

# SENG2021

## Deliverable 4&5



# Engineering

2021 - Trimester 1

The Procrastinators

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# Business Part

## Purpose

With the constantly growing amount of different societies throughout universities, the events that come along with it and the ever growing amount of social media platforms. When&Where aims to allow students of all different universities to have information of different societies within their university as well as the events that they host all consolidated in one application. When&Where will also aim to provide users a personalised experience that would allow them to increase their enjoyment and joyful experiences while at university.

## Features

Features of our system includes:

- Ability to see all available and active events of a University on the front page.
- Ability to get more details of an event such as the name, location, time and description.
- Ability to see all of the societies for a University.
- Ability to see more details of a selected society such as its description and all available events run by a selected society by clicking on them.
- Ability to filter events based on event categories such as networking, seminar, social and workshop.
- Ability to view previously attended events.

## Problem Statements, User stories and Accompanying Features

**As a user, I want to be able to view information about university events so that I can be more informed of what is happening on campus.**

<b>Feature</b>	Filter events by type
<b>User story</b>	<b><u>1.1 (2USP)</u></b> As a student, I want to be able to filter events by their type (social, networking, seminar, workshop) so that I am able to view types of events I am interested in.

<b>Feature</b>	View start and end date/times of events.
<b>User story</b>	<b><u>1.2 (1USP)</u></b> As a student, I want to be able to view start and end dates and/or times of events so that I am able to see if I can attend or not.

<b>Feature</b>	View description of events
<b>User story</b>	<b><u>1.3 (1USP)</u></b>

	As a student, I want to be able to view a description of specific events so that I can know if that event is something I would be interested in.
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<b>Feature</b>	View location of events
<b>User story</b>	<p><b><u>1.4 (1USP)</u></b></p> <p>As a student, I want to be able to see the location of events so that I know where to go if I choose to attend that event.</p>

<b>Feature</b>	Filtering events by university
<b>User story</b>	<p><b><u>1.5 (1USP)</u></b></p> <p>As a student, I want to be able to filter events by university so that I am able to see only relevant event information for me.</p>

<b>Feature</b>	View specific events and their organisers
<b>User story</b>	<p><b><u>1.6 (1USP)</u></b></p> <p>As a student, I want to be able to view specific events and their organisers so that I am able to properly assess if this is an event that I am interested in.</p>

<b>Feature</b>	View how many people are attending the event
<b>User story</b>	<p><b><u>1.7 (1USP)</u></b></p> <p>As a student, I want to be able to judge how popular an event is by checking how many people are going.</p>

**As a user, I want to be able to properly keep track of events so that I do not miss potential events that I would be interested in.**

<b>Feature</b>	Log In
<b>User story</b>	<p><b><u>2.1 (1USP)</u></b></p> <p>As a student, I want to be able to log in using my student email credentials so that I may receive results personalised to me.</p>

<b>Feature</b>	Add events to calendar
<b>User story</b>	<p><b><u>2.2 (3USP)</u></b></p> <p>As a student, I want to be able to import university events to my personal calendar (Google/iCal) so that I am able to better see how it fits into my current schedule.</p>

<b>Feature</b>	Recommending events
<b>User story</b>	<p><b><u>2.3 (4USP)</u></b></p> <p>As a student, I want events to be recommended to me based on my past event attendance so that I can be more aware of events that I may be interested in.</p>

<b>Feature</b>	Notified about new events
<b>User story</b>	<p><b><u>2.4 (1USP)</u></b></p> <p>As a student, I want to be notified by email when new events are created so that I can have as much time as possible to plan for them.</p>

<b>Feature</b>	Turn off notification
<b>User story</b>	<p><b><u>2.5 (1USP)</u></b></p> <p>As a user, I want to be able to turn off email notifications for certain events that I am not interested in, so that my email inbox is not spammed with event information.</p>

<b>Feature</b>	View history of attended events
<b>User story</b>	<p><b><u>2.6 (1USP)</u></b></p> <p>As a student, I want to be able to view my previous attended events so that I can keep track of the different events I have been to.</p>

**As a user, I want to be able to see and give reviews and ratings of events so that I can see how good the event and organisers are.**

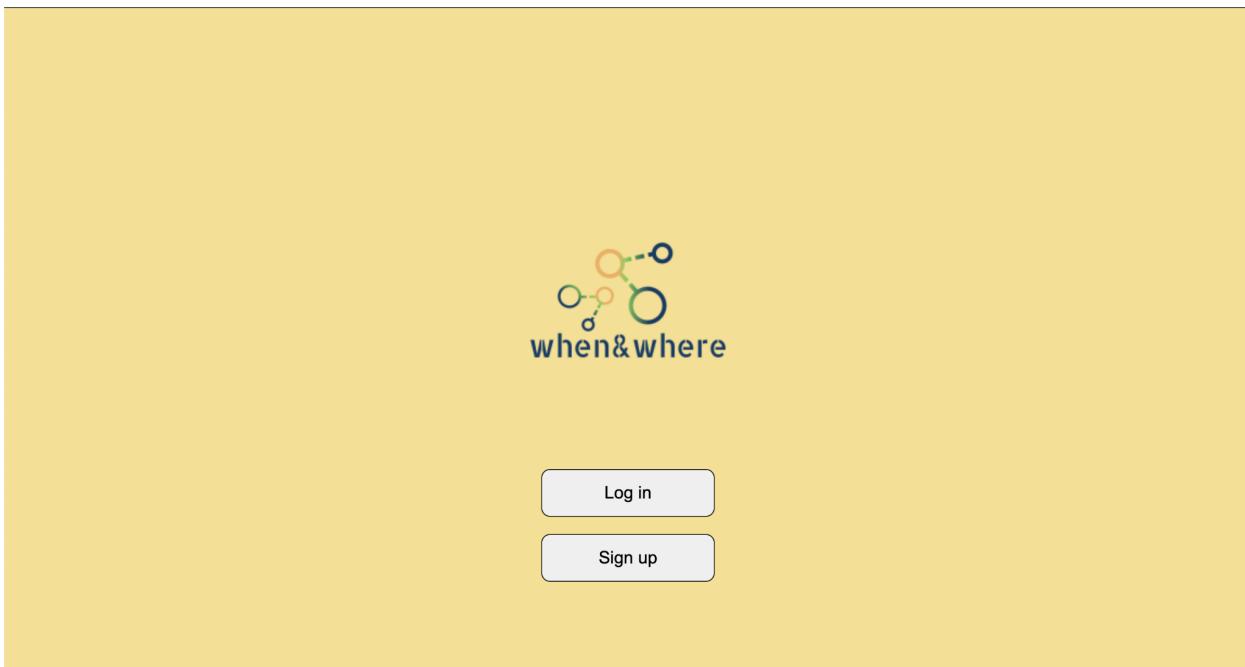
<b>Feature</b>	View ratings and reviews of previous similar events
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**User story****3.1 (2USP)**

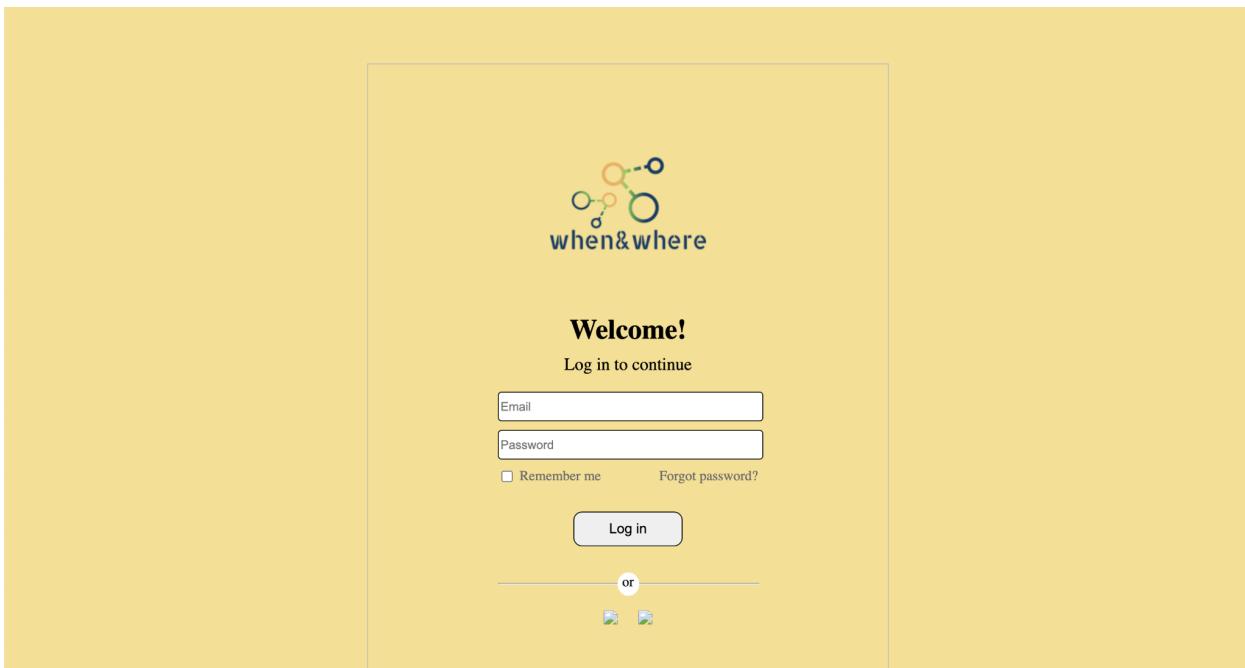
As a student, I want to be able to see reviews and ratings of previous similar events so that I know whether the upcoming event will be suitable for me.

**Final interface screenshots.**

Sign in Page



Login Page



## Signup Page

### Create an account

Sign up with your social media account or your email

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or

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## Home Page



[Home](#)   [Societies](#)   [Profile](#)

#### Active Events



Holy Mass  
12:10 PM  
Join us for a spiritual gathering.



THE GOSPEL OF ST MARK  
Read the words of Jesus in the original language.



FOOD HUB  
Local food delivery.



ASSET MANAGEMENT CASE COMPETITION  
Case competition for students.



LOLSSCI  
Break Into Consulting  
Mentoring Program

[Filters](#)

## Event detail page



Home Societies Profile

CEVSOC PRESENTS

# INTO THE BLUEPRINT

A PODCAST SERIES ON THE DIVERSE STORIES FROM ENGINEERS

12:00PM-12:45PM

WEDNESDAY 10TH MARCH (WEEK 4 T1)

WEDNESDAY 24TH MARCH (WEEK 6 T1)

... AND MORE DATES



ONLINE VIA FACEBOOK LIVE,  
INSTAGRAM LIVE, SPOTIFY

## CEVSOC Presents: Into The Blueprint

UNSW

Sydney, NSW, Australia 2052

### Details [Add to Calendar](#)

#### Time:

2021-03-10T12:00:00 - 2021-11-10T12:45:00

#### Description:

Friend: So what're you studying?

You: Civil/Environmental Engineering

Friend: So what kind of stuff does that involve?

You: Soil, concrete, water, trains

Friend: Is that really all there is to your degree? Is that really all there is to you? Who are you?

You: ☺ ↗ ☺

We often forget about the interplay of what defines us and what we do for work or study, especially in the field of engineering where everything is so physically based. But in reality, recognising what defines us in terms of our gender, race, ethnicity, sexual orientation, socio-economic status, age, physical abilities and our religious beliefs makes us perform better as an individual or in our community of school or work.

In CEVSOC's podcast, we will be chatting to your peers and people from the industry to share their stories and perspectives on topics relating to Diversity and Inclusion.

You can listen to our podcast on Spotify or interact with us while we are discussing the topics on Facebook Live and Instagram Live.

WHEN: First release on Wednesday March 10th (Week 4)

TIME: 12:00PM-12:45PM

WHERE: Online via Facebook, Instagram, Spotify (links coming soon!)

#### ----- ABOUT US -----

CEVSOC is a student society at the University of Sydney that aims to bring together students from diverse backgrounds and interests to promote diversity and inclusion in the engineering field.

## Societies Page

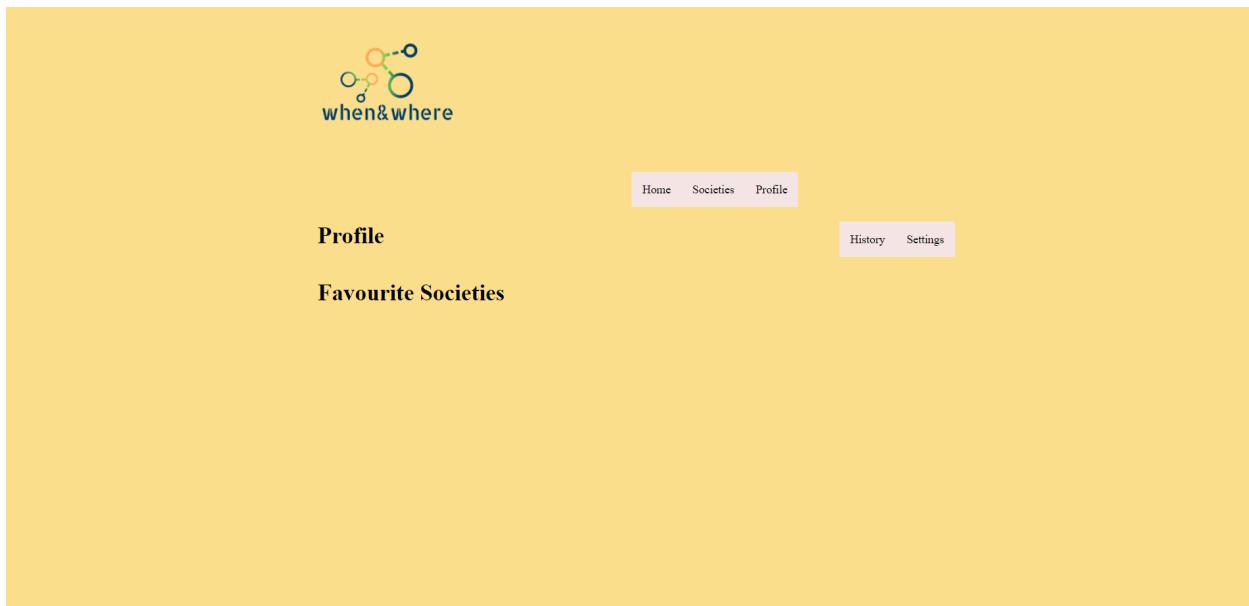
The screenshot shows a yellow-themed website interface for a societies page. At the top left is the 'when&where' logo, which consists of three stylized circles in orange, green, and blue connected by dashed lines. To the right of the logo is a navigation bar with three items: 'Home', 'Societies', and 'Profile'. Below the navigation bar is a section titled 'Societies' containing four square boxes, each representing a different society. From left to right: 1) '180Degrees CONSULTING - UNSW SYDNEY -' with a green globe logo; 2) 'UNSW APRS' with a network graph logo; 3) 'AIAA UNSW Student Branch' with a black and white AIAA logo; 4) 'when&where' with its own logo. The background of the main content area is yellow.

## Society detail page

The screenshot shows a yellow-themed website interface for a society detail page. At the top left is the 'when&where' logo. To the right is a navigation bar with three items: 'Home', 'Societies', and 'Profile'. Below the navigation bar is a large central image of a pyramid composed of green and grey rectangular blocks. Underneath this image is the society's name, 'CEVSOC UNSW', in bold capital letters. At the bottom of the page is a small text block: 'Welcome to the Civil and Environmental Engineering Society of the University of New South Wales. We aim to consistently provide valuable events that develop our diverse range of students both personally and professionally.' followed by 'Email us: cevsoc@gmail.com'. To the right of this text are two small buttons: 'About' and 'Events'. The background of the main content area is yellow.



Profile Page



## History

The screenshot shows the 'Attendance History' section of the when&where app. At the top, there is a navigation bar with 'Home', 'Societies', and 'Profile' buttons. Below the navigation bar, the title 'Attendance History' is displayed. The main content area contains six cards representing different events:

- Holy Mass**: A card featuring a photo of a church interior and the text 'Holy Mass 12:10 PM'.
- THE GOSPEL OF ST MARK**: A card featuring a photo of Jesus reading from a book and the text 'THE GOSPEL OF ST MARK'.
- FOOD HUB**: A green card with the text 'FOOD HUB' and 'Food where you want'.
- INDUSTRY INSIGHTS**: A card featuring a photo of two people at a desk and the text 'INDUSTRY INSIGHTS'.
- ASSET MANAGEMENT CASE COMPETITION**: A card featuring a teal arrow graphic and the text 'ASSET MANAGEMENT CASE COMPETITION'.
- LOLSCC**: A card featuring a photo of two people and the text 'LOLSCC'.

## Feedback

The screenshot shows the 'Feedback' section of the when&where app. At the top, there is a navigation bar with 'Home', 'Societies', and 'Profile' buttons. Below the navigation bar, the title 'Feedback' is displayed. The main content area includes fields for rating and review:

- Rating**: A row of five blue star icons.
- Review Title**: An empty input field.
- Review**: An empty input field.
- Buttons**: Two buttons at the bottom right of the review input field: 'Cancel' and 'Submit'.

# Design Part

## Updated design on Prototype Implementation

The final web application we have is a refined form of the rough idea we had in deliverable 1. While constructing the application we implemented the features that made sense with the purpose of the application and made it easy to use. These changes were subtle and helped us simplify the application so that the user interface is not complicated.

During deliverable 1 we were a bit confused if we wanted our app to be mobile based or web based but after considering the ease-of-use and accessibility of a web based application we decided to go this way.

## Sequence Diagrams

### User Story 1.1

As a student, I want to be able to filter events by their type (social, networking, seminar, workshop) so that I am able to view types of events I am interested in.

#### Scenario-

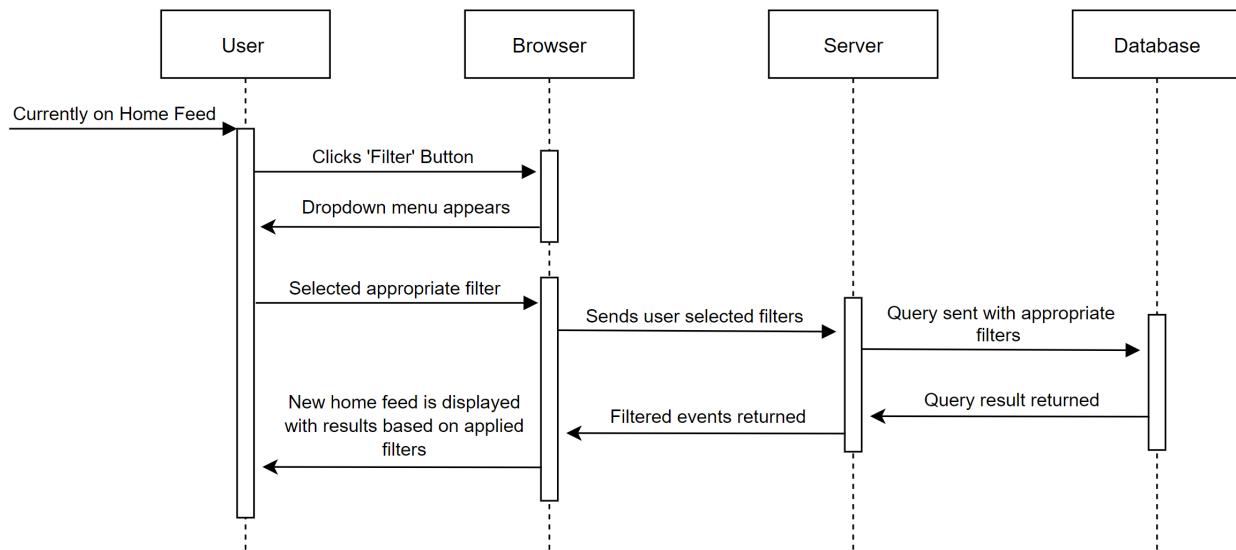
**GIVEN** I am on the homepage of the web application

**WHEN** I click on the filter button

**THEN** I see a drop down menu appear with the event types: social, networking, seminar, workshop.

**AND** when I select the appropriate filter I want to apply

**THEN** all events with the corresponding type will be displayed on the home page

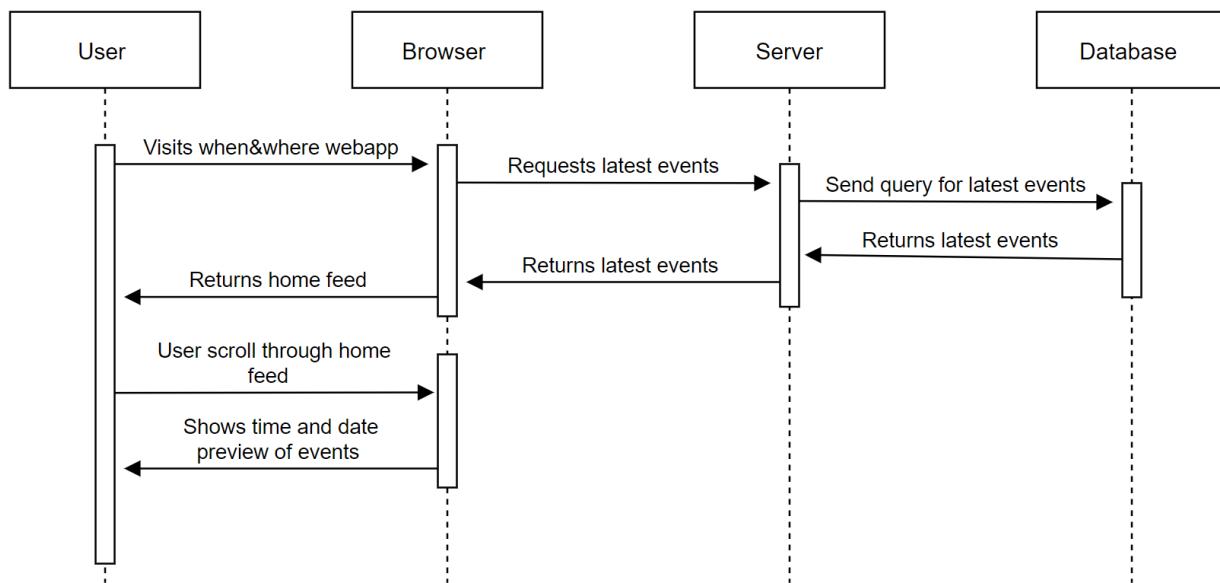


### User Story 1.2

As a student, I want to be able to view start and end dates and/or times of events so that I am able to see if I can attend or not.

#### Scenario-

**GIVEN** I am on the homepage of the web application  
**WHEN** there is an active event on the feed  
**THEN** the event's date should be viewable  
**WHEN** I select the event  
**THEN** the event's time and date should be viewable

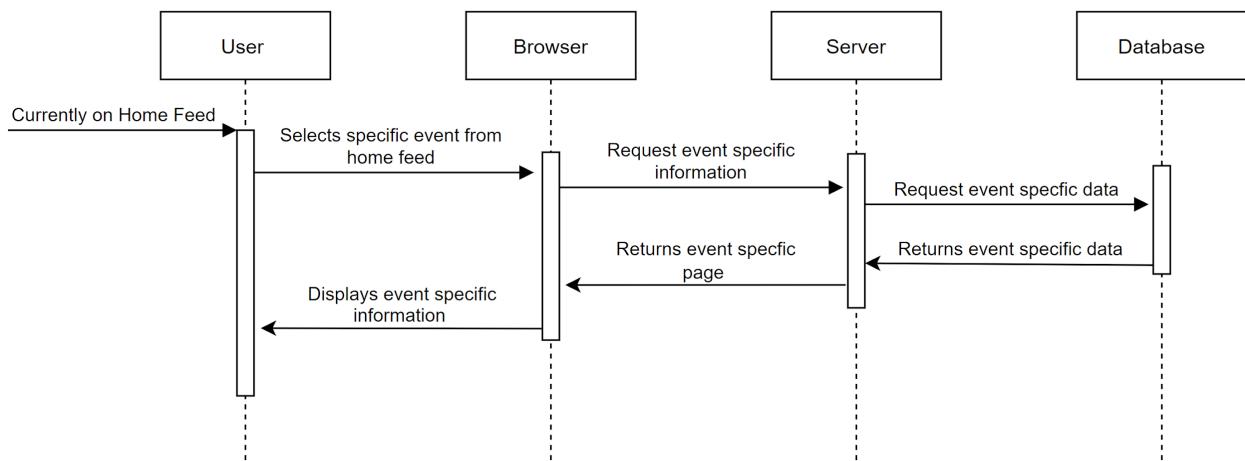


### User Story 1.3

As a student, I want to be able to view a description of specific events so that I can know if that event is something I would be interested in.

#### Scenario-

**GIVEN** I am on the homepage of the web application  
**WHEN** there is an event on the feed  
**THEN** I should be able to view the event's title as well as date  
**WHEN** I click into the event  
**THEN** I should be able taken to a new page where I can view the full description of the event



## User Story 1.4

As a student, I want to be able to see the location of events so that I know where to go if I choose to attend that event.

### Scenario-

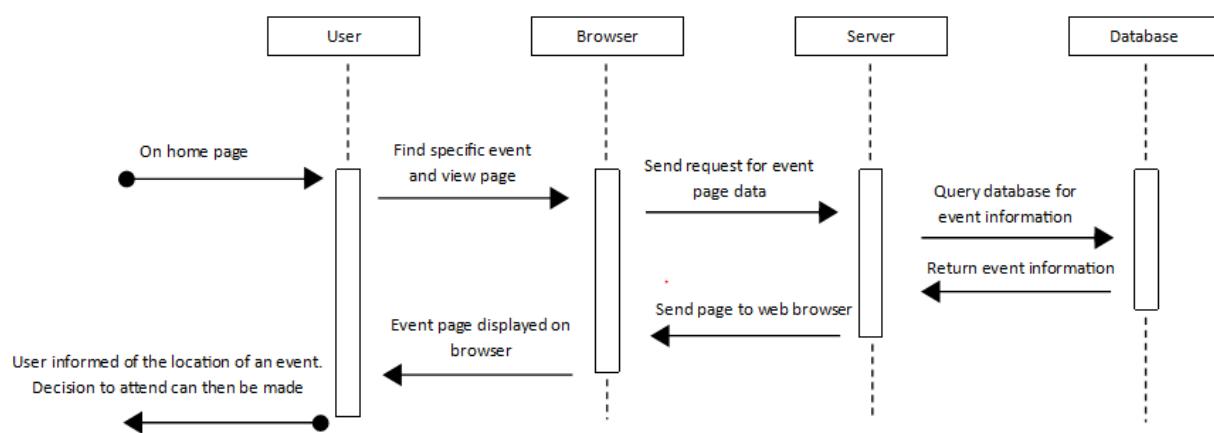
**GIVEN** I am on the homepage of the application

**WHEN** there is an event on the feed

**WHEN** I click into the event

**THEN** I should be redirected to the event specific page

**THEN** I should be able see the location name and a map of the location of the event



## User Story 1.5

As a student, I want to be able to filter events by university so that I am able to see only relevant event information for me.

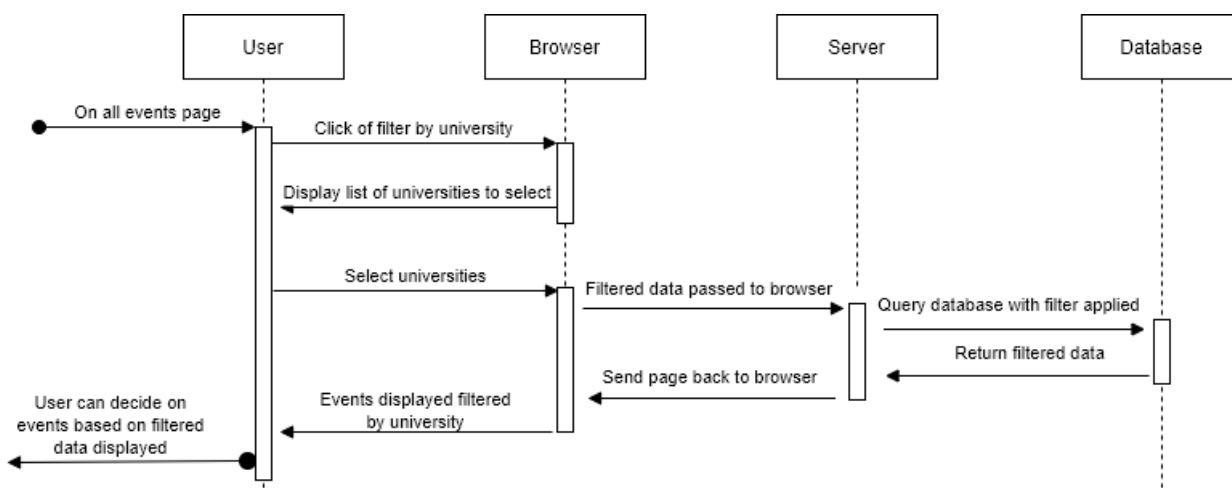
### Scenario-

**GIVEN** I am on the all events page of the application

**WHEN** I click on the filter button

**AND** select my desired university

**THEN** the web application should refresh and only show me events that are run by the selected university on the home feed.



## User Story 1.6

As a student, I want to be able to view specific events and their organisers so that I am able to properly assess if this is an event that I am interested in.

### Scenario-

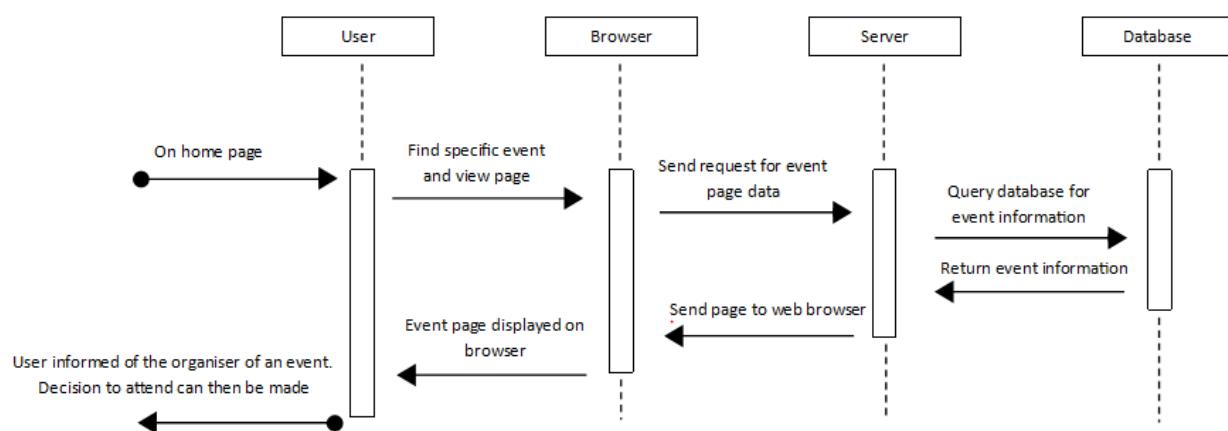
**GIVEN** I am on the homepage of the web application

**WHEN** there is an event on the feed

**AND** I click an event

**THEN** I should be redirected to the event specific page

**AND** I should be able to view all the details for that event including the detailed description, date and time, location as well as the organiser.



## User Story 1.7

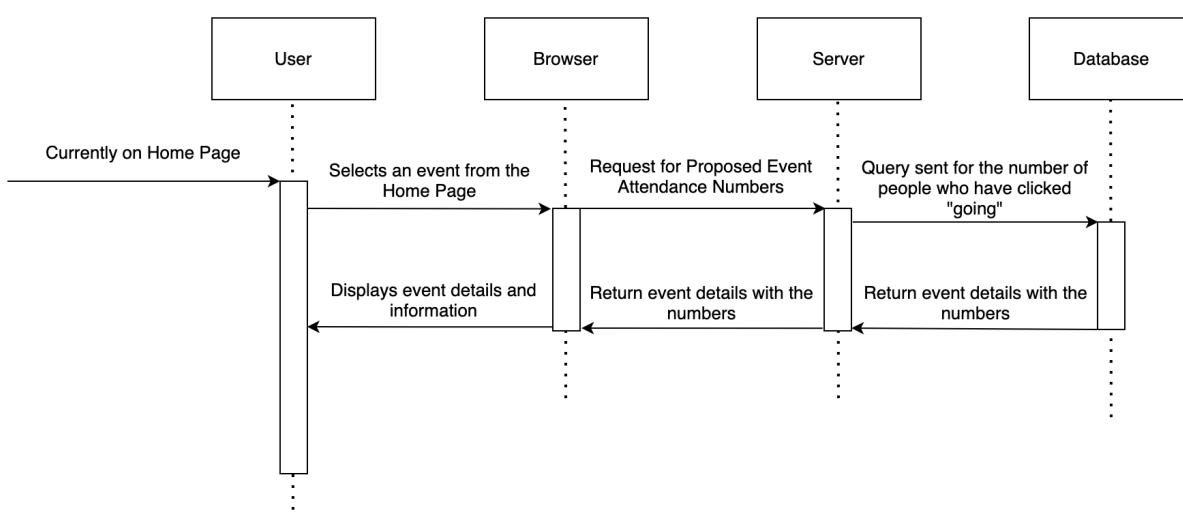
As a student, I want to be able to judge how popular an event is by checking how many people are going.

### Scenario-

**GIVEN** I am on the home feed of the web application

**WHEN** I click an event on the home feed.

**THEN** the number of people attending the event should be visible



## User Story 2.1

As a student, I want to be able to log in using my student email credentials so that I may receive results personalised to me.

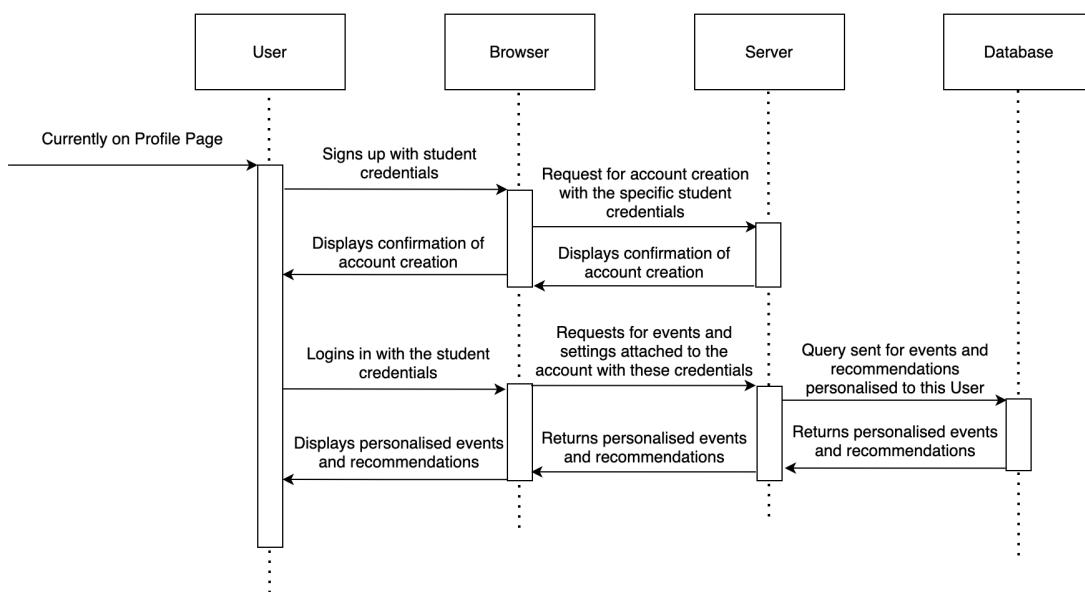
### Scenario-

**GIVEN** I am on the login screen

**WHEN** I input my login credentials

**AND** I select login

**THEN** I should be logged in and redirected to my own personal feed



## User Story 2.2

As a student, I want to be able to import university events to my personal calendar (Google/iCal) so that I am able to better see how it fits into my current schedule.

### Scenario-

**GIVEN** I am on an events page

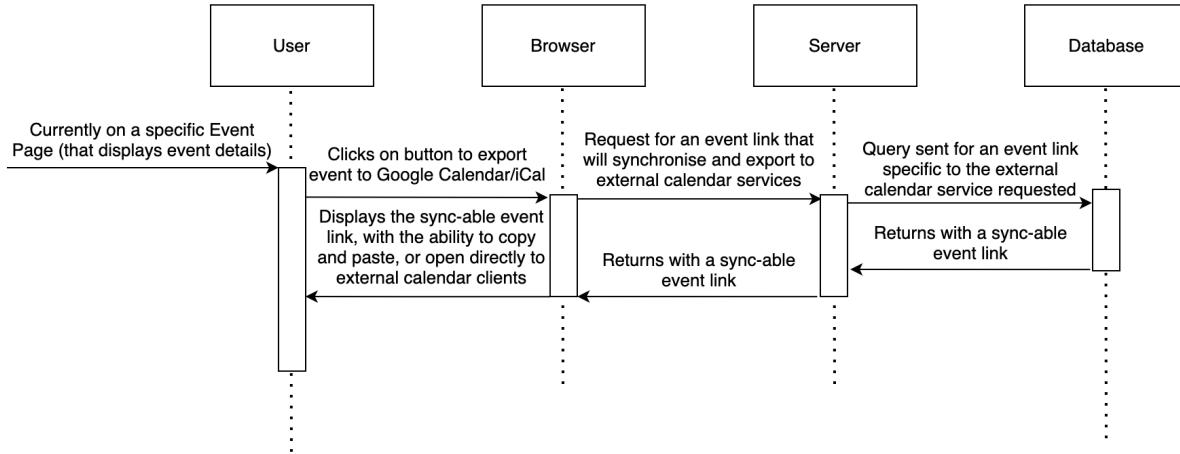
**WHEN** I click an event

**THEN** I should be redirected to the event specific page.

**WHEN** I click the export event button

**THEN** A request link should then be displayed

**AND** I am able to use this link to add the event to my calendar



### User Story 2.3

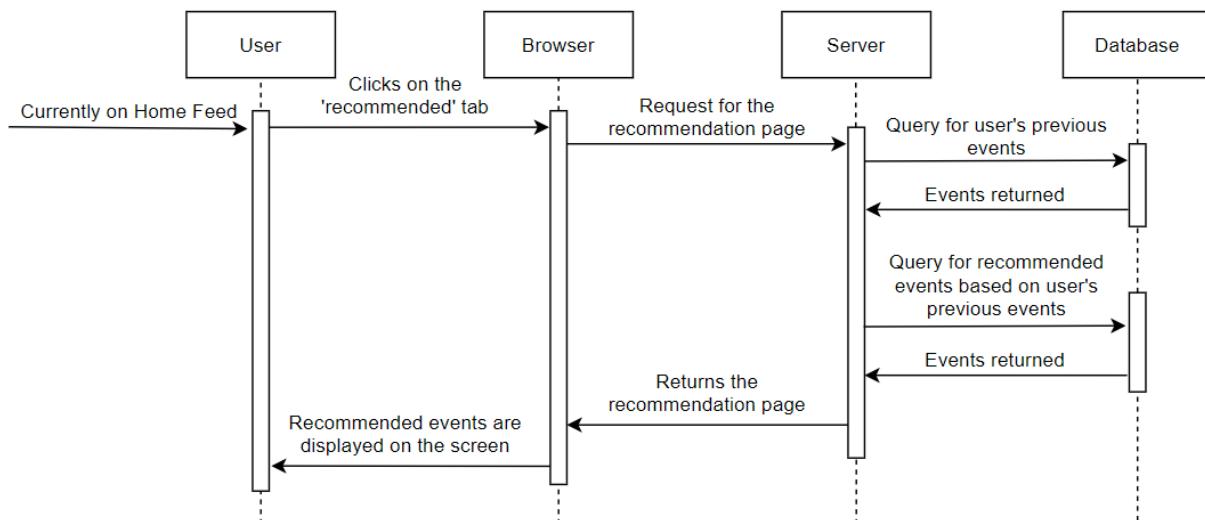
As a student, I want events to be recommended to me based on my past event attendance so that I can be more aware of events that I may be interested in.

#### Scenario-

**GIVEN** I am on the homepage page of the application

**WHEN** I scroll through the list of events

**THEN** I should be recommended relevant events based on my degree and previous attended events



### User Story 2.4

As a student, I want to be notified by email when new events are created so that I can have as much time as possible to plan for them.

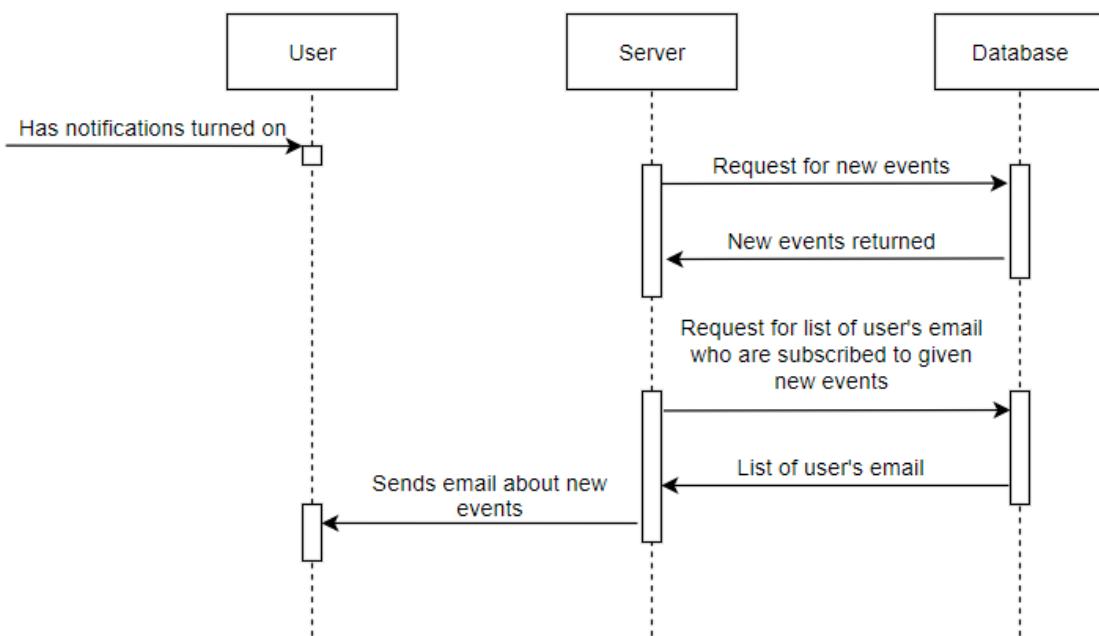
#### Scenario-

**GIVEN** I have subscribed to or been recommended events

**WHEN** new events are created

**THEN** I should be notified by email about them

**WHEN** I view the email



### User Story 2.5

As a user, I want to be able to turn off email notifications for certain events that I am not interested in, so that my email inbox is not spammed with event information.

#### Scenario-

**GIVEN** I am on the homepage page of the application

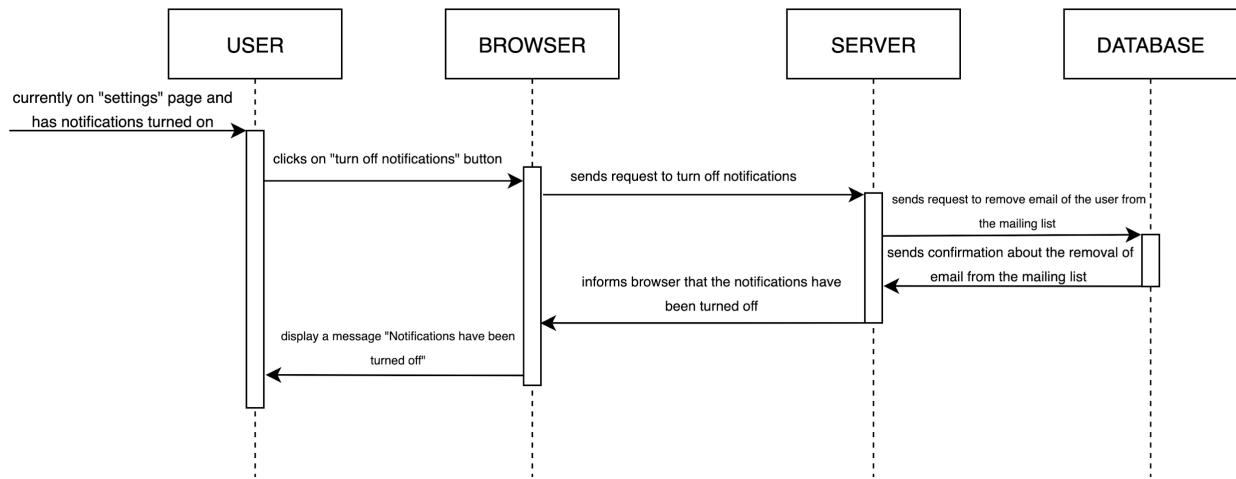
**WHEN** I click into a specific event

**THEN** I should be directed into the event page

**WHEN** I click on the drop down menu

**AND** I click onto 'settings'

**THEN** I should be able to turn off email notifications



### User Story 2.6

As a student, I want to be able to view my previous attended events so that I can keep track of the different events I have been to.

#### Scenario-

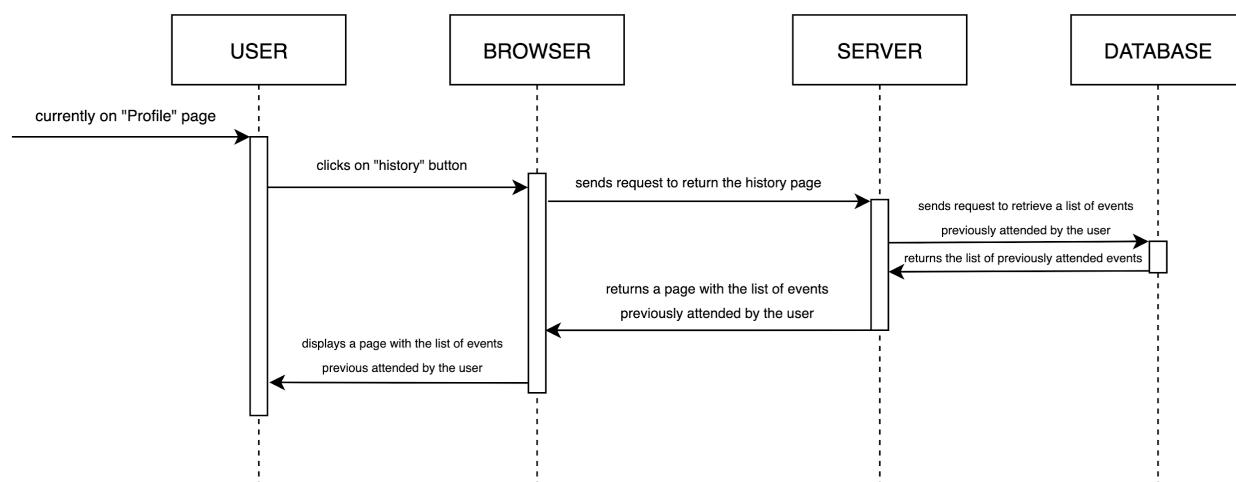
**GIVEN** I am on the homepage of the application

**WHEN** I click ‘Profile’

**THEN** I should be redirected to my profile page.

**WHEN** I click ‘History’

**THEN** I should be shown a list of events that I have previously clicked attending on.



### User Story 3.1

As a student, I want to be able to see reviews and ratings of previous similar events so that I know whether the upcoming event will be suitable for me.

#### Scenario-

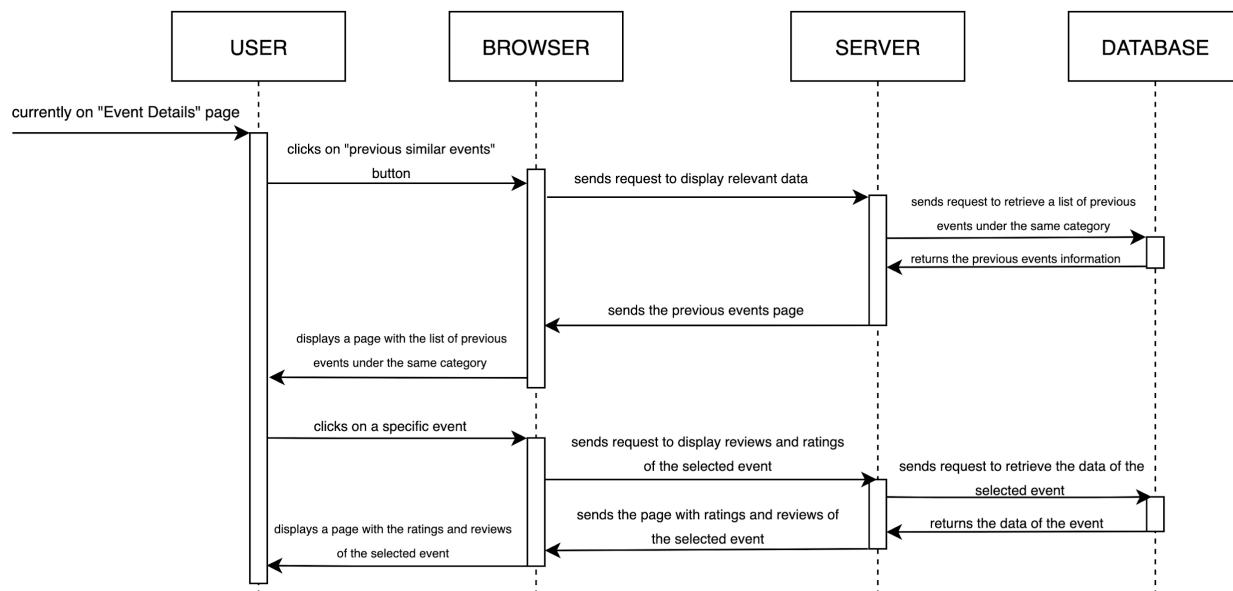
**GIVEN** I am on the ‘History’ page

**WHEN** I click on ‘Previous Similar Event’s’ button

**THEN** A new page with a list of previous events under the same category and their rating should be shown.

**WHEN** I select a specific event

**THEN** I should be redirected to the event specific page where I can then see the past event’s rating as well as reviews.



### User Story 3.2

As a student, I want to be able to give a review for an event I have attended so that the organisers can get feedback on their event.

#### Scenario-

**GIVEN** I am on the homepage page of the application

**WHEN** I click onto the ‘history’ page

**AND** I click onto an event that I have just attended

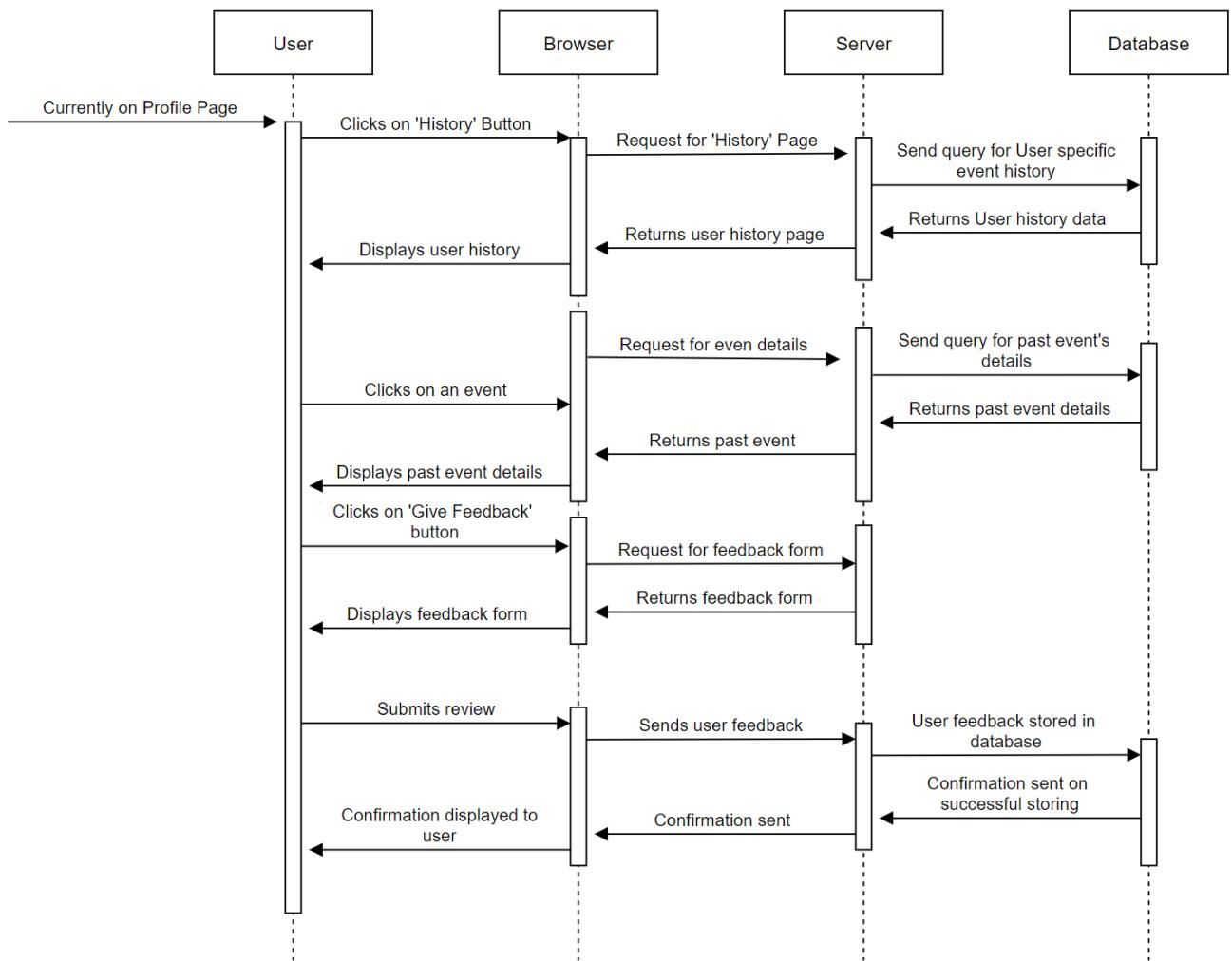
**THEN** I should be navigated to the events page

**WHEN** I scroll to the bottom of that events page

**AND** I click ‘Give feedback’

**THEN** I should be redirected to a feedback page with a star rating section as well as a review text section.

**THEN** I should be able to review and give a rating of that event



### User Story 3.3

As a student, I want to be able to give a rating for an event that I have attended so that the organisers can get feedback on their event.

#### Scenario-

**GIVEN** I am on the homepage page of the application

**WHEN** I click onto the 'history' page

**AND** I click onto an event that I have just attended

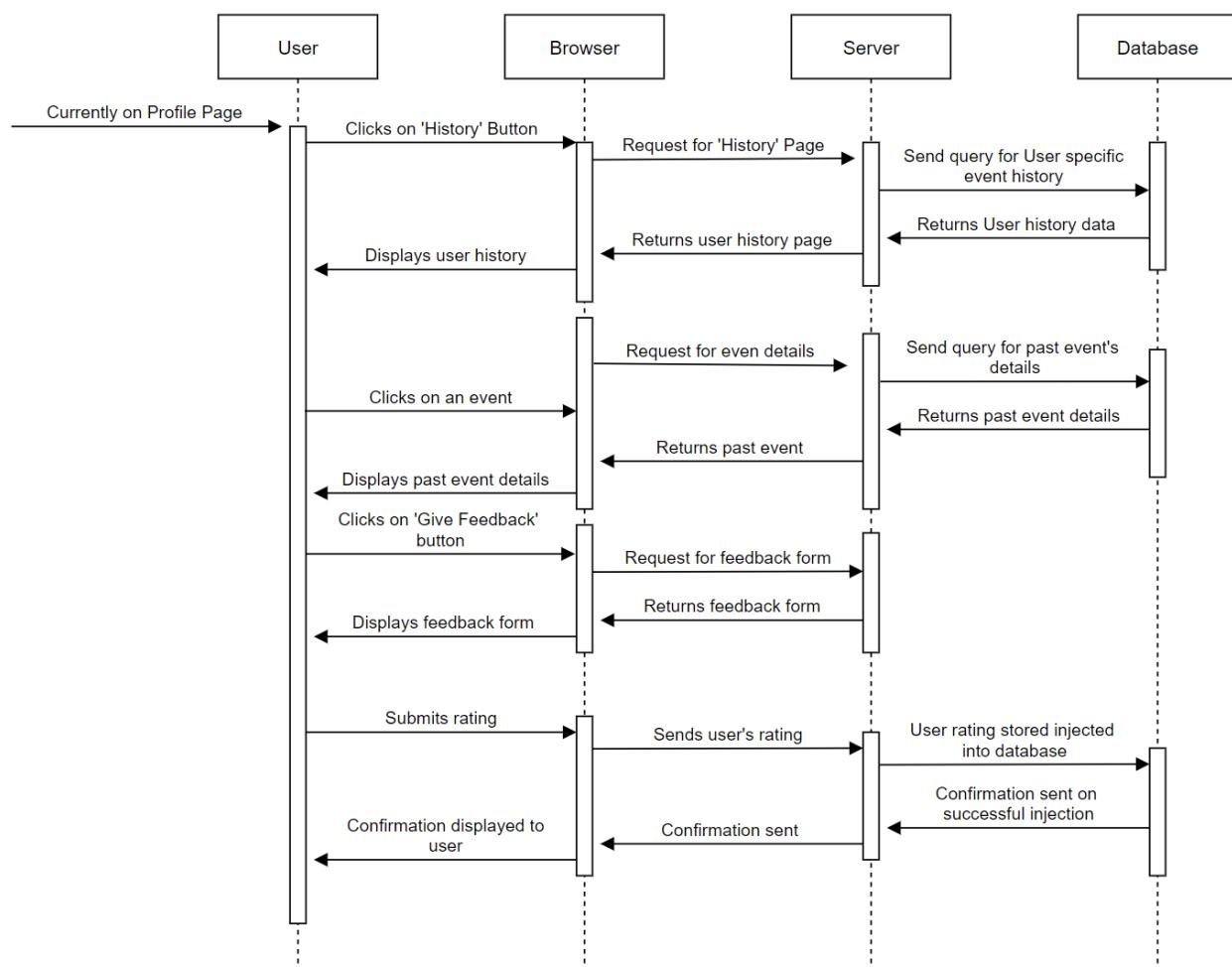
**THEN** I should be navigated to the events page

**WHEN** I scroll to the bottom of that events page

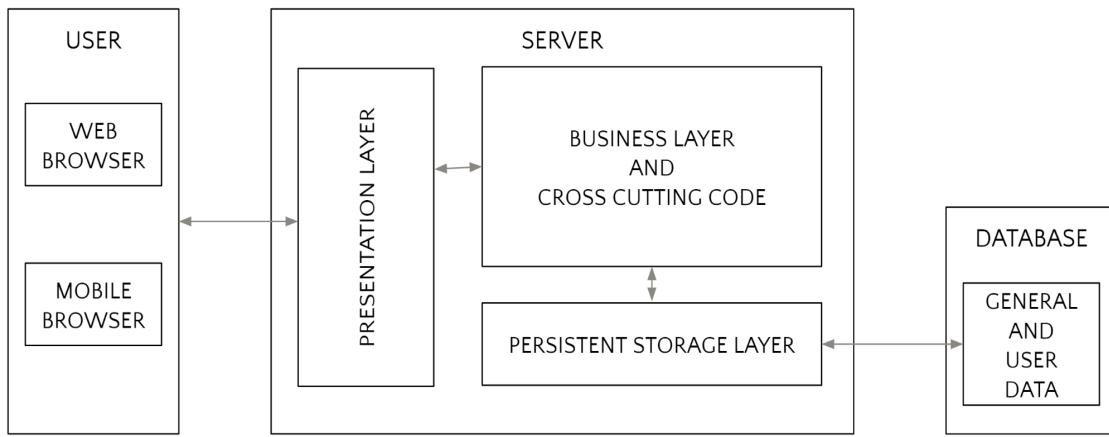
**AND** I click 'Give feedback'

**THEN** I should be redirected to a feedback page with a star rating section as well as a review text section.

**THEN** I should be able to review and give a rating of that event



## Software Architecture



Key Technology	Where it was used
Postgresql	Database
Python	Backend logic
Python3 Flask Module	Backend server logic
Javascript	Front end interaction
HTML/CSS	Front end formatting GUI

We implemented a client-server architecture using the following webstack: Linux for the operating system, SQL for the Database, Python for the backend and HTML/CSS and Javascript for the frontend. We also extracted data for our project through the use of a web crawler.

Our web application needs to retrieve relevant data related to university events and their details from external sources, such as Facebook. We did this using a web crawler, as it is a lot easier to integrate this to directly and continuously inject data into an SQL database, from which it is easily and consistently accessible by our server.

We have also gone down this route as it allows us to source data from multiple sources, as not all events are made on only one platform - this is the fundamental reason why we chose web crawling over web scraping, which would make us beholden to the differing data structures of each source.

Additionally, by doing the web crawling ourselves, it means we have free and open access to the data we collect. This means we can exclude alternative methods of retrieving data, including databases that have already done the web crawling themselves, such as Mixnode, as we:

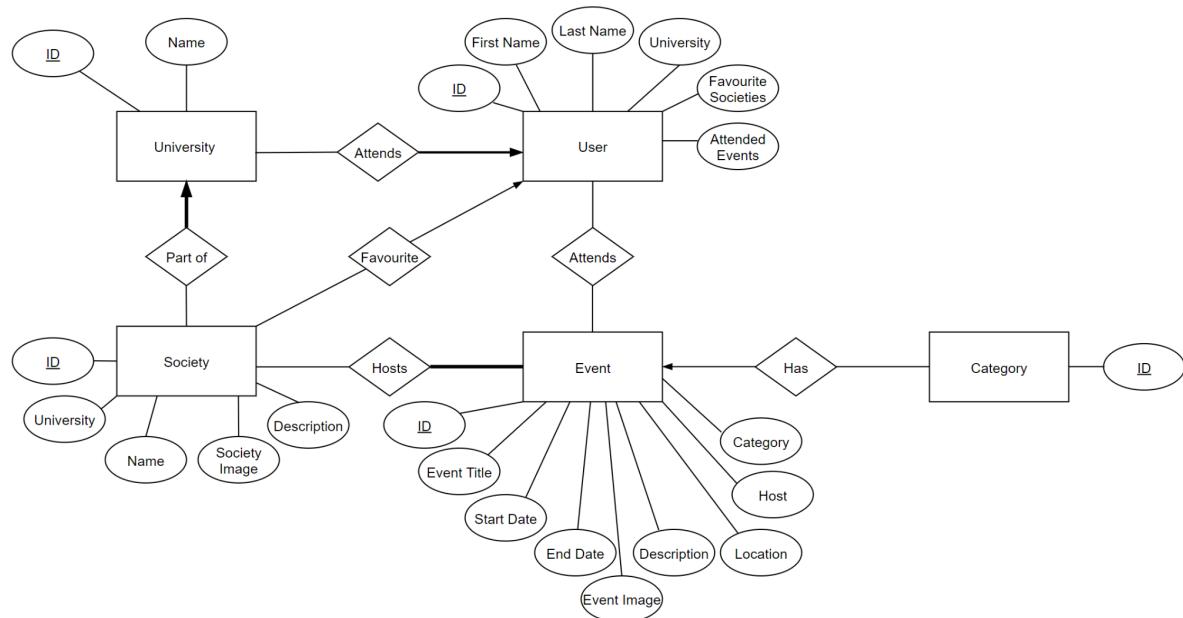
1. don't know how they'll collect and store the data as the source code is not open source,
2. there is no guaranteed security on how they'll process our queries if we do choose to use it, and
3. they are locked behind a paywall or exclusive invites by the developers.

Linux is chosen as the Operating System for our application as it is easy, familiar, and intuitive. It is open source, which allows us to modify its source code as per our needs, which is a huge leg up against other operating system alternatives like Windows, which are not open source, and thus make them unsuitable to our needs as they would be resource intensive without this feature. Finally, Linux is also secure and powerful, with consistent and guaranteed software updates, and doesn't collect user data, which gives our users a peace of mind from privacy concerns that revolve around other operating systems collecting their data.

For our database, we are using SQL as it is intuitive and familiar, which allows us to more easily and readily develop. It is the standard language for a relational database management system, which makes it easier for us to handle and manage data due to more support and more updates, compared to alternatives. SQL, being an industry standard, also means it has more options, as a language, to be used across multiple free database management systems like PostgreSQL. Alternative top-tier database management systems, such as Oracle 12c, do not use SQL, and are subject to expensive pricing and require significant resources to install and implement.

Finally, for our frontend, HTML/CSS is chosen, alongside Javascript, as the languages to use as they are the most common and is considered industry standard for web page content and structure, which allows us to create an engaging interface for our users. In addition, CSS is flexible, allowing the same code to adapt to different presentations on different devices, which increases user flexibility to view our application on desktop AND mobile.

Our backend is using Python3 as it is wholly familiar, due to its nature of being easy to use, with a wide range of libraries that can be utilised to suit our needs, which would be constrained by other languages. It is very portable, which allows us flexibility to expand and create our application on different platforms in the future, which is not supported by many other languages. Alongside Python3, we used the Flask framework for web development because compared to other Python frameworks, such as Django, Flask is more beginner friendly, more Pythonic and more flexible.



## **Summary of the key benefits/achievements of your design/implementation**

- HTML/CSS templates to load frontend for a user friendly GUI
- Javascript to handle interactive logic for GUI - industry standard for functionality
- Python3 Flask module for the backend server - creating routes for RESTful API calls.
- Python 3 for the backend - Familiar, friendly to use, feature implementation and debugging
- By web crawling instead of other methods of scraping data, it allowed us to easily integrate and inject data into our SQL database. It also meant that we wouldn't be beholden to the strict data structures of each source we take data from - we could fluidly adapt it to our needs.
- We ran the SQL database locally on our own devices, for the purpose of this project, as it was faster, allowing for shorter loading times.

## **Team organisation and appraisal part**

There were no fixed roles given in the team, however Achilles Sadsad has taken the team lead as we progressed through the project. This allows our team organisation to be more structured, having a leader to have an overview of all the members progress on a given task. Annie Yang also had a key role in handling most of the frontend work, as she has existing knowledge on the matter and would be able to help others in learning to work on the frontend. Other members had a general role in the team, but everyone helped each other out, sorting out any difficulties faced.

In terms of project management, our development process followed the Agile methodology to make our work efficient, predictable and valuable. We plan our work in sprint intervals, lasting around one week per interval. Getting the front end looking good, having a working backend, connecting both of those together and setting up a database to handle extractions of data from the web were some key features that we developed based on the Agile methodology.

With that in mind, meetings were usually done at the start of a sprint. Our purpose of having meetings was to split up the tasks and discuss ideas of features we wanted to implement in the project. Any followup suggestions or discussions were done through Microsoft Teams messages as it allows dynamic discussion without having to plan a standup. However, our team recognises that having a standup meeting would be much valuable as all members would be present to discuss at the same time, allowing for better flow of the project.

All tasks were divided without the usage of issues board, which means tracking of each individual progress was made through messages. This allows anyone reading the messages to be aware of the progress of the system, but admittedly, having an issues board would help us organise our little project more efficiently.

The team decided on using Google Docs in an effort to work collaboratively. All documentations and reports regarding the project were done on Google Docs, allowing each member to work on their parts

simultaneously. Our team also made use of Github as a means to code together, in our separate branches and merging them all together to make every feature working properly.

## **Project Outcome**

The project was definitely an amazing learning experience. It came with highs and lows, but both have been immensely helpful teachers on what it is like to work in a team and develop a final product that we are all proud of. Although we could not achieve all the features planned in Deliverable 1, due to time constraints, we are proud to have been able to implement most of the features. Our final UI was not the best as we had initially designed our system for mobile use and due to time constraints, we did not have the time to design it and optimise its use on a web application.

There were no strict deadlines in this course, other than the deadlines for the Deliverables, which meant that we were largely left to our own devices and we were responsible for our own mini deadlines within the project. Some members found this difficult to adapt to, especially if they were a person that appreciates more concrete structure, but with the support and flexibility offered by the rest of the team when some of us had other commitments and emergency appointments, this project reiterated to us of the importance of teamwork, time management, and effective communication. This is especially important in order for others in our team to temporarily pick up the slack when needed to meet the deadlines we set ourselves.

We all agreed that we learnt a lot about coding a web application in this course, especially in the areas of SQL and databases, as well as many of us having our first dip into JavaScript and HTML/CSS for frontend work. This course also allowed us to have more practice using Python's Flask module for backend work. Also, having basic knowledge on software design, making prototypes and implementing those prototypes would surely be useful going forward in our path of becoming great software engineers.

The course in general is great, and we all found the weekly mentor session essential and helpful in allowing us to ask more specific questions in relation to our project, as well as keeping us on task so that we had questions to ask in the first place! We greatly appreciated Giuseppe's mentorship and expertise, which were invaluable in helping us gain a concrete understanding of what the course and the project/Deliverables expected of us, both as an individual and as a team.

## **Problems encountered**

Throughout the entirety of the project there were no major issues within the group. As the project progressed however, we began to run into smaller hiccups, such as:

- Due to differing developing environments between the group members certain technical issues were faced.
- Gap on specific technical knowledge made it harder for the group to achieve what was intended for the web application.
- Time constraints due to other university commitments.
- Facebook closing their events API to developers. Because of this, we had to use a web scraper instead to retrieve Facebook's event data.

With these just being minor issues we were able to easily move past them by working as a group, always communicating with one another if we needed any assistance as well as keeping organised.

**Would you do it any differently now?**

As a group, if we were to do the project once again from the beginning, having the experience that we do now. We would most definitely plan and structure our sprints to align with other commitments outside of the project as well as allocating and dedicating more time to first learning and understanding what we need to know technically to achieve our desired design for the project.