

**A**  
**Minor Project Report**

**On**

**REDBANK**

*In partial fulfillment of the requirement for the award of the degree of*



**SUBMITTED BY**

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(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

**Session: July – Dec 2021**



## Madhav Institute of Technology and Science, Gwalior (M.P.)

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

### **CERTIFICATE**

This is to certify that Pranav Vyas, 0901IT191041 minor project, "REDBANK" is a genuine record of a project completed under our supervision and guidance in partial fulfilment of the requirements for the award of a Bachelor of Technology in Information Technology in the Department of Information Technology, Madhav Institute of Technology and Science, Gwalior.

**(Prof. Vikas Sejwar)**

Mentor

**(Prof. YOGESHWAR SINGH)**

Mentor

## **CANDIDATE'S DECLARATION**

I hereby declare that the Project entitled “**RedBank**” which is being submitted in the partial fulfilment of the requirement for the award of **Bachelor of Technology in Information Technology**.

All information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I have fully cited and referenced all material and results that are not original to this work.

To the best of my knowledge the material presented in this Project has not been submitted elsewhere for the award of any other degree/diploma.

**Date: 2/12/2021**

**Place: Indore**

**Name of Student (Enrollment No.)**

**Pranav Vyas (0901IT191041)**

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# 1. INTRODUCTION

## 1.a Introduction

Every year our nation requires about 5 crore units of blood, out of which only a meager 2.5 crore unit blood are available. The gift of blood is the gift of life. There is no substitute for human blood. More than 38,000 blood donations are needed every day.

This project aim to developed an online blood donation Information that would ease the process of finding a suitable blood donor and donating the blood for greater cause according to the location of the user.

### Facts about blood donation process:

- Donating blood is a safe process. A sterile needle is used only once for each donor and then discarded.
- Blood donation is a simple four-step process: registration, medical history and mini-physical, donation and refreshments.



Adults have around 10 pints of blood in their body. 1 pint is given during a donation.

- Every blood donor is given a mini-physical, checking the donor's temperature, blood pressure, pulse and haemoglobin to ensure it is safe for the donor to give blood.
- The actual blood donation typically takes less than 10-12 minutes. The entire process, from the time you arrive to the time you leave, takes about an hour and 15 min.

- The average adult has about 10 units of blood in his body. Roughly 1 unit is given during a donation.



Donors can give blood every 56 days. Platelet donors can give every 7 days

- A healthy donor may donate red blood cells every 56 days, or double red cells every 112 days.
- A healthy donor may donate platelets as few as 7 days apart, but a maximum of 24 times a year.
- All donated blood is tested for HIV, hepatitis B and C, syphilis and other infectious diseases before it can be transfused to patients

## **1.b Problem Statement**

- **Scarcity of rare blood group.**
- **Less awareness among people about blood donation and blood transfusion.**
- **Death due to lack of blood during operations.**
- **Scarcity of blood in hospital blood bank.**
- **Due to lack of communication between the blood donors and blood recipients, most of the patients in need of blood do not get blood and hence they lost there lives.**

## **1.c Overview**

**The features of the Red Bank are:**

- **User Login and Sign up.**
- **User database.**
- **Donor details with blood group and contact no.**
- **Finding blood donor according to the city and blood group.**
- **Instruction for donation.**
- **About us.**
- **Logout.**

**Various database, technology, Packages used in Red Bank are:**

- **Frontend:**
  - 1) **HTML**
  - 2) **CSS**
  - 3) **EJS**
  - 4) **Bootstrap**
- **Backend:**
  - 1) **JavaScript**
  - 2) **Node.js**
  - 3) **Express.js**
  - 4) **Database- MongoDB**
  - 5) **Authentication middleware – Passport.js**
  - 6) **Text Editor - Atom**
- **Packages:**

- 1) Express
- 2) Body Parser
- 3) Express Session
- 4) Ejs
- 5) Mongoose
- 6) Passport
- 7) Passport- local
- 8) Passport- local – mongoose

## 2. SYSTEM REQUIREMENTS

### 2.a Hardware Requirements

Number	Description
1.	PC with 1 Tb
2.	PC with 8 Gb RAM
3.	PC with 250 Gb and more

### 2.b Software Requirements

Number	Description	Type
1.	Operating System	Windows
2.	Language	Java script
3.	Database	MongoDB
4.	IDE	Atom
5.	Browser	Google Chrome

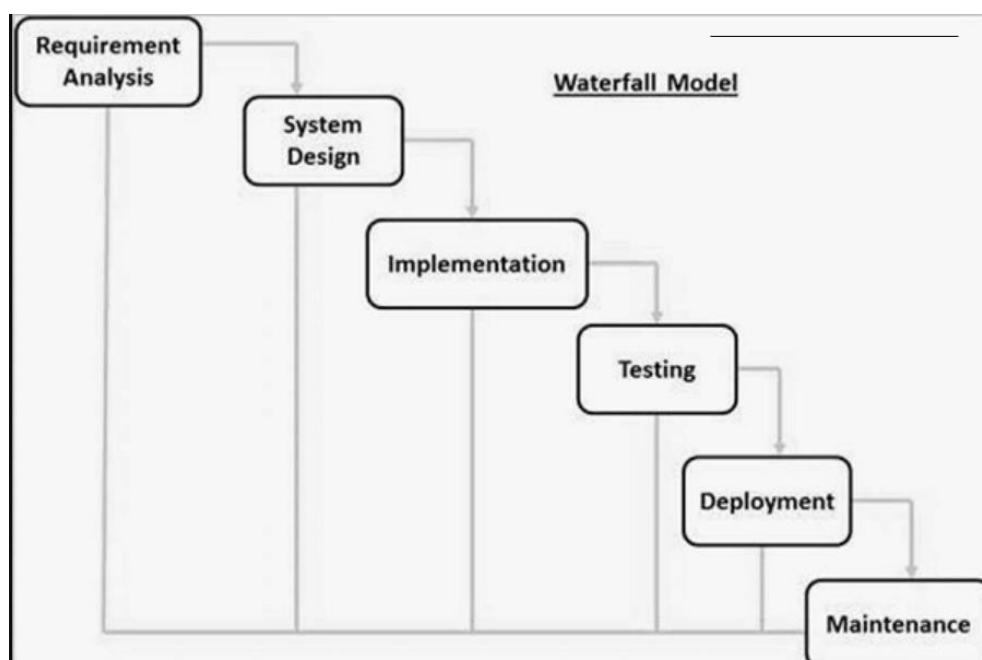
## 3. SYSTEM ANALYSIS AND DESIGN

### 3.a Software Development Life Cycle

#### 3.a.1 Waterfall Model

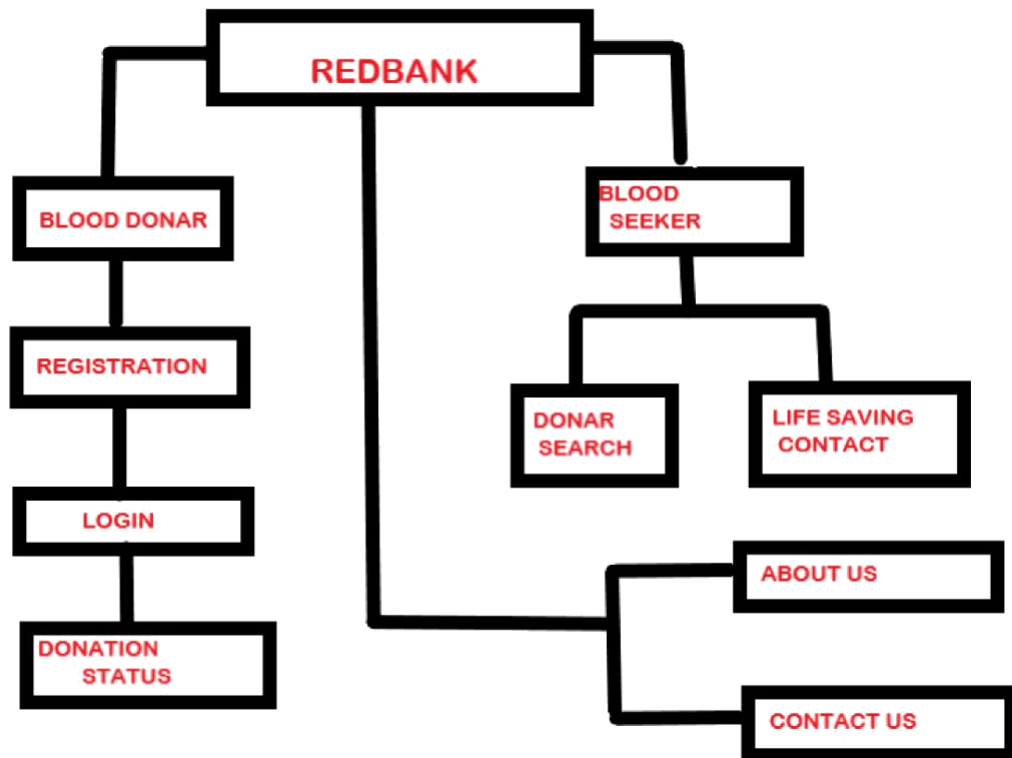
The waterfall model was selected as the SDLC model due to the following reasons:

- Requirements were very well documented, clear and fixed.
- Technology was adequately understood.
- Simple and easy to understand and use.
- There were no ambiguous Requirements.
- Easy to manage due to rigidity of the model. Each phase has specific deliverables and a review process.
- Clearly defined stages.
- Well understood milestones. Easy to arrange tasks.

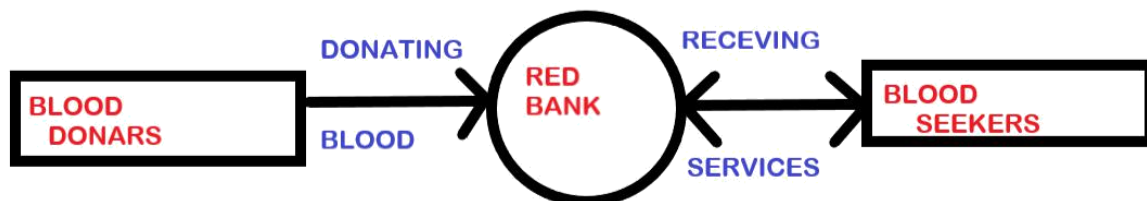


### 3.b General overview

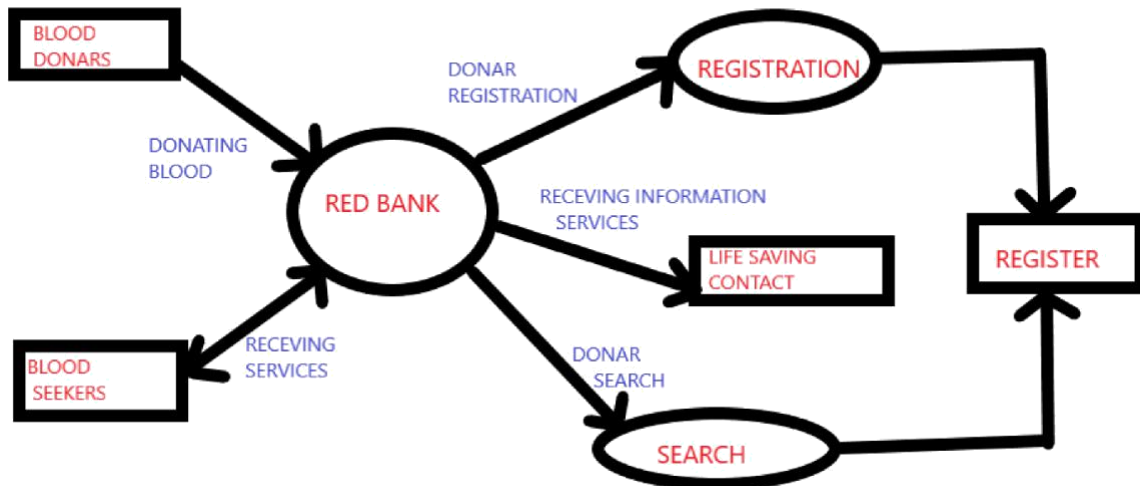
#### 3.b.1 System Flow Diagram



#### 3.b.2 Context Level DFD



### 3.b.3 One level DFD



### 3.c. Modules of Redbank

#### 1). Main Page

Main page of Redbank consist of Home, Search, Donate, About us.

- **Home:** One the home page blood seekers can directly search for the blood donors by city and blood group. Below that blood seekers can find list of list of blood donors. This list includes name of donor, blood group and contact number. If a blood donor is new to Redbank, below the list of blood donors steps are given how to register and donate blood on Redbank.

You are somebody's  
type, find your  
match.



City:  Blood Group:  Search:

City:  Blood Group:  Search:

- A+
- A+
- A-
- B+**
- B-
- O+
- O-
- AB+
- AB-
- A1+
- A1-
- A1B+
- A1B-
- A2+
- A2-

List of Donors

S.No.	Name	Blood Group	Contact
1	Pranav Vyas	A+	9865471235
2	Pravindra Raghuvanshi	A+	8654732146
3	Ajay Chouhan	O+	9865471235
4	Rohit Sharma	B+	9876543215
5	Kartik Aryan	O+	9876543215

One pint of blood can save upto three lives.



#### How to donate blood

First Register yourself by providing all the required details.

Now, your name will be displayed on donors list and people in need can contact you.

After donating blood, click on 'Donate Blood' button.

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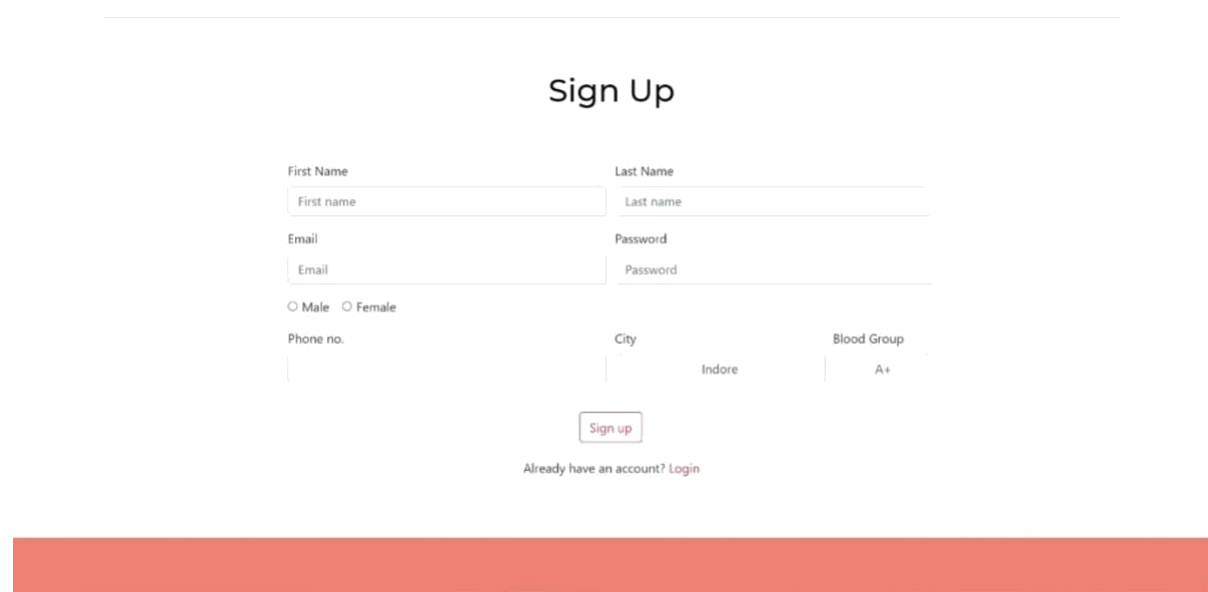


## 2). Search:

Through this search option blood seekers can also search for donors.

## 3). Donate:

The person who is willing to donate blood can register themselves on the Redbank, through Sign up or by Registration form. This registration/ sign up form includes First name, Last name, Email, Password, Gender, phone number, city and blood group.

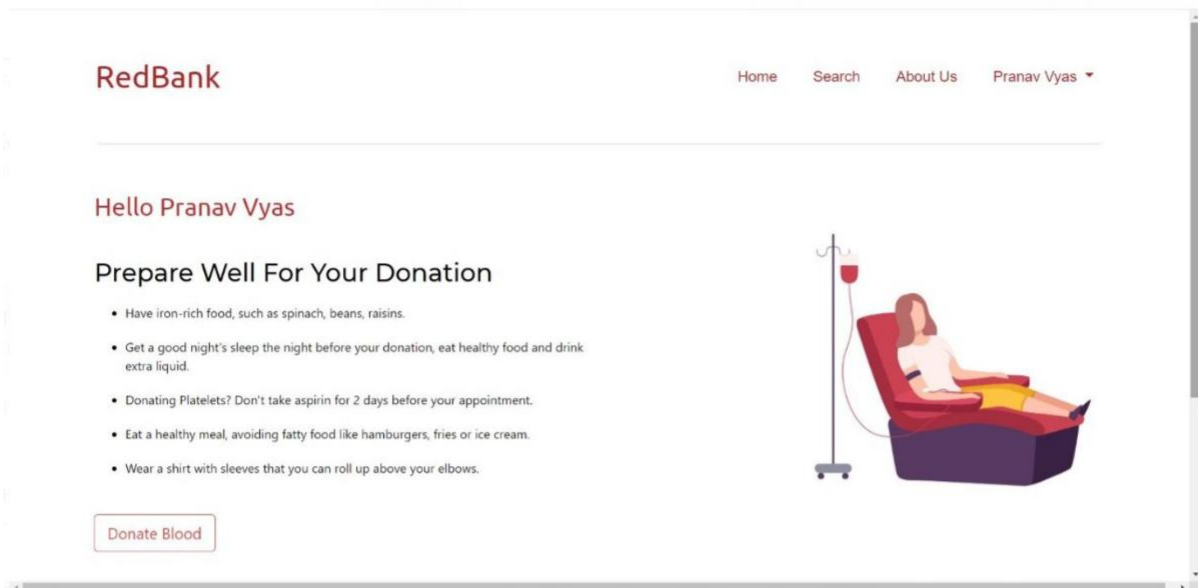


The image shows a 'Sign Up' form with the following fields and options:

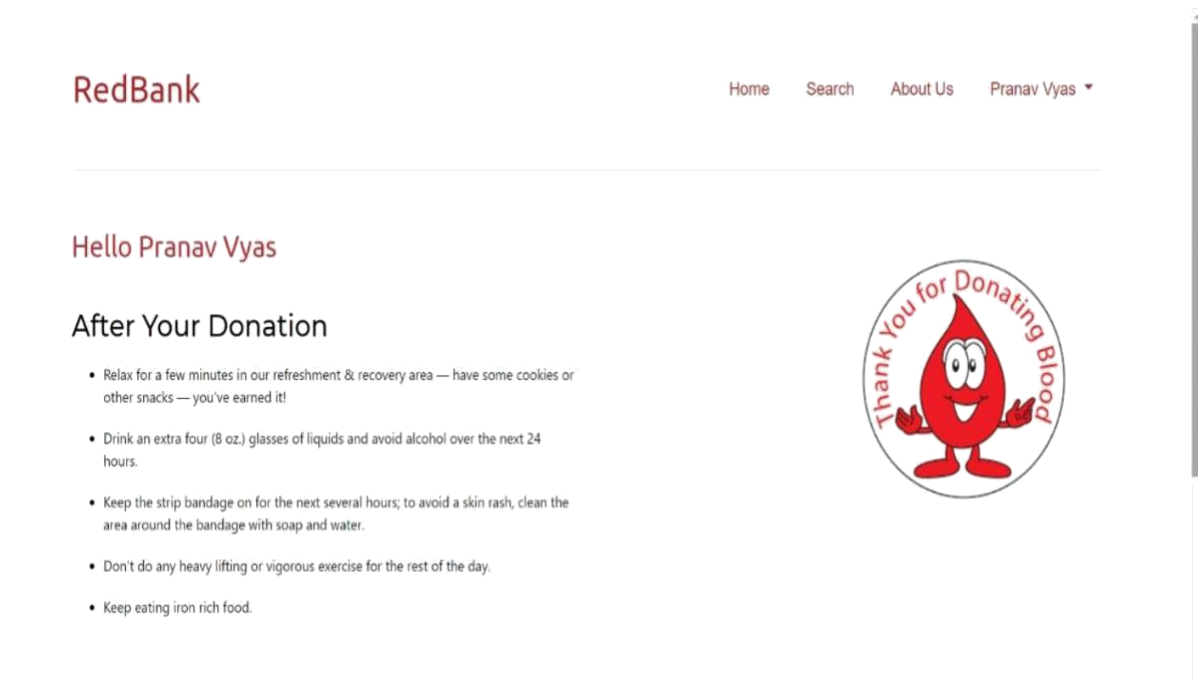
- First Name: Input field with placeholder 'First name'
- Last Name: Input field with placeholder 'Last name'
- Email: Input field with placeholder 'Email'
- Password: Input field with placeholder 'Password'
- Gender: Radio buttons for 'Male' and 'Female'
- Phone no.: Input field
- City: Input field with 'Indore' as a suggestion
- Blood Group: Input field with 'A+' as a suggestion
- Sign up: Button
- Already have an account? Login: Link

## 4). Login:

If the blood donor has already registered on the Redbank, they can directly Login with the email id and password which was created during registration. After login/ sign up donor will be directed to a page where they will get to know some blood donation facts , what precautions should be taken before donating the blood.



If a donor has donated the blood , after clicking to the “Donate Blood” donor will be directed to a page where he/she will get to know what precautions should be taken after blood donation.



## 4. IMPLEMENTATION

### 4.1 Frontend

### **4.1.1 HTML**

Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as `<img />` and `<input />` directly introduce content into the page. Other tags such as `<p>` surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behavior and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

### **4.1.2 Ccss**

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share

formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

CSS information can be provided from various sources. These sources can be the web browser, the user and the author. The information from the author can be further classified into inline, media type, importance, selector specificity, rule order, inheritance and property definition. CSS style information can be in a separate document or it can be embedded into an HTML document. Multiple style sheets can be imported. Different styles can be applied depending on the output device being used; for example, the screen version can be quite different from the printed version, so that authors can tailor the presentation appropriately for each medium. The style sheet with the highest priority controls the content display. Declarations not set in the highest priority source are passed on to a source of lower priority, such as the user agent style. The process is called cascading.

One of the goals of CSS is to allow users greater control over presentation. Someone who finds red italic headings difficult to read may apply a different style sheet. Depending on the browser and the web site, a user may choose from various style sheets provided by the designers, or may remove all added styles and view the site using the browser's default styling, or may override just the red italic heading style without altering other attributes.

### **4.1.3 EJS**

Embedded JavaScript, popularly known as EJS. It is used for embedding JavaScript code inside HTML code. It works as a template engine that basically helps render JavaScript code on the client-side. Also, it can inject data into the HTML template at the client-side and produce the final HTML.

### **4.1.4 Bootstrap**

Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites. Bootstrap is a free front-end framework for faster and easier web development

Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins

Bootstrap also gives you the ability to easily create responsive designs.

## **4.2 Backend**

### **4.2.1 Javascript**

JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses to provide several forms of interactivity and simplicity.

JavaScript is used to create interactive websites. It is mainly used for:

- Client-side validation,
- Dynamic drop-down menus,
- Displaying date and time,
- Displaying pop-up windows and dialog boxes (like an alert dialog box, confirm dialog box and prompt dialog box),
- Displaying clocks etc.

### **4.2.2 Node js**

- Node.js is an open source server environment

- Node.js is free
- Node.js runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- Node.js uses JavaScript on the server

Why Node.js?

**Node.js uses asynchronous programming!**

A common task for a web server can be to open a file on the server and return the content to the client.

Here is how PHP or ASP handles a file request:

1. Sends the task to the computer's file system.
2. Waits while the file system opens and reads the file.
3. Returns the content to the client.
4. Ready to handle the next request.

Here is how Node.js handles a file request:

1. Sends the task to the computer's file system.
2. Ready to handle the next request.
3. When the file system has opened and read the file, the server returns the content to the client.

Node.js eliminates the waiting, and simply continues with the next request.

Node.js runs single-threaded, non-blocking, asynchronous programming, which is very memory efficient.

### What Can Node.js Do?

- Node.js can generate dynamic page content
- Node.js can create, open, read, write, delete, and close files on the server
- Node.js can collect form data
- Node.js can add, delete, modify data in your database

### What is a Node.js File?

- Node.js files contain tasks that will be executed on certain events
- A typical event is someone trying to access a port on the server
- Node.js files must be initiated on the server before having any effect
- Node.js files have extension ".js"

## 4.2.4 Express js

Express.js, or simply Express, is a backend web application framework for Node.js, released as free and open-source software under the MIT License. It is designed for building web applications and APIs. It has been called the de facto standard server framework for Node.js.

## 4.2.5 MongoDB

MongoDB is a cross-platform, document oriented database that provides, high performance, high availability, and easy scalability. MongoDB works on concept of collection and document.

## Database

Database is a physical container for collections. Each database gets its own set of files on the file system. A single MongoDB server typically has multiple databases.

## Collection

Collection is a group of MongoDB documents. It is the equivalent of an RDBMS table. A collection exists within a single database. Collections do not enforce a schema. Documents within a collection can have different fields. Typically, all documents in a collection are of similar or related purpose.

## Document

A document is a set of key-value pairs. Documents have dynamic schema. Dynamic schema means that documents in the same collection do not need to have the same set of fields or structure, and common fields in a collection's documents may hold different types of data.

# 5. CONCLUSION AND FUTURE SCOPE.

## **Conclusion:**

RedBank is an effort to connect blood donors and blood seekers. This project involves the use of technologies like JavaScript, Ejs, Node.js, MongoDB, etc. Key functionalities served by this project are searching the blood donors and obtaining their contact information.

## **Future scope:**

Every two seconds of every day, someone needs blood. Since we all know that need for blood will always be there, this project has a wide scope in future. The platform will be used to reduce the time required to deliver blood to the needy in cases of emergency. Due to its user friendly and unambiguous

functionality, this site will be easy to use for every age group person. In future, more features will be added to the project to enhance user experience and to reduce the trouble faced by users in urgency.

## 6. REFERENCES

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4. <https://www.w3schools.com>
5. <https://www.konfinity.com>
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