

CS355 – Database Project Proposal Form

Section 1: Metadata

to be filled by the student

1.1. Project Information to be filled by the student

Title: **BloodLink – Connecting Donors and Recipients**

Section: L6	Instructor: Ahsan Jawed
-------------	-------------------------

1.2. Student(s) Information

Name: Bilal Ahmed	ID: 08018
Section: L6	Batch: 2026

Name: Rameen Fatimah	ID: 09210
Section: L6	Batch: 2027

Name: Syeda Tayyeba Haider	ID: 07983
Section: L6	Batch: 2026

Submission guideline: Save your project proposal as a pdf file and rename as Project Proposal_L6_BloodLink where L6 is to be replaced with your section

Section 2: The Project

to be filled by the student

2.1. Project Description: *Please provide a brief introduction of the project including its scope.*

Introduction

The project titled **BloodLink** is a desktop-based application designed to manage blood donation and request processes efficiently. It provides a platform for donors, recipients, and a blood bank manager to interact with a centralized database, ensuring that critical information about blood availability is organized, accurate, and easy to access.

Purpose and Functionality

The purpose of BloodLink is to simplify and streamline how blood donations and requests are managed. Donors can register their blood type, track their last donation date, and mark their availability. Recipients can create requests for specific blood types and units. The manager oversees the entire system by maintaining the blood inventory, validating requests and donations, and monitoring the fulfillment process.

Scope

BloodLink supports three main user roles:

- **Donors:** Individuals who register their profiles, provide details such as blood type and last donation date, and become available for matching with recipients.
- **Recipients:** Patients or their attendants who can request blood of a certain type based on their area.
- **Manager:** The blood bank authority responsible for maintaining inventory records, monitoring donations, approving or closing requests, and generating reports.

2.2 Functional Requirements

This section describes each function/feature provided by your system. These functions are logically grouped into modules based on their purposes. The users in your system must be categorized such as Donors, Recipients, and Manager. These users will be accessing the database with the level of access that they are authorized with.

Module 1: User Registration and Authentication

- **Function 1: Register an account**
 - *Donor*: Provides details such as Name, Email, Password, Blood Type, Last Donation Date, and Area.
 - *Recipient*: Provides Name, Email, Password, Area, and Contact Details.
 - *Manager*: Registered as system administrator with higher privileges.
- **Function 2: Login**
 - All roles log in using their credentials and are redirected to their respective dashboards.

Module 2: Donor Management

- **Function 1: Donor Profile** – View and update donor details, including availability status and donation history.
- **Function 2: Eligibility Check** – Enforce rules such as minimum days between donations.
- **Function 3: Availability Toggle** – Donors can mark themselves as available/unavailable.

Module 3: Blood Requests

- **Function 1: Create Request** – Recipients submit a request with blood type, units required and location.
- **Function 2: Track Request** – Recipients can view the status (*Open, Matched, Fulfilled, Closed*).
- **Function 3: Cancel Request** – Recipients may cancel a pending request if no longer needed.

Module 4: Donation & Inventory

- **Function 1: Submit Donation (Donor)** – Donors can record their intent to donate blood by entering type, units, and area.
- **Function 2: Approve Donation (Manager)** – Manager reviews donor intent and approves it, which updates the inventory.
- **Function 3: View Inventory** – Manager can view full stock details by type, and area; donors and recipients can view a summary.

Module 5: Fulfillment

- **Function 1: Fulfill Request (Manager)** – Manager selects suitable stock or donor to fulfill a request. The system updates the request status and adjusts inventory.
- **Function 2: Close/Cancel Request (Manager)** – Manager can close fulfilled requests or cancel outdated ones.

CS355 – Database Project Proposal Form

2.3. Planned Schedule: *Kindly list the start/end dates and the timeline for the achievement of any intermediate milestones and the expected contribution to be made by the participant(s).*

Milestone / Task	Timeline
Finalize project proposal and scope; draft ERD (entities, relationships)	Week 5 - 21st September
Design core GUI screens in HTML (Login, Registration, Dashboard) (do revision to already created screens for proposal)	Week 6 – 28th September
Complete logical schema (tables, constraints, sample data)	Week 7 - 5th October
Implement database in SQL Server (tables, keys, constraints)	Week 9 – 19th October
Connect GUI with database (registration, login, donor/recipient modules)	Week 10 – 26th October
Implement the back-end functions and connect them.	Week 11 – 2nd November
Connect all screens, implement request fulfillment (ACID), ensure data integrity, and test core functionality	Week 12 – 9th November
Final testing, bug fixing, reports module, polish, and demo preparation	Week 13 – Week 14

2.4. Technology Stack: *If you are utilizing any language or database besides PyQt and SQL Server, please complete this section; otherwise, leave it blank. Specify the programming language and database management system intended for constructing this application, as well as the application type (Desktop, Web, or Mobile).*

Softwares / Tools:

- Microsoft SQL Server & SQL Server Management Studio (SSMS)
- Flask
- Visual Studio Code (development environment)
- GitHub (version control & collaboration)
- PyQt (for creating desktop application if needed)

Programming Languages:

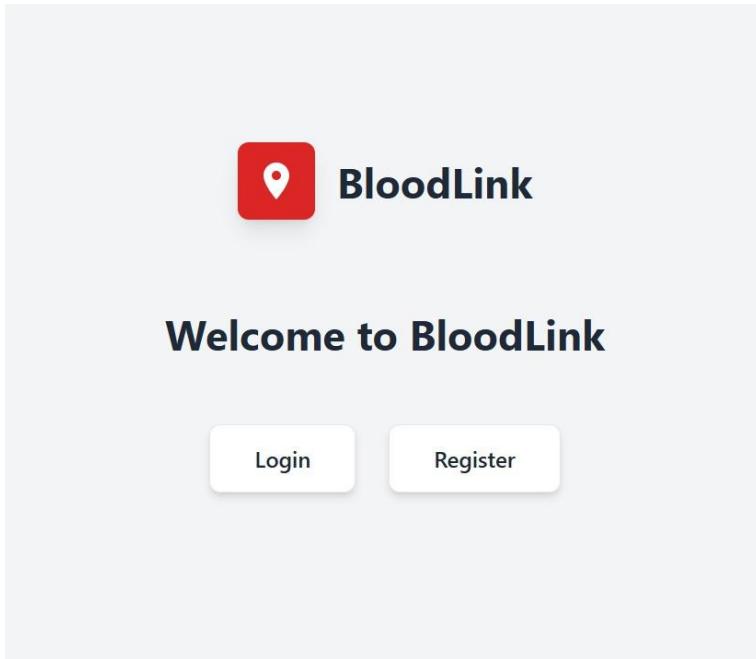
- Python
- SQL
- HTML / CSS

Application Type:

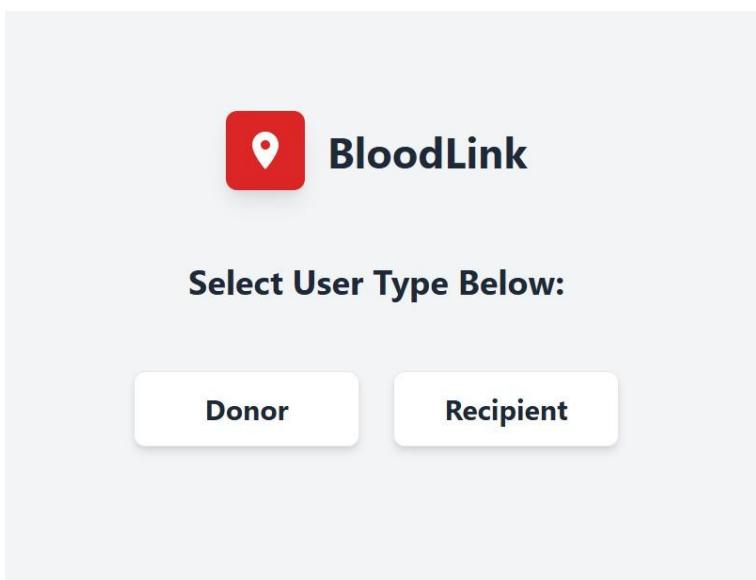
- Web Application (will try for desktop)

2.5. Screens: Provide images of all application screens, showcasing clear input and corresponding outputs. Ensure each image includes a concise caption explaining user action and expected/observed output. You can create these screens using Qt Designer.

Login/ Register page:

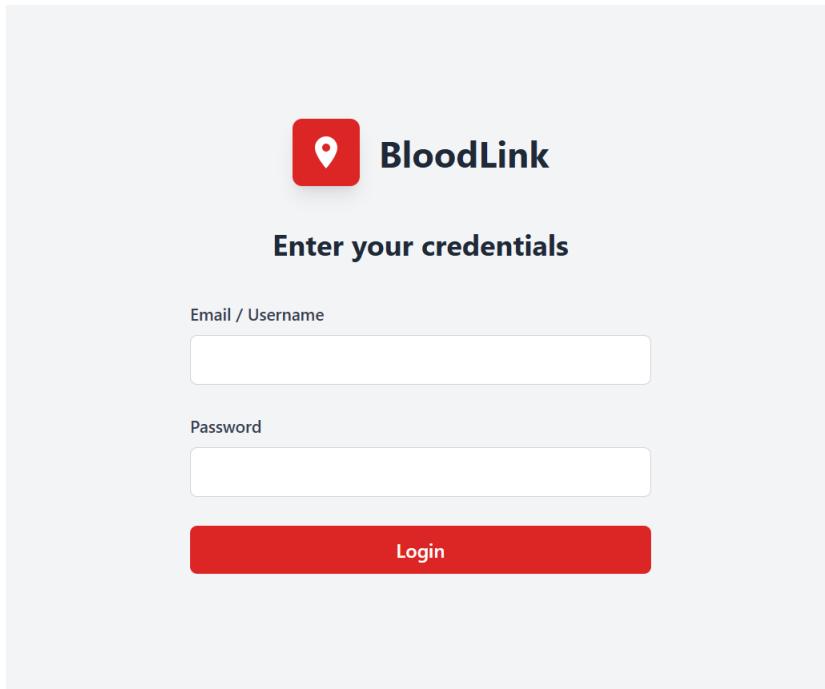


User selection page: (this screen comes when the user clicks on register)



CS355 – Database Project Proposal Form

Login page:(this screen comes when the user clicks on login)



The image shows a login form for 'BloodLink'. At the top, there is a red square icon containing a white location pin symbol. To its right, the word 'BloodLink' is written in a bold, black, sans-serif font. Below this, the text 'Enter your credentials' is displayed in a bold, dark gray font. There are two input fields: one for 'Email / Username' and one for 'Password', both represented by light gray rectangular boxes. At the bottom of the form is a large, solid red button with the word 'Login' centered in white.

Donor Registration Form: (this screen comes when the user clicks on donor)

CS355 – Database Project Proposal Form


BloodLink

Full Name

Date of Birth

 dd/mm/yyyy

Age

Gender

Blood Group

Contact Number

CNIC

 00000-0000000-0

Address

Area

Medical Conditions

List any current medications or write 'None'

[Register as Donor](#)

Recipient Registration Form: (this screen comes when the user clicks on recipient)

CS355 – Database Project Proposal Form

 **BloodLink**

Full Name

Date of Birth
 dd/mm/yyyy

Age

Gender

Blood Group

Contact Number

Address

Area

CNIC
 12345-1234567-1

Required Blood Type

Quantity Required (pints)

Medical Condition
 Please describe your medical condition and reason for blood requirement

Register as Recipient

Donor Dashboard:



CS355 – Database Project Proposal Form

BloodLink

Welcome back, Rameen!

Thank you for being a life-saving donor.

Personal Information

Full Name Rameen Khan	Last Donation July 15, 2025	O+ Blood Type Next Eligible October 25, 2025
--------------------------	--------------------------------	--

Quick Actions

- Donate Blood
- View Donation History
- Update Profile

Notifications

- Eligible to Donate! You can schedule your next donation starting May 15th.
- Urgent: O+ Blood Needed Local hospital has critical shortage of your blood type.
- Donation Drive This Weekend Community center hosting blood drive on Saturday.

Total Donations: 12

Units Donated: 6.0L

Lives Impacted: 36

Donor Status: Gold

Recipient Dashboard:

BloodLink

Welcome back, Rameen!

Manage your blood requests and stay updated on availability.

Rameen Khan
Patient ID: BL-2024-001
Blood Group: O+

Request Pending
Last updated: 2 hours ago

Request Blood
Submit a new blood request with urgency level

Request History
View all your previous blood requests and status.

Search Availability
Check blood availability at nearby blood banks.

Notifications

- Blood Request Approved Your request for 2 units of O+ blood has been approved by City General Hospital 2 hours ago
- Blood Available O+ blood is now available at Metro Blood Bank - 0.8 km away 5 hours ago
- Appointment Reminder Don't forget your blood collection appointment tomorrow at 10:00 AM 1 day ago

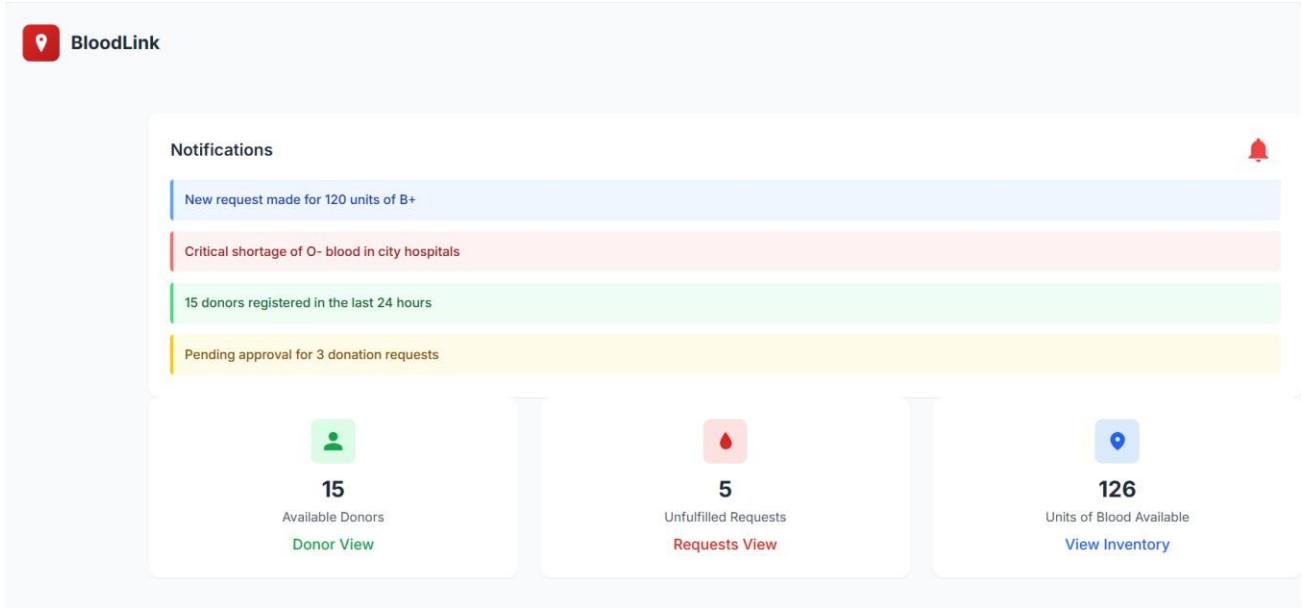
Total Requests Since joining: 12

Success/fully fulfilled: 8

Currently pending: 2

CS355 – Database Project Proposal Form

Manager Dashboard:



The dashboard features a header with a red location pin icon and the text "BloodLink". Below this is a "Notifications" section with four items: "New request made for 120 units of B+", "Critical shortage of O- blood in city hospitals", "15 donors registered in the last 24 hours", and "Pending approval for 3 donation requests". A red bell icon is in the top right of the notifications area. Below the notifications are three main statistics: "Available Donors" (15), "Unfulfilled Requests" (5), and "Units of Blood Available" (126). Each statistic has a corresponding icon (person, blood drop, location pin) and a "View" link.

Category	Value	Action
Available Donors	15	Donor View
Unfulfilled Requests	5	Requests View
Units of Blood Available	126	View Inventory