



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

School of Applied Computing

Student Name:	Peter Davies	Student P number:	P079868
Programme:	BSc Web Development		
Module:	User Experience Design	Lecturer:	Dr Nicola Whitehead
Assignment Title:	Prototype Design		
Hand Out Date:	December 2018	Submission deadline:	8/03/19

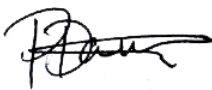
Disclosure:	I declare that this assignment is all my own work and that I have acknowledged all materials used from the published or unpublished works of other people. All references have been duly cited.		
Student's Signature:		Date:	8/03/19

Table of Contents

1. Introduction	1
2. User Research	2
2.1 Aspects of User Research.....	2
2.2 Chosen User Research	3
2.3 User Research Results.....	3
2.3.1 Background Information Gathered	4
2.3.2 Other Applications & Websites Used	5
2.3.3 Use of University Website & Pains.....	5
2.3.4 App Suggestions	6
2.3.5 Interviewer Suggested Features	7
3. Personas	9
3.1 User Personas	9
3.1.1 User Persona One	9
3.1.2 User Persona Two	11
3.1.3 User Persona Three.....	13
3.1.4 User Persona Four.....	16
4. MoSCow Requirements List	19
4.1 Functional Requirements.....	19
4.1.1 Must Have	20
4.1.2 Should Have	20
4.1.3 Could Have	21
4.1.4 Won't Have	21
4.2 Non-Functional Requirements	21
4.2.1 Must Have	21
4.2.2 Should Have	22
4.2.3 Could Have	22
4.2.4 Won't Have	22
5. Information Architecture	23
5.1 User Scenarios.....	26
5.1.1 User Scenario One.....	27
5.1.2 User Scenario Two	28
5.1.3 User Scenario Three	30
5.1.4 User Scenario Four	32
5.2 Information Architecture Design.....	33
5.2.1 Feature List.....	34
5.2.1 Grouping of Features	36
5.2.2 Information Architecture Schema.....	36
6. Prototypes / Storyboards	2
6.1 Main Design Patterns Used.....	2
6.1.1 Springboard Pattern.....	3
6.1.2 List Menu Pattern.....	4
6.1.3 Tab Menu Pattern	4

7. Usability Testing	6
7.1 Test Results.....	7
7.1.1 User Test One.....	7
7.1.2 User Test Two	9
7.1.3 User Test Three	10
7.2 Testing Conclusion.....	11
7.2.1 The Good.....	11
7.2.1 Recommendations	12
8. Evaluation & Conclusion.....	13
9. References	15
10. Bibliography.....	18
11. Appendix A.....	19
12. Appendix B.....	34
13. Appendix C.....	36
14. Appendix D	50

1. Introduction

The following report outlines the techniques used to develop a mobile phone application for the UWTSD faculty of architecture, computing and engineering. The app aims to provide them with easy access to the information systems that they need to use daily through tried and tested UX user research techniques.

The finished mock-up wire frames created from the research will then be tested on really users to discover any issues with the initial design which will be carried into the final assignment for the UX module.

2. User Research

User-centred design requires a deep understanding of target users to avoid incoherent systems which won't be used [1]; the best way to understand your users is through research, which is carried out to allow an understanding of a user's characteristics, behaviours, aims and goals with the purpose of designing better products, applications or websites which improve their working practices and lives [2].

2.1 Aspects of User Research

Marsh [3] states that there is '*never a bad time*' to do user research but he recommends the process should start early and be carried out often. He adds that the '*what*' is the important question: "*what can be learnt from the target user groups?*".

User research comes in two forms:

- **Subjective Research**

If something is subjective, it means it is an opinion, a memory, feeling or impression. Subjective research is not fact, and there is no right or wrong answer.

- **Objective Research**

If something is objective, it is a fact that can be proved. Objective research can be difficult to obtain from users as they are not always honest, however, the more people researched, the more reliable the information gathered will be.

There are many different methods for conducting user research: surveys, interviews and focus groups which focus on gathering subjective research, such as, people's attitudes and perceptions, and user tests and field studies which really hone in on specific aspects of users behaviour [4].

2.2 Chosen User Research

The IxD (Interaction Design Foundation) [5] state that subjective, qualitative research is ideally suited for identifying current trends and ideas of what users want, adding that field studies can generate a lot of good data and is easy on participants. Given this evidence, field studies will be used to collect data for the university app as this will best capture the needs and wants of the people who will use the app or '*typical users*' and will not be too time taxing on already busy students.

This '*field study*' will be conducted via a very short interview which will ask subjective questions of students. This data will then be collated to form four user personas, found in section 3.1, to aid in development of the app.

Kuniavsky [6] highlights the importance on asking '*non-direct*' questions to hone in on the user's experiences, rather than extrapolation. Meaning that user's understanding of their own behaviour usually does not correspond to their actual behaviour, therefore, it is best to ask questions in the '*curious command*' format, using softer questions, such as, '*tell me about...*' or '*describe a time...*' will lure the user into telling more specific information through a story which relates to their current experiences [7]. The survey can be found in appendix A.

2.3 User Research Results

Time limitations meant that only 8 students were interviewed by two interviewers, in the IQ building on 03/03/19, to collect user research. There are limited sources recommending numbers for adequate user interview sample sizes with Guest *et al.* [8] finding just seven studies, however, one of those, by Creswell [9] recommends between 5 and 35 for a phenomenological study, therefore, 8 participants should provide a fairly good insight into current student needs.

2.3.1 Background Information Gathered

From the interviews carried out, 5 full-time students were in the 18-25 range, two in the 26-35 range and one part-time in the 36-45 range, all studying different courses. No students attended lectures in the university for more than 3 days per week with the maximum contact time being 16 hours, however, many students reported spending their free time to work on assignments at home or using the university library or IQ 24-hour suite.

Conclusion

The background information points to the main user group for the app to be in the 18 - 25 age range. However, the app will be useful to students from all age ranges and courses but may be more heavily used by full-time students in the 1st and 2nd years due their heavier lecture load, although, given that students report working on assignments out-of-hours, the app will still be used heavily by students with less contact time.

It is worth noting that the data was collected on a Sunday, on the university premises, which means data collected could be biased towards harder working students or students which may feel they are behind with their studies, which in turn, returns a good range of students. Furthermore, some students interviewed were not part of the FACE faculty but were still using the faculties facilities, meaning that the app could be useful to students of all faculties.

2.3.2 Other Applications & Websites Used

7/8 students named Moodle as the main application they use to help with their studies with 2/8 listing OneDrive with 1/8 listing Google Scholar and 1/8 listing news resources.

Conclusion

This evidence shows that Moodle has the greatest value to students, and possible integration into a university app would be welcomed, however, Moodle do have their own app, but it is very basic. OneDrive also have their own app, but again, integration into a single university app would prove useful. Given that two students mentioned outside literature resources, integrating the most popular resources relating to the faculty, such as IEEE, Research Gate, ACM, Semantic Scholar etc. would be popular.

2.3.3 Use of University Website & Pains

2/8 students said they did not use the university website at all and 1/8 misunderstood the question as Moodle, MyDay and OneNote have been listed even though these are separate websites/applications to the university website. The stand out use for the website was accessing library resources with 5/8 students using the website for this purpose, however, all 5 stated that accessing the library resources is a pain, especially the external databases, as navigation is difficult and too many screens need to be viewed to achieve their goal, often leading users to give up.

Conclusion

Users main activity on the website is for library and literature resources meaning that an app with quick links to access the library catalogue and the external databases

would be very beneficial, this is also backed up by findings from section 2.3.1. Given a smart-device's limited screen size, reading library resources may prove difficult suggesting that students should be able to email themselves links or save items to their one drive for use later at a laptop or desktop PC with a larger screen size.

2.3.4 App Suggestions

The new campus appears to have affected student's contact with the lecturers as 3/8 students suggested being able to book time slots to see lecturers and having more available lecture information, such as, notifications about lecture cancellations as many forget to check their emails, missing information emailed by lecturers. 1 student also suggested having easier to find lecturer contact information and 4 students suggested mobile-friendly timetables as some reported the timetables on MyDay were often wrong and did not display properly on their mobile device. Finally, one student suggested notification reminders for important dates and times, such as lectures and hand-in dates.

Conclusion

Meeting with lecturers appears to be a problem with students, however, organising lecturers time around students may not be popular with lecturers. One suggestion would be to agree a fixed dedicated timeslot that each lecturer could spare once a week for students to book into, or possibly let students have access to lecturers teaching timetables to know where they would have the best chance of catching up with them informally, again, this may not be popular with lecturers.

One feature which would be useful, is notifications about lecture cancellations/changes, and reminders for assignment hand-ins or other important dates. A dedicated timetable tailored to each student should be made available, viewable on any size screen.

2.3.5 Interviewer Suggested Features

The interview asked participants how they rate, in terms of usefulness, features from a list on a scale of 1 – 5. 1 being not useful and 5 very useful. The scaling system was thought of by modifying Brooke’s system usability scale [10], the results are totalled with the highest scoring features the ones most desired by the user.

The feature list used for user scoring was developed from discussion between students in the User Experience Design Module (M6X01111) taught by Dr Nicola Whitehead as well as research into other university’s apps. The results are shown in table 1.

<i>Feature</i>	<i>Score</i>
Academic Calendar	3 5 5 4 3 3 1 5 = 29
Faculty Phone Numbers & Emails	4 5 4 3 1 5 5 3 = 30
Important Numbers (Hospital, Estates, Student Services)	3 1 3 4 4 3 3 4 = 25
Staff Contact Details	5 5 5 3 5 5 5 3 = 36
Student Contact Details	4 1 2 3 4 5 5 4 = 28
Course Information	2 1 5 2 4 1 1 4 = 20
Campus Maps (Including User Location)	4 3 3 2 2 2 5 4 = 25
Application Forms (Bursary’s etc.)	4 1 5 4 4 2 5 4 = 29
Moodle Integration	5 5 5 5 4 5 5 5 = 39
Wireless Printing	4 3 3 4 5 5 1 5 = 30
Live Room Availability (IQ)	5 1 3 5 5 3 4 2 = 28
Student Email	5 1 5 5 5 5 5 4 = 35
Car Park Availability	5 1 4 3 4 1 1 1 = 20
Live Lecture Information	5 5 5 5 4 5 1 5 = 35
Student Card Stored in App	5 5 5 4 5 5 5 5 = 39
Live Room Availability (Library)	4 4 5 3 4 5 5 4 = 34

Library Account (Book Availability, Reserve, Renew)	5 5 5 4 4 5 5 3 = 36
PC Availability & Reserve	2 1 5 4 4 2 5 2 = 25
Timetables with Error Reporting	5 5 5 5 5 5 4 4 = 38
Exam Timetables	4 5 5 5 1 3 1 5 = 29
Lecture Recording Features	5 5 5 3 5 3 1 5 = 32
Events in Swansea	1 1 3 2 4 1 4 5 = 21
Class Chat (Like MS Teams)	5 4 3 3 3 4 1 5 = 28
Update Student Contact Details	5 4 5 3 4 4 5 4 = 34
UWTSD News Feed	1 1 3 2 4 2 5 2 = 20
Students Union News/Events Feed	1 1 3 2 3 2 1 2 = 13
OneDrive Access	4 4 5 5 4 4 5 4 = 35
Finger Print Entry to App	1 1 2 4 2 2 1 5 = 16
Local Transport Information	1 1 2 5 5 1 1 1 = 17
Feedback/Suggestion Feature	4 4 5 4 5 4 5 3 = 30

Table 1 – Feature List Scores

3. Personas

User personas concepts were introduced by Alan Cooper [11] in 1998 to better communicate design research activities. He states that personas consolidate the archetypal descriptions of a user's behaviour patterns into characteristic profiles, which emphasise the focus on the user through introducing humanisation in the design phase.

Personas can encapsulate a user's motivations, behaviours, expectations, and goals, in turn helping designers develop products based on the behaviour of real people [3]. Martin and Hanington [1] argue that for personas to be representative of the target user group, information should be collected from real users to capture common behaviours, these are then used as a reference, throughout the design process, ensuring the end user is always in focus.

3.1 User Personas

The following personas have been created from field research in section 2. The results have been reviewed and used to create the following personas, outlining each user's demographic, description, goals, pains, device preferences, responsibilities and tasks.

3.1.1 User Persona One

Tom Rees is a mature student (26 – 35) studying automotive engineering at UWTSD. He is currently in his 3rd year so his main interests are completing all his coursework and gaining the highest possible mark. As he does not have exams, he needs 24-hour, guaranteed, access to the university's computers which have the software required for his course. With a heavy workload over the coming months Tom often forgets his lecture times and hand-in dates, however, he also gets aggrieved when lectures are cancelled, and no warning is given. Tom has two days of lectures, then is usually found

in the library where prefers to work alone, in quiet spaces. As a mature student, Tom relies on bursaries to supplement his income and to pay for course materials.

<i>User's</i>	<i>Details</i>
Picture	
Name	Tom Rees
Demographic	26 – 35, married, two children.
Description	Tom Rees is a 3 rd year automotive engineering student.
Goals	Having 24 access to PC's with the correct software. Finding information about and applying for bursaries. Achieving the highest possible mark in his course. Not forgetting his hand in dates or lectures. Not missing lecturers' email or Moodle messages about cancellations of lecture.
Pains	Computers in quiet areas being engaged or students carrying out loud group study in the library quiet areas. Wasting his time turning up to lectures after cancellations. Missing out on bursaries available to him. Missing his hand-ins or lectures.
Device Preference	Desktop PC or borrowed laptop. Has a smart-phone.
Responsibilities	Is usually top of his class to looked up to by his peers. Has rent to pay and is using savings and bursaries to live, as well as his partners income. Has two young children.
Tasks	Accessing live PC availability with an option to reserve.

Accessing live lab or quiet library room information.
Being notified or finding out about lecture cancellations.
Applying for all available bursaries to him.
Handing all his assignments in on time.
Attending his lectures.

From Tom's persona it is possible to conclude he needs an app which:

- Will notify him of any lecture cancellations, changes in time or location.
- Reminds him of hand-in dates and lecture times.
- Allows him to reserve PC's in quiet areas with the correct software.
- Allows him to see empty labs which he can study in.
- Allows him to see library room availability and reserving.

3.1.2 User Persona Two

Abigail Smith is a 1st year Architecture student in the 18 – 25 age group. Being in the first year, Abigail is taking full advantage of student life by socialising and often misses lectures, however, when she does make it, she is late, usually forgetting her books and university card. Hailing from St. Ives, Abigail has yet to master the public transport and local services in Swansea or the best places to socialise. Given her low attendance, Abigail is a heavy Moodle user, using it to catch up on lecture notes and much to the annoyance of her lecturers she hassles them for their contact details to ask questions about assignments.

<i>User's</i>	<i>Details</i>
Picture	
Name	Abigail Smith
Demographic	18-25, single, no children.
Description	Abigail is 1 st year architecture student at UWTSD.
Goals	Not missing out on student events. Working out the local amenities and public transport. Knowing her lecturers & fellow students contact details. Having access to Moodle 24/7. Not missing lectures.
Pains	Not having access to the architecture labs as she has forgotten her university card. Missing out on university social events. Not knowing the best places in Swansea to socialise. Having to walk to university or to cars/clubs as she doesn't know the local public transport services. The Moodle app is rubbish.
Device Preference	Apple iPhone, MacBook.
Responsibilities	Keeping her student halls accommodation tidy and ensuring the rent is paid on time.
Tasks	Remembering her student card. Finding the best student events. Finding her lecturers & students contact emails.

Accessing Moodle through her MacBook & her iPhone equally as well.

Not missing lectures.

Finding out about local public transport.

From Abigail's persona it is possible to conclude she needs an app which:

- Stores her library card so she doesn't have to remember it.
- Relays information about the latest student social events.
- Reminds her about lecture times well in advance.
- Lists her lecturer & fellow student e-mails.
- Can access Moodle's most important features.
- Provides her with up-to-date travel information or links to websites that do.

3.1.3 User Persona Three

Owain Bancroft is a 22-year-old, 2nd year networking student. He is a keen student who takes pride in his work and always tries his best, however, his assignments are often complex, and the workload is heavy meaning he is always using the library resources and has constant correspondence with his lectures and fellow students on his course. He has many modules meaning he refers to his timetable to remind himself of his lectures, however, as he is based at the new campus, which is yet to be in, so his timetable is changing a lot, furthermore, he has many suggestions for improvements but does not know who to direct his comments at. He has currently moved twice this semester in shared student houses and uses public transport to and from university where he likes to read over his work whilst he travels.

<i>User's</i>	<i>Details</i>
Picture	
Name	Owain Bancroft
Demographic	18 – 25, single, no children.
Description	2 nd year computer networks student at UWTSD
Goals	Easily accessing to all the library resources. Sending and receiving emails instantly. Seeing up-to-date timetables and being able to report and errors instantly. Being able to suggest ways to improve the university through the correct channels. Updating his contact details without any hassle. Accessing his work saved in his OneDrive for review when he has 5 minutes.
Pains	Not having quick, simple access to library resources (books, journal repositories etc.) Having to login to his university email through a web browser. His timetable being wrong or changing without warning or being notified of any changes. Having to contact registry and wait for them to update his personal information. Having to login through a browser to view his OneDrive files. No clear way to suggest improvements to the university.

Device Preference	Samsung smartphone, Lenovo ThinkPad, university desktop PC's.
Responsibilities	Getting highest marks as possible to gain respect from his family. Paying his rent on time.
Tasks	Finding relevant technical books and journals for reference in his assignments. Finding his up-to-date timetable. Calling registry to update his details. Accessing his OneDrive. Informing the university of ideas, he has for improvements. Emailing his classmates and lecturers.

From Owain's persona it is possible to conclude he needs an app which:

- Has simple, easy to find access to the library databases, as well as external databases.
- Display's live, up-to-date, timetables where he can report any errors.
- Has OneDrive integration.
- Has email notifications and/or links to email servers (without having to login) directly from the app.
- Lets him update his contact details should he move again.
- Has a feedback form for ideas which automatically sends information to the correct person.
- Has a list of student and staff emails.

3.1.4 User Persona Four

Ammaarah Afia is a 26-year old 1st year international student from Botswana studying a MSc in Sustainable Construction, paid for by her employer in her home country. Given her responsibility to do well, she is a keen student who always attends lectures and studies in her spare time in the library. As an international student, Ammaarah needs to know key term dates, including exam timetables, to avoid paying over inflated prices for last minute flights back to Botswana during the summer months to see her husband, additionally, she is fairly new to Swansea having only visited once prior to evaluate the suitability of the university and the city, this means that she is often 'googling' local amenity information such as doctors, dentists, taxi firms etc. Furthermore, she is keen to realise any international bursaries or grants she is entitled to. She does not own a personal laptop and relies on her smart phone as well as the university laptops and desktop PC's. Although competent, English is not Ammaarah's first language, so she often seeks to arrange extra time with her English support lecturers who are based on a different campus, and her faculty lecturers to help her understand her assignments. As a devoted Muslim, Ammaarah often uses the prayer facilities at the university.

<i>User's</i>	<i>Details</i>
Picture	
Name	Ammaarah Afia
Demographic	26 – 35, married, no children.
Description	Amaarah is a Sustainable Construction student at UWTSD.

Goals	Printing from her mobile phone or USB. Applying for international student bursaries. Not paying too much for flights to Botswana. Improving her English. Accessing pertinent information about Swansea's amenities. Spending as much time with her lecturers.
Pains	Not being able to print from university PC's or laptops as they are vacant. Missing out on the cheapest deals as she must book last minute. Trawling through Google pages looking for trusted amenities. Being unaware of bursaries available and difficulty in applying if she does know of any. Has difficulty arranging extra sessions with lecturers. Walking in on other students' prayers or being disturbed praying. Finding different rooms in the campuses.
Device Preference	Samsung Galaxy.
Responsibilities	Must do well at her course to reward her company for investing in her. Respectfully finding out availability of the prayer room. Applying for bursaries she is entitled to. Finding contact information of trusted local amenities. Arranging extra sessions/contact time with lecturers/English support. Booking flights home early enough to save money. Accessing her library account and printing directly from her smartphone. Finding the correct room for her lectures or English lessons.
Tasks	

From Ammaarah's persona it is possible to conclude she needs an app which:

- Allows her to search and apply for bursaries entitled to her.
- Allows access to an up-to-date academic calendar.
- Display an up-to-date exam timetable which also notifies her of its release.
- Lists trusted local services.
- Allows her to request or book extra time with her lecturers or English teachers.
- Has up-to-date campus information (maps/rooms etc.).
- Has live prayer/meditation room availability and booking.

4. MoSCow Requirements List

The MoSCow requirements technique consists of prioritising the, functional and non-functional requirements, by following the following criteria [12], [13]:

1. **Must Have** – These are the requirements which are unnegotiable regarding the deliverable features. Should these requirements fail to be delivered the project could be deemed a failure.
2. **Should Have** – These requirements should be included, if possible, within the time constraints of a project. If not included, the project has still achieved some success.
3. **Could Have** – These requirements are considered on the ‘*wish list*’ which would be advantageous to be included if time and cost allows.
4. **Won’t Have** – These requirements are often feature’s that the stakeholders have requested but are not of high importance to the overall project meaning that they will not be implemented in this version.

The tables below state the functional requirements for the FACE app, from an ability and user experience point of view, which have been discovered through the field research (section 2), user personas (section 3) and user scenarios (section 5.1).

4.1 Functional Requirements

Functional requirements are features or behaviours which describe the applications abilities or operations, often a specific action the app performs or a response the app gives [14].

Key:	Usability 	Performance 	Features 	Processing 
-------------	---	---	--	--

4.1.1 Must Have

Key	Requirement
	Hold personal information securely with authentication.
	Student details should be amendable.
	Staff and student information stored in the database should be live
	All information about courses should be up-to-date and verified.
	Availability Information about rooms/computers should be live.
	Must be usable following known design patterns for apps.
	Notifications must be given for cancelled lectures/reminders.
	All calendars & timetables should be up-to-date.
	App should be available on all mobile operating systems.
	Take advantage of all library services.

4.1.2 Should Have

Key	Requirement
	Integrate other apps into its functionality. (OneDrive etc.)
	Allow for wireless connectivity to printers or other machines.
	Local amenity information should be verified and up-to-date.
	Personalisation of the UI and IA
	Use of smart device finger print or face authentication.
	Notifications for new emails or message on other related systems.
	Allow for university related account cards to be stored in app.

4.1.3 Could Have

Key	Requirement
	Booing and reserving capabilities for rooms/pc's/laptops
	Live recording features utilising phones capabilities.
	Integrated chat facilities like MS teams.

4.1.4 Won't Have

Key	Requirement
	Time related location information about lecturers.
	Automatically dynamic pages or features.

4.2 Non-Functional Requirements

Non-functional requirements are the conditions that are indirectly related to the behaviour or functionality of an application. They refer to the environmental conditions which the application needs to remain effective [14]. They describe how the application 'should be' [13].

The tables below state the non-functional requirements for the FACE app which have been discovered through the field research and user personas.

4.2.1 Must Have

Key	Requirement
	System must be easy to use and intuitive.
	Must use existing university login credentials and save them.
	Must allow multiple users to use its features at the same time.
	All services must be easy to find, including external services.
	Copywriting must be clear and concise.

4.2.2 Should Have

Key	Requirement
	System should load quickly on all devices.
	Branding must be representative of the university.
	App should be aesthetically pleasing.
	System should not use too much CPU resources & battery life.

4.2.3 Could Have

Key	Requirement
	Be available in English and Welsh
	Sounds and haptic feedback from features.
	Support being held in different orientations

4.2.4 Won't Have

There are no **Won't Have** non-functional requirements.

5. Information Architecture

Information architecture (IA) is the organisation of information contained within a system in such a way it enhances access to it. Hinton [15] highlights a definition from the Information Architecture Institute [16] which defines IA as:

1. The structural design of shared information environments.
2. The art and science of organising and labelling websites, intranets, online communities and software to support usability and findability.
3. An emerging community of practice focused on bringing principles of design and architecture to the digital landscape.

However, it Spencer [17] who best articulates the above definition stating that IA is:

1. Organising content or objects.
2. Describing them clearly.
3. Providing ways for people to get to them.

It is this definition which best fits the way humans interact with digital systems: by using clear language, labels, menus, descriptions, visual elements, content. When each element has a relationship with one another it creates an easily understood environment which creates a positive user experience [18].

Rosenfeld and Morville [18] state that there are four main components of IA:

- ***Organisational Scheme and Structures***

This component relates to how information is categorised and structured, for example, relating information should be grouped together, structured hierarchically with each layer representing abstractions from the previous layer. Figure 1 demonstrates this, where t-shirts and jumpers are an abstraction of clothes and clothes is an abstraction of the online shop.

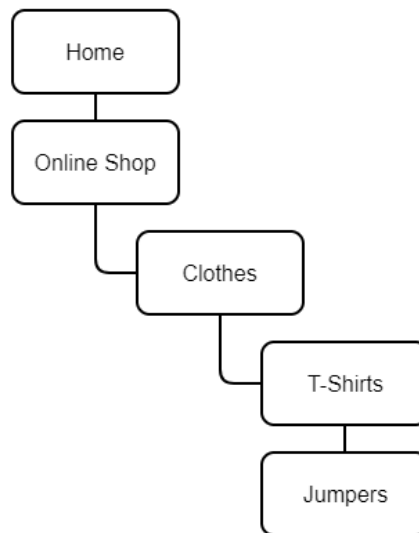


Figure 1- Information Architecture Abstraction Example

- **Labelling Systems**

This is how labels and buttons represent the information in a system. Referring to figure 1 again, the button which represents 'clothes' is representing a large chunk of information, but it houses smaller, more specific information about t-shirts and jumpers, these labels will then house even more detailed and specific information such as size, colour and gender etc.

- **Navigation Systems**

Navigation is how users will move through the system, this can be achieved through clickable buttons or links in a menu, through gestures for touch-screen devices or through voice commands.

- **Search Systems**

Search features are how users will look up information in a system. Searches should offer options to search the whole site, or parts of it. For example, users should be able to search for t-shirts, then, once on the t-shirts page, more specific searches can be performed to filter results.

Furthermore, Morville [19] highlights the need for an understanding of three words which make up his model for effective information architecture design: “*Users. Content. Context*”. This model, known as *information ecology*, is visualised in figure 2.

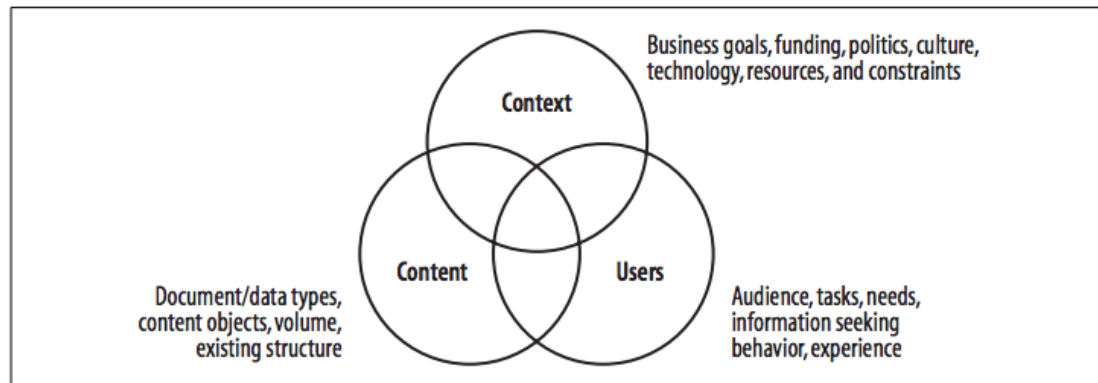


Figure 2 - Information Ecology Venn [19]

Information ecology focuses on understanding the project’s businesses goals and the available resources for design and implementation as well as the nature and volume of the content within a system, both now and in the future, and it considers the need and behaviours of the target audience in terms of their information needs [19].

In terms of the application for UWTSD, the context of the app is firstly realised through the business goal which is to provide the FACE faculty with a robust solution to many problems’ students face with the technology they encounter on a day-to-day basis and secondly the channel it is communicated through is a mobile phone app which will places constraints on the design through a smaller screen real estate.

The content will be all the information and services users will find in the app, which will be decided upon from the user requirements, however, it is important to consider *ownership* and remember that some requirements mean the use of third-party vendors, such as Microsoft and Moodle which will influence the amount of control which can be harnessed to potential users. Additionally, the information’s dynamism needs to be considered to ensure that new information can be added year on year [19].

Finally, the users. The people who will be using the app are the most important. Every user is different, not every student using the FACE app will be from Swansea and in the 18 – 25 age range. Everyone will use the app differently, therefore it is important to study users in their own environment [19], as section 2 has attempted.

5.1 User Scenarios

Garrett [4] states that scenarios are short and simple narratives which describe how personas (section 3) will achieve their user needs. Carroll [20] adds that they are stories about people's interaction with a product or system, furthermore, Rossen *et al.* [21] state they describe a series of events and actions which lead to outcomes related to a user's usage of products.

The purpose of scenarios is to envisage how the FACE app will be used by making the design ideas explicit and concrete: scenarios keep designers thinking of the user rather than technical requirements [1] and also help explain requirements to any business stakeholders [17].

5.1.1 User Scenario One

Tom Rees
Tom arrives in to the university to find that all the PC's with the software he needs are unavailable as the PGCE students are back off placement and have assignments due in. Tom quickly pulls out his phone and opens the FACE app, he clicks the hamburger menu and finds the 'PC Availability' tab. He sees a timetable with all the PC's listed. From the filter, he selects 'Sessions Ending Soon' to display all the PC's to be available within the next 30 minutes. Tom remembers the PC locations which have the software he needs and luckily for Tom, one session is ending in 15 minutes in that location. He quickly hits the reserve button to book the computer for himself. Finally sat at a PC, Tom begins to work on his assignment but within 45 minutes Tom receives a notification about a lecture due to start in 30 minutes, the notification offers Tom four reminder options: 'Remind me in 5 minutes', 'Remind me in 10 minutes', 'Remind me in 15 minutes' and 'Ignore' taps the 'Remind me in 15 minutes' button to snooze the notification. 15 minutes later, the notification pops up again. Still working on his assignment, he taps the 'Remind me in 10 minutes' option. 10 minutes passes and Tom gets another notification, this time he decides pack up and head to his lecture. When he arrives, the lecturer is nowhere to be seen, 10 minutes passes and tom receives another notification, 'Automotive Engineering Principles Lecture: CANCELLED'. The lecturer has, unfortunately for Tom and his class mates, forgotten to notify the students through the application. Frustrated, Tom returns to the IQ only to find someone else is now using the PC he was at and all others are full. Once again, he pulls out his phone and repeats the process of searching for PC session expiring soon.

Tom's scenario has taught the design team:

- He values the availability of PC's & booking feature.
- The hamburger menu is where he looked first through familiarity.
- The reminders about lecturers are useful, albeit annoying.
- The up-to-date lecture information will only work if lecturers update it.

5.1.2 User Scenario Two

Abigail Smith

Abigail wakes on a Thursday morning late, she had been out for student night on Wind Street the night before and felt groggy. She hastily gets dressed and leaves the house, heading for the bus stop.

On the way, she removes her iPhone from her bag, opens the FACE app and scrolls down the main page, through her saved favourite features, and selects the **'Local Public Transport Links'**. She is presented with a list of local public transport services and she selects the bus company **'First Group'** she is then taken, through the iPhone's in-app WebKit [22] browser, to the bus company's webpage. Here she searches for available buses in her area and finds the correct bus stop, however, she has just missed one and will now be 15 minutes late for her lecture.

Finally arriving at university, she rushes to her architectural design lecture, however, she cannot access the engineering block as she has forgotten her student card in her haste this morning. She looks to reception, but no-one is on duty and the IQ is empty due to it being peak lecture time (11.15am), luckily, she remembers that she has her student card in her app! She pulls out her phone, uses the fingerprint ID to bring up her card, taps it on the sensor and continues to her lecture.

Her lecture today is a boring one, so she pulls out her phone to find out about events happening in Swansea that evening. Again, scrolling down her homepage of favourite pages, she taps on **'SU Events'** from here she sees all the Swansea University and UWTSD events happening that evening. She continues to click on a Swansea University event where she is redirected through the app's browser to the SUSU event information page.

On the bus home she receives a notification through the FACE app that her assignment mark is up on Moodle. She clicks the banner notification and the app takes her directly to the TurnItIn submission viewer, via the in-app browser, where she views her marks and feedback by tapping on the **'Pencil Icon'** on the page next to her mark.

Disappointed with her mark, Abigail decides to email the lecturer. Not knowing their email address, she taps **'Done'** in the app's browser to return to the main app. From here she scrolls through her favourites but cannot see any email listings, so, she taps the hamburger menu and scrolls down until she sees **'Lecturer Email Listings'** the next screen shows an alphabetical list of lecturers with a search bar at the top and a list of letters on the right, much like Apple's iOS phone book. She knows the lecturer's first name is Andrew, so she types it in to the search bar and brings up his contact. Here an envelope button with **'Email'** is visible, she taps it and is redirected, through the app's browser, to the student outlook email dialogue. The lecturer's email address is already passed into the recipient's box, so she continues to write her email and sends it.

Abigail's scenario has taught the design team:

- Students who don't drive will appreciate the transport links, however, she still missed a bus so reminders set for her favourite bus routes may be an idea, or, more specific routes saved to her phone.
- Only some students value the union's event list and what's on in Swansea guides and it possibly is distracting students from studies.
- Notifications, about, and being able to review assignment feedback is a good idea for students.
- A listing of student and staff emails is a useful feature all students, and even staff can use.
- Letting students design their own IA by favouriting links and features will provide a better experience for them.

5.1.3 User Scenario Three

Owain Bancroft

Owain recently fell out with his two housemates as they kept disturbing his studies through their parties and loud music, so he has just moved in to a new shared house with mature, PhD students. Realising he needs to update his address with the university he opens the FACE app and taps the hamburger menu and scrolls to the bottom of the menu list where he finds **'My USTWD Profile'**. He taps the button and is presented with a security screen to verify himself, he enters his user name and password. A form presents all the current personal details UWTSD have on Owain, including his name, current address and phone number. He taps on the address box and enters his new information. Once he is satisfied his details are correct, he scrolls down to the bottom of the form and taps **'Save'**. He is then presented with a modal window for 3 seconds informing him that his details have been updated. After the timeout, he is redirected to the home screen of the app.

The next day, on his bus journey to university, he decides to read over his assignment due in that week. He opens his app and scrolls down the home page to the **'OneDrive'** link which is displayed as the well know cloud icon. He is taken, via the in-app browser, to his OneDrive, where he navigates to his word document and he begins reading his assignment. When he arrives at his stop, he presses the home button to close the app.

Arriving at university he checks his timetable through the FACE app, this informs him no lectures have changed. On his way to his lecture he decides to fill up his water bottle, however, the water bowsers are dispensing lukewarm water, disappointed, angry, and thirsty, he remembers he can make suggestions to the university through his app. He quickly pulls out his app and navigates to the suggestion page, via the hamburger menu, and types in capital letters "WHERE HAVE OUR COLD-WATER DISPENSERS GONE", he hurriedly taps **'Send'** and heads into his lecture.

In his lecture, Dr Rake hands out yet *another* assignment. Eager to get ahead, on his bus journey home he decides to look for relevant relating texts. Opening his FACE app, he scrolls down his homepage, where his favourited items are, and finds the **'Library'** link box. Here his is presented with another set of links; **'Library Card Top-Up'**, **'Library Account'**, **'Library Catalogue'** and **'External Databases'**. Knowing he needs to search for journal papers on computing resource repositories he taps **'External Databases'** and is taken to another page presenting him with options like **'IEEE'** and **'ACM'**. He selects IEEE and the in-app browser takes him to their page, logged in through his university account, where he searches for relevant papers.

Owain's scenario has taught the design team:

- Updating student's personal information, securely, is less stressful than contacting the university. A simple form design for this will be easy to use.
- OneDrive integration is a great idea; however, the OneDrive app is very good and offers a better experience than viewing through an in-app browser. More thought is required to integrate the OneDrive properly.
- Student feedback is a great way to gain insight into the good and bad of UWTSD, however, some messages may be abusive or angry, so should be monitored. Most students will have constructive criticism, like Owain. He was however, just frustrated.
- Integrating library services is probably the most important feature for Owain, with all the suggested features having value, however, being able to save journals or links to them, or share them through social media, email or messages would be a beneficial feature.
- Presenting recently or most used items may seem a good idea, however, on a small screen this would mean no dedicated space for this, resulting in links moving around all the time, violating user's spatial memory. Letting users decide on the location of 'favourites' would be more useful.

5.1.4 User Scenario Four

Ammaarah Afia

At midday, after the sun passes it's highest, Ammaarah wants to perform *Salat al-zhur* in the prayer room. Realising that it may be occupied, she opens the FACE app to check the rooms availability. From the home screen she scrolls to the '**Room Availability**' links saved in her favourites. From here she is confronted with another set of options: '**Library Room Availability**', '**Lab Availability**' and '**Prayer/Meditation Room Availability**' she taps the prayer room option and sees the room is available at the time she requires, so she books it.

Late for university, she decides to take a taxi from her home in the city centre, to avoid googling taxi numbers she remembers the FACE app offers trusted services. Opening the app, she taps the hamburger menu and finds '**Local Services**'. Here she is presented with a list of amenities grouped together under headings like '**Transport**', '**Health**' and '**Sports**', she selects transport where she is presented with further options: '**Bus Information**', '**Train Information**', '**Private Hire**', she selects private hire where she finds a list of taxi firms, she taps the first one in the list and her smart device prompts her with a modal screen asking if she would like to call the firm. She calls and arranges a lift.

In the taxi, she remembers she wants to discuss her assignment with a lecturer she doesn't have that day, so she seeks to arrange a meeting with her lecturer, she is looking to directly speak with one or book a time slot but cannot find any options in the app for this so she scrolls to the '**Lecturer Emails**' link, found in the main menu. From here she finds her lecturer and emails him.

After her lecture, she needs to print an assignment, so she heads to library, however, she is in a rush to get home as she has arranged a phone call, on her landline, with her husband and family in Botswana and doesn't have time to log in top a computer and print. She opens her app, navigates to her OneDrive and finds the document she wants to print. She opens the document and in the in-app document viewer she taps the '3 dots' in the corner where she is presented with a modal window offering her the option to print over the university network. She taps '**Print**', heads over to the printer, taps her library card and finds her print job waiting.

Speaking with her husband, he reminds her about the bursaries they informed them both of when they were checking out the university! Whilst on the landline, she opens the app and navigates to the '**Scholarships & Bursaries**' section found in the menu. She finds the bursary she wants and applies whilst talking with her husband.

Ammaarah's scenario has taught the design team:

- Prayer room availability is a good idea on paper and will perhaps serve certain students well, however, many other religions will want to use the facilities as well as people wanting to meditate. A suggestion would be to somehow organise group meditation if there is more than one person needing the facilities.
- The feature to book extra sessions or catch up with lecturers is a good one from a student's point of view, however, lecturers are already busy and may feel aggrieved at student's knowing their whereabouts all the time. An email listing option is a better idea, which gives lecturers control.
- Printing directly from the app is a good idea, however, this will also need to integrate into OneDrive or other cloud providers. This functionality will be difficult to implement. Perhaps being able to email work to the printers is an easier option which will tie in nicely with most smartphones built in features.
- Finding and Applying for bursaries, directly in the app will save time and paperwork for UWTSD staff. This feature is already offered through MyTSD and would be easily integrated, however, the system is poorly designed from UX point of view and needs updating.
- Everything is easy to find for Ammaarah who looks either on the home page or the hamburger menu.

5.2 Information Architecture Design

Now that the design team has learnt what features the user wants and how they may use them through the field research, user personas and scenarios it is best practice to organise all the information into a '*physical structure*', which help design around the right things first: organisation and task flow [23].

The following section attempts to group the features into a structured pattern to help design a usable interface around it.

5.2.1 Feature List

Research carried out in sections 2, 3, and 5.2 and prioritisation of requirements in section 4 have highlighted the following features to be included in the app.

5.2.1.1 User Defined Features

<i>Priority</i>	<i>Feature</i>
1	Student Card Integration into Phones Wallet/App Moodle Integration
2	Course Timetables
3	Staff Contact Details (Directory) Library Account
4	Student Email Account Integration. OneDrive Integration Live Lecture Update Information
5	Library Private Room Availability Update Personal Details
6	Live Lecture Recording
7	Faculty Contact Details (Emails/Phone No's) Wireless Printing Feedback/Suggestion Form
8	Academic Calendar Bursary Application Forms Exam Timetables
9	Student Contact Details (Directory) Live Room/Lab Availability (IQ Building)

	Class Group Chats (Microsoft Teams)
	Local Amenities Directory (Hospitals/Clinics/Dentists)
10	Campus Maps
	PC/Laptop Reservation
11	Events in Swansea
12	UWTSD News
13	Car Park Availability
14	Course Information
15	Local Transport Information
16	Fingerprint Security
17	Student Union Event Information

5.2.1.2 Persona & Scenario Defined Features

<i>Priority</i>	<i>Details</i>
N/A	Save Items from Library Resources for Later Viewing
N/A	Hand-in Notifications/Reminders
N/A	Assignment/Exam Result Notifications
N/A	Save Favourite Features/Information for Easy Navigation
N/A	Live Prayer Room Availability / Booking

5.2.1.3 Features Not Included

<i>Priority</i>	<i>Details</i>
N/A	Lecturer Location/Booking

5.2.1 Grouping of Features

Grouping of features allows the generation of options for structuring the information or features an app will have. It helps identify schemas of navigation, menus and taxonomies which enhances the likelihood that user's will find the information they want from a system [1].

Card sorting is an industry recognised technique used to group together related features or information, it can be done by the design team or by a user group session where users are asked to identify features they would group together [3].

For this assignment, the features will be grouped together, by the design team, to form a basic menu structure. Evidence is provided in appendix B.

5.2.2 Information Architecture Schema

Using diagramming software, draw.io, an information architecture schema was drawn up from the results of the card sort. It is worth noting that some items, such as library room availability are polyhierarchical, which means there is more than one parent node [24]. This feature can either be reached through the 'Availability' section or the 'Library' section. Furthermore, the IA may differ from the user scenarios as the card sort was performed after this section, meaning that although the scenarios helped with the IA, better structures were discovered from the card sort.

It is recognised that figure 3 is difficult to see due to the image size. A PDF file accompanies this report containing the schema.

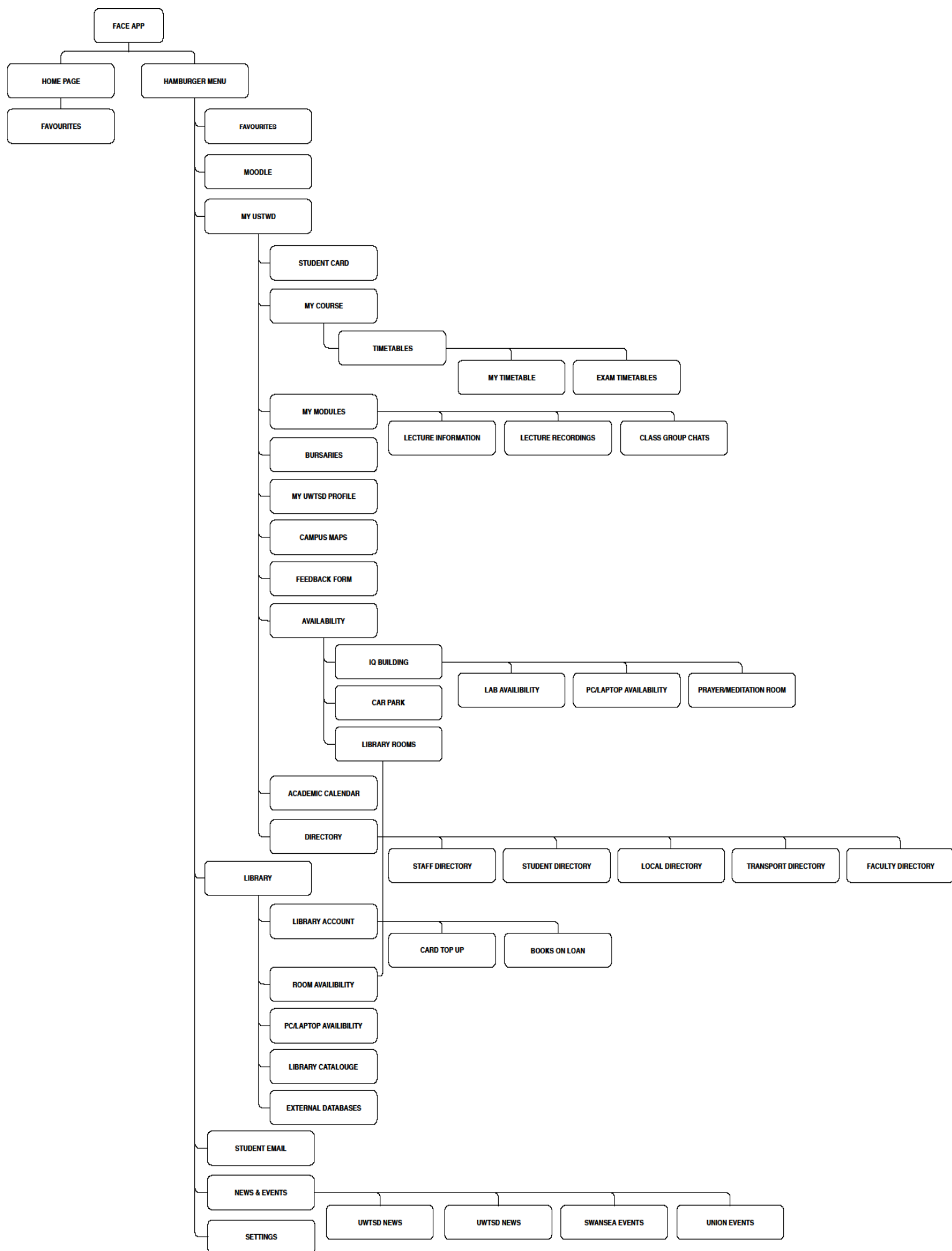


Figure 3 - Information Architecture Schema

In figure 3, the schema shows two 'favourites' pages. This represents the main home page, which, will be completely user defined. Most apps and webpages fill their home page with clutter, however, for this app, students from all different backgrounds, courses and ages have chosen their most desired features: some suit certain students but not another, therefore, students will be able to design their own homepage, made up completely from the features/pages/information most important to them. This theory will be tested through the storyboards in section 6.

6. Prototypes / Storyboards

Prototypes or storyboards are basic graphical depictions of a UI which is used as an effective, low fidelity technique for proving a particular design pattern or concept works [25].

Prototyping brings together all the research and translates it, creatively, into a tangible ideation. In doing so, design teams can produce excellent tools for testing their ideas with users and clients in the early stages of development to allow for timely constructive feedback and iterative changes [1].

The prototypes produced for this assignment are based on the user scenarios and have been printed out for testing. This technique is known as, '*paper prototyping*'. Discussion and results regarding the tests are found in section 7.

It is worth noting that for a real design process, more storyboards would be produced and tested, however, due to time constraints on this assignment, just one set will be produced, carrying out a few tasks from a few user scenarios.

6.1 Main Design Patterns Used

Design patterns are proven, reusable patterns which improve the '*habituality*' or familiarity of an interface [23]. The initial wireframe mock-ups employ some of the most well-known mobile design patterns, this is to increase the interfaces support for user's behavioural patterns, most notably: safe exploration, instant gratification, satisficing, changes midstream, habituation, spatial memory, prospective memory and streamlined repetition. In doing so, user's will achieve their goals far more easily [3], [23].

The 12 universal motivations will be briefly mapped to the interfaces discussed in the following sections, however, the final assignment for the UxD module will discuss the universal motivation in more detail in respect to the final prototype designs.

A full storyboard/prototype set can be found in appendix C.

6.1.1 Springboard Pattern

Upon first use, the home page of the app is empty. It does not offer any functionality or useless information to the student, it simply informs of what to do: add favourites to create their own home page. When students have added favourite features or pages, the app displays them using the spring board pattern.



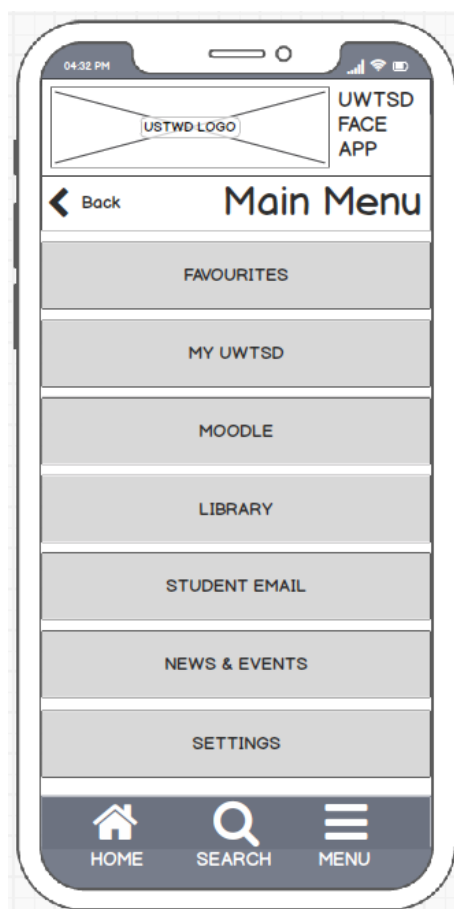
The springboard pattern also known as the 'launchpad' pattern is a landing screen which has pointers to other parts of the application. It is a pattern which is easily recognised and learnt and works well across all platforms [26].

Microsoft state this pattern in their guidelines for developing Windows Phone applications and it has been chosen due to its familiarity to students as this is the first pattern they see when logging in to any UWTSD PC: MyDay. It provides instant gratification, as it is easy to understand. Safe exploration, as there are clear routes back to safety, and habituation through familiarity with current Microsoft systems the university employs.

The tiles will also be fixed in the order they were saved, unless reorganised by the user, to adhere to the spatial memory behavioural pattern. The two examples shown show different way the tiles will be arranged depending on how many there are, however, the tiles will always display in the same order.

6.1.2 List Menu Pattern

The list menu pattern [26], also known as hierarchical navigation, is similar to the springboard as offers easy access to another point in the application. It too is similar across all platforms. The same behavioural patterns apply as the springboard pattern.

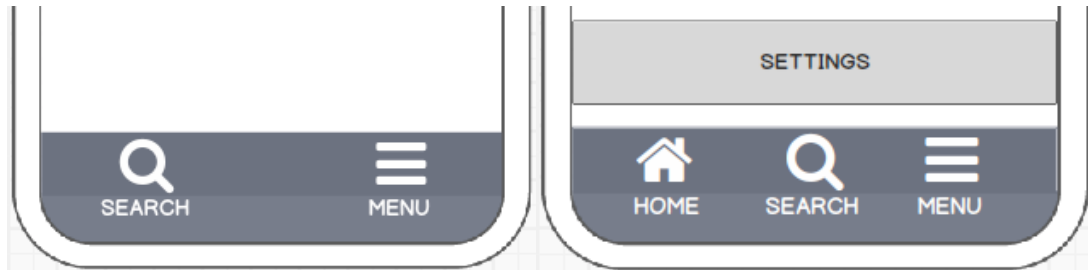


6.1.3 Tab Menu Pattern

Each platform has their own version of this pattern, however, Apple outlines this pattern in their guidelines as a standard [27]. The tab bar keeps the main, most useful, buttons in one place [26].

In the FACE app this pattern houses, on the home screen, two buttons: search, for easy finding of information and menu to access the main menu of the application.

When a menu is accessed this menu tab house another button: home, for easy navigation back to the home page.



This menu supports the spatial memory, as it is always in the same place. Habituation, as this is one of the most common patterns used in mobile apps. Safe exploration, as it never moves so users know they can always return home safely. Changes in midstream, again, as it never moves the user can quickly tap 'menu' to select a different feature if they change their mind, and, satisficing as it is almost intuitive and definitely easily learnt.

7. Usability Testing

Usability testing is a process which uses real users of a product or system to evaluate the it and find out whether it meets the specific usability criteria [28]. Dumas and Joseph [29] state that every usability test should share the following characteristics:

1. The goal is to improve the usability of the product or system.

For the FACE app, the goal is to provide a proof-of-concept for the initial designs and discover if the proposed IA, labelling and copywriting works and to improve these if necessary.

2. The participants represent real users.

Real students will be employed for the usability tests, with consideration of the user personas.

3. The participants do real tasks.

The tests have been designed around the user scenarios meaning that the test is conducting actual tasks users may carry out.

4. You observe and record what the participants say.

Usually, a recording of the session would be made, however, for this assignment, notes will be taken on the user test script used.

5. Data is analysed, problems are diagnosed, and recommendations are made to fix them.

The collected answers and data will be evaluated, and any problems identified, and fixes suggested for use in the 3rd UxD assignment.

Krug [30] states that 3 users are enough to find the most significant problems with an interface, he adds that even one is better than none. It is for this reason, that three tests will be carried on users which are as close matching to the user personas as possible.

The tests will be conducted using a test script, modified from Krug's [30], [31], which ensures consistency throughout. The script welcomes the user, explains how the test

session will be carried out, conducts a pre-test questionnaire and leads users through predefined tasks [32].

The task list has been derived from the user scenarios. The full scripts can be found in appendix D.

7.1 Test Results

The test script is also included in the submission to avoid referencing the appendix for the relevant questions.

7.1.1 User Test One

<i>User's</i>	<i>Details</i>
Name	Henry Cobbold
Demographic	18-25, single, no children.
Description from Personal Questions	Henry is a full time Applied Computing student, from Exeter, living in Swansea. He is a heavy smartphone user, utilising a wide range of apps for personal use.
System Usage Questions	Henry uses OneDrive, Mendeley & Outlook apps to help with his university life. OneDrive is the main app used to access his university files/resources on the move. He likes OneDrive due to its speed and easy to use UI, as it is a Microsoft product, he trusts the brand.
Question Answers	1. No problems, found the menu button instantly. Logo offers familiarity as does the layout – looks like a typical app. 2. Menu is clear, shows things he would find useful, he states it is a menu he would find no problem in using. 3. Found 'My UWTSD' instantly, however, suggested a whole separate menu section for Personal Details this as it is important enough. 4. No problems in finding library menu or external database section. 5. Henry frequents the university library so knows that the external journal/resource repositories are called 'external databases'. He had no other suggestions for this.

6. Added page to favourites with no problem.
7. Used 'Home' button to navigate home.
8. No issues in finding Swansea events.
9. Stated that Student Union events should match their branding and be called 'MyTSD Union Events' for easy recognition.
10. No problem in adding to favourites and chose 'Home' to navigate back to main screen.
11. Tiles are clear, easy, obvious what they are, self-explanatory.
12. Found ok but had to think about it! Took longer than expected.
13. Suggested bringing room availability to the main menu, avoiding burying it.
14. No problems found.
15. Henry thought the tiled layout was similar to Moodle and questioned whether the tiles would move around, like Moodle. He also suggested them all being the same, smaller size.

7.1.1.1 Conclusions

The design team has discovered the following from this test:

Good

- Layout is familiar and looks as users expected.
- Menu is clearly & as expected.
- Navigation home & adding favourites is simple and intuitive.
- Tiles are clear and obvious.

Recommendations

- OneDrive integration would be highly useful to students like Henry and Owain.
- Personal profile/details should be in its own section due to its importance.
- The Students Union Events labelling should match their branding better.
- Location of Room Availability was difficult to link to 'My UWTSD'. Possibly add descriptions of what each menu holds.
- Tiles on home page must not move like Moodle.
- Tiles on home page should all be same, smaller size.

7.1.2 User Test Two

<i>User's</i>	<i>Details</i>
Name	Owen James
Demographic	18-25, single, no children
Description from Personal Questions	Owen in a 3 rd year Environmental Conservation student, from Swansea who also works part time. He owns a smart phone and uses apps mainly for music, news and instant messaging.
System Usage Questions	Owen mainly uses the 'MyDay' app as it contains all his university links in one place. He mainly uses it to Moodle and his timetable. He likes it as it avoids the browser, allowing him to quickly get to where he wants.
Question Answers	1. No problems in opening menu. Looks like a familiar app layout. 2. Menu has all key items he would want. 3. Found with no problems. 4. Found the Library but chose 'Library Catalogue' first as he felt it would be a sub-menu under the catalogue. 5. Suggested 'Open Access Journals' instead of 'External Databases' 6. Added to favourites, no problems. 7. No problems, used Home button. 8. No problems, found events in Swansea easily. 9. No suggestions, felt labelling was clear and concise. 10. No problems. 11. Questioned whether tiles would get smaller if more were added. Felt it looks like his MyDay & BBC news apps. 12. Chose campus maps at first as it he felt rooms/computers would relate to a campus. Chose 'My UWTSD' on second go but took 5-6 seconds and was still unsure after choosing. 13. Suggested bringing availability to top-level menu. Campus maps and Availability should not be under 'My UWTSD'. 14. No problems found. 15. Good layout, instantly recognised they were links but preferred smaller tiles instead of a mix to avoid scrolling.

7.1.1.2 Conclusions

The design team has discovered the following from this test:

Good

- Familiar layout, menu easy to find.
- Favourites easy to add.
- Majority of paths through system simple and easy.
- Liked layout of favourites on home page – familiar.

Recommendations

- External Databases should be under library catalogue and called 'Open Access Journals'
- A reconsideration of the location of 'Availability' is a must, it took too long to find, and mistakes were made on the way. Possibly bring it to its own menu.

7.1.3 User Test Three

<i>User's</i>	<i>Details</i>
Name	Danielle Aldridge
Demographic	36-45, married, no children.
Description from Personal Questions	Danielle is from Porthcawl but now resides in Swansea. She is a 1 st year Humanistic Counselling student. She has smartphone and mainly uses social media and lifestyle apps (Fitness, Diet, Cooking, Shopping etc.).
System Usage Questions	Danielle uses MyDay, UniDays, Totum, Student Beans and Outlook. MyDay is her main app as it contains everything she needs in one place. She mainly uses it for Moodle as it is quicker than using the browser.
Question Answers	1. No problems found. Did not think app was familiar. 2. Menu is basic (not a bad thing). Offers everything she thinks she needs in one place. 3. Found with no problems. 4. Found library and external resources instantly. Commented how much easier it was than the website. 5. Danielle uses the external journal sources a lot, so she recognised the name 'External Databases'. Suggested dropping the 'External'. 6. No problems, favourited page instantly. 7. Used home button to navigate back home.

8. Found Swansea Events with no problems. Would have used search if she could.
9. Labels are clear and concise. Again, commented about badly labelled items on current website.
10. No problems with adding to favourites and finding home.
11. Didn't find tiles familiar and big ones 'take up a lot of space'.
12. Struggled with finding personal details, didn't think to look in 'My UWTSD', only found through process of elimination.
13. Label 'Availability' obscure – availability of what?
14. Navigated back to home and added favourites with no problems.
15. Preferred the little tiles, said it would annoy her that they were different sizes.

7.1.1.3 Conclusions

The design team has discovered the following from this test:

Good

- Menu is good. Found most tasks no problem.
- Navigating home and adding fav's is easy.

Recommendations

- Rethink the 'External Databases' name.
- Big tiles take up too much space – will possibly have to scroll.
- Personal details needs to be moved out of 'My UWTSD'
- Availability needs explaining – maybe labels underneath.
- Small tiles for favourites.

7.2 Testing Conclusion

7.2.1 The Good

Each test found some commonalities across what users thought was good. Mainly, the layout of the app was commended for its simplicity and similarity with other systems. Only one participant did not find it familiar, with most saying it was similar to MyDay

which does employ the springboard design pattern as well. The menu and home buttons were clear and easy to use as was adding pages to the favourites list.

7.2.1 Recommendations

Many problems UI were highlighted. Firstly, all the users found locating the 'Availability' area of the app difficult to find. This would suggest that this needs relocating to another area of the app, possibly its own high-level menu on the home page, additionally, 'Availability' should be labelled to explain what it means, possibly with sub-level labelling making it more clear what is behind this button.

Secondly, although each student recognised the 'External Databases' link, 2/3 suggested it be re-named. 'Open Access Journals' is a great suggestion as it explains the content well.

Thirdly, 2/3 student felt that personal details should also be moved out 'My UWTSD' and have its own high-level menu, due to its importance. Finally, all three students felt that smaller tiles for the home page favourites would be better. Some stated that this is because they would not want to scroll down to find their quick links and others felt it just looks neater with smaller tiles.

8. Evaluation & Conclusion

Assignment two has employed various techniques for initial stages of prototype design. Firstly, user research has been carried out to actually find out what real students would like from a FACE app, this has then been used to create four user personas which have provided reference for the whole UI development process and have been used to create four user scenarios to gain an understanding of how potential users would use the app.

The research stages have led to a requirements list being drawn up in the MoSCow format, which, along with the questionnaire, allowed for a feature list to be written which has then been organised using a card-sorting technique to group related items together.

Design patterns have then been investigated to discover what would work best for an app of this nature, the research has led to initial prototypes being drawn up and printed out, on paper, to employ the paper prototyping usability testing technique where students are challenged to perform simple tasks on the mock-ups to discover the integrity of the IA, labelling and overall look and feel of the app. The results of testing will be carried forward into assignment three where recommended improvements will be made.

Assignment two has proven challenging, and the scale of the assignment was underestimated, however, the prototypes produced provide a good foundation to carry into the next assignment. However, improvements to the user research could be made through a better designed questionnaire and by interviewing more students to gain a broader insight about what 'general' students want.

Testing could also have been improved. The tests may have somewhat been too simple, as every user found what they were looking for well, however, this could be down to good UI design, but more difficult tests would have really proven this case.

Further recommendations can also be made regarding the name of the app. It was discovered that many students not in FACE were using the faculties facilities and therefore should be included in the target user group, however, naming the app 'FACE'

may possibly exclude certain students and damage their '*affiliation*' to the university and may possibly diminish their '*status*' in turn damaging the university's brand [3].

9. References

- [1] B. Martin and B. M. Hanington, *Universal Methods of Design*. Beverly: Rockport Publishers, 2012.
- [2] “What is User Research? | Interaction Design Foundation,” *Interaction Design Foundation*. [Online]. Available: <https://www.interaction-design.org/literature/topics/user-research>. [Accessed: 02-Mar-2019].
- [3] J. Marsh and J. Marzan, *UX for Beginners : A Crash Course in 100 Short Lessons*. O’Reilly, 2016.
- [4] J. J. Garrett, *The Elements of User Experience: User-Centered Design for the Web and Beyond*, 2nd ed. Berkeley, CA: New Riders, 2010.
- [5] “Getting into the Mobile App User’s Mind – User Research for Mobile Applications | Interaction Design Foundation,” *Interaction Design Foundation*, 2018. [Online]. Available: <https://www.interaction-design.org/literature/article/getting-into-the-mobile-app-user-s-mind-user-research-for-mobile-applications>. [Accessed: 02-Mar-2019].
- [6] M. Kuniavsky, *Observing the User Experience: A Practical Guide to User Research*, 2nd ed. Morgan Kaufmann, 2012.
- [7] K. Riley, “How to ask good questions and level-up your user research skills,” *Medium*, 2018. [Online]. Available: <https://medium.com/envoy-design/how-to-ask-good-questions-and-level-up-your-user-research-skills-19fd28b275a4>. [Accessed: 03-Mar-2019].
- [8] G. Guest, A. Bunce, and L. Johnson, “How Many Interviews Are Enough? An Experiment with Data Saturation and Variability and a good number of journals in the,” *Field methods*, vol. 18, no. 1, pp. 59–82, 1995.
- [9] J. W. Creswell, *Qualitative Inquiry and Research Design : Choosing Among Five Traditions*. Sage Publications, 1998.
- [10] J. Brooke, “SUS-A quick and dirty usability scale.”
- [11] A. Cooper, *The Inmates are Running the Asylum*. Indianapolis: Pearson Education, 2004.
- [12] P. Achimugu, A. Selamat, R. Ibrahim, and M. Naz’ri Mahrin, “A systematic literature review of software requirements prioritization research,” *Inf. Softw. Technol.*, vol. 56, pp. 568–585, 2014.
- [13] K. S. Ahmad, N. Ahmad, H. Tahir, and S. Khan, “Fuzzy-MoSCoW: A fuzzy based MoSCoW method for the prioritization of software requirements,” *2017 Int. Conf. Intell. Comput. Instrum. Control Technol. ICICICT 2017*, vol. 2018–Janua, pp. 433–437, 2018.
- [14] “Business Analysis Body of Knowledge A Guide to the,” 2006.
- [15] A. Hinton, *Understanding Context*, 1st ed. O’Reilly, 2014.

- [16] "IA Institute," *The Information Architecture Institute*. [Online]. Available: <https://www.iainstitute.org/>. [Accessed: 03-Mar-2019].
- [17] D. Spencer, *A Practical Guide to Information Architecture*. 2010.
- [18] P. Morville and L. Rosenfeld, *Information Architecture for the World Wide Web - Designing Large-Scale Websites*, 3rd ed. Sebastopol: O'Reilly, 2007.
- [19] P. Morville, "Information Architecture 3.0," *Semantic Studios*. [Online]. Available: http://semanticstudios.com/information_architecture_30/. [Accessed: 21-Aug-2018].
- [20] J. M. Carroll, "Five Reasons for Scenario-Based Design," 1999.
- [21] M. B. Rosson, J. M. Carroll, V. Tech, and B. Va, "The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies and Emerging Applications," Lawrence Erlbaum Associates, 2002.
- [22] "WebKit | Apple Developer Documentation," *Apple Developer*. [Online]. Available: <https://developer.apple.com/documentation/webkit>. [Accessed: 04-Mar-2019].
- [23] J. Tidwell, *Designing Interfaces*, 2nd ed. O'Reilly, 2005.
- [24] P. Laubheimer, "Polyhierarchies Improve Findability for Ambiguous IA Categories," *Neilsen Norman Group*, 2018. [Online]. Available: <https://www.nngroup.com/articles/polyhierarchy/>. [Accessed: 08-Mar-2019].
- [25] K. N. Truong, G. R. Hayes, and G. D. Abowd, "Storyboarding," pp. 115–120, 2006.
- [26] T. Neil and J. Tidwell, *Mobile design pattern gallery : UI patterns for smartphone apps*, 2nd ed. O'Reilly, 2014.
- [27] "Navigation Bars - Bars - iOS - Human Interface Guidelines - Apple Developer," *Apple Developer*. [Online]. Available: <https://developer.apple.com/design/human-interface-guidelines/ios/bars/navigation-bars/>. [Accessed: 06-Mar-2019].
- [28] J. Rubin and D. Chisnell, *Handbook of Usability Testing*, 2nd ed. Indianapolis: Wiley Publishing, Inc., 2008.
- [29] J. S. Dumas and J. Redish, *A Practical Guide to Usability Testing*, 2nd ed. Intellect Books, 1999.
- [30] S. Krug, "Rocket surgery made easy: The Do-it-Yourself Guide to Finding and Fixing Usability Problems." New Riders, 2010.
- [31] S. Krug, *Don't Make Me Think! Revisited*, 3rd ed. New Riders, 2006.
- [32] C. M. Barnum, *Usability Testing Essentials*. Morgan Kaufman, 2010.

10. Bibliography

- Doody, S. (2016). *STARTER QUESTIONS FOR USER RESEARCH*. Retrieved from <https://projects.iq.harvard.edu/files/harvarduxgroup/files/ux-research-guide-sample-questions-for-user-interviews.pdf>
- Tile design guidelines for Windows Phone | Microsoft Docs. (2015). Retrieved March 6, 2019, from [https://docs.microsoft.com/en-us/previous-versions/windows/apps/jj662929\(v=vs.105\)](https://docs.microsoft.com/en-us/previous-versions/windows/apps/jj662929(v=vs.105))
- Specialist Nurse Personas*. (2017). Retrieved from <https://pageandpage.uk.com/Clinical-Nurse-Specialist-Personas.pdf>
- Constine, J. (2014). Facebook's New Mobile Test Framework Births Bottom Tab Bar Navigation Redesign For iOS 5, 6, & 7 | TechCrunch. Retrieved March 6, 2019, from <https://techcrunch.com/2013/09/18/facebooks-new-mobile-test-framework-births-bottom-tab-bar-navigation-redesign-for-ios-5-6-7/>
- Truong, K. N., Hayes, G. R., & Abowd, G. D. (2006). Storyboarding, 115–120. <https://doi.org/10.4324/9781351266369-11>
- Levy, J. (2015). *UX Strategy HOW TO DEVISE INNOVATIVE DIGITAL PRODUCTS. How to Devise Innovative Digital Products that People Want*. Retrieved from http://books.google.co.za/books?id=3SB0CQAAQBAJ&pg=PT403&dq=intitle:UX+Strategy+inauthor:Jaime+Levy&hl=&cd=1&source=gbs_api%0Apapers3://publication/uuid/03C41609-D071-4AC7-AFDA-CA12501594C2
- Personas and scenarios (infusion devices)*. (n.d.). Retrieved from <http://tinyurl.com/n2stptx>
- Davenport, T., & Prusak, L. (2011). *Information Ecology: Mastering the Information and Knowledge Environment. Academy of Management Perspectives* (1st ed.). <https://doi.org/10.5465/ame.1997.9712024845>

11. Appendix A

The appendix contains the scanned copies of the interview test results.

University App Questionnaire

Name: PAIGE

Age Group: 18 - 25 / 26 - 35 / 36 - 45 / 46 - 55 / 56+

1. Tell me about the course are you studying?
ENVIRO CONSERVATION 1ST YEAR.
16 HRS.
2. Could you tell me about your typical university weekday looklike?
2 LECTURES IN MORN 2 IN AFTERNOON
2 DAYS A WEEK.
3. I'd love to know what the current apps or websites you use to help with university life? If any.
MY DAY, EMAIL / MOODLE
DOESN'T USE TIMETABLE, SS OF HER TIMETABLE.
4. Do you use the university website? If so, what for and why?
NO.
5. Could you describe any pains/troubles when using this website?
NO.
6. If there was a university app, could you share with me some features that you would find useful on a university application?
ASSIGNMENT DUE DATES. + REMINDERS
(NOTIFICATIONS).

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- Academic calendar 5
- Faculty phone numbers and emails 3
- Important numbers (local hosp, estates, student services) 4
- Staff contact details 3
- Student contact details (directory) 4
- Course information 4
- Campus Maps (including your location) 4
- Application forms 4
- Moodle Integration 5
- Wireless Printing 5
- Live room availability information 2
- Student Email 4
- Car park availability 1
- Live lecture information 5
- Library card stored in the app 5
- Library room info & reserve 4
- Library book availability & reserve & renew 3
- PC availability & reserve 2
- Timetables with error reporting 4
- Exam timetables 5
- Lecture recording feature 5
- Top events in Swansea 5
- Library account (books on loan etc.)
- Class chat (Like MS Teams) 5 ^{SOME FRL DON'T USE FB}
- Update your contact details 4
- Latest UWTSD news feed 2
- Latest SU events & info 2
- University OneDrive access 4
- Finger print entry to app 5
- Local transport information 1
- Feedback/suggestion form 3

University App Questionnaire

Name: Shannon

Age Group: 18-25 / 26-35 / 36-45 / 46-55 / 56+

1. Tell me about the course are you studying?

PGCE Teaching (1 year course)

2. Could you tell me about your typical university weekday look like?

3 days a week (lectures)

3. I'd love to know what the current apps or websites you use to help with university life? If any.

Google Scholar

4. Do you use the university website? If so, what for and why?

OneNote, Moodle, MyDay

5. Could you describe any pains/troubles when using this website?

No

6. If there was a university app, could you share with me some features that you would find useful on a university application?

Timetable

Booking slots with tutors

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- | | |
|---|---|
| • Academic calendar 1 | • Lecture recording feature 1 |
| • Faculty phone numbers and emails 5 | • Top events in Swansea 4 |
| • Important numbers (local hosp, estates, student services) 3 | • ~~Library account (books on loan etc.)~~ 5 |
| • Staff contact details 5 | • Class chat (Like MS Teams) 1 |
| • Student contact details (directory) 5 | • Update your contact details 5 |
| • Course information 1 | • Latest UWTSD news feed 5 |
| • Campus Maps (including your location) 5 | • Latest SU events & info 1 |
| • Application forms 5 | • University OneDrive access 5 |
| • Moodle Integration 5 | • Finger print entry to app 1 |
| • Wireless Printing 1 | • Local transport information 1 |
| • Live room availability information 4 | • Feedback/suggestion form 5 |
| • Student Email 5 | |
| • Car park availability "not relevant" 1 | |
| • Live lecture information " 1 | |
| • Library card stored in the app 5 | |
| • Library room info & reserve 5 | |
| • Library book availability & reserve & renew 5 | |
| • PC availability & reserve 5 | |
| • Timetables with error reporting 4 | |
| • Exam timetables "not relevant" 1 | |

University App Questionnaire

Name: JOHN

Age Group: 18 – 25 / (26 – 35) / 36 – 45 / 46 – 55 / 56+

1. Tell me about the course are you studying?

BUSINESS INFORMATION SYSTEM

2. Could you tell me about your typical university weekday look like?

WORK PART TIME AND STUDY FULL TIME SO WEEKS
ARE STRESSFUL. IN 3 DAYS A WEEK UNI.

3. I'd love to know what the current apps or websites you use to help with university life? If any.

EMAIL / MOODLE / ONE DRIVE.

4. Do you use the university website? If so, what for and why?

JUST TO ACCESS LIBRARY

5. Could you describe any pains/troubles when using this website?

CANT FIND THINGS QUICK ENOUGH.
OR AT ALL.

6. If there was a university app, could you share with me some features that you would find useful on a university application?

NOTIFICATIONS ABOUT LECTURE CANCELLATIONS
OR CHANGES ~~WE~~ AS DO NOT ALWAYS
CHECK E-MAIL/MOODLE.

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- Academic calendar 3
- Faculty phone numbers and emails 5
- Important numbers (local hosp, estates, student services) 3
- Staff contact details 5
- Student contact details (directory) 5
- Course information 1
- Campus Maps (including your location) 2
- Application forms 2
- Moodle Integration 5
- Wireless Printing 5
- Live room availability information 3
- Student Email 5
- Car park availability 1
- Live lecture information 5
- Library card stored in the app 5
- Library room info & reserve 5
- Library book availability & reserve & renew 5
- PC availability & reserve 2
- Timetables with error reporting 5
- Exam timetables 3
- Lecture recording feature 3
- Top events in Swansea 1
- ~~Library account (books on loan etc.)~~ 5
- Class chat (Like MS Teams) 4
- Update your contact details 4
- Latest UWTSD news feed 2
- Latest SU events & info 2
- University OneDrive access 4
- Finger print entry to app 2
- Local transport information 1
- Feedback/suggestion form 4.



University App Questionnaire

Name: Rhys

Age Group: 18-25 / 26-35 / 36-45 / 46-55 / 56+

1. Tell me about the course are you studying?

Auto-motive Design / 3 year / In 3rd year

2. Could you tell me about your typical university weekday look like?

5 days a week / Meeting 3 days a week / Workshop 8-5 everyday

3. I'd love to know what the current apps or websites you use to help with university life? If any.

Photoshop, Alius, V-Red, Powerpoint

4. Do you use the university website? If so, what for and why?

Moodle, Email, My Day, Modules, Online Library

5. Could you describe any pains/troubles when using this website?

Glitches, Moodle, Product Design

6. If there was a university app, could you share with me some features that you would find useful on a university application?

Better contact with lecturers e.g tutor slots

Timetables more mobile friendly

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- | | |
|---|---|
| • Academic calendar 3 | • Lecture recording feature 5 |
| • Faculty phone numbers and emails | • Top events in Swansea 4 |
| • Important numbers (local hosp, estates, student services) 4 | • ~~Library account (books on loan etc.)~~ 4 |
| • Staff contact details 5 | • Class chat (Like MS Teams) 3 |
| • Student contact details (directory) 4 | • Update your contact details 4 |
| • Course information 4 | • Latest UWTSD news feed 4 |
| • Campus Maps (including your location) 2 | • Latest SU events & info 3 |
| • Application forms 4 | • University OneDrive access 4 |
| • Moodle Integration 4 | • Finger print entry to app 4 |
| • Wireless Printing 5 | • Local transport information 2 |
| • Live room availability information 5 | • Feedback/suggestion form 5 |
| • Student Email 5 | |
| • Car park availability 4 | |
| • Live lecture information 4 | |
| • Library card stored in the app 5 | |
| • Library room info & reserve 4 | |
| • Library book availability & reserve & renew 4 | |
| • PC availability & reserve 4 | |
| • Timetables with error reporting 5 | |
| • Exam timetables
not relevant (1) | |

University App Questionnaire

Name: HENRY CORBOLD

Age Group: 18-25 / 26-35 / 36-45 / 46-55 / 56+

1. Tell me about the course are you studying?

BSc Applied Computing. 8-hour lecture time per week. 3rd year.

2. Could you tell me about your typical university weekday look like?

In university by 8:30. lectures during that day on Weds/Thurs/Fri, leave uni by 7pm. Mainly in library.

3. I'd love to know what the current apps or websites you use to help with university life? If any.

Outlook (Email) Moodle Library resources
OneDrive Scholar, Turnitin.

4. Do you use the university website? If so, what for and why?

Very Rarely, mainly for library resource links.
Applying for bursary links.

5. Could you describe any pains/troubles when using this website?

Navigation, not being able to easily find some library resources. Relatively few pains because I

6. If there was a university app, could you share with me some features that you would find useful on a university application?

Those listed in Q.3) above

don't use it.

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- Academic calendar 4
- Faculty phone numbers and emails 3
- Important numbers (local hosp, estates, student services) 4
- Staff contact details 3
- Student contact details (directory) 3
- Course information 2
- Campus Maps (including your location) 2
- Application forms 4
- Moodle Integration 5
- Wireless Printing 4
- Live room availability information 5
- Student Email 5
- Car park availability 3
- Live lecture information 5
- Library card stored in the app 4
- Library room info & reserve 3
- Library book availability & reserve & renew 4
- PC availability & reserve 4
- Timetables with error reporting 5
- Exam timetables 5
- Lecture recording feature 3
- Top events in Swansea 2
- Library account (books on loan etc.) 4
- Class chat (Like MS Teams) 3
- Update your contact details 3
- Latest UWTSD news feed 2
- Latest SU events & info 2
- University OneDrive access 5
- Finger print entry to app 4
- Local transport information 5
- Feedback/suggestion form 4

University App Questionnaire

Name: DAVINA

Age Group: 18 - 25 / 26 - 35 / 36 - 45 / 46 - 55 / 56+

1. Tell me about the course are you studying?

Events Management, 3 year course (In 3rd year)
chose course to improve job opportunities

2. Could you tell me about your typical university weekday look like?

lectures 3 days a week, use free time
to work on assignments

3. I'd love to know what the current apps or websites you use to help with university life? If any.

Use alot of newspaper websites for current updates
Government websites

4. Do you use the university website? If so, what for and why?

Moodle, 'MyDay' to access results, Online
library

5. Could you describe any pains/troubles when using this website?

Online library can be confusing for accessing
specific information, constant glitches with Moodle

6. If there was a university app, could you share with me some features that you would find useful on a university application?

Being able to book tutor slots with
lecturers or accessing their availability in advance.

More online access with library books

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- Academic calendar 5
- Faculty phone numbers and emails 4
- Important numbers (local hosp, estates, student services) 3
- Staff contact details 5
- Student contact details (directory) 2
- Course information 5
- Campus Maps (including your location) 3
- Application forms 5
- Moodle Integration 5
- Wireless Printing 3
- Live room availability information 3
- Student Email 5
- Car park availability 4
- Live lecture information 5
- Library card stored in the app 5
- Library room info & reserve 5
- Library book availability & reserve & renew 5
- PC availability & reserve 5
- Timetables with error reporting 5
- Exam timetables 5
- Lecture recording feature 5
- Top events in Swansea 3
- Library account (books on loan etc.) 5
- Class chat (Like MS Teams) 3
- Update your contact details 5
- Latest UWTSD news feed 3
- Latest SU events & info 3
- University OneDrive access 5
- Finger print entry to app 2
- Local transport information 2
- Feedback/suggestion form 5

University App Questionnaire

Name: AMY

Age Group: 18 – 25 / (26 – 35) / 36 – 45 / 46 – 55 / 56+

1. Tell me about the course are you studying?

BA SURFACE PATTERN DESIGN (FASHION).

2. Could you tell me about your typical university weekday look like?

TRAVELLING BACK + FORTH CARDIFFEN FROM
SWANSEA IS ANNOYING FOR 4 LECTURES.

3. I'd love to know what the current apps or websites you use to help with university life? If any.

MOODLE ~~FOR~~
ONE DRIVE

4. Do you use the university website? If so, what for and why?

LIBRARY / CONTACT DETAILS

5. Could you describe any pains/troubles when using this website?

THINGS ARE TOO HARD TO FIND, ESPECIALLY
LIBRARY.

6. If there was a university app, could you share with me some features that you would find useful on a university application?

TIMETABLES WITH NOTIFICATIONS / REMINDERS
LECTURE INFORMATION

7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

- Academic calendar 3
- Faculty phone numbers and emails 4
- Important numbers (local hosp, estates, student services) 3
- Staff contact details 5
- Student contact details (directory) 4
- Course information 2
- Campus Maps (including your location) 4
- Application forms 4
- Moodle Integration 5
- Wireless Printing 4
- Live room availability information 5
- Student Email 5
- Car park availability 5 - SMALL CAR PARK IN CARMARTHEN -
- Live lecture information 5
- Library card stored in the app 5
- Library room info & reserve 4
- Library book availability & reserve & renew 5
- PC availability & reserve 2
- Timetables with error reporting 5
- Exam timetables 4
- Lecture recording feature 5
- Top events in Swansea 1
- ~~Library account (books on loan etc.)~~ 5
- Class chat (Like MS Teams) 5
- Update your contact details 5
- Latest UWTSD news feed 1
- Latest SU events & info 1
- University OneDrive access 4
- Finger print entry to app 1
- Local transport information 1
- Feedback/suggestion form 4

University App Questionnaire

Name: DAVID

Age Group: 18 – 25 / 26 – 35 / 36 – 45 / 46 – 55 / 56+

1. Tell me about the course are you studying?

MECHANICAL ENG. 5TH YEAR (PART-TIME).

2. Could you tell me about your typical university weekday look like?

1 DAY A WEEK ALL DAY, WORK FOUR DAYS.

3. I'd love to know what the current apps or websites you use to help with university life? If any.

MOODLE.

4. Do you use the university website? If so, what for and why?

NO

5. Could you describe any pains/troubles when using this website?

N/A

6. If there was a university app, could you share with me some features that you would find useful on a university application?

LECTURE CANCELLATIONS

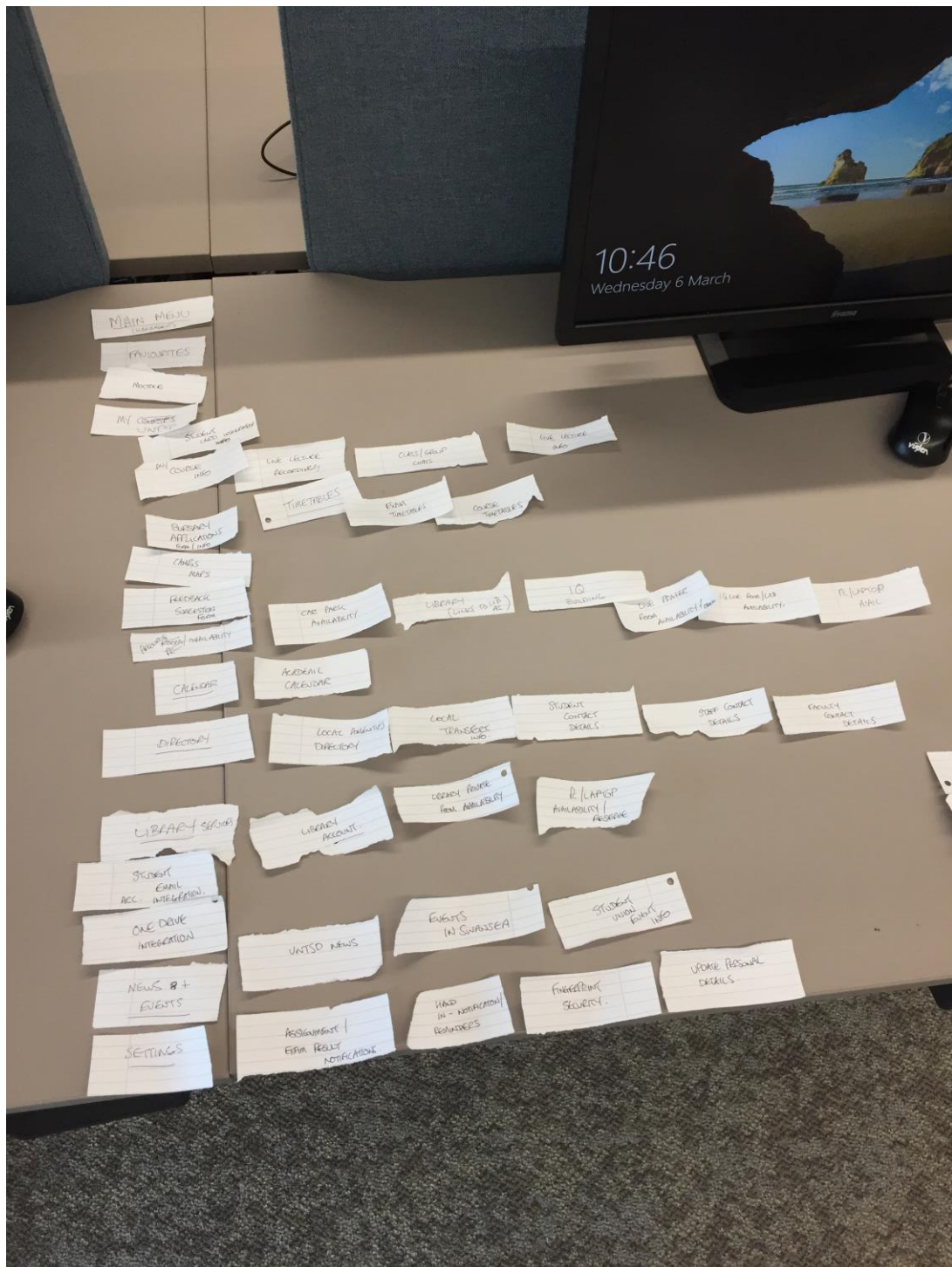
TIME TABLES.

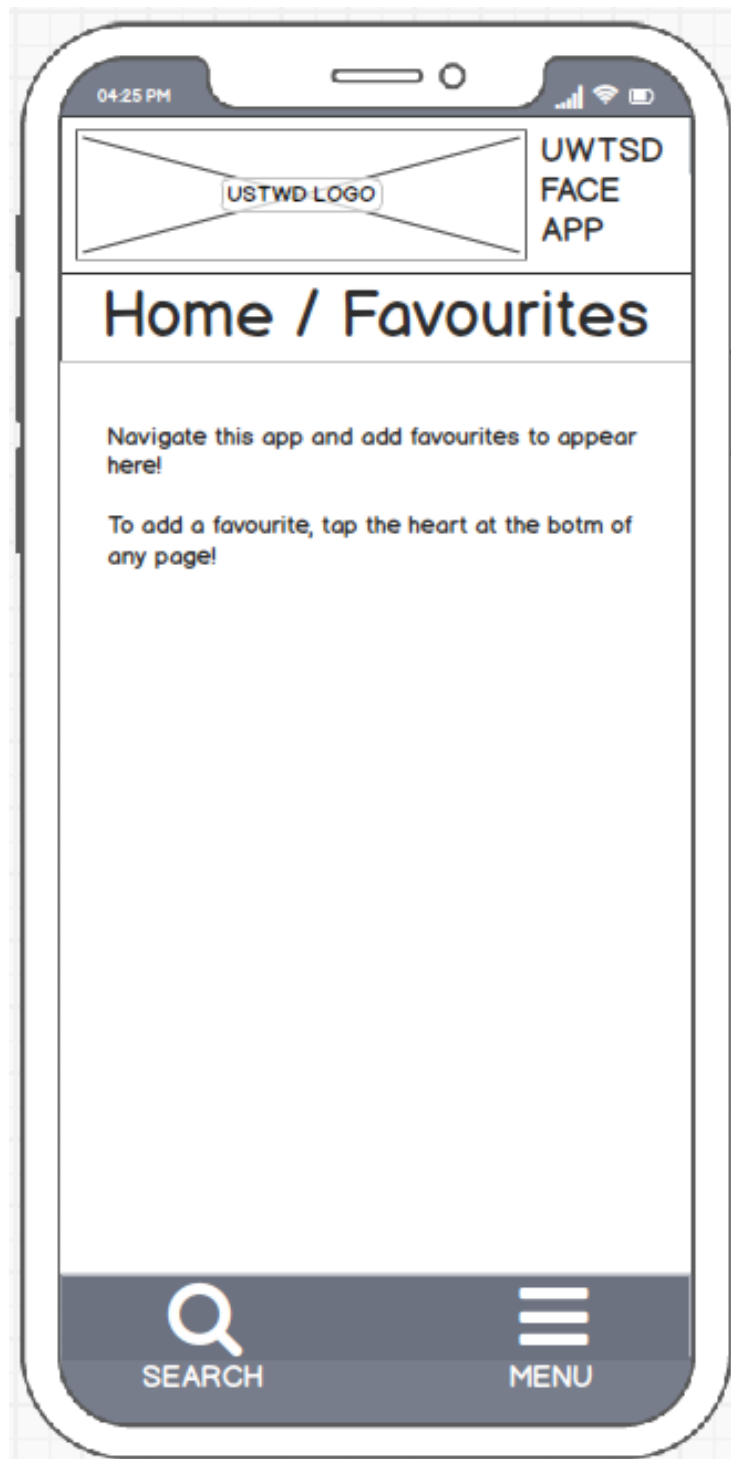
CONTACT INFO.

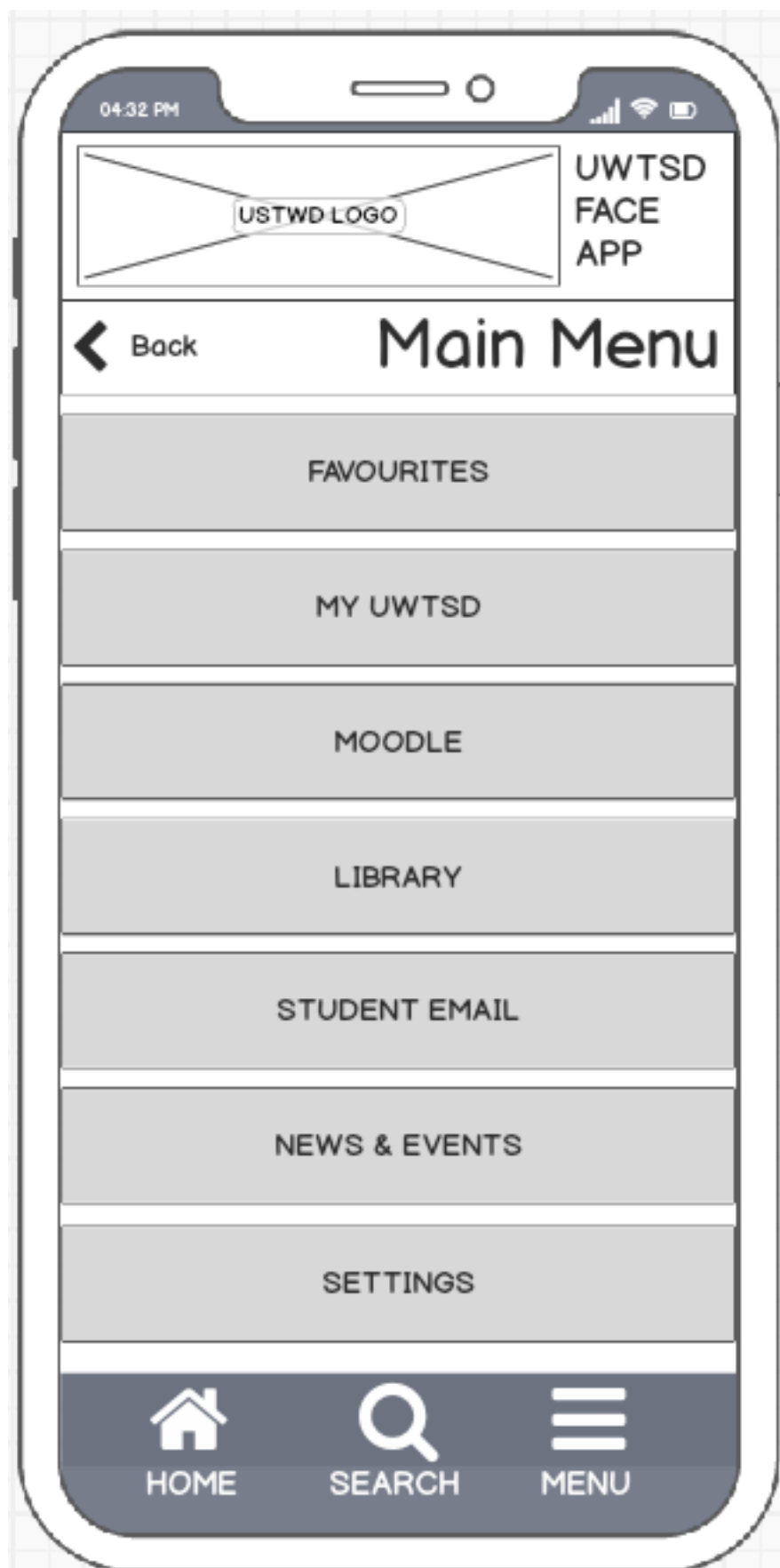
7. On a scale on 1 – 5, how do you rate, in terms of usefulness to you, the following features:

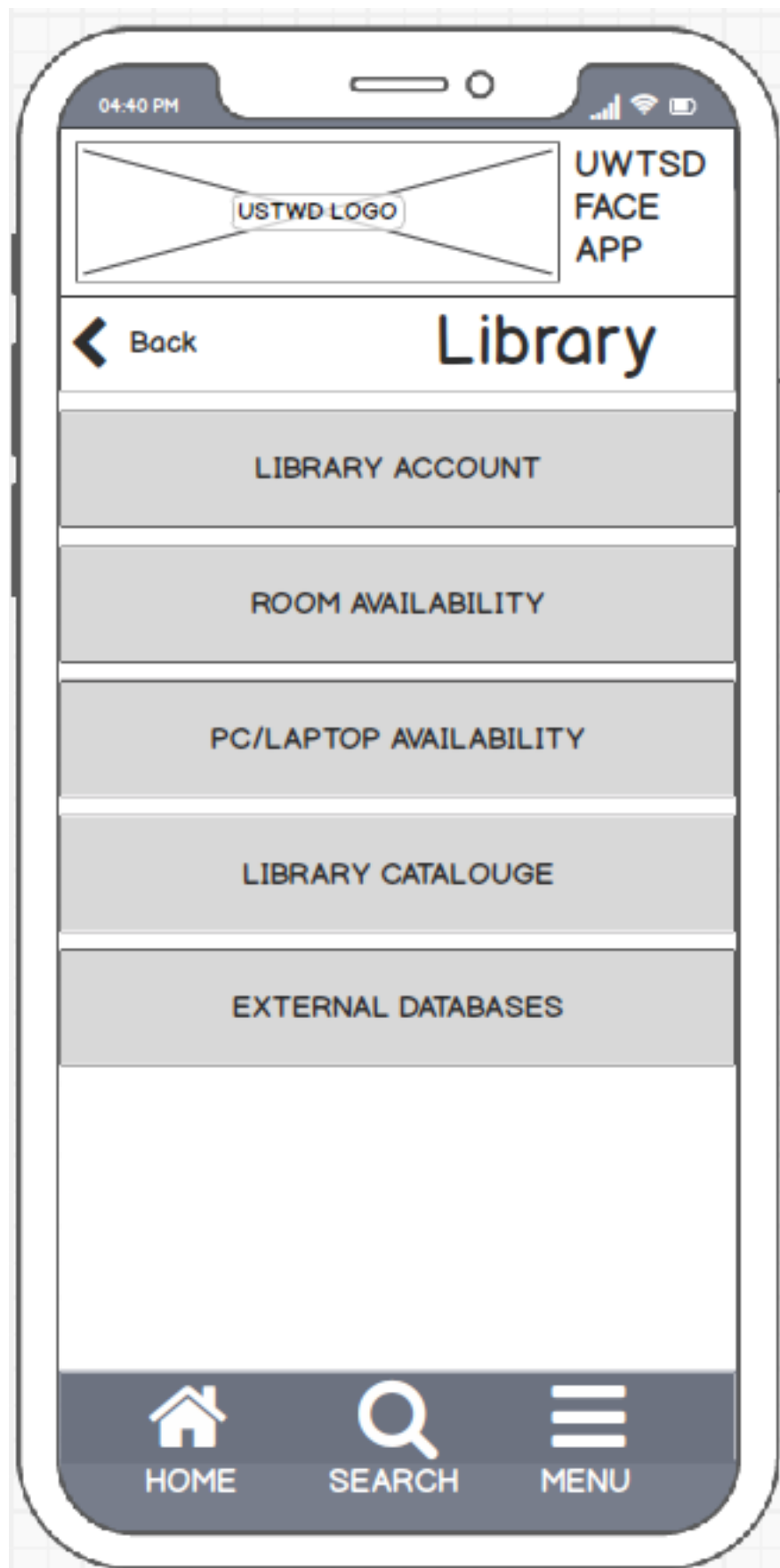
- | | |
|---|--|
| • Academic calendar 5 | • Lecture recording feature 5 |
| • Faculty phone numbers and emails 5 | • Top events in Swansea 1 |
| • Important numbers (local hosp, estates, student services) 1 | • ~~Library account (books on loan etc.)~~ 5 <i>Report Q.</i> |
| • Staff contact details 5 | • Class chat (Like MS Teams) 4 |
| • Student contact details (directory) 1 | • Update your contact details 4 |
| • Course information 1 | • Latest UWTSD news feed 1 |
| • Campus Maps (including your location) 3 | • Latest SU events & info 1 |
| • Application forms 1 | • University OneDrive access 4 |
| • Moodle Integration 5 | • Finger print entry to app 1 |
| • Wireless Printing 3 | • Local transport information 1 |
| • Live room availability information 1 | • Feedback/suggestion form 4 |
| • Student Email 1 | |
| • Car park availability 1 | |
| • Live lecture information 5 | |
| • Library card stored in the app 5 | |
| • Library room info & reserve 4 | |
| • Library book availability & reserve & renew 5 | |
| • PC availability & reserve 1 | |
| • Timetables with error reporting 5 | |
| • Exam timetables 5 | |

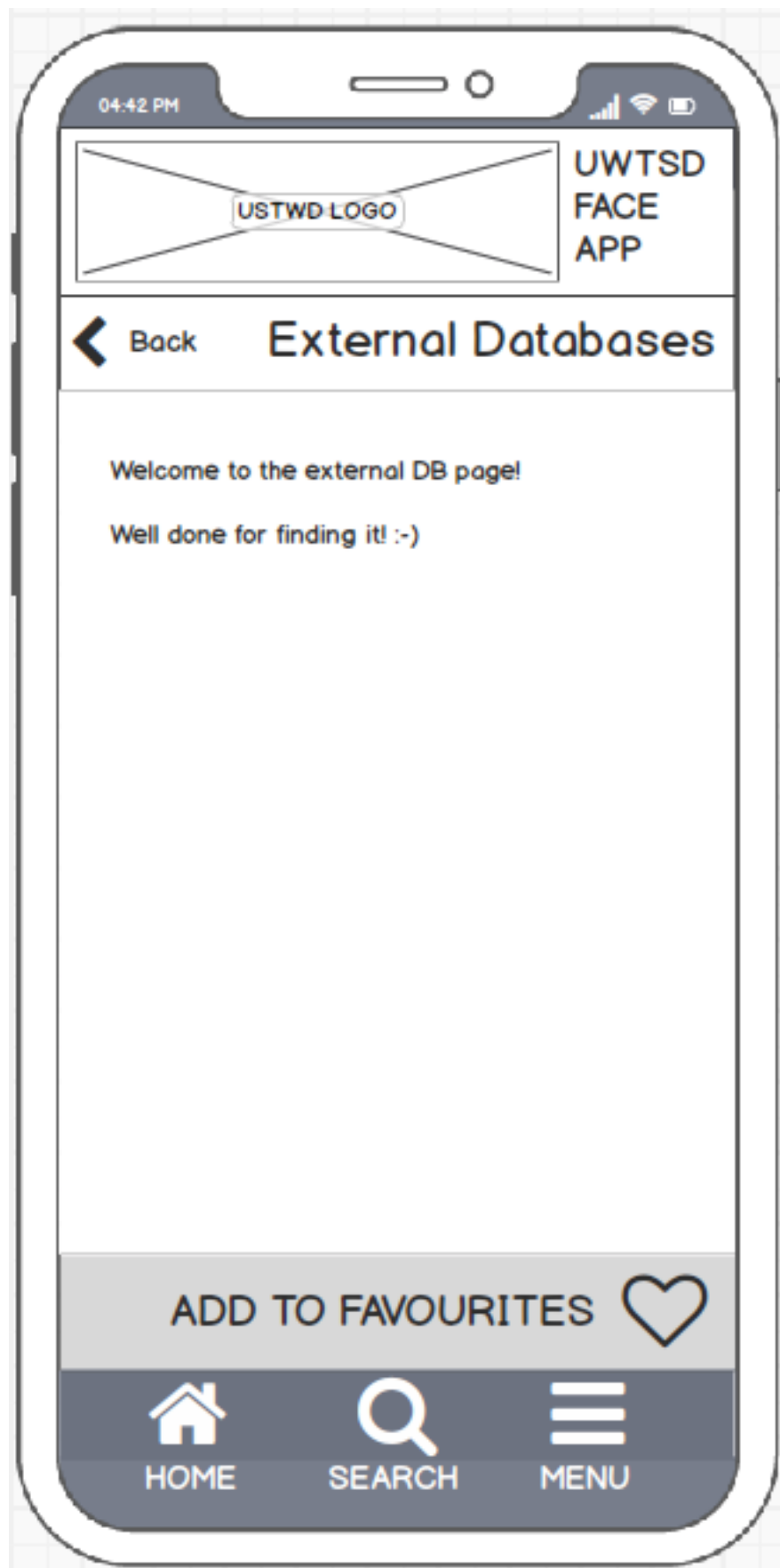
12. Appendix B

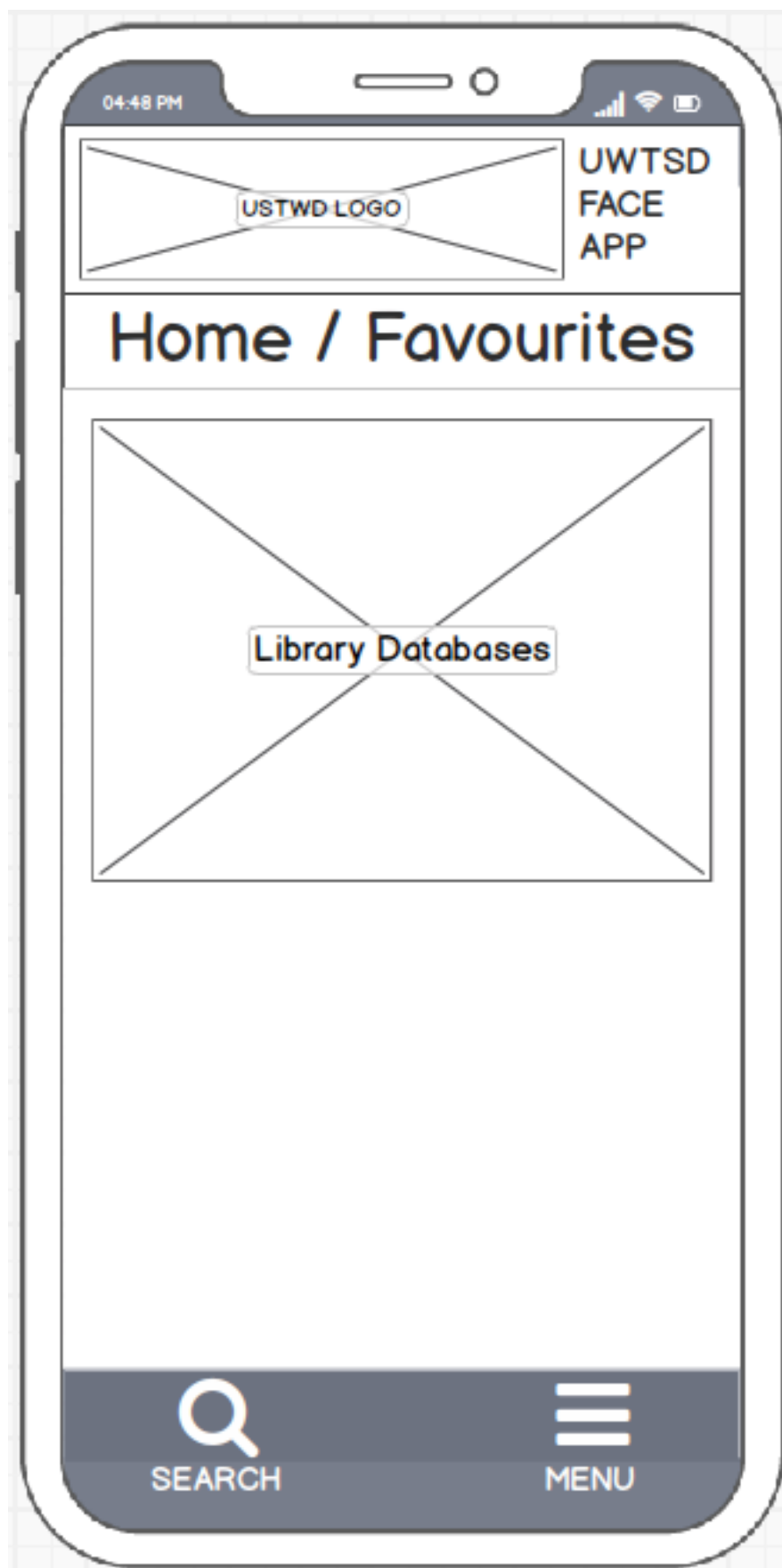


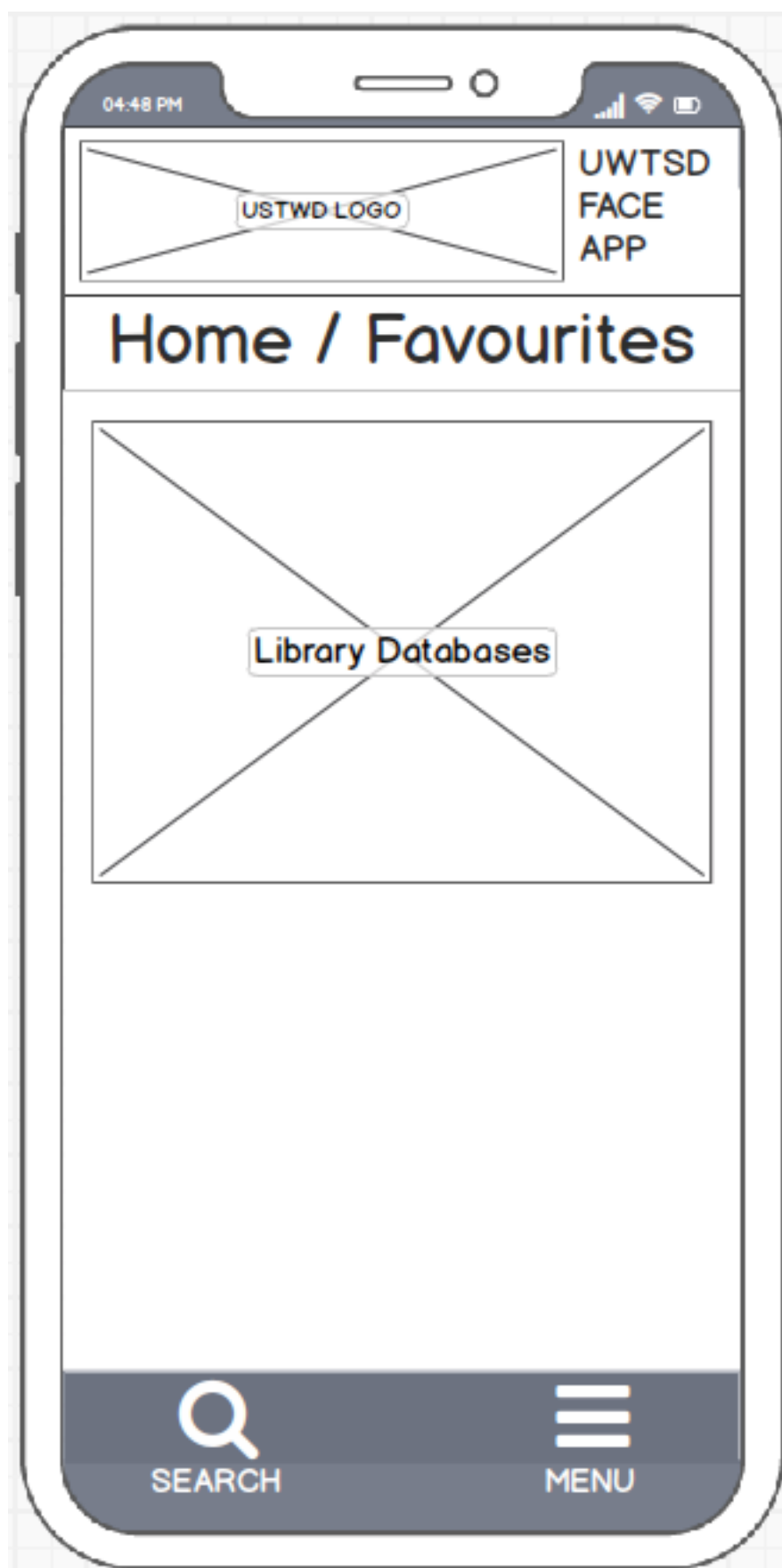




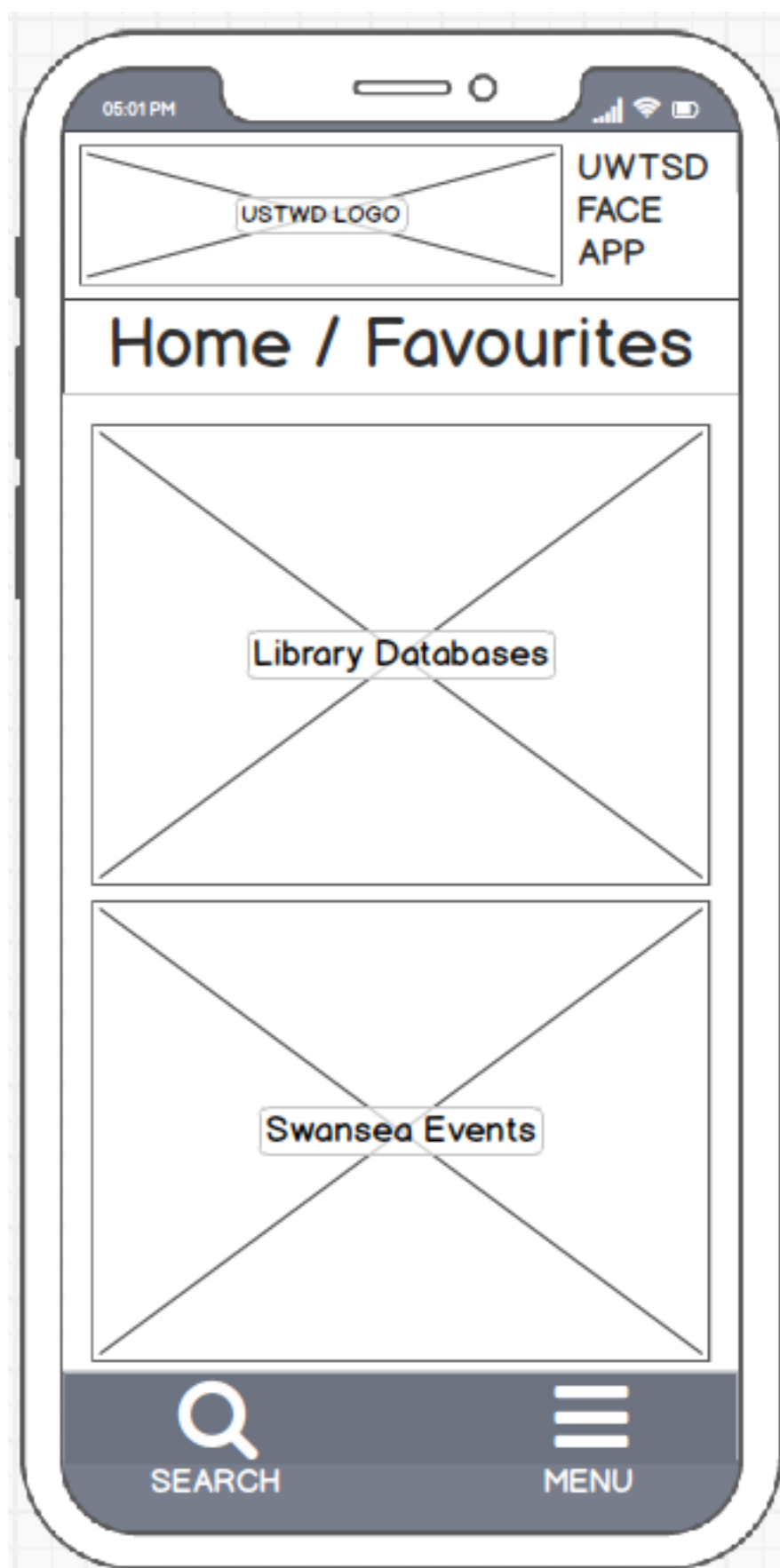


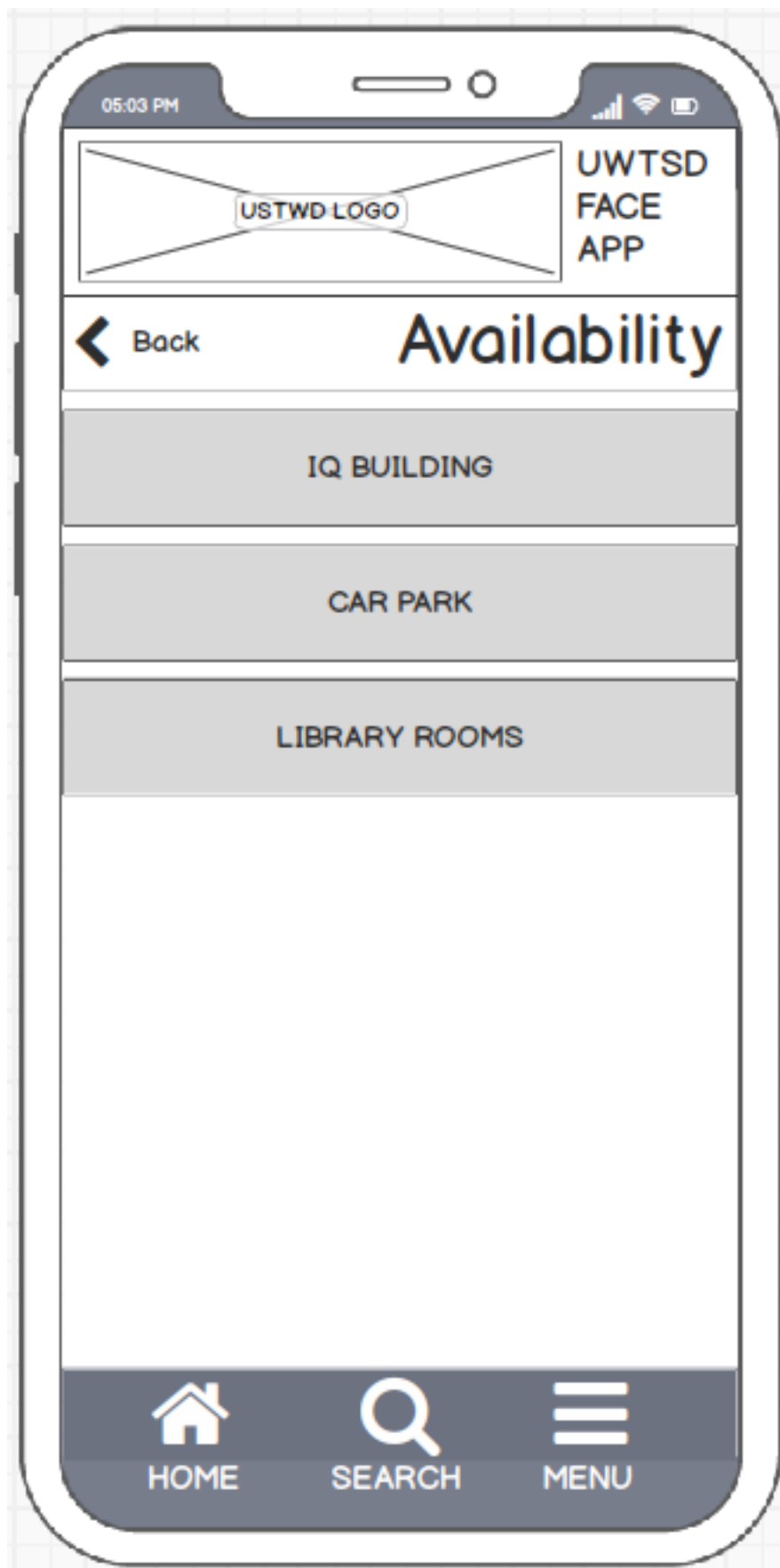


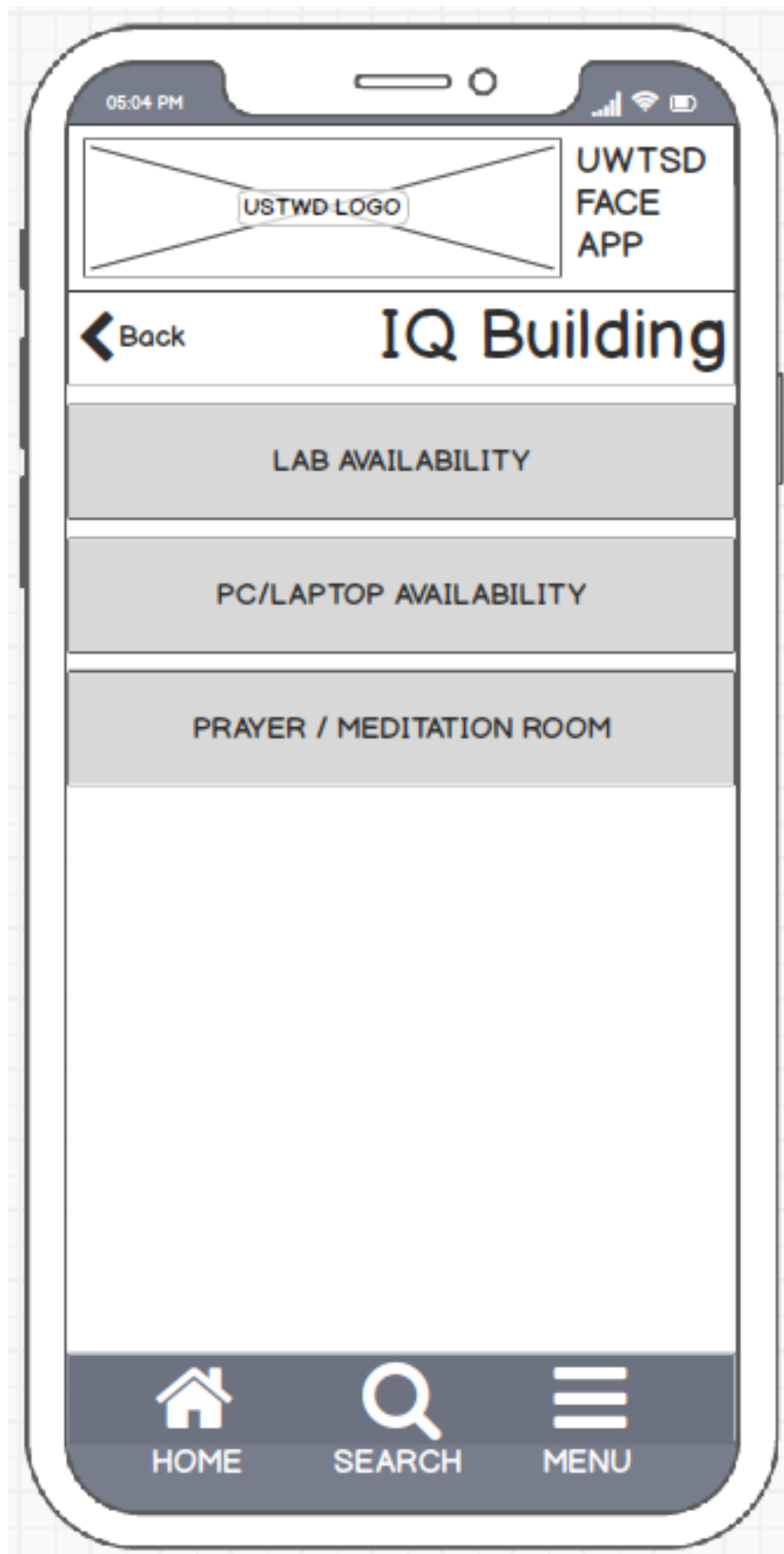












05:06 PM



USTWD LOGO

UWTSD
FACE
APP



Back

Prayer / Meditation Room

Welcome to the prayer/meditation room
availability page!

Well done for finding it! :-)

ADD TO FAVOURITES



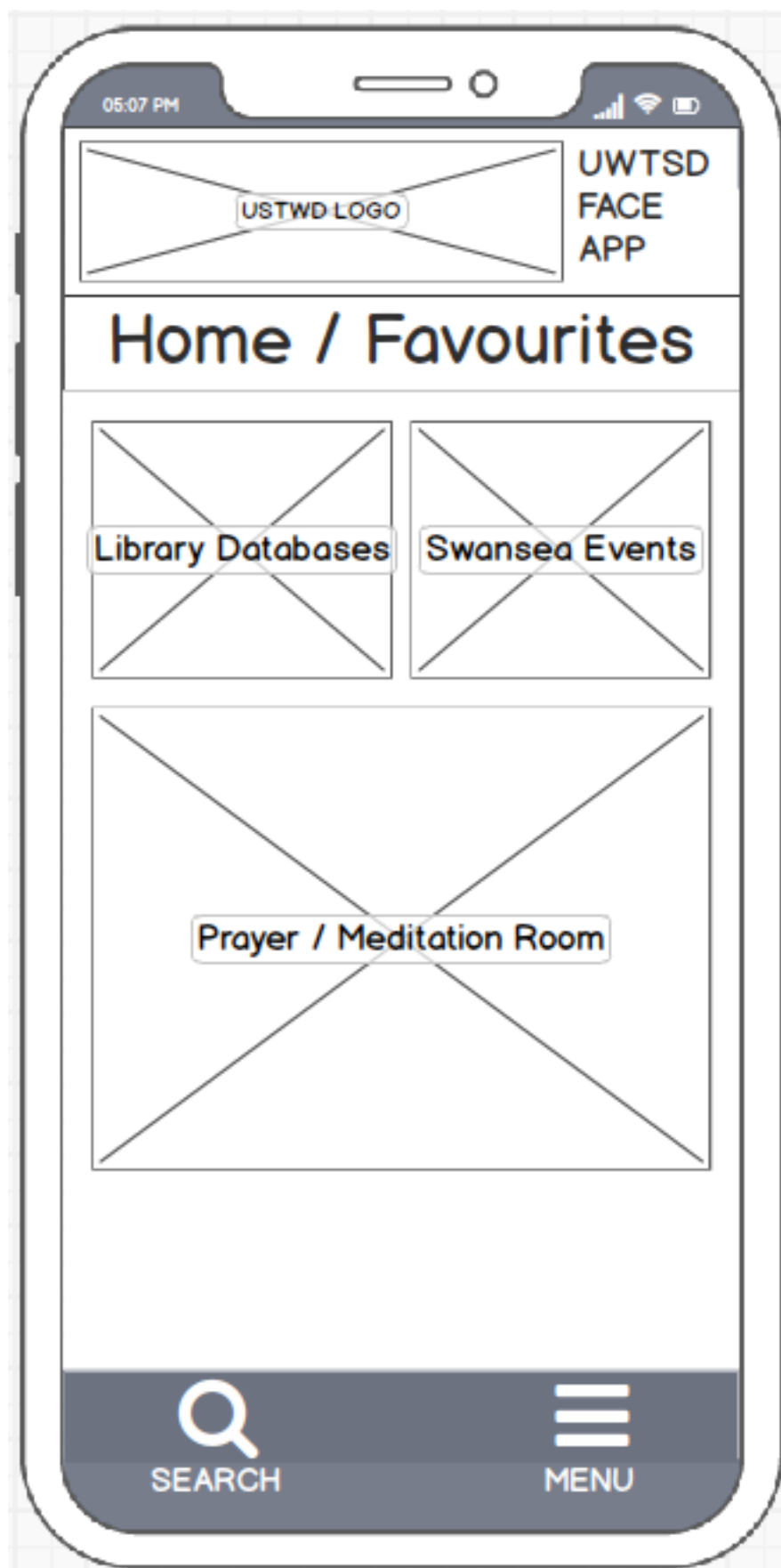
HOME

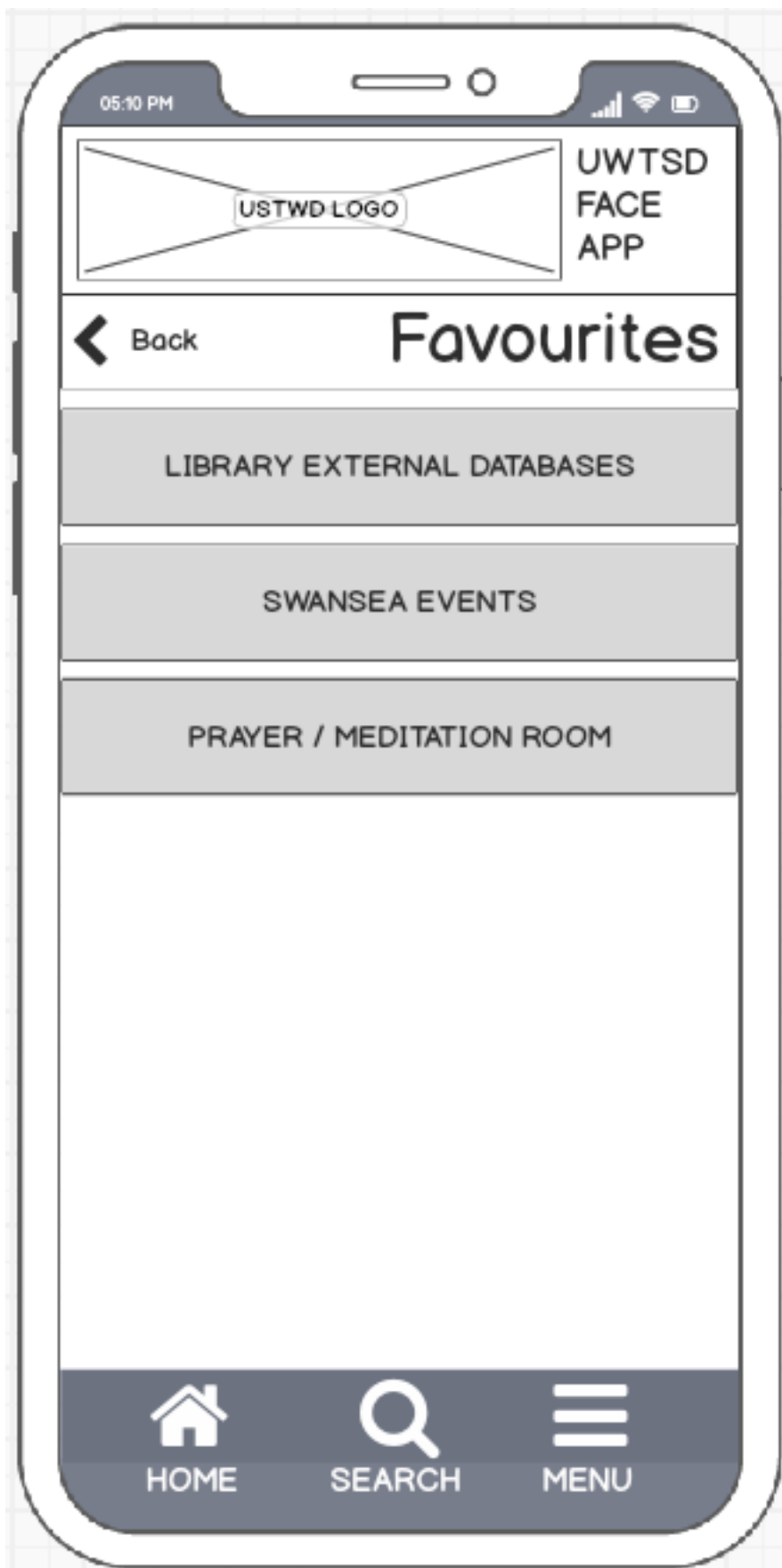


SEARCH



MENU





14. Appendix D

Prototyping User Test

2. Pre-test Interview

Before we start using the paper prototype of the application/website, I'd just like to ask you some simple background questions, if that's okay?

Personal questions HENRY CORBOLD / MATCHES OWNERS PERSONA

Occupation: STUDENT

Where do you live?
SWANSEA

What age bracket are you in?
☒ 18-25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 55+

What course are you studying?
APPLIED COMPUTING

Do you own a smartphone?
YES.

Do you use apps on your tablet or smartphone?
YES.

What sort of apps do you use? MANY.
SOCIAL MEDIA,
NEWS,
WEATHER.
GAMES.

Peter Davies 2019

System Usage

Please tell me about any apps you have used to help with university?

ONEDRIVE
MENDLEY APP
OUTLOOK

Is there an app you prefer? Why?

ONEDRIVE - EASY TO USE / SIMPLE.

Describe the last time you used an app for university?

ACCESSING FILES ON ONE DRIVE.

What was the scenario?

VIEWING A PP PRESENTATION ON THE BUS
IN, LOOKING UP NIK'S ASSIGNMENT STUFF. 1ST YEAR.

What was most important when you used an app?

e.g. Speed of finding information, trustworthiness?

SPEED. EASY TO USE. SECURITY.

MICROSOFT - TRUSTWORTHY.

3. User Testing Session

- Paper prototype should be open to home page of the system.

Do you have any questions so far?

NO.

- Read each task aloud to participant
- Allow the user to proceed until you don't feel like it's producing any value, or the user becomes very frustrated.
- Repeat for each task or until time runs out.

RESEARCH OBJECTIVES

- Observe how user go through the locating of features process.
- Can user navigate the menus correctly?
- Is the wording clear?
- Is the design familiar at all?

THE TASKS

1. Could you please tell me how you would open the menu?

NO, PROBLEM, FOUND INSTANTLY.

Does it look familiar?

YES - LOGO DOES + LAYOUT.

SHOW MAIN MENU

2. Look at the menu. How do you feel about it?

IT'S CLEAR, SHOWS USEFUL THINGS.

LOOKS LIKE SOMETHING HE WOULD USE.

3. Could you try and navigate to 'My UWTSD Profile' by clicking on the link you feel may contain it.

FOUND IT - MY UWTSD.

MY UWTSD A GOOD NAME - MAYBE WHOLE SEP
MENU FOR PROFILE?
END

SHOW HOME SCREEN AGAIN - ASK TO BRING UP MENU.
SHOW MENU.

4. Could you try and navigate to a section in this app where you can find external library resources, such as journals, etc.

FOUND LIBRARY STRAIGHT AWAY.

~~For~~

SHOW LIBRARY MENU AFTER CLICKING ON LIBRARY

FOUND EXTERNAL D'B INSTANTLY.

5. What do you think of the labelling (wording) of the buttons? Do you have any better ideas?

HENRY HAS BEEN TO WEBSITE BEFORE SO KNOWS
THE 'EXTERNAL DB' LINK. HE HAD NO OTHER
SUGGESTIONS..

SHOW EXTERNAL DB's PAGE

6. Could you now add this page to your favourites?

NO. PROBLEM - FOUND INSTANTLY.

7. Could you now navigate back to the home page?

USED 'HOME' BUTTON INSTANTLY.

SHOW HOME PAGE

****END****

8. Can you now navigate to a section in the app which tells you about events in Swansea?

* FOUND MENU AGAIN, THEN NEWS + EVENTS
INSTANTLY.

+ FOUND SWANSEA EVENTS INSTANTLY.

SHOW MAIN MENU / SHOW NEWS & EVENTS MENU

SHOW SWANSEA EVENTS PAGE

9. Again, what did you think of the labelling (wording) of the buttons? Do you have any better ideas?

UNION EVENTS SHOULD MATCH UWTSB BRANDING
SO 'MYTSD UNION' EVENTS'

10. Could you again add this page to your favourites and navigate back home, please?

NO, PROBS. CHOSE PATH INSTANTLY.

SHOW HOME PAGE WITH TWO TILES

11. What do you think of the tiles used to store your fav links here?

GOOD, CLEAR, EASY, OBVIOUS,
SELF-EXPLANATORY.

****END****

12. Could you now find a section in this app which tells you of the IQ buildings prayer room availability?

FOUND IT ~~INSTANTLY~~ - OK BUT QUESTIONED
FIRST MENU - WHICH ~~HAVE~~ TAB/BUTTON 'AVAILABILITY'
WOULD BE UNDER.

**SHOW MAIN MENU / SHOW AVAILABILITY MENU / SHOW IQ MENU
- SHOW PRAYER ROOM PAGE.**

13. Again, what did you think of the labelling (wording) of the buttons? Do you have any better ideas?

AS ABOVE.

14. Could you again add this page to your favourites and navigate back home, please?

NO PROBS.

15. What do you think of the tiles used to store your fav links here, now the layout has changed slightly?

THINKS BIG ONE SHOULD BE SAME SIZE, AS SMALL.

LOOKS LIKE MOODLE TILES.

Thank you for completing those tests, your help will prove invaluable!

2. Pre-test Interview

Before we start using the paper prototype of the application/website, I'd just like to ask you some simple background questions, if that's okay?

Personal questions DANIELLE ALDRIDGE.

Occupation: RETAIL MANAGER / FULL-TIME STUDENT.

Where do you live?

SWANSEA

What age bracket are you in?

18-25 26-35 (36-45) 46-55 55+

What course are you studying?

COUNSELLING.
HUMANISTIC COUNSELLING.

Do you own a smartphone?

YES.

Do you use apps on your tablet or smartphone?

YES.

What sort of apps do you use?

SOCIAL MEDIA

LIFESTYLE (FITNESS / DIET / COOKING / SHOPPING).

System Usage

Please tell me about any apps you have used to help with university?

MY DAY, UNIDAYS, TOTOM, STUDENT BEANS
OUTLOOK.

Is there an app you prefer? Why?

MYDAY - EVERYTHING YOU NEED IS ON IT.

Describe the last time you used an app for university?

MYDAY FOR MOODLE.

What was the scenario?

WANTED TO CHECK WHEN NEXT ASSIGNMENT
WAS DUE.

What was most important when you used an app?

e.g. Speed of finding information, trustworthiness?

NOT USING BROWSER IS QUICKER.
LIKE HAVING INSTANT BOOKMARKS.

3. User Testing Session

- Paper prototype should be open to home page of the system.

Do you have any questions so far?

NO.

- Read each task aloud to participant
- Allow the user to proceed until you don't feel like it's producing any value, or the user becomes very frustrated.
- Repeat for each task or until time runs out.

RESEARCH OBJECTIVES

- Observe how user go through the locating of features process.
- Can user navigate the menus correctly?
- Is the wording clear?
- Is the design familiar at all?

System Usage

Please tell me about any apps you have used to help with university?

MY DAY, UNIDAYS, TOTOM, STUDENT BEANS
OUTLOOK.

Is there an app you prefer? Why?

MYDAY - EVERYTHING YOU NEED IS ON IT.

Describe the last time you used an app for university?

MYDAY FOR MOODLE.

What was the scenario?

WANTED TO CHECK WHEN NEXT ASSIGNMENT
WAS DUE.

What was most important when you used an app?

e.g. Speed of finding information, trustworthiness?

NOT USING BROWSER IS QUICKER.
LIKE HAVING INSTANT BOOKMARKS.

THE TASKS

1. Could you please tell me how you would open the menu?

FOUND INSTANTLY.

Does it look familiar?

NO, IT DOESN'T.

SHOW MAIN MENU

2. Look at the menu. How do you feel about it?

IT'S BASIC (NOT BAD THING).

EVERYTHING APP HAS TO OFFER IN ONE PLACE.

3. Could you try and navigate to 'My UWTSD Profile' by clicking on the link you feel may contain it.

FOUND CORRECT LINK INSTANTLY.

****END****

**SHOW HOME SCREEN AGAIN – ASK TO BRING UP MENU.
SHOW MENU.**

4. Could you try and navigate to a section in this app where you can find external library resources, such as journals, etc.

- LIBRARY BUTTON FOUND INSTANTLY

- FOUND EXTERNAL D.B'S

- COMMENTED HOW MUCH EASIER IT WAS THAN WEBSITE.

SHOW LIBRARY MENU AFTER CLICKING ON LIBRARY

5. What do you think of the labelling (wording) of the buttons? Do you have any better ideas?

~~ABA~~ STUDENT, SO SHE HAS SEEN DB'S ON WEBSITE ALREADY, DOESN'T SEE WHY EXTERNAL DB'S IS A BAD NAME. MAYBE DROP 'EXTERNAL'

SHOW EXTERNAL DB's PAGE

6. Could you now add this page to your favourites?

NO PROBLEM - FOUND INSTANTLY.

7. Could you now navigate back to the home page?

USED HOME BUTTON..

SHOW HOME PAGE

****END****

8. Can you now navigate to a section in the app which tells you about events in Swansea?

~~FOUND IT~~
USED MENU - FOUND NEWS + EVENTS IN SWANS. SAID SHE WOULD OF USED SEARCH IF POSS.

SHOW MAIN MENU / SHOW NEWS & EVENTS MENU

SHOW SWANSEA EVENTS PAGE

9. Again, what did you think of the labelling (wording) of the buttons? Do you have any better ideas?

SIMPLE, CLEAR, CONCISE.

NOT MISLEADING - LIKE THE WEBSITE.

10. Could you again add this page to your favourites and navigate back home, please?

NO PROBS.

SHOW HOME PAGE WITH TWO TILES

11. What do you think of the tiles used to store your fav links here?

TAKE UP ALOT OF SPACE.

NOT FAMILIAR.

****END****

12. Could you now find a section in this app which tells you of the IQ buildings prayer room availability?

STROGGLED WITH LABELLING - DIDN'T KNOW WHERE TO GO. WOULD OF USED SEARCH.
WENT TO 'MY UNITS' THROUGH PROCESS OF ELIMINATION.
WOULDN'T HAVE THOUGHT ~~IT~~ ^{IT} WOULD BE UNDER THAT MENU.

SHOW MAIN MENU / SHOW AVAILABILITY MENU / SHOW IQ MENU SHOW PRAYER ROOM PAGE.

FOUND AVAILABILITY STRAIGHT AWAY.

13. Again, what did you think of the labelling (wording) of the buttons? Do you have any better ideas?

AVAILABILITY A BIT 'OBSCURE' AVAL OF WHAT??

MADE SENSE AFTER SHE CLICKED ~~AVAIL~~ ^{AVAIL}.

14. Could you again add this page to your favourites and navigate back home, please?

→ FOUND FINAL PAGE STRAIGHT AWAY.

15. What do you think of the tiles used to store your fav links here, now the layout has changed slightly?

BETTER.

LITTLE BUTTONS MAYBE BETTER BUT NOTHING WRONG.

BUTS HER THAT NOT ALL TILES ARE SAME SIZE
BIG PICTURES WOULD BE AWKWARD IF SHE

Thank you for completing those tests, your help will prove invaluable!
DIDN'T LIKE THEM.

2. Pre-test Interview

Before we start using the paper prototype of the application/website, I'd just like to ask you some simple background questions, if that's okay?

Personal questions

OWEN JAMES

Occupation:

FULL-TIME
STUDENT / CHEF / GARDENER.

Where do you live?

SWANSEA

What age bracket are you in?

18-25 26-35 36-45 46-55 55+

What course are you studying?

ENVIRONMENTAL CONSERVATION.

Do you own a smartphone?

YES

Do you use apps on your tablet or smartphone?

YES.

What sort of apps do you use?

SPOTIFY

BBC NEWS.

WHAT'S APP.

System Usage

Please tell me about any apps you have used to help with university?

MY DAY

Is there an app you prefer? Why?

N/A

Describe the last time you used an app for university?

TO CHECK MODULE

What was the scenario?

TIMETABLE CHECK

What was most important when you used an app?

e.g. Speed of finding information, trustworthiness?

SPEED OF GETTING INFO.

PAGE LAYOUT &

GETS ANNOYED WITH LIBRARY WEBSITE.

3. User Testing Session

- Paper prototype should be open to home page of the system.

Do you have any questions so far?

NO.

- Read each task aloud to participant
- Allow the user to proceed until you don't feel like it's producing any value, or the user becomes very frustrated.
- Repeat for each task or until time runs out.

RESEARCH OBJECTIVES

- Observe how user go through the locating of features process.
- Can user navigate the menus correctly?
- Is the wording clear?
- Is the design familiar at all?

System Usage

Please tell me about any apps you have used to help with university?

MY DAY

Is there an app you prefer? Why?

N/A

Describe the last time you used an app for university?

TO CHECK MODULE

What was the scenario?

TIMETABLE CHECK

What was most important when you used an app?

e.g. Speed of finding information, trustworthiness?

SPEED OF GETTING INFO.

PAGE LAYOUT &

GETS ANNOTATED WITH LIBRARY WEBSITE.

2. Pre-test Interview

Before we start using the paper prototype of the application/website, I'd just like to ask you some simple background questions, if that's okay?

Personal questions OWEN JAMES

Occupation: FULL-TIME STUDENT / CHEF / GARDENER.

Where do you live?

SWANSEA

What age bracket are you in?

18-25 26-35 36-45 46-55 55+

What course are you studying?

ENVIRONMENTAL CONSERVATION.

Do you own a smartphone?

YES

Do you use apps on your tablet or smartphone?

YES.

What sort of apps do you use?

SPOTIFY

BBC NEWS.

WHAT'S APP.

THE TASKS

1. Could you please tell me how you would open the menu?

FOUND INSTANTLY.

Does it look familiar?

YES - LOOKS LIKE AN APP.

SHOW MAIN MENU

2. Look at the menu. How do you feel about it?

SEEMS TO HAVE ALL KEY THINGS, EVERYTHING
YOU WOULD WANT.

3. Could you try and navigate to 'My UWTSD Profile' by clicking on the link you feel may contain it.

FOUND INSTANTLY - WENT FOR 'MY UWTSD'

****END****

SHOW HOME SCREEN AGAIN - ASK TO BRING UP MENU.

SHOW MENU.

4. Could you try and navigate to a section in this app where you can find external library resources, such as journals, etc.

FOUND. LIBRARY BUT WOULD OF CHOSEN
LIB CATALOGUE OVER 'EXTERNAL DB'S'
AS IT IS ~~WAS~~ A ^{CATALOGUE OF THE LIBRARY.} LIBRARY

SHOW LIBRARY MENU AFTER CLICKING ON LIBRARY

5. What do you think of the labelling (wording) of the buttons? Do you have any better ideas?

OUT OF LIBRARY JOURNALS.
OPEN ACCESS JOURNALS.

SHOW EXTERNAL DB's PAGE

6. Could you now add this page to your favourites?

YES - N.P.

7. Could you now navigate back to the home page?

YES - USED 'HOME' BUTTON.

SHOW HOME PAGE

****END****

8. Can you now navigate to a section in the app which tells you about events in Swansea?

YES - N.P. FOUND.

SHOW MAIN MENU / SHOW NEWS & EVENTS MENU
SHOW SWANSEA EVENTS PAGE

9. Again, what did you think of the labelling (wording) of the buttons? Do you have any better ideas?

SPOT ON, ALL CLEAR, NO FAULTS.

10. Could you again add this page to your favourites and navigate back home, please?

YES - N.P.

SHOW HOME PAGE WITH TWO TILES

11. What do you think of the tiles used to store your fav links here?

~~WOULD BE~~

IF YOU ADDED MORE, WOULD IT SCROLL OR WOULD TILES GET SMALLER?

****END**** LOOKS LIKE BBC NEWS TILES + MY DAY TILES.

12. Could you now find a section in this app which tells you of the IQ buildings prayer room availability?

P ~~CH~~ CHOSE MY WTS D BUT REALLY HAD TO THINK ABOUT IT - TOOK 5-6 SECS.

- CHOSE CAMPUS MAPS. BUT DID'NT HEAR Q PROP, CHOSE AVAIL ON 2ND CO.

**SHOW MAIN MENU / SHOW AVAILABILITY MENU / SHOW IQ MENU
SHOW PRAYER ROOM PAGE.**

FOUND WITH N.P.'S AFTER FIRST MENU.

13. Again, what did you think of the labelling (wording) of the buttons? Do you have any better ideas?

PROBABLY BRING AVAILABILITY LINKS TO TOP LEVEL MENU. (HAVE ONE OF ITS OWN).

CAMPUS MAPS + AVAILABILITY SHOULD'NT BE IN MY WTS D.

14. Could you again add this page to your favourites and navigate back home, please?

YES - N.P.

15. What do you think of the tiles used to store your fav links here, now the layout has changed slightly?

GOOD - SAW LINKS CLEARLY.

WOULD PREFER ALL SMALL TO AVOID SCROLLING.

Thank you for completing those tests, your help will prove invaluable!

