

1.3. Project objectives and goal statement

The objective of the project is the creation of a dynamic website as a University-specific marketplace. The digital Pinboard website offers an organised way for students to sell second hand books. It also provides functionalities that allow students to advertise available rooms and make house hunting more efficient.

The use of the services offered by the website have the potential to significantly reduce the number of 'junk' emails sent daily send between students regarding sales of second-hand books and requests for room swaps on campus. Additional functionalities can enrich the search user experience by offering a number of browsing categories like unwanted tickets for events, sports equipment, electronics etc.

The personal development objective is the successful completion of the full development lifecycle from general management of the project and solution design to development and delivery of the website. Another personal objective is the use of Spring MVC Framework technologies for the development of the project.

1.4. Project benefits

The project benefit is the introduction of a new communication channel that allows students to sell second-hand books and search for housemates/swap rooms on campus. Therefore, the use of the website can help minimize the creation of 'junk emails' sent to advertise second-hand books and room swaps. The deployment of the website on the University's intranet and the services it provides can also promote the replacement of the physical Pin-boards on campus and thus reduce paper copies and promote environmental friendly behaviour. Lastly, the website can help reduce the network traffic and disk space used by 'junk' emails and therefore minimize the cost of storage required as well as other management activities carried out by the IT Services team.

1.5. ROI statement

The return on investment (ROI) is that the Pinboard solution will enhance the quality of student experience with the use of multimedia and make students' requests/hunt for houses and sales of second hand books easier.

Enable:

- *Providing, a high quality solution to meet students' needs* and support the University of Surrey strategy for continual improvement. The creation of Pinboard site can be seen as a new communication channel.

Defend

- *Improve student relationships* by providing a common platform as a mean to control and minimize the number of spam emails sent internally.

Grow

- *Taking a strategic approach by introducing* a new communication channel that allows the students to sell second-hand books and search for housemates/swap rooms on campus. Pinboard solution enhances the quality of student experience with the use of multimedia and makes their requests/hunt for houses and books more pleasant.

1.6. Project stages

The management of this project is based on the Systems Development Life-Cycle (SDLC) [17]. The first step was the investigation of an existing problem that can be improved.

1. *Preliminary analysis and idea:* To help minimise the creation of junk emails for second hand books and room swaps, the development of the Pinboard website was suggested.
2. *Literature review:* Background research helped identify websites, which offer similar services and then functional requirements were created in order to measure Pinboard's features for improvement and strengths over existing websites. Examples of existing websites are Gumtree, Preloved and eBay.
3. *System analysis, requirements definition:* Functional and non-functional requirements were defined and analysed to create a Business Requirement Document (BRD).
4. *System design:* To support the BRD, features of the website were defined and screen layouts as well as process diagrams are created.
5. *System Development:* In preparation for the development of the website, a request was made to the IT Services team to enable access to a Tomcat server and a MySQL database backend. Following the creation of Pinboard's home page, the login functionality for the user was developed. Appropriate measures were taken to ensure that input text submitted by users is secure and the website is protected from attacks. A local as well as a remote database instance was created and additional functionalities were added to improve the usability of the website. These functionalities include creation of bookmarks for the available items, the option to allow the users change their password and additional buttons to share the website on social media channels.
6. *Test and evaluation:* Following the completion of development the system was tested to ensure that each requirement is met. Test of functional requirements ensure that different web browsers can be used to open the website and unexpected behaviour or crash of the web client is avoided. The full list of functional requirements can be found in section '3.2.1 Functional and non-functional requirements'. Tests were also undertaken to tackle security concerns such as unauthorized access to the website or SQL injection by

attackers. Finally, User Acceptance Testing (UAT) was performed to ensure that early adopters are happy with the service and functionalities offered by the website. I know that testing hasn't been completed yet even if it's described using past tense – that's the tense we we've been advised to use.

2. Literature review

2.1. Background research

Background research was undertaken to identify other solutions that offer similar functionalities and understand how those websites are developed. Identification of their strengths and weakness helped identify the must-have features of the Pinboard website. The main areas investigated were the target audience and key functionalities that the users would like to see on the website. The comparison made was between a number of open source e-commerce solutions such as Gumtree, Preloved and eBay. The strengths and weakness of the services are shown below: