INSTITUTE FOR ADVANCED COMPUTING AND SOFTWARE DEVELOPMENT (IACSD), AKURDI, PUNE

Documentation On

RaktKosh Online Blood Bank Portal

PG-DAC March 2023

Submitted By:

Group No: 46

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Project Guide

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Centre Coordinator

ABSTRACT

RaktKosh.com deals with the maintenance of the blood bank and blood donor's details. It gives benefit to donor for registration and getting appointment for blood donation. The blood banks will be provided with the username & password to see the donor's details.

The main goal is to provide blood donation service to the peoples. On Internet there are less or none systems are available for blood donation. Blood banks uses physical files to store the records which are destructible. RaktKosh.com is a website that is designed to store, process, retrieve and analyse information concerned with the administrative and inventory management within a blood donation.

This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and help them manage in a better way. Project Aim is to provide transparency in this field, make the process of obtaining blood from a blood donation hassle-free and corruption-free and make the system of blood donation management effective.

ACKNOWLEDGEMENT

I take this occasion to thank God, almighty for blessing us with his grace and taking our endeavor to a successful culmination. I extend my sincere and heartfelt thanks to our esteemed guide, **Mrs. Geeta Darunte** for providing me with the right guidance and advice at the crucial juncture sand for showing me the right way. I extend my sincere thanks to our respected **Centre Co-Ordinator Mr. Rohit Puranik**, for allowing us to use the facilities available. I would like to thank the other faculty members also, at this occasion. Last but not the least, I would like to thank my friends and family for the support and encouragement they have given me during the course of our work.

Dhiraj Shinde (233087)

Shrinivas Shirke (233090)

Table of Contents

List of Figures

1.INTRODUCTION.

Blood donation is required during an organ transplant, accidents, cancer treatment etc. For blood donation, one needs to check for a donation camp or needs to visit blood bank. The Manual Blood donation system has many disadvantages which includes, it is too time consuming, often leads to error prone results, consumes lot of manpower, lacks donor information, retrieval of data takes a lot of time, percentage of accuracy is less.

In the time of emergency, it becomes difficult to approach the right donor. Rare blood groups are not available all the time at all blood banks and recipients find difficulties to track the right blood donor.

To overcome this problem, we proposed RaktKosh.com system. There are many blood donation management systems, but these systems only maintain the information of blood banks and donors. This online blood bank portal maintains the list of blood donors

The online blood bank portal is a 24 × 7 system provides services to blood banks and other users. The system is easy to maintain all the information about the blood donor. Proposed work provides services to persons who pursue donors who are willing to donate blood.

Problem Statement:

- With the growing population and the advancement in medical science, the demand for blood has also increased.
- Due to the lack of communication between the blood donors and the blood recipients, most of the patients in need of blood do not get blood on time and hence they may lose their lives.
- Older adults, who account for a large percentage of donations, are aging and younger donors are not replacing them quickly enough.
- So many people die due to scarcity of blood every year.

Aims and Objective:

The goal of the project is to develop a website for blood bank and donors to manage information about their donors and blood stock. The main objectives of this website development can be defined as follows:

1. To develop a system that provides functions to support donors to view and manage their information conveniently.
2. To maintain records of blood donors, blood donation information and blood stocks in a centralized database system.
3. To inform donors of their blood result after their donation.
4. To support searching, matching and requesting for blood convenient for administrators.
5. To manage the details of Blood, Donor, Blood Group, Blood Bank, Stock.

2.OVERALL DESCRIPTION.

Proposed Methodology:

The objective of RaktKosh.com is to provide an online web portal for blood availability, donate blood, check nearby blood bank and stock of blood. The incremental models that are chosen in developing this project. This model has been selected because project can be developed through cycle of phase. The development of the project is that it must follow the phase that is a phase at a time. If there is any correction, it can be done in the middle of the process. Incremental model included five phases which are requirement analysis, design, implementation and unit testing, integration and system testing and operation.

Operating Environment:

Server Side:

Processor: Intel® Xeon® processor 3500 series

HDD: Minimum 500GB Disk Space

RAM: Minimum 4GB

OS: Windows 10, Linux 6

IDE: Open jdk 11.0.12 2021-07-20

OpenJDK Runtime Environment Microsoft-25199 (build 11.0.12+7)

OpenJDK 64-Bit Server VM Microsoft-25199 (build 11.0.12+7, mixed mode)

Database: MySQL-8.0.30

Client Side (minimum requirement):

Processor: Intel Dual Core

HDD: Minimum 80GB Disk Space

RAM: Minimum 2GB

OS: Windows 7, Linux

Design and Implementation Constraints:

- The application will use JavaScript, jQuery and CSS as main web technologies.
- HTTP and FTP protocols are used as communication protocols. FTP is used to upload the web application in live domain and the client can access it via HTTP protocol.
- Several types of validations make this web application a secured one and SQL Injections can also be prevented.
- Since RaktKosh.com-Online blood bank web Portal is a web-based application, internet connection must be established.
- The RaktKosh.com-Online blood bank web Portal will be used on PCs and will function via internet or intranet in any web browser.

3. Requirements Specification.

External Interface Requirements:

User Interfaces:

- All the users will see the same page when they enter in this website. This page asks the Donor, Admin and Blood Bank a email and a password.
- After being authenticated by correct email and password, donor, admin and blood bank will be redirect to their corresponding profile where they can do various activities.
- The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.

Hardware Interfaces:

- No extra hardware interfaces are needed.
- The system will use the standard hardware and data communication resources.

This includes, but not limited to, general network connection at the server/hosting site, network server and network management tools.

Application Interfaces:

Web Browser:

The system is a web-based application; clients need a modern web browser such as Mozilla Firebox, Internet Explorer, Opera, and Chrome. The computer must have an Internet connection in order to be able to access the system.

Communications Interfaces:

- This system uses communication resources which includes but not limited to, HTTP protocol for communication with the web browser and web server and TCP/IP network protocol with HTTP protocol.
- This application will communicate with the database that holds all the booking information. Users can contact with server side through HTTP protocol by means of a function that is called HTTP Service. This function allows the application to use the data retrieved by server to fulfil the request fired by the user.

4.System Requirement Specification

Objective (Purpose):

- The focus of this system is to provide an online easy access to blood stock and manage blood stock data available, so that using this blood bank management system people can search blood group available they need.

- It will replace the paperwork.

- It keeps the records of Donor, User, Blood bank, Blood stock available.

Functional Requirements:

1. Admin:
   - Manage User, Donor, and Organization Registrations:
     - Admin should have the ability to register new users, donors, and organizations in the system.
   - View Information:
     - Admin should be able to view the information of registered users, donors, and blood banks.
2. User:
   - Check Blood Availability:
     - Users should be able to check the availability of blood.
   - Register:
     - Users should have the option to register for an account in the system.
   - Login:
     - Registered users should be able to log in to their accounts.
3. Donor:
   - Register:
     - Donors should have the ability to register for an account in the system.
   - Login:
     - Registered donors should be able to log in to their accounts.
   - Book an Appointment to Donate Blood:
     - Donors should be able to schedule an appointment to donate blood.
4. Blood Bank:
   - Registration:
     - Organizations should be able to register for an account in the system.
   - Login:
     - Registered organizations should be able to log in to their accounts.
   - Schedule Blood Donation Campaign:
     - Organizations should have the ability to schedule a blood donation campaign, specifying details such as date, time, location, and requirements

Non-Functional Requirements:

Security:

- Users and Donors information should be kept confidential under security system.
- The system automatically logs out after the period of inactivity.

Reliability:

- System will be reliable enough to provide intact information about to user and donor.
- Once the blood is donated donor will receive the notification on the same.

Availability:

- Users and Donors can access this management system from anywhere from this web application.
- System should be available 24*7 hrs.

Performance:

- Basic system configuration is enough to access the web application.
- Users and Donors can access the web application from mobile phones with minimal performance of the same.
- Performance of the system remains same regardless of platform either it is laptop or mobile phone.

Portability:

- PDA: Portable Device Application.
- System will provide portable User Interface (HTML, CSS, JS) through users will be able to access online portal.
- System can be deployed to single server, multi-server, to any OS, Cloud (Azure or AWS or GCP).

Accessibility:

- Only registered person will be able to see available blood stock after authentication.
- Admin will be able to view all available blood stock and registered blood bank and users' information.

Modularity:

- System will design and developed using reusable, independent or dependent scenarios in the form of modules
- These modules will be loosely coupled and highly cohesive.

Maintainability:

- System should be easy to maintain and upgrade. Commercial database software will be used to maintain system data persistence. Separate environment will be maintained for production, testing and development.

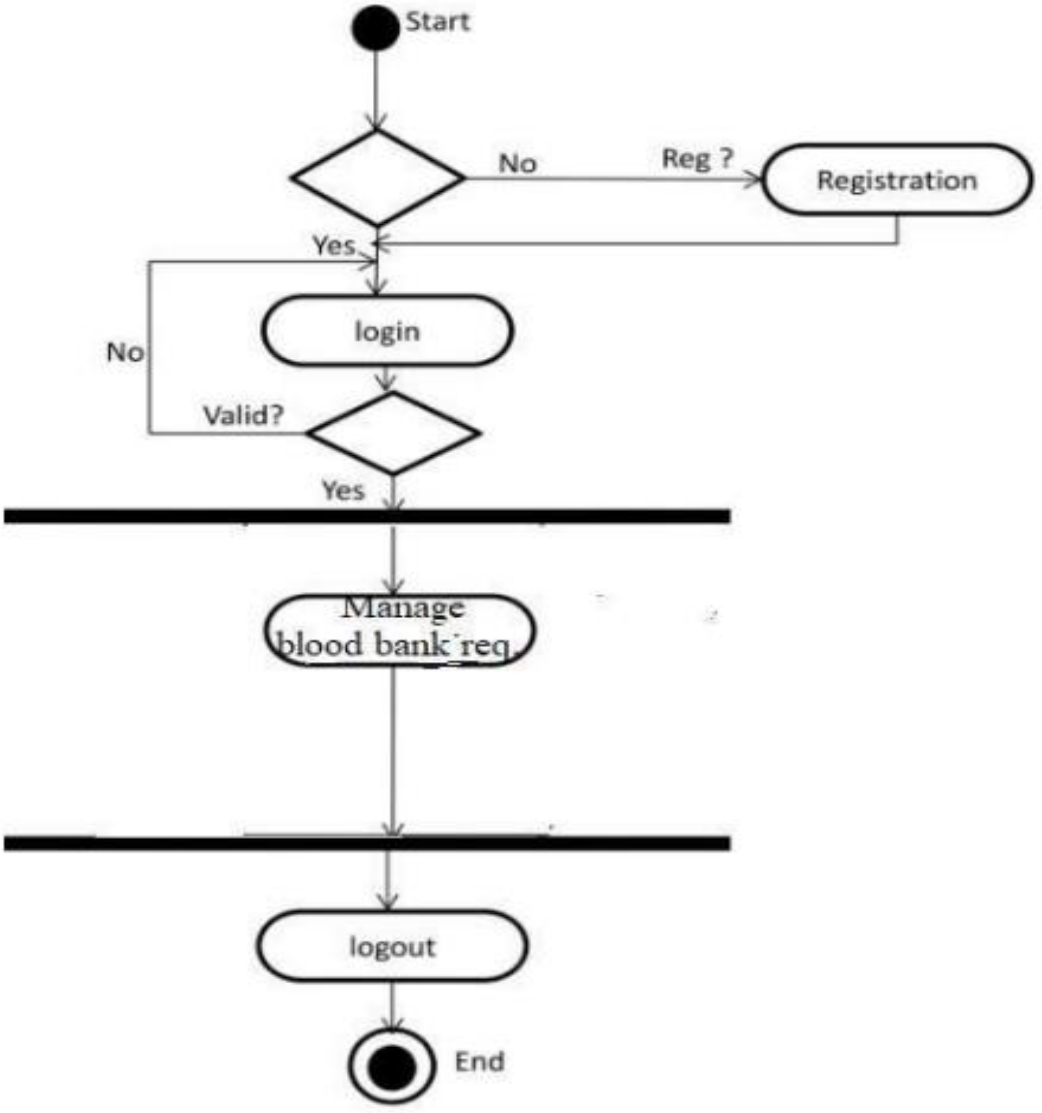
Scalability:

- System should be scalable as donor base, user base and blood bank increases system should provide consistent user experience.

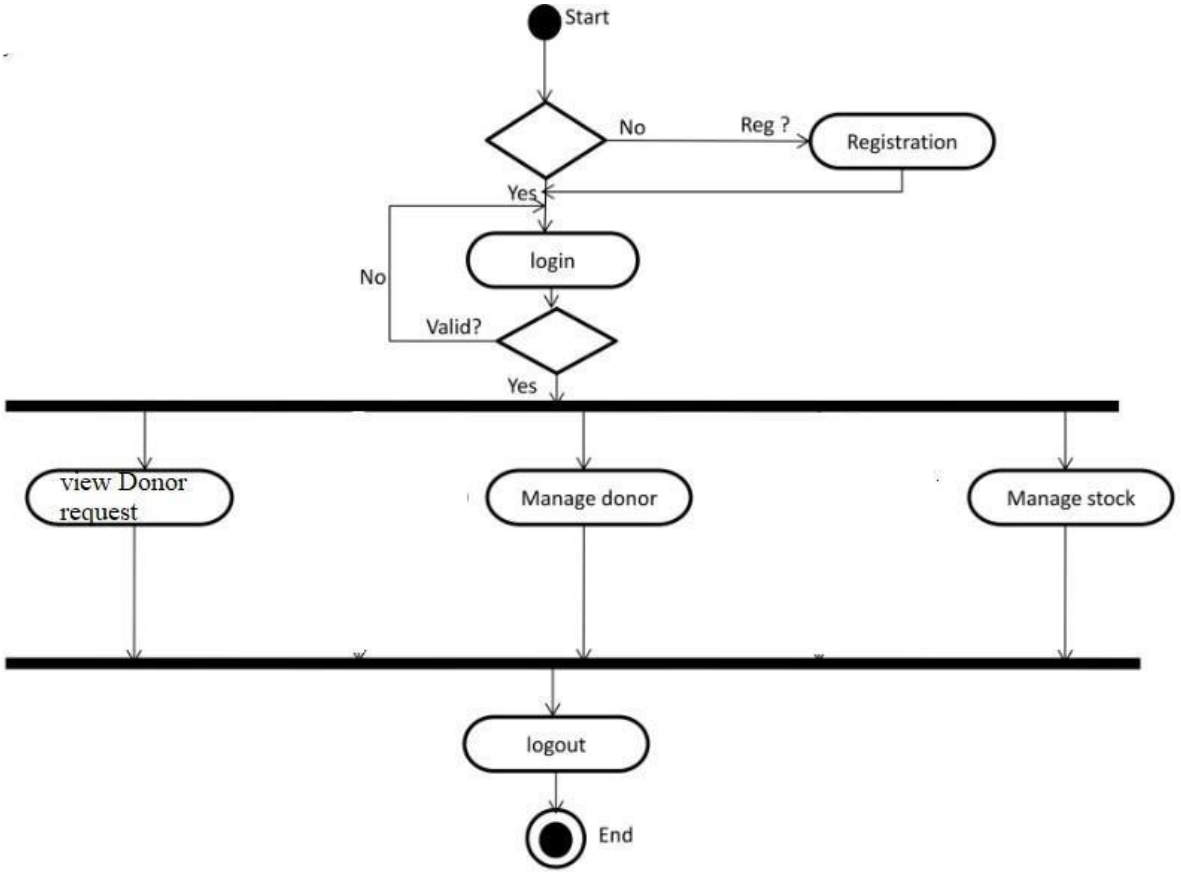
5. System Diagrams.

- **Activity Diagram:**

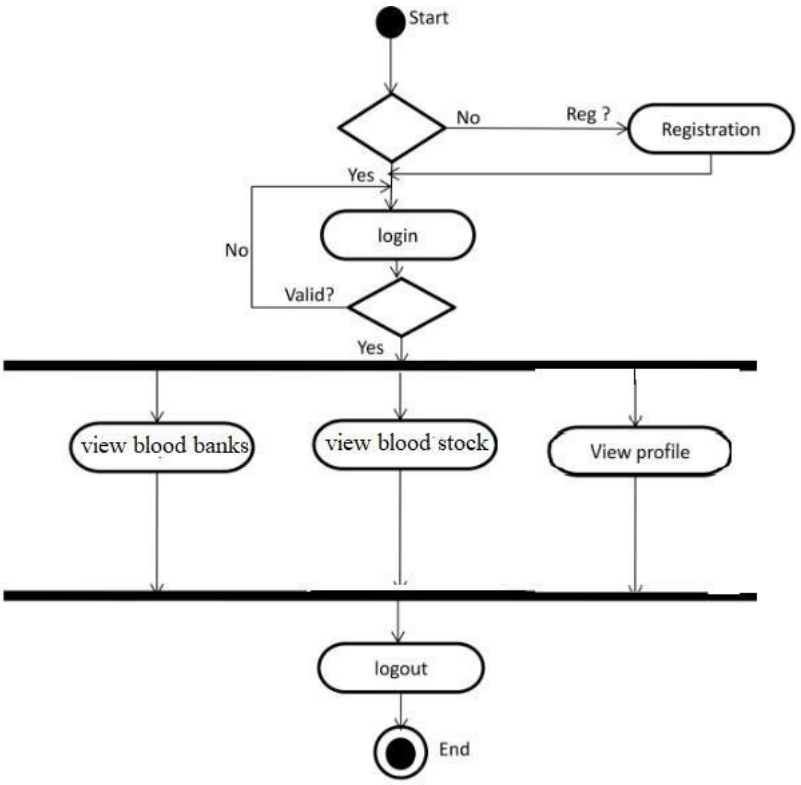
Admin Activity



Blood Bank Activity:

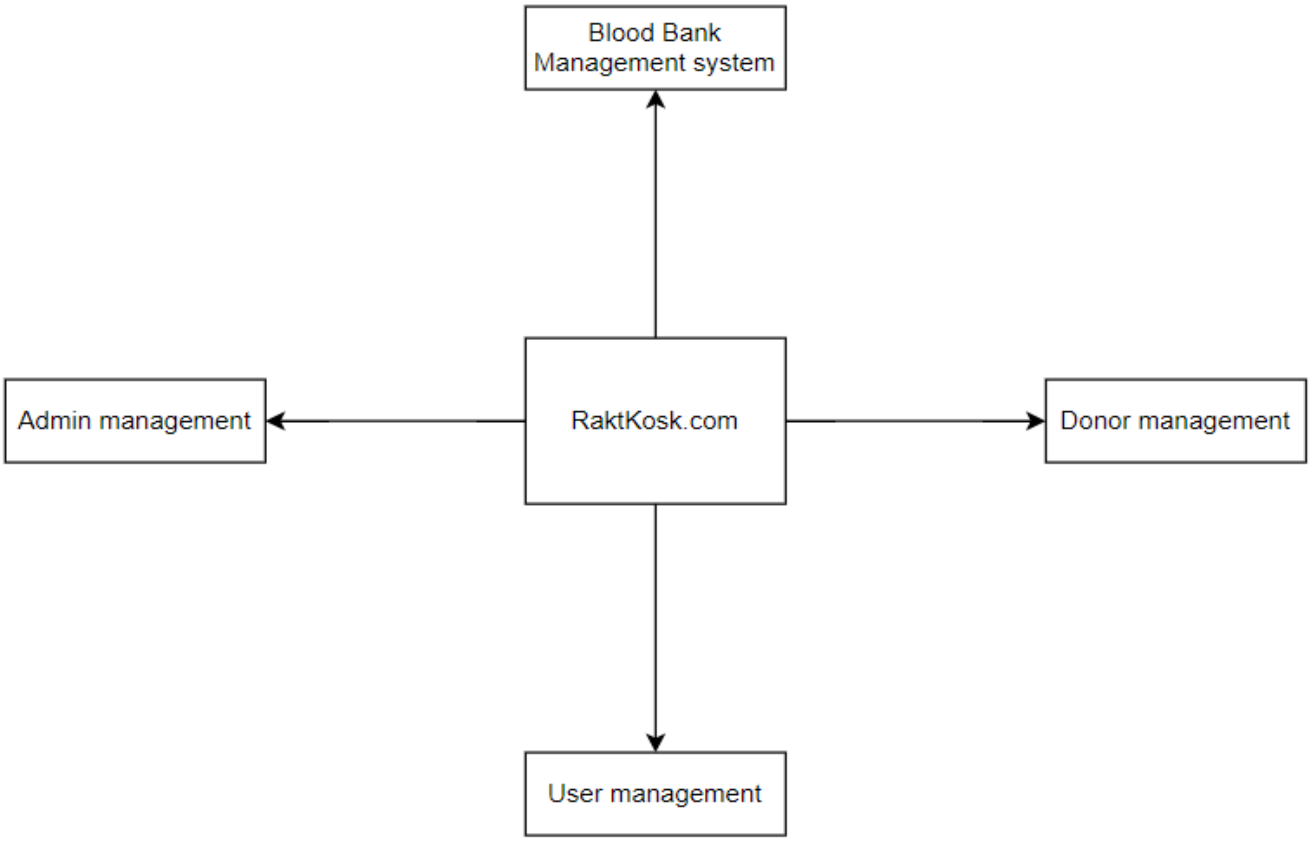


User Activity:

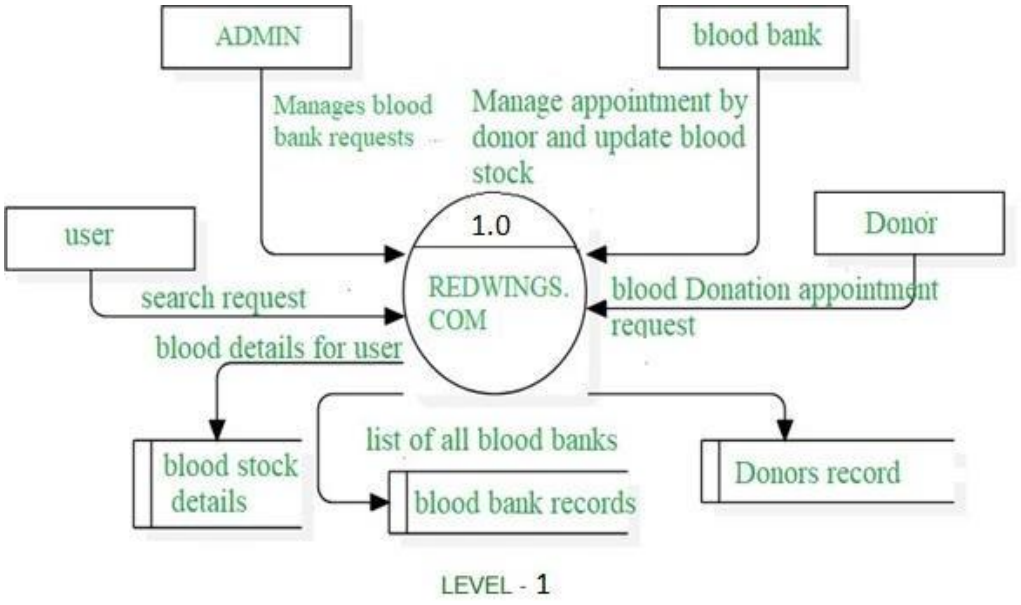


- **Data Flow diagram:**

Zeroth level DFD:

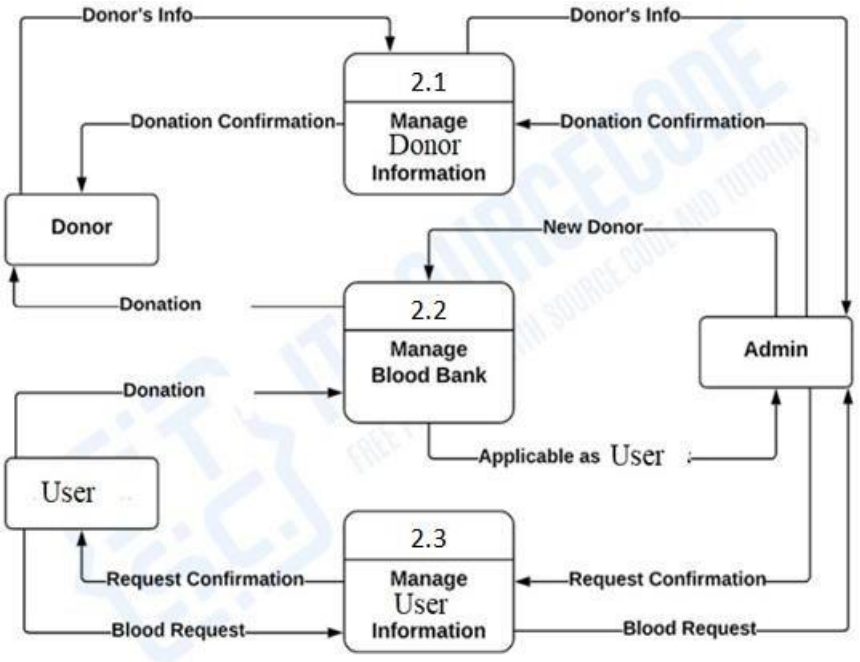


First Level DFD:

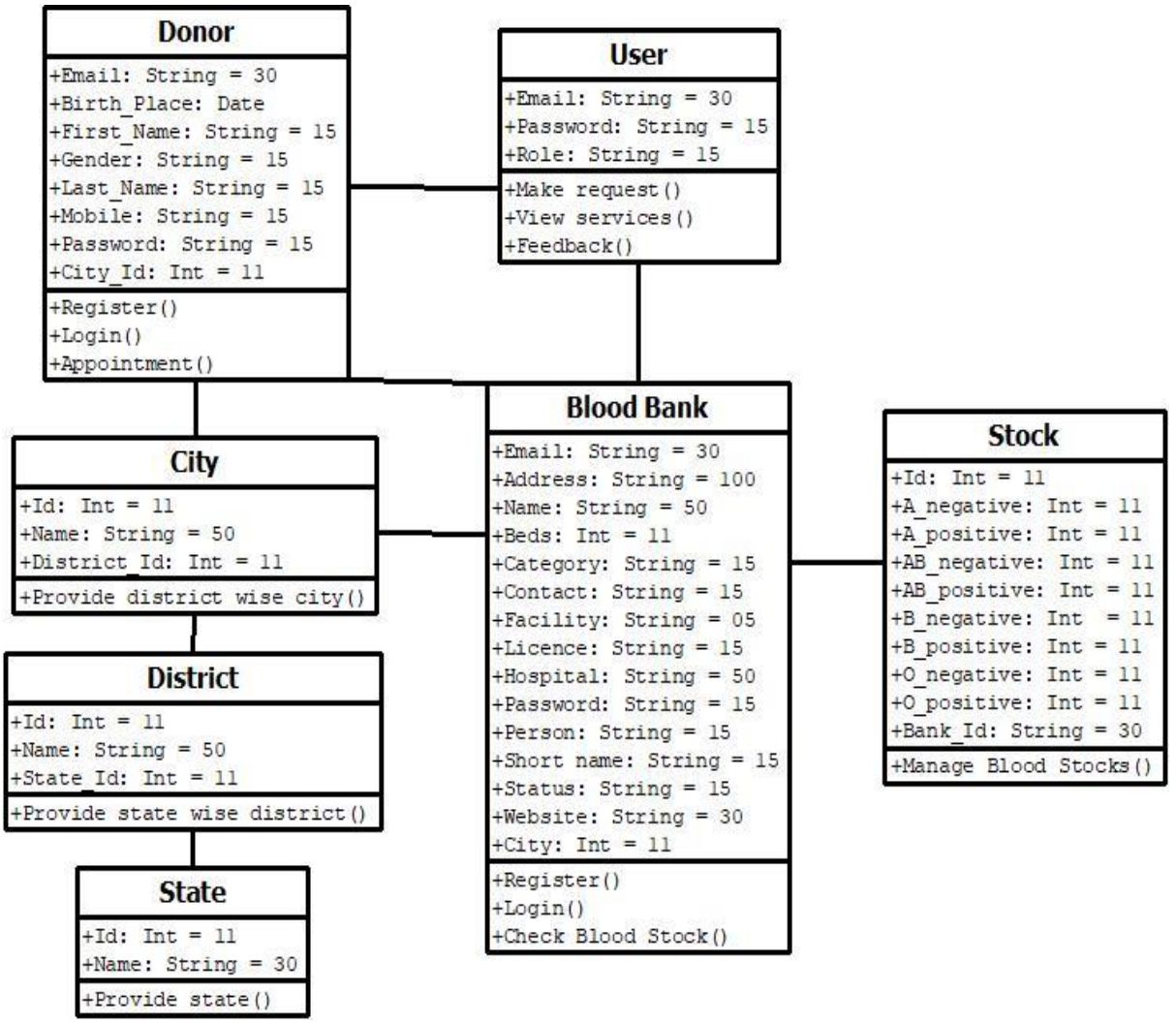


LEVEL - 1

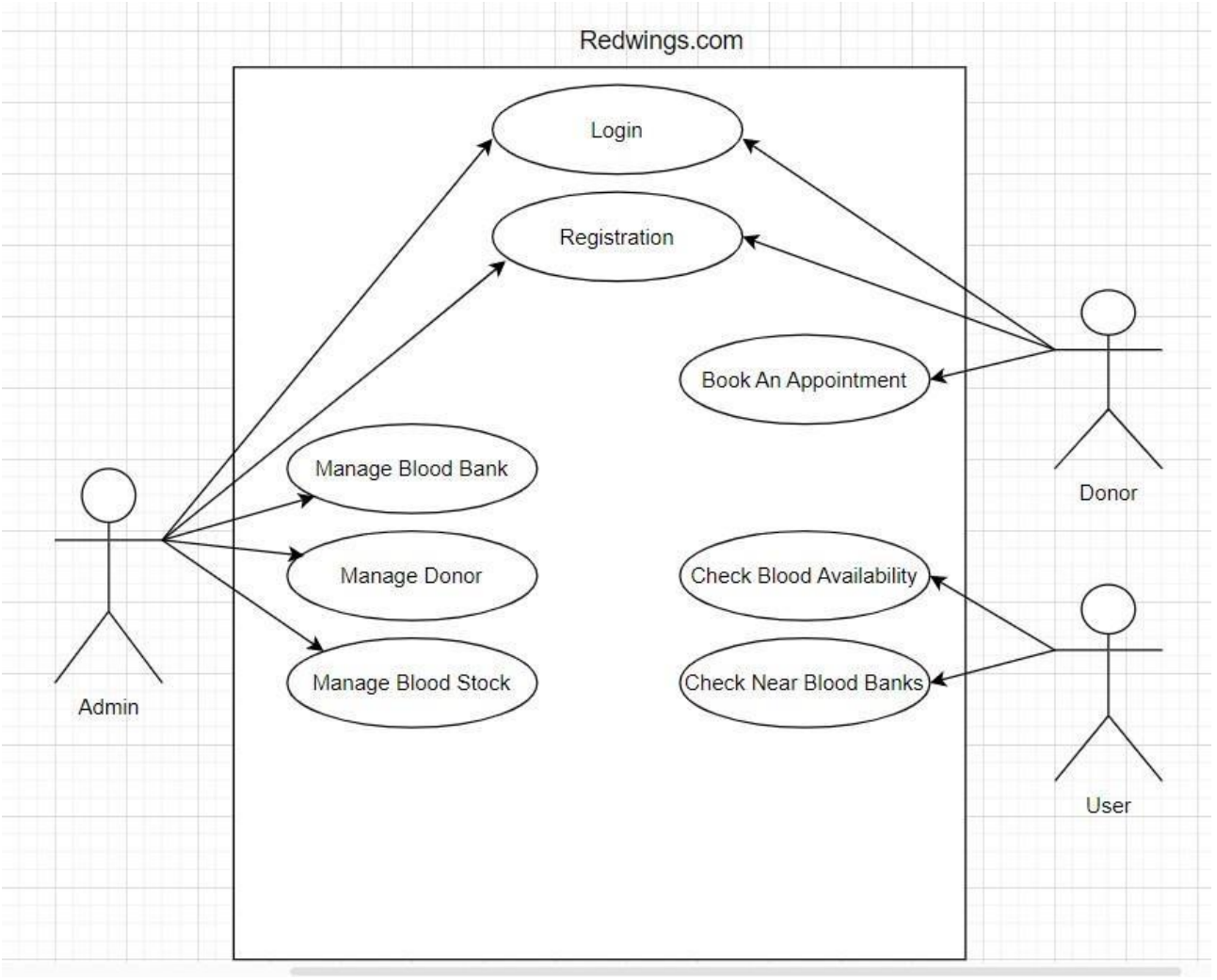
Second Level DFD:



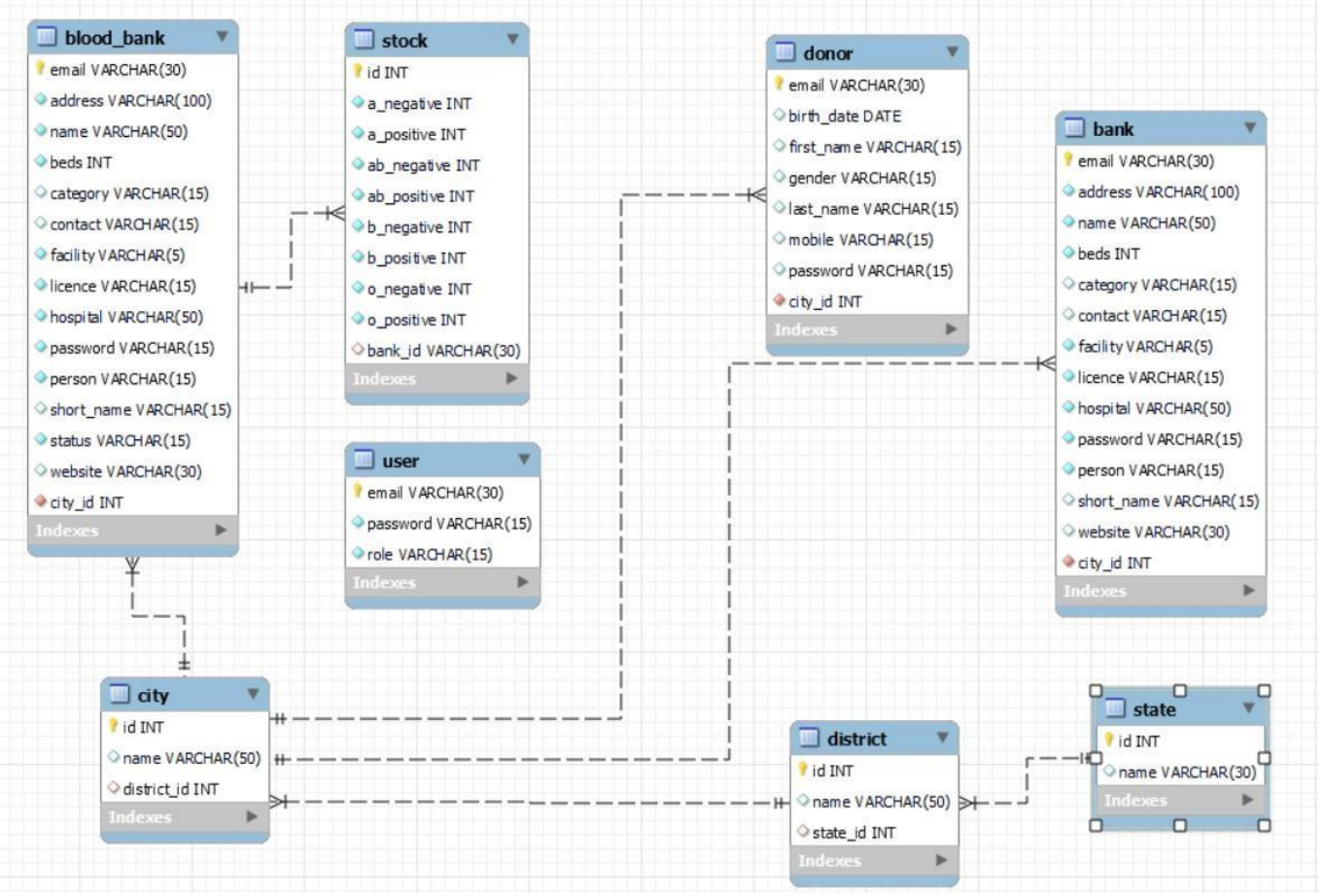
- **Class Diagram:**

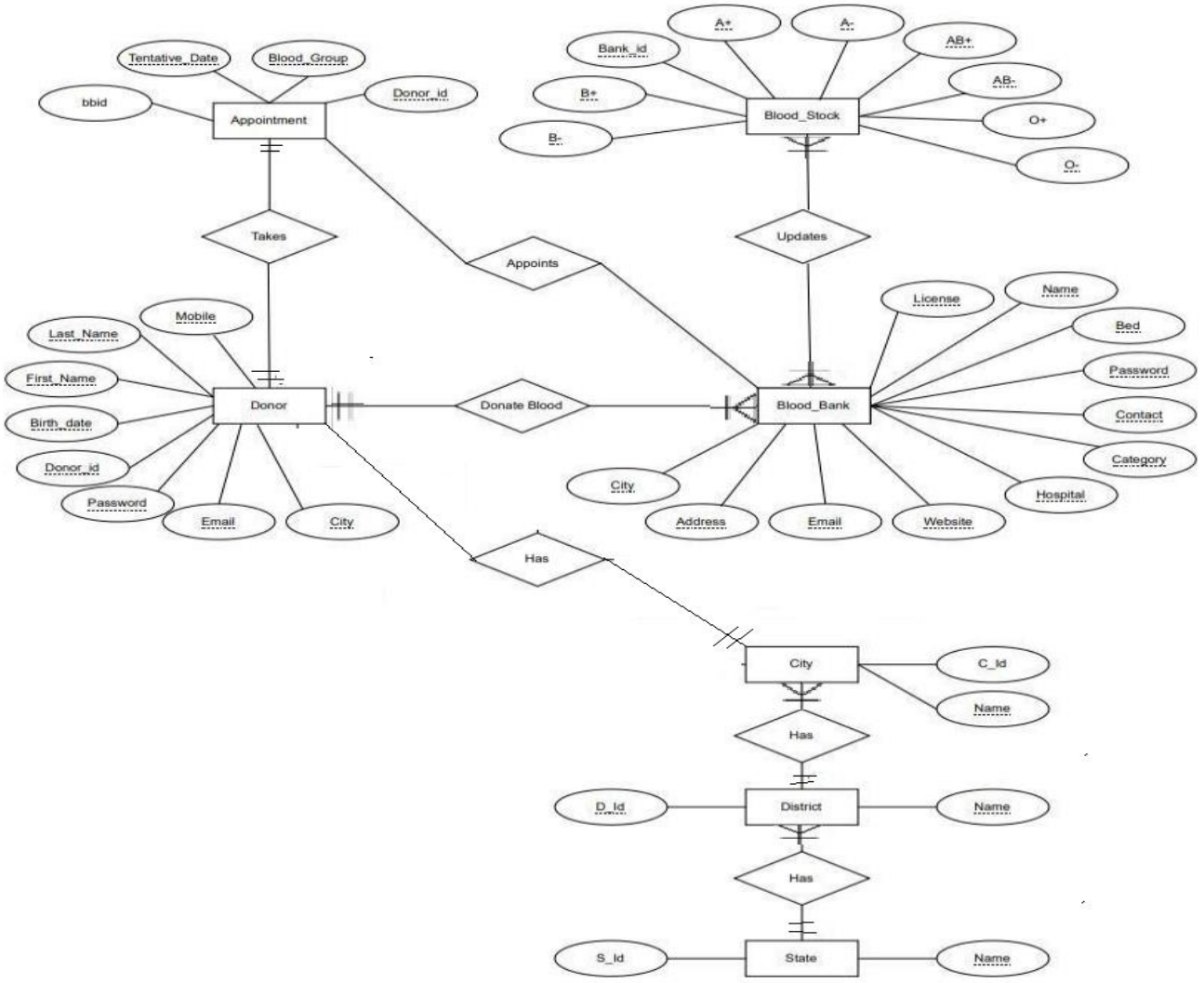


- **Use Case Diagram:**



- **ER Diagram:**


blood_bank
email VARCHAR(30)
address VARCHAR(100)
name VARCHAR(50)
beds INT
category VARCHAR(15)
contact VARCHAR(15)
facility VARCHAR(5)
licence VARCHAR(15)
hospital VARCHAR(50)
password VARCHAR(15)
person VARCHAR(15)
short_name VARCHAR(15)
status VARCHAR(15)
website VARCHAR(30)
city_id INT
Indexes
stock
id INT
a_negative INT
a_positive INT
ab_negative INT
ab_positive INT
b_negative INT
b_positive INT
o_negative INT
o_positive INT
bank_id VARCHAR(30)
Indexes
donor
email VARCHAR(30)
birth_date DATE
first_name VARCHAR(15)
gender VARCHAR(15)
last_name VARCHAR(15)
mobile VARCHAR(15)
password VARCHAR(15)
city_id INT
Indexes
bank
email VARCHAR(30)
address VARCHAR(100)
name VARCHAR(50)
beds INT
category VARCHAR(15)
contact VARCHAR(15)
facility VARCHAR(5)
licence VARCHAR(15)
hospital VARCHAR(50)
password VARCHAR(15)
person VARCHAR(15)
short_name VARCHAR(15)
website VARCHAR(30)
city_id INT
Indexes
user
email VARCHAR(30)
password VARCHAR(15)
role VARCHAR(15)
Indexes
city
id INT
name VARCHAR(50)
district_id INT
Indexes
district
id INT
name VARCHAR(50)
state_id INT
Indexes
state
id INT
name VARCHAR(30)
Indexes


Tentative_Date
Blood_Group
bbid
Donor_id
Appointment
Takes
Appoints
Bank_id
A+
A-
AB+
AB-
B+
B-
O+
O-
Blood_Stock
Updates
Mobile
Last_Name
First_Name
Birth_date
Donor_id
Password
Email
City
Donor
Donate Blood
License
Name
Bed
Password
Contact
Category
Hospital
City
Address
Email
Website
Blood_Bank
Has
City
C_Id
Name
Has
D_Id
District
Name
Has
S_Id
State
Name

6. Table Structure.

There are seven tables created in my project which are attached below

1.Blood_bank:

```
mysql> desc blood_bank;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| email      | varchar(30)  | NO   | PRI | NULL    |       |
| address    | varchar(100) | NO   |     | NULL    |       |
| name       | varchar(50)  | NO   |     | NULL    |       |
| beds       | int          | NO   |     | NULL    |       |
| category   | varchar(15)  | YES  |     | NULL    |       |
| contact    | varchar(15)  | YES  | UNI | NULL    |       |
| facility   | varchar(5)   | NO   |     | NULL    |       |
| licence    | varchar(15)  | NO   | UNI | NULL    |       |
| hospital   | varchar(50)  | NO   |     | NULL    |       |
| password   | varchar(15)  | NO   |     | NULL    |       |
| person     | varchar(15)  | NO   |     | NULL    |       |
| short_name | varchar(15)  | YES  |     | NULL    |       |
| status     | varchar(15)  | NO   |     | NULL    |       |
| website    | varchar(30)  | YES  |     | NULL    |       |
| city_id    | int          | NO   | MUL | NULL    |       |
+------------+--------------+------+-----+---------+-------+
15 rows in set (0.03 sec)
```

2.City:

```
mysql> desc city;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| id          | int         | NO   | PRI | NULL    | auto_increment |
| name        | varchar(50) | YES  |     | NULL    |                |
| district_id | int         | YES  | MUL | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

3.District:

```
mysql> desc district;
+----------+-------------+------+-----+---------+----------------+
| Field    | Type        | Null | Key | Default | Extra          |
+----------+-------------+------+-----+---------+----------------+
| id       | int         | NO   | PRI | NULL    | auto_increment |
| name     | varchar(50) | YES  |     | NULL    |                |
| state_id | int         | YES  | MUL | NULL    |                |
+----------+-------------+------+-----+---------+----------------+
3 rows in set (0.01 sec)
```

4.Donor:

```
mysql> desc donor;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| email      | varchar(30) | NO   | PRI | NULL    |       |
| birth_date | date        | YES  |     | NULL    |       |
| first_name | varchar(15) | YES  |     | NULL    |       |
| gender     | varchar(15) | YES  |     | NULL    |       |
| last_name  | varchar(15) | YES  |     | NULL    |       |
| mobile     | varchar(15) | YES  |     | NULL    |       |
| password   | varchar(15) | YES  |     | NULL    |       |
| city_id    | int         | NO   | MUL | NULL    |       |
+------------+-------------+------+-----+---------+-------+
8 rows in set (0.01 sec)
```

5.State :

```
mysql> desc state;
+-------+-------------+------+-----+---------+----------------+
| Field | Type        | Null | Key | Default | Extra          |
+-------+-------------+------+-----+---------+----------------+
| id    | int         | NO   | PRI | NULL    | auto_increment |
| name  | varchar(30) | YES  |     | NULL    |                |
+-------+-------------+------+-----+---------+----------------+
2 rows in set (0.01 sec)
```

6.Stock:

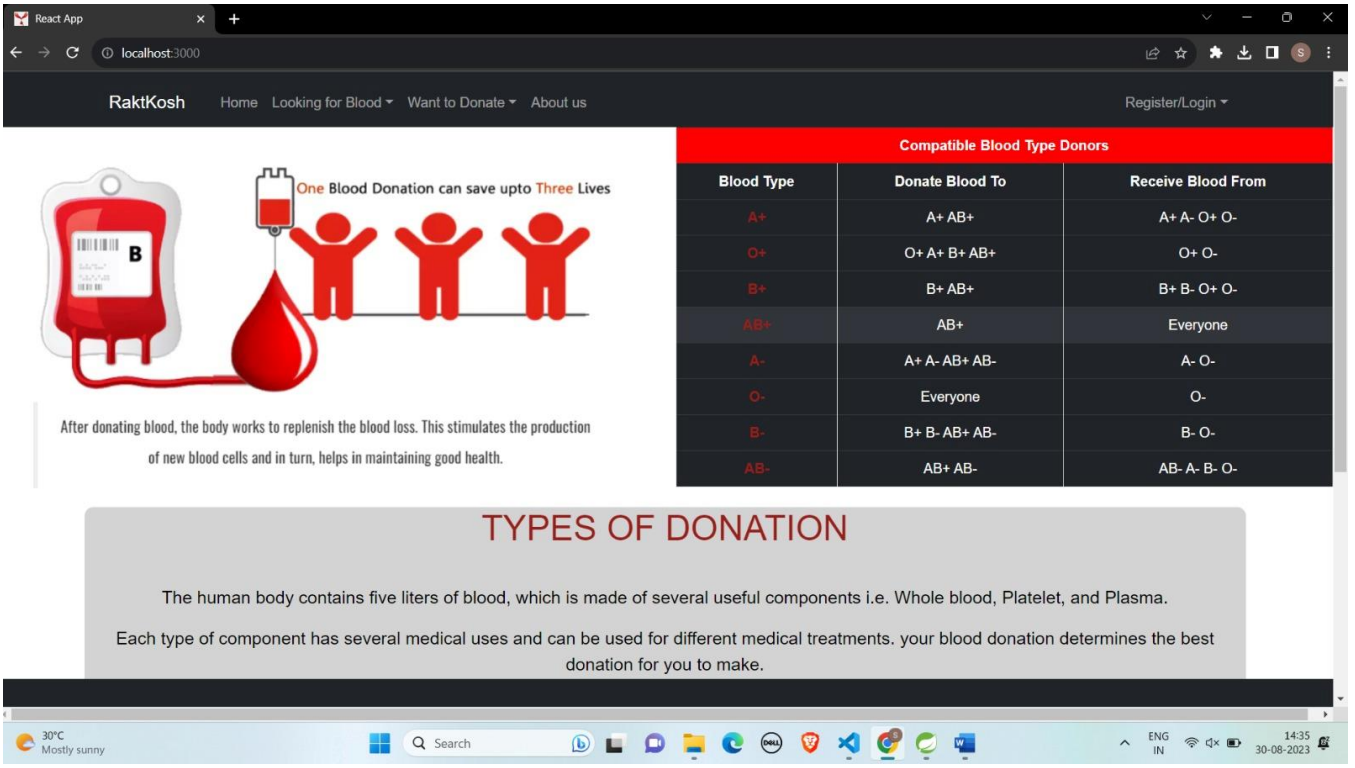
```
mysql> desc stock;
+-------------+-------------+------+-----+---------+----------------+
| Field       | Type        | Null | Key | Default | Extra          |
+-------------+-------------+------+-----+---------+----------------+
| id          | int         | NO   | PRI | NULL    | auto_increment |
| a_negative  | int         | NO   |     | NULL    |                |
| a_positive  | int         | NO   |     | NULL    |                |
| ab_negative | int         | NO   |     | NULL    |                |
| ab_positive | int         | NO   |     | NULL    |                |
| b_negative  | int         | NO   |     | NULL    |                |
| b_positive  | int         | NO   |     | NULL    |                |
| o_negative  | int         | NO   |     | NULL    |                |
| o_positive  | int         | NO   |     | NULL    |                |
| bank_id     | varchar(30) | YES  | MUL | NULL    |                |
+-------------+-------------+------+-----+---------+----------------+
10 rows in set (0.00 sec)
```

7.User:

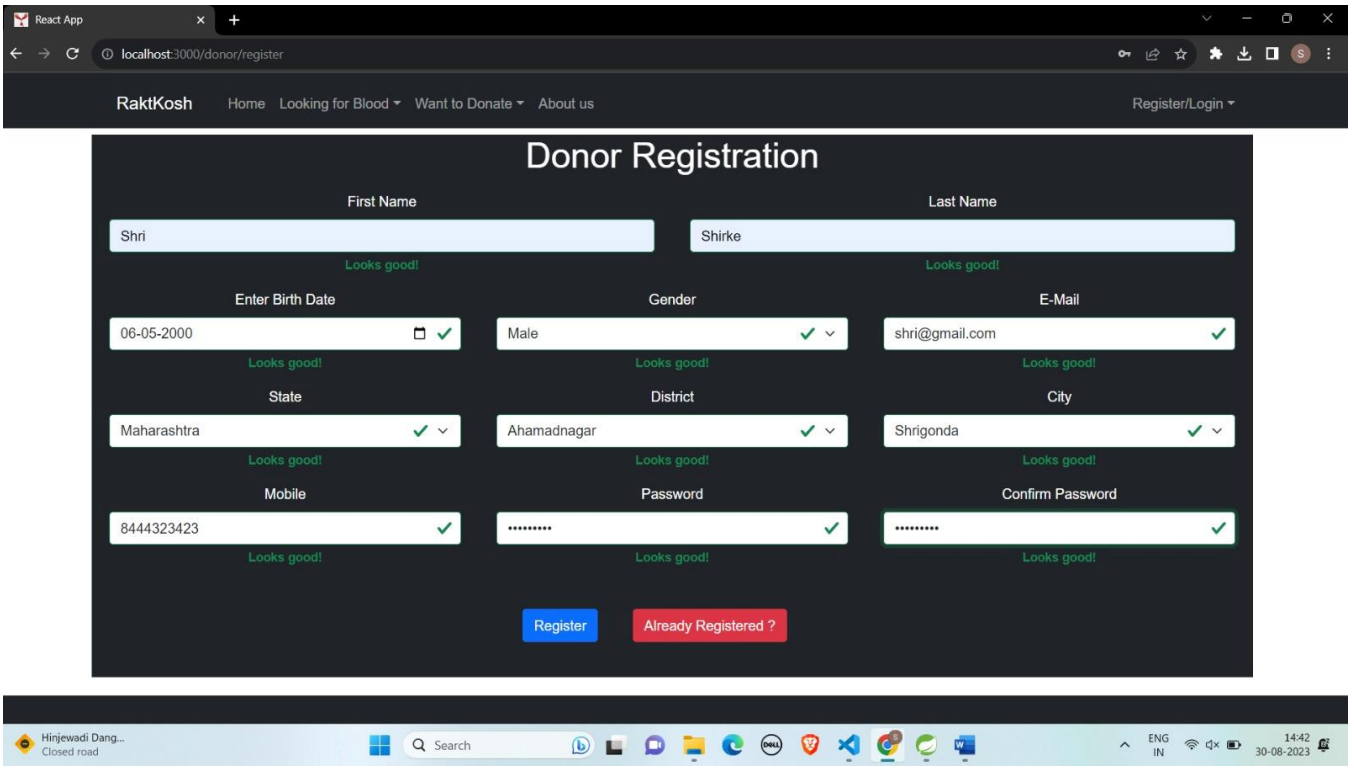
```
mysql> desc user;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| email    | varchar(30) | NO   | PRI | NULL    |       |
| password | varchar(15) | NO   |     | NULL    |       |
| role     | varchar(15) | NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

PROJECT SCREENSHOTS.

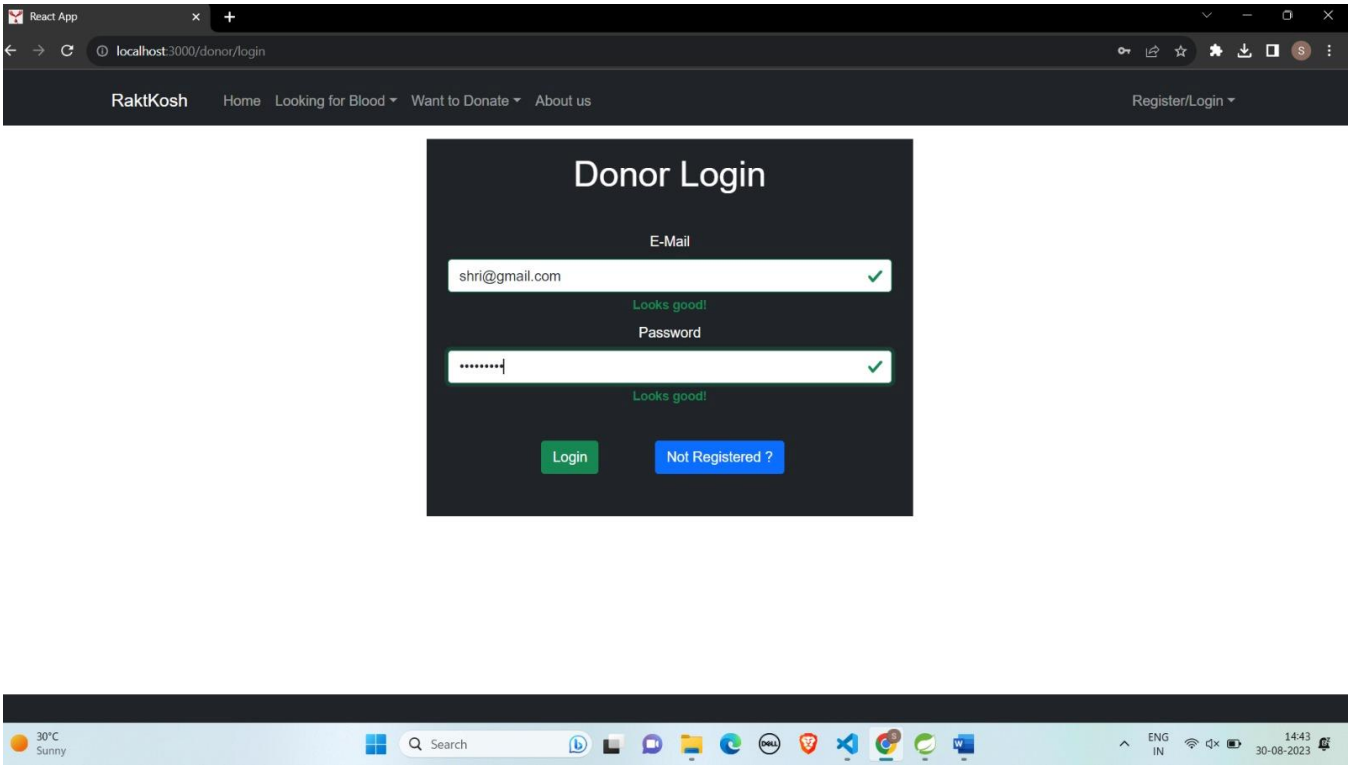
1. Home Page



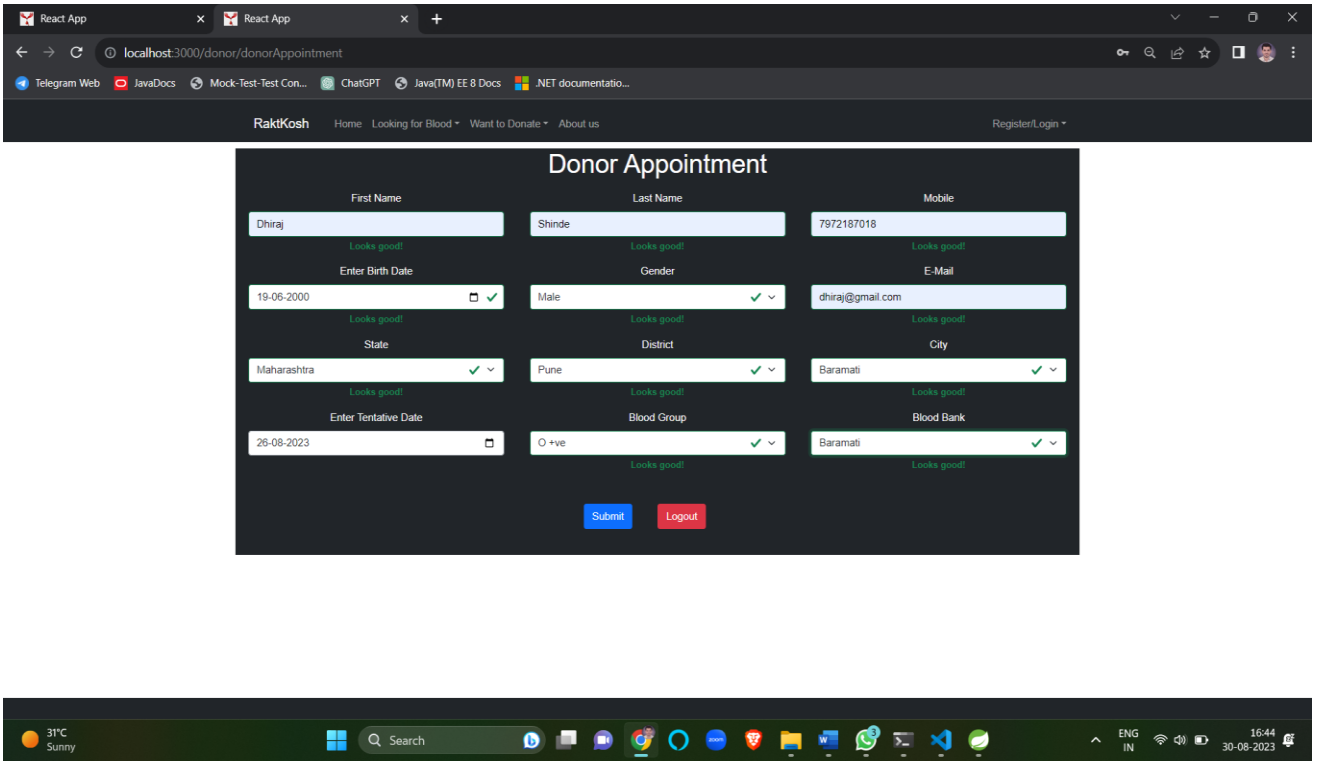
2. Donor Registration Page



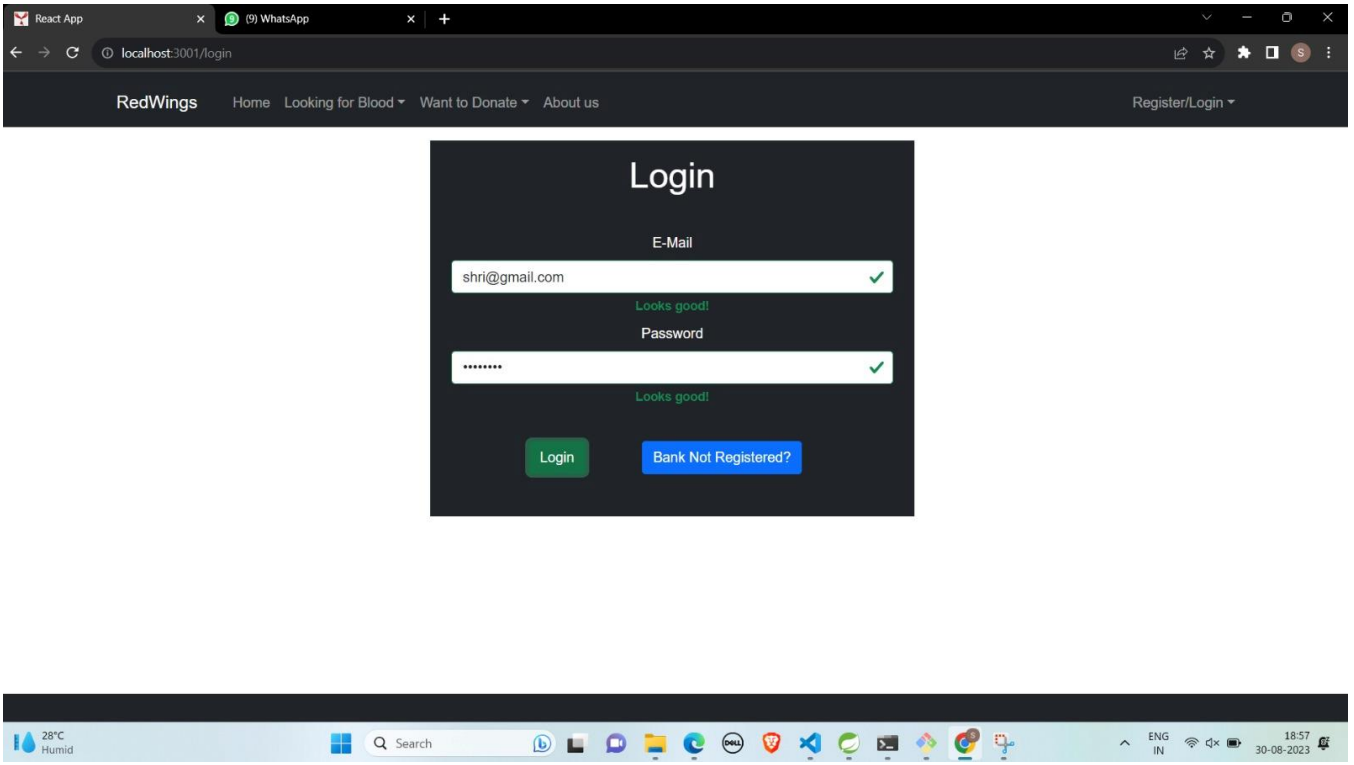
3. Donor Login Page



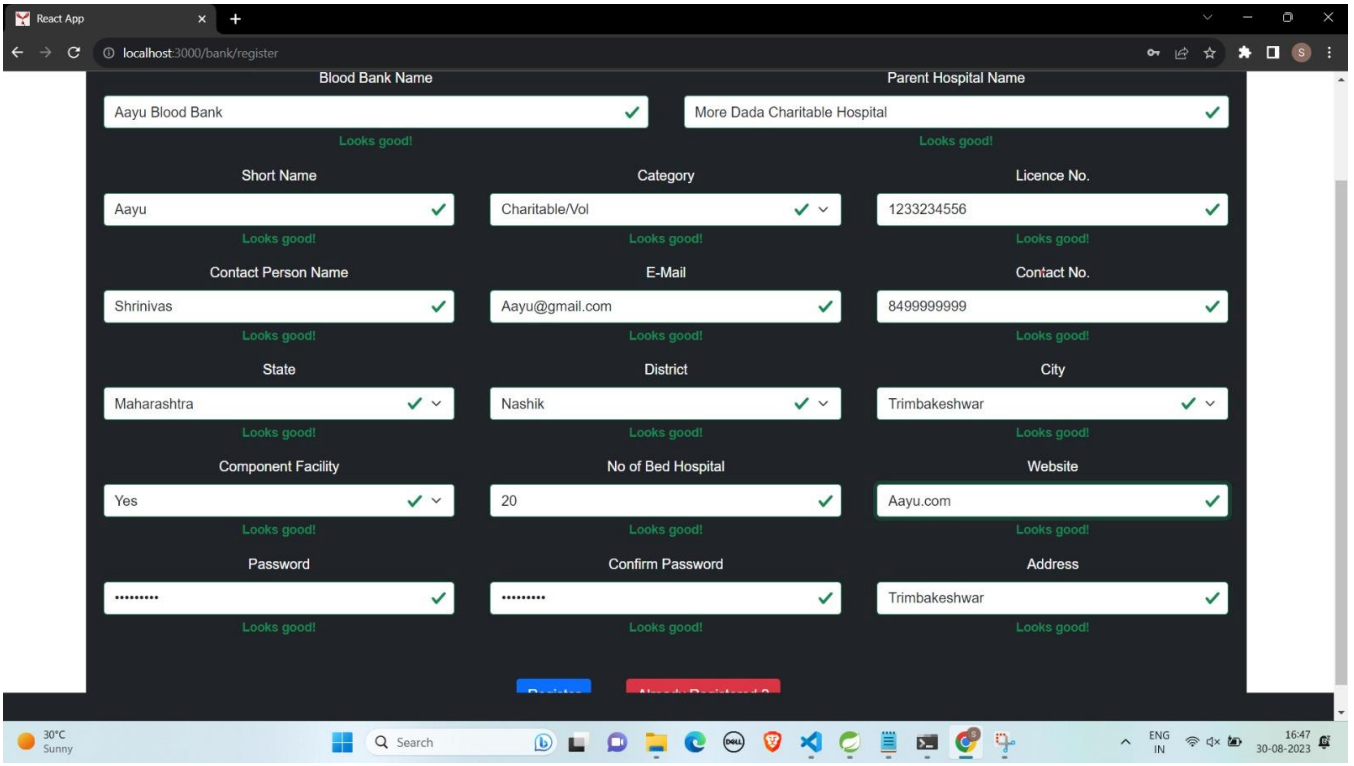
4. Donor Appointment Page



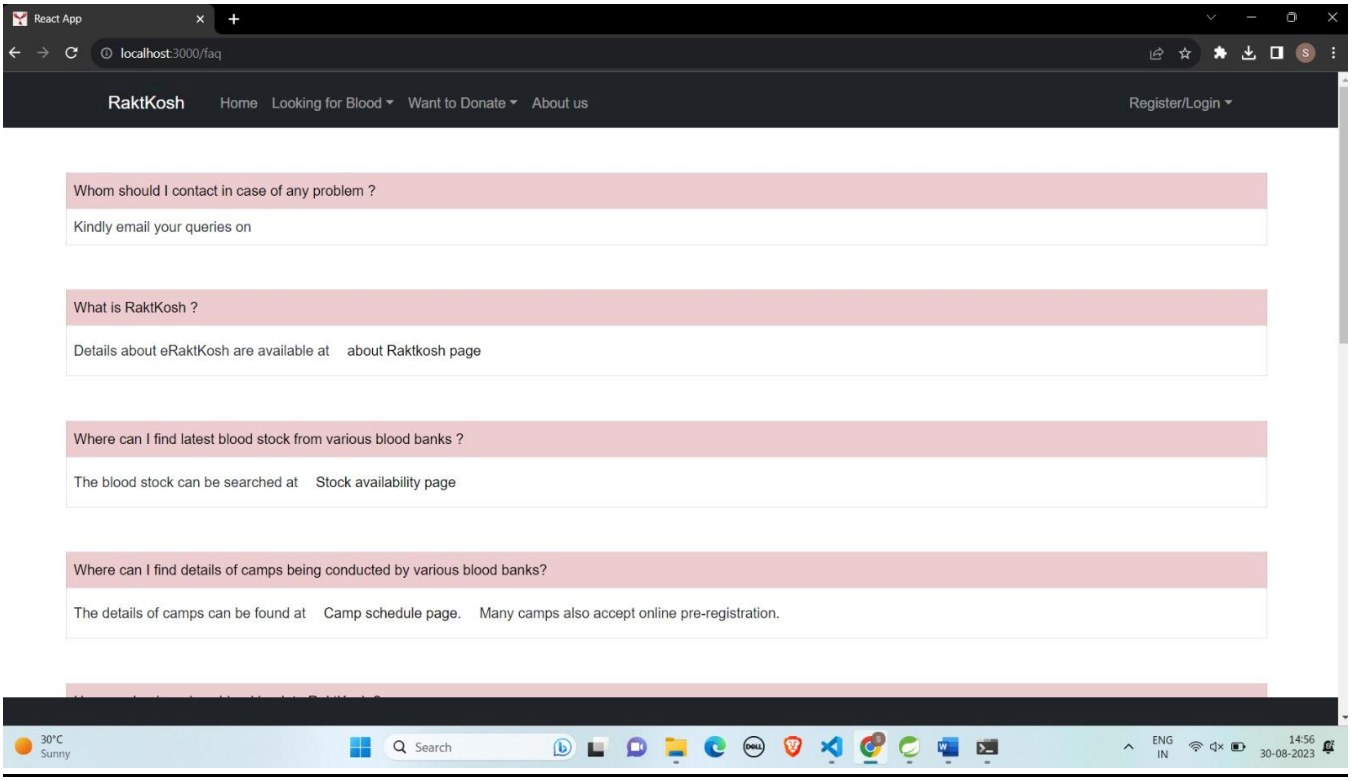
5. Admin/BloodBank Login Page



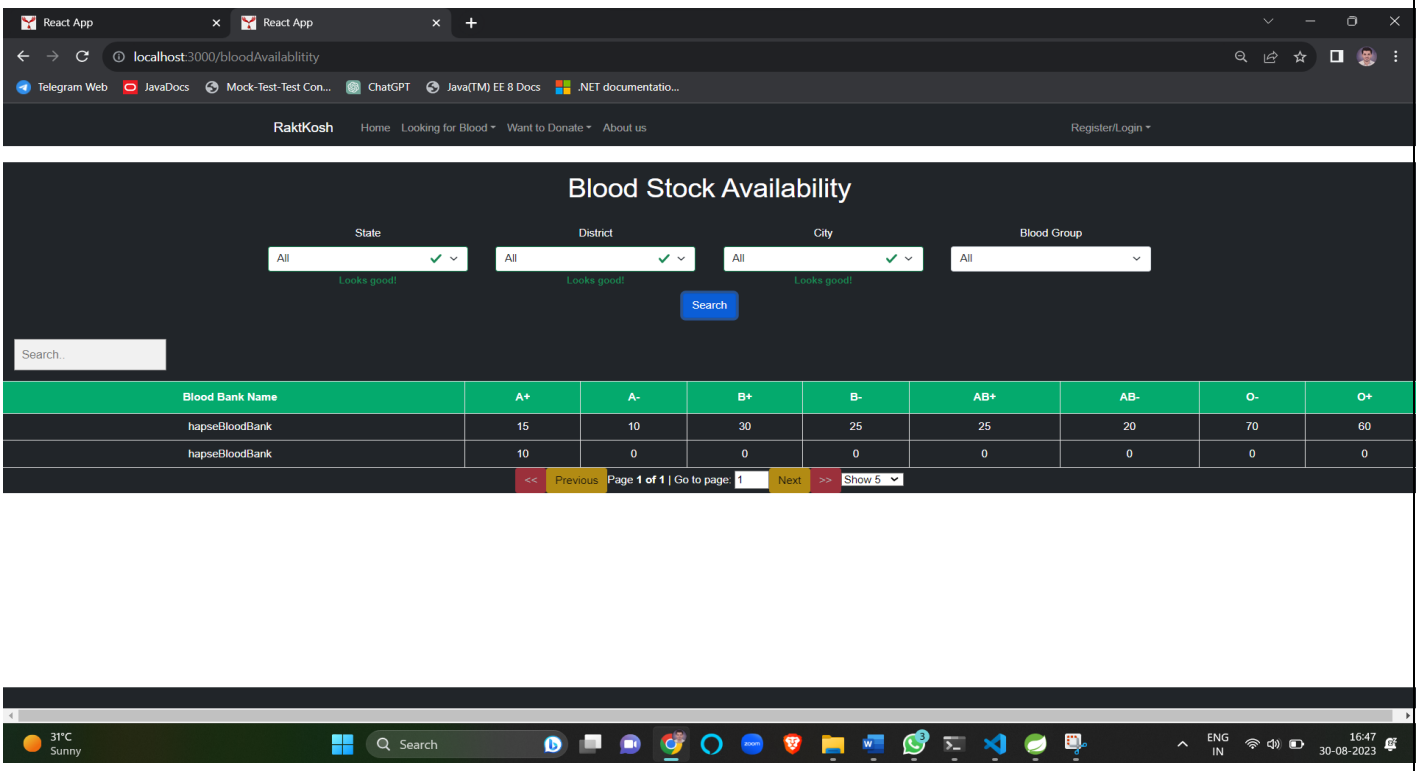
6. Blood bank Registration Page



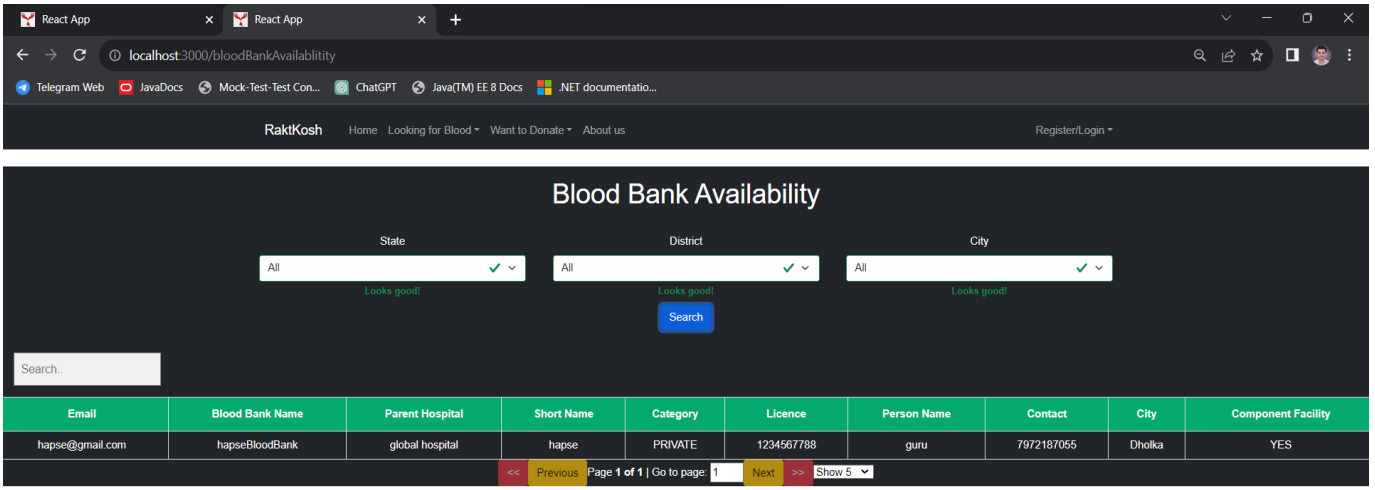
7. Frequently Asked Questions

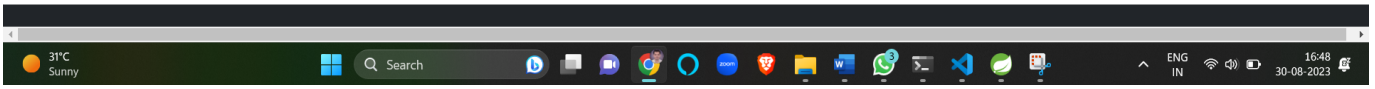


8. Search for blood Availability

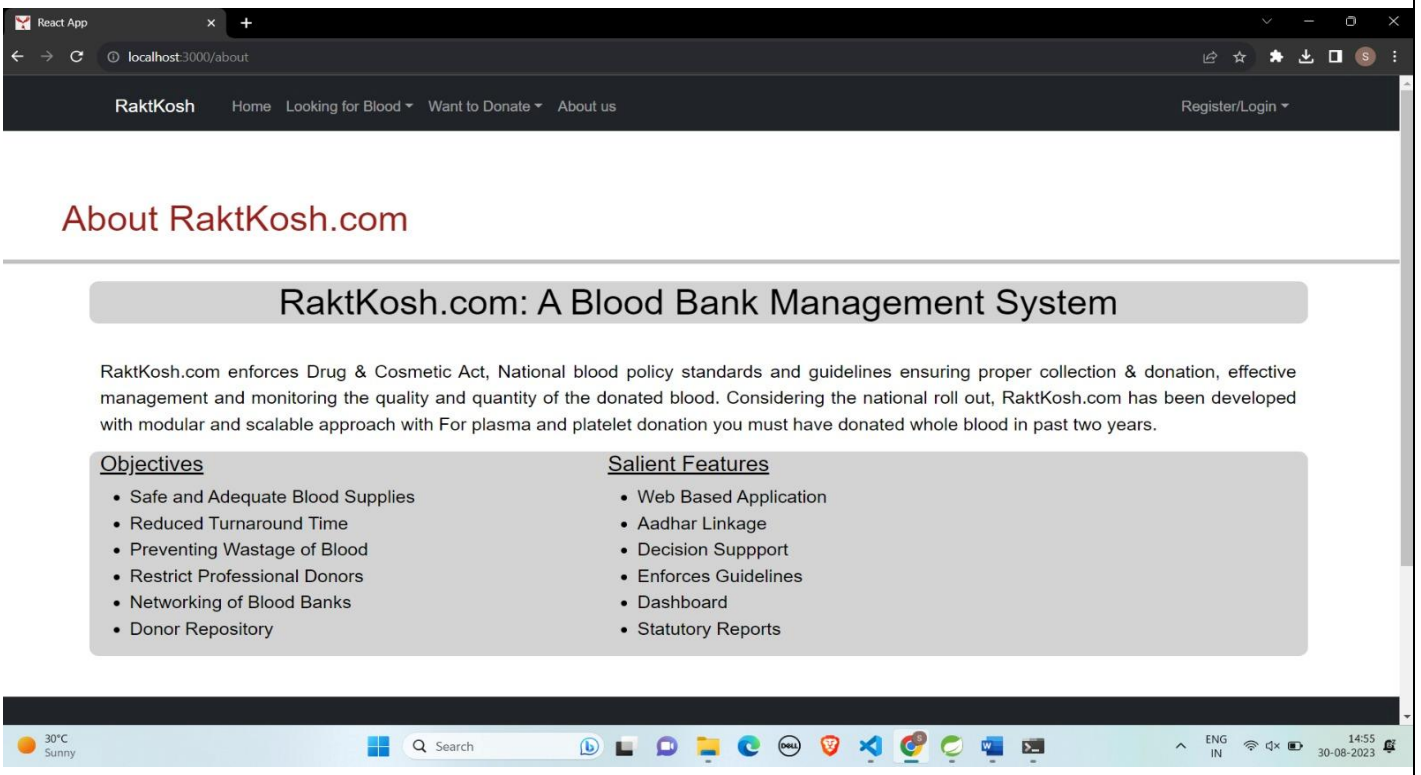


9. Search for Nearby Blood Bank

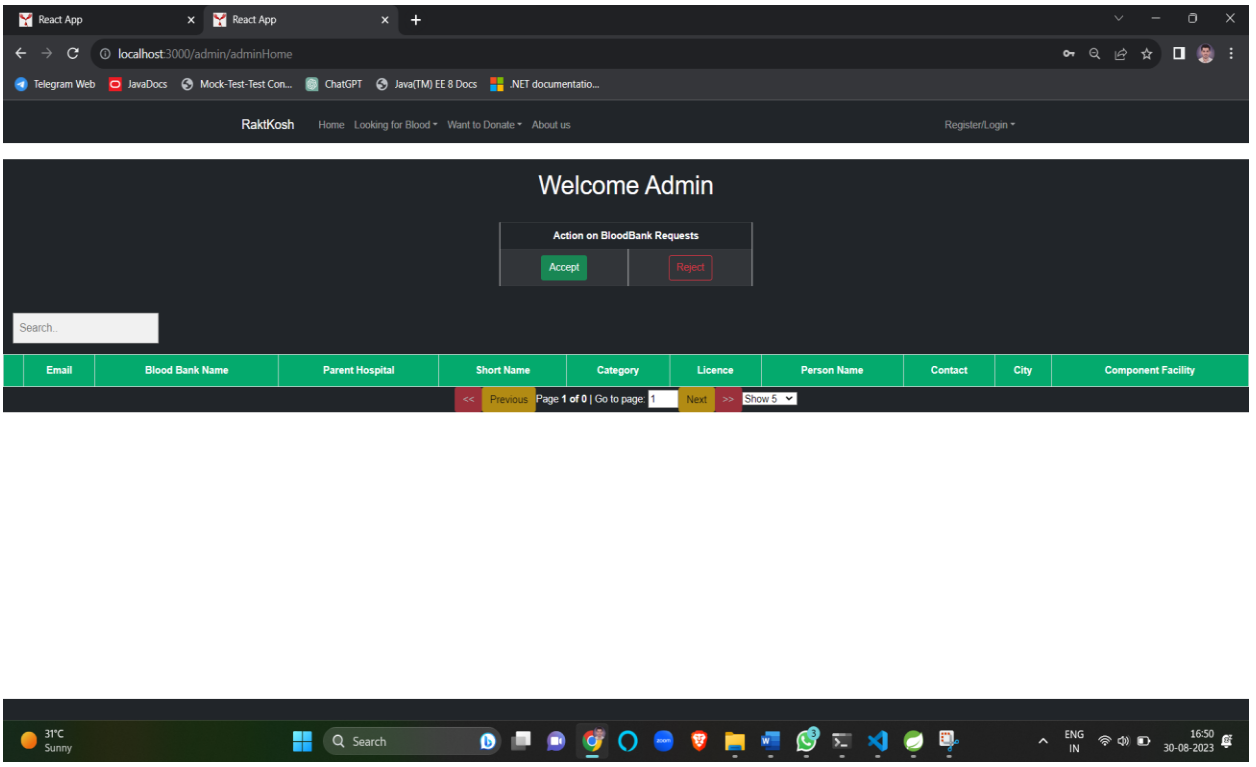




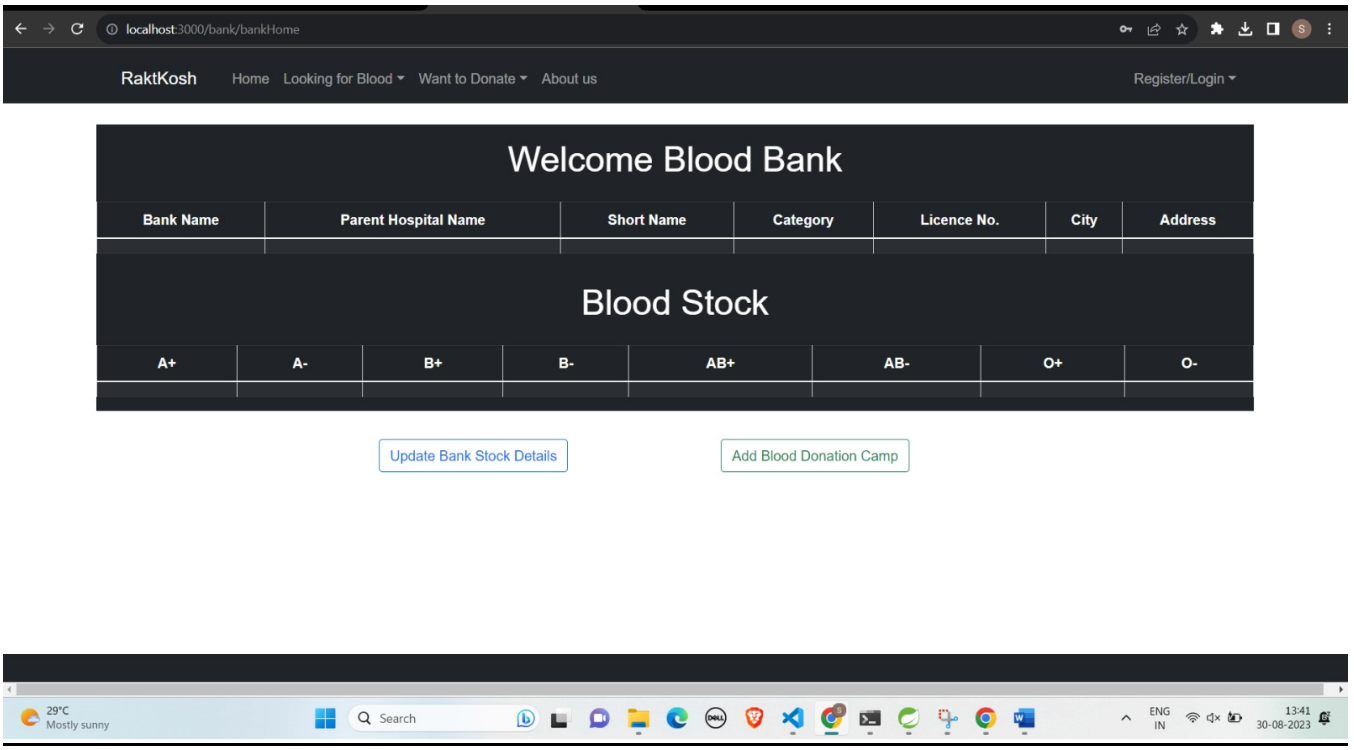
10. About Us Page



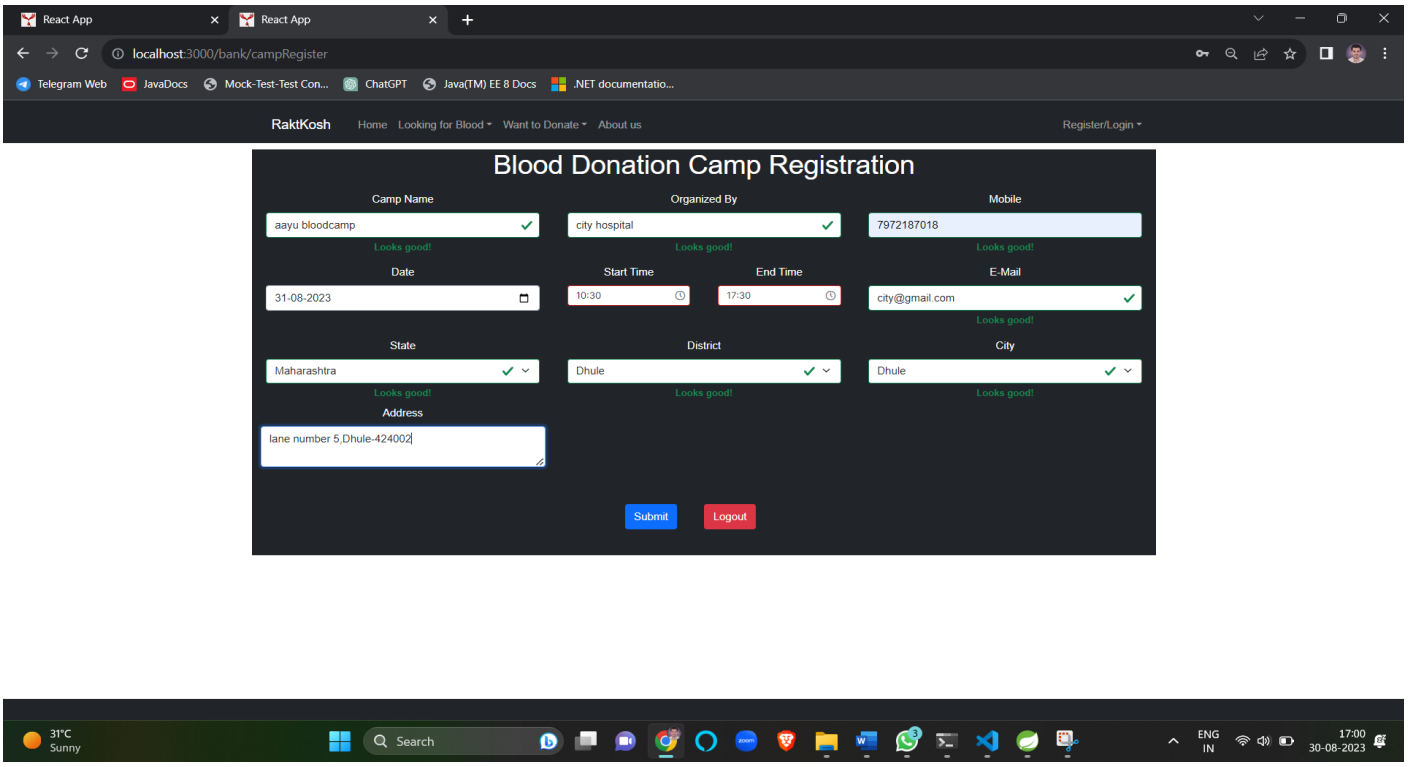
11. Admin Home Page



12. Blood Bank Home Page



13. Blood Donation Camp Registration



7.Conclusion

- **Conclusion:**

  - The web site provides a way of communication and synchronization between the blood donors and the blood banks. It also helps needy peoples to find blood in nearby blood banks in emergency.
  - Here, the individual can find the data of all blood groups and data of all blood banks.
  - It saves a lot of time and last but not the least, it can save many lives.
  - This project has given us great satisfaction in having designed an application which can be implemented to blood banks.
  - This project helped us in gaining valuable information and practical knowledge on several topics like designing web pages using React.js, usage of responsive templates, designing of android applications, and management of database using MySQL. The entire system is secured. Also, the project helped us understanding about the development phases of a project and software development life cycle. We learned how to test different features of a project.
  - We are confident that the numerous features and visually appealing look of application will certainly give a big boost to the donors.

- **Future Scope:**

  - This system proposes a Blood Donation Management System which we believe will bring remarkable change. Support of various regional languages for better reach. The size of the database may increase exponentially, so our (RAKTKOSH.COM) will be made such that it is scalable and can be deployed on cloud storage systems like Amazon Elastic Compute Cloud (EC2) or Google's Kubernetes Engine (GKE) after containerizing the application.
  - In case the user forgets the password, a 'reset password' functionality can be added.
  - There is a scope for further development in our project to a great extent. A number of features can be added to this system in future like combining hospitals with this project. Also making dashboard more user's friendly. Also generate blood donation certificate. These features could have implemented unless the time did not limit us

7. REFERENCES.

- **References:**

[1] JavaScript Enlightenment, Cody Lindley-First Edition, based on JavaScript 1.5.

[2] Mc Graw Hill's, Java: The complete reference 7thEdition, HerbertScheldt

[3] Complete CSS Guide, Maxine Sherrin and John Allsopp-O'ReillyMedia; September2012

[4] Mrs. Kishori Khadilkar for Database.

[5] Mrs. Kishori Khadilkar for REACT JS.

[6] Mrs. Madhura Anturkar for Springboot,java.

[7] https://www.slideshare.net

[8] https://www.projectideas.co.in A special thanks to IACSD Management who arranged extra lab time for us.

- **ONLINE REFERENCE**

[1] www.Google.com
[2] www.w3school.com
[3] www.javatpoint.com

[9] React JS framework available at https://reactjs.org/.

[10] Redux State management tool available at https://redux.js.org/.

Node (Express.js) for back-end available at https://nodejs.org