Evaluation

Research Rats

Assignment 2
Human Computer Interfaces (ICTE3002)
Curtin University

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Introduction

Contributor(s): Ryan Martin

The ‘Library Management System’ is an open source, digital book management software optimized for university to personal libraries, including everything in between. The software is used to organise and store both staff and book information to be viewed or edited when needed. The system can search for specific books, view and/or edit individual book details, manage book returns and more. It is aimed to be used by both public and private libraries and to be used by any librarians over the age of 18, which could consist of library members, students and/or hobby readers that want to digitally search the contents of a library to find the desired book rather than searching in person.

The ‘Research Rats’ goals with the redesign was to improve the users' experience by creating an interface that would be visually appealing for all users including people with visual disabilities. In addition, the library management system should be easy for new library members to learn and simple enough for any members to use while also keeping the system as efficient as possible.

This report covers the six steps of the DECIDE framework to precisely validate the success of the ‘Library Management System’ redesign by Deep Patel and Matthew Rossi. The six steps are;

- **D**etermining Goals
- **E**xploring Questions
- **C**hoosing Evaluation Methods
- **I**dentifying Practical Issues
- **D**ealing with Ethical Issues
- **E**valuation and Analysis

Through the use of the DECIDE framework, the redesigns of the Graphic User Interfaces (GUI) for the ‘Library Management System’ by Deep Patel and Matthew Rossi will be examined to determine whether the selected designs were able to yield the ‘Research Rats’ desired results and are ready for actual real life usage.

Determining the Goals

Contributor(s): Aaron Giles

The main goal for the evaluation of the library management system was to determine if the new application achieves what it set out to do. We are going to analyse the functional and non-functional requirements of the new application. The goals will provide the analysis team with an idea on what to look for when doing in depth analysis.

The goals are:

1. Functional Requirements. Ensuring the implementation allows functionality for all of these:
    - Explore books Window
    - Book Details
    - Issue/Return Books Window
    - Issue Details Window
    - Manage Books Window

    - Manage Members Window
    - Menu Window
2. Non-functional Requirements. The non-quantifiable goals.
    - Provides feedback
    - Look and feel
    - Usability
    - Layout
3. Others: All the other goals we need to determine.
    - Has the new implementation improved how the user uses the application?
    - Offer Feedback and insight
    - Any critical errors

Explore the Questions

Contributor(s): Aaron Gangemi

To determine whether or not the goals are functioning correctly, specific questions must be asked to recognise whether or not the goal has been satisfied. Additionally, we explore other questions regarding the user experience and usability, which will allow us to investigate the functionality of the system and whether or not the user experience goals and usability goals have been met. Our group has split these questions up into sections as depicted below:

Goal Based Questions

Contributor(s): Aaron Gangemi

- Check that the functional and non-functional requirements of the library management system have been satisfied
    a. Have the functional requirements been achieved?
        i. Can the user explore the books displayed?
        ii. Can the user retrieve book details for 1 or more books?
        iii. Can the user return a loaned book using the library management system?
        iv. Can the user loan a book using the library management system?
        v. Can the user view their currently loaned books?
        vi. Can current library members be managed in the library system?
    b. Have the non-functional requirements been achieved?
        i. Does the library management system provide feedback to the user?
        ii. Does the library management system provide a good look and feel?
        iii. Is the layout clear and concise for the user?
- Addressing errors in the library management system
    a. Are there any critical errors in the library management system that critically affect its functionality?
    b. Are there any critical errors in the library management system that affect the layout?
    c. How does the program respond when an error occurs in the library management system?
    d. If the user input creates an error due to invalid input, how does the library management system recover from this?
- Feedback and insight of the library management systems implementation:
    a. Does the new library management system keep the user informed?

    b. Does the library management system provide feedback such as confirmation alerts when a user performs a task?
- New implementation improvements:
    a. Does the new implementation of the library management system include more functionality than the existing system?
        i. If so, what functionality was added to the new system?
        ii. Why was this change added?
    b. Does the new implementation of the library management system contain less functionality then the existing system?
        i. If so, what functionality was not incorporated?
        ii. Why was this functionality not included in the new system?
    c. Overall, has the new library management system been successful in upgrading the current library system?
    d. Is the new user interface able to carry out all tasks that it was designed to complete?

Usability Goal Questions

Contributor(s): Aaron Gangemi

The Usability goals that the Research Rats team identified that were most important for them in designing the interface from Sharp, Rogers and Preece (2015) were:

1. Easy to learn
2. Effective to use
3. Efficient to use
4. Easy to remember

Each usability goal is concerned with how easily the user can interact with the library system. Meeting the usability goals are crucial because if the usability goals are not met, then users will be more inclined to search for an alternative product that they can use to meet their goals. Therefore, to evaluate the Research Rats usability for the library management system, such questions must be asked to determine if they have met their desired goals:

- Is the user easily able to navigate through the library system using buttons and icons?
- Does the library management system keep the user informed?
- Does the library management system help the user to learn the software?
- Is the user able to perform the desired function without getting lost?
- Is the new library system more efficient in achieving the desired task? (retrieving a book)
    a. Does the library management software make functions faster to perform?
- Will the user be able to remember how to use the software next time they use it after exiting?
- How easy is it to learn to use the software if you are a first time user?
- Is the user able to access the information they require?

User Experience Questions

Contributor(s): Aaron Gangemi

The user experience is an important component of any software as it defines the overall experience of a person when using the software.

The user experience goals that the Research Rats identified from Sharp, Rogers and Preece (2015) as the most important to their library management system were:

1. Helpful
2. Pleasurable
3. Fun
4. Rewarding
5. Accessible
6. Aesthetically pleasing

We have to develop questions to determine how the system feels to the user, and if it aligns with the user experience goals set by Research Rats. If the user is quite uncomfortable, and really struggles with the UI, then they may be frustrated with the software and further deterred from using it again. However, on the other hand, if the user is quite satisfied with the system and the user experience provided is positive, then they will be more attracted to go back and use the UI again. Therefore, the following questions can be asked to the Research Rats about the user experience of the library software:

- Do current and new users enjoy using the library system?
- Does the new library management system appeal to the user?
- Is the user frustrated or uncomfortable with any features of the UI?
    a. If yes, which features or aspects of the UI make the user frustrated or uncomfortable?
- Alternatively, does the user get bored using the library system's UI?
- Is the library system helpful in achieving the user's desired goals e.g. requesting a book?
- Does the library management system motivate and entertain the user when completing a task?
- Does the library management system contain and enhance an aesthetically pleasing UI which encourages the user?
- How does the library management system respond to the user when they complete a task?
    a. Is the response rewarding?
    b. Is the response frustrating?

Choose the Evaluation Methods

Contributor(s): Terence Marcelo

The right choice of evaluation methods would ensure the overall evaluation of the design is thorough as this impacts how the evaluation data is collected, analyzed, and presented. As we are evaluating a user interface, we will be using a controlled setting that directly involves users. This will reduce outside influences and distractions that might affect our evaluation.

We have chosen usability tests to best evaluate how effective the design of the Library Management system is when used by real-world users. The format of our usability tests is as follows:

- Present the user with the interface and give a short brief with what the program can do.

- Instruct the user to perform a certain task.
- Collect the data.

Inspection will first be utilised to discover all the functions that the design features. The result of this will be used to determine the usability tests to conduct. In addition to usability, some factors of the design that are important to the user will also be considered such as sufficient feedback when actions are made and whether all the features are visible and easily identifiable.

The data for each usability test includes the time taken to complete the task, number and type of errors (if errors are encountered), and how many screens the user has to navigate through to complete the task. The overall data to be collected include the number of users who encountered an error, total number of the users who completed the task successfully and those who did not complete the task successfully.

Following the user's completion of the tasks assigned to them, we will proceed to ask them various questions regarding their experience using the program in the form of user satisfaction questionnaires. The questionnaire will feature open-ended questions to encourage a more honest and natural response.

To conclude our evaluation, we will use the data to determine whether this redesigned interface improves user experience while still meeting all the required functionality of the original design.

Identify the Practical Issues

Contributor(s): Kevin Le

Evaluation Team

The Research Rats have engaged our design consultancy, GLM, in order to evaluate their newly developed Library Management System. Per our agreement, the study will be conducted by five consultants at GLM. The consultants chosen are: Aaron Gangemi, Aaron Giles, Kevin Le, Terence Marcelo, and Ryan Martin.

They have been assigned the following roles:

Name	ID	Role(s)
Aaron Gangemi	19447337	Project Manager
Aaron Giles	19487210	Participant Acquisition
Kevin Le	19472960	Evaluation Designer
Terence Marcelo	19163785	Data Analyst
Ryan Martin	19514231	Equipment & Booking Handler

Participant selection

The Research Rats team developed their system targeted towards librarians and library staff, specifically ensuring that staff of different ages at different technological skill levels were able use the newly developed system with ease, and teach others how to use it easily. However, they are assumed to have some prior experience with using a desktop computer that consists of a display, keyboard and mouse, as the new library management system has the same input methods as the previous program that is to be replaced. This basic knowledge of how to use a desktop computer is a must to participate in this study.

Additional requirements are that users must have used a library management system in the past. This is to determine if they prefer the newer system over the previous system.

In order to produce a fair representation of the demographic, the goal of this study should also be to ensure there are at least 2 participants from each of the following age brackets:

- 18-30 years old
- 30-50 years old
- 50+ years old

It is hoped we will be able to find at least 10 participants in this study, as we believe that is a good sample size.

Note: The participants will be the evaluation team pretending to act as librarian end-users of the software from each of the age brackets. Due to the time constraints, we will not be able to get real people in to test the system.

Environment

The study will be conducted in a controlled setting, in order to ensure we are able to control as many variables of the experiment as possible to ensure reproducibility and accuracy, and remove all distractions in order to solely focus on the program. The laboratory environment which we will be using as our controlled setting will be located at Curtin University. Participants will be invited to the laboratory and be seated at a desk with the equipment listed below.

The environment will have existing networking and power outlets. The environment must be able to accommodate our team, the equipment and the participants.

Equipment

For each participant, equipment provided will be a Dell Optiplex 7070 Small Form Factor Desktop. This computer is often encountered in business, education, and other public settings due to its form factor and relatively low cost.

The computer will be running Windows 10 Professional (64 bit) and be set to English. Network connectivity is required in order to load the book covers from Google Books, which is part of the new library management system. There is a requirement of 2 power outlets, 1 for the computer and 1 for the monitor. Power boards may be required, all electrical equipment must have in date electrical test tags. An internet connection will be provided via ethernet, and the laboratory must have ethernet ports available. A switch may be required if there are insufficient ports.

Stock peripherals to be provided:

- Mouse: Dell MS116 with 2 buttons and a scroll wheel with middle click.
- Keyboard: Dell KB216 with a QWERTY layout.

Monitor to be used is a Dell P2419H at 24” with IPS and a resolution of 1920 x 1080

Detailed specifications of the machine:
- Intel Core i5-9500
- 8gb 2666mhz DDR4
- 256gb SSD

Users will be provided with a regular office desk and chair, the computer will be set up at each desk. Ensuring it is ergonomic.

This computer will be running the newly developed Library Management System software developed by Research Rats, which has already been installed on each system.

Budget & Schedule

Per our engagement with Research Rats, they have outlined that they are to be billed hourly. So it is in their financial interest we conduct this study as quickly as possible.

The Research Rats require the system evaluation to be completed as soon as possible, as they have received numerous expressions of interest from different councils regarding their Library Management System, and their desires to implement it in their libraries.

Decide How to Deal with the Ethical Issues

Contributor(s): Kevin Le

There is great danger of being open to legal prosecution or damage to our stakeholders reputation due to not considering ethical concerns.

All participants in the evaluation are required to read and sign the informed consent form. The consent form ensures they have understood what the goals of the study are, what will happen to the findings, the privacy of their personal information, that they are able to leave whenever they wish, and have the right to be treated politely.

Evaluators must ensure that any data must be kept in absolute confidentiality and the privacy of it is ensured, or legal and ethical issues may arise. The treatment of participants in the study must be respectful and polite.

The form based on section 8.2.3 page 263 in *Interaction Design: Beyond Human–Computer Interaction, 5th ed, Wiley Ltd., 2019* is shown below:

Participant Information and Consent Form

Library Management System Study

Introduction

You are being invited to participate in a usability study of a new Library Management System developed by Research Rats. This study will involve asking you a variety of questions about you, and will ask you to perform a variety of tasks using the new library management system, and further asking you to self-evaluate the task with a few questions.

The study is being conducted by GLM, a user experience consultancy specializing in interface design. We are based in Curtin University, Bentley.

Goals

This study aims to ensure that the user experience and usability goals of the software developed by Research Rats are met, and aims to identify any deficiencies in their interface design, and any areas where user experience can be improved.

Data Collected

The data collected includes your responses to the questionnaire and self-evaluation for each task. Additional data collected includes the time taken for you to complete the tasks, the number of clicks/inputs required to perform the task, the number of errors made, and the amount of times (if any) that assistance was requested in performing a task.

Use of Data

The data gathered will be used to determine if the system meets the user experience and usability goals of the Research Rats. This data will be used by GLM staff involved in this study to make those determinations. Data may also be presented to stakeholders or be presented in a report, but will not contain information that uniquely identifies you.

Privacy of Personal Information and Data

All data gathered, including personal information will be stored in a protected and encrypted system that will only be accessible to GLM employees who are conducting the study. Your personal information will not be shared to anyone outside of the GLM team.

Withdrawal From Study and Your Rights

Your participation in this study is entirely voluntary. You are able to choose to stop participating at any time. Any data and information you have provided will be destroyed.

You have the right to be treated politely and with respect.

Compensation

There is no monetary compensation for participating in this study. You will help improve the experience for end users of this software, and help the design team in making choices in implementing the interface.

Contact Information

If there are any questions, please ask the personnel conducting the study, or if any questions arise after the study, please contact the GLM team via any of the emails listed below:

Aaron Gangemi	19447337@student.curtin.edu.au
Aaron Giles	19487210@student.curtin.edu.au
Kevin Le	19472960@student.curtin.edu.au
Terence Marcelo	19163785@student.curtin.edu.au
Ryan Martin	19514231@student.curtin.edu.au

Agreement

Participant

- ☐ I consent to participate in the “Library Management System Study” conducted by GLM on behalf of Research Rats.
- ☐ I give consent for the use of my data by GLM.
- ☐ I have had the opportunity to ask questions and have understood the nature of this study.
- ☐ I understand my right to privacy and all information I provide will be kept confidential
- ☐ My signature below indicates my consent to participate in this study, and that I am fully aware of what I am signing

Full Name: _____

Signature: _____

Date: _____

Study Conductor

- ☐ I have ensured that the participant has understood the nature of this study, their rights, and has asked any questions they have had.

Full Name: _____

Signature: _____

Date: _____

Last Updated: 01/06/2020
Version: 1.1

Evaluate, Analyze, Interpret, and Present the Data

Contributor(s): Aaron Gangemi

We will be starting off with an initial inspection to get a rough overview of the system to be evaluated, and determining from our perspective if the Research Rats goals were fulfilled. Following the conducted inspection, our team will perform usability tests on Matthew Rossi and Deep Patel's user interfaces of the library management system.

Our team will be able to analyse whether or not the Research Rats have met the required usability goals. We have also conducted testing from a range of users that have tested the product themselves. The users that tested the library management system were several librarians that were 18 or older.

Each librarian will be required to test different features of the system. Our tests will analyse how each librarian responds to different functions that have been implemented by the Research Rats. The results we obtain will be recorded and visually documented on a range of several graphs. The purpose and benefit of visually documenting this data is that our team will be able to obtain a clear overview of the data and allow us to extensively draw conclusions about the relationship between the intended users and the new implementation provided by the Research Rats.

Following the usability testing of the product, the librarians will be asked to provide responses to several questions about their overall user experience in the form of a questionnaire. The user will be required to provide accurate responses to a range of questions related to the new Library Management System.

Using the questionnaire responses, our team will look to identify any overarching patterns in responses. From this, we will be able to utilize the provided responses to evaluate the effectiveness of the Research Rats implementation and the relevant impact that it had on the user.

The evaluation and results are demonstrated below.

Initial Inspection

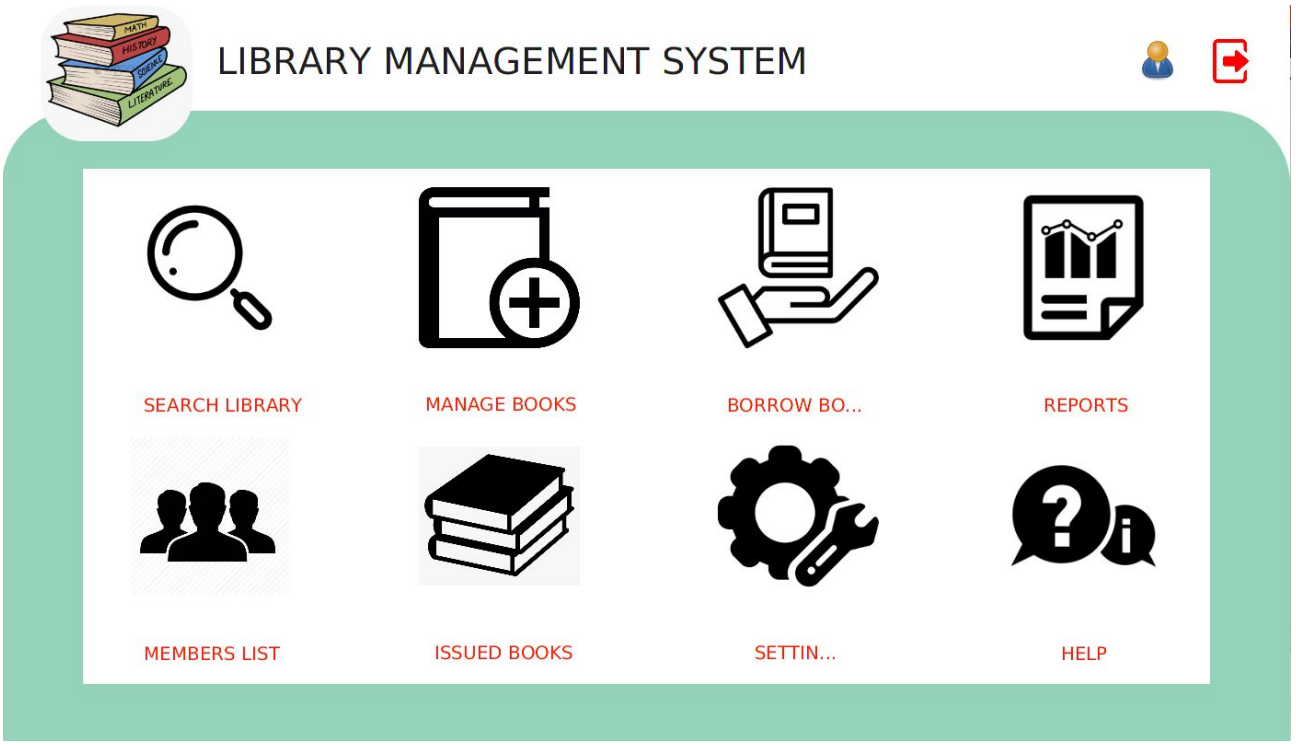
Contributor(s): Aaron Gangemi

The first method our group will use to evaluate the Research Rats redesign for the new Library Management System is inspection. GLM will run both Matthew Rossi and Deep Patel's redesign of the Library Management System to analyse the design choices that were made across each interface. By doing this, our team will discern whether or not the Research Rats have been able to achieve their design goals.

Deep Patel's UI

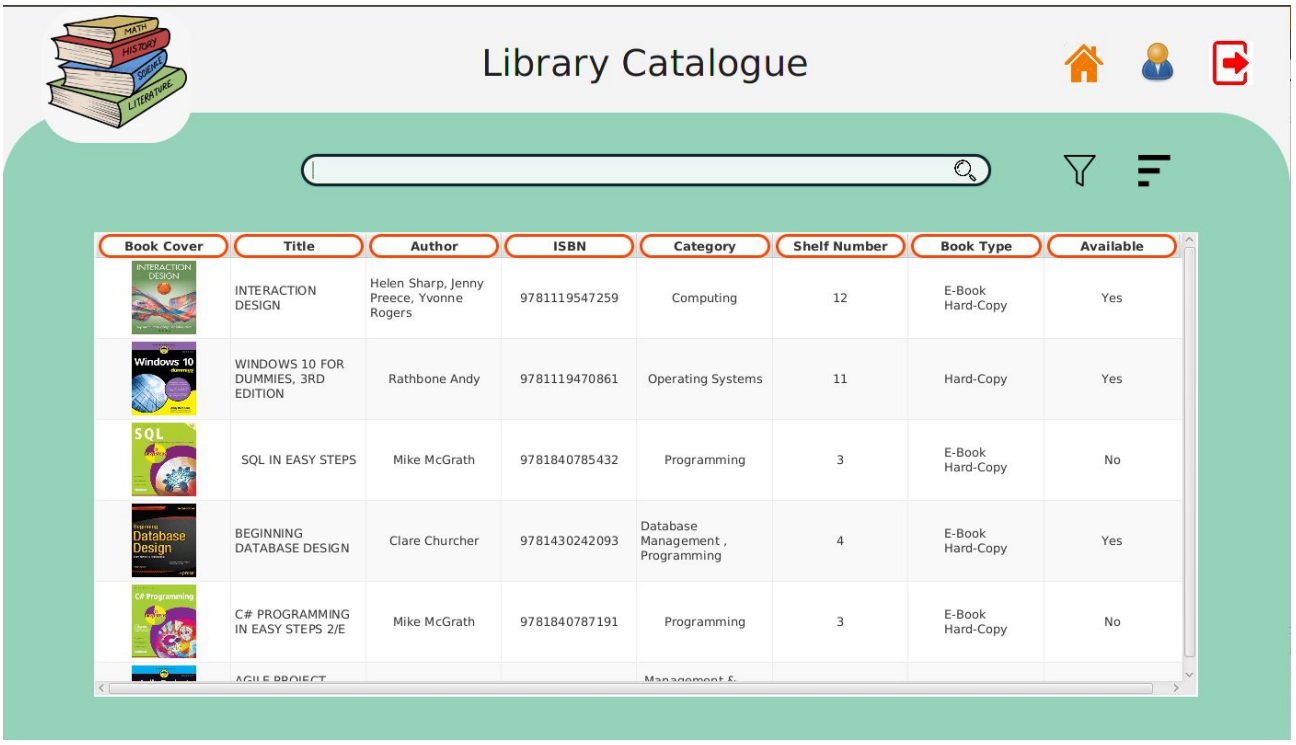
Contributor(s): Aaron Gangemi

On initial start-up of Deep's user interface, we are presented with the below interface which presents a range of options to the user that indicate the applications functionality. The various black icons provide good contrast with the white background and are quite easy to identify their function by just looking at the image. In addition, Deep provides helpful labels which ensure the user will not get confused or lost throughout the application.



If a first time user was to look at this UI, they would easily be able to navigate throughout the program which enhances the program's usability. In addition, the program's learnability is immediately recognised as they will identify each icon as a button and the associated text will imply that each button performs a different action that the user can execute.

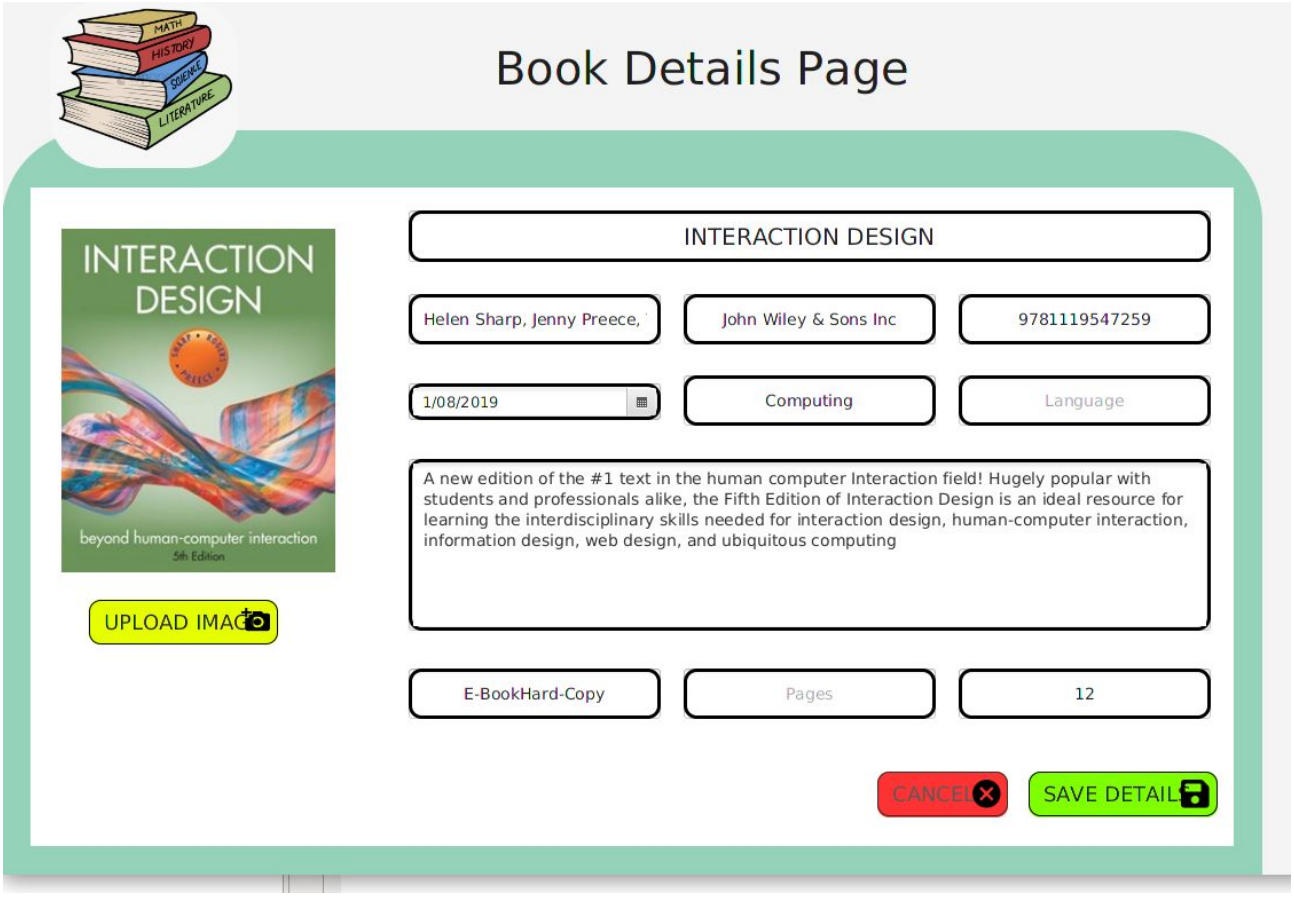
Following the icons from left to right, the first function Deep provides is search functionality which is clearly indicated by the search icon.



Book Cover	Title	Author	ISBN	Category	Shelf Number	Book Type	Available
	INTERACTION DESIGN	Helen Sharp, Jenny Preece, Yvonne Rogers	9781119547259	Computing	12	E-Book Hard-Copy	Yes
	WINDOWS 10 FOR DUMMIES, 3RD EDITION	Rathbone Andy	9781119470861	Operating Systems	11	Hard-Copy	Yes
	SQL IN EASY STEPS	Mike McGrath	9781840785432	Programming	3	E-Book Hard-Copy	No
	BEGINNING DATABASE DESIGN	Clare Churcher	9781430242093	Database Management , Programming	4	E-Book Hard-Copy	Yes
	C# PROGRAMMING IN EASY STEPS 2/E	Mike McGrath	9781840787191	Programming	3	E-Book Hard-Copy	No

The search interface provides the user with a search bar at the top of the page which is clear and easy for the user to recognise as well as providing a range of pre-existing books for the user. Each book is presented with it's details at the forefront of the interface in a clear and concise manner. In addition, the page contains a filter option and a go back to menu option.

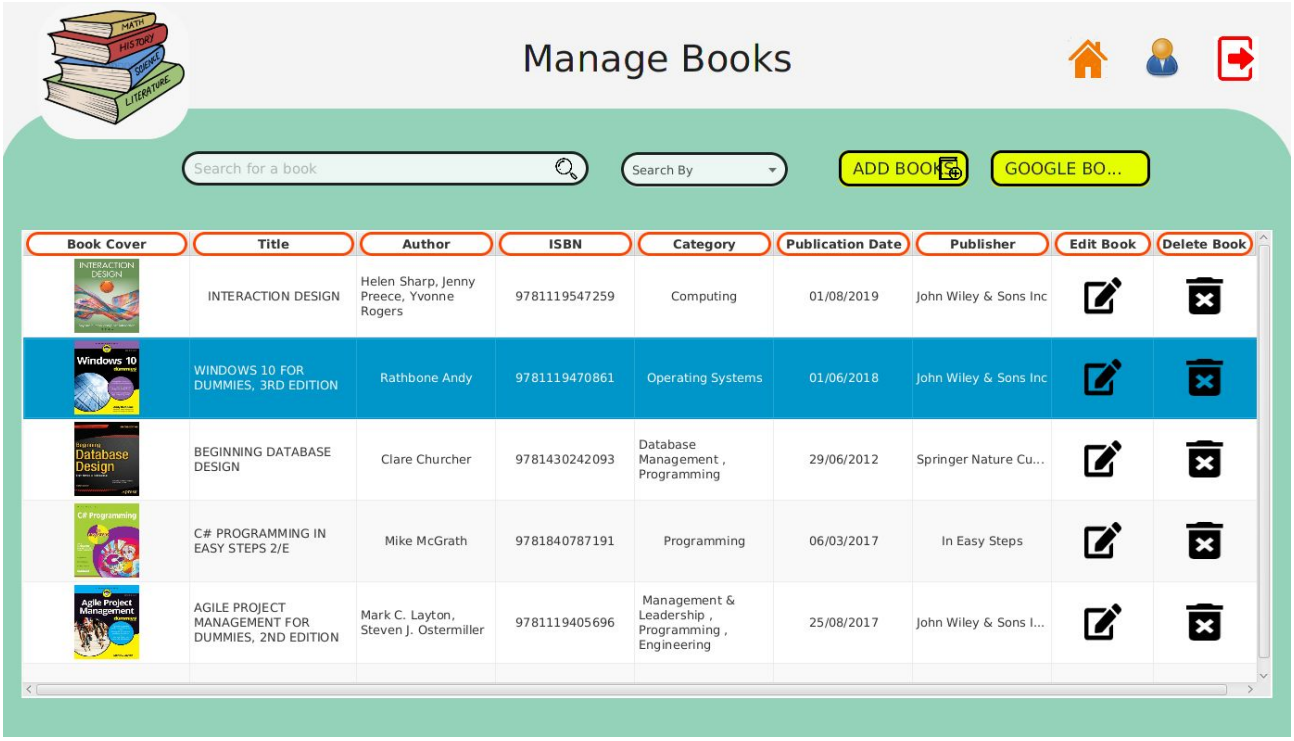
Correspondingly, the library logo, "Library Catalogue" text and icons in the top right corner are consistent from the home page which provides the user with a sense of familiarity for the UI. Another feature that our team really enjoyed for the pre-existing books is that the user is presented with the details of the book when they click.



The details of the book presented above is in a new window so the user is not confused or dominated on the previous page. The details are nicely separated throughout the window in a clear layout and the user is easily able to identify what each field is by either the text provided or the placeholder. Finally, the window gives a red cancel button and a green save button which allow the user to perform the corresponding action. Both of these are clearly visual to the user as they provide good contrast with the white background.

However, a critique of the design principle of learnability is that the menu option is not labelled and the user could be questioning what page this icon leads to. In addition, the user's purpose on this page is to search a book and the table of books can be seen as “overwhelming” or drawing the user away from their desired task. Furthermore, the user is not provided a trail of their previous pages or given a title for the current page they are currently on. This puts the user at risk of getting lost throughout the program and contrasts against the principle of memorability as they may find the program more difficult to remember.

The next feature presented on the menu list is the manage books feature, which is inspected below:

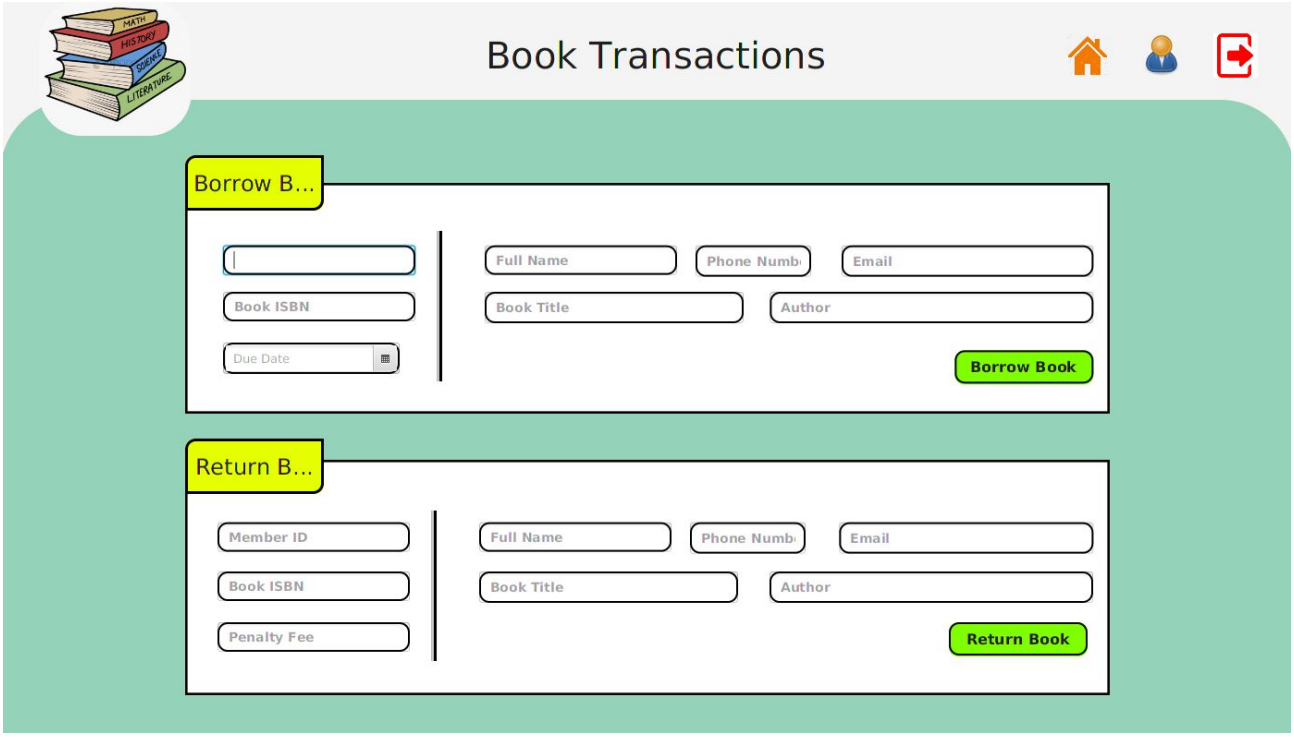


The managed books are displayed in a clear white table which is enhanced using the contrast with the green background. The table displays all the books the user currently has loaned, with its associated details incorporated. This table contains the same format as the previous search page which entails a sense of familiarity for the user as the layout is quite consistent.

A convenient design feature that Deep has provided that enhances the program's usability is the book search function and the “Search By” drop down list. Both of these features will allow the user to filter through their list of currently loaned books. For example, if the user has 1000 loaned books, then they will spend more time than intended searching through their list. Deep has made this easy for them by allowing them to search by name or any of the other book details.

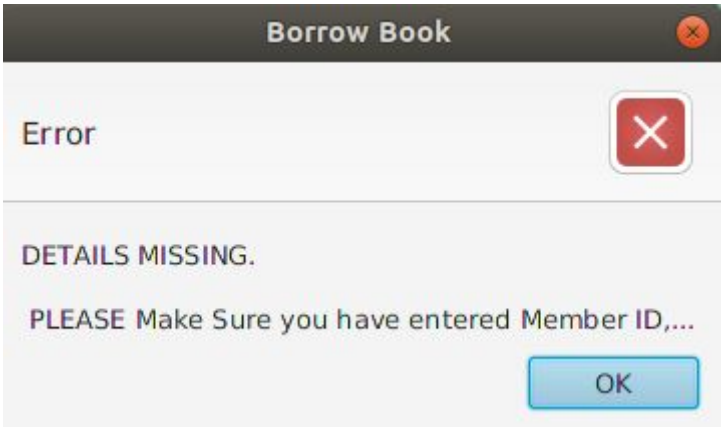
Deep allows for modification and deletion of a book which is clearly represented by the edit and rubbish bin icon in each row. If the user selects on this icon, then the user is displayed with a confirmation alert asking whether they would like to delete/modify the book. By displaying this, Deep promotes the design principle of feedback, as he is allowing the program to inform the user of the current actions it is about to execute.

The next interface to be inspected is the borrow books interface.



The borrow books interface contains 2 forms. One which allows the user to borrow books and the other which allows the user to return books. Deep ensures that each field contains a placeholder which ensures the user knows what data to enter in each field. These labels enhance the learnability of the program as the user knows exactly what to do as soon as they look at the form.

In addition, another feature of this page is the layout. Deep has separated the user fields on the right hand side from the book detail fields which are on the left hand side of each form. If any fields in the form are empty, the following validation error appears:



By incorporating this, Deep keeps the user informed that an error has occurred. This promotes the design principle of feedback as the user is aware of the current state of the program. The user will then be required to fill out the form with valid data.

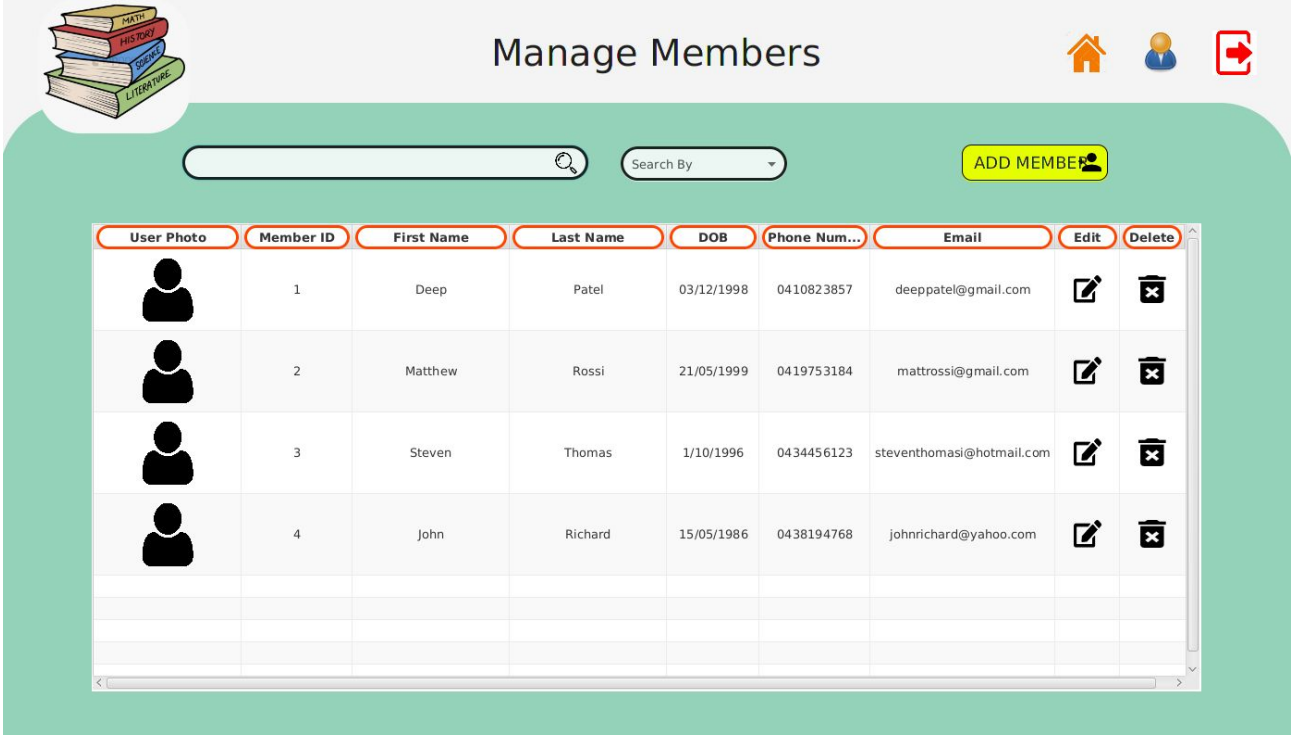
The white form Deep has provided is central and the fields are clearly visible so the user cannot miss them. By doing this, the user will not get confused or lost when attempting to borrow a book.

Furthermore, Deep also keeps the page labels consistent as the title “Book Transactions” inform the user of which page they’re currently on. This has been consistent across the provided user interfaces and promotes the usability of the program.

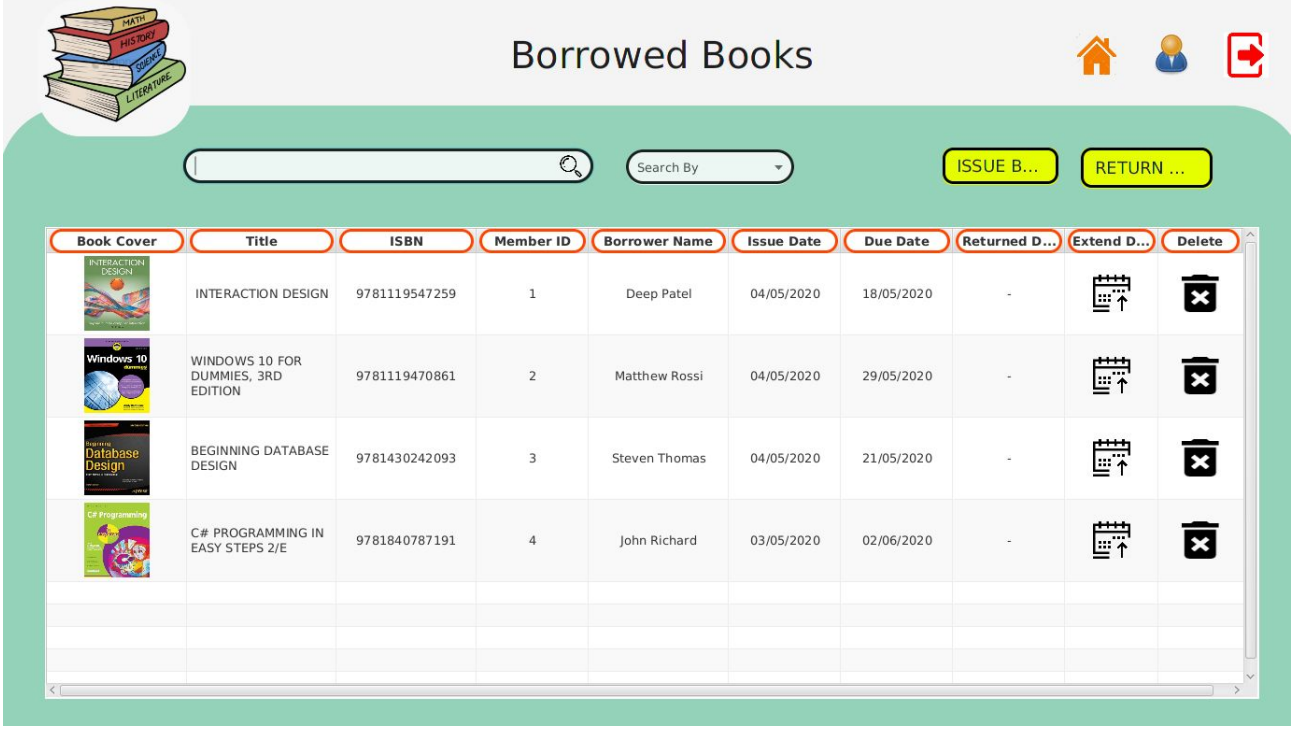
The next interface is used to manage current members in the library system. Clearly seen in the table, Deep provides the user details of current members of the library management system including: photo, ID, first name, last name, DOB, email and phone number. They are also given the option to edit and delete members from the system.

Looking at this interface, the table Deep has used is consistent with the other tables he has used throughout the interface which promotes internal consistency throughout the program. In addition, Deep provides librarians with a search bar and search drop down list to filter through all the listed users. This tool enhances the usability of the program as librarians will be able to filter through a large quantity of users and find a specific user, rather than searching through each individual user.

Each label in the table contains a red border which enhances the black text. This ensures that the librarian using the program is able to clearly identify what data each column is identifying.



The final interface being inspected is the borrowing books interface

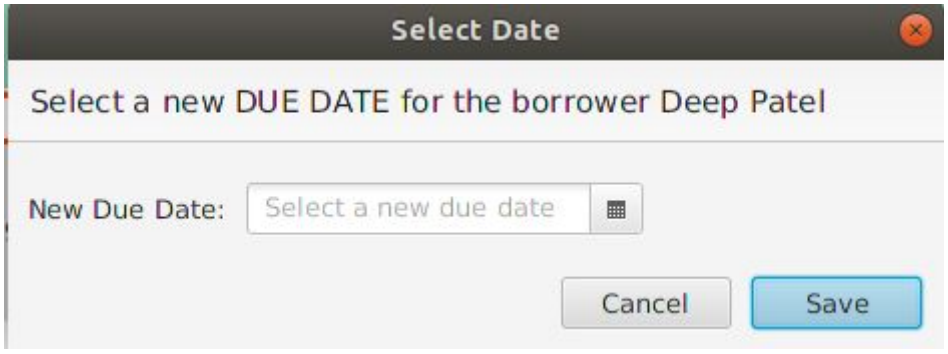


The borrowing books interface contains a table utilizing all the book details that the user has borrowed. This table has been seen throughout the program which promotes consistency in Deep's implementation. The book details are quite easy to read as Deep has used colours that provide good contrast and are easy on the eye.

Deep has utilized icons quite well which is demonstrated in the "Extend Date" and "Delete" fields. Each icon is immediately able to indicate to the user that they are buttons which allow the user to modify the currently borrowed book, which enhances the learnability of the program.

A minor critique of this page is that each book's details are displayed on 1 page. This can be seen as quite dominating for the user if they have 100 books borrowed and all the details are displayed on one page. An alternative fix to this would be to display each book's details once the user has clicked on the book.

If the user selects a due date, the program displays the following alert.



The alert asks the user to enter a date in the field with a calendar prompt to assist the user. This is quite easy and simple to identify and use which Deep has purposely done to enhance the programs usability. Once the user successfully completes this, the date in the borrowed books is successfully updated.

Finally, on the home page, Deep provides a help feature for the program. This feature ensures that if the user has any problems with the program, they are able to seek guidance on how to use the program. Deep places this button on the home page and the icon is quite large meaning hard to miss. By making this large, users will easily be able to seek help and effectively continue throughout the program.

HELP

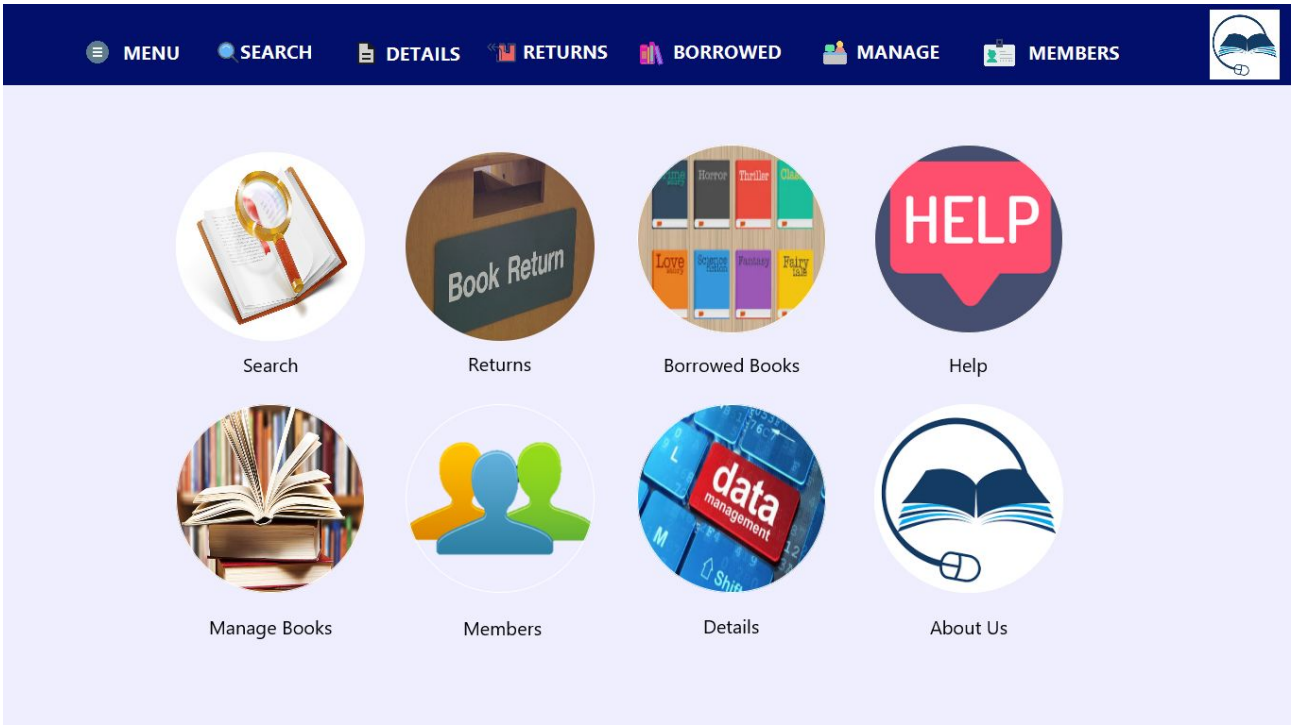
In conclusion, although Deep has not implemented the settings and reports tabs of the library management system, his design meets most of the usability goals and provides a positive user experience with a good feel which appeals to the user. Our team believes that some minor changes are required, however Deep has met the Research Rats goal of constructing an intuitive and appealing interface for librarians.

Matthew Rossi's UI

Contributor(s): Kevin Le

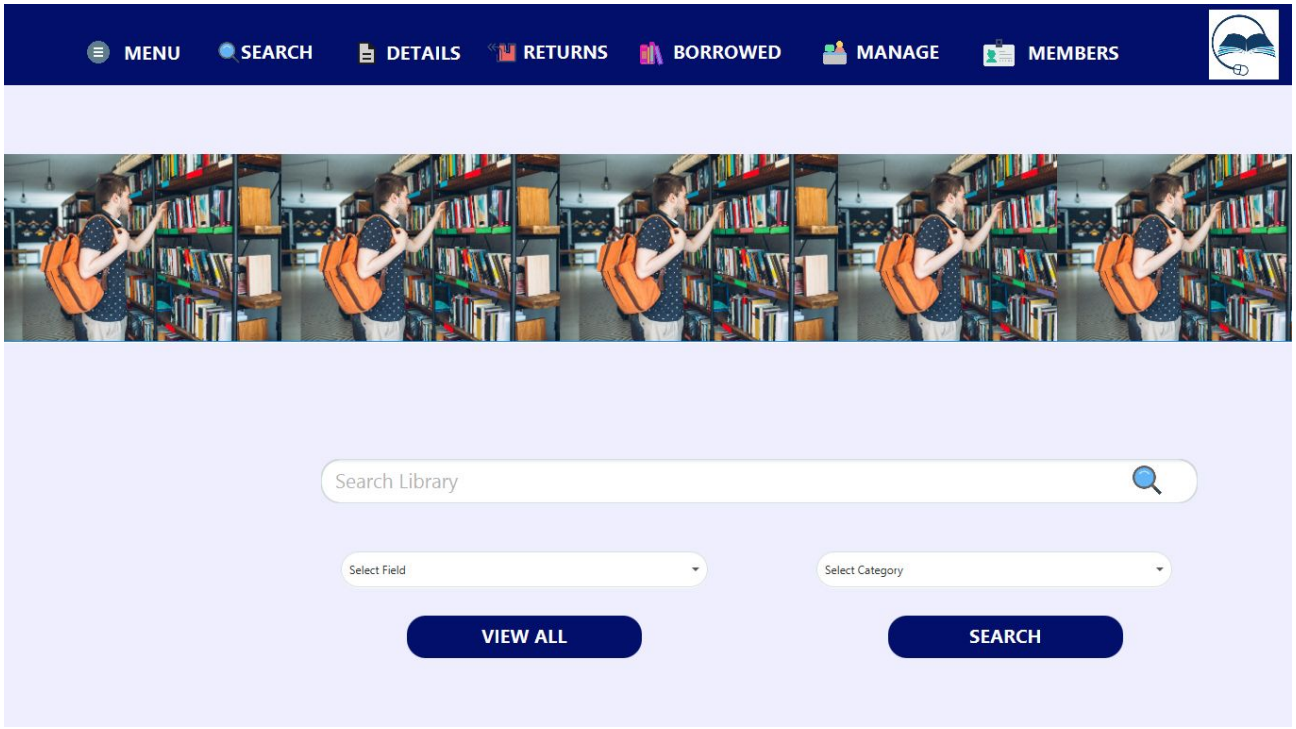
On initial start of Matthew's UI, we are presented with a well laid out menu screen, with clear icons that act as indicators of what functionality the program is able to perform. The colour scheme is easy on the eyes and does not make reading difficult.

Each button and icon is labeled as to not cause any confusion, strongly promoting the usability goal that Research Rats identified, being easy to learn. If initial users were to be presented with this screen they either can use the icons to determine what actions each button performs, or can just read the corresponding labels.



Following the header row as the order of functionality we are to test, (menu, search, details, returns, borrowed, manage and members), we start with the search functionality. Upon hovering over the search button, the button is encircled with a black border. This is following the feedback design principle which helps promote the usability of the program.

As we are presented with the search page, it is also well laid out upon initial presentation and the search bars help the user understand what to do with prompts. However there are small critiques to be made here, where the magnifying glass icon is used, that should be moved to the left of the search bar before the prompt, as users may confuse it with the search button, when in fact it is the button below. Additionally, the search fields are not centred, but this may be attributed to resolution and scaling issues on our test machines which we will reach out to Research Rats to check.



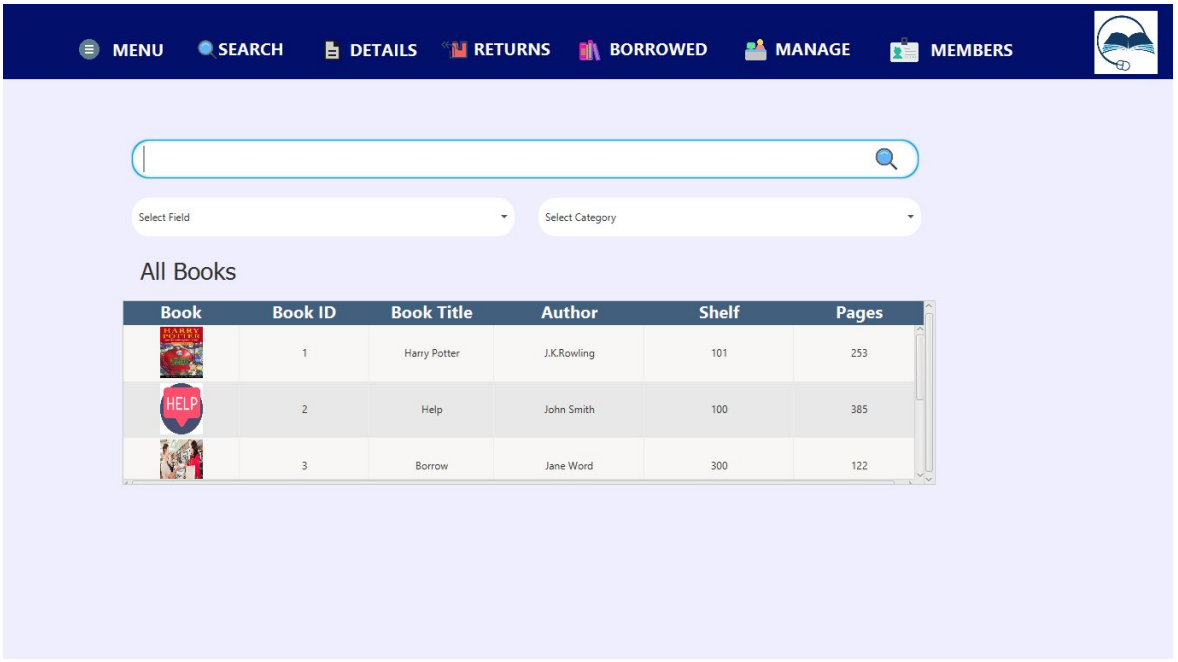
Another critique is regarding the design principle of feedback, in terms of the current status or state of the program. There is no indicator to what function or page the user is currently on. This can easily be fixed with an underline under the “Search” button in the header bar. This will hopefully be fixed in later revisions. The dropdown menus are convenient and are understandable. There is proper validation throughout.

When a search query is entered and the search button is clicked, the user is led to the result page that is well laid out.

Overall it took less than 3 clicks to perform a search which prompts efficiency specified in the Research Rats goals. The results page that is presented is well laid out and is effective at conveying the required information sought by the user.

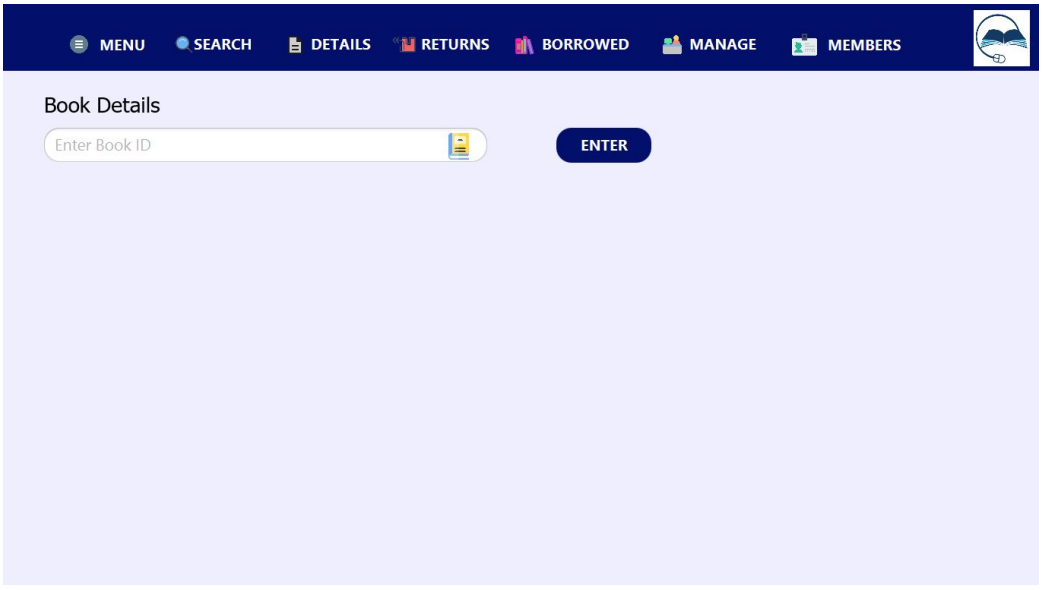
There is no clear way to return back to the previous search field, but the user can do so by clicking “Search”, it would help with the user experience if a back button was provided.

Another functionality of the search menu is to simply view all books in the library. This leads to a page like so.



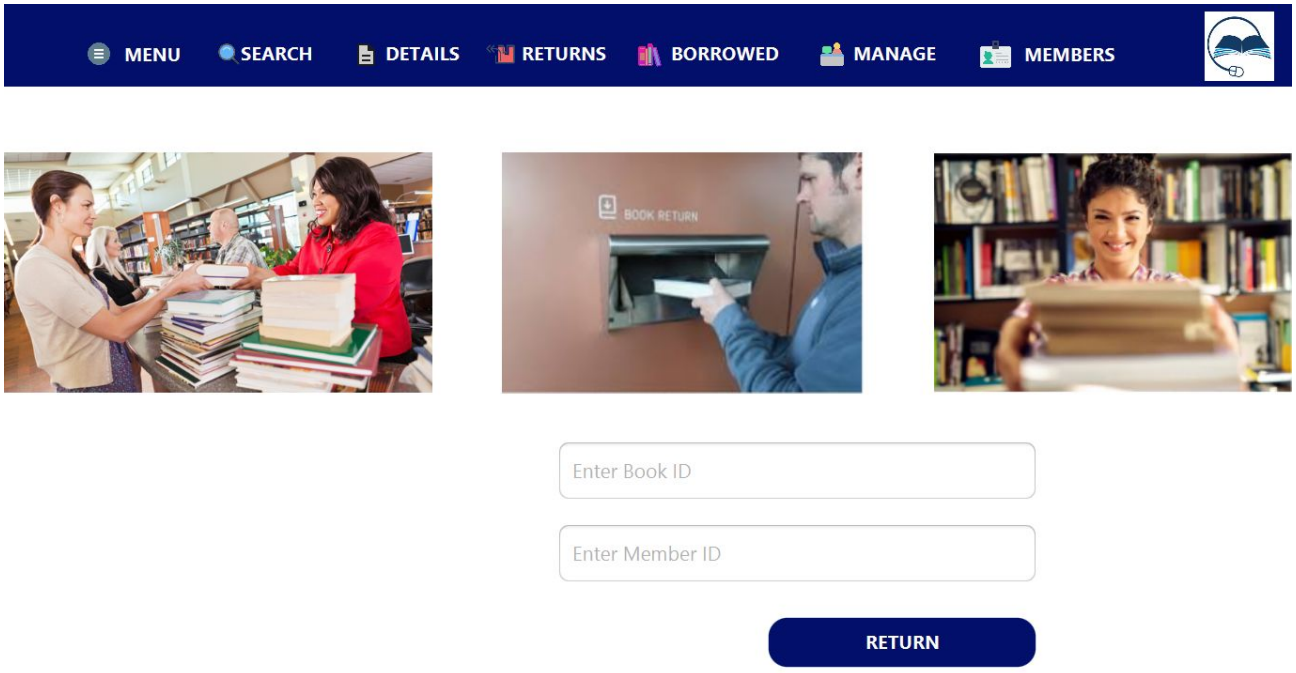
Again information is presented in a coherent manner, but the list of books may be too small and can be made taller.

Going onto the next feature along the header, “Details”. This allows the lookup of a book's corresponding information.

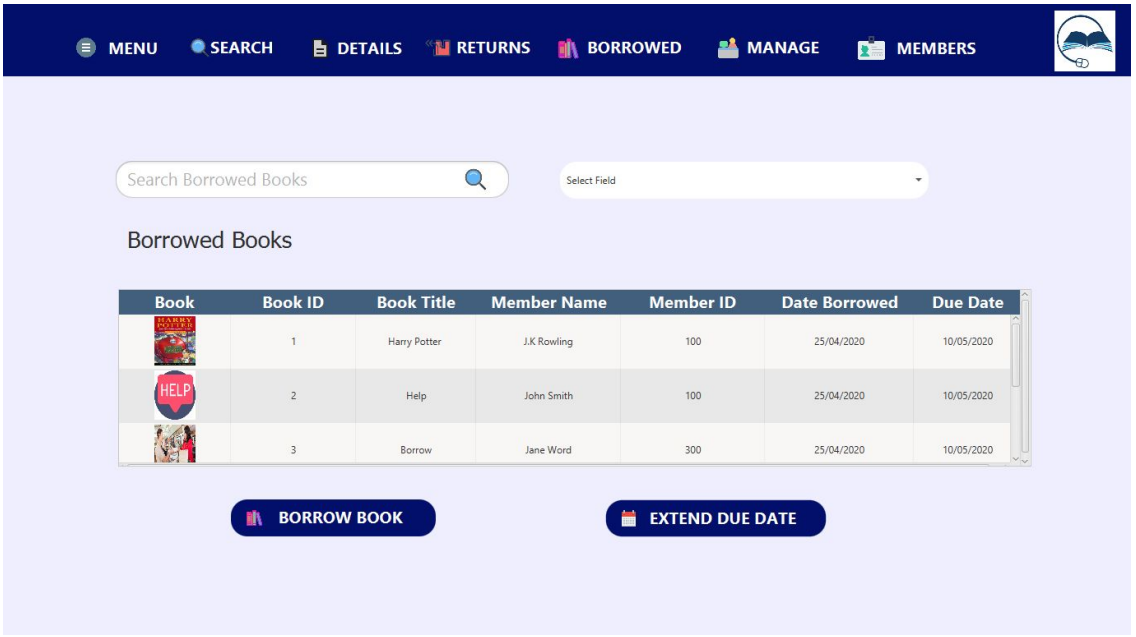


Again, same issue with the icon located on the right, where the user may confuse it with a button. But the page has no clutter and serves its purpose well. Again, being efficient. Upon clicking “Enter”, the results page is again presented like the search results page. This was effective and efficient to use.

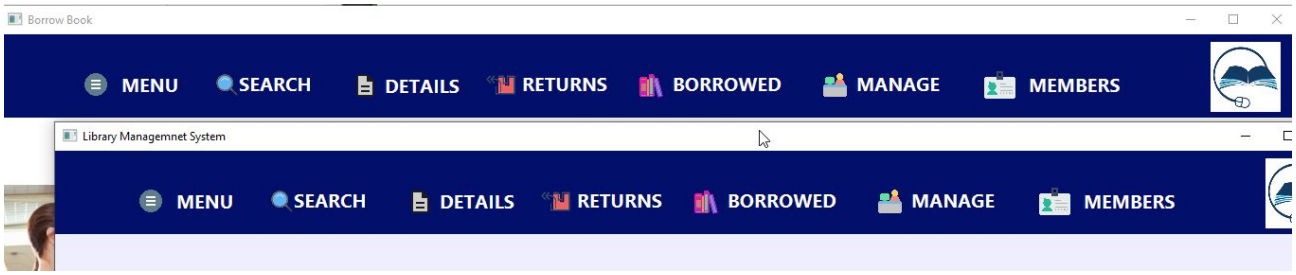
Continuing onto the next feature, being the “Returns”. This page is well made with text boxes and buttons that afford clicking. Again being easy to learn and effective to use. However, this page does break consistency as the background colour is white instead of the blue hue of the other pages in the program.



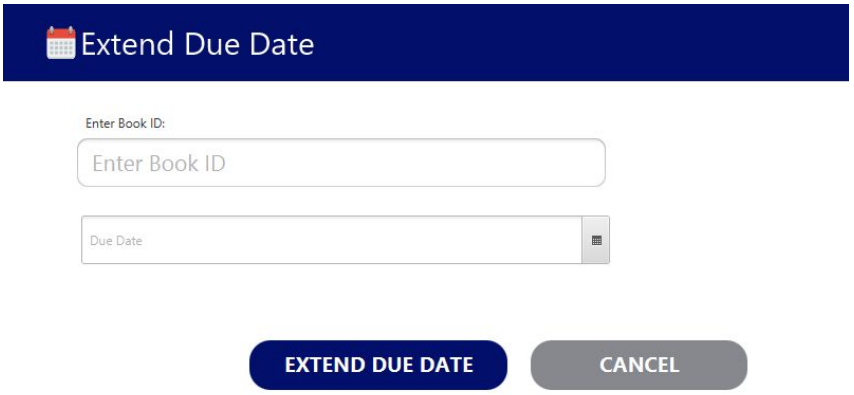
Moving onwards onto “Borrowed” the large buttons and simple icons help promote their usability goals, the complaint regarding the narrow list of books however still remains with the list potentially being made larger.



Clicking “Borrow Book” opens a new window containing a page identical to the main interface in order to borrow a book, a problem here is the window that launched contains the same header bar as the window that launched it, this may cause users confusion switching between the windows as they may be unsure which one they came from. This breaks the easy to use goal as it can cause confusion.

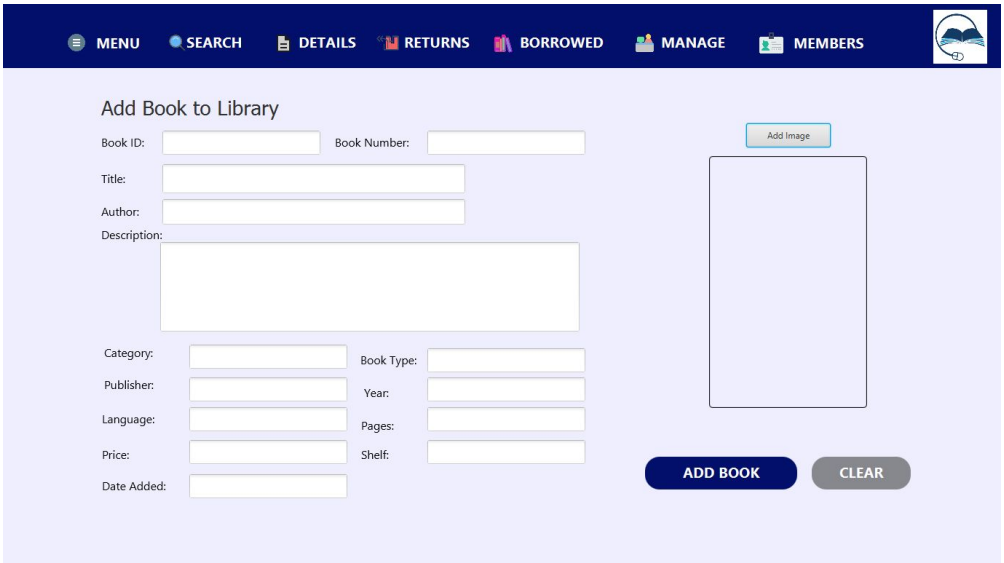


When the user elects to extend the due date, a pop up window also occurs like so:



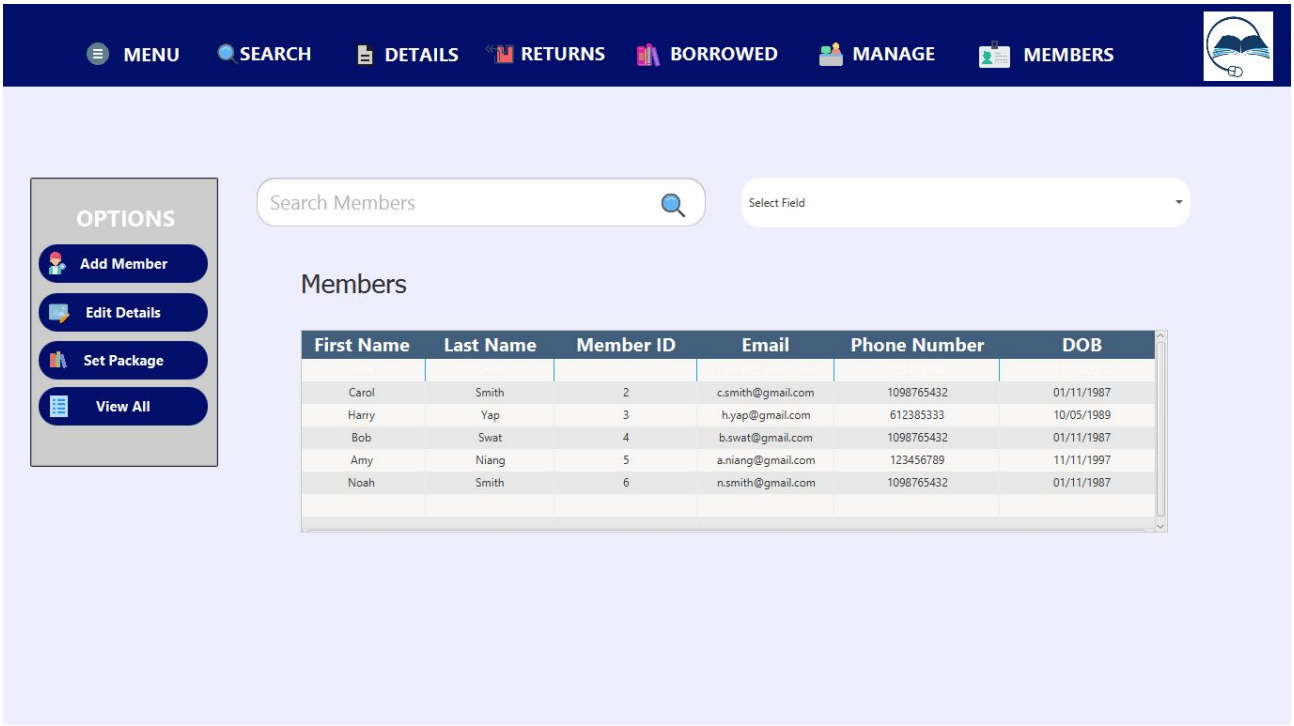
This pop up window is very well made and is easy to understand what to do, if the “Borrow book” popup could also be made the same way, it would make the program very easy to learn and use. Overall this function breaks a few of the usability goals that Research Rats, particularly being easy to learn.

Moving onto the next feature, which is “Manage” that concerns managing books in the library, the name however may be confusing as the only functionality is to add books, this can be changed to “Add Book” instead to prevent confusion.

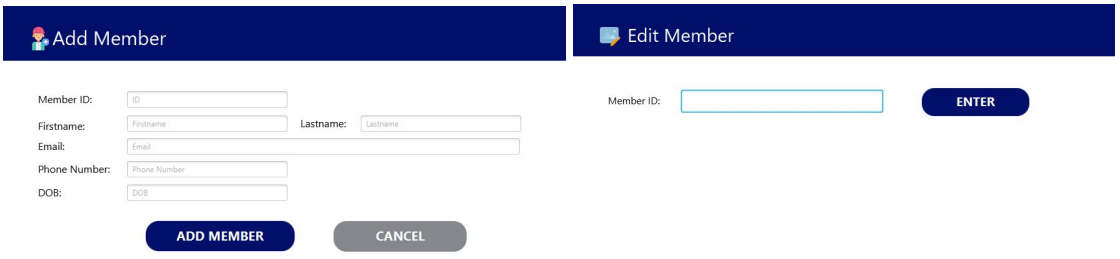


Other than that, it is very well laid out and is efficient to use, all text boxes are labelled appropriately. With functionality being clear. This really helps promote the goals of being easy to use.

Moving onto the final function of the program, it provides features to manage the members/ users of the library. This is very well laid out again and is easy to use, the search however breaks some consistency as it automatically searches as text is entered instead of having to click “Search” like previous pages.



All sub functionality regarding user management is on the left sidebar which is separated into logical parts. The first 2 functions open up a popup window



There is some missing consistency as the “Edit Member” window does not contain a “Cancel” button. But the entire members management UI meets the usability goals outlined by Research Rats .

Overall, Matthew’s UI attempts to and successfully meets most the usability goals and user experience goals that are outlined. There are some slight modifications necessary that are recommended to fully meet those goals to the maximum potential.

Usability Testing

Tasks

Contributor(s): Ryan Martin

Participants were asked to perform 11 tasks to gage the usability of the 'Library Management System' in a realistic setting. Each task consisted of one core function of the overall design that needed to function in a specific way to result in a software that matched the usability requirements set by 'Research Rats'. The tasks are as follows;

T-1: Add New Book
T-2: Edit Book Details
T-3: Issue Book
T-4: Return Book
T-5: Add New Library Member
T-6: Add New Staff Member
T-7: Edit Staff Details
T-8: Edit Library Member's Details
T-9: Delete Staff Member
T-10: Delete Book
T-11: Delete Library Member

Upon completing the tasks the results of the testing were recorded and documented below. Each participant was required to document if they were able to either complete or fail the specified task, while tasks requiring multiple attempts were also recorded with the number of attempts the participants needed. Tasks were also given a varied completion time, in seconds, to accommodate the large demographic attempting to use the software. The time ranged from tech-savvy librarian's to librarian's new to digital management systems. Participants that were unable to complete the specific tasks in the specified time range were required to deem that test attempt a fail.

Questionnaire

Contributor(s): Kevin Le

This questionnaire was based on the goals outlined in the "Determining the goals" section in order to establish if these goals were fulfilled by Research Rats. These questions will help directly confirm the goals. It consisted of a mix of quantitative and qualitative which we believed would provide sufficient data to draw conclusions from.

Evaluation Questionnaire

1. I would continue using the new library management system over the current system being used.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

Reason:
_____
_____

_____
_____

2. What did you like most about the system?

_____
_____
_____
_____

3. What did you dislike most about the system?

_____
_____
_____
_____

4. Does the system fulfill all the functionality and capabilities you expect?

_____
_____
_____
_____

5. I found the system easy to use (select 1)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

6. It was easy to find what I needed (select 1)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

7. It was easy to learn how to use the system (select 1)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

8. If I made a mistake, the system would clearly indicate how to fix the problem (select 1)

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

9. I found the system to be complex

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

Thank you for your time.

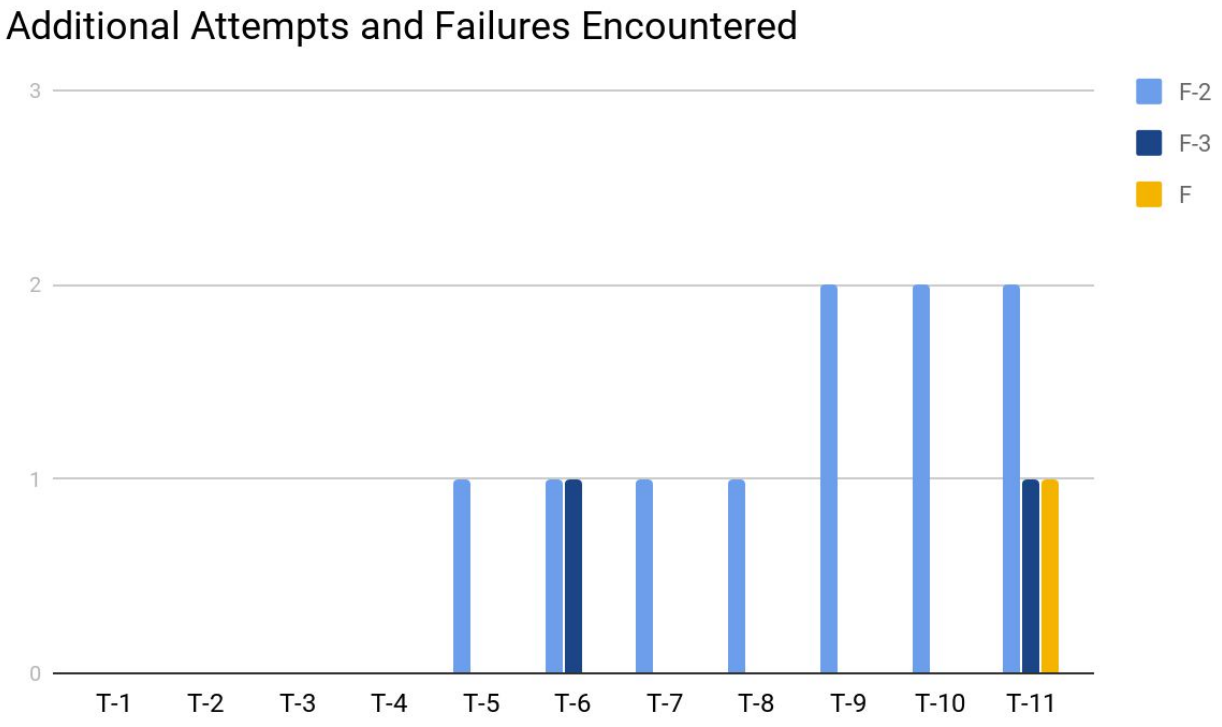
Deep Patel's UI

Contributor(s): Terence Marcelo

Task Success

P: 1 attempt to perform task successfully
F-N: N attempts to perform task
F: Could not perform task

	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11
Eli	P	P	P	P	P	P	P	F-2	P	P	P
Matthew	P	P	P	P	P	P	P	P	P	P	P
Curtis	P	P	P	P	P	P	P	P	P	P	P
George	P	P	P	P	F-2	F-3	P	P	F-2	F-2	F
Anna	P	P	P	P	P	P	P	P	P	P	P
Frank	P	P	P	P	P	P	P	P	P	P	F-2
Ashley	P	P	P	P	P	P	F-2	P	F-2	F-2	F-3
Michelle	P	P	P	P	P	P	P	P	P	P	P
Lisa	P	P	P	P	P	P	P	P	P	P	P
Jackson	P	P	P	P	P	F-2	P	P	P	P	P-2



From this information, we can see that most users had no difficulty completing all the tasks. The few additional attempts and single failure can be attributed to the users inexperience with technology and not from any faults with the design.

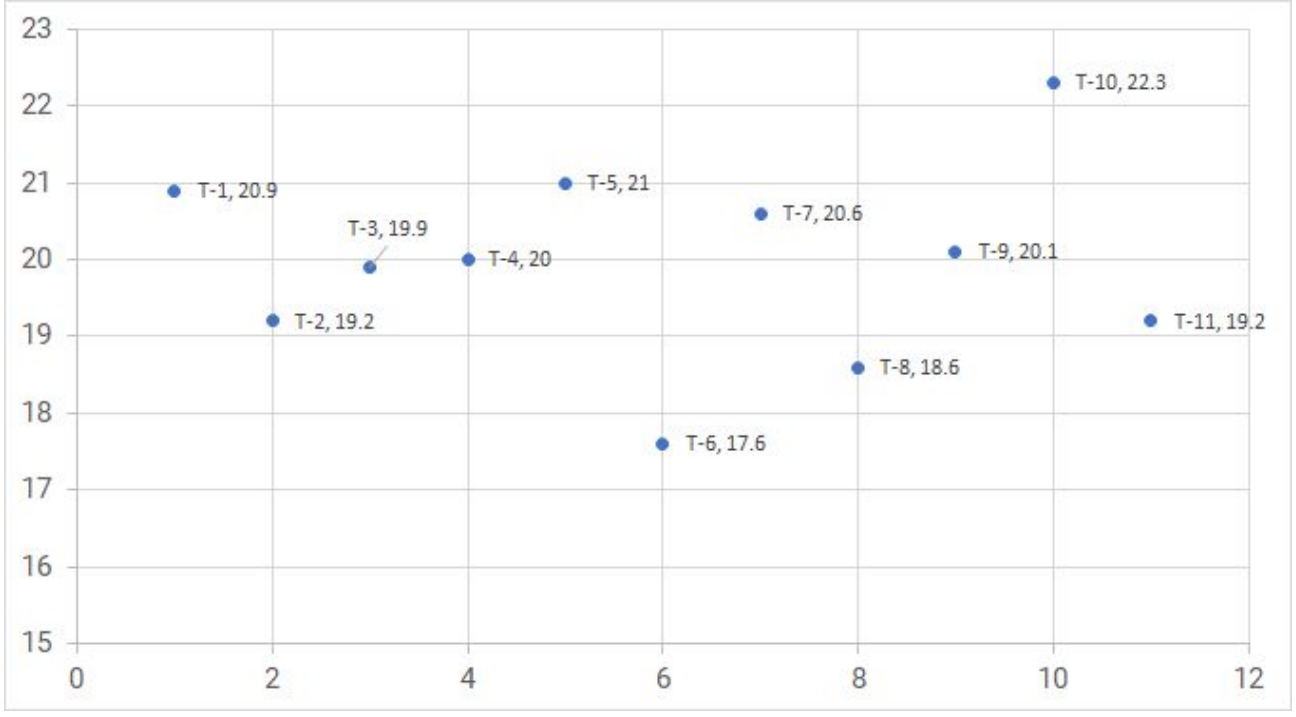
Screens Navigated

Number of screens the user had to navigate through to complete the task.

	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11
Eli	2	3	2	2	3	3	3	3	2	2	2
Matthew	2	3	2	2	3	3	3	3	2	2	2
Curtis	2	3	2	2	3	3	3	3	2	2	2
George	2	6	5	3	6	3	3	3	2	2	2
Anna	2	3	2	2	3	3	3	3	2	2	2
Frank	2	3	2	2	3	3	3	3	2	2	2
Ashley	2	3	4	2	4	3	3	3	2	2	2
Michelle	2	3	2	2	3	3	3	3	2	2	2
Lisa	2	3	2	2	3	3	3	3	2	2	2
Jackson	2	3	2	2	3	3	3	3	2	2	2

Average Time Taken to Complete Tasks

Time in seconds



All tasks were on average completed in less than 30 seconds. The design allowed the users to complete all the tasks without having to go through a large number of windows or menus. This shows that this design is highly efficient.

Matthew Rossi's UI

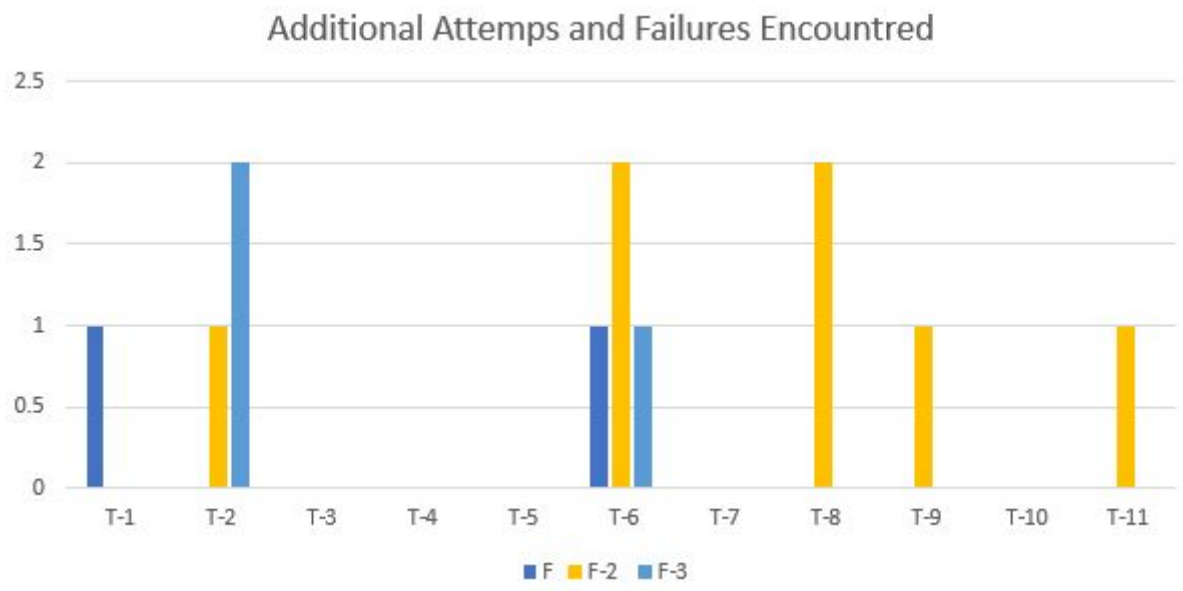
Contributor(s): Aaron Giles

Task Success

P: 1 attempt to perform task successfully
F-N: N attempts to perform task
F: Could not perform task

	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11
Eli	F	P	P	P	P	P	P	P	P	P	P
Matthew	P	F-3	P	P	P	P	P	P	P	P	P
Curtis	P	P	P	P	P	F-2	P	F-2	P	P	P
George	P	P	P	P	P	F-2	P	P	P	P	P
Anna	P	F-2	P	P	P	P	P	P	P	P	P
Frank	P	P	P	P	P	P	P	P	P	P	P
Ashley	P	P	P	P	P	P	P	P	P	P	P
Michelle	P	P	P	P	P	F-3	P	P	F-2	P	F-2
Lisa	P	P	P	P	P	P	P	P	P	P	P
Jackson	P	F-3	P	P	P	F	P	F-2	P	P	P

In the matrix above, it is clear that all functionality was available. Some users had issues when completing task 2 and task 6, however, this is somewhat expected, due to the complexity of those tasks in respect to others. For the large majority of users, the usability experience was pleasant and passed respective tests on the first try, or very few attempts and few fails.



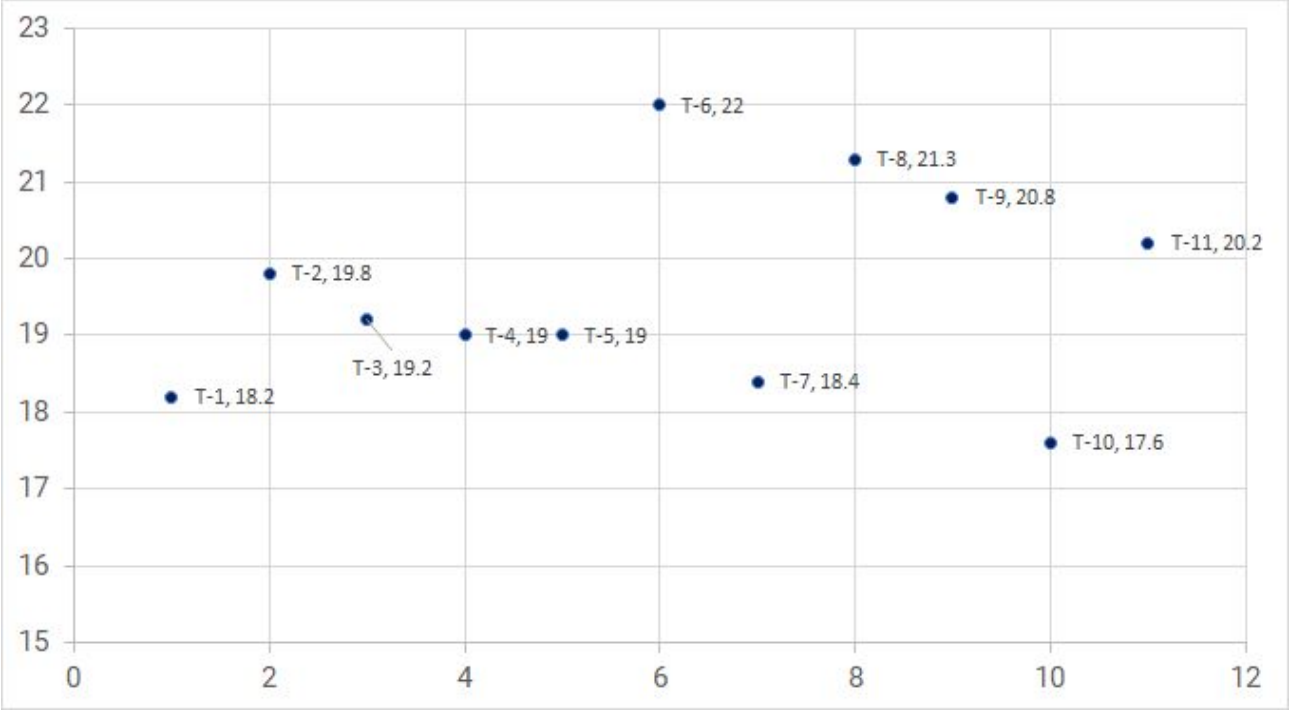
Screens Navigated

Number of screens the user had to navigate through to complete the task.

	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	T-11
Eli	2	4	2	3	2	2	3	3	3	4	3
Matthew	2	3	2	4	4	4	3	3	3	3	3
Curtis	2	3	2	3	2	2	3	3	4	3	3
George	2	3	2	3	2	4	3	3	3	3	3
Anna	2	3	2	5	2	3	4	3	3	3	3
Frank	2	4	2	3	3	6	3	3	3	3	3
Ashley	2	5	2	6	4	4	3	3	4	3	3
Michelle	2	3	2	3	5	5	4	3	4	3	3
Lisa	2	4	2	4	3	3	3	3	3	3	3
Jackson	2	4	2	3	2	2	3	3	3	3	3

Average Time Taken to Complete Tasks

Time in seconds



The time taken for each task was reasonable, there were not clear outliers, or too difficult tasks to complete. This indicates a clear and user friendly UI, making for easy navigation. The tasks that took into the 20 second range are expected, due to those task's difficulty.

Questionnaire Results

Contributor(s): Kevin Le

After the user completed the 11 assigned tasks for each interface developed by Research Rats, they were then requested to complete a questionnaire regarding their thoughts on the software. These were used to get a direct view of the users thoughts and if the goals of Research Rats were actually met.

Deep Patel's UI

I would continue using the new library management system over the current system being used.

Participant response to this statement was a majority "Agree". Respondents specified the ease of navigation being a major factor. Those who were dissatisfied with the system specified that they did not like the number of pop ups that the system used for some of its functionality, and they believed instead it could just be contained in the main screen. Which breaks the usability goal of being efficient to use.

What did you like most about the system?

Respondents specified that the aspect that they liked most about the UI was the large buttons on the menu screen, which provided a "glow" effect for the feedback when it was hovered over. This touch meant even people with not excellent vision were able to navigate the program confidently.

What did you dislike most about the system?

What participants specified they disliked most about the system was some buttons being an overpowering colour, many believed that some buttons were too bright with the text being unreadable and sometimes text overlapping.

Some believed that it was also too “cartoonish” with the thick black borders around all the fields, and it didn’t look professional enough with its colour theme.

Does the system fulfill all the functionality and capabilities you expect?

Participants specified that the system provided all the functionality that they expect from a Library Management System. With some saying it had more functionality than expected, such as the Google Books integration which they appreciated.

I found the system easy to use.

Participant response to this statement was mostly “Strongly Agree”. They commented that the non cluttered interface being a major factor for this response, and large buttons which prevent misclicks.

It was easy to find what I needed.

Participants responded “Strongly Agree” to this statement also, they commented that the icons used were good as they could recognize it from their past experience using other interfaces. This meant they could pull on prior knowledge and apply that to know where to find functions they wanted.

It was easy to learn how to use the system.

Participants mostly responded “Agree” to this statement, participants specified that navigation icons located in the top right did not contain tooltips (however still made sense) but the dedicated help page located in the menu made up for it, when users were uncertain of what different components did or where to find items, they went to have a look at the help section. They would have liked tooltips on more icons.

If I made a mistake, the system would clearly indicate how to fix the problem.

The majority of participants responded “Strongly Agree”. This was due to every mistake/ invalid input resulting in a pop up box summarizing the issue and what could be done.

I found the system to be complex.

Participants responded mostly with “Disagree”. They specified they found the system uncomplex as they could pull from memory what the icons represented in order to determine what to do. They could reach whatever functions they were tasked with in not many clicks which was excellent.

Matthew Rossi’s UI

I would continue using the new library management system over the current system being used.

Participants majority responded with “Strongly Agree”, commenting that the design of the software is very appealing, with the neutral but professional colour scheme and the rounded buttons being inviting. They also specified that it was very easy to understand what each button or link does since it was all labeled accordingly.

What did you like most about the system?

Participants specified they liked the initial menu interface with all the circular buttons. They specified the buttons being highlighted upon hover being a nice touch and really helped with the ease of use.

The consistent use of colour with all the buttons was also something they specified they liked.

Some other participants mentioned that the use of pictures was something they liked.

What did you dislike most about the system?

Participants specified not having a back button as one of their gripes with the system as they instinctively looked in the top left for a back button but could not find one. They took a bit of time to figure out the UI was navigated through using the buttons on the header, like browser tabs.

Another issue some respondents specified was some missing consistency. Some pop ups had a cancel button which would close the pop up window while some others didn't. The light blue background was also not present on some interfaces. Respondents however also mentioned this wasn’t a big issue.

Does the system fulfill all the functionality and capabilities you expect?

Participants largely specified that they were able to find all the functionality they expected and even more functionality such as “Details” which allows directly looking up a single book.

I found the system easy to use.

Participants majority responded with “Strongly Agree”, they commented that the icons used were easy to understand, as they can recall from previous use of other icons what purpose they served.

It was easy to find what I needed.

Participants mostly responded with “Strongly Agree”, they commented that the navigation bar located up top in the header bar meant that they could reach any part of the system functionality in one or two clicks which they found very desirable, this was all labeled so it was even faster to know where to navigate to.

It was easy to learn how to use the system.

Participants all responded with “Agree” and “Strongly Agree”, specifying that the provided help resources and the detailed labelling of all the buttons meant that they easily understood what each part of the program led to. Meaning they could pick it up really quick.

If I made a mistake, the system would clearly indicate how to fix the problem.

Participants mostly responded with “Strongly Agree”, they commented that when they encountered errors due to their input or misclicks that it would prompt them with the error and tell them how to remedy it.

I found the system to be complex.

Participants all responded with either “Disagree” or “Neutral”, many commented they found the system easy to use due to its simple layout but some specified that they did not like the process for borrowing a book which opens an identical window and believed that it was too many steps, especially for a library system that would be handling book borrowing on a day to day basis.

Study Concerns

Contributor(s): Aaron Gangemi, Kevin Le

The evaluation method that is incorporated must be deemed as both credible and ethical in order to represent the data accurately. If this is not the case, then the integrity of the data and how it is presented may be affected. Therefore, in order to address such considerations, our team has decided to assess the reliability, validity, ecological validity, biases and scope of our findings.

Reliability

When our team performed usability testing for Matthew and Deep’s user interfaces, we controlled as many variables as possible in the evaluation, this helps promote replicability which ensures the reliability of our results. We reduced human input from our evaluation team as much as possible in order to ensure there is no random variable that could muddy our results. Our approach was to conduct the study in a controlled laboratory environment, and with the right preparation regarding the practical problems of the evaluation, i.e. selecting the identical equipment, participants from the same demographics, and same settings then following the same evaluation approach as outlined, we strongly believe the results can be replicated by another group of evaluators if they are to follow the same approaches as we have. This ensures that our research holds up when tested by others.

Validity

Our team believes that the results that our group obtained are valid and not affected by any other outliers, biases or external actors. We have controlled all other variables that could be controlled and ensured that the independent variable, the participants in the study are the only part of the evaluation that is changed.

This ensures that the data gathered is deemed valid. Furthermore, the qualitative data that our team gathered was solely obtained from librarians that would use the system.

The evaluation methods we have chosen ensure the validity of the measurements that we are taking. We will be recording metrics regarding the users time taken, screens they have gone through and the number of successes or failures amongst other measurements and these are what we believe to be vital and hence the evaluation method we have chosen would support this, as tasks are easily explained and the user interactions can be quantified. Therefore, this decision

implies that each user is from a similar job description and their contextual factors will not affect the validity of the study.

Ecological Validity

The environment chosen was a controlled laboratory environment, this meant the environment was more formal but also ensured that there was no external impact on the results. Our team was to follow the evaluation methods strictly in order to ensure that all participants are treated in the same way. This ensures there is no conscious or subconscious bias towards participants. We have chosen the lab environment due to more emphasis on what the participants *do* not how the external environment contexts affects them. So we strongly believe that the environment does not affect the results.

Biases

Our team has taken measures to ensure that there are no biases when we conducted our testing on the library management system. Each user was under the same conditions when the tests were conducted. These conditions included:

- Isolated when using the library management system
- Each user was a librarian that had previously used a library system
- Ensured that each user had no knowledge of other people using the system
- All ethical considerations are upheld
- Tests performed on a different system with the same hardware and software considerations

Our group ensured that the environment described was realistic and that users would not be significantly advantaged or disadvantaged in comparison to other participants.

Scope

The evaluation takes a small population of librarians from various demographics, as identified by Research Rats target audience. The spread of ages and contexts we have chosen is what we believe presents a holistic view of the entire population that this software is targeted towards, which are librarians of various ages. We have endeavoured to ensure that as many as possible librarian demographics were represented in the participants pool. Therefore we strongly believe this research can be applied to the entire target demographic of librarians.

Answering the Questions

Contributor(s): Aaron Gangemi, Kevin Le

These are the answers to the questions we determined must be asked in order to decide if the program developed by Research Rats meets their goals.

Goal Based Questions

Contributor(s): Kevin Le

- **Check that the functional and non-functional requirements of the library management system have been satisfied**

a. Have the non-functional requirements been achieved?
    i. Does the library management system provide feedback to the user?

Yes, from our inspection and the evaluation the library management system provides appropriate feedback to the user. There are some buttons that lack feedback in the designs however and we recommend that Research Rats adds feedback to them.

    ii. Does the library management system provide a good look and feel?

Yes, from our evaluation and inspection, participants believed that the presentation of the software was professional and appealing due to the use of colour and iconography.

    iii. Is the layout clear and concise for the user?

Yes, we believe it is, evidenced by participants' responses indicating that the layout was clear and concise as users were able to accomplish a majority of the tasks with great success and minimal interactions/ clicks.

- **Addressing errors in the library management system**
    a. Are there any critical errors in the library management system that critically affect its functionality?

There have been no critical errors that have been uncovered by our inspection and during the participant evaluation. However this does not mean there are completely no errors that affect its functionality and as much testing as possible should be performed.

    b. Are there any critical errors in the library management system that affect the layout?

There have been no critical errors that affect the layout that has been uncovered by our inspection and during the participant evaluation.

    c. How does the program respond when an error occurs in the library management system?

The program is built to withstand errors, but the errors have not been tested and encountered.

    d. If the user input creates an error due to invalid input, how does the library management system recover from this?

The library management system will present the user with a pop up window that indicates an invalid operation was performed

- **Feedback and insight of the library management systems implementation:**
    a. Does the new library management system keep the user informed?

Yes, the interfaces provide indicators as to where in the program the user is located and what actions they are currently performing. This was evidenced in the participants' interaction with the program and our inspection.

b. Does the library management system provide feedback such as confirmation alerts when a user performs a task?

Yes, certain stages

- **New implementation improvements:**
    a. Does the new implementation of the library management system include more functionality than the existing system?
        i. If so, what functionality was added to the new system?

Yes, the Research Rats team added Google Books integration. The participants indicated they believed it was a useful addition.

        ii. Why was this change added?

To modernize the system and give it access to a large book database which could provide book metadata.

b. Does the new implementation of the library management system contain less functionality then the existing system?

No, following participant responses they could not find any deficiencies in comparison to the systems they were using prior.

c. Overall, has the new library management system been successful in upgrading the current library system?

A majority of respondents indicated their interest in continuing to use the new system in comparison to the one prior, as they believe it provided a better way of performing their tasks.

d. Is the new user interface able to carry out all tasks that it was designed to complete?

Yes, following the functional requirements outlined by Research Rats in their design process, the participants evaluation and our inspection process ensured that we are confident the interfaces carry out all the tasks it is designed to do.

Usability Goal Questions

Contributor(s): Aaron Gangemi

- **Is the user easily able to navigate through the library system using buttons and icons?**

The Research Rats provides clear and concise buttons and icons which are demonstrated during inspection, and allow the user to easily navigate from page to page. Each button and icon is labelled sufficiently to ensure that each user, regardless of the icon's image, is able to navigate throughout the program without getting lost. Our team has identified this feature as a highly regarded feature which enhances the program's usability.

- **Does the library management system keep the user informed?**

The Research Rats new implementation of the library management system contains alerts which keep the user informed of any processes that are executed and further inform them of the current state of the program. Using these confirmation alerts, the user is able to easily interact with the program.

- **Does the library management system help the user to learn the software?**

From our inspection, we have found that the Research Rats have incorporated help features in their implementations which are designed to assist the user with any troubles they have when using the software.

- **Is the user able to perform the desired function without getting lost?**

The Research Rats have ensured that each page, button and icon is successfully labelled with a useful title that depicts its associated purpose. An example of this is “Manage Members” or “Borrow a book”. By incorporating this, users can perform various functions throughout the program without getting lost.

- **Is the new library system more efficient in achieving the desired task? (retrieving a book)**
    a. **Does the library management software make functions faster to perform?**

Yes, the Research Rats have incorporated usability tools such as search bar functionality to search for a specific book. By incorporating this, they save the user time as the user will not have to scroll through each option until they find their desired book.

- **Will the user be able to remember how to use the software next time they use it after exiting?**

The designed user interface is easily memorable as they contain visual cues such as icons. By providing icons, users can identify icons such as the house to represent the home page and associate the icon to the task that will be executed. In addition, the Research Rats have provided consistent feedback to the user. By providing consistent feedback, the Research Rats have ensured that the user will remember how that response was obtained, and how to perform that associated function again.

- **How easy is it to learn to use the software if you are a first time user?**

From inspection, any first time user is easily able to learn how to use the software as the Research Rats have provided a range of supporting features. For example, they have provided a help feature which allows the user to get help for various tasks they want to perform. Each function that the library system performs is clearly labelled at the forefront of the program, and through the use of color and contrast, each label is clearly readable. Furthermore, the program ensures that the user is informed of what is going on as it provides feedback when various tasks are performed.

- **Is the user able to access the information they require?**

We have found that the Research Rats have ensured that any user completing a task on the library management system has sufficient information to perform that task.

User Experience Questions

Contributor(s): Aaron Gangemi

- **Do current and new users enjoy using the library system?**

From our questionnaires, we have found that both current and new users do enjoy using the new library management system. We found the responses to “Would you continue to use the library system?” and the comments for “What did you like about the library management system?” to convey a very positive and enjoyable user experience.

- **Does the new library system appeal to the user**

The new library management system appeals to the user as the system was found to fulfill most capabilities that the user was expecting. In addition, the Research Rats added Google Books integration which was a feature that our tested librarians found quite appealing.

- **Is the user frustrated or uncomfortable with any features of the UI**

The user was not found to be frustrated or uncomfortable with any features that the Research Rats UI contained

a. If yes, which features or aspects of the UI make the user frustrated or uncomfortable?

N/A

- **Alternatively, does the user get bored using the library system’s UI?**

The users did not get bored of using the UI as they were found to be quite intrigued by the efficiency and capabilities provided by the new system

- **Is the library system helpful in achieving the user’s desired goals e.g. requesting a book?**

From the questionnaire responses to the question “Does the system fulfill all the functionality and capabilities you expect?”, we found that the library management systems functionality was highly praised and that users found the system to be quite helpful in achieving their desired tasks and goals.

- **Does the library system motivate and entertain the user when completing a task?**

When a user completes a task, the program outputs a response such as a confirmation alert or display of the book to show that the book has been loaned. Whilst testing the user with the new implementation, we found that each user was highly motivated by the new and incorporated functionality that the library management system provided and each user felt inclined to continue navigating throughout the software, given how easy it was to use.

- **Does the library system contain and enhance an aesthetically pleasing UI which encourages the user?**

Yes, the program provides supporting functionality which encourages the user to complete all tasks that it can provide. The UI also contains colours that are easy on the human eye and contrast well, which draw the user to main functionality.

- **How does the library system respond to the user when they complete a task?**

    a. Is the response rewarding?

Yes, the program provides rewarding responses that users are satisfied with.

    b. Is the response frustrating?

No, the response is not frustrating

Conclusion

Contributor(s): Ryan Martin

The ‘Library Management System’ is an open source, digital book management software optimized for university to personal libraries, including everything in between. The software is used to organise and store both staff and book information to be viewed or edited when needed. The software is aimed at any librarians over the age of 18.

Through the assistance of the DECIDE framework the investigation and evaluation of the two redesigned GUI’s by Deep Patel and Matthew Rossi for the ‘Library Management System’ has been successfully and conclusively completed. Both interfaces utilised a random selection of the target demographic to gage the usability of the software through testing. The participants were required to test each of the core functionality of the software and document their results. After the completion of the usability testing each participant was also asked to complete a questionnaire, exploring their experiences with the software. The selected investigative methods used provided effective results and allowed the team to conduct and produce a conclusive evaluation on both Patel and Rossi redesigned GUI’s.

Both redesigns adhered to the ‘Research Rats’ goals of creating a more comprehensive user experience through the use of improved visuals for all users, an easier interface for new library members to learn and simple enough for any members to use. Both interfaces performed excellently in the usability testing, however there were a few points that need to be brushed upon to create a fully rounded software.

Patel’s design was well put together, however some participants had complications completing task 11, Deleting Member, which resulted in multiple attempts. Task 10 on the other hand was within the expected fail range however the average time taken to complete the task was very high. Rossi’s design received positive results from the usability testing however, the result showed that task 6, Adding New Staff Member, was time consuming to complete resulting in an almost fail. Participants also required multiple attempts to complete task 6 and task 2, Editing Book Details. These points could easily be reconciled with clearer labeling and more noticeable icons to help support the users given task.

Through the questionnaire it was confirmed that overall, both Patel’s and Rossi’s redesigns were very well received. Participants enjoyed using the software, and the results of the tasks and the questionnaire strongly backed up their achievement of the goals they aimed to achieve.

From the evaluation conducted by the team, we believe that both Patel’s and Rossi’s redesigns of the ‘Library Management System’ addresses all the usability and user experience goals they have set out to achieve, and will be even better once user feedback is taken aboard. We conclude both designs will perform smoothly in actual library usage.

Appendix

Milestones

Contributor(s): Kevin Le

We set milestones at every meeting for jobs to complete. It was ensured the entire team understood what tasks they were assigned and the importance of their parts. If users did not complete their tasks in time it would be detrimental to the entire project, however, all team members worked extremely well and managed their parts and time well. This was especially important as some parts had dependencies on other parts and parallel work could not always be possible.

Milestone	Status	Set Date to Finish By	Actual Date Finish
1. Finish allocated parts of the assignment. The tasks to be completed were: ● Introduction ● Choosing Evaluation Methods ● Identifying Practical Issues ● Ethical Issues ● Determining Goals ● Exploring Questions Detailed task allocation could be found in the meeting minutes	Finished	07/06/2020	07/06/2020
2. Finish the final 50 marks of the assignment. The components are: ● Evaluating and Analyzing ● Conclusion ● Project Management	Finished	08/06/2020	08/06/2020
3. Submission Each team member evaluates each others work	Finished	11/06/2020	11/06/2020

Problems Encountered

No issues encountered, team worked very well.

Meeting Minutes

Contributor(s): Kevin Le

Meeting 1 - 01/06

Meeting Purpose: Discuss components of the evaluation and presentation.

Meeting Date: 01/06/2020
Meeting Time: 12:00-12:53

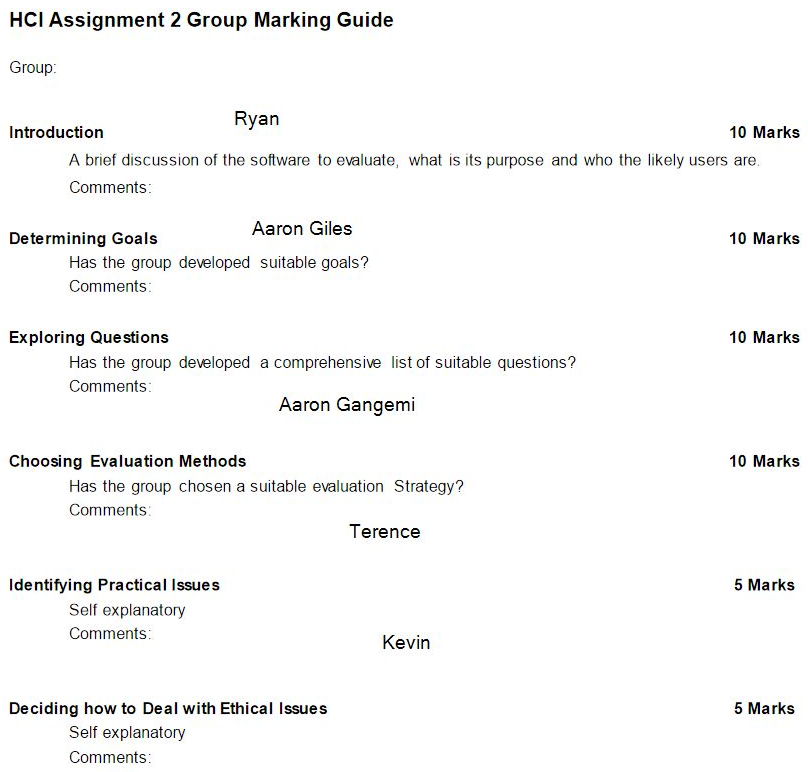
Location: Voice Call - Discord
Group Attendees: Aaron Gangemi, Aaron Giles, Kevin Le, Ryan Martin, Terence Marcelo
Absent: N/A

Agenda

- Decide on UIs to use for the presentation
- Decide on what's required for assignment 2

New business

- Split the assignment 2 tasks between each member, each person doing 10 marks worth.
- Split the presentation slides between each member.
- Decide on milestone 1
    - 7/6



HCI Assignment 2 Group Marking Guide

Group:

Ryan

Introduction **10 Marks**

A brief discussion of the software to evaluate, what is its purpose and who the likely users are.

Comments:

Aaron Giles

Determining Goals **10 Marks**

Has the group developed suitable goals?

Comments:

Exploring Questions **10 Marks**

Has the group developed a comprehensive list of suitable questions?

Comments:

Aaron Gangemi

Choosing Evaluation Methods **10 Marks**

Has the group chosen a suitable evaluation Strategy?

Comments:

Terence

Identifying Practical Issues **5 Marks**

Self explanatory

Comments:

Kevin

Deciding how to Deal with Ethical Issues **5 Marks**

Self explanatory

Comments:

Actions

- Each member has their milestone 1 components finished by 7/6

Agenda for Next Meeting

- Next meeting set for 7/6 at 12pm
- Begin work on the “Evaluating and Analyzing” and “Conclusion” components

- Decide on milestone for assignment 2 completion

Miscellaneous

- N/A

Meeting 2 - 07/06

Meeting Purpose: Evaluate milestone 1

Meeting Date: 04/06/2020
Meeting Time: 12:01-12:59

Location: Voice Call - Discord
Group Attendees: Aaron Gangemi, Aaron Giles, Kevin Le, Ryan Martin, Terence Marcelo
Absent: N/A

Agenda

- Evaluate progress so far on first half (50 marks) of assignment 2 (Milestone 1)

New business

- Evaluate milestone 1
- Work has been done to high standard
- Split the remaining parts between members
    - Evaluation
    - Conclusion
    - Appendix
- Decide on presentation style of findings
    - Tabular format
    - Charts
- Decide on milestone 2
    - 8/6 - Evening

Actions

- Milestone 1 completed
- Begin work on milestone 2 set for evening 8/6

Agenda for Next Meeting

- Evaluate Milestone 2

Miscellaneous

- Nil

Meeting 3 - 08/06

Meeting Purpose: Evaluate milestone 2

Meeting Date: 08/06/2020
Meeting Time: 10:58-12:03

Location: Voice Call - Discord
Group Attendees: Aaron Gangemi, Aaron Giles, Kevin Le, Ryan Martin, Terence Marcelo
Absent: N/A

Agenda

- Wrap up Milestone 2
- Check all the work that has been done

New business

- All work done to high quality
- Set date for milestone 3 (Submission)

Actions

- Each member proofreads one another's work

Agenda for Next Meeting

- Next meeting set for 11/6 at 2pm
- Submission

Miscellaneous

- Nil

Meeting 4 - 11/06

Meeting Purpose: Wrap up milestone 3

Meeting Date: 07/06/2020
Meeting Time: 13:59-15:03

Location: Voice Call - Discord
Group Attendees: Aaron Gangemi, Aaron Giles, Kevin Le, Ryan Martin, Terence Marcelo
Absent: N/A

Agenda

- Wrap up Milestone 3

- Ensure evaluation is completed to high standard

New business

- Work has been done to high standard
- Work will be submitted

Actions

- Nil

Agenda for Next Meeting

- Nil

Miscellaneous

- Nil

References

Contributor(s): Aaron Gangemi

Sharp, Helen, Yvonne Rogers, and Jenny Preece. 2015. *Interaction Design: Beyond Human-Computer Interaction*. 5th ed. John Wiley & Sons Ltd.