little LIBRARY

UTS LIBRARY
Interim Process
UTS LIBRARY

UTS LIBRARY
Final Process
UTS LIBRARY

Group A
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The Augmented Campus

We were briefed at the beginning of the semester with the task of producing a site-specific augmented system aimed at enhancing the experience of staff, students and/or visitors to the UTS City Campus and surrounds.

Choosing a Focus

During the first few weeks of class we completed a number of tasks to help open our minds about the various aspects of university that could be improved. These tasks included producing personas and scenarios; as well as looking at the possible objectives, motivations and emotions of students at university. Images 1, 2 and 3 show examples of these class exercises.

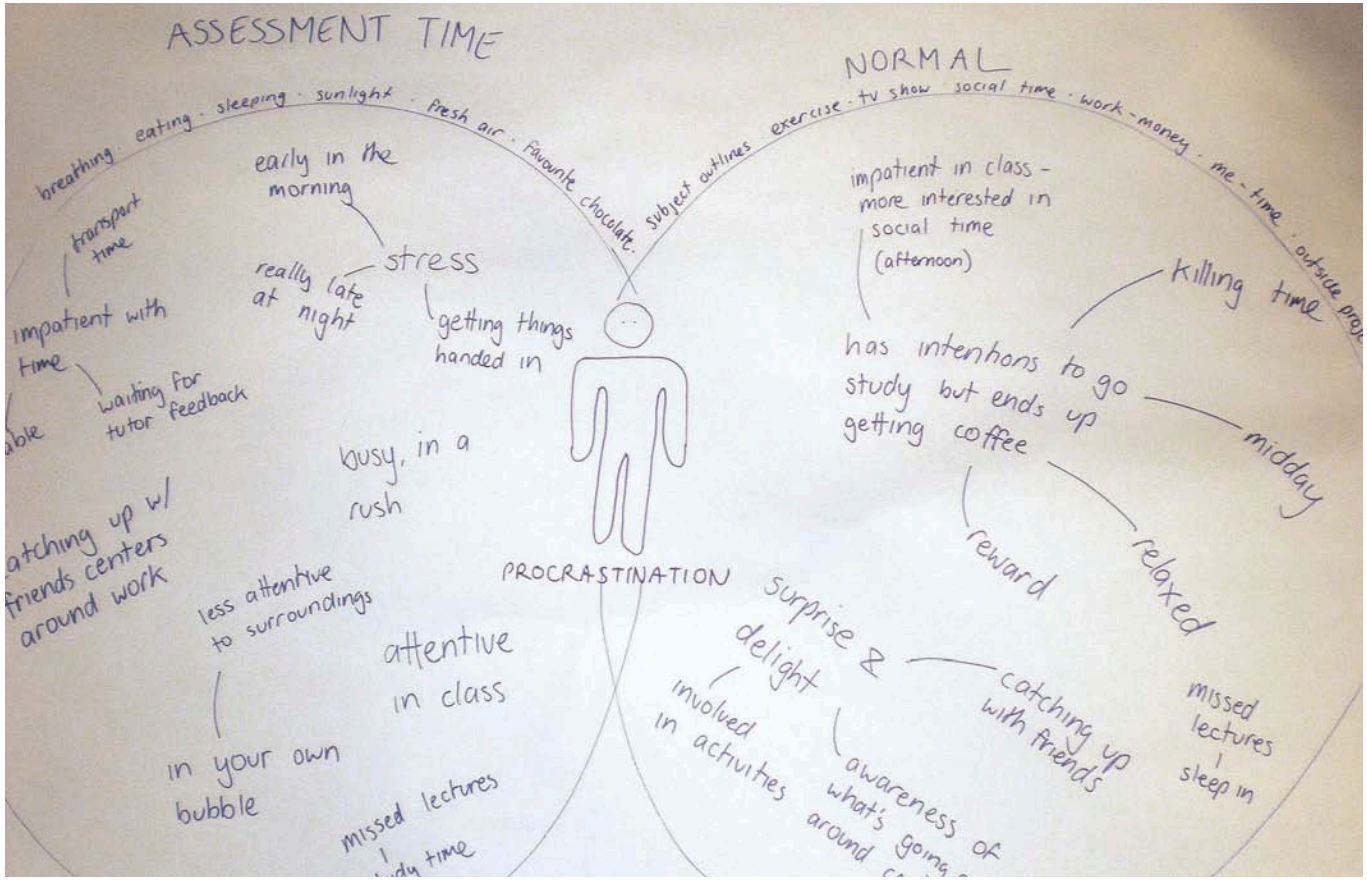


Image 1: A map depicting the motivations of students during an average day at uni and during assessment time.

Initially we planned to focus on the motivation of relaxing. We completed a number of maps based on this idea, such as those seen in images 2 and 3. As our group attempted to extrapolate on the concept of relaxing we became stuck. Our efforts to come up with a solution surrounding the idea continued to lead us to the problem that students needed to be able to find a place to relax that suited their needs at the time; however we found it difficult to advance from this point.

After re-evaluating the situation we decided to change our focus. We began to examine studying as a motivation, as we felt it had more potential for improvement. The whole point of university is to enhance your learning, and currently we all see problems in our own experience of this. Hence improving the ability for students to study, particularly in relation to their use of the library seemed quite appropriate to us. We felt that making the library more engaging and its resources more accessible were key to improving this.

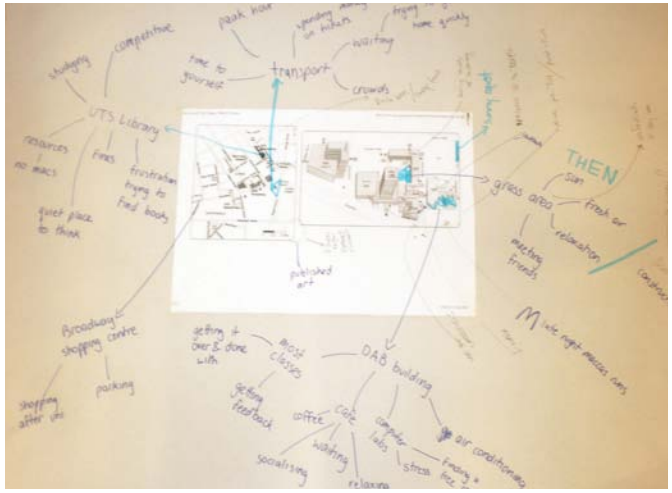


Image 2: A map highlighting the various places around the university where you can relax and why you would go there.

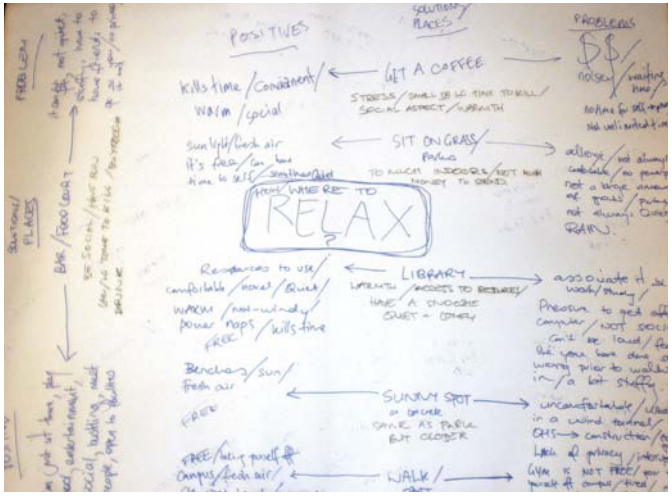


Image 3: A map showing the positive and negative aspects of different forms of relaxation around the university.

Interim Research

To guide the development and testing of concepts surrounding the library we completed a number of forms of research. These included the creation of personas as well as observing the library at present.

Personas

As a group we created three personas, which represented three typical university students (see images 4 and 5). We were able to test out the concepts we generated against these personas to determine how they would benefit from them, and identify any problems with the idea.

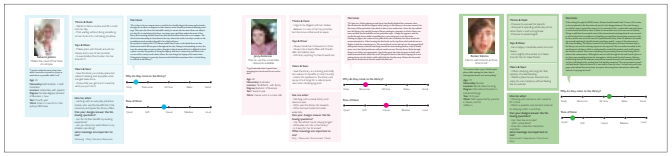


Image 4: Thumbnails of the three personas we created

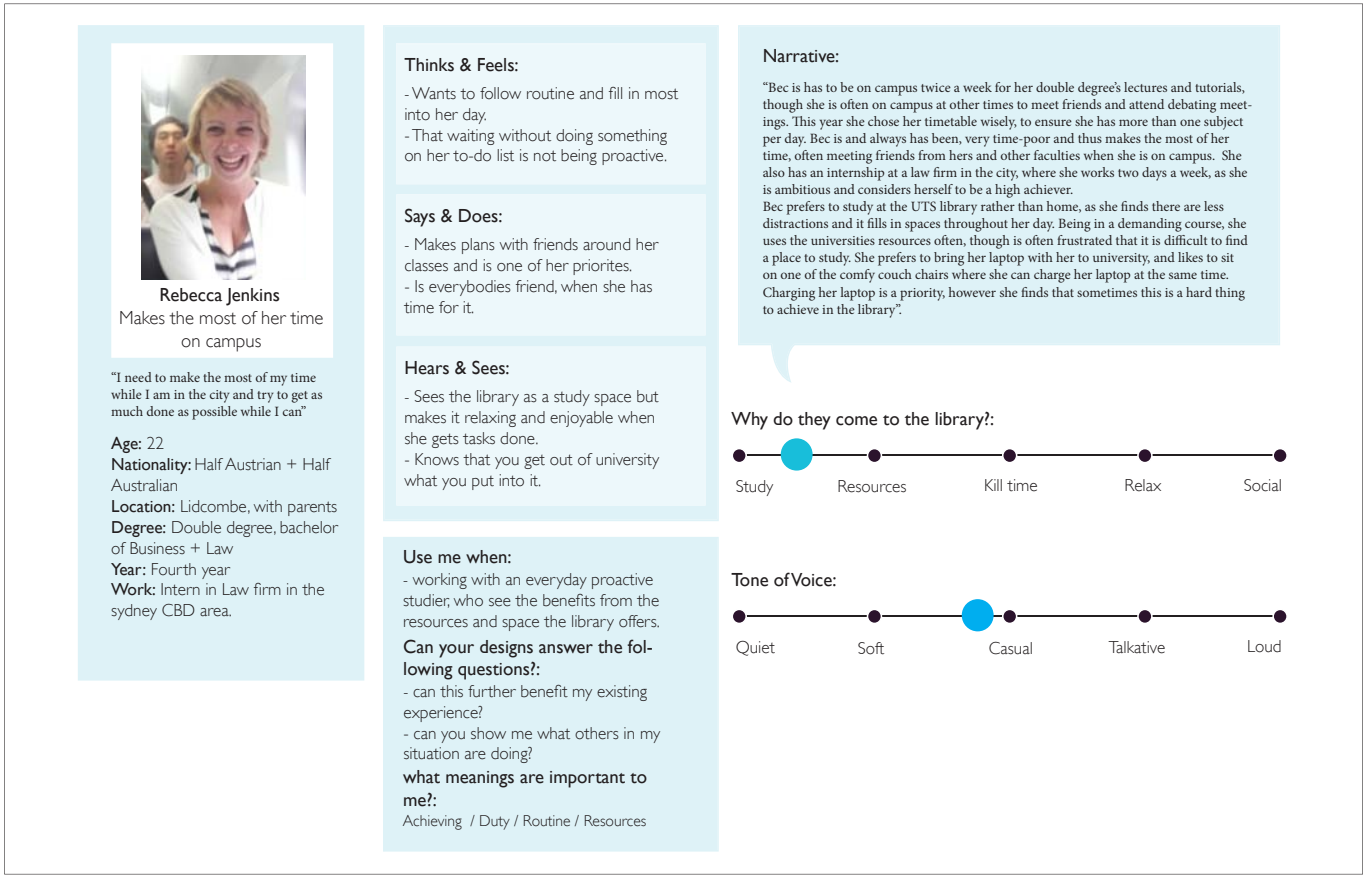


Image 5: Enlarged image of Persona One

Observations

We also completed primary research in the library through observing its use and talking to librarians. Based on this we created the two graphs seen in images 6 and 7.

Photo Journal

A photo journal was created based on our observations of the library. This can be seen in image 8. Such observations assisted with idea generation. They highlighted how the library operates and is used at present, in order to determine how the experience of students in the future could be enhanced.

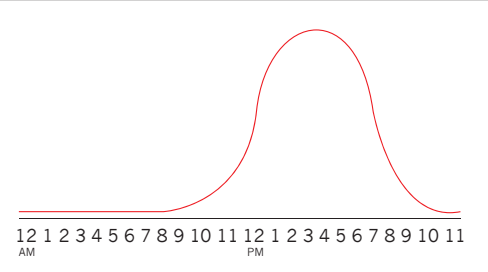


Image 6: Graph depicting the number of students in the library over the course of a day.

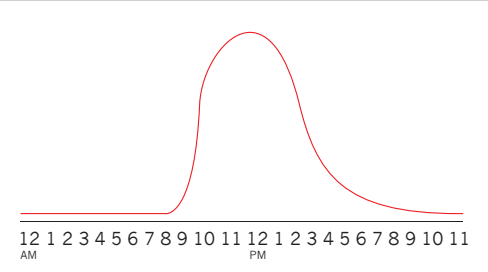


Image 7: Graph highlighting the number of book returns made over the course of a day.

Image 8: Images from our photo journal

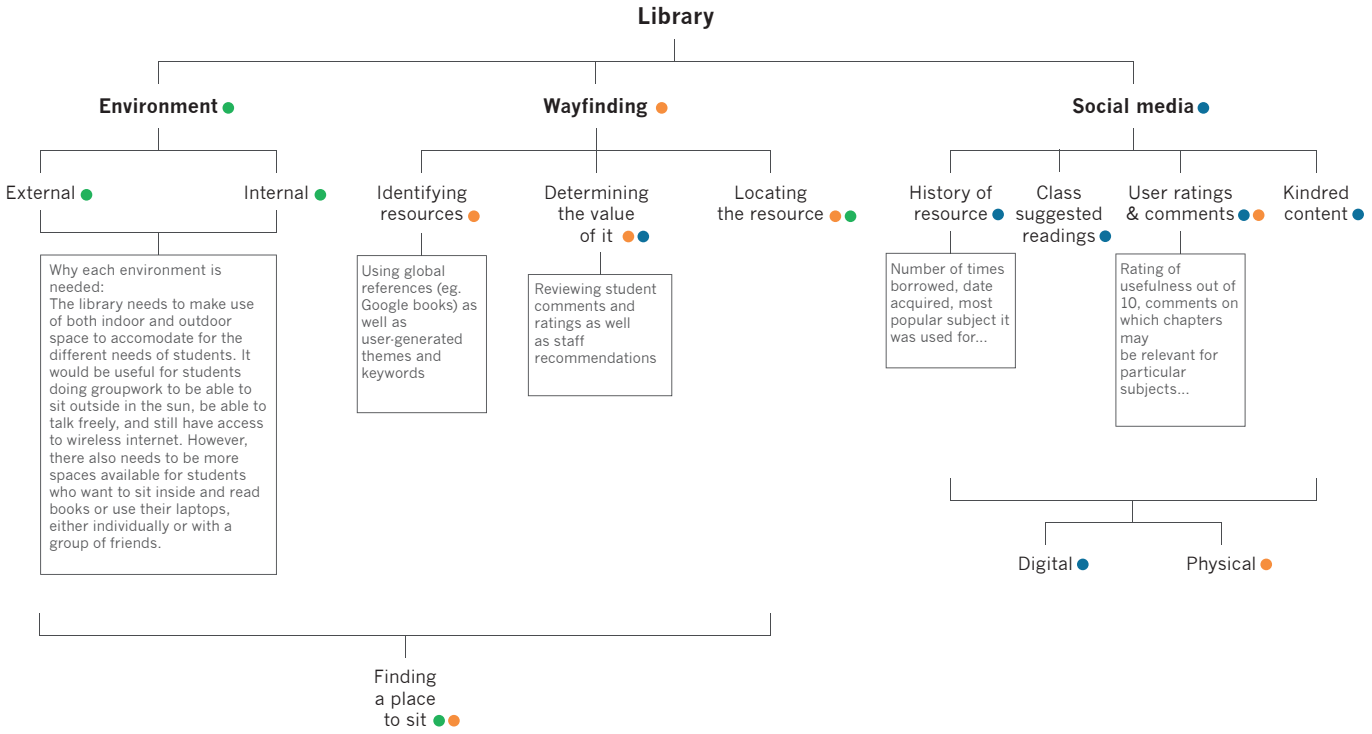
The Concept

Based on the above research and our own experience as students we produced the following concept for our augmented library.

Libraries are rich in resources and data, however they are not often thought of as a hub of social interaction. Over the course of a day, there is a large amount of traffic which passes through. Not only the physical presence of people, the exchange of data but also the exchange of people's opinions. Our group aims to harness the libraries current atmosphere and capture it's potential as a forum for social media interaction. Whilst also creating a smoother material "way-finding" process and pitching the library as a dynamic space, rather then simply a study centre.

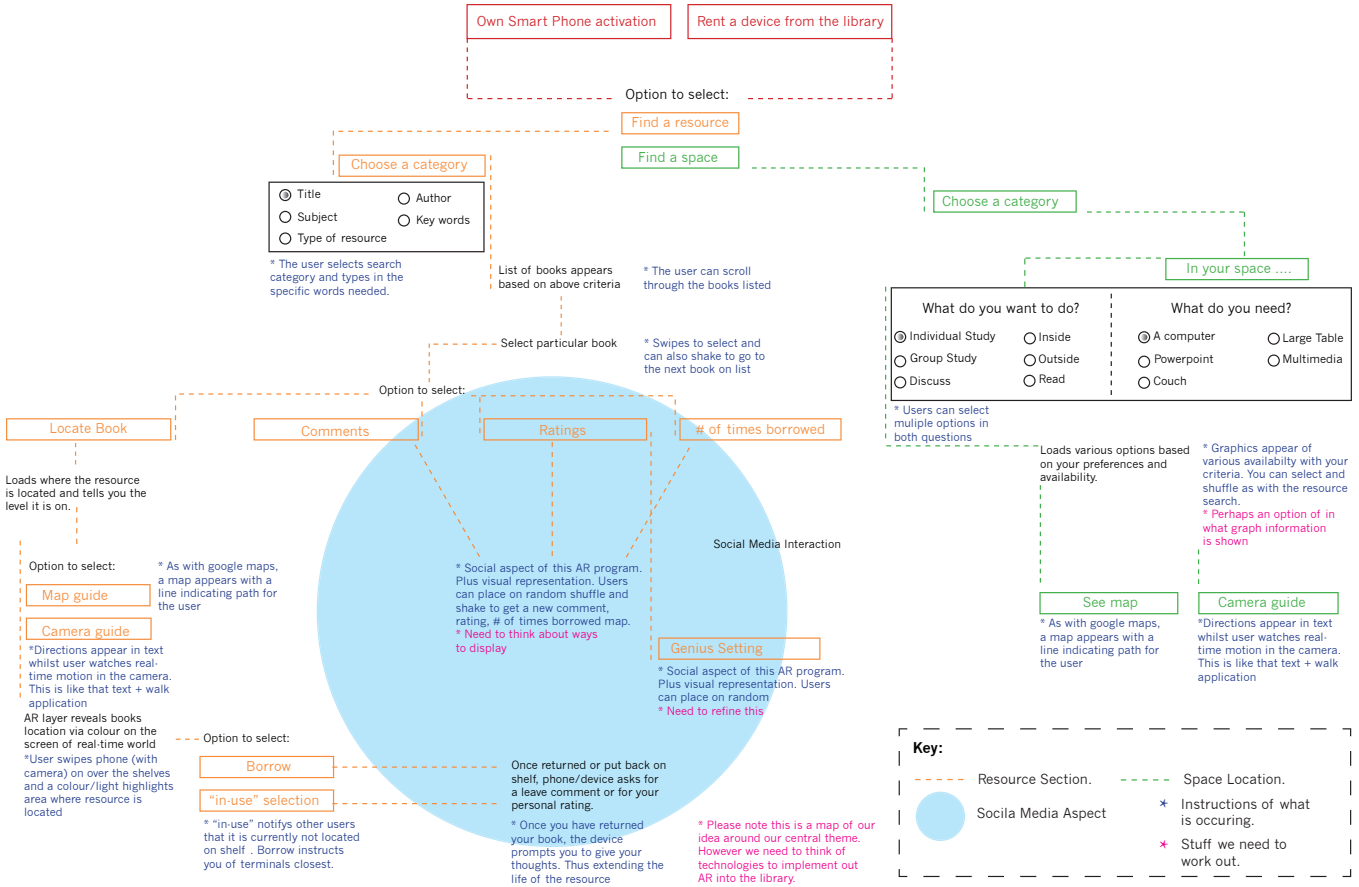
Concept Hierarchy

Below is a map depicting the various elements of our augmented library concept. It has been broken into three main aspects: environment, wayfinding and social media.



Aspects Targeted

The map below shows how this idea would be achieved by highlighting the aspects targeted.



How it Works - Tracking

Various forms of technology were researched in order to determine how the wayfinding aspects of the application will work. These are described below.

People/devices

While GPS is incredibly useful for tracking devices outside, its accuracy severely diminishes indoors.

SOLUTION = WIFI TRIANGULATION

By comparing the relative signal strength of several WIFI hotspots, it is possible to triangulate the position of the device to within a meter.

There is a certain amount of groundwork to make this function accurately (you need to have exact locations of all the wireless hotspots, and conduct signal strength maps), but this is entirely feasible in a controlled location like a library.

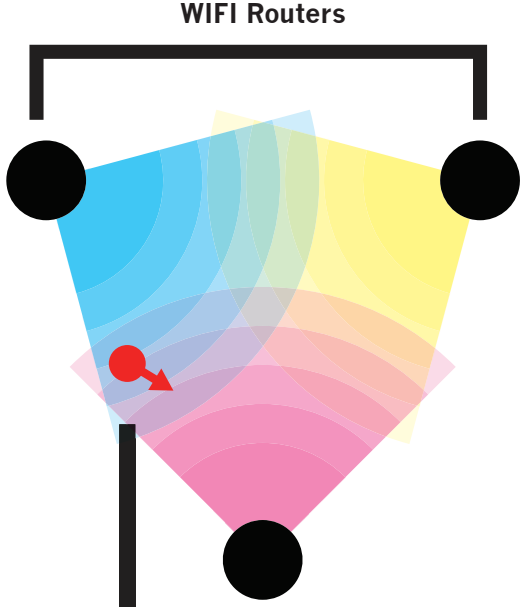
This position data is then combined with the directional data provided by the device's digital compass to give a fairly comprehensive understanding of where the person is and what they're looking at.

Assets (books)

Tracking individual assets is usually achieved within a wifi network is through the use of wifi enabled RFID tags, but these are fairly expensive and more bulky than normal RFID tags. [Perhaps we could ignore this feasibility issue in the assumption that the price of this kind of tech is constantly decreasing?]

Instead, we could put normal RFID tags in all the books, and build tag readers into the aisles. The readers themselves could potentially use a similar triangulation system to determine the approximate position of individual books, and report this to the network (and in turn, to your device). If it is on the shelf, the device will plot a map for you, if not, it will report it as being in use.

Once you reach the area the book should be in, pointing your device's camera at the shelf would allow it to recognise the QR code on the spine of the book, and highlight it for you.



Wifi triangulation:
relative signal strength determins position
Digital compass:
determines direction device is facing

How it Works - Locating Spaces

Once the user has specified what kind of space they require, the device will query the system to see what appropriate spaces are available.

It will be relatively easy to determine whether computers are in use (as they are already digitally connected to the network), but for more open spaces it will be more difficult.

We could use a combination of motion sensors and thermal imaging to provide the user with information as to what areas are free.

Motion Sensors

Individual motion sensors could be used to give specific information about whether a seat is occupied, or a presentation room is in use. In this sense, the system could relay to the user the exact location of a free seat or room, and then guide them there.

Thermal Imaging

The user could also be provided with maps of the library with a visual representation of where people are generally. This information could be collected by thermal imaging, and be shown to the user as a sort of “hot spots” map of the building.

This is far less precise than the information offered by motion sensors, but very quickly gives the user a sense of where they might find a quite place.

Feedback on the Interim

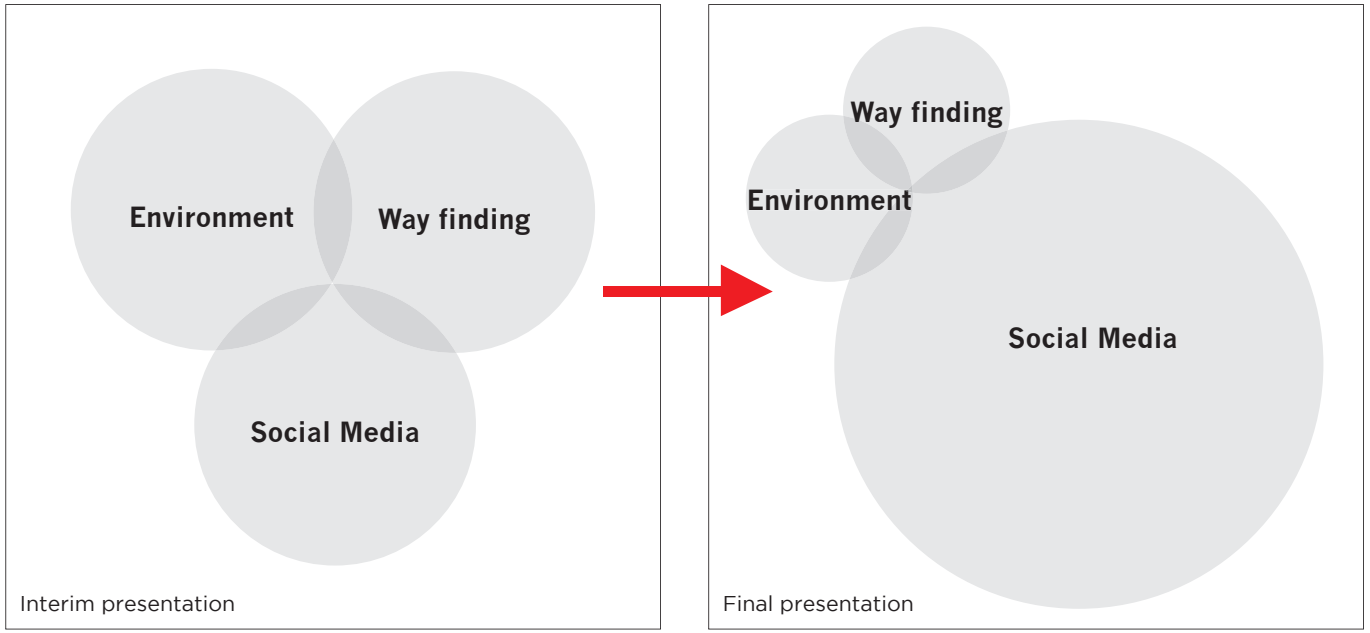
Upon completing our interim presentation we were given feedback on our augmented library concept.

It was felt that we had to narrow down the focus of our concept. Initially our project focused on three aspects; environment, wayfinding, and social media. Although the aspects of wayfinding and environment will still be present, we decided to focus mostly on adding a social aspect to the library through our app. This focus on the social media element of the app is depicted in image 9. Based on this focus, we had to determine how the social media aspect of the proposal could be used in an interesting and dynamic way.

The next stage of our process was to develop the visual language and voice of the proposal through the interfaces design and architecture. We needed to be more experimental with articulating the interplay of data and environments.

There were various elements that needed to be considered for the app to be successful. It had to be simple, yet enable users to dig to the next level. Furthermore we needed to find a way to make it feel personal as though the users own it, not the library.

Image 9: Our changing focus



Information Visualisation

Based on this feedback our group mainly concentrated on designing the interface of our app. In particular we aimed to focus on the visualisation of information. We looked at various books and internet sites to inspire ourselves and gain ideas about the different ways information can be represented.

Following are a few of the examples of information visualisation that we came across during our research.

As a group one lesson in the early stages of our research we decided to take a trip to the library to introduce ourselves to the concept of information visualisation. Whilst at the library we flicked through the book Data Flow. Examples of the types of representations we saw are shown in images 10, 11 and 12. Such visualisations aim to be aesthetically pleasing, as well as highlighting complex concepts and relationships in a way thats easy to understand.

Image 10: Visualisation from the book Data Flow

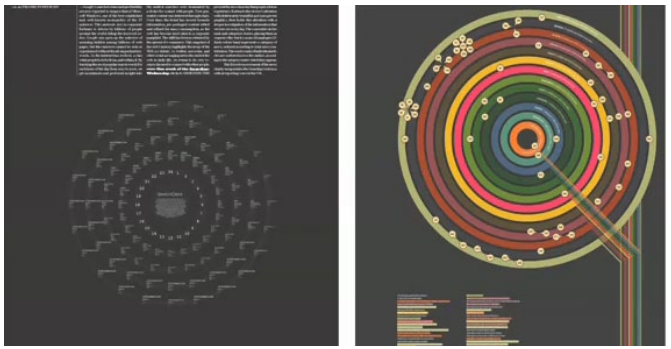


Image 11: Visualisation from the book Data Flow

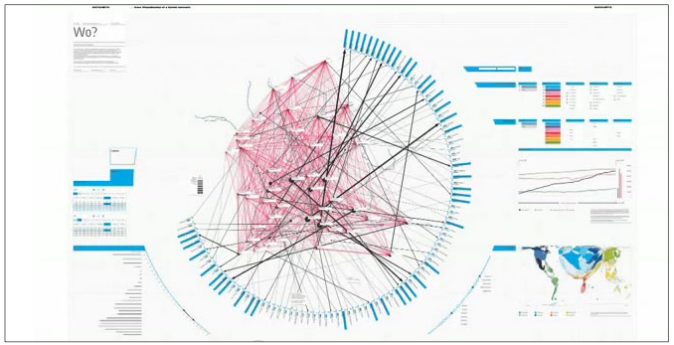


Image 12: Visualisation from the book Data Flow

Images 13, 14 and 15 are are a series of maps by Stefanie Posavec. These maps were created to capture regularities and patterns within a literary space. These images depict just a few of the infinte forms of graphing and imagery that could be used to present data in an interesting and aesthetically pleasing way.

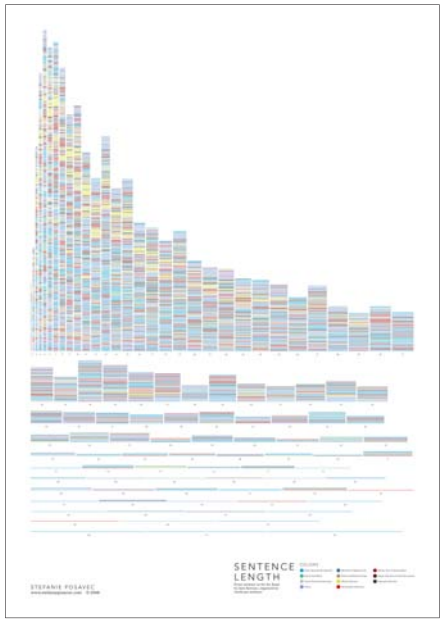


Image 13: Visualisation from the site http://www.notcot.com/archives/2008/04/stefanie-posave.php

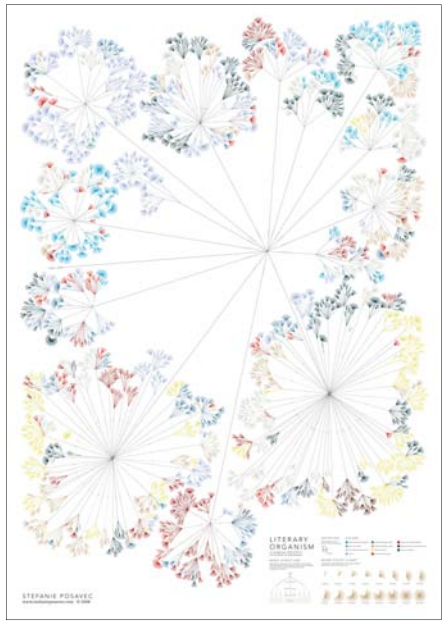


Image 14: Visualisation from the site http://www.notcot.com/archives/2008/04/stefanie-posave.php

Image 15: Visualisation from the site http://www.notcot.com/archives/2008/04/stefanie-posave.php

Upon viewing different info graphics they immediately left an impression of what aspect of the app they could possibily be used for. For example images 16, 17 and 18 all show potential ways of representing the explore by course option of our app. This is due to their ability to allow viewers to visualise different segments of a whole.

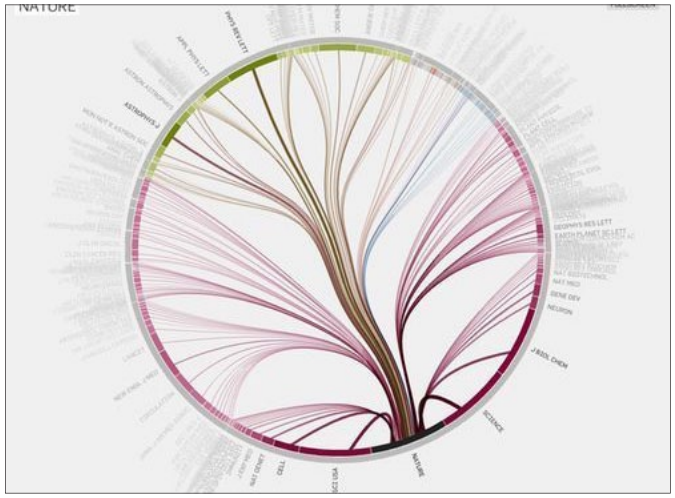


Image 16: Visualisation from the site http://www.noupe.com/inspiration/stunning-infographics-and-data-visualization.html

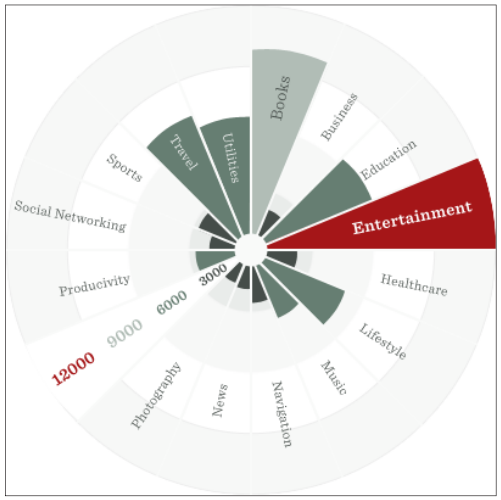


Image 17: Visualisation from the site http://www.noupe.com/inspiration/stunning-infographics-and-data-visualization.html

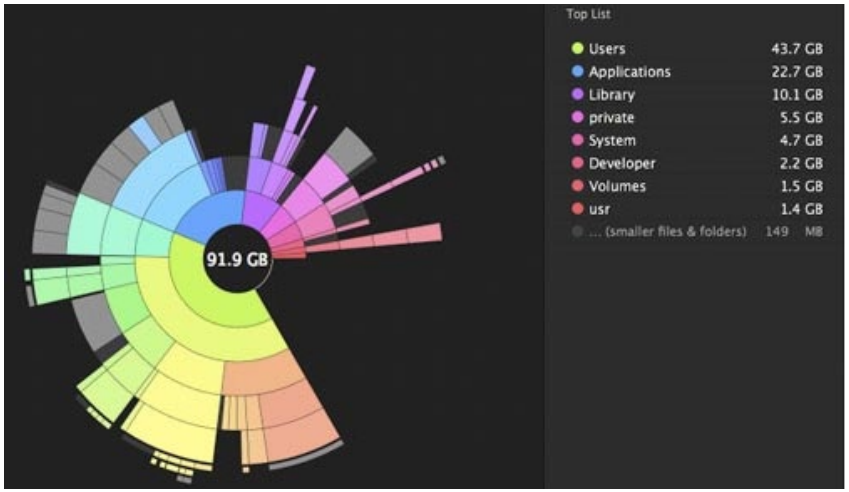


Image 18: Visualisation from the site http://www.tuaw.com/2009/07/14/easy-visualization-with-daisy-disk/

After completing such research on data visualisation we began to create sketches of possible ways the information provided by our app could be visualised. An example of such sketches is seen in image 19.

At one point in the process of data visualisation our designs began to focus too heavily on creating aesthetically pleasing representations. As a result the visualisations became too complicated for users to easily obtain information from. We had to be reminded not to become merely focused on creating unique info graphics. The whole point of our concept was about adding a social aspect to the library and revitalising it as a living network, hence it was important that this was at the forefront of our design.

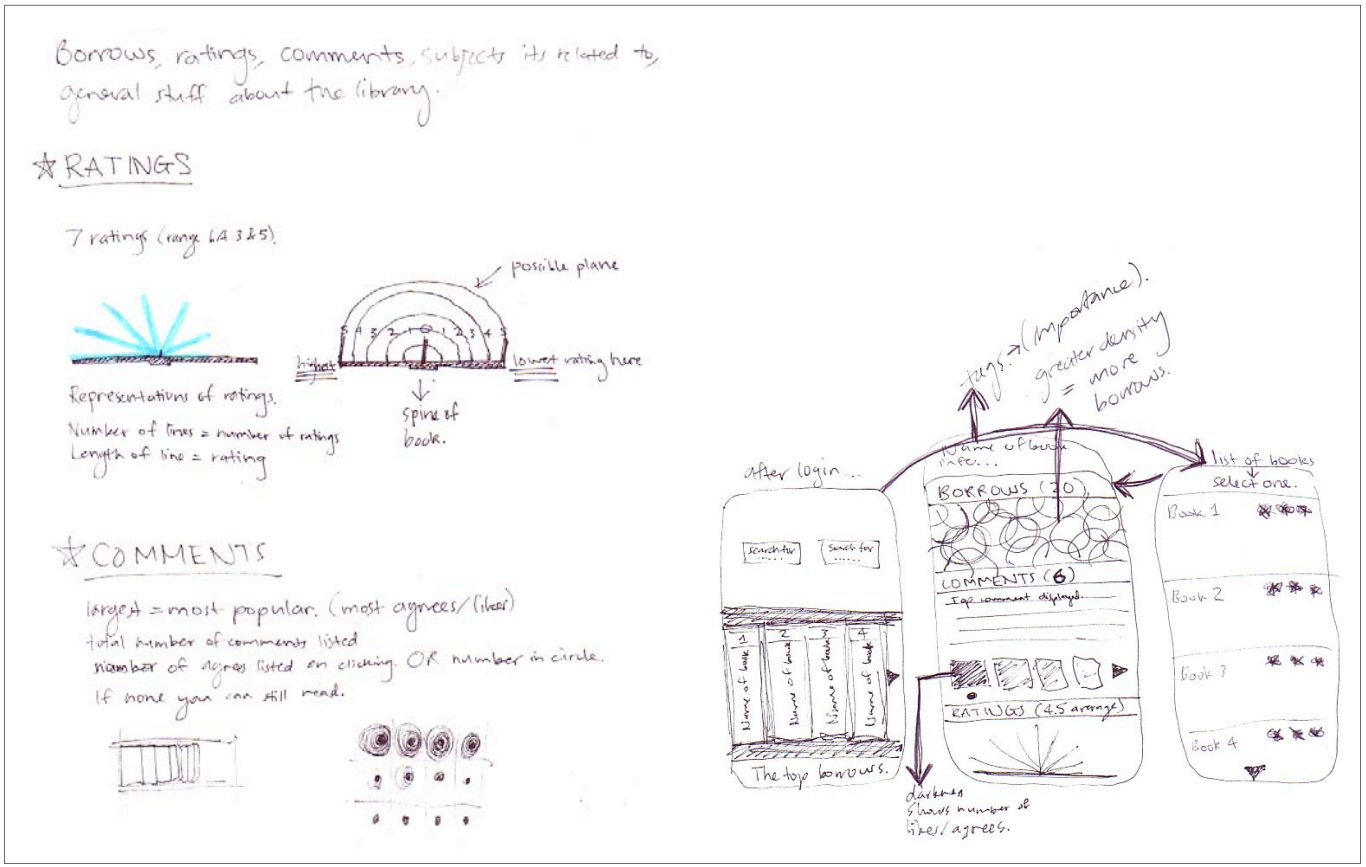
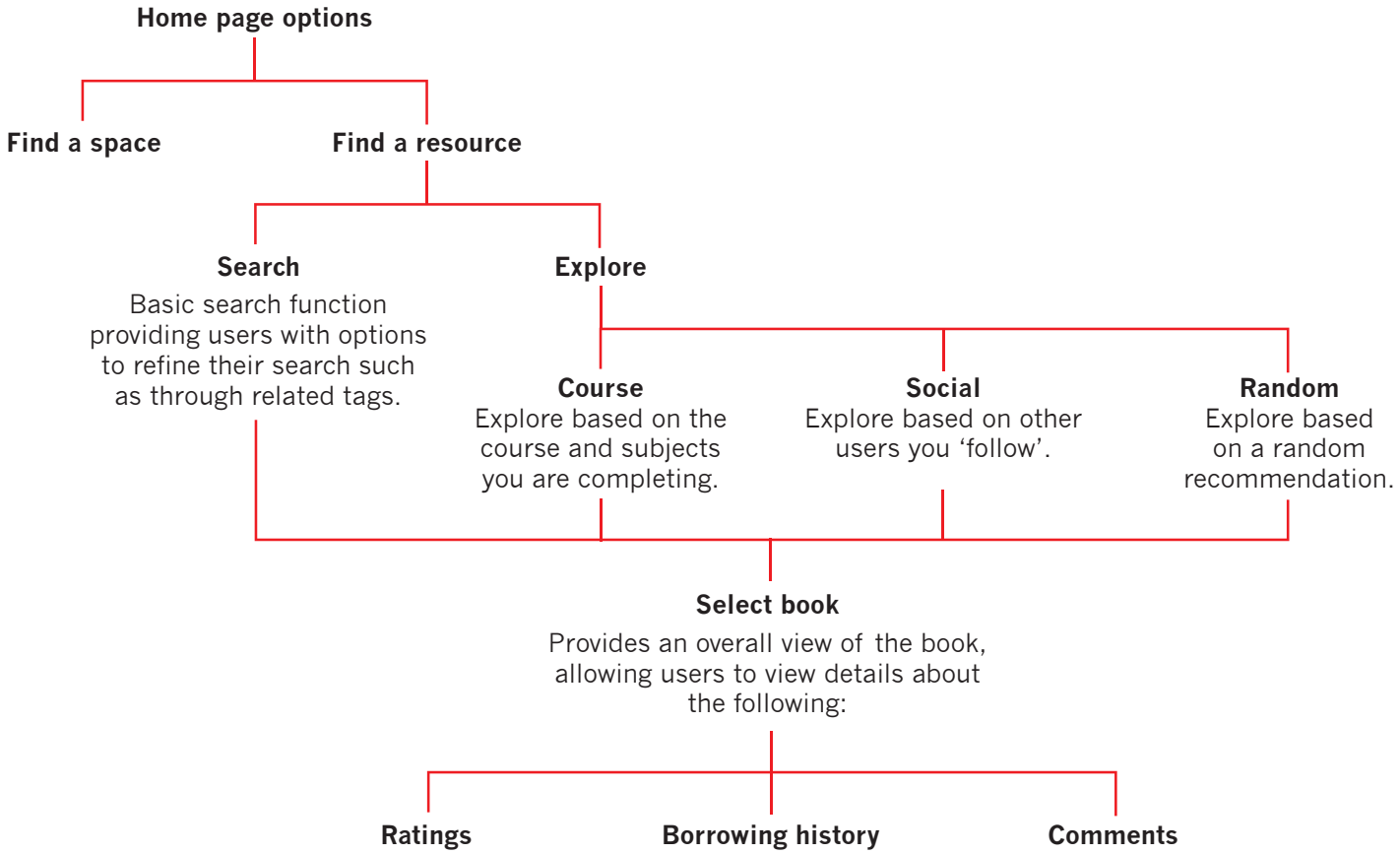


Image 19: Some sketches experimenting with the idea of information visualisation.

Interface Flowchart

The map below illustrates the general breakdown of the final app interface.



Other Aspects of the App

• For the final presentation we have focused on the find a resourse option. The find a space option is something we would expand further in the future development of the app. We have focused on developing the social media aspect of the app as we felt it was of greater importance.

• For convenience purposes the user logs in the first time they use the app, however after this it logs in automatically when they enter the library.

• People will need some form of encouragement to use the app initially, something that makes it fun to use first. Based on this the app includes a points system for users that rewards them for leaving feedback and being first to comment etc.

• There are a number of interesting social elements to the app. For example the app allows users to recommend books. It also enables students to 'follow' other users and see what they have recommended.

• Along with the social aspect of this project comes the requirement to develop some kind of filtering system. This is particularly important in the case of the ability to make and access comments about resources. Due to this comments will be largely user moderated. Comments are able to be voted up or down by users (like a facebook 'like' button) to show whether it was useful or not.

Interface Development

The development of our apps interface occured gradually. After individually producing possible ways the app interface could look, we came together to combine our ideas. As a group we created rough sketches of the interface. These sketches were developed and transferred onto the computer in the form of simple vector wireframes. These were then fleshed out to the stage seen in image 20.

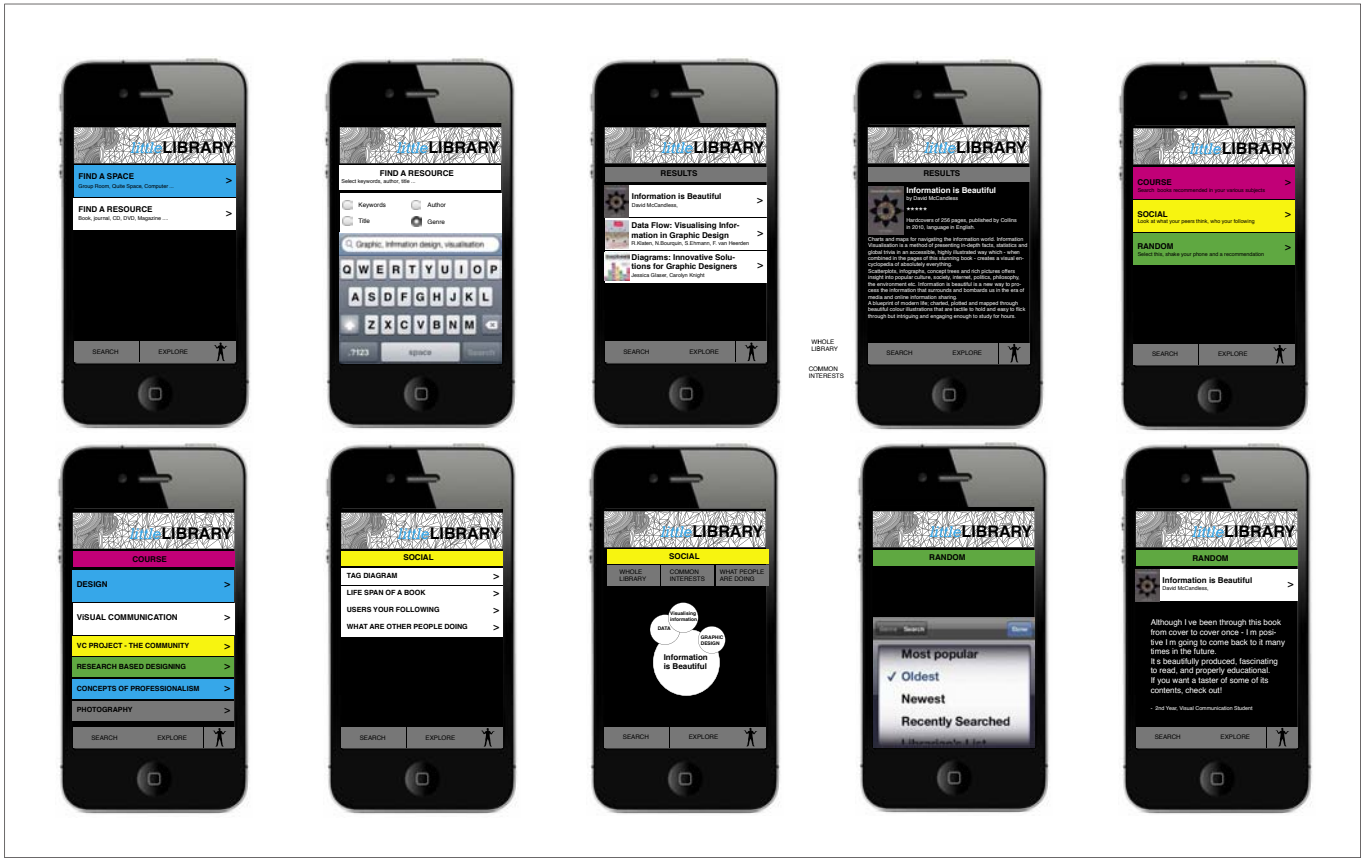


Image 20: Images of our middle stage computer wireframes

Interface Development

In the end these wireframes were further refined to the final Photoshop documents. These were then incorporated into the final presentation and used to film a demonstration of the app.

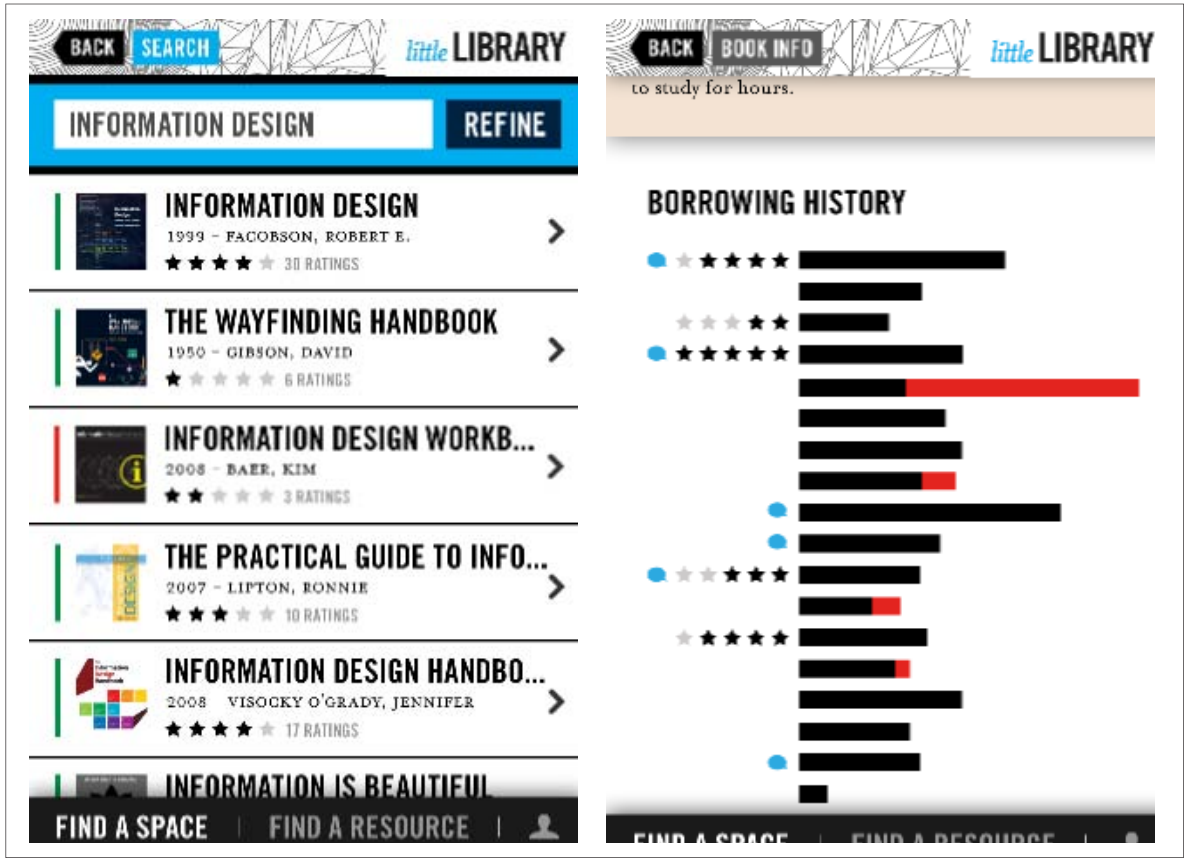


Image 21: Images of our final stage interface designs