

Blood Bank Management App - Project Plan

1. Project Description

This Flutter-based Blood Bank Management app is designed to streamline the process of blood donation, request handling, donor-recipient communication, and inventory management. It supports real-time updates, location tracking, emergency features, and ensures smooth coordination between donors, recipients, and administrators.

2. Software & Tools

- Flutter SDK (Latest stable version)
- Dart Programming Language
- Firebase (Authentication, Firestore, Cloud Functions, Cloud Messaging, Storage)
- Google Maps API (for locating donors and blood banks)
- Git & GitHub (for version control and collaboration)
- Android Studio / Visual Studio Code (Development IDEs)
- Figma or Adobe XD (for UI/UX Design)

3. Core Features

- User Registration and Login

Secure onboarding with Firebase Authentication for Donors, Recipients, and Admins.

- Blood Donor & Recipient Profiles

Personal info, blood type, donation history, and eligibility status.

- Real-time Blood Availability

Display current stock and type-specific availability from each blood bank.

- Blood Request System

Request specific blood types, set urgency levels, and track status.

- Donation Scheduling

Book available slots at nearby blood banks for donations.

- Push Notifications & Alerts

Notify users about urgent needs, upcoming appointments, and donation reminders.

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- Geo-location Integration

Find and connect to the nearest blood banks or donors.

- Admin Dashboard

Manage user roles, track donations, approve requests, and update inventory.

- Blood Donation History & Certificates

Show past donations and allow users to download appreciation certificates.

- Emergency Mode Toggle

Enable alert system to notify compatible donors nearby in critical cases.

4. Additional Features

- QR Code Scanner

Fast check-in at blood camps and identity verification.

- Chat/Messaging System

Enable communication between donors and recipients.

- Multilingual Support

Use of multiple languages for a wider user base.

- Blood Compatibility Checker

Match donor and recipient blood types using medical compatibility rules.

- Campaign & Event Management

Manage and promote blood donation events.

- News & Health Tips Feed

Display informative content for donor health and wellness.

- Dark Mode UI

Switch to a dark theme for better UX in low-light environments.

- Feedback & Rating System

Collect feedback and rate blood banks and donors.

- Donor Leaderboard & Badges

Gamification features to encourage frequent donations.

- Inventory Report Export

Admins can export inventory and donor data for offline use.