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BOOKENT

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CERTIFICATE

It is hereby certified that the project titled ***BOOKENT***, submitted by **Abdallah Ibrahim Salameh** (1833327) and **Mahmoud mohammad Irshaid** (1833371), in partial fulfillment of the award of the Degree of Bachelor Computer Science and Applications / Computer Science and Applications embodies original work done by them under my supervision.

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ABSTRACT

Reading books is very important in our life since it keeps the brain alive and healthy. However, recently in our society, it has received less attention. One of the major reasons is the invention of smartphones and other Internet-based devices which makes books easily available. However, many people still prefer physical books to digital ones since the former cause more concentration and fewer headache. We developed an application to encourage people to revive the reading habit using physical books. Our application simplifies the process of reading physical books. a person can search for books he wants to read, then he can ask for exchange it with another book or rent it for free. once he finishes reading a book, he can return the book back to make it available for another person. The application is really very helpful for the reader as they can rent or exchange a book instead of buying and wasting money.

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Abbreviations

HTML-Hypertext Markup Language: This is the first part of front-end development.

CSS - Cascading Style Sheets: Without CSS, the web would be a lot more boring. CSS is a language of rules that affect the style of HTML content.

JS - JavaScript: This is a programming language that allows for complex and interactive experiences on web pages.

React - (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces or UI components.

GUI - Graphical User Interface. It's a system of interactive components that are presented visually for the user of computer software. REST - Representational State Transfer. It is an architectural style within software development.

Node js - (Node) is an open source development platform for executing JavaScript code server-side.

Express Js - A fast, un-opinionated, minimalist web framework for Node.js applications. In general, "Express" is preferred to "Express.js," though the latter is acceptable.

MongoDB - a document database with the scalability and flexibility that you want with the querying and indexing that you need.

UX - user experience. It refers to user experience design, it's a human-first approach to how users, clients, visitors, and guests interact with a company.

SVG - Scalable Vector Graphics. SVG is an XML-based markup language for vector image formats for two-dimensional graphics with support for interactivity and animation.

API - an abbreviation that is classed as an initialism. In tech that stands for Application Programming Interface.

JSON - JavaScript Object Notation. It is a standard file format for data interchange. It uses text that can be read and understand by humans to store and transmit data objects between web servers and applications.

PWA - Progressive Web Application. It's a type of web application where the software is delivered through the web. It is generally built with commonly associated technologies such as HTML, CSS, and JavaScript. It's created with the intent to work on any platform or device that has a standards-compliant browser. This includes both desktop and mobile devices. This means it's rather quick to develop a PWA compared to a native application. It's also possible to offer functionalities from apps like push notifications, offline support, and the like.

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CHAPTER 1: INTRODUCTION

In this chapter, we introduce the project background, the problem statement that motivate us to develop the application, then we provide our project objectives, finally we present the organization of the report.

1.1 Background

The main intention of this project is to make borrowing books more active for all age groups in our society, in order to increase the book readers and spreading the knowledge among us, and making any book reader who finished his book and doesn't have enough money to buy a new one or for any other reason, by enabling him to find a book that he needs to exchange.

1.2 Problem Statement

As a person who does not like reading books online and love to read them physically I was facing some problems when I finished a book and I don't have money to buy another one, so I searched for an application to find a person who wants to exchange his book with another one for free. But my attempts were failed because I didn't find a local application for this. So I thought that we need (readers community) an application to make book exchanging possible and safe.

1.3 Objective(s)

We are trying to achieve

- Create an application that capable to make book exchanging possible and safe.
- Simplifying the process of reading physical books.
- encouraging people to revive the reading habit using physical books.
- Attractive and user friendly interface enable the readers in ease of use.

1.4 Report Organization

The rest of the documentation is organized as follows. **Chapter 2** introduces the relative work and Literature Review **Chapter 3** lists the software requirements, Functional and non-functional User Requirements **Chapter 4** presents the design and architecture components. and Software Implementation and Testing are described in **Chapter 5**. **Chapter 6** presents the future work and the conclusion of the documentation.

CHAPTER 2: LITERATURE REVIEW (RELATIVE WORK)

Bookland is created for simple book reservation services, rental service or any other service, Bookland has time slots availability and booking calendar in this system. Customers are able to check available rental unit. It was implemented using Android studio and MS SQL, and it was developed in android java application. It focuses on basic operations like adding new members, new books, updating new information, searching books and members (authors) and facility to borrow and return books.The most important module in Bookland is login module. In this module, each user has their unique username and password **[1].**

An android based application developed for android phones and which it is based on firebase (cloud database), it provides various rental services from books, electrical appliances and accommodations. So the application also provides the ability to users to create accounts and add there's books and more else in detail, the application is paid for the first time on security fees and every month for rent services [2].

An online collection of digital objects, These objects include text, visual, audio, and video material stored in electronic media formats. A library system also provide means for organizing, storing, and retrieving the information contained in the library collection. is a web-based document management system. These documents or objects include books, articles presentations, reports, visual, audio, and video material stored in electronic media formats. ELIBRARY implemented using JavaScript, HTML, CSS, angular and SQL **[3].**

Home Rental System Implementing Constraint Satisfaction Problem An efficient and dynamic home rental system which users can access through their mobile phone with no hassle is a desire of every tenant in the world. Therefor to make it easier and accessible by every people we represent a home rental system which provides every needed facility.

HRS used CSP (Constraint Satisfaction Problem) implemented search option is more dynamic in case of large database compared to SQL (Structured Query Language) search. The primary focus of this work is to implement constraint satisfaction problem in the search option of our home rental system. HRS implemented using MYSQL, Incremental Search Algorithm Brute Force Algorithm, AJAX, JavaScript, CSS, HTML **[4].**

Car rental is a website for car renting and manage the business process of a car company developed by html, CSS, JavaScript, php, MYSQL, NODJS. The system website gives an easy of use in posting and booking cars also it aimed to help the customer **[5].**

Books Rental Information System is a Software development for the Books Rental Information System of Books 4 Life Using Microsoft Access as DBMS to develop the Books Rental Information System. Designing the software must be based on user friendliness and capability in making reports. The system allows users to add, edit, delete the data and also search for the desired data **[6].**

As mentioned in the related work there is some differences between our application

And the applications mentioned above. Our application based on web latest technologies using JavaScript, html, CSS, react, mongo database, PWA (progressive web application), node JS. Our application is for exchanging books not for renting or buying, it is completely free to use dispute some of the related work.it has friendly user interface for mobiles and computers.

CHAPTER 3: SOFTWARE REQUIREMENTS

3.1 Requirements Elicitation

Two surveys have been conducted, the first one was for our university students to ask them about the idea of our project and they encourage us to do it, and as they said: "it is a very useful idea to our community and any student", and some of them said it will help our colleagues to share their knowledge and their books together, and it will not be useful for our university or our community only, furthermore it can be applied abroad look at figure 3.1.

The second was for the libraries owners and they said that if the application is activated it will be easier for us to trade books with customers, and it will solve a common problem we face when a customer visits us to trade his book with another one in our library and he does not find the desired book, in this case, it will take time and effort, but when a customers the application, he will lookout for a book without visiting us

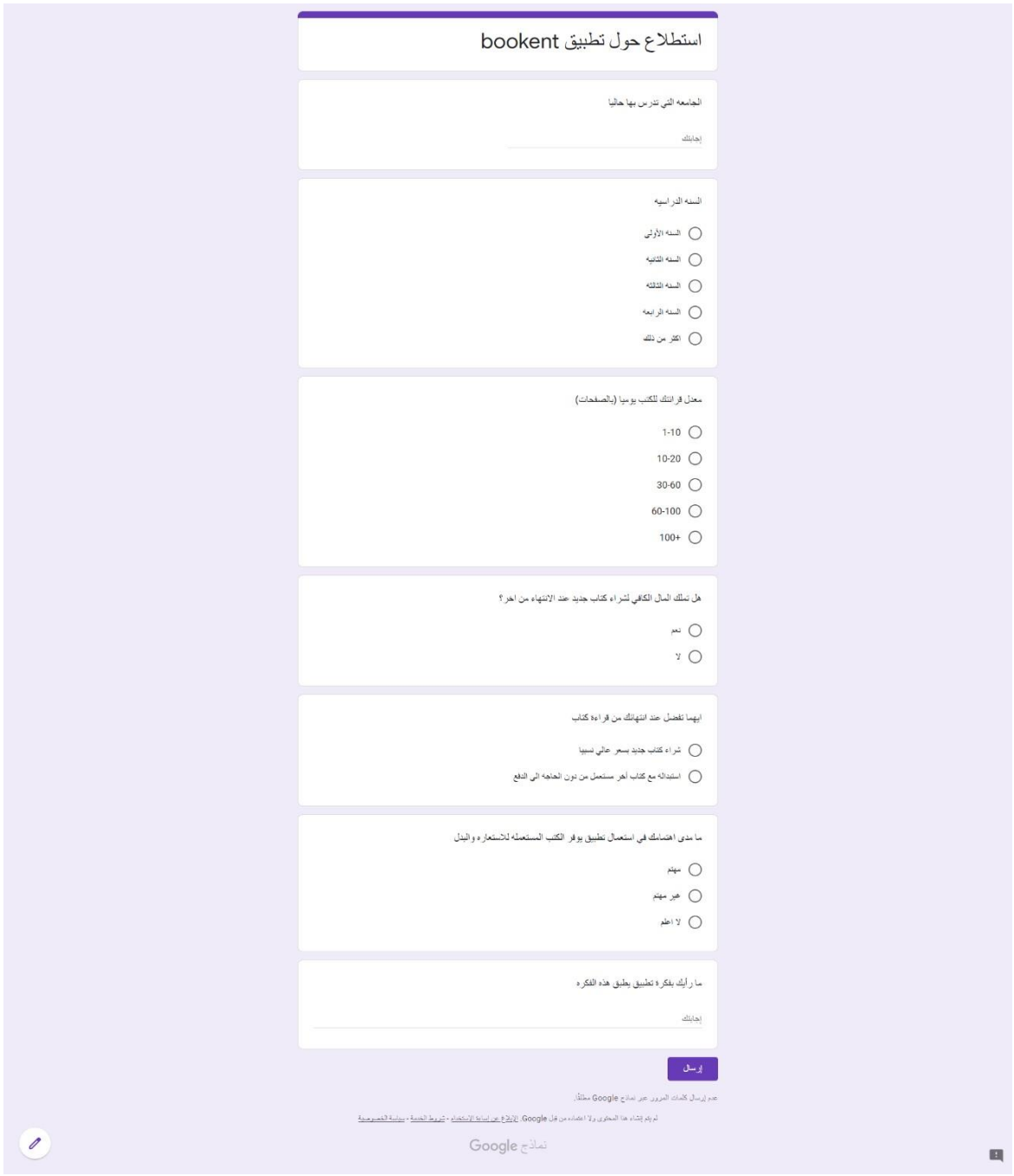

Fig. 3.1. Project survey

3.2 Functional User Requirements

As a user to be capable to use the app first of all you should log in by inserting your user name and the password that in case you had an existing account in case you had not then you should sign up by creating your user name, inserting your phone number, creating the password and finally choose your country. After logging in the home page will show off that is divided to many parts the middle part will contain a list of books that you can trade with And above it, there is a bar that you can choose via it the type of books that are displayed.

The Buttons:

- Favorite Button: favorite button leads you to a page that contains your favorite books that you chose

-Your Books Button: your books button leads you to the books that you have been uploaded.

-Add Book Button: to add a certain book by inserting all information about the book and a picture of it.

-Dark mode Button: used to switch to dark mode

-Log Out Button

-About Button

And finally there is a search bar browse a specific book name and In the top of the page there is a profile button that leads you to your profile.

Table 3.1. Functional Requirements

Req.No.	Description	type
R-1	The customer should be able to register with or sign up	Functional
R-2	The customer should be able to add a new book with the details	Functional
R-3	the customer should be able to view the details of a particular book	Functional
R-4	The Customer should be able to display all the lists of book by specific category	Functional
R-5	Customer can add a book to the favorite list	Functional
R-6	the customer can log out	Functional
R-7	The Customer should be able to display all the lists of book by country	Functional

3.3 Non-Functional User Requirements

Usability. The system provides interactive user experience , so The user can interact with the screens of the website very easily, all the buttons , fonts , colors , containers and photos … etc.

Reliability / Availability. The system is reliable at the most of the time it works perfectly And available 24/7 hours, the system is hosted by high quality of servers that use the Latest technologies.

Portability And compatibility. As The system can work perfectly by any browser and it support to work on any computer and smart phones smoothly

Security. protecting user's data is the most important thing, so our system does that at fullest degree and with high secure database that support high security certifications ,also the servers that host the system made to protect the system from attacks.

Table 3.2. Non Functional Requirements.

Req.No.	Description	type
R-1	Transactions should be securely made and users data should be protected from attacks	Security
R-2	The system should be trusted and relied by the users	Reliability
R-3	The system should be easy for the customers to use it	Usability
R-4	system should run on any hardware with any kind of browser. It should not conflict with other processes within these environments	Portability and compatibility

CHAPTER 4: SOFTWARE DESIGN

4.1 Software (system) Architecture

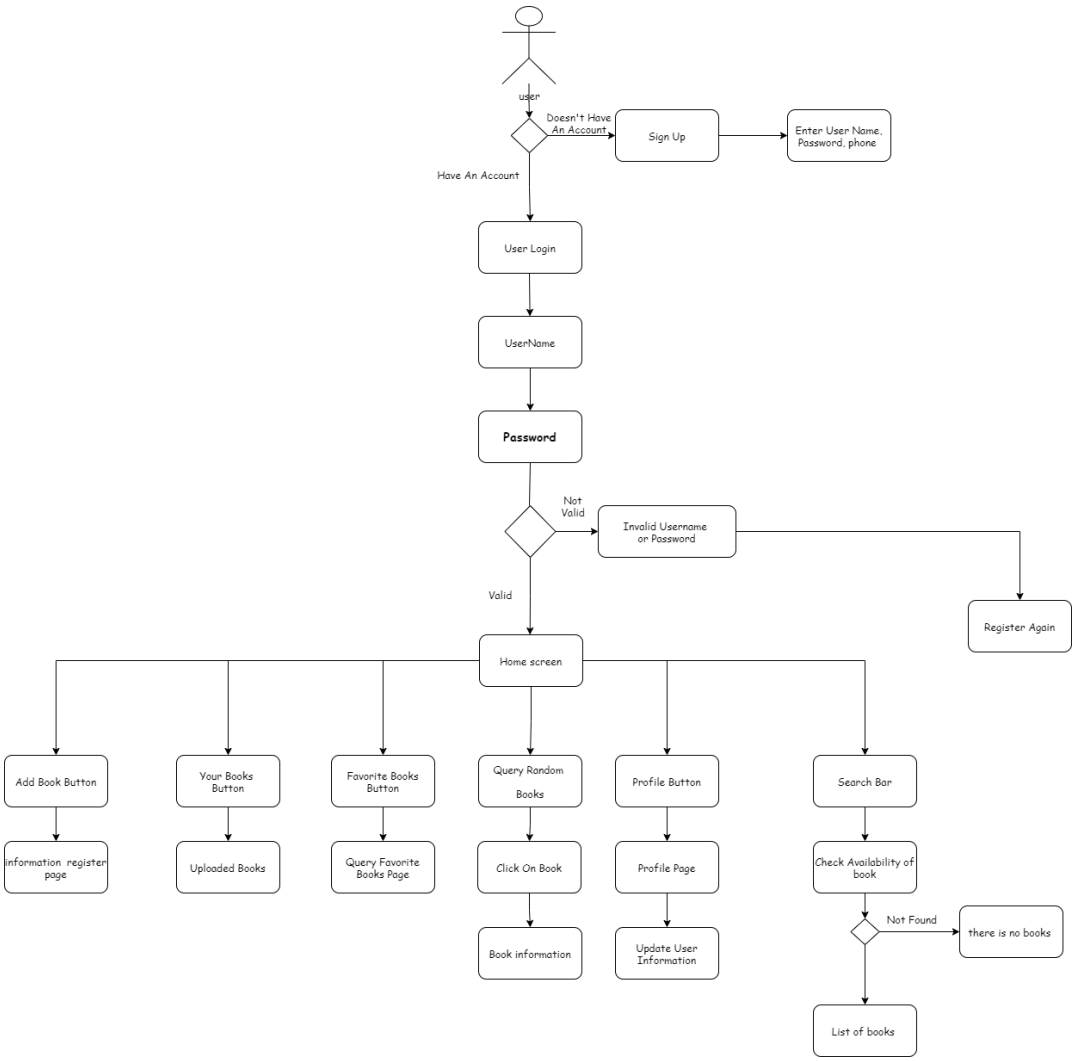

Fig. 4.1. System Architecture

Figure 4.1 shows the architecture of our application. In the following we introduce the main components of BOOKENT application.

- Login Screen: the user can go to the registration screen by clicking on the button ‘create an account’ (look at figure 4.3). Already existing users can log in the application by filling

their registered user name and the password. After submitting the username and the password the user will go to the home screen page (look at figure 4.2).

Fig. 4.2. Log in Page

Fig. 4.3. Sign up page

- home Screen: The home screen is the main screen, which contains an image view, categories menu, section that contains list of books the user can access any book in the list by clicking on the image (look at figure 4.4). The information of the selected book will be there with the owner's name, there are 2 more components of the home screen:

1. navigation bar
2. add book button

Fig.4.4. BOOKENT Home Page

-Add book: the user can lend books. On clicking the add book button it will take the user to the add book screen as shown in prototype section bellow, there is a tab view which

contains four different input book name, description, book type, location button and the book's photo (look at figure 4.5).

Fig.4.5. Add Book page

-Book information: the user can see the book information by clicking on it.

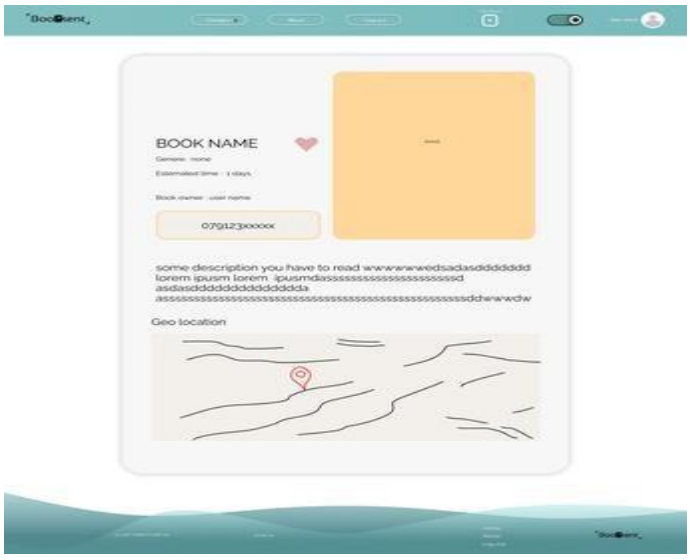

Fig.4.6. Book Information

-favorite: the user can see all the books that he has liked all the time (look at figure 4.7).

Fig.4.7. Favorite Page

-Profile: the user can check their profile by clicking on the profile button on the home screen. It will take the user to the profile page where the user can check and update all the details like profile, email address and the contact number as shown in prototype section bellow (look at figure 4.8).

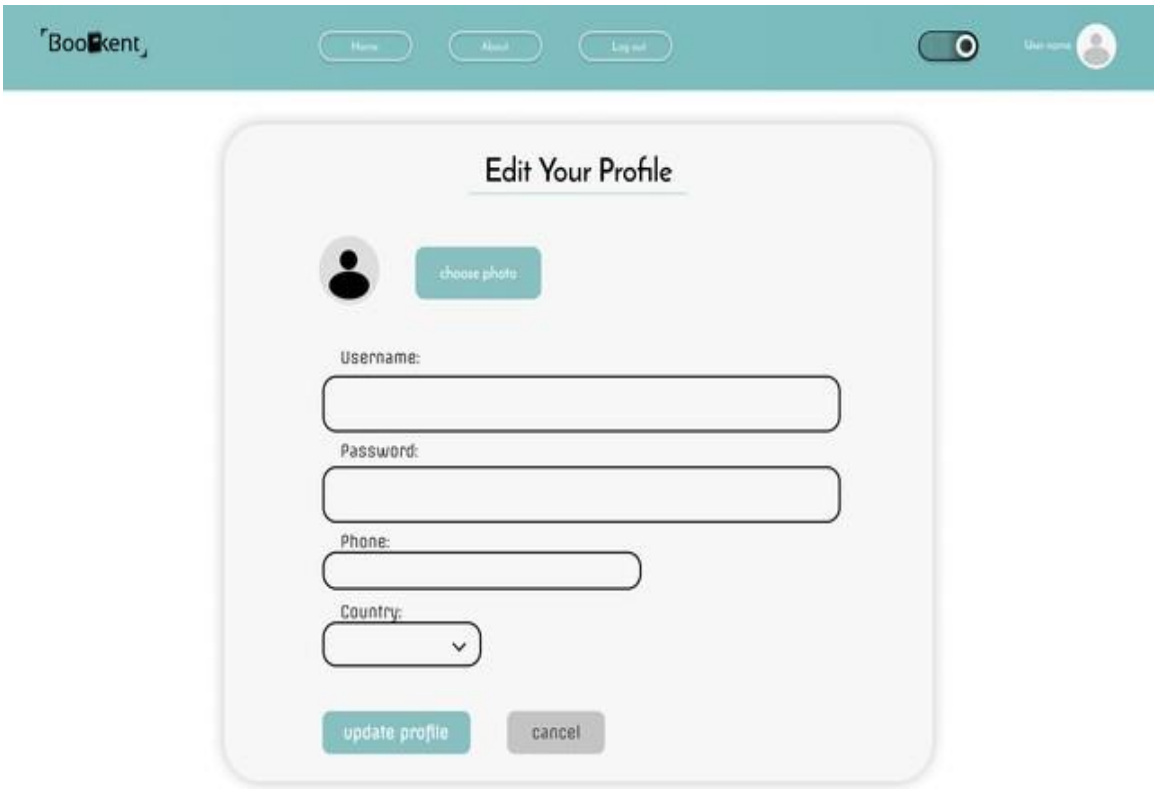

Fig.4.8. Edit Page

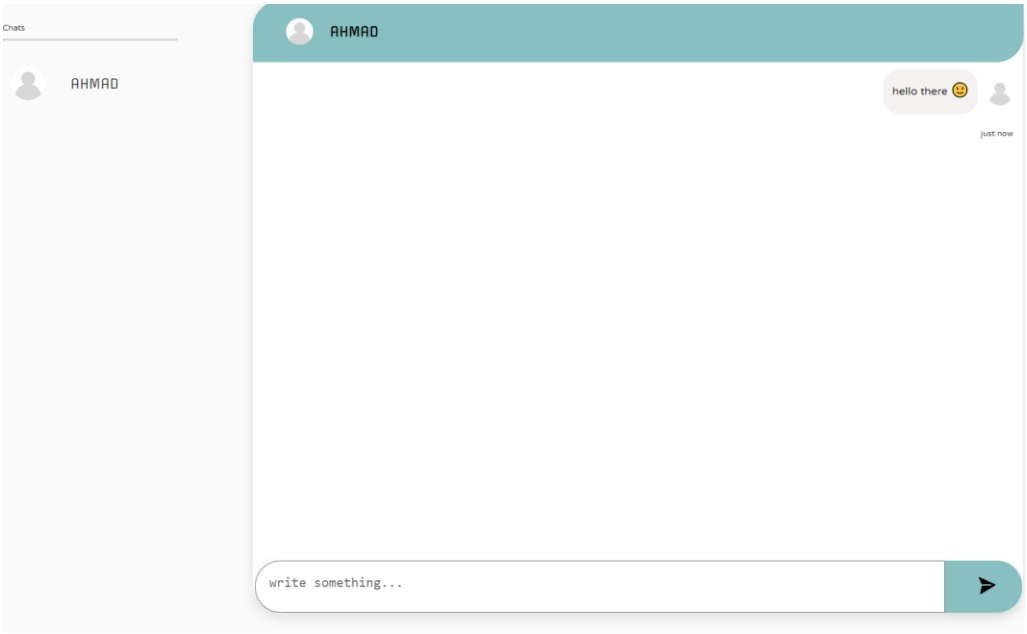

Fig.4.9. messages Page

4.2 DataBase Specification

We have been choosing mongo Database that is defined as non-relational (it does not has rows and columns) database and it depends on JavaScript Object Notation (JSON) in documenting, Also it Uses collections instead of tables. So we had created two collections for user accounts and books uploading, The user object has many attributes when creating accounts , also when uploading a new book the book has many attributes, after user login the system inquiry random lists of books or when the user search of specific book (look at figure 4.9).

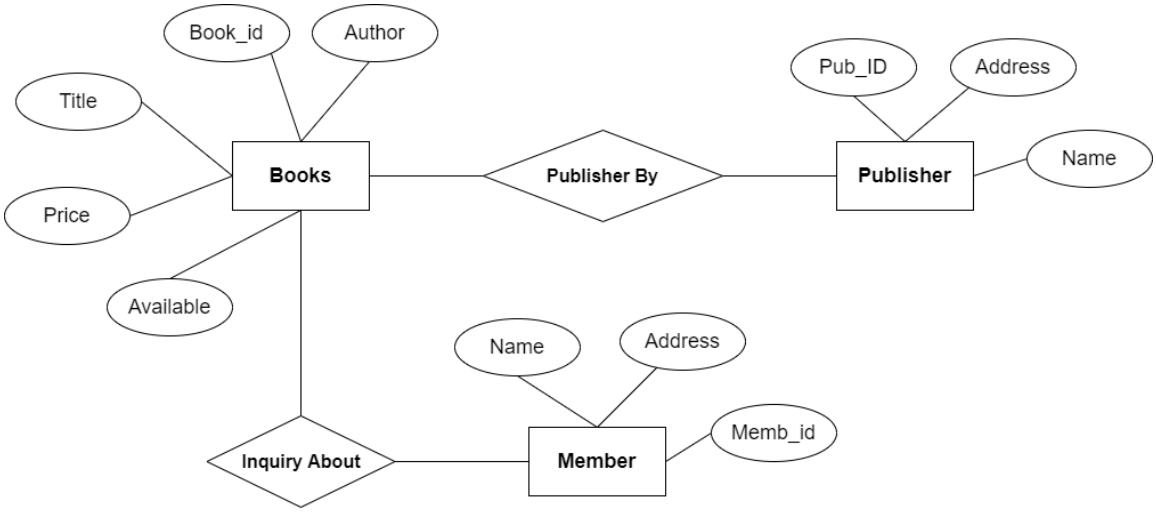

Fig.4.10. Er Diagram.

If the user borrows one book it will show the owner of the book and also he can borrow more than one book and all of that will be recorded in the database and how relation between the books and user. (look at figure 4.10).

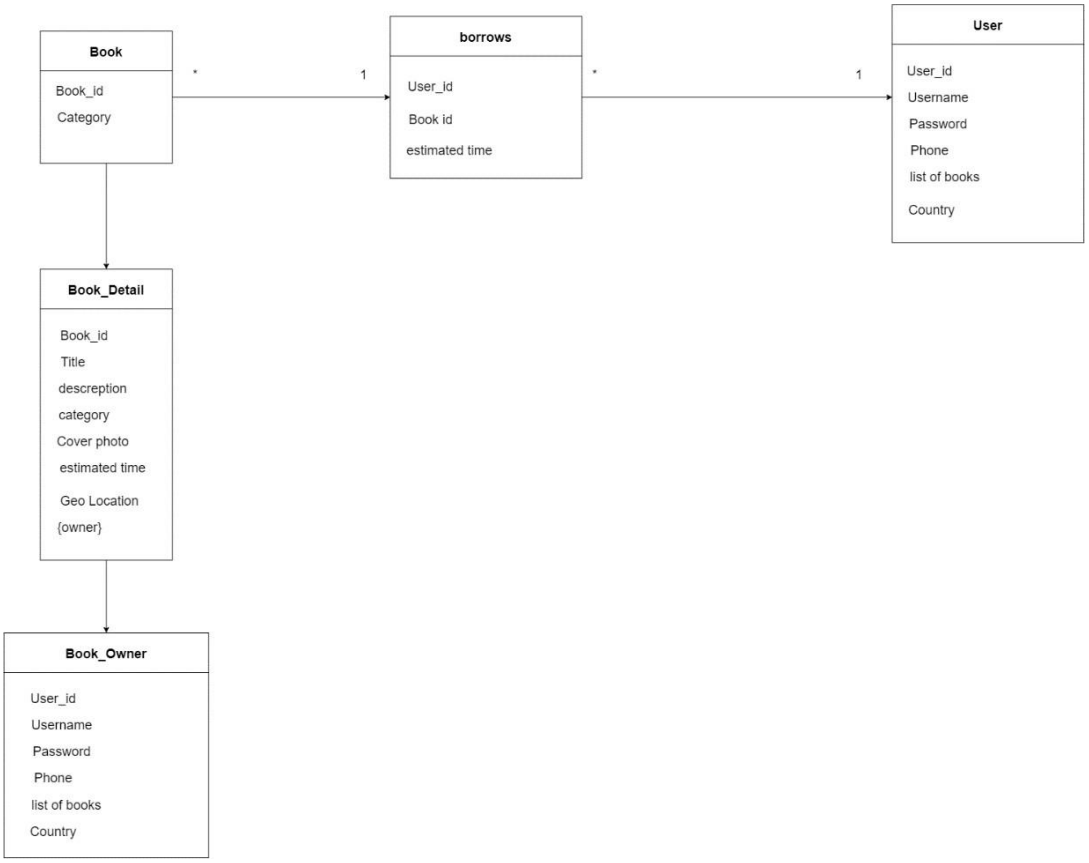

Fig.4.11.Data Base Schema.

CHAPTER 5: SOFTWARE TESTING

Table 5.1. test cases

Test Scenario description	Test case description	Test Steps	Test Data	Result
Verify the login functionality of bookent login page	Enter a valid username & valid password	1-Enter valid username 2-Enter valid password 3-Click on login button	Username: ahmad Password:12345678	Successful login
Verify the login functionality of bookent login page	Enter a invalid username & valid password	1-Enter username Hasn't signed up before 2-Enter valid password 3-Click on login button	Username: Ibrahim Password:12345678	A popup error to show an error " username not found"
Verify the login functionality of bookent login page	Enter a valid username & invalid password	1-Enter valid username 2-Enter invalid password 3-Click on login button	Username: ahmad Password:11111111	A popup error to show an error " password is wrong"
Verify the sign up functionality of bookent sign up page	Enter a valid username & password & country	1-Enter valid username 2-Enter valid password 3-enter the country 4-Click on sign up button	Username :abdallah Password : 12341234 Country : Jordan	Successful sign up
Verify the sign up functionality of bookent sign up page	Enter a username that already exist & password & country	1-Enter a username that already exist 2-Enter valid password 3-enter the country 4-Click on sign up button	Username :ahmad Password : 12341234 Country : Jordan	A popup error to show an error " username already exist"

Verify the functionality of bookent Edit your profile page	Edit username and enter name doesn't exist before & password & country	1-Enter a username does not exist 2-Enter password 3-enter the country 4-Click on update profile button	Username :ahmad324 Password : 12341234 Country : Jordan	Successfully updated
Verify the functionality of bookent Edit your profile page	Edit username and enter name does exist before & password & country	1-Enter a username does exist 2-Enter password 3-enter the country 4-Click on update profile button	Username :ahmad Password : 12341234 Country : Jordan	A popup error to show an error " username already exist"
Verify the functionality of bookent Edit your profile page	Upload new profile image its size more than 5 mega byte	1-choose photo from your device 2- click update profile	Photo size > 5 mb	A popup error to show an error " photo must be less than 5 mb"
Verify the functionality of bookent Edit your profile page	Upload new profile image its size less than 5 mega byte	1-choose photo from your device 2- click update profile	Photo size < 5 mb	Successfully updated
Verify the functionality of bookent add book page	Upload new profile image its size more than 5 mega byte	1-choose photo from your device 2- click update profile	Photo size > 5 mb	A popup error to show an error " photo must be less than 5 mb"
Verify the functionality of bookent add book page	Upload new profile image its size less than 5 mega byte	1-choose photo from your device 2- click update profile	Photo size < 5 mb	Successfully added

5. Conclusion

Studies show that reading printed books has many benefits and it is more memorable than reading e-books. This motivates us to develop a web application called Bookent that helps people who prefers reading printed books to e-books. In this work we provide a prototype of our application, we present its main features, components, functions, and non-functions requirements. The objectives of our application are also introduced.

In our future work, we aim to implement our application in a real world and evaluate its usability and efficiency by a group of participants.

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