BLOOD BANK & DONATION MANAGEMENT SYSTEM

Project Blood

Participants

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Introduction :-

Project Overview :-

The Blood Bank Management System is designed to streamline the process of blood donation and blood requests. It manages the data of donors and acceptors, including their personal information, blood types, donation histories, and blood requests.

Scope:

The project covers the following functionalities:

- User Registration
- Login/Logout
- Profile Management
- Blood Donation Scheduling
- Blood Requesting
- Search & Display Features
- Admin Dashboard (user interface) for Managing the System
- Messaging between Donors and Acceptors
- Report Generation

REQUIREMENT COLLECTION

Data Model Requirements:-

Entities:-

User: UserID (PK), Name, Email, Password, Phone No., Address, UserType (Donor/Acceptor).

Donor: DonorID (PK, FK), BloodType, LastDonationDate, TotalDonations.

Acceptor: AcceptorID (PK, FK), BloodType, RequestDate, Status.

BloodDonation: DonationID (PK), DonorID (FK), DonationDate, BloodType, Quantity, Health Criteria.

BloodRequest: RequestID (PK), AcceptorID (FK), RequestDate, BloodType, Quantity, Status.

Location: LocationID (PK), Address, City, State, ZipCode.

Relationships:

- A Donor can have multiple BloodDonations.

- An Acceptor can make multiple BloodRequests.

- Both Donor and Acceptor are types of User.

- BloodDonations and BloodRequests are linked to Location.

Functional Requirements:-

User Roles:-

Donor: Register, update profile, schedule donation, view donation history.

Acceptor: Register, request blood, update profile, view request history.

Admin: Manage users, manage blood inventory, view reports.

Features:-

- User Registration: Donor and acceptor registration with verification.

- Login/Logout: Secure authentication for users.

- Profile Management: Update personal information for both donors and acceptors.

- Blood Donation: Donors can schedule donations and view their donation history.

- Blood Request: Acceptors can request blood and view request status.

- Search: Search for blood donors or acceptors by various criteria.

- Admin Dashboard: Overview of system statistics, user management, and inventory management.

- Messaging: Communication between donors and acceptors.

- Reports: Generate various reports related to blood donations and requests.

Rough Implementations

1. **Donor Table**

Attribute	Description
Donor ID	Primary key, unique identifier for each donor
Name	Name of the donor
Contact Information	Contact details of the donor
Blood Type	Blood type of the donor
Donor Status	Status of the donor (active/inactive)
Health Criteria	Health-related eligibility criteria for donation

2. Recipient Table

Attribute	Description
Recipient ID	Primary key, unique identifier for each recipient
Name	Name of the recipient
Contact Information	Contact details of the recipient
Blood Type Needed	Blood type needed by the recipient
Request Status	Status of the blood request (pending/fulfilled)
Medical Information	Relevant medical information related to the request

3. <u>Blood Donation Table</u>

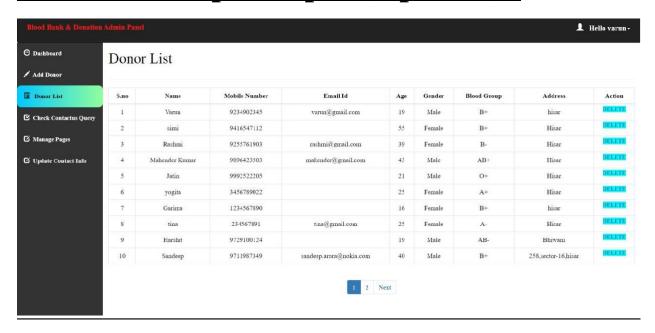| Attribute	Description
Donation ID	Primary key, unique identifier for each donation
Donor ID	Foreign key referencing Donor ID in Donor table
Donation Date	Date when the donation was made
Blood Type	Blood type donated
Additional Details	Additional details related to the donation
Expiry Date	Date When Blood unit Expires
Availability Status	Status Indicating if the units is in stock or out of stock.

Database Sample output (expected):-

Hello varun

- Dashboard
- Add Donor
- Donor List
- Check Contactus Query
- Manage Pages
- Update Contact Info

Donor List

S.no	Name	Mobile Number	Email Id	Age	Gender	Blood Group	Address	Action
1	Varun	9234902345	varun@gmail.com	19	Male	B+	hisar	DELETE
2	simi	9416547112		55	Female	B+	Hisar	DELETE
3	Rashmi	9255761903	rashmi@gmail.com	39	Female	B-	Hisar	DELETE
4	Mahender Kumar	9896423503	mahender@gmail.com	43	Male	AB+	Hisar	DELETE
5	Jatin	9992522205		21	Male	O+	Hisar	DELETE
6	yogita	3456789022		25	Female	A+	Hisar	DELETE
7	Garima	1234567890		16	Female	B+	hisar	DELETE
8	tina	234567891	tina@gmail.com	25	Female	A-	Hisar	DELETE
9	Harshit	9729100124		19	Male	AB-	Bhiwani	DELETE
10	Sandeep	9711987349	sandeep.arora@nokia.com	40	Male	B+	258,sector-16,hisar	DELETE

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REQUIREMENT ANALYSIS

Scale:-

In the following tables, "N" refers to "No key required," "PK" refers to "Primary Key," and "FK" refers to "Foreign Key."

Functional Requirements Table :-

Feature	Description	Details/Notes	Priority	Key Type
User Registration	Allow users to register as Donor or Acceptor.	Fields: Name, Email, Password, Phone No., Address.	High	N
Login/Logout	Provide secure authentication for users.	Use email and password; manage sessions.	High	N
Profile Management	Users can update personal information.	Both donors and acceptors; fields to be updated.	Medium	N
Blood Donation Scheduling	Donors can schedule their donation appointments.	Fields: Date, Time, Blood Type, Location.	High	N
Blood Requesting	Acceptors can request blood with required details.	Fields: Blood Type, Quantity, Request Date.	High	N
Search & Display	Search for donors or acceptors by criteria.	Criteria: Blood Type, Location, Availability.	Medium	N
Admin Dashboard	Interface for admin to manage users and view statistics.	Features: User Management, Inventory Control, Reports.	High	N
Messaging	Communication feature between donors and acceptors.	Inbox system, notifications.	Medium	N
Report Generation	Generate reports related to donations and requests.	Types: Donation Statistics, Request Summaries.	Medium	N

Non-Functional Requirements Table :-

Category	Requirement	Details/Notes	Priority	Status	Key Type
Performance	System response time	Define acceptable response times for various actions.	High	Not Started	N
Scalability	Handle increasing load	System should scale with increased users and data.	High	Not Started	N
Security	Data protection	Ensure data encryption and secure access controls.	High	Not Started	N
Usability	User interface design	Ensure easy-to-use and accessible interface.	Medium	Not Started	N
Reliability	System uptime and availability	Define required uptime percentage and backup plans.	High	Not Started	N

Use Cases Table (Rough Implemementation) :-

Use Case	Description	Actors	Preconditions	Postconditions	Steps	Key Type
User Registration	Users register as Donor or Acceptor.	New User	User is not registered.	User is registered.	1. Enter details 2. Verify email 3. Confirm registration	N
Login/Logout	Users login and logout of the system.	Registered User	User credentials valid.	User is logged in/out.	1. Enter credentials 2. Authenticate 3. Access system	N
Schedule Donation	Donors schedule a blood donation.	Donor	Donor is registered.	Donation is scheduled.	1. Select date 2. Confirm details 3. Save schedule	N
Request Blood	Acceptors request blood.	Acceptor	Acceptor is registered.	Blood request is created.	1. Select blood type 2. Enter quantity 3. Submit request	N
Search Donors/Acceptors	Search for donors or acceptors based on criteria.	User	User is logged in.	Search results are displayed.	1. Enter search criteria 2. View results	N
Admin Management	Admin manages users and views statistics.	Admin	Admin is logged in.	Users and stats are managed.	1. View user list 2. Manage inventory 3. Generate reports	N

Entity	Attribute	Type	Description	Key Type
User	UserID	Integer	Unique identifier for users.	PK
	Name	String	User's name.	N
	Email	String	User's email address.	N
	Password	String	User's password.	N
	Phone No.	String	User's phone number.	N
	Address	String	User's address.	N
	UserType	String	Type of user (Donor/Acceptor).	N
Donor	DonorID	Integer	Unique identifier for donors.	PK, FK
	BloodType	String	Blood type of the donor.	N
	LastDonationDate	Date	Date of the last donation.	N
	TotalDonations	Integer	Total number of donations made.	N
Acceptor	AcceptorID	Integer	Unique identifier for acceptors.	PK, FK
	BloodType	String	Blood type needed by the acceptor.	N
	RequestDate	Date	Date of the blood request.	N
	Status	String	Status of the blood request.	N
BloodDonation	DonationID	Integer	Unique identifier for donations.	PK
	DonorID	Integer	Link to the donor making the donation.	FK
	DonationDate	Date	Date of the donation.	N
	BloodType	String	Blood type of the donation.	N
	Quantity	Integer	Quantity of blood donated.	N
	Health Criteria	String	Health criteria met for donation.	N
BloodRequest	RequestID	Integer	Unique identifier for requests.	PK
	AcceptorID	Integer	Link to the acceptor requesting blood.	FK
	RequestDate	Date	Date of the request.	N
	BloodType	String	Blood type requested.	N
	Quantity	Integer	Quantity of blood requested.	N
	Status	String	Status of the request.	N
Location	LocationID	Integer	Unique identifier for locations.	PK
	Address	String	Address of the location.	N
	City	String	City of the location.	N
	State	String	State of the location.	N
	ZipCode	String	Zip code of the location.	N

We have tabulated all the entities, listing the relationships between them and formulating them as tables. The key types (PK, FK) are noted as separate entities in the table.

The main tables of the requirement analysis include the functional requirements table and the data model requirements table. In these tables, we have included the datatype for each attribute of the donor and acceptor classes.

Please check the following GitHub repository that we have created, where we have updated the requirement analysis and requirement collection documents. We will continue to update this repository in the future as the project develops.

https://github.com/jayadithya-g7/Project-Blood/tree/main