

Contents

1. Contents + Contributions Table

Chapter 1

2. Requirements Gathering Methodology
3. User Requirements
4. Concepts + Functional Requirements – System Requirements
5. Functional Requirements – System Requirements
6. Functional Requirements – System Requirements
7. Functional + Non-Functional Requirements – System Requirements

Chapter 2

8. Architecture Model + Discussion
9. Use Case Diagram + Models + Discussion

Chapter 3 + Chapter 4

10. Implementation + Testing Discussion

Chapter 5

11. Critical Analysis

Appendix – Progress Tracker + Participant Form + Research Transcripts

Contributions Table

Team member name	Detailed contributions per chapter	Percentage contributions overall	Signature
Michael Parker UP2263259	Chapter 1: Problem specification Chapter 2: Design Chapter 3: Implementation Chapter 4: Testing Chapter 5: Critical analysis	33.33%	
Lewis Ryan UP2277906	Chapter 1: Problem specification Chapter 2: Design Chapter 3: Implementation Chapter 4: Testing Chapter 5: Critical analysis	33.33%	
Nickyyl Sharma UP2269939	Chapter 1: Problem specification Chapter 2: Design Chapter 3: Implementation Chapter 4: Testing Chapter 5: Critical analysis	33.33%	

Requirements Gathering Methods

To develop requirements, we utilised a semi-structured interview, with an additional set of questions designed for society committee members – collecting qualitative primary data. This allowed us to gain a comprehensive understanding of our participants' experience as both members of a society, and members of their committees.

We made use of an opportunity sampling method – and for the majority of our interviews we attempted to keep our sample representative by limiting our sample frame to people sitting down in the following buildings: Eldon, Park, University Library

We interviewed 9 members who were members of a wide range of societies, on average for 10 minutes each, recording each one as it happened. The interviews were then transcribed for us to analyse, allowing us to see patterns to inform our requirements.

Question Sets

1. How many societies are you a part of?
 2. How many different apps do you have for society news?
 - Would you be interested in something to put all of these in one place?
 3. When you are missing information, how do you get in touch with your societies?
 - How long does it take for them to get back to you?
 4. Do you find you miss events due to messages getting lost?
 5. What type of posts do the societies make on social media?
 6. What is your favourite social media app that you use for societies and why?
 7. How many social media apps do you use, and of these which do you use the most and why?
 8. How many societies were you interested in, and how many have you actually gone to?
 - Why did you miss their events?
 9. What's your best way to interact with a society's event?
 10. Do you prefer seeing the details first, chatting to someone before deciding or being able to reserve a spot through an app?
 11. If you were to share an event with friends, what would be the easiest way for you to do that?
 12. If you're deciding whether to attend an event, does viewing a guest list help?
-
1. How do you distribute news to your members?
 - Why do you use this method?
 2. How would you say members engage with your announcements?
 3. What is the biggest hurdle to engage with your society?
 4. What forms of media (E.g. text, images, video, polls) do you distribute and why?
 5. Have you set up a shared calendar? If not, do you believe this could be useful?
 6. Do you send out communication over more than one channel already?
 7. Do you manage your society on multiple social media accounts, if so, how difficult is this?
 8. When managing queries related to the society, how long do you typically take to reply?
 9. When posting about events, what information do you typically include?
 10. What is your typical event turnout, and how do you think it might be improved?

Reflections on Methodology

Largely we believe our methodology to have been successful, through the nature of our semi structured interview format, we avoided many of the pitfalls of structured and unstructured interviews. The use of an opportunity sample may have been problematic, as it would have given rise to investigator effects and so our data may not be as representative as we hope, potentially lacking external validity.

On the other hand, our research may also lack internal validity, with our 3rd question perhaps being too leading – giving way to demand characteristics; a majority of our participants replied positively.

Whilst most of the individual questions were suitable for prompting participants, question 11 proved to be less useful, as finding out the details was a must for all participants – and so we would change this if we did this again.

Our 9th question was also too vague, requiring us to add clarification which should have been there to begin with.

Reflections on Results

As mentioned above, most participants were positive about the potential application.

The insights regarding the numbers of societies people were a part of (average x), and how many they intended to join from the start of the year (average y) indicated the troubles societies have with member retention – with this being partially demonstrated by interviews with committee members.

There were however some concerns about notifications being overwhelming. This is consistent with the notification heavy nature of WhatsApp and Instagram – which were noted as being the apps people use most for societies.

The information we received about people's favourite apps (TikTok and Instagram) ultimately reinforced our understanding of the prevalence of doomscrolling^{insert reference}, which we will be taking on board as we progress to the design of our user interface. Equally, the generally speedy response time for members contacting societies will need to be something we enable with our UI.

The most common way people interact with posts is likes (or affirming reactions), across Instagram Posts, Stories and WhatsApp messages – with the posts mainly being text/image based.

Calendar posters also seem to be a common way societies outreach to members – supporting our core calendar feature. These also require images to be posted – which alongside text were the most common post type. Polls and videos were also common, and so a seamless integration for these will be important.

Few expressed support for a guest list, and so we'll ensure our UI does not prioritise this feature.

User Requirements

Society Member requirements

- users should be able to log in / register
- users should be able to join multiple societies
- users should be able to contact a societies' committee
- users should be able to toggle on/off notifications for a societies' feed
- users should be able to interact with posts
 - vote in polls
 - like
 - tag (invite) friends to an event
- users should be able to add a single societies' event to their device calendar
- users should be able to add all a societies' events to their device calendar
- users should be able to view a guest list
- users should be able to RSVP to an event
- users should be able to add society members as their friends
 - users should be able to see a list of society members

Committee Member requirements

- users should be able to upload a post with a combination of text / images
 - users should be able to 'link' their post to an event
- users should be able to manage events
 - create an event
 - modify an event's details
 - switch an event's status (to public / private / scheduled)
 - link a post
- users should be able to respond to a society member

System Requirements

Concepts

SM – Society Members

CM – Committee Members

MIDS – Multi-item Data Structure

ID – A String

File Path – A String

SM (Society Members) Users have:

An Email [must be a valid port.ac.uk email address | not-null, unique] (String)

A password [minimum 8 characters | not-null] (String)

List of societies [nullable] (MIDS, composed of IDs, with settings)

List of friends [nullable] (MIDS, composed of IDs)

CM (Committee Members) Users have:

An Email [must be a valid upsu.net email address | not-null, unique] (String)

A password [min 8 chars | not-null] (String)

Society ID [not-null] (string)

Societies:

List of posts [nullable] (MIDS, composed of IDs)

List of events [nullable] (MIDS, composed of IDs)

List of members [nullable] (MIDS, composed of IDs)

List of settings [not-null] (MIDS)

Posts:

List of Likes [default 0 | not-null] (int)

Post Data [not-null] (MIDS, see below)

Linked Event [nullable] (String)

Events:

List of Likes [default 0 | not-null] (int)

Post Data [not-null] (MIDS, see below)

Linked Event [nullable] (String)

Post Data:

Description / Text [max 2,200 chars | not-null] (String)

List of Images [nullable] (MIDS, composed of file paths)

Poll [nullable] (MIDS, see below)

Poll:

List of Options [min 2 items | not-null] (MIDS, composed of Strings, with votes (int))

List of Voters [nullable] (MIDS, composed of IDs, with index of voted option (int))

Functional requirements

users can register for an account:

- needs a unique Portsmouth uni email address

- user enters a password for the account

- user is also logged in after account creation

user can log in:

- user provides an email address

- user provides a password

- user only gets logged in if both password and email address match an account's email and password

user adds a society to their list of societies:

- user searches for a society

- user then adds the society to their list of societies

- only societies that are not already in the list can be added

- if the society is already in the list the system message the user of this fact and not add it to the list

- this message should be acknowledged by the user

users can contact committee members of a society:

- user is shown the email address of the committee members of the society

- society must be in the users list of societies

users can toggle society notifications:

- user can toggle the notifications attribute of the societies in their list of societies

users can interact with posts:

- vote in polls

- like posts

vote in polls:

- users can vote in polls in a society's post

- user selects the option they want to vote for

- user can only vote once

- society that made the poll must be in the users list of societies

like posts:

user can increment or decrement a post's likes

user can change whether they have incremented, decremented or done neither

user can only like posts whose society is in the user's list of societies

The system should generate an ICS file for either a single event or a society's upcoming events, through data fetched from the database

The system should direct the user to their calendar app of choice to save the event, or save the ICS file should no appropriate app be installed

The system should update to demonstrate to the user that the event was added

The system should query the database to return a list of attendees for an event

The system should update the database with a user's RSVP (Boolean, attending / not)

The system should update to demonstrate to the user their RSVP status

The system should query the database to return a list of members within a society for users to view

The system should verify the target user is accepting friend requests

The system should update both users' outgoing/incoming requests, notifying target users of new requests

The system should notify a target user that they have been invited to an event

The system should verify that all post details are filled with valid data.

The system should send an API request to the backend with the verified post data.

The system should then add this post to the database via the database connector.

The system should fetch an event ID from the database using the restAPI.

The system should fetch a Post object from the database and then send a new request to the database manager inserting the eventURL to the posts row in the database.

The system should verify that all event details are filled with valid data.

The system should send an API request to the backend with the verified event data.

The system should then add the new event record to the database via the database manager.

The system should fetch the existing event object from the database using the restAPI to populate the fields.

The system should verify that the modified text boxes contain valid data.

The system should send an API request to the backend with the updated data and the event ID.

The system should update the specific event row in the database via the database manager.

The system should send an API request to the backend containing the event ID and the selected status tag.

The system should query the database manager to locate the specific event.

The system should update the status column for that event in the database to reflect the user's selection.

The system should fetch the ID of the raised concern from the database using the restAPI.

The system should verify that the response text box is filled with valid data.

The system should send an API request to the backend linking the new response to the concern's ID.

The system should insert the response text into the database via the database manager.

Non-Functional requirements

1. The system should not take more than 3 seconds to load the event dashboard.
2. The system should not take more than 3 seconds to complete the upload of a standard text post.
3. The system should be able to fetch and display a specific event's details within 3 seconds of the user's request.
4. The system will have login information saved, allowing logins to be reused (session persistence).
5. API requests should complete within 2-3 seconds under normal load
6. Maximum file size of 10MB per image
7. Users must be authenticated before creating, modifying, or linking posts/events
8. All input data must be sanitized to prevent SQL injection and XSS attacks