Deliverable 1

An identification of problems, derivation of high level requirements
and an articulation of features using controlled notation

Epic Group

Introduction

The purpose of this report is to identify and express high level requirements
regarding a potential software system via structured notation. We will express
the contents of our report in the following format.

1. **Problem Statements**: A series of problem statements which will investigate a number of problems we will solve via our software prototype.

2. **User Stories**: An idenfitication of features based on the problem statement previously specified.

3. **Low-Fidelity Prototype**: A paper physical sketch of the UI elements integrated with a storyboard-like chronological script.

4. **High-Fidelity Prototype**: A computerised render of the low-fidelity prototype previously specified.

Our report will strictly harbor to controlled software engineering notation, such
as the utilisation of user stories and Connextra notation.

1   Problem Statements

We will enumerate over a series of problem statements, tangibly solved by software, potentially resolved in our prototype. Subsequently, we will choose to
target a specific problem statement within the remainder of our report.

1.1   Media Recommendations Problem Statement

Recommendations of visual media on contemporary popular internet platforms
are inaccurate, biased or limited. Recommendation algorithms on such platforms are often a small subsection of a larger media streaming or distribution
service, restricting the scope of recommendation to those within such a service.
Moreover, recommendation systems are typically implemented with small data
sets and cheap computational cost as a priority. As a result, recommendations
provided to a user are fragmented, unreliable and erroneous.

1.2 Internet Misinformation Problem Statement

Information presented by news media outlets and online sources of information can frequently be misleading or malicious. In addition, the advent of social media platforms permitting and stimulating the concept of sudden, mass popularity has encouraged the threat of misinformation spreading routinely and to great negitive effect. In response, the employment of paid moderators have only further exacerbated the issue, with themselves enforcing their baiases regarding which information is legal.

1.3 Credential Security Problem Statement

Due to the prevalence of database leaks combined with the tendency of internet users to share credentials across multiple platforms, identities on the internet are frequently hijacked. Moreover, specific individuals are often targeted in order to spread disinformation and aid in monentary theft. Current database credential storage technologies are inadquate in reducing user harm during the seemingly inevitable event that a webserver security solution is bypassed.

Chosen Problem Statement

We have decided to focus our attention towards developing a software prototype which solves the media recommendations problem statement. The alternative problem statements are difficult to target in the small timeframe we have been provided. In contrast, a solution to the media recommendation problem statement is relatively managable to implement. Moreover, it also fulfills the requirement of communicating with an information archive via an API (application programming interface).

2 Features and User Stories

We will initially decompose our chosen problem statement into a set of high level requirements. Our high level requirements will then be further classified into a set of features. We will utilise Connextra notation when describing each feature, concluding by elicitating a set of user stories that accurately describe our feature set.

2.1 High Level Requirements and Features

1. **High Level Requirement**: A device agnostic web based user interface.
   Feature: A lightweight HTML (Hyper Text Markup Language) and Javascript based user interface utilising the open source Bulma CSS (Cascading Style Sheets) stylesheet.

2. **High Level Requirement**: A media recommendation system.
   Feature: A procedurally generated series of questions which narrows down a set of recommended movies based on the previous response.

3. **High Level Requirement**: Information about specific media.
   Feature: Requests to the IMDb (Internet Movie Database) and OMDB (Open Movie Database) retrieving the title, rating and description of movies, among others.

4. **High Level Requirement**: A performant webserver stack capable of fast responses under a heavy workload per user session.
   Feature: The use of a compiled, high performance programming language along with the Pistache HTTP and REST (Representational State Transfer) framework.

5. **High Level Requirement**: Reliability and maintainability for any software written ensuring user frontend stability.
   Feature: The use of the GoogleTest C++ testing framework, javascript and HTML linters along with continuous integration testing.

2.2 User Stories

The following user stories are symbolically linked to the aforementioned high level requirments and features.

- **Mobile User**: As a user of multiple devices, each with their own set of human interface devices, I want to be able to access the website through either device. Given that I am using a mobile phone or desktop, I wish to be able to receive movie recommendations regardless of my choice of device.

- **Media Recommendation System**: As an avid film consumer, I want to receive tailored, specific recommendations relevant to me. Given that I am visiting the website, I wish to be able to discover esoteric and popular films alike without being limited to a biased or limited database.

- **Media Information**: As a selective film consumer, I wish to cherry pick a movie based on specific details such as film rating, length and content. After I have been recommended a film, I want to see detailed information about the film, with the ability to reject the recommendation if appropriate.

- **High performance**: As a power user, I wish to be able to receive many movie recommmendations over a short period of time. After I have received a recommendation, I wish to be able to perform several other searches in rapid succession without being subject to captchas, wait periods or other load balancing techniques.

- **Reliability**: As an international user, I wish to be able to recieve movie recommendations regardless of the date and time in the server provider's origin. When I visit the website, I want to be able to receive recommendations at any point in time without maintenance periods.

3 Low-Fiedelity Prototype

The following images are rough sketches of a potential final website design.
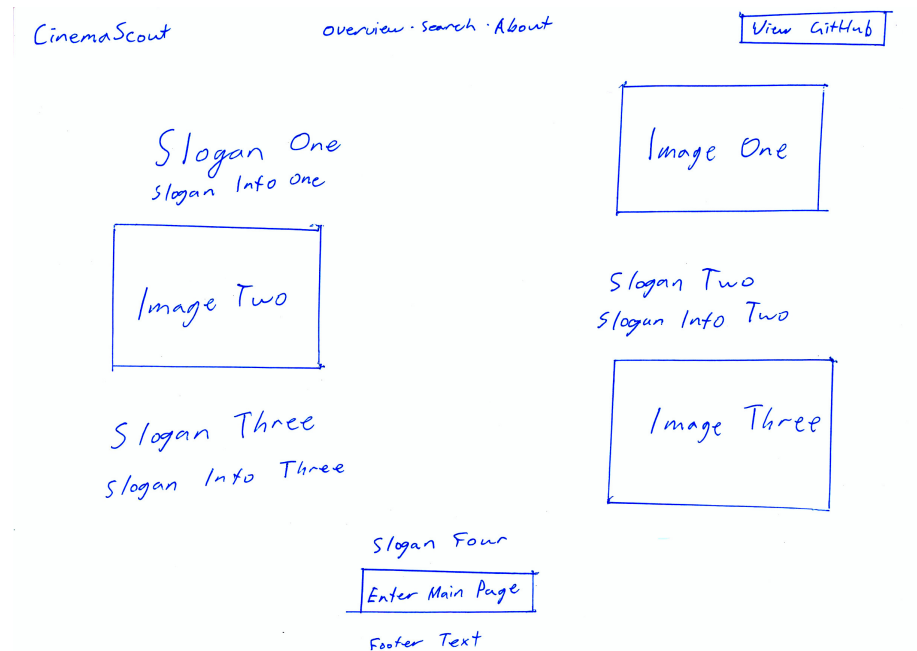
3.1 Landing Page

Figure 1: Rough sketch of the landing page.
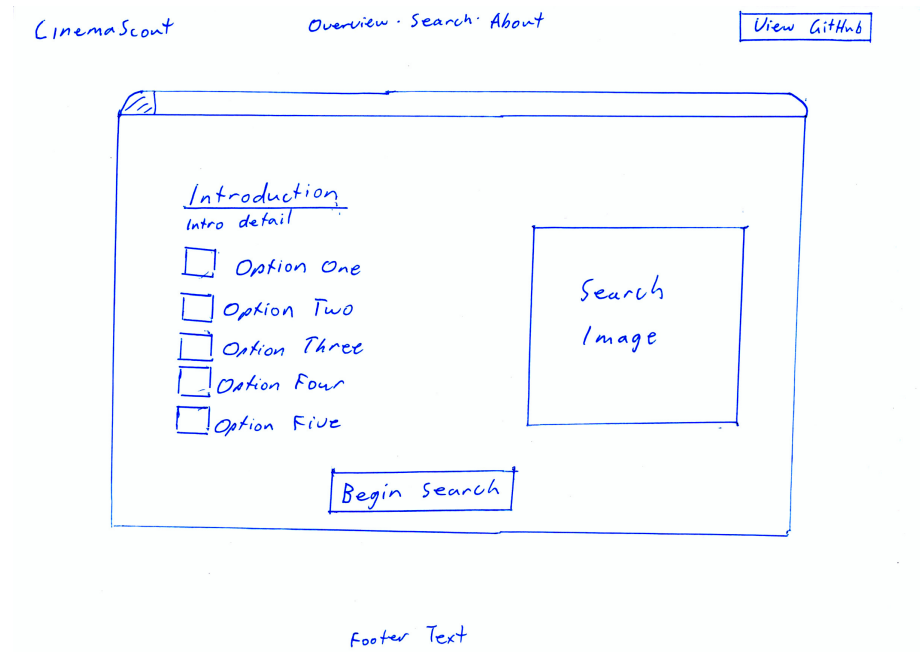
3.2 Search Page

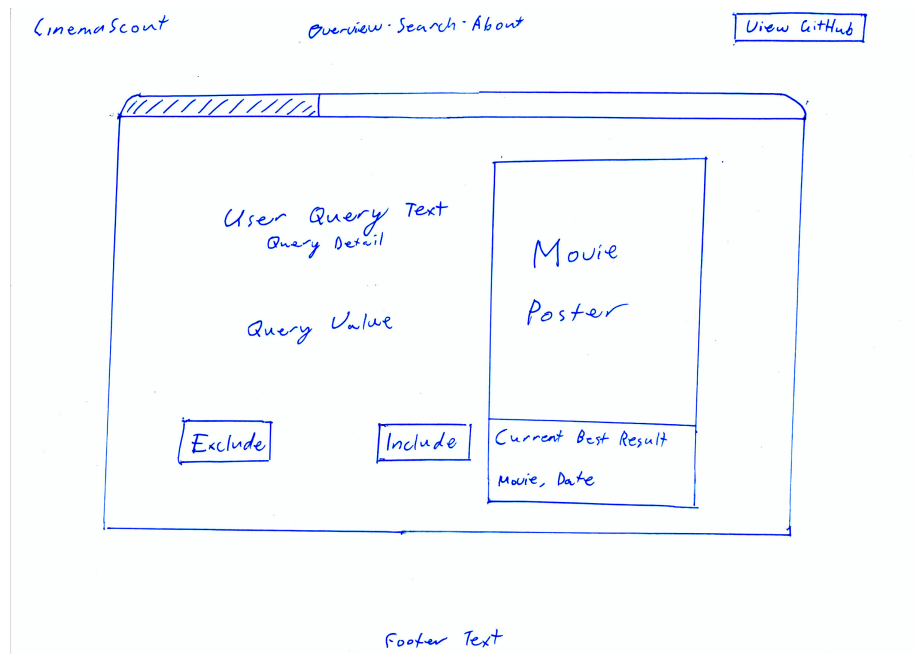Figure 2: Rough sketch of the initialise search state of the search page.

Figure 3: Rough sketch of the in progress state of the search page.
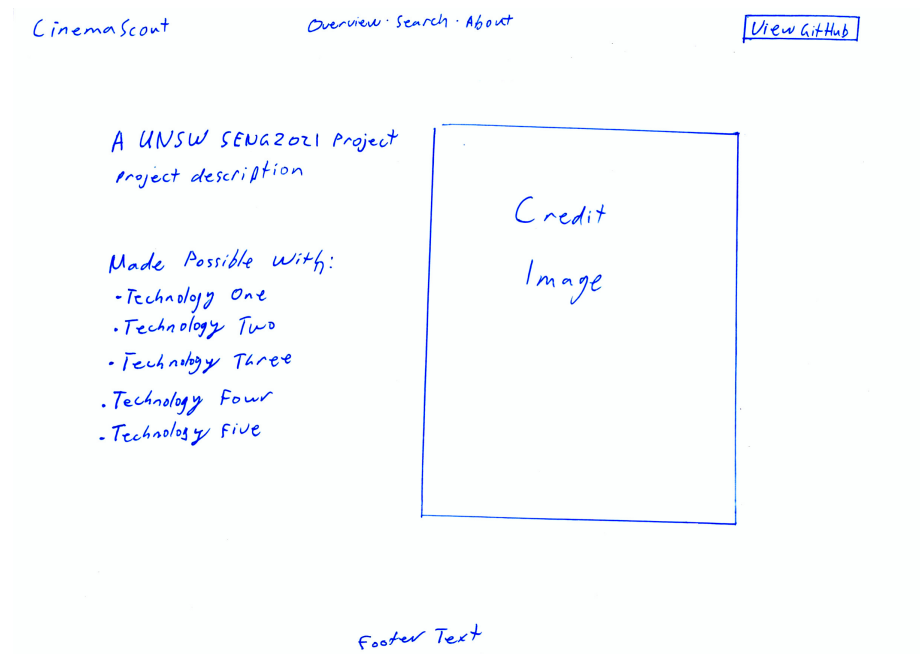
3.3 About Page

Figure 4: Rough sketch of the about page.

3.4 Storyboard Composite

As an alternative to the traditional arrows used in storyboards and due to the complexity of the user interface, we have instead represented each page chronologically in appearance to a user and used colour to represent links to other pages.
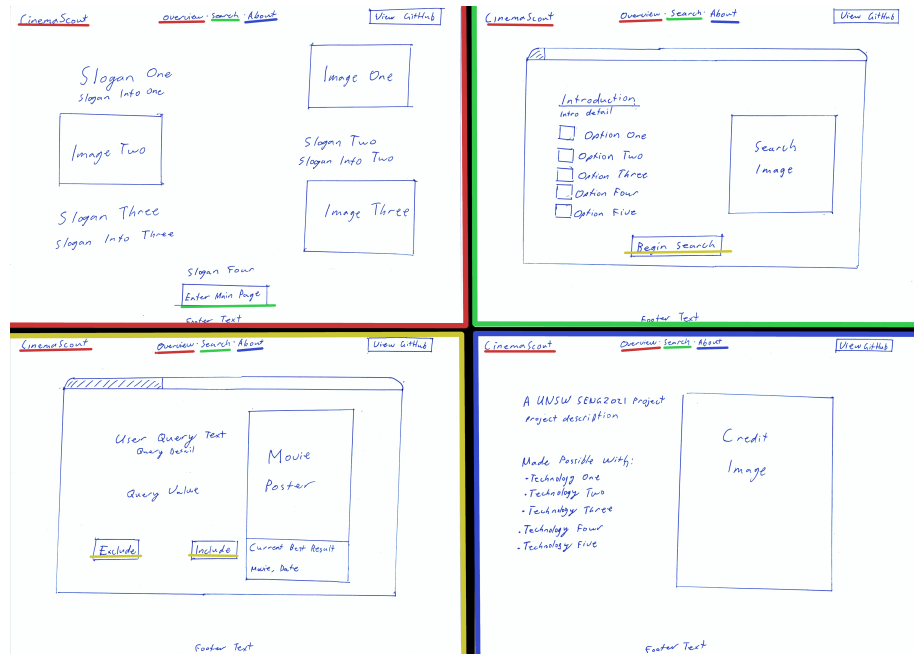
Figure 5: Storyboard sketch of all previous figures.

4 High-Fiedelity Prototype

The following images are a work in progress and do not represent the final design of the product. All images were captured at a resolution of 1920 x 1080 using a default Chromium browser on Arch Linux.

4.1 Landing Page
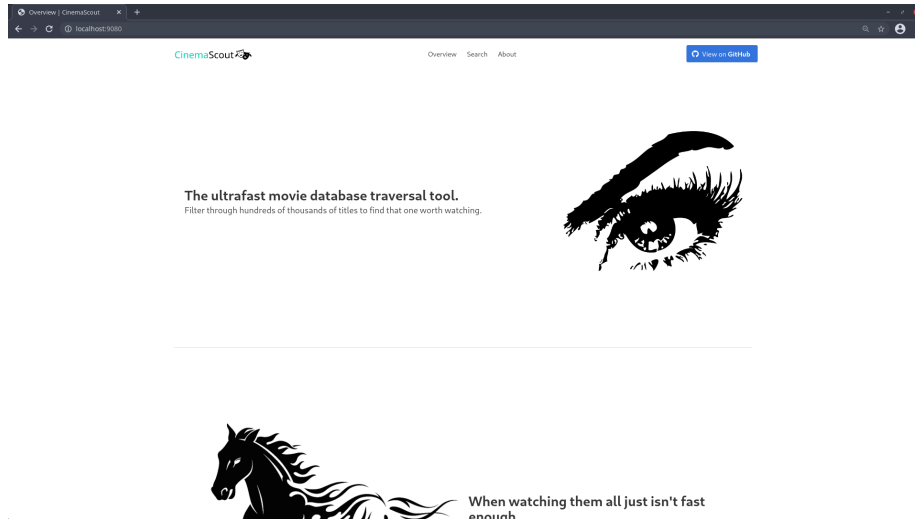
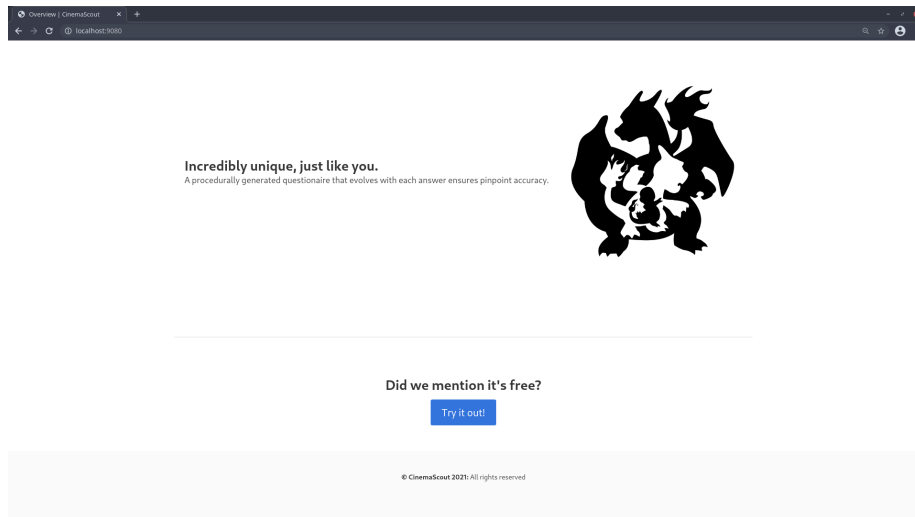Figure 6: Upper portion of the landing page.

Figure 7: Lower portion of the landing page.
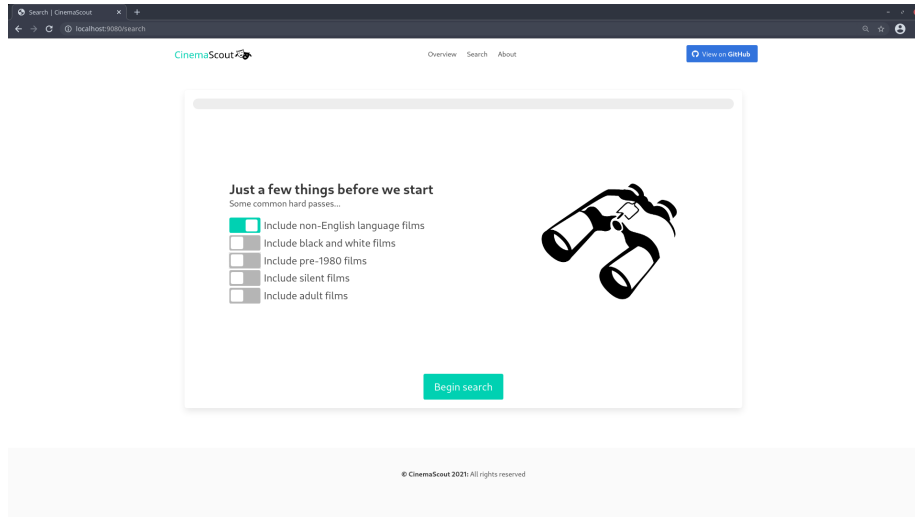
4.2   Search Page

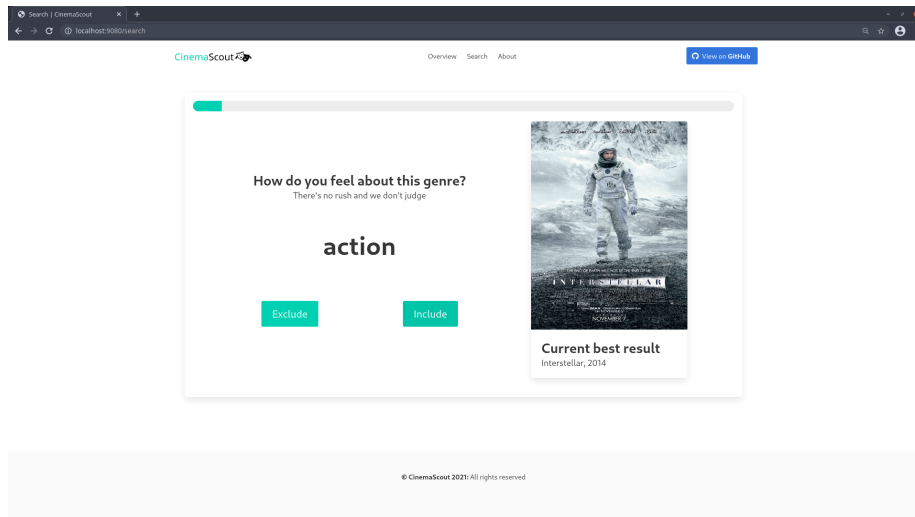Figure 8: Initialise search state of the search page.

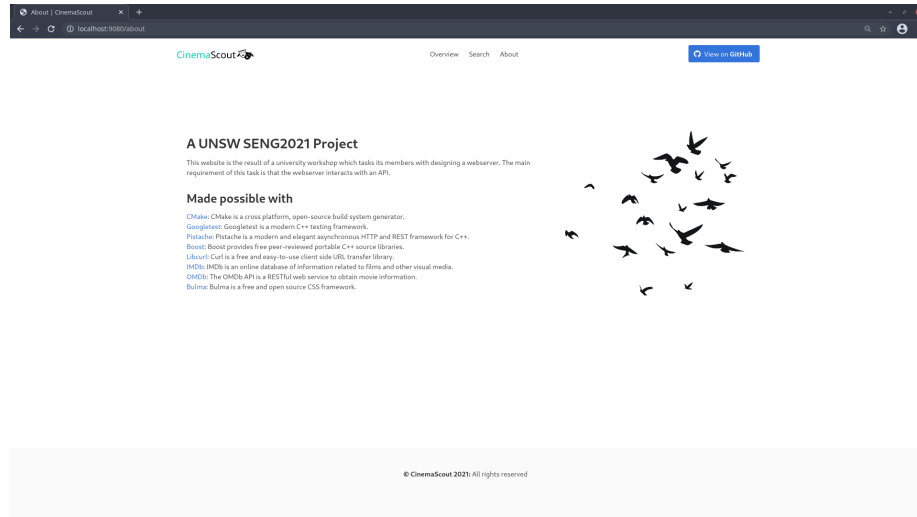Figure 9: Search in progress state of the search page.

4.3   About Page

Figure 10: Entire portion of the about page.