

An App for WISA Student

Version II

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1. Introduction

This assignment is based on Assignment I to improve and further refine the design based on the problems and deficiencies raised and found, the storyboard function in Assignment I is not considered enough, the design is not comprehensive enough, the user feedback on the app wireframe is lacking, the horizontal comparison with other apps lacks objectivity, etc. Assignment II will try its best to realize the main functions related to user needs, such as Moodle, Email, etc., and further specify the design, so as to reconsider the construction of the information framework and design the storyboard with more emphasis on logic and interactivity, in which the user should read the relevant books and literature to design in an orderly manner, and after the completion of Version I design, the feedback collection form will be carefully designed to obtain effective opinions and suggestions from the user as much as possible, and the design and improvement of Version II ^[1].

2. Information Architecture

Having learned the lessons of Assignment I, the Information Architecture design will consider and cover the main functions more comprehensively and specify the main functions, while reordering the hierarchy of functions and designing four first-level sub-categories, which are then subdivided into functions in turn^[2].

Through extensive review of mobile apps and school web pages, we have come up with a preliminary idea of the functions to be implemented and covered by App Version I.

- ①Login and find your password;
- ②Timetable / calendar / Moodle / email / ...;
- ③Map & Location / Catering / News & Events / Student Union / Campus Parking / ...;
- ④Library / Task;
- ⑤Log out.

3. Wireframe Storyboards

This time the information architecture is more comprehensive, showcasing a more complete app interface and function pages. Therefore, based on the information architecture, the subsequent wireframe design and full colour design storyboards. This section will show the initial version of the full colour storyboards one by one.

The following is the Wireframe Storyboards design based on the Information Architecture.

When we click on "Forgot password?", the page will be redirected to the Find Password page.

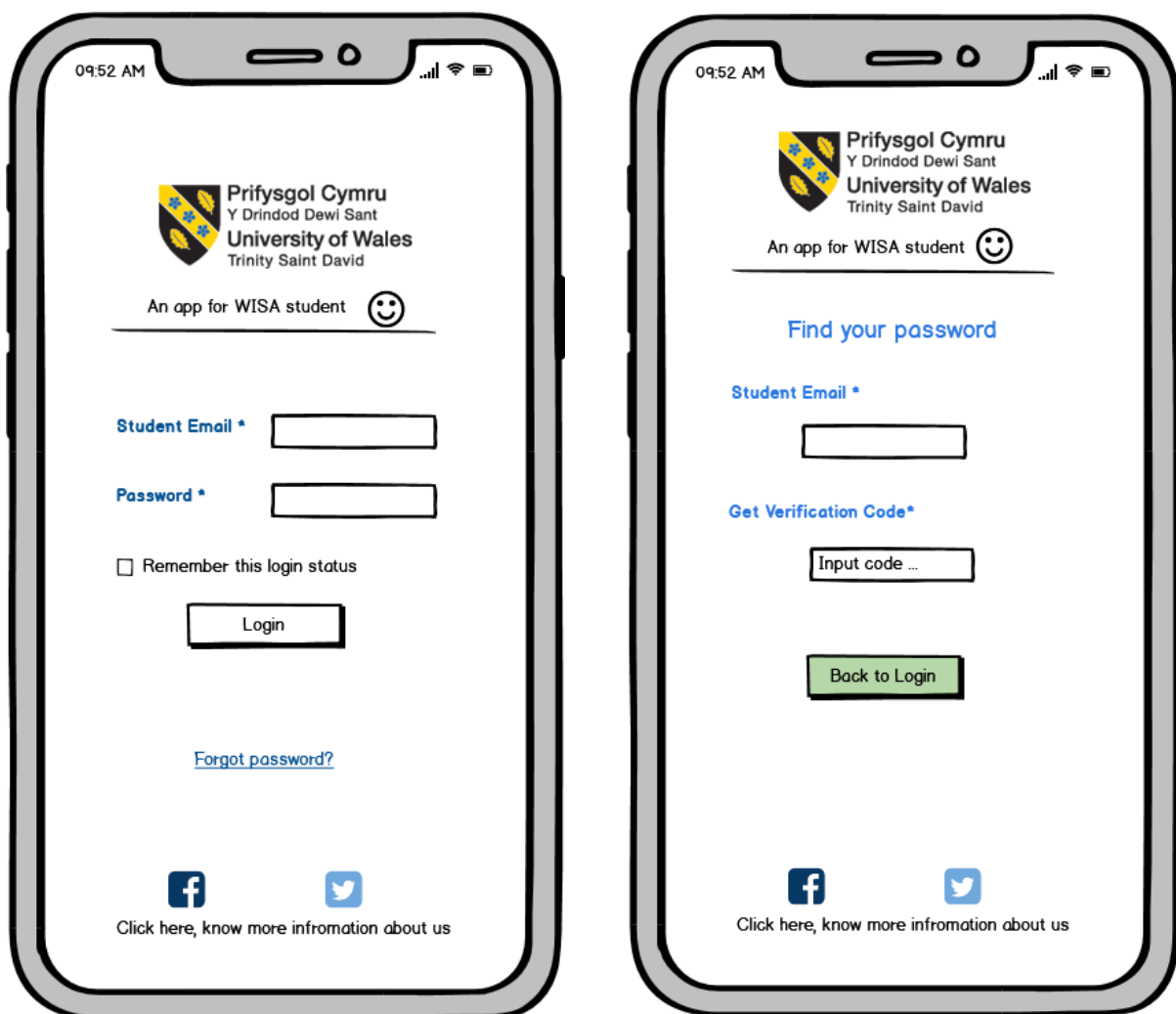


Figure 2 Register page & Function page

This is followed by four first-level subsections, Home, Tasks, Library, and Users. This is a hierarchical navigation bar for the university app's functional use and learning understanding of user needs and habits. The home page and task interface are shown in Figure 4, where the home page contains many common features such as calendar, email, Moodle, etc., and is used as the first page after a successful login, so it is the most common and obvious user interface. The task interface is positioned to contain all events for that user, including daily study sessions (Calendar-timetable), assignment deadlines (Moodle), academic lecture events (News & Events), student group activities (SU), etc., which can be classified by timeline and completion progress.



Figure 3 (I) Home & Task Interface

The other two first-level subsections are Library and Users. The reason for taking the library out separately here is that it was found through research that online reading is slowly becoming the norm as books become electronic. Similarly, in universities, library books are becoming electronic and are being used with increasing frequency by all students. So here the library is designed as a Level 1 sub-column. The user sub-section will contain the user's personal information level display, including personal information, my location, question feedback, settings and exit functions.

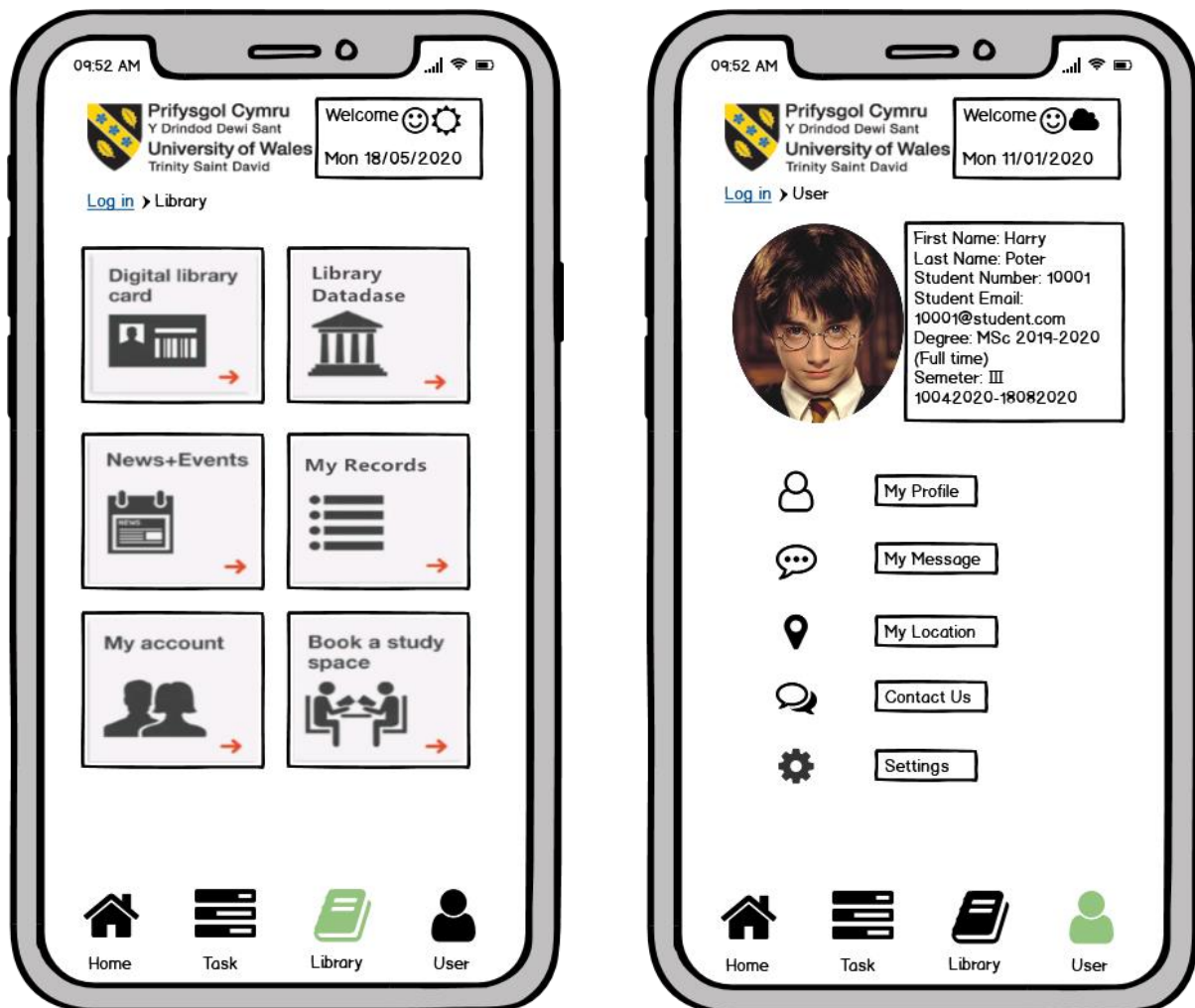


Figure 4 (I) Library & User Interface

The following are the storyboards of the secondary sub-column. The functions under the primary sub-column of HOME are shown first, which are Calendar, Mail, Moodle, News & Events, Locations & Map, Catering, Student Union and Campus Parking. The calendar will show the corresponding date and schedule, where the schedule of the date is associated with the TASK function; the schedule shows the schedule of the day and the week, the class time and place, etc., associated with the Moodle function. The mail function is the daily incoming and outgoing mail after the student mailbox is bound. The interface is presented in chronological order, also categorized by what has been read and what has not been read.

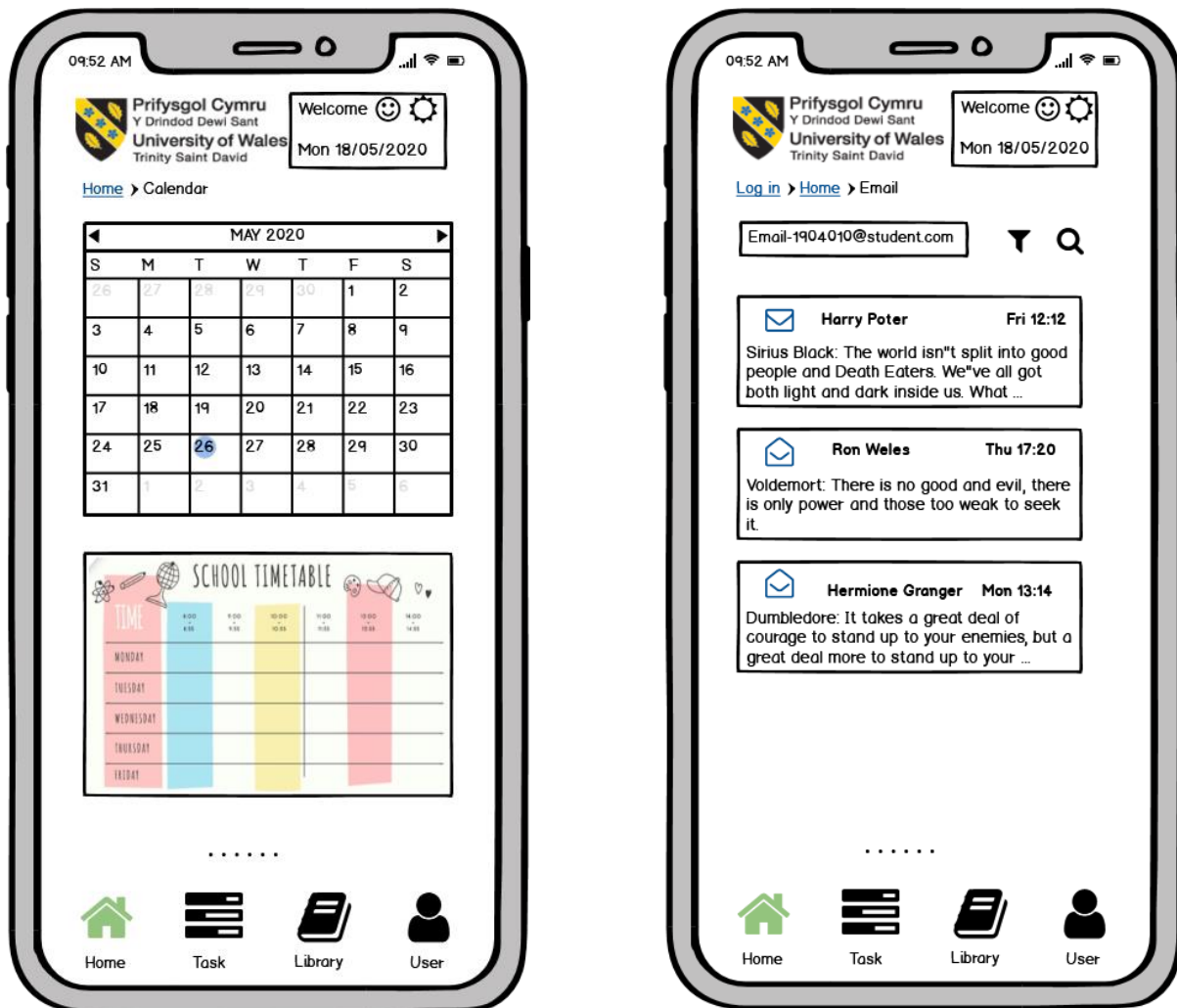


Figure 5 (II) Calendar & Email Interface

Figure 6 shows the Moodle feature, which shows all the courses in the user's college, which can be searched and sorted by major, course level, semester, etc. The storyboard on the right shows the News & Events interface, which is the default chronological display of updates and lacks search and sorting capabilities.



Figure 6 (II) Moodle and News & Events Interface

Figure 7 shows the functions of Location & Map and Catering. The left side allows for the user's status and the mapping function of the surrounding buildings displaying directions and distances for navigation. On the right is the food display page, which provides more detailed information about the price of the food category.

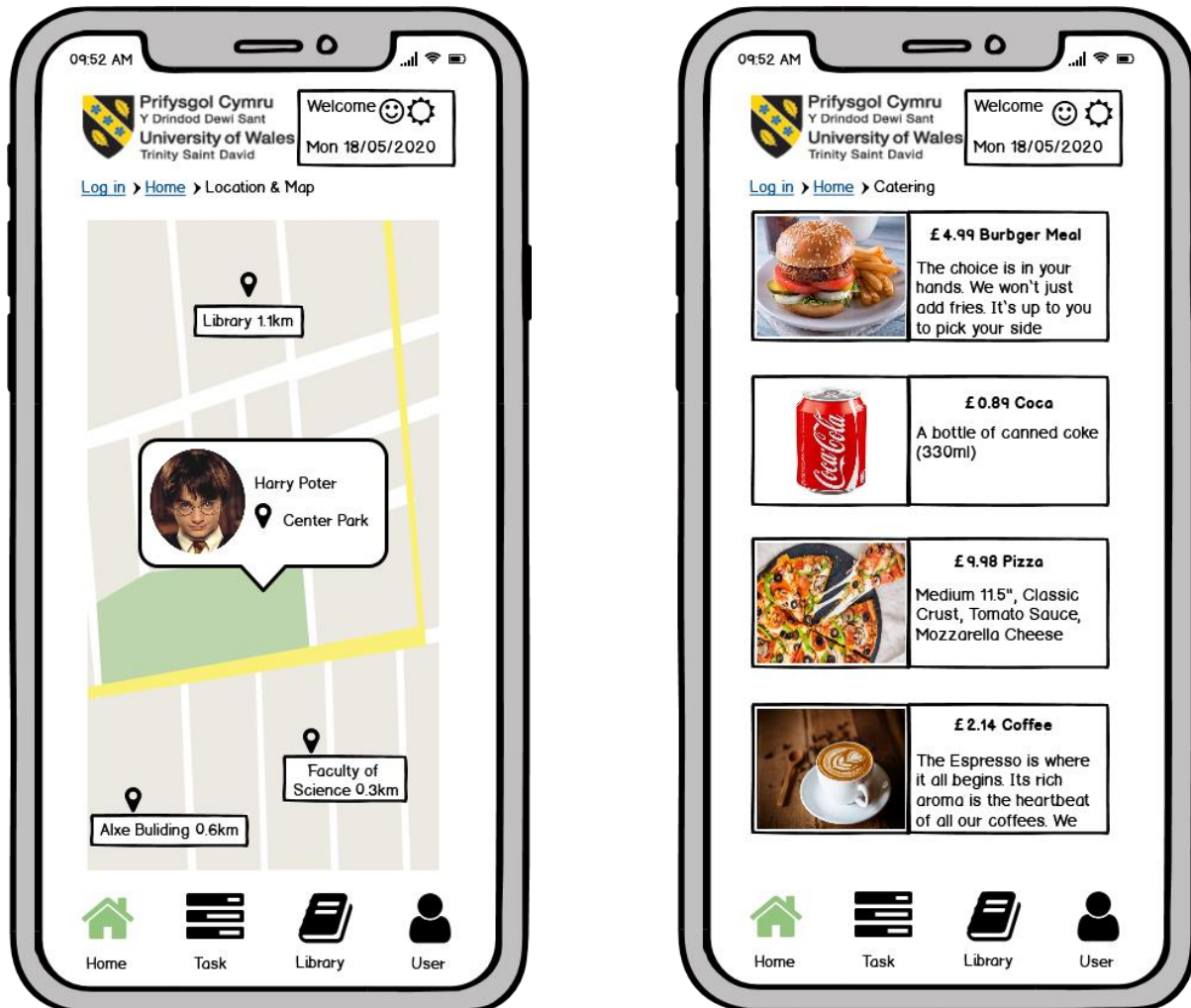


Figure 7 (II) Location & Map and Catering Interface

Figure 8 shows the SU and campus parking functions. The left side shows the student acquisition posted by SU, with a display of the title and brief content; the right side shows the current location of the acquired user, with a display of campus parking by distance, with information such as parking location, parking restrictions, and available parking spaces.



Figure 8 (II) Student Union and Campus Parking Interface

Figure 9 is a three-level sub-column that is a further introduction to the details of the course under Moodle, which mainly contains basic information about the course.

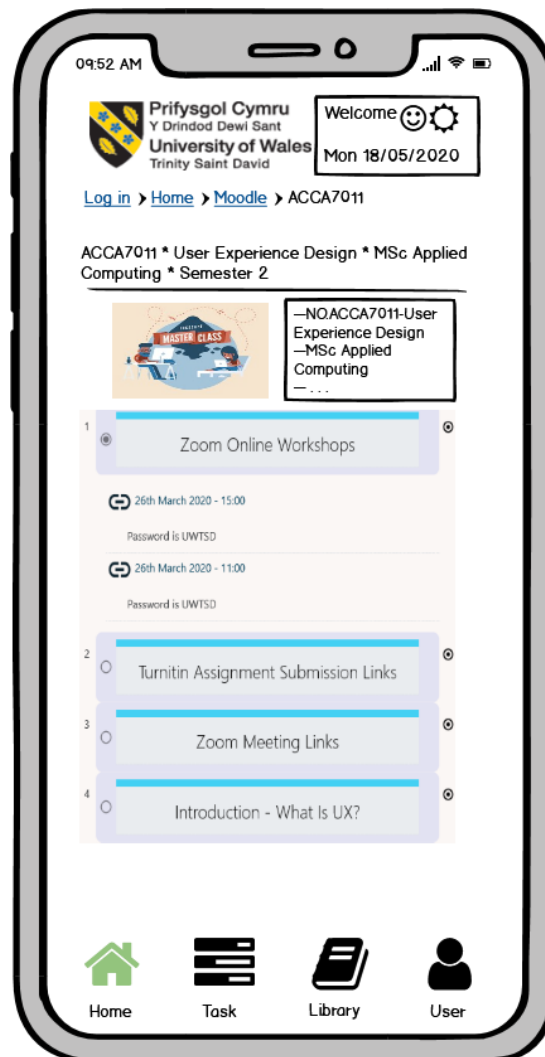


Figure 9 (III) Course L7 UX Design

4. Feedback & Adjustment

4.1. Plan of feedback

① Testing Users

Number of persons: 10

Status: Undergraduate and postgraduate students in computer science, education and business.

Test tool: use zoom for screen sharing and record each step on the page

② Design of feedback collection form(See attachment 1 for details)

—Heuristic Task

Task1: Login---Home---Moodle---UX Design

Task2: Login---Home---Library---My records

Time the steps and record the steps that are wrong. It is expected that the analysis will be carried out through the collected data: logical rationality of the information framework and guidance of the storyboard ^[3].

—Exploratory Task

Task3: Check your latest Assignment deadline.

Task4: If you want to park on campus, what do you need know?

—Flash Point Collection

Do you think there are designs that make you feel good? If so, where? Why does it make you feel good?

—Shortcomings Feedback

What features of the app do you think are badly designed? What makes you feel bad? What modifications are needed to achieve satisfaction?

Do you think there are major features missing from the app? What other features would you want the app to add?

4.2. Collection and collation of issues

In this section, I collected and collated information and data from all test users. All issues will be ranked consistently below. They will be marked in the second version of the storyboard to give a better picture of where the version has been updated and what improvements have been made ^[4].

① Confused Place

- 1) In undertaking task 3, doubts arose as to whether the assignment deadline belonged to Moodle or Task;

- 2) A little confusion about contact us on the User page, who is the person to contact? Prepare to place contact us after settings.
- 3) Some users have questions about the library's my account feature. Features include records of user's spending (e.g. printing) at the library, recharge records, etc., while my records are dedicated to records of borrowed books, equipment, etc. and return dates, etc.

②Wrong Place & improvement areas

- 4) Lack of functionality for current users to exit;
- 5) Missing button to return to the previous page;
- 6) In a sub-column, no information column does not need to show the LOGIN, the second sub-column can show a sub-column, and there is a button to return to a sub-column;
- 7) In Campus Parking, too many textual contents, all of which should be focused, streamlined and show more useful information, such as the display of 99/200 car spaces, and a lack of information on user concerns such as whether parking is charged;
- 8) In News & Events, since news and events are defined differently, we can divide all content into news by what can be read only, and events by what users can participate in.;
- 9) In Task, the importance of things can be user-defined by adding symbols such as stars in the top right corner of text boxes.
- 10) In News & Events and SU, A star can be added to the top right corner of the text box to allow the user to define whether to collect the message, and if it is an active event, it can be added to the Task taskbar;
- 11) Two more buttons should be added inside Course, All Courses and My Courses;
- 12) On the Email page, add an additional layer of detail pages and add a reply letter function;
- 13) In Map & Location, add a categorized column for selecting campuses and main teaching buildings, and add direct navigation;
- 14) Add a search function to the Home page.
- 15) Regarding the content of large paragraphs, we can use functions such as colour, font size, underlining, etc. to increase the readability and sense of hierarchy;
- 16) The interaction is less informative and can be increased by adding buttons, clicking links to jump, etc.
- 17) In User page, my message is low-functioning. If the user receives a message, it can be directly displayed in the upper right corner of the logo corresponding to the function, and can be summarized on the first-level sub-column, so my message is abolished. Considering

the development of software, the map and SU and other interaction possibilities, and instead add my friends' function to achieve user communication.

- 18) Lack of a background colour for the main body and a mix of web design styles with a lack of streamlined information;
- 19) In Catering, addition of shopping cart and checkout page functions, and provision of reservation time pick-up services, etc;
- 20) In Home Page, consider night mode and colour-blind mode.

③Personal view areas

- 21) Dates in the Calendar can be associated with Tasks and courses in the timetable can be associated with Moodle;
- 22) In Email, the difference between read and unread can be highlighted by the background colour of the email text box;
- 23) Both News & Events and SU record the daily life of the school, and the proposal is designed as a mutually exclusive relationship, which means News & Events and SU do not have the same content;
- 24) The overall style is more youthful, some features such as Moodle could be more academic in design style; overall beauty and detail could be improved;
- 25) Can we implement submitting assignments on the Moodle feature page of the app?
- 26) Photos of courses in Moodle have little relevance to the course title, or can be made transparent as a background for course content presentation;
- 27) Separate the timetable in calendar, and then combine calendar and task;
- 28) Add 2D and 3D viewpoint switching to the map to enhance the user experience; accept real-time push of student activities on campus that are similar to the user; share the location after authorization by the user, divided into all alumni and friends to share, only themselves can see three levels, so as to achieve communication between users; propose weather warning function according to time and place, etc^{[5] [6]}.

4.3. Feedback Collection Form

—Heuristic Task

Task1: Login---Home---Moodle---UX Design

Task2: Login---Home---Library---My records

—Exploratory Task

Task3: Check your latest Assignment deadline.

Task4: If you want to park on campus, what do you need to know?

Table 1- Statistical tables for Task 1&2

	User	Step 1		Step 2		Step 3	
		Timing	Time spent	Timing	Time spent	Timing	Time spent
Task1	User1	1s	1s	5s	4s	8s	3s
	...						
	User10	4s	4s	7s	3s	14s	7s
	Average		4s		4.4s		6.3s
Task2	User1	3s	3s	10s	7s	15s	5s
	...						
	User10	3s	3s	10s	7s	15s	5s
	Average		3.6s		9.8s		4.8s

The complete information data collection form is presented in the attachment2. The table above shows the timing data for the two heuristic tasks, with Average representing the average time spent by the 10 users at each step ^[7].

According to the data can be analysed, in task 1, the time required for each step is relatively similar, that is, this part of the information framework is clear and easy to operate; in task 2, the second step on average takes the longest time, that is, users spend more time on finding the library function, according to the observation, 10 users of 6 users subconsciously feel that the library function should be found in the Home interface, so for this phenomenon the designer should be in the user's initial login, guided presentation of the library is a sub-column, located at the bottom of the page ^[7].

Table 2- Statistical tables for Task 3&4

	User	Time spent	Paths
Task3	7 Users		Home-Moodle-Course...
	3 Users		Task ✓
	Average	26s(total), 11.3s(Task), 32.3s(H-M-C)	
Task4	User1	15s	Home-Campus Parking...
	...		
	User10	13s	Home-Campus Parking...
	Average	18.5s	

The complete information data collection table is shown in annex 3. The table above shows the timing data and the different paths that existed for the two exploratory tasks, where the average represents the average time taken by the 10 users to complete the task.

In Task 3, there are two different paths, i.e., the task is confusing to the users, 3 of them have successfully selected the Task function to complete the task in a short time, and the other 7 have gone from Home Page to Moodle to Course to find the deadline according to their understanding, which may not be successful because the task is to find the deadline of latest assignment. In task 4, the path required to complete the task is two segments, which takes more time than in task1&2, the analysis is that reason 1 is that exploratory tasks distract the user's attention and spend more time in the process of finding the target; reason 2 is that the Campus Parking page is more textual and focused, which takes some time to read, therefore the total time is longer.

5. APP Version II

In response to the feedback, we have made improvements to storyboard, including adding new function pages, adjusting colour, text and shape, and adding more buttons and jump links to make it more interactive. Here's a look at what improvements have been made, the full storyboard (version II) will be included in the uploaded assignment II attachment in Moodle.



Figure 10 New email response and shopping cart checkout interfaces

Based on the user's comments and suggestions, the function of Email has been further customized, and the interface for viewing email details and replies has been added; and the shopping cart checkout page has been further displayed based on the food display page of Catering.



Figure 11 New Library My Records page and updated user interface

The image above is a further demonstration of the My Records feature in the library, which divides my checkout records into two categories: band returned and returned. In the user interface, the user logout function and the mode switching function have been added, and my information has been changed to my friend function, which provides an interface for the subsequent online communication location sharing.

As mentioned above, in response to the 28 comments and suggestions made, improvements have been made in terms of adding functionality, enhancing interactivity by adding buttons and links, optimizing the design style, and simplifying and highlighting effective information. The specific improvements are detailed in version II of the upload attachment in Moodle^[1].

6. Emerging & Trends for App Version III

User Experience Design is the continuous design and refinement of interactive features, then let the user experience and test, then collect and analyse the feedback information data, to continue to improve the app's functionality and user experience design. This "design---feedback---redesign---feedback again... " achieves a virtuous User Experience Design cycle. Here's ideas of where App VersionIII is headed based on the feedback.

- 1) In terms of map functionality, further 2D can be added, adding friend function exchange, sharing with friend's location, etc., while also considering security issues.
- 2) In the area of catering, further increase the number of payment pages to consider the security of payment transactions.
- 3) Whether to add assignment submission and subsequent assessment functions to the mobile app, pending questionnaire and discussion.
- 4) Further optimization of library functions, online reading functions, advance book ordering functions, reading incentive mechanisms, etc.
- 5) Further categorization and refinement of SU's activities can be interlinked with the MAP function, which allows users to intelligently push peripheral activity information when using MAP navigation, provide weather warning functions based on time and place, etc.
- 6) The user interface, to implement online dating chat function, so that users can meet and share or invite to initiate activities, considering the mode switching function, day, night and colour-blind mode to switch between the three kinds of each other ^[8].

7. References

- [1] Soegaard, Mads. "The Basics of User Experience Design." Interaction Design Foundation, ed (2018).
- [2] "UX Design and Agile: A Natural Fit?" Communications of the ACM 54.1 (2011): 54-60. Web.
- [3] Gajendar, Uday. "Our Hidden UX Design Abilities." Interactions 25.6 (2018): 22-24. Web.
- [4] Moore, Rick. UI Design with Adobe Illustrator. Berkeley, Calif.: Adobe, 2013. Print.
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- [6] Hartson, H. Rex, and Pyla, Pardha S. The UX Book: Agile UX Design for a Quality User Experience. Second ed. 2019. Web.
- [7] Murray, Scott. Interactive data visualization for the web: an introduction to designing with. " O'Reilly Media, Inc.", 2017.
- [8] So, Make It. "Interaction Design Lessons from Science Fiction, by N." Shedroff and C. Noessel (Rosenfeld Media, 2012).

Attachment 1:

—Heuristic Task

Task1: Login---Home---Moodle---UX Design

Task2: Login---Home---Library---My records

—Exploratory Task

Task3: Check your latest Assignment deadline.

Task4: If you want to park on campus, what do you need to know?

—Feedback Questions

Question1: Do you think there are designs that make you feel good? If so, where? Why does it make you feel good?

Question2: What features of the app do you think are badly designed? What makes you feel bad? What modifications are needed to achieve satisfaction?

Question3: Do you think there are major features missing from the app? What other features would you want the app to add?

Task1 User	Step 1		Step 2		Step 3	
	Timing	Time spent	Timing	Time spent	Timing	Time spent
User1						
User2						
User3						
User4						
User5						
User6						
User7						
User8						
User9						
User10						
Average						

Attachment 2:

—Heuristic Task

Task1: Login---Home---Moodle---UX Design

Task1 User	Step 1		Step 2		Step 3	
	Timing	Time spent	Timing	Time spent	Timing	Time spent
User1	1s	1s	5s	4s	8s	3s
User2	3s	3s	8s	5s	15	7s
User3	5s	5s	9s	4s	14	5s
User4	4s	4s	8s	4s	15s	7s
User5	3s	3s	7s	4s	12s	5s
User6	8s	8s	12s	4s	20s	8s
User7	4s	4s	9s	5s	18s	9s
User8	5s	5s	11s	6s	18s	7s
User9	3s	3s	8s	5s	13s	5s
User10	4s	4s	7s	3s	14s	7s
Average		4s		4.4s		6.3s

Task2: Login---Home---Library---My records

Task2 User	Step 1		Step 2		Step 3	
	Timing	Time spent	Timing	Time spent	Timing	Time spent
User1	3s	3s	10s	7s	15s	5s
User2	5s	5s	14s	9s	20s	6s
User3	3s	3s	14s	11s	18s	4s
User4	4s	4s	15s	11s	18s	3s
User5	3s	3s	16s	13s	20s	4s
User6	4s	4s	14s	10s	18s	4s
User7	6s	6s	11s	5s	17s	6s
User8	2s	2s	14s	12s	20s	6s
User9	3s	3s	16	13s	21s	5s
User10	3s	3s	10s	7s	15s	5s
Average		3.6s		9.8s		4.8s

Attachment 3:

—Exploratory Task

Task3: Check your latest Assignment deadline.

Task3 User	Time spent	Paths
User1	45s	Home-Moodle-Course...
User2	8s	Task ✓
User3	36s	Home-Moodle-Course...
User4	40s	Home-Moodle-Course...
User5	10s	Task ✓
User6	16s	Task ✓
User7	30s	Home-Moodle-Course...
User8	21s	Home-Moodle-Course...
User9	24s	Home-Moodle-Course...
User10	30s	Home-Moodle-Course...
Average	26s(total), 11.3s(Task), 32.3s(H-M-C)	

Task4: If you want to park on campus, what do you need to know?

Task4 User	Time spent	Paths
User1	15s	Home-Campus Parking...
User2	18s	Home-Campus Parking...
User3	23s	Home-Campus Parking...
User4	20s	Home-Campus Parking...
User5	30s	Home-Campus Parking...
User6	26s	Home-Campus Parking...
User7	10s	Home-Campus Parking...
User8	11s	Home-Campus Parking...
User9	19s	Home-Campus Parking...
User10	13s	Home-Campus Parking...
Average	18.5s	