BloodBridge – Blood Bank Management System

Skills & Technologies

Python, Flask, HTML, CSS, JavaScript, DynamoDB,SNS,EC2,IAM

Project Overview

BloodBridge is a web-based Blood Bank Management System designed to connect donors, hospitals, and patients on a single platform. The goal of this project is to simplify blood donation requests, donor registration, and blood availability tracking in emergency situations.

Implementation & Technical Details

The application was developed using Python Flask as the backend framework, with HTML, CSS, and JavaScript for the frontend interface. Flask routes handle user authentication, donor registration, blood requests, and role-based access (admin, donor, hospital).

Initially, temporary in-memory storage was used for faster prototyping, with the system designed to be easily extended to DynamoDB for persistent data storage. Session management ensures secure login and user role handling.

The application follows a modular structure with clear separation of concerns, making it scalable and easy to maintain.

Real-World Use Case

In emergency medical situations, hospitals often struggle to find the required blood group quickly. BloodBridge provides a centralized platform where hospitals can raise blood requests and donors can respond immediately, reducing response time and potentially saving lives.

Key Features

- Donor, hospital, and admin role management

- Blood group-wise inventory tracking
- Blood request and approval workflow
- Secure login and session handling
- Scalable architecture for future database integration

Learning Outcomes

- Backend development using Flask
- Role-based authentication and authorization
- Designing real-world healthcare systems
- Planning scalable database-driven applications