KeepVSafe

"Solutions to the problems of tomorrow;

delivered today."

Advisor: Daji Qiao

Client: Andrew Guillemette

Introductions

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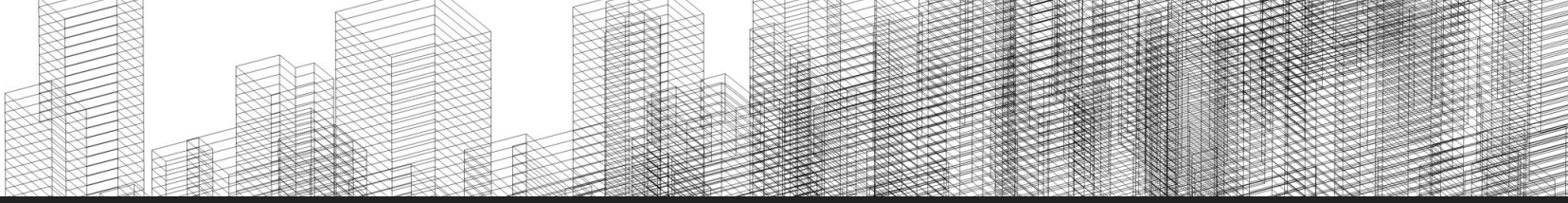skandgpt@iastate.edu

Concept

Problem Statement

"KeepVSafe should provide a simple and easy portal for fleet managers to monitor the performance of their drivers and address potential risks **before** they become real-world problems."

Scope

Collect   Analyze   Notify

Why is this Important?

Consider your commute.

1. Safety
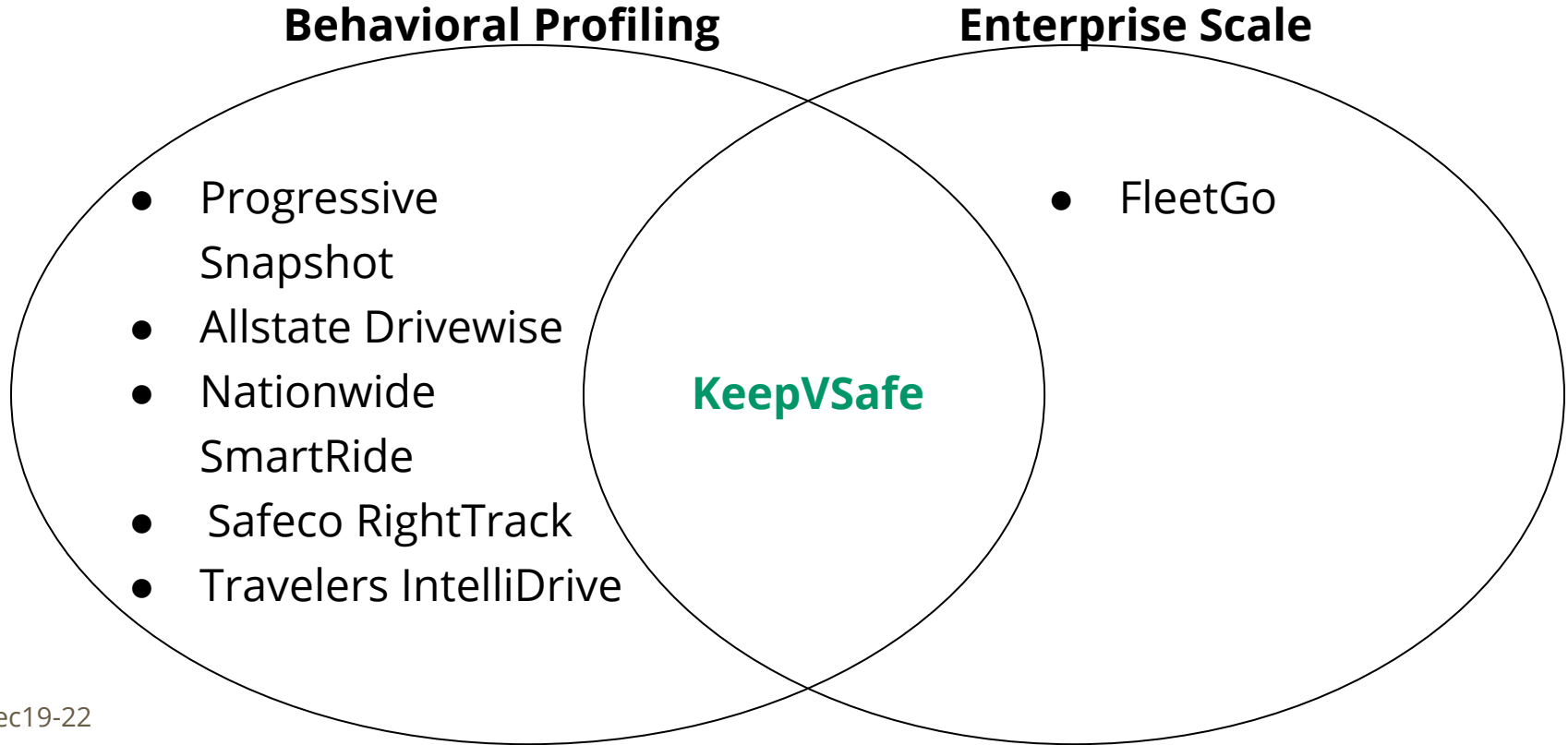2. Save Money

Two Teams

Graduate Students

Archit Shashidhar Joshi, Ashraf Shaikh Mohammed, & Shankar Sridhar

- Collect data from fleet.
- Algorithmically analyze data for performance & risks.
- Handle hardware & firmware.

Our Team

- Data Visualization.
- Control and view performance reports.
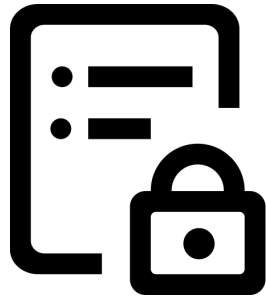- Alerts for bad reports.
- Accessing and using data.

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Market Survey

Behavioral Profiling   **Enterprise Scale**

- Progressive Snapshot
- Allstate Drivewise
- Nationwide SmartRide
- Safeco RightTrack
- Travelers IntelliDrive

KeepVSafe

- FleetGo

Potential Risks & Mitigation

Liability   Privacy   Accuracy   Sensor Failure

Early Design Concept

Use Cases

Vehicle-Operator Behavior Monitoring System

- Register driver
- Delete driver
- Add user account
- Modify user permissions <<extend>> Delete user account
- Set up bus routes
- Select fragments of route <<extend>>
- View trip statistics <<extend>> Filter data
- Search drivers' grade reports <<extend>> View drivers' grade reports

Admin
DART Management
Bus Driver
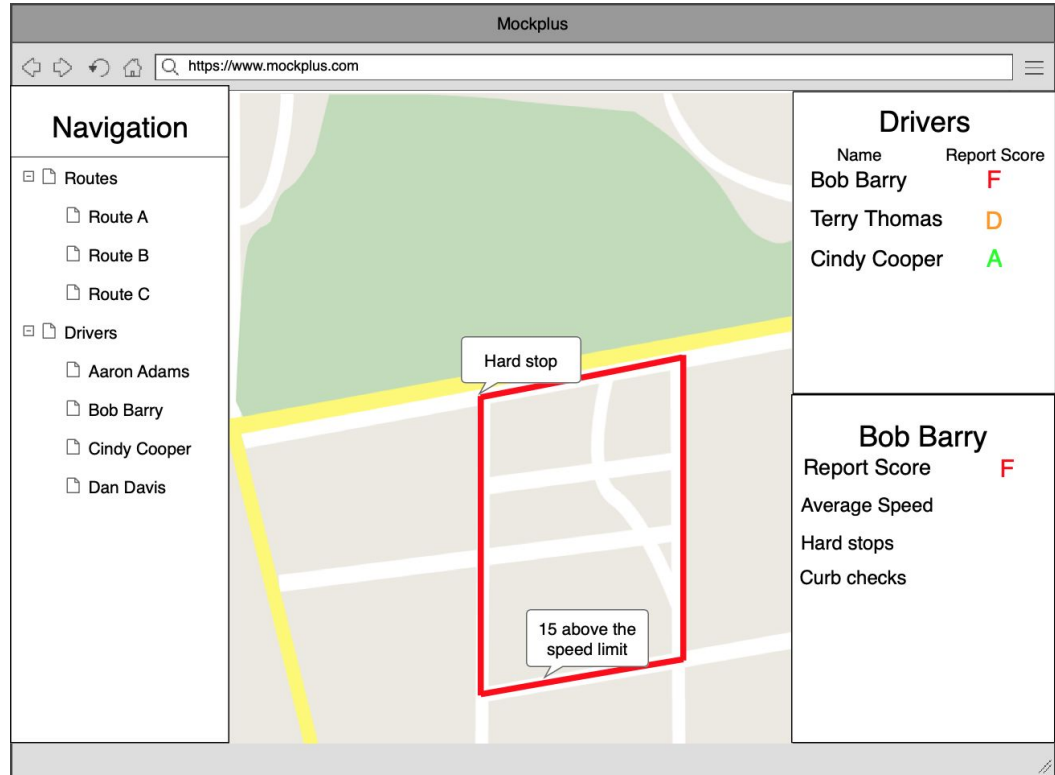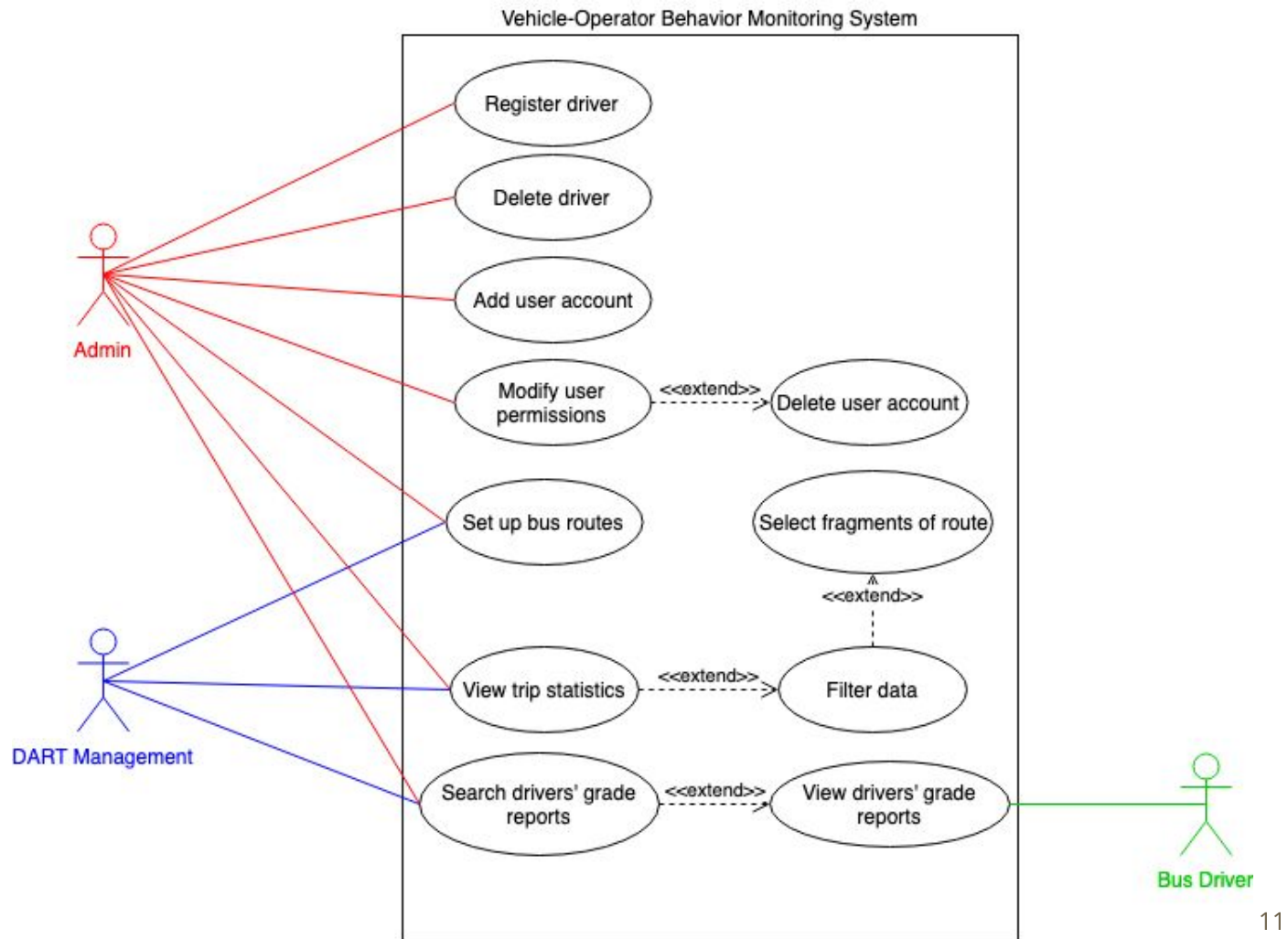
Major Requirements

- Register and delete Drivers.
- **View statistics and reports about Drivers.**
- Create a bus route.
- **Populate bus routes with grading points such as stop signs, traffic lights, et cetera.**
- Add, remove, and modify User accounts.
- Permission what Users can do on the website.
- **Receive a notification when a driver receives a poor grade for their performance.**

Constraints & Considerations

- Intuitive UI for Users
- Data and grading falls to the graduate students
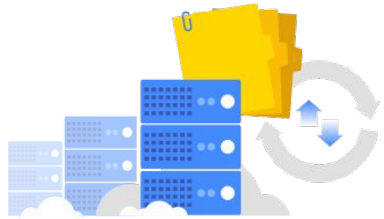- Connecting database to web app
- Multiple buyers

Design

Detailed Design
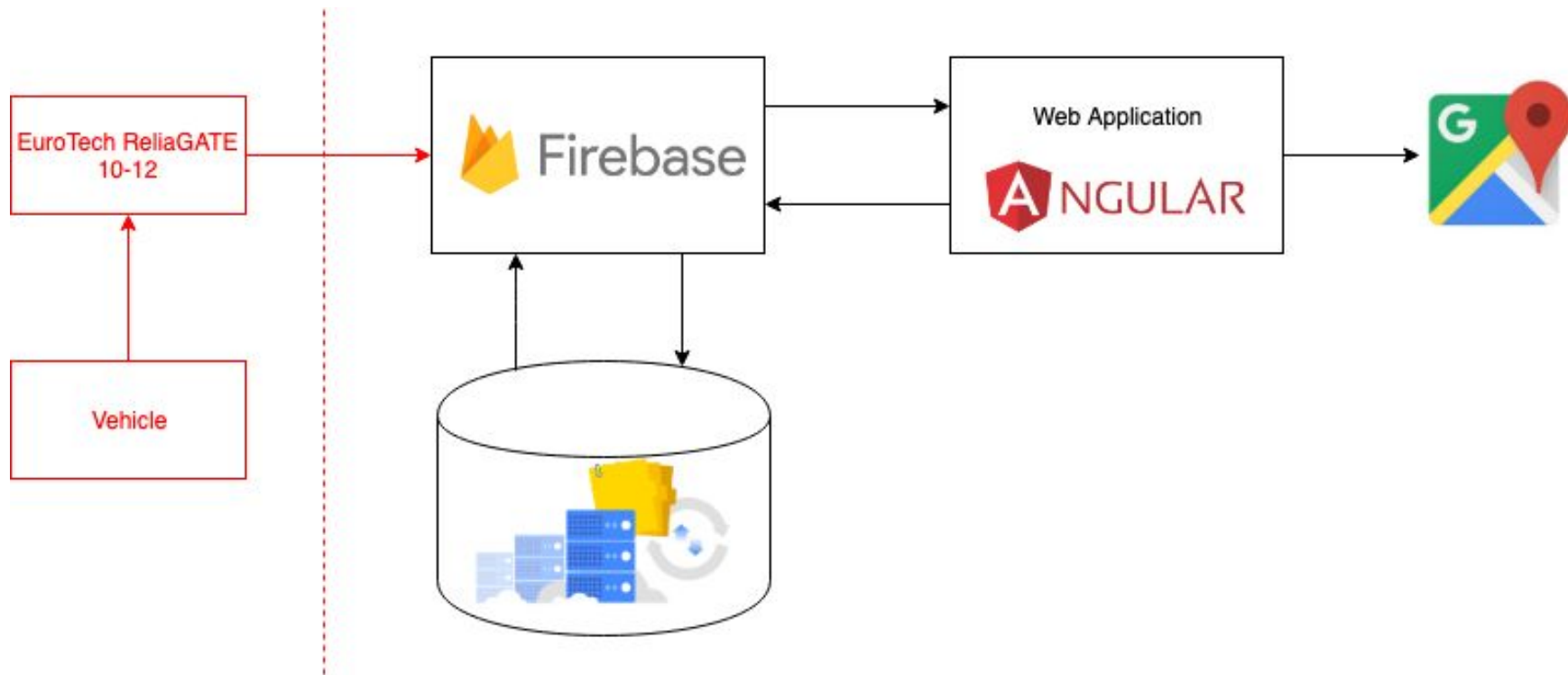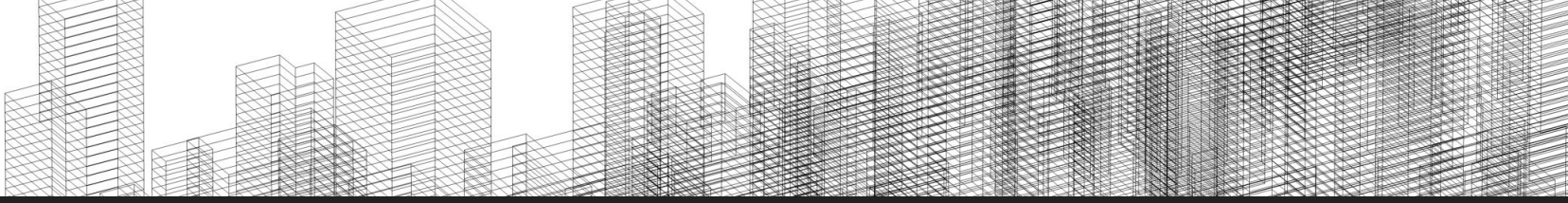
Technologies Used - Primary

Firebase

Cloud Firestore

Google

Angular

Google Maps API
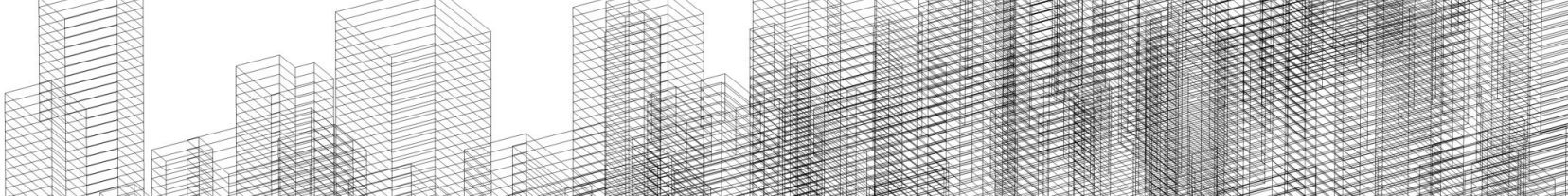
Technologies Used - Testing
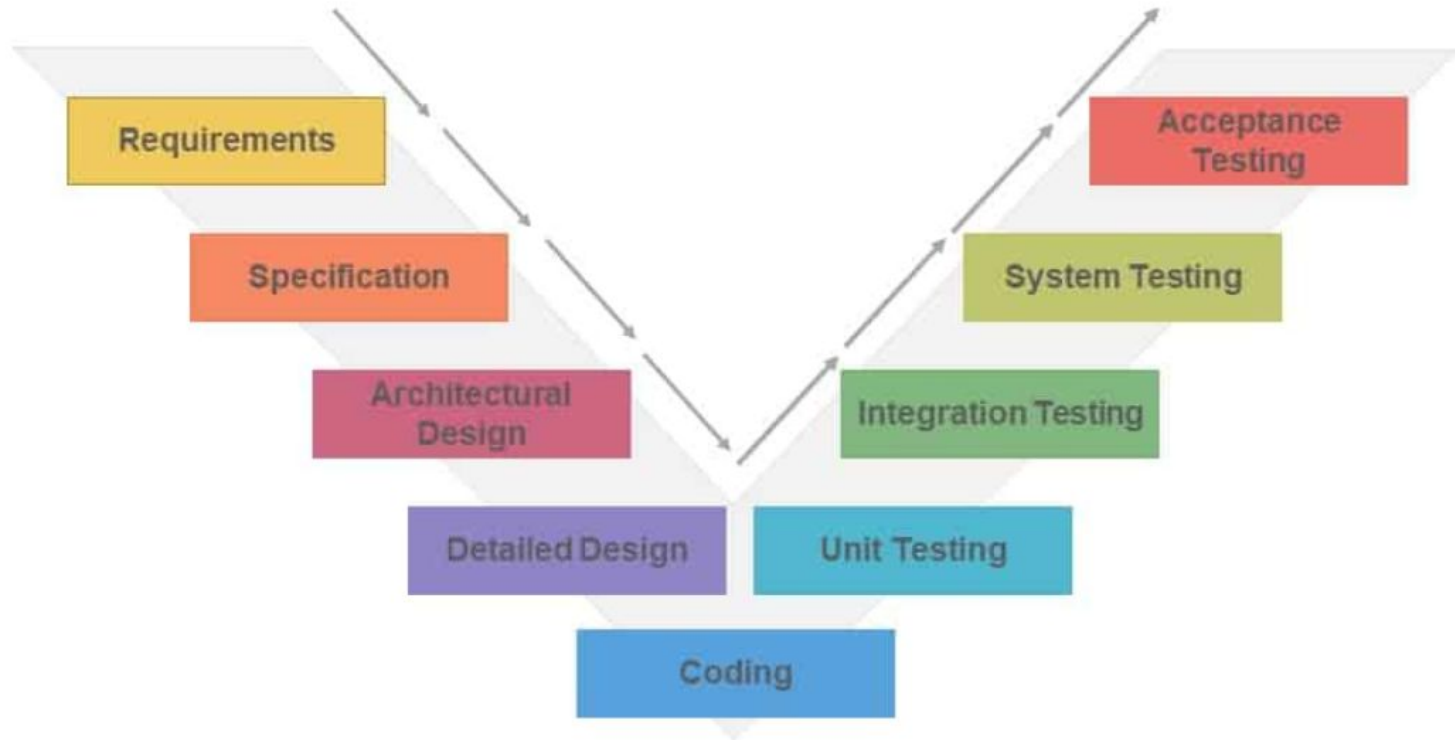

Unit - Jasmine

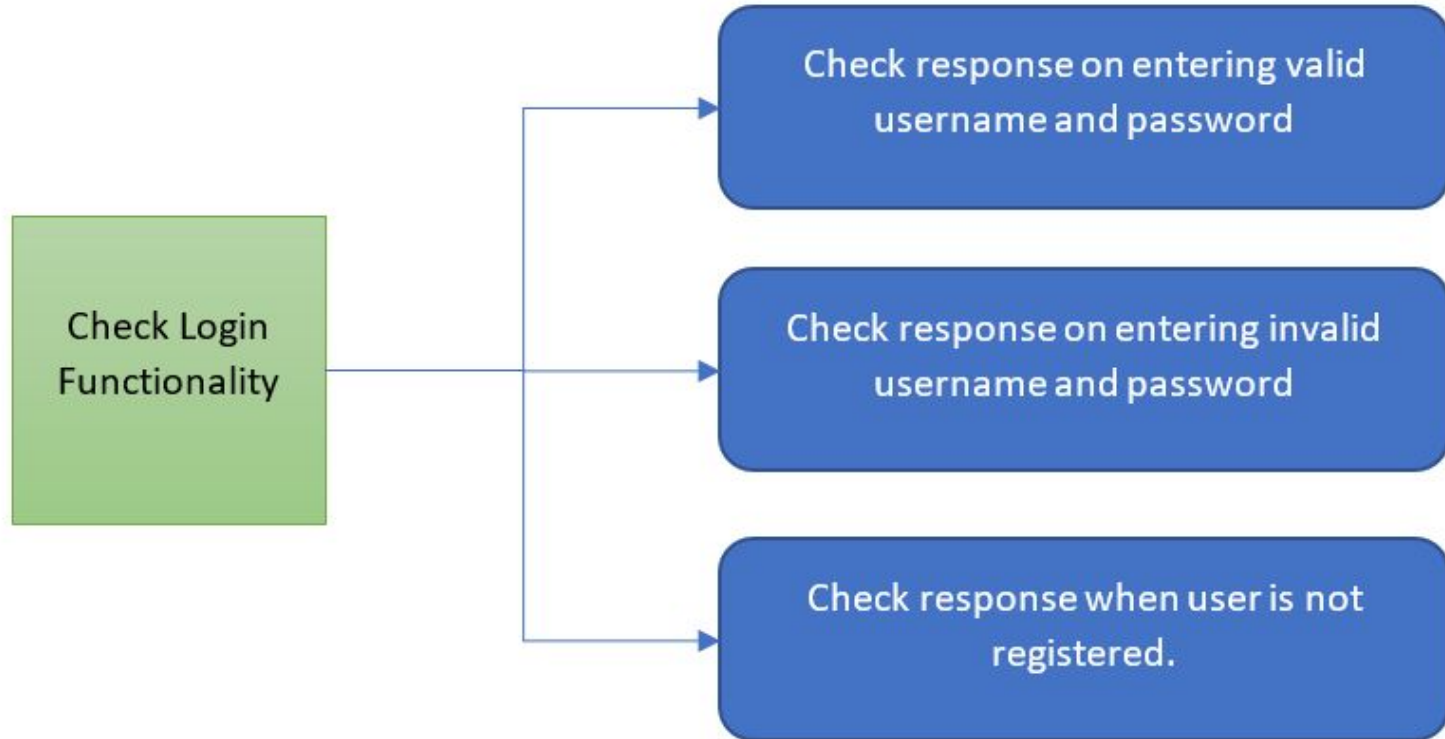*E2E* - Protractor

Runner - Karma

Potential Costs

- *Hosting* - Firebase
- *Storage* - Firestore
- *Mapping* - Google APIs
- *UI/UX Template* - Unknown

Test Plan - V-Testing Model

Test Plan - Sample Case

Check Login Functionality

Check response on entering valid username and password

Check response on entering invalid username and password

Check response when user is not registered.

Test Plan - Documentation

Test Scenario	Test Case	Test Step	Pre-conditions	Test Data	Expected Result	Actual Result	Pass/Fail
Check login functionality	Check response on entering valid username and password	1. Launch Software 2.Type username 3. Type password 4. Click "login".	User must be registered	Username: leoMessi Password: Yn\/\/@	Login must be successful	Login was successful	Pass

Conclusion

Project Milestones

Completed

1: Requirement Review

2: Preliminary Design Review

3: Critical Design Review

Next Semester

4: Test Plan Review

5: Test Readiness Review

6: System Test Review Review

7: Operational Readiness Review

8: Product Operational

Summary

"KeepVSafe should provide a simple and easy portal for fleet managers to monitor the performance of their drivers and address potential risks **before** they become real-world problems."

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Any questions?

Appendix

Graduate Students' Project

- Collect data using ReliaGATE 10-12
- Send raw data to database
- Process data to generate individualized reports for drivers
- Using machine learning find behavioral risk factors

ReliaGATE 10-12

Insurance Premiums

- Proactive steps to reduce accidents
- Proof of safe and careful driving
- Actively retraining drivers with bad reports

Privacy

- Using Google's API for user accounts
- Private information stored on Google's servers

Pricing

- Can't accurately determine usage of services
- Will have an estimated cost next semester
- View pages 18 & 19 in Project Plan for more information