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23suca26



Blood Donor Finder

Connect Lifesavers with Those in Need

```
=====
|| INTELLIGENT BLOOD DONATION PLATFORM ||
|| Saving Lives Through Technology ||
=====
```

Full Stack Application

Real-time Updates

Production Ready



Project Overview



Mission

Create a unified platform connecting blood donors with recipients in real-time during emergencies



Vision

Reduce blood shortage emergencies through fast, efficient donor-recipient matching



Functionality

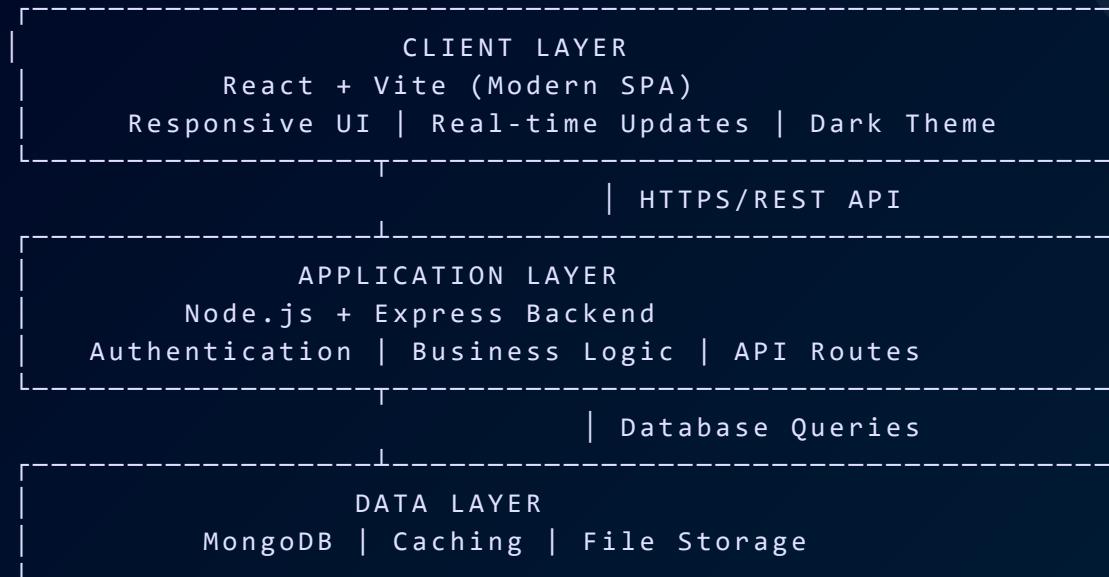
Registration, Search, Profiles, Emergency Requests, Admin Analytics, Real-time Notifications



Users

Donors, Recipients, Hospital Admins, Emergency Coordinators, System Administrators

System Architecture



Microservices-Ready Architecture with Docker containerization



Backend Development

Technology Stack

- **Node.js 18+** - Runtime
- **Express.js** - REST API Framework
- **MongoDB** - NoSQL Database
- **JWT** - Authentication
- **Socket.io** - Real-time Comm

Core Features

- RESTful API Endpoints
- User Authentication & Authorization
- Real-time Notifications
- Database Optimization
- Error Handling & Logging

Node.js

Express

MongoDB

JWT

Socket.io



Backend Execution & API

API ENDPOINTS STRUCTURE

```
/api/auth
POST /register           - User Registration
POST /login              - User Authentication
POST /logout             - Session Termination

/api/donors
GET /                   - List All Donors
POST /                  - Create Donor Profile
GET /:id                - Get Donor Details
PUT /:id                - Update Profile

/api/search
GET ?bloodType=0         - Search by Blood Type
GET ?location=city      - Search by Location

/api/emergency
POST /request            - Create Emergency Request
GET /active              - Active Requests
PUT /:id/fulfill        - Fulfill Request

/api/admin
GET /analytics           - Dashboard Analytics
GET /reports             - Generate Reports
```



Frontend Development



React 19.2

Modern React with Hooks, Context API, and functional components



Vite 7.2

Lightning-fast build tool with HMR and optimized production builds



Styling

CSS Gradients, Animations, Responsive Design, Dark Theme

Components

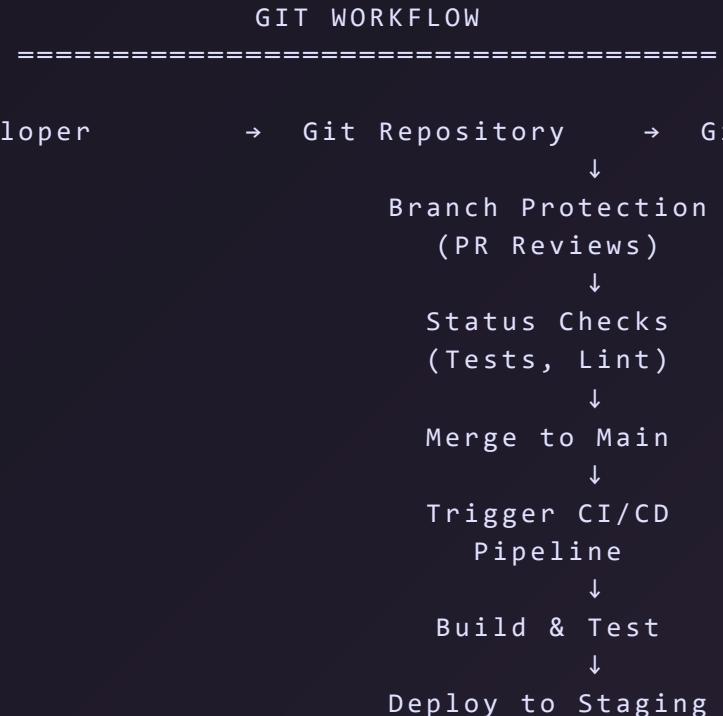
- Donor Registration Form
- Advanced Search
- Donor Profiles
- Emergency Requests

Features

- Responsive Mobile UI
- Real-time Updates
- Admin Dashboard
- Beautiful Animations



Version Control & CI Pipeline



GitHub

Git Workflows

Branch Protection

PR Reviews

🔍 CI & SonarQube Integration



GitHub Actions

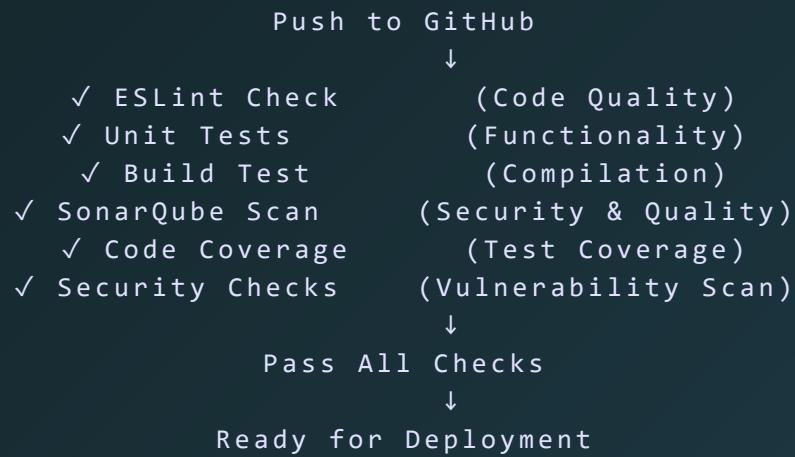
Automated testing, linting, and build verification on every push



SonarQube

Code quality analysis, security scanning, and coverage reporting

CI/CD PIPELINE STAGES





Backend Dockerization

DOCKERFILE STRUCTURE

```
FROM node:20-alpine
  ↓
  WORKDIR /app
  ↓
  COPY package*.json ./
  ↓
  RUN npm ci --only=production
  ↓
  COPY . .
  ↓
  EXPOSE 5000
  ↓
  CMD [ "node", "server.js" ]
```

IMAGE: blood-donor-backend:latest

REGISTRY: Docker Hub / GitHub Container Registry

Benefits

- Consistent Environment
- Easy Scaling
- Version Control
- Quick Deployment

Orchestration

- Kubernetes Ready
- Docker Compose
- Multi-stage Builds
- Health Checks



Frontend Deployment

Vercel Deployment

- **Auto-Deploy** on push to main
- **Node 20.x LTS Runtime**
- **SPA Routing** Configured
- **Edge Functions** Ready
- **Analytics** Enabled

Build & Optimization

- Vite Build Process
- Code Minification
- Asset Optimization
- CSS Optimization
- Performance Monitoring

Git Push → GitHub → Vercel → Build & Test → Deploy



Issues Faced & Solutions

✗ Issue 1: CSS Contrast

Text not meeting WCAG accessibility standards



Solution

Updated button gradients with darker colors for proper contrast ratios

✗ Issue 2: CSS Syntax Error

Duplicate closing braces breaking build



Solution

Removed malformed CSS blocks and validated all stylesheets

✗ Issue 3: Vercel Config

Missing deployment configuration and Node version conflicts



Solution

Created `vercel.json` with proper Node 20.x, SPA routing, and build commands



Thank You!

Blood Donor Finder Platform
Saving Lives Through Technology

Full Stack Development
CI/CD Pipeline Integration
Production Ready Deployment
Quality & Security Focused

Let's continue saving lives together! 🤝 ❤️

GitHub: vasanth005-117

Live: Vercel Deployed

Production Ready