

Assessment:

1.Problem Statement:

This project aims to facilitate books/material exchange among the campus students. The scope of the project is limited to the use of students of a particular university for easier books and other educational material exchange.

It is a common practice among the university students to exchange books, notes and other papers pertaining to the curriculum or otherwise and the objective of the system is to facilitate this process by creating an interface where one could easily find a buyer(one who wants the book/material) or seller/donor(one who wants to sell or donate a book/material). It also aims to connect them to the prospective buyer/seller by providing relevant contact information of the other party. Along with this, it will also maintain a log of books sold/bought by a particular student for his(her) reference along with the information of the buyer/seller from(to) they sold/bought the book/materials.

The sole objective of the system hence remains to impart a reliable, secure, quick and accurate destination to a student for exchange of educational material hence reducing the effort of finding a buyer/seller for a book/material manually and physically. It shall facilitate a smooth book exchange among the campus students.

2.Functional Requirements:

- a. Login required by the User. The user will be verified on the basis of the credentials entered by him.
- b. User should be able to search for the book he wants along with the details of the seller(s).
- c. Seller should be able to enter the book name he wants to sell along with which he(she) must also enter his(her) details(ID,ph no., hostel address,etc.) and some details of the book such as: Subject code, subject,semester, author, how old it is, the price he wants to sell it at(0 or a charge if he wants to charge).

- d. There will be the classification of books and notes based on the subjects.
- e. Seller can see all the names of the students who requested his book and notes sorted in the order of the time when they requested it. It will be at the sellers' discretion as to whom he(she) wants to sell the book.
- f. There will also be a classification based on the semester.
- g. If the book is not available then the user can add the book(which will be added in the database). The user will be notified on the dashboard whenever it is available(i.e. When someone would want to sell it).
- h. Every user can maintain a wishlist of the books/material they want to get in the future if not immediately.
- i. Once the seller sells his book to one of the buyers, all the other students who requested for the same book will be notified that the book is sold.

3.Non-Functional Requirements:

- a. Down time should be not more than 1 hour daily(from 23:59 hrs to 00:59).
- b. Support all browsers like Chrome, Firefox, Safari etc.
- c. Should be scalable enough to support 4000-5000 people.
- d. Interface should be user friendly and lucid, hence not a complicated one.
- e. The contact details of the buyer should not be shared or visible to other buyers.
- f. Response time should not be more than 15 seconds.
- g. The system should be available at 99.9% of the time. A backup should be built for abnormal situations and maintenance access.
- h. The system should be able to perform the specified task without failure consistently.
- i. The system should demonstrate that its design provides maintainability from user interfaces to all the functions.
- j. The system must be easy to use with minimum training. It will be easy to navigate, search, sell and buy books.
- k. Data integrity should be maintained during all the transactions

4.Elicitation Techniques:

I. User Interviews to Identify the Project Requirements:

Interview 1:

Interviewer: Prakhar Maheshwari (Software Analyst)

Interviewee: Harsh Modi (Btech 3rd Year Student)

Questions and Answers:

1. How often do you buy or sell used books?

Ans. Manytimes, the cost of original books is high so I prefer to take used books from my seniors.

2. How do you find which senior has which book?

Ans. I only ask the seniors I know such as those living in my hostel wing.

3. How often do you get the book which you are looking for?

Ans. Not many times. Most seniors I ask often don't have the books I am looking for.

4. Will you find it easier if you could have a website on which you can post your required books and any person on campus could sell it to you?

Ans. Definitely that would be a nice initiative.

5. Considering that you buy books from the senior, how would you like to pay him/her?

Ans. I would like to hand them cash or transfer him money via UPI once they give me the books.

6. How comfortable would you be sharing your contact information with the potential sellers?

Ans. I would not mind that much since the sellers would be my college seniors.

Interview 2:

Interviewer : Prakhar Maheshwari (Software Analyst)

Interviewee: Kushagra Pathak (Btech 3rd Year Student)

Questions and Answers:

1.How often do you buy or sell used books?

Ans. Occasionally, I buy the books. However I want to sell many books that I own but now no longer require.

2. Do you get any potential customers for your books?

Ans. Hardly. The people I know don't read books much. I can't reach out to people I don't know.

3. Have you tried selling your books on other online platforms?

Ans. I tried but it is really inconvenient to send the book to the person because he may be far away from my college.

4. Will you find it easier if you could have a website for our own college where you could find buyers from just our college?

Ans. Yes in this way I could reach out to all the people as well as easily sell the books without going to great distance.

5. Which mode of payment would you use to take payment from the buyer?

Ans. I prefer anything including cash, upi etc.

6. Would you find it convenient to contact the potential buyers if they want to buy your book?

Ans. Yes, as long as they are genuinely interested in buying the book.

Interview 3:

Interviewer : Prakhar Maheshwari (Software Analyst)

Interviewee: Jigar Marvaniya (Btech 3rd Year Student and Sambhav Club Member)

Questions and Answers:

1. We came to know that Sambhav Club organizes a book sale for old books, is it correct?

Ans. Yes absolutely. Book Sale is one of our prime activities where we sell old unused books at heavily discounted prices to students who wish to purchase them.

2. How is this sale conducted?

Ans. We publish a list of books available for sale via email and on a particular day we ask the students to come to the cafeteria and purchase the books they like.

3. Would you list some difficulties that you guys face while organizing this sale?

Ans. Well actually there are many difficulties. Often the books which are highly popular get sold out immediately and people come to us demanding those books but we can't give it to them. Similarly some books don't see any buyers and then we have to manage it again and then take back those books with us again after the sale. Also this process is time consuming. We have to go to each room, asking the people if they want to donate books, then take all those books to a room, sort them out etc.

4. Would you find it useful if we design a system which can manage all these activities for you?

Ans. Yes, that would save us a lot of time and effort.

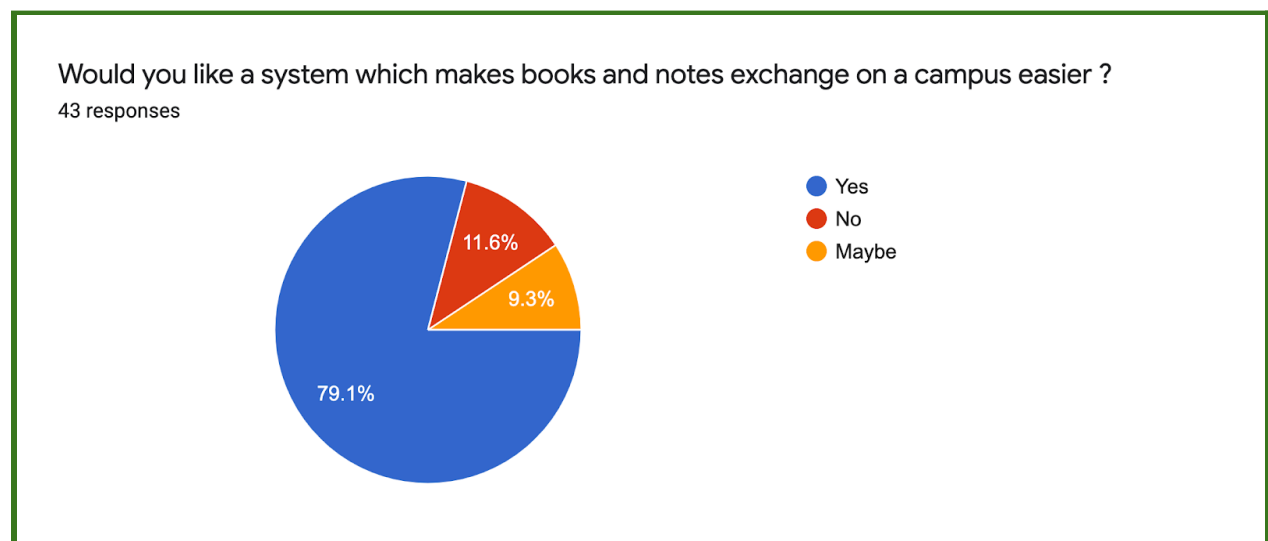
5. What solution do you propose?

Ans. So basically we would make an online book exchange system where people could sell/donate their books and this would be updated dynamically. Also there will be no need for you to manage logistics and people could do this all by themselves. That would be a very nice step. This way our club could focus more on other activities like blood donation, clothes donation drives etc.

II. Questionnaire:

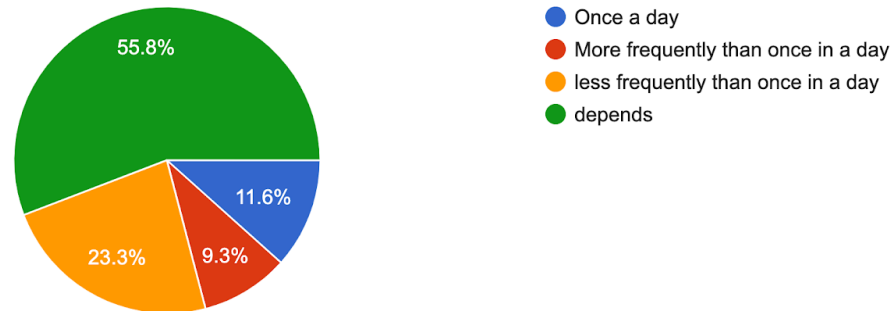
Responses summary of the questionnaire is as follows:

Survey was conducted on the students of a DA-IICT



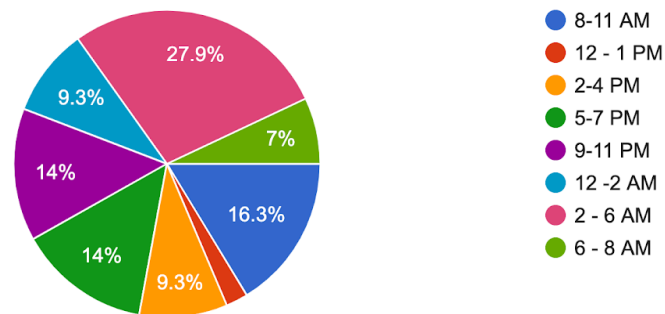
Assuming there is such a software, how frequently will you use it ?

43 responses



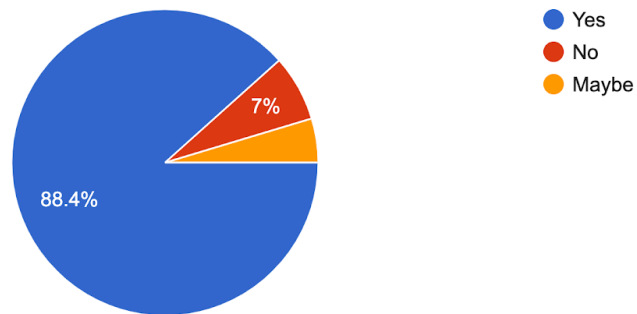
Which is the time you're least likely to use it ?

43 responses



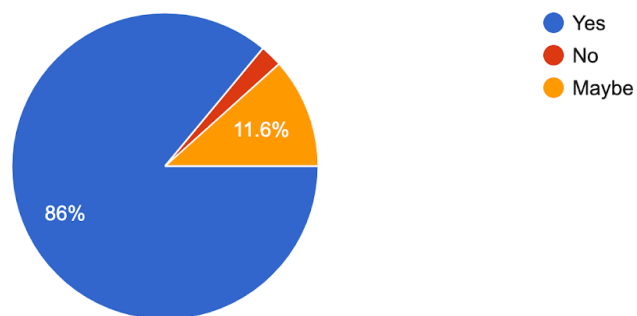
Would you like a feature; where you can search for a book name, if there's someone who wants to sell/give it , you can request for it and get the details of the seller ?

43 responses



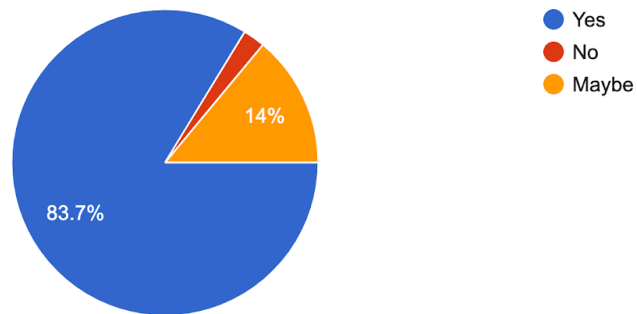
Would you like a feature where you can keep a book for sale and get to know who all are interested to buy it hence making the process easier ?

43 responses



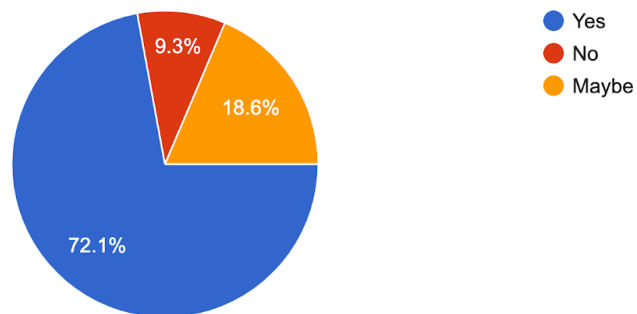
Would you want a feature where you can request for a book that is currently unavailable and get notified once someone keeps it on sale ?

43 responses



Would you like a feature where you can see all your previously sold/given and bought/taken history ?

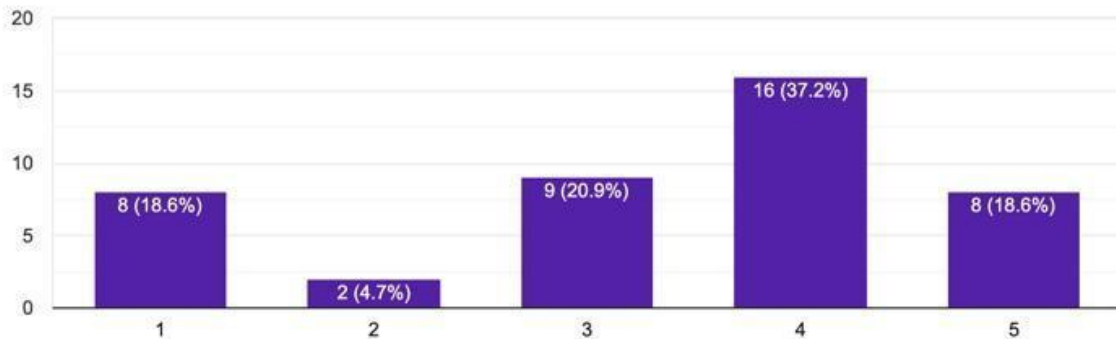
43 responses



Assume that only students of your campus are authorised to use this system. How important is it that your contact details aren't shared with anyone unless people who want to buy/get something from you ?



43 responses



1- not very important since others are also students residing on my campus

2- very important, cannot compromise on that

Summary and inferences:

1. A Book Exchange software will be relevant and useful for on campus students.
2. A good time for the maintenance of the software will be between 2-6 AM since most students won't be using it then.
3. Other than that it must not be non-functional at any other time.
4. Features like keeping a book on sale, knowing all the interested people to buy it, requesting a book on sale, knowing if a particular book is on sale, requesting to notify if a previously unavailable book requested is on sale now, viewing sale and buy history were given a positive feedback i.e. most of the students would like to have such features.
5. Privacy is important to be protected.

5. User Stories:

- As a new user I want to be able to sign up on the portal so that I can start exchanging academic material.
- As a user I want to be able to login so that I can use the portal.
- As a user I want to be able to view my profile so that I can view how it looks.
- As a user I want to be able to update my profile so that I can update it if there are any changes in my details.
- As a buyer, I want to be able to search for a book(material) so that it could save my time of scrolling.
- As a buyer, I want to be able to Wish list a book(material) so that I can reach to it easily if I want to buy it later.
- As a buyer, I want to be able to buy a book(material) so that the seller knows I want to buy his(her) material.
- As a buyer, I want to be able to Buy a book(material) after wishlisting so that I can buy a book I had previously wishlisted.
- As a buyer, I want to be able to request an unavailable book(material) so that I can buy it when anyone wants to sell it.
- As a buyer, I want to be notified when a previously unavailable requested book is available so that I can know it is available.
- As a buyer, I want to be able to view buy history so that I can have it for my reference.
- As a seller(donor), I want to be able to put a book(material) on sale so that others can see that it is available for sale.
- As a seller(donor), I want to be able to see my books(material) that I have put for sale so that I can have it for my reference.
- As a seller(donor), I want to be able to be able to view all requests on a particular book(material) out on sale so that I know who wants to buy it.
- As a seller(donor), I want to be able to see the profile of a person who has requested so that I can contact him(her).
- As a seller(donor), I want to be able to deem a particular book sold after I've sold it so that it no longer is seen as out on sale.
- As a seller(donor), I want to be able to view my sale history so that I can have it for my reference.

- As a seller(donor), I want to be able to remove a previously posted book(material) out on sale so that it is removed in case I change my mind.
- As a user I want to be able to logout of the portal so that I can logout once my work is done.

Non-Functional User stories:

- As a user, I want the portal to be functional via all browsers so that all of us can use it irrespective of the OS.
- As a user, I want that the user interface is lucid enough that a 1 day demonstration be enough to learn using it so that it doesn't take much time to learn how to use it.
- As a user, I want that the response time is not more than 15 msec, so that it isn't very slow to use.
- As a user, I want that it is available at all times in a day except the 1-2 hours of down-time so that I can use it at almost all points in the day.
- As a user, I want that my contact number isn't shared unless I keep a book for sale or request a book so that my privacy is not compromised.

Requirements Prioritization:

Must have(M):

As a new user I want to be able to sign up on the portal so that I can start exchanging academic material.

As a user I want to be able to login so that I can use the portal.

As a buyer, I want to be able to search for a book(material) so that it could save my time of scrolling.

As a buyer, I want to be able to buy a book(material) so that the seller knows I want to buy his(her) material.

As a buyer, I want to be able to view buy history so that I can have it for my reference.

As a seller(donor), I want to be able to put a book(material) on sale so that others can see that it is available for sale.

As a seller(donor), I want to be able to see my books(material) that I have put for sale so that I can have it for my reference.

As a seller(donor), I want to be able to be able to view all requests on a particular book(material) out on sale so that I know who wants to buy it.

As a seller(donor), I want to be able to see the profile of a person who has requested so that I can contact him(her).

As a seller(donor), I want to be able to deem a particular book sold after I've sold it so that it no longer is seen as out on sale.

As a seller(donor), I want to be able to view my sale history so that I can have it for my reference.

As a user I want to be able to logout of the portal so that I can logout once my work is done.

As a user, I want that the user interface is lucid enough that a 1 day demonstration be enough to learn using it so that it doesn't take much time to learn how to use it.

As a user, I want that the response time is not more than 15 msec, so that it isn't very slow to use.

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As a user, I want that my contact number isn't shared unless I keep a book for sale or request a book so that my privacy is not compromised.

Should have(S)

As a buyer, I want to be able to Wish list a book(material) so that I can reach it easily if I want to buy it later.

As a buyer, I want to be able to Buy a book(material) after wishlisting so that I can buy a book I had previously wishlisted.

As a seller(donor), I want to be able to remove a previously posted book(material) out on sale so that it is removed in case I change my mind.

As a user I want to be able to view my profile so that I can view how it looks.

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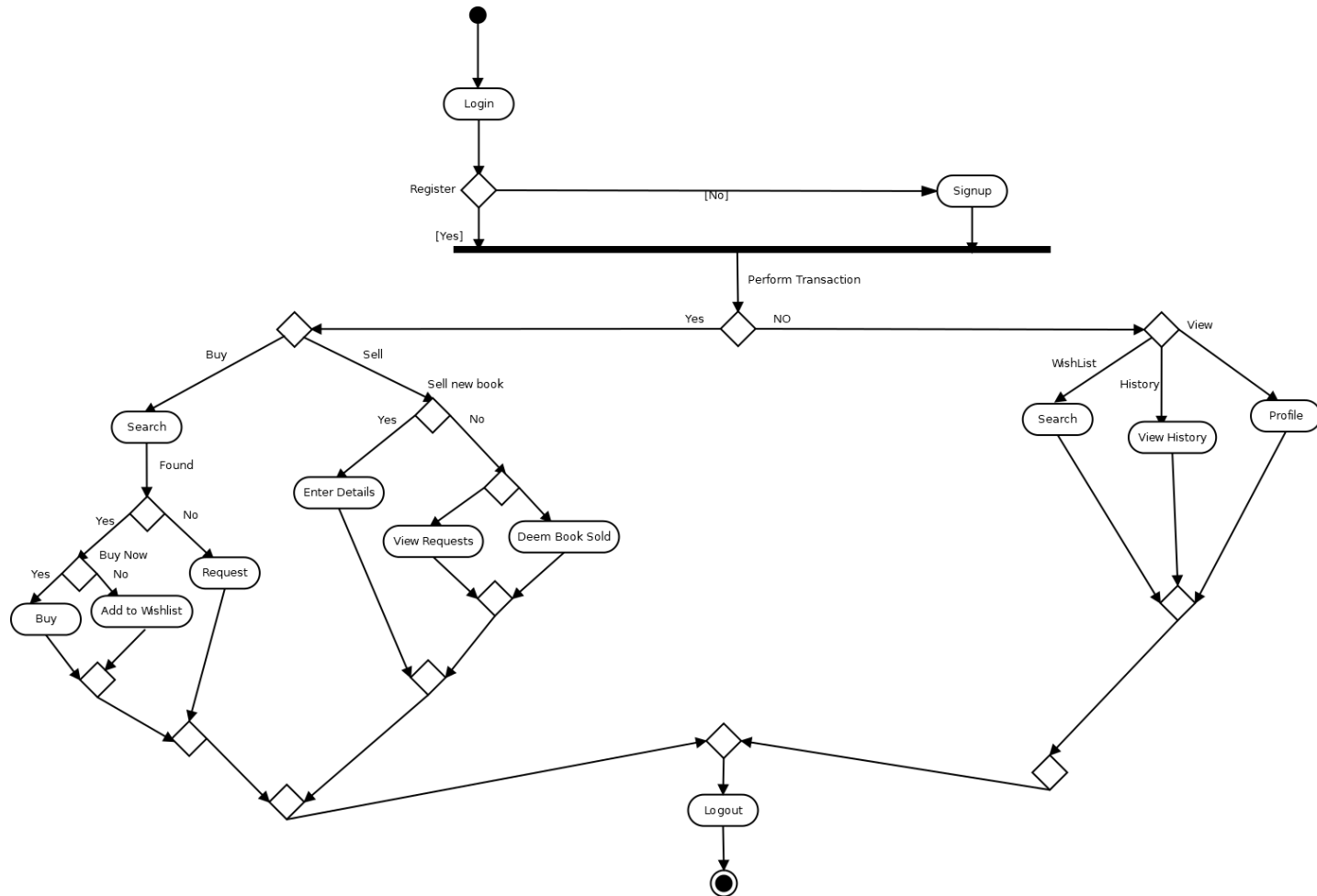
Could have(C)

As a user, I want the portal to be functional via all browsers so that all of us can use it irrespective of the OS.

As a buyer, I want to be able to request an unavailable book(material) so that I can buy it when anyone wants to sell it.

As a buyer, I want to be notified when a previously unavailable requested book is available so that I can know it is available.

6. Activity Diagram:



7. Planning for further development:

Our working strategy is based on the Agile development model specifically the Scrum. We have different teams specialised in Requirements Elicitation and analysis, Development(Frontend and backend) and testing that will work in coordination.

Based on the prioritised requirements we decided the sprint planning of the first sprint which is as follows:

Sprint 1:

Start date: March 19, 2021

End date: April 2, 2021

Duration: 2 weeks

Targets decided:

Features to be worked upon:

LogIn(already existing user) and SignUp(new user) for system users and LogOut. *For a buyer:*

Search a book , buy a book(requesting from the seller)

For a seller:

Put a book on sale, view requests on it, view the book kept on sale, view details of the person who has requested the book, deem a book sold.

For both:

View history

Functionalities to be implemented:

UI design prototype design to be made and finalised.

FrontEnd: Implementation of the entire UI design using React, HTML, CSS etc. Backend: Database(Using Postgresql) and routing

Other technologies to used in backend development : Node,Express

Integration of both: Integrate the LogIn functionality of the LogIn page on the frontend with the backend.

Sprint Review:

All the targets decided were completed upon in the course of 2 weeks.

A working prototype of the system with all the features have been embedded in the frontend part. Database and routing done by the backend team along with integrating the LogIn page with backend.

However, it was found out that the LogIn page isn't fully functional. Primary research showed that there seems to be an error in the integrating part.

Further Planning:

Development and testing of the fully functional product to be done.

Sprint 2:

Start date: April 5, 2021

Duration: 2 weeks

Functionalities to be implemented:

Backend: Integrating all the other functionalities of the frontend with the backend and debugging the integration of LogIn(backlog from Sprint 1).

Testing: Unit Testing, Integration Testing, System Testing, Acceptance Testing, Mutation Testing, Non-Functional Testing

Work on the loopholes if any are discovered during the testing.