UWAM FRACAS

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1. Background

The University of Western Australia Motorsport club (UWAM) is a student-led club that competes annually in the FSAE-Australasia student design competition. This competition involves designing, building and racing a formula-style race car. UWAM is inefficient at transferring experience and technical knowledge from competent members such as current Team Leads to new members.

This project aims to build and test a Failure, Reporting, Analysis and Corrective Action System (FRACAS) for UWAM.

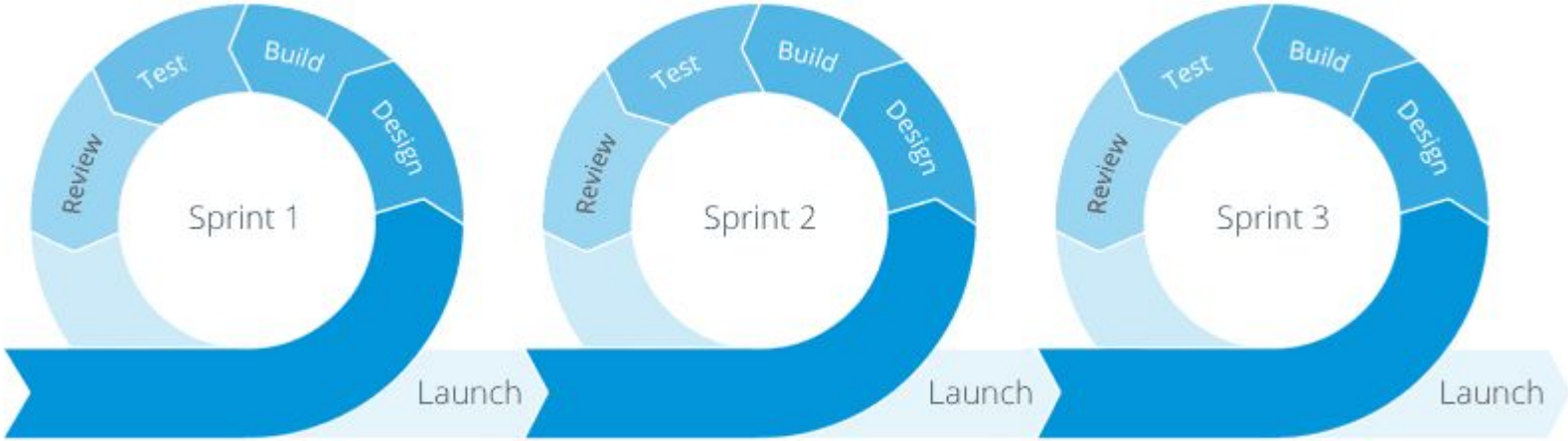
This system will serve as an element of a greater knowledge management and transfer system, allowing current and future members to see records of past failures and how they were dealt with. Our intention is that this knowledge capture system can improve UWAM's scheduling, budgeting, management, vehicle testing, and the focus of future design efforts.

2. Agile Sprint Plan

Sprint 1:
MVP Mockup &
Requirement refining

Sprint 2:
Viable MVP Prototype

Sprint 3:
Testing and additional
feature implementation



Week 5

Week 8

Week 13

3. MVP Identification and Requirements

The minimum viable product for the UWAM FRACAS has been determined to consist of the core failure reporting and tracking functionalities as well as a user and team lead database.

The MVP For Sprint 2 has been determined to be a subset of the requirements found in the full project scope. This complete scope can be found here: Scope and Requirements, and the subset here: MVP.

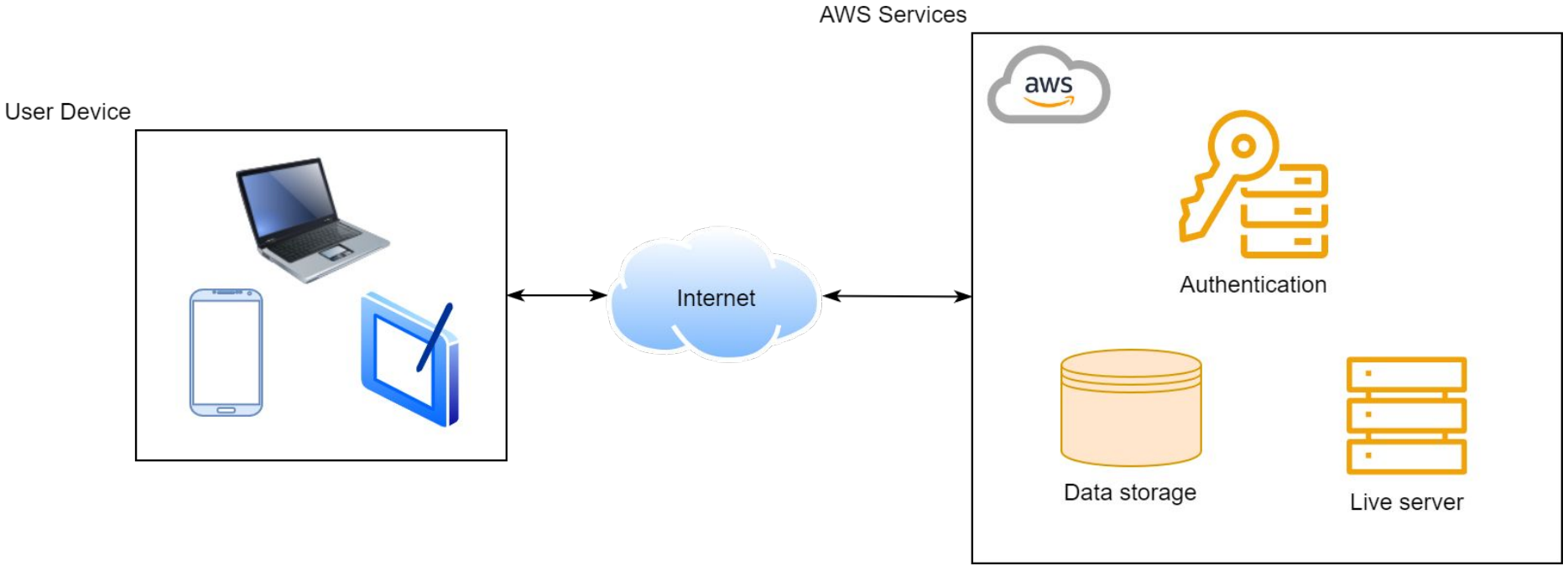
User:

- A user can create a new account
- A user can create a new failure report
- A user can view a list of all failure reports
- A user can search for a failure report
- A user can view a specific failure report
- A user can edit a failure report

Team Lead:

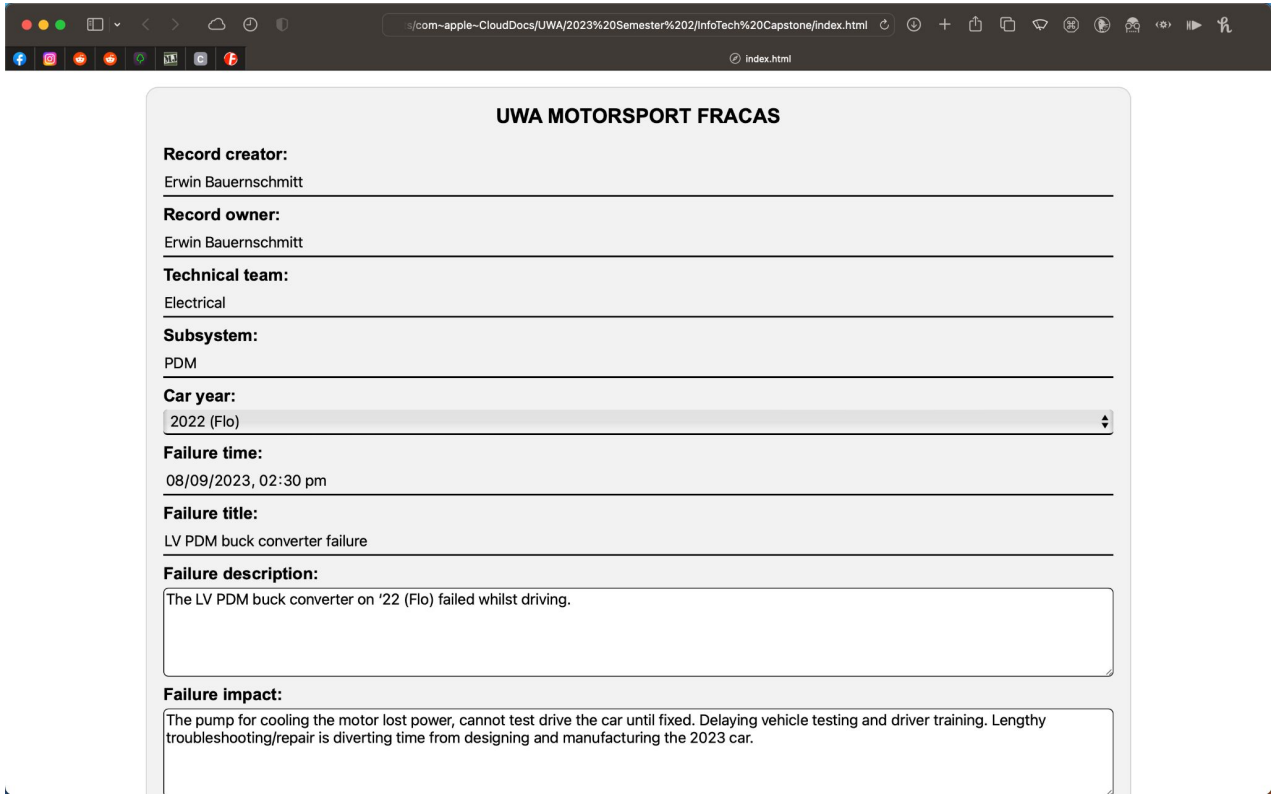
- A team lead can do everything a user can do and:
- A team lead can assign users to a team
- A team lead can mark a failure report as resolved
- A team lead can view a list of all users
- A team lead can delete a failure report

3.1 MVP Topology

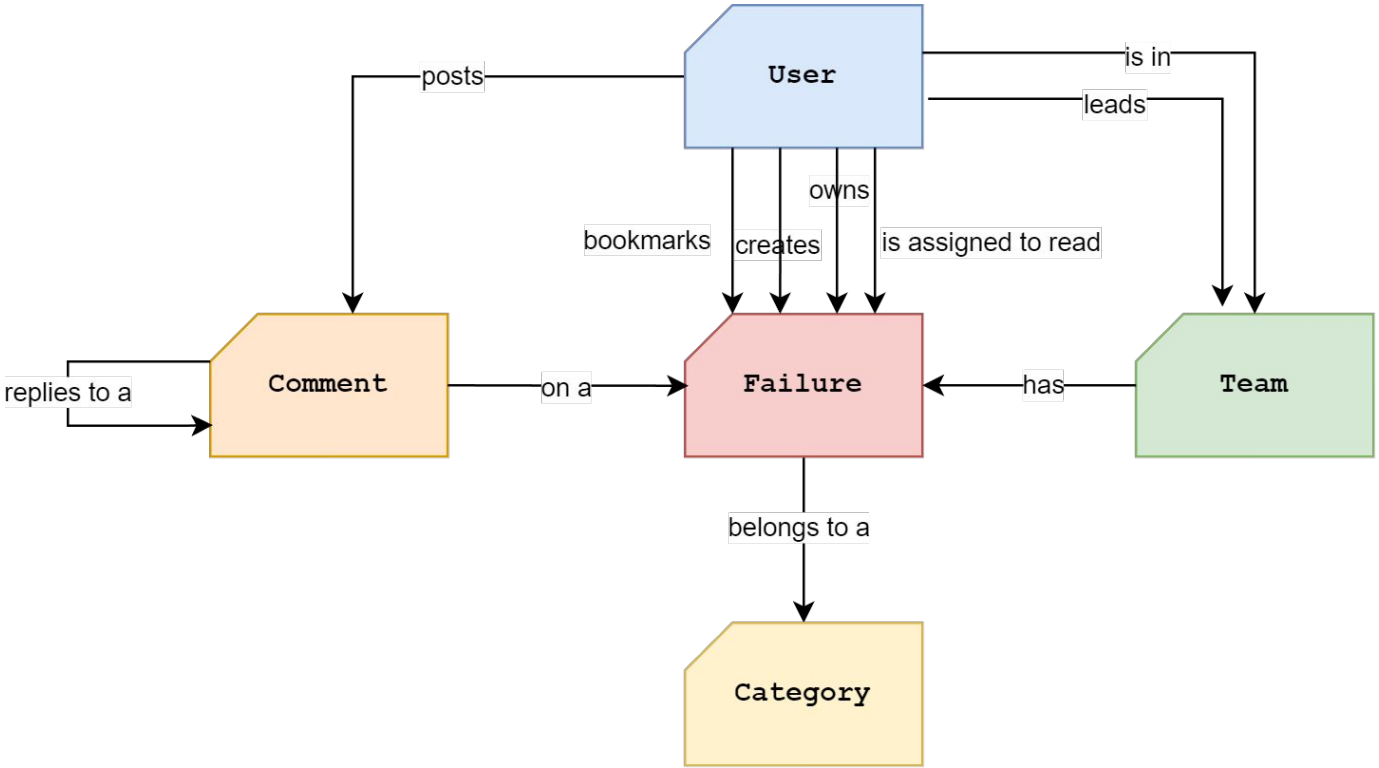


The proposed MVP leverages the capabilities and infrastructure of Amazon Web Services (AWS) to deliver enhanced functionality and performance.

3.2 MVP User Interface

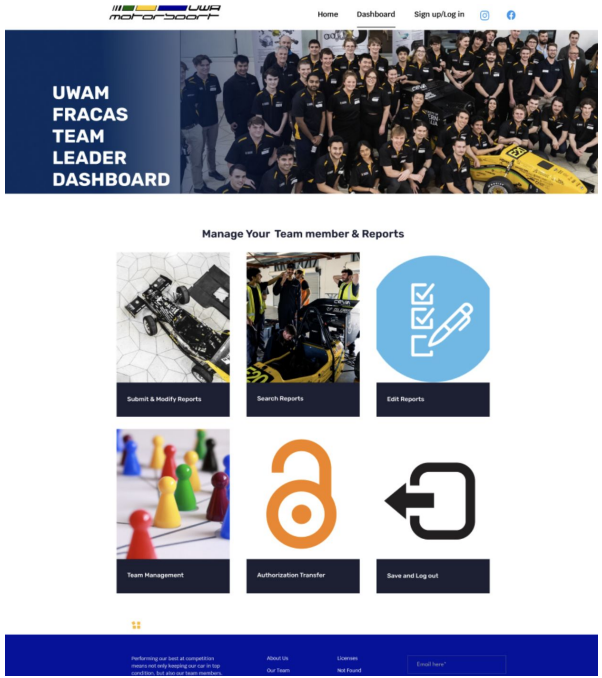


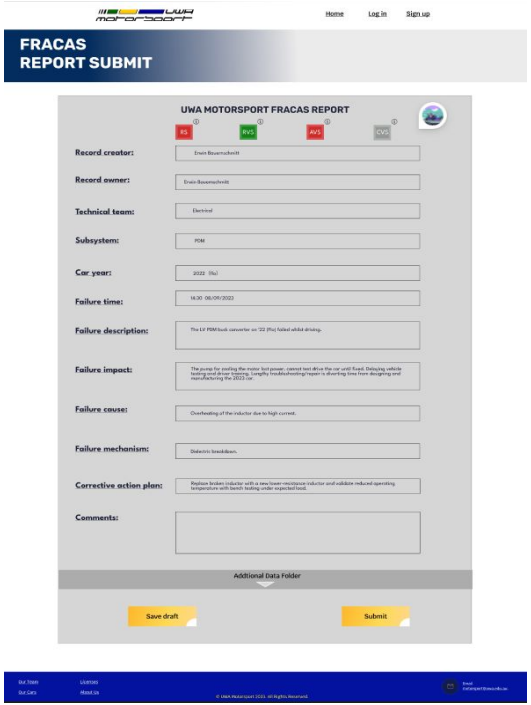
3.3 MVP Database: A conceptual model



Physical E-R Diagram (3NF)

4. User Journey of Prototype





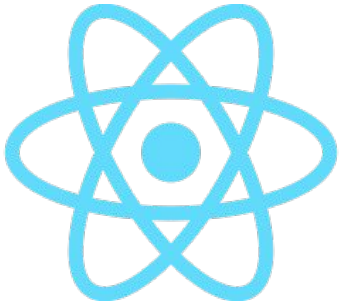
[Figma UI Design Link]

5. Investigated Technologies

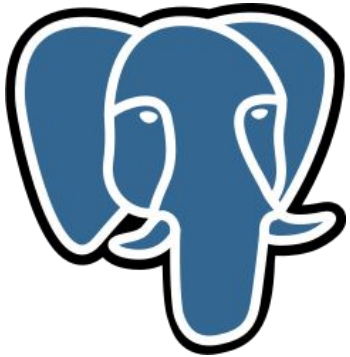
The selected technologies for this project are listed below. For the rationale behind this see Decision Documentation.

Python

Django



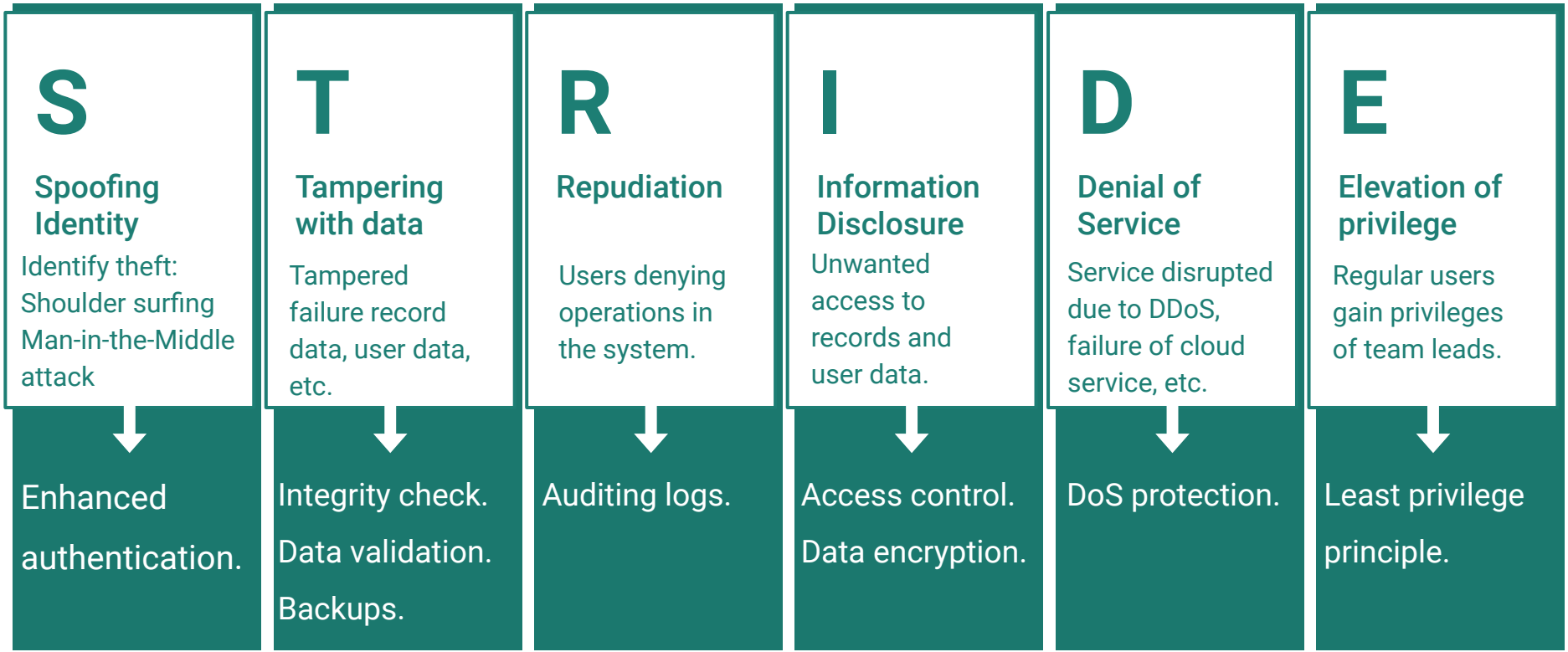
React.js



PostgreSQL

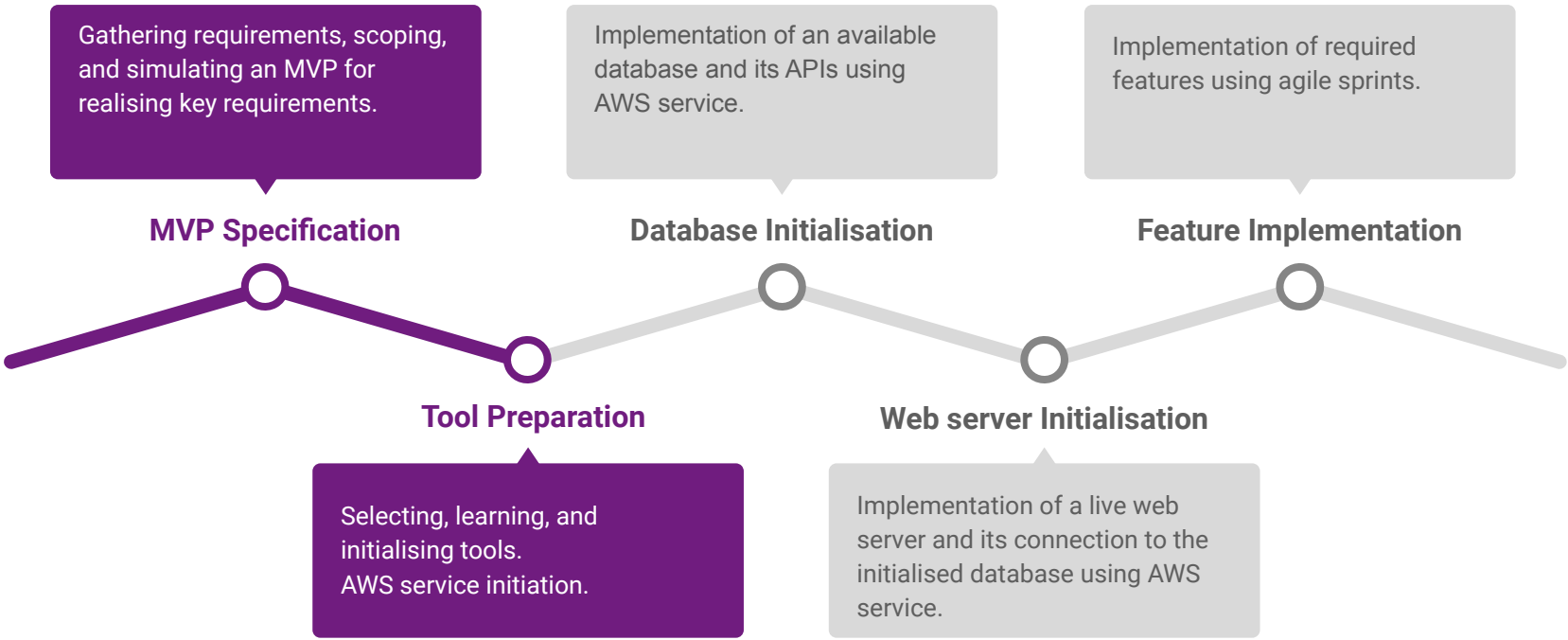
AWS

6. Security Threat Modelling - STRIDE

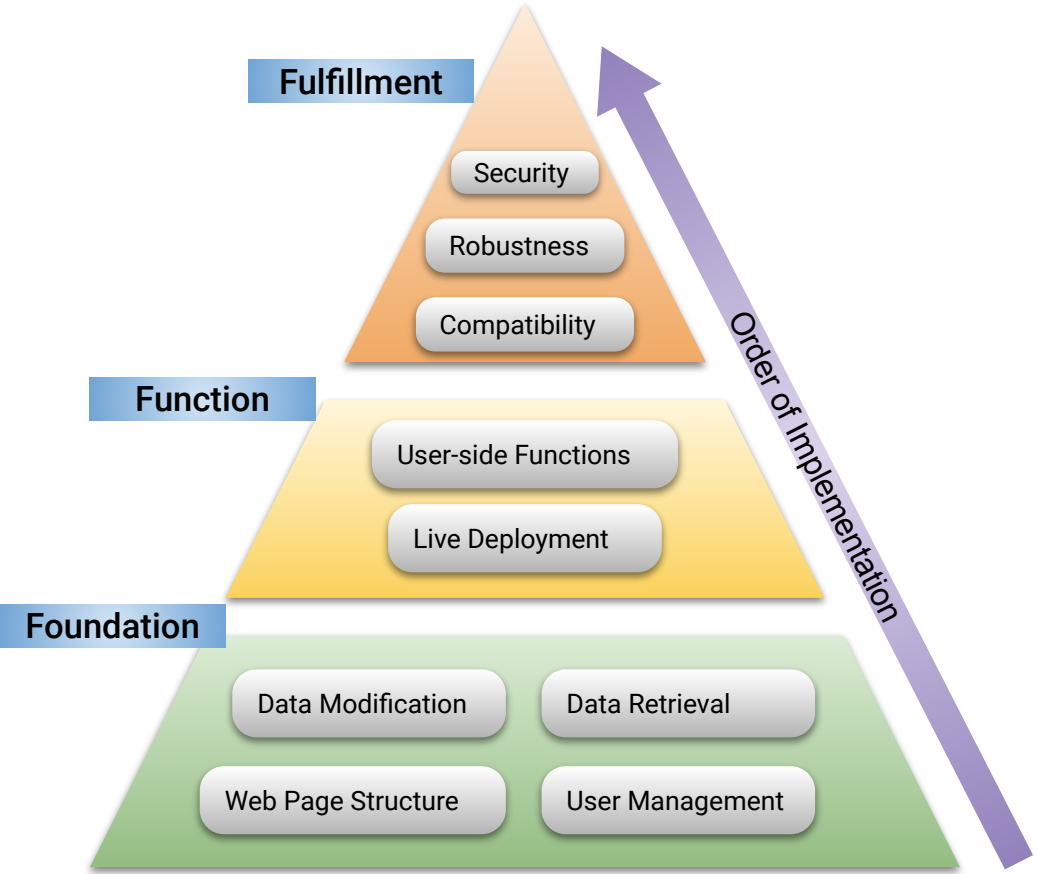


[STRIDE analysis document]

7. Next Steps - Development Process



7. Next Steps - Feature Implementation Strategy



Strategy: 3-stage bottom-up approach

1. Foundation: Ensure that basic data operations and webpage are working as per required.
2. Function: Implement and test user functions with a live prototype incrementally.
3. Fulfillment: Improve the system to achieve better performance, user friendliness, security, etc.

Plans for Sprints 2 & 3