

# Senior Design: Team sdmay18-14

## Mobile and Web Timecard

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# Overview

## Project Plan

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- Conceptual Sketch
- Functional Requirements
- Non-Functional Requirements
- Constraints and Considerations
- Market Survey
- Potential Risks and Mitigation
- Resource/Cost Estimate
- Project Milestones & Schedule

## System Design

- Functional Decomposition
- Detailed Design/UI Flows
- Software Platforms
- Test Plan

## Project Standing

- Current Status
- Team Member Responsibilities
- Plan for Spring Semester

# Project Plan



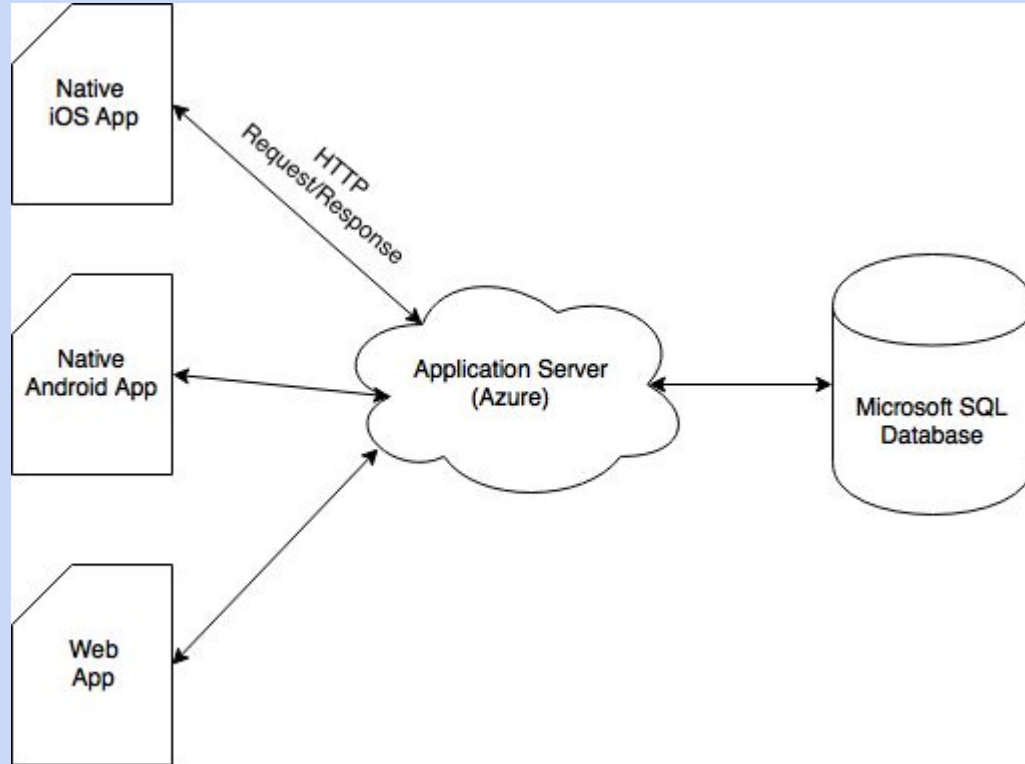
# Problem Statement

Genova and other companies contract employees for specific projects. The time spent working is recorded in a timecard in order to compensate with pay rates that correspond to each project.

Genova's old timecard broke due to a separate software update. Since then, they have been in need of a timecard app that their company can use.

This problem may not be unique to Genova. As such, the timecard system we develop will be sold by Genova to other companies needing similar solutions.

# Conceptual Sketch



# Functional Requirements

- Time card software that works on iOS, Android, and web
- Software can integrate with existing accounting systems (Dynamics) at Genova
- Different functions for different levels of users
  - Employee, Manager, Admin
- Works for different time cards
  - Time card periods of 1-week, 2-week, 1-month, etc...
  - Does the work week start on Monday, Sunday, etc...?
- Display relevant information to user about time card
  - Past time card summaries for Employee
  - Team/Department/Company time summaries for Managers

# Non-Functional Requirements

- Simple to use
- Similar design and function between mobile and web platforms
- Secure database and communications
  - Sensitive business information is stored and sent
- Scalable
  - Any number of employees
  - Any business

# Constraints and Considerations

- Design should be similar to Genova's previous time card
- Software needs to be reliable and maintainable
- iOS development requires Apple hardware to develop
- Visual Studio does not work on native Mac computers
  - Ex: Issues with Azure
- Private information that is used during development must be kept confidential and secure



# Market Survey

- There are already existing time card programs
  - E.g. Microsoft, T-Sheets
- Most are complex, don't have multiplatform support, or are not free to use
- Not flexible - have a set weekly time card start/end days and weekly periods

# Potential Risks and Mitigation

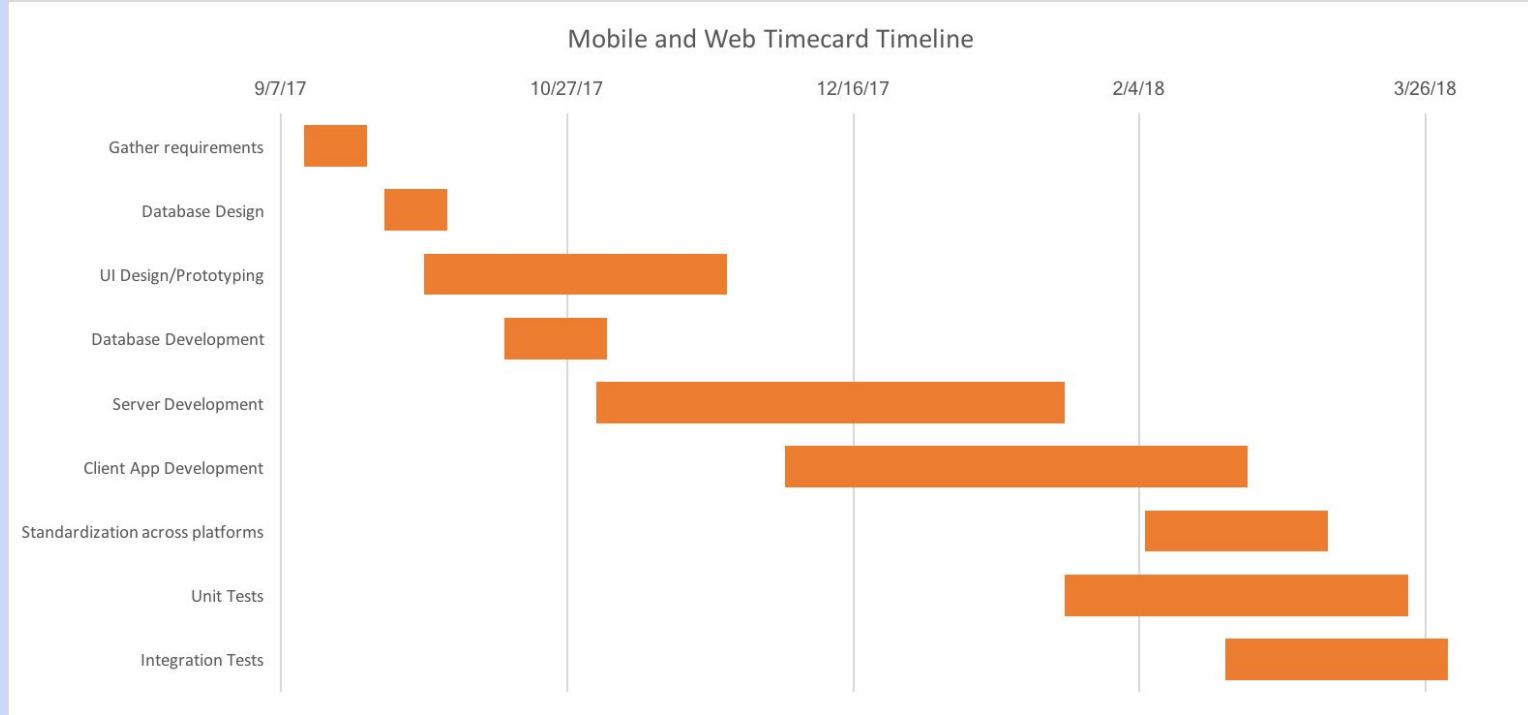
- Database security
  - The time card will have access to private information, including data on other companies.
  - Testing application with generated test data before integrating with existing systems.
- Financial responsibility
  - Billing for projects is based on the results of the timecard. Inaccurate information could lead to profit loss, or overcharging.
  - Comparison testing will be done between Genova's current systems, and the new timecard to ensure a seamless transition

# Resource/Cost Estimate

- The biggest cost for this project is hosting our servers on Microsoft Azure

Server Type (1 Instance)	Cost per Month (\$)	Cost for 12 Months (\$)
Windows Virtual Machine	102.48	1229.76
SQL Database	4.91	58.92
<b>Total</b>	107.39	1228.68

# Project Milestones & Schedule



# System Design



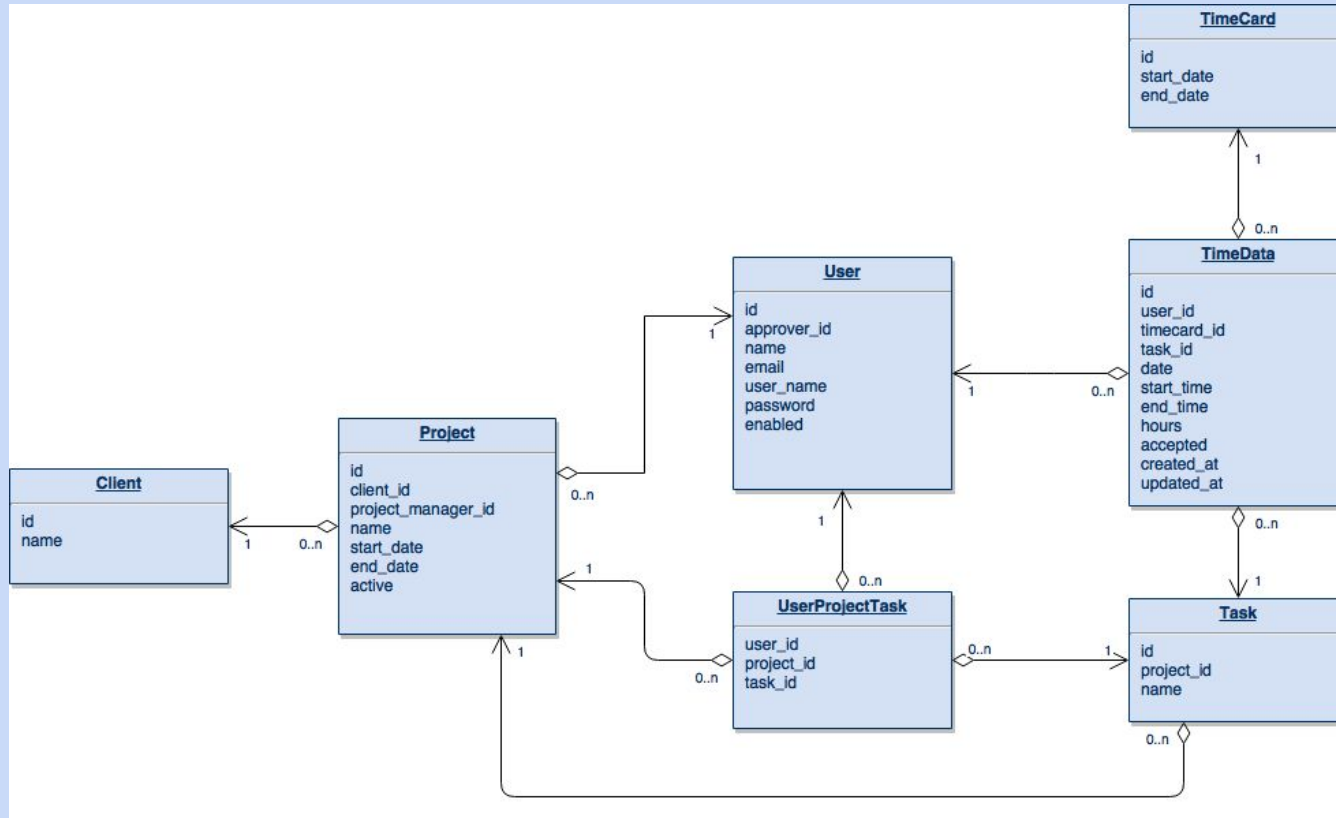
# Functional Decomposition

- Web and Mobile Specifications
  - User can login and logout
  - New users can create accounts
  - Users can create a new time card
  - Users can record time for specific client, project, and task
    - Block and start/end time formats.
  - Users can submit timecard to manager for approval
  - Users can view reports of previous timecards

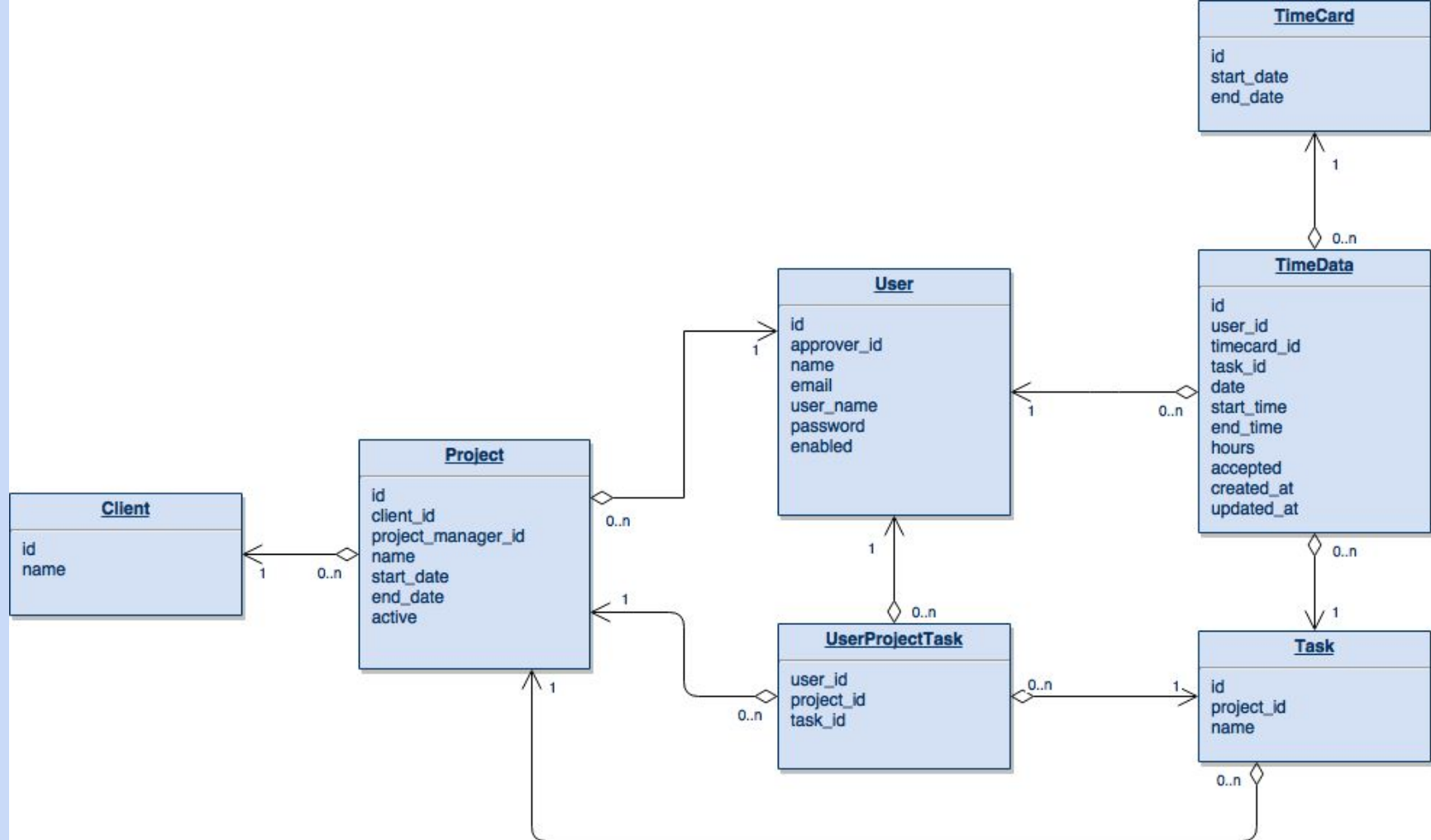
# Functional Decomposition

- Web-specific Specifications
  - Managers can review and approve their direct reports' timecards
  - Admin can view summaries of all users
  - Admin can create/edit/complete timecard for another user
  - Admin can submit timecards for given pay period to accounting system

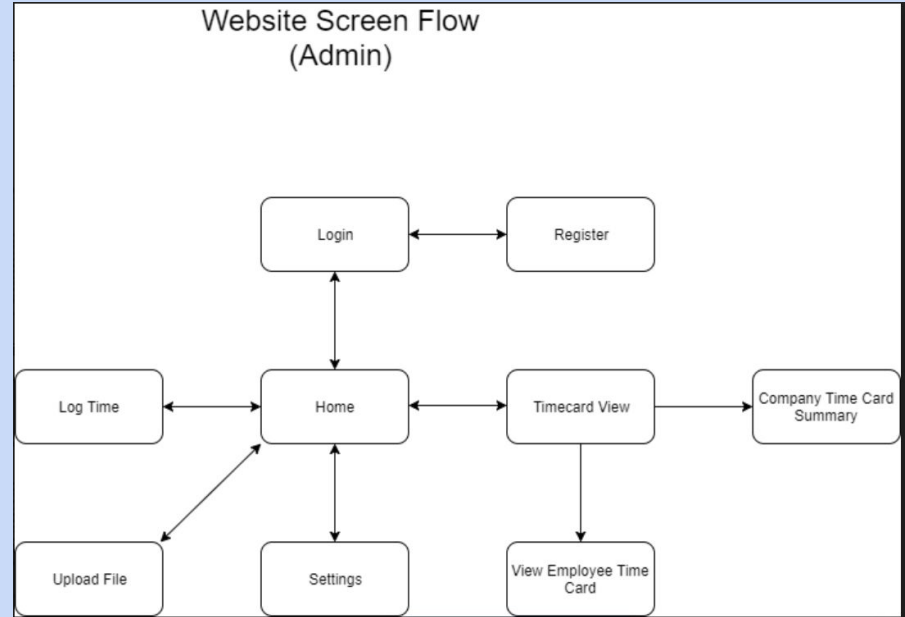
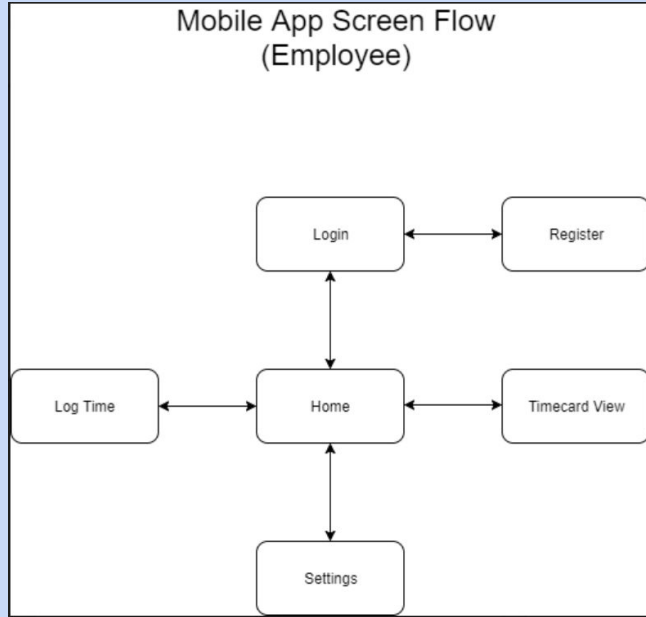
# Database Design







# Detailed Design/UI Flows



# Software Platforms

- Microsoft Azure to host servers
- Programming Languages
  - Java, for Android development
  - Swift, for iOS development
  - C# for server communication (.NET)
  - Javascript/Angular for website development
- Tools
  - Rally
  - Xcode
  - Android Studio
  - Visual Studio

# Test Plan

- Product testing will be performed using test data provided by Genova
- No testing software has been selected currently to process project's correctness
- Testing will be done in accordance with Genova's expectations, utilizing their preferred software
- Unit tests on iOS through Xcode's testing framework

# Project Standing



# Current Status

- User Stories
- Azure Environment
- Database “Dummy Data”
- Rough Design
- Web Framework Selected

# Team Member Responsibilities

Andrew Hoelscher - Software Testing

Christian Wessler - Design and Documentation

Cole Stephan - Server Management

Connor McCann - Android Development

Jason Thomas - Team Administrator

Nicholas Flege - iOS Development

Thomas Reins - Web Development

# Plan for Spring Semester

- Finalize backend server
- Set up web-based timecard
- Develop android and iOS timecard variants
- Test timecard on test data
- Integrate into Genova systems
- Develop support for external companies to use with their databases
- Test timecard with external company test data
- Product release



# Summary

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We will take this time to answer any questions.

Ok, that's enough questions.

