App that utilizes Google Drive
  - Teacher and student dashboard view
  - Help with class room collaboration and management
  - Controlled and safe learning environment
- Project Plan Document
  - Split up document between teammates
  - Project Plan - ~80% done
  - Have not started the Project Plan Presentation yet

Team TechSmith

Status Report (2 of 4)

ClassView

- Server Systems / Software
  - Google Drive
  - GitHub
- Development Systems / Software
  - Chrome App APIs
  - Google Drive SDK
  - AngularJS
  - Javascript, Jquery, HTML, CSS etc.
  - Text Editor - Sublime Text
  - Communicating with Slack and Trello

Team TechSmith

Status Report (3 of 4)

ClassView

- Client Contact
  - 1:00 PM Fridays, on-site at TechSmith
  - Glenn Hoeppner and Bill Scanlon
- Team Meetings
  - 5:00 PM Tuesdays, 11:30 Wednesdays
  - Friday afternoons
- Team Organization
  - Eric Austin – Client Contact, Development
  - Kyle Woodward – Program Manager, Development
  - Rebecca Collins – Systems Administrator, Development

Team TechSmith

Status Report (4 of 4)

ClassView

Risks

- Chrome App APIs, Google Drive SDK, AngularJS
  - Zero previous experience
  - Working through tutorials, code samples, examples, etc.
- HTML, CSS, JavaScript
  - Minimal experience within the group
  - Members who need to learn and review are doing so
- Extent of API capabilities
  - Not sure if all the requested features are capable with the APIs
  - Figure out alternative methods
- Client are unfamiliar with technologies
  - Neither of our contacts have worked with Google App APIs, Google Drive SDK
  - Contacts know a TechSmith employee with experience, available to help

Team Urban Science

Status Report (1 of 4)

Dealer Improvement Recommender System

- Recommendation System for Automotive Dealerships
  - Manage a group of Key Performance Indicators (KPIs)
  - Associate these KPIs with causes and recommendations to improve dealer performance
  - Manage relationships between KPIs, causes, recommendations and dealership goals
  - Provide an interface to aid Urban Science employees in making meaningful recommendations and updating relationship weights
- Project Plan Document
  - In early planning stages
  - Meeting with Urban Science to discuss requirements on Friday

Team Urban Science

Status Report (2 of 4)

Dealer Improvement Recommender System

- Server Systems / Software
  - Urban Science will provide Windows server, not yet available
  - Microsoft SQL Server 2012 using Entity framework, not yet configured (requires server)
  - ASP.NET selected for web services
- Development Systems / Software
  - Xcode for iOS development up and running
  - Visual Studio for C# .NET development up and running
  - Urban Science provided Visual Studio Online (TFS), not yet accessible

Team Urban Science

Status Report (3 of 4)

Dealer Improvement Recommender System

- Client Contact
  - Met in person at Urban Science headquarters in Detroit
  - Scheduled weekly conference call at 4:15PM on Tuesdays
- Team Meetings
  - Scheduled meetings thrice weekly
  - Five meetings to date
- Team Organization
  - Main Client Contact: Ty Jones

Team Urban Science

Status Report (4 of 4)

Dealer Improvement Recommender System

Risks

- Translating structure of Goal/KPI/Recommendation tree
  - The tree structure of dealership goals, KPIs and recommendations contains complex relationships that could be difficult to describe in a database
  - Extensive discussion with Urban Science and planning of database layout will provide clarity and result in an efficient structure
- Designing usable web interface for modifying tree database
  - Enabling modification of an extensive, complex database in a user-friendly fashion
  - Survey of users and pre-implementation UX work will mitigate this risk
- Working with ASP.NET
  - ASP.NET is an unfamiliar technology to our team, and learning it may be time consuming
  - Learn the technology using tutorials and practice in order to reduce time loss
- Implementation of CRUD for database
  - Our team will have to implement Create, Read, Update, Delete for our database
  - Research best practices using our database technologies

Team Whirlpool

Status Report (1 of 4)

Virtual Appliance Simulator

- Project Description
  - Simulate networked Whirlpool appliances
  - For use during development of new software
  - So Whirlpool doesn't always need real appliances to test on
  - So software dev. can get ahead of appliance dev.
- Project Plan Document
  - 25% Complete
  - Title page, Executive Summary, Functional Spec. complete
  - Preliminary outline complete
  - Portions assigned to team members

CL

Team Whirlpool

Status Report (2 of 4)

Virtual Appliance Simulator

- Server Systems / Software
  - Ubuntu Linux Server 13
  - Up and running
  - For backups of repository and remote access (SSH tested)
- Development Systems / Software
  - ~~Open Source Simulation package~~
  - Ubuntu Linux Desktop on Development Machines
  - Developing in Java using Netbeans IDE
  - Using team member's CSE Git Repository

EL

Team Whirlpool

Status Report

(3 of 4)

Virtual Appliance Simulator

- Client Contact
  - Met in person with client on January 15
  - Conference calls or email contact as needed
- Team Meetings
  - 5 meetings so far
  - Scheduled meeting Mondays at 1pm in addition to triage
- Team Organization
  - Project Manager: Cody Littley
  - Client Communications: Lisa Kelly
  - Systems Administrator: Evan Liang

LK

Team Whirlpool

Status Report (4 of 4)

Virtual Appliance Simulator

Risks

- Using Java
  - Team members have not developed large projects in Java before
  - Head First Java book
- Using threads
  - Potential for slowness, lag, due to using threads
  - Find ways to make threads share resources better or sleep
- Large project scope
  - Could include thousands of virtual appliances networked and configured online
  - Breaking process into parts, first build 1 virtual appliance, then multiple instances, then extend to other appliances, then online configurator if time
- Everything on client end currently in .Net ☹
  - Potentially need to rewrite APIs to work with Linux
  - Panic!

LK