Project Details

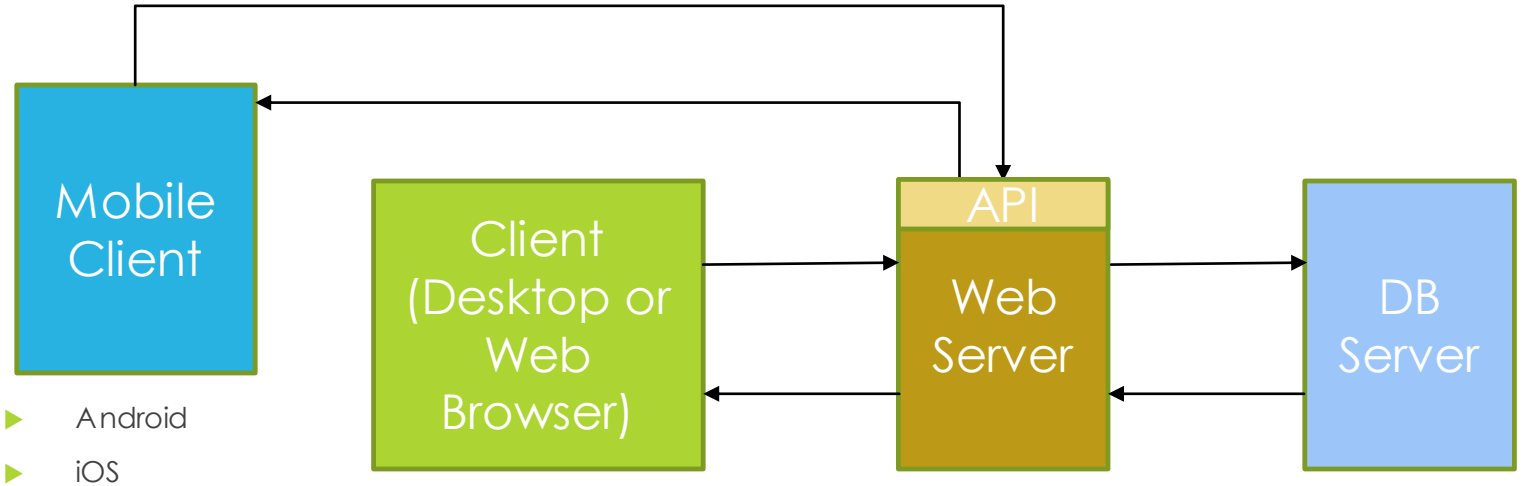
F19

L02

Context

- Students right out of their undergraduate programs are hired based on potential, not necessarily expertise
- This project should push you outside your comfort zone
- This project should push you to learn new skills
- This project should push you to solve problems on your own
- This is what you'll be expected to do!

3 Tier Architecture



- Android
- iOS

- FF/IE/Chrome
- HTML5/CSS
- Java
- C/C++
- C#/ASP.Net

- IIS
- Apache

- MS SQLS
- MySQL
- Oracle

Project Requirements

- Every implementation will include
  - A Web/Desktop Application w/GUI
  - Connecting to a Database
  - Skills showcase
- Focus on the first 2 areas to get started
- Your team does not have to build a web application, but that is a natural path to a solution

Project Requirements

- Every implementation will
  - Be managed using Agile Project Management
    - via Microsoft Azure Dev Ops
  - Use GIT for configuration control

Good (Truck) Driver Incentive Program

- Rewarding truck drivers for good behavior
- There are three types of users in the system
  - Drivers
  - Sponsors
  - Administrators
- Each type of user has
  - operations specific to their type
  - operations that overlap

Drivers-1

- earn points for good driving behavior
- are affiliated with one sponsor company (ie a 1-1 DB relationship)
- use the points to purchase products from their sponsor's product catalog
- points are added on a daily basis for good driving behavior
- can use their points at any time to purchase items in their sponsor's catalog

Drivers-2

- can log in
- can review/update their user profile and password
- browse products in their sponsor company's catalog
- review their point status
- review the status of their purchases
- cancel/update purchases

Sponsors-1

- Sponsors are companies that employ drivers and want to encourage good driving behavior
- Sponsor companies have a catalog of incentive products (G or PG only)
- The products are chosen via one of 3 mechanisms (which the sponsoring company selects and can change at any time)
  - list of specific products
  - general categories of products
  - rules for selecting products
- Set the dollar value of a driver point ($0.01 per point is the default)
- Products have $ values which translate into driver points

Sponsors-2

- can log in
- review/update the sponsor and user profiles
- there can be multiple logins per sponsor
- review the status of their participating drivers
- approve or reject driver applications
- register/update driver information, including points and personal information
- review/update their product catalog
- “purchase” items on behalf of a driver
- update the rules for generating their product catalog

Sponsor Product Catalog

- Use a web API (such as eBay or Amazon) to produce the company specific catalog of incentive products
  - product availability
  - price
  - description
  - images of the product, offers, offer availability
  - other relevant information
- Use the web API to obtain the current product price before a product is added to the drivers purchase set
- 1 driver point is equal to $0.01
  - the $ to point conversion is set by the sponsor
- The product catalogs are updated on a daily basis via the web API

Administrators-1

- all products are sold & delivered via a third party
  - such as eBay or Amazon
- receives 1% of total sales amount each month
- generate reports to track fees and other operational parameters

Administrators

- can log in
- review/update admin profile
- review/update the status of
  - all sponsor companies
  - all drivers
  - specific companies
  - specific drivers
- add new admins, drivers and sponsor

General

- The incentive program app must be a responsive and conform to the size of the user's display
- Sensitive data in the system must be protected
- The app needs a password reset system for driver and sponsor users
- System must be deployed to our AWS cloud hosting environment

Showcase Skills

- Team must select an area to go deeper, such as:
  - Database: use triggers, stored procedures, database jobs, user level access permissions
  - Security: site hardening, penetration testing
  - Testing: automated testing
  - GUI/HCC: advanced HTML, CSS & Javascript
  - Accessibility: accessible site, accessibility testing
  - Mobile app: native iOS or Android app
  - Deployment: continuous deployment, automated push
  - AWS: incorporate other AWS services
- Provide a summary and artifacts to illustrate your team's work as part of the final project demo

Timeline – Week 1

- Week 1
  - Team Formation

Timeline – Week 2

- Week 2
  - Project Review
    - Prepare team questions for the “client”
  - Technology & Skills Showcase Selection
    - Pick something your team knows
    - Or choose to learn a new technology
  - Database DEsign
  - Azure DevOps Setup
  - GIT Setup

Timeline – Week 3

- Week 3
  - Initial Software Architecture
  - Populate the initial project backlog with user stories
  - Initial allocation of work to team members
  - Initial DB design (aka ERD)

Timeline – Week 3

- Develop 250 User Stories for your initial backlog
  - We will cover user stories next week
- **THERE WILL BE NO CODING before…**
  - Features & Stories have been defined…and…
  - Backlog is officially approved!
- You should also have
  - UI Mock Up
  - DB ERD, which is your first review point
  - before you start coding

Timeline – Weeks 4-13

- Weeks 4-13
  - AWS Setup (App Server & Database Server)
  - Code, test, demo, repeat
  - 1 week sprints (except for Sprint 5) ➔
    - Maintain Backlog
    - Weekly SCRUM
    - Weekly Demo
  - Code MUST be branched every week
    - The demo must be done using the sprint branch

Timeline – Weeks 4-13

- Keep your code up to date
  - If you check in code that does not build…your team mates WILL come looking for you
- Keep your story and task status up to date in Azure DevOps

Timeline – Weeks 14-16

- Project Demonstrations
  - your team will demo your final product to the whole class
  - details to come
- Project Retrospective

Software Architecture

- Design diagrams can be done with LucidCharts
  - ERD Diagrams
  - UI Mockups
  - Others…
- All design documents must be added as attachments to the appropriate feature or story

Demos

- There will be weekly demos
- Stories should be selected to produce a demonstrable product by week 4
- Project should be capable of being demo'd from ANY team member's login
  - (which has DB implications)

Deployment

- Develop locally on your laptop
- Your project should be deployed and running at AWS by Sprint 4
- Amazon Web Services (AWS) will be our deployment environment
  - (details to come)

Team Rules

- This is a GROUP project…you must work together…and it may be painful!
  - your team will shape the final result!
- Each team will have scrum on Tuesday in Lab
- Each team will demo the last sprint every week
  - We will alternate demos in-class (W) and in Lab (Th)
  - When you demo in class…
    you and your team must attend class on Wednesday and use the time for team consultation and project development and other 4910 assignments
  - When you demo in class…
    you and your team must attend Lab on Thursday and use the time for team consultation and project development
- Minimize the interaction with the other teams

Final Thoughts

- This is a VERY open-ended project
- You are expected to know or learn the technologies your team needs
- I am here to operate as the product owner for project questions and be your technology consultant
- Your TA will be your Scrum Master
- **So raise issues and ask <u>questions…but the ultimate responsibility to figure things out is yours</u>!**

Next Steps-1

- For Next Time
  - Each team needs to
    - meet (in Lab)
    - compose 10 substantial clarification questions about the project specification
      These are due (1 submission per team) before next class
    - configure AzureDevOps/GIT
      See slides in Canvas for details

Next Steps-2

- Next Class
  - Answers to the project questions will be posted to Canvas
  - It is your team's opportunity to ask questions & get clarifications
  - Configure AzureDevOps/Git
    - See slides in Canvas for details
  - Teamwork Guidance