





### **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



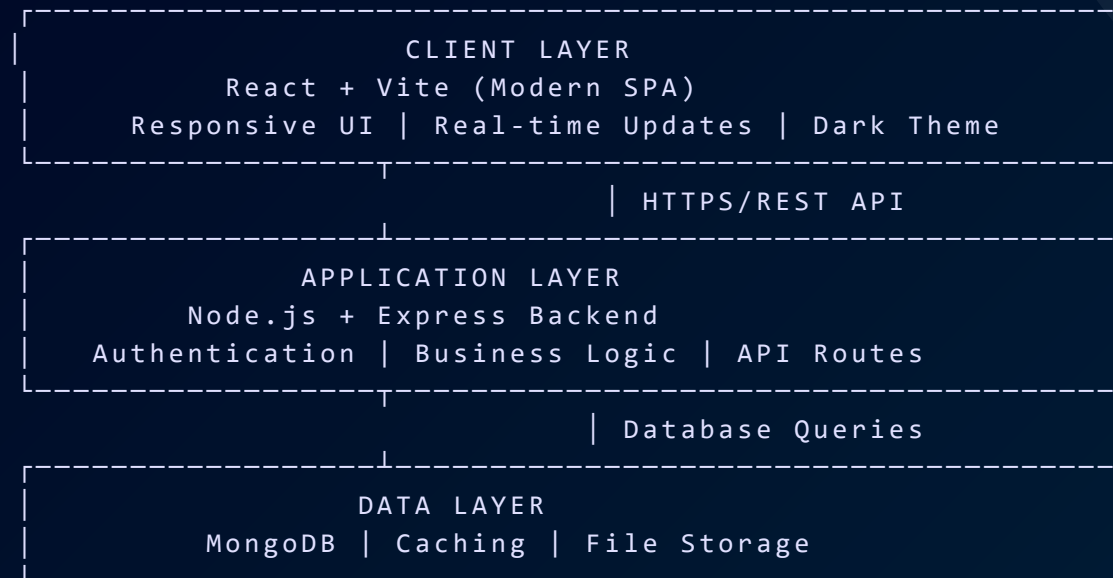
### **Functionality**

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



### **Users**

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



**Microservices-Ready Architecture** with Docker containerization

## 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

## 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



### **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**

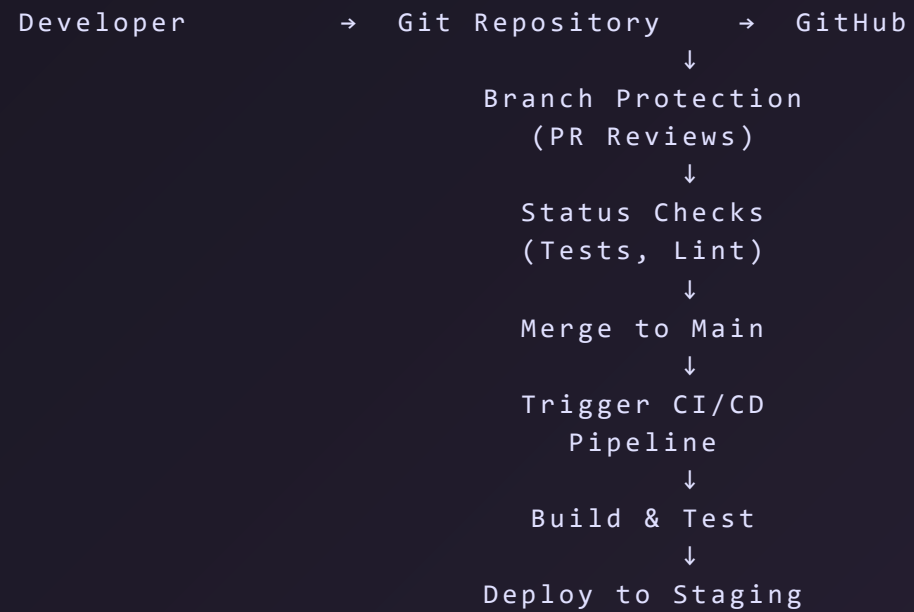
- Donor Registration Form
- Advanced Search
- Donor Profiles
- Emergency Requests

## **Features**

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

## GIT WORKFLOW

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GitHub

Git Workflows

Branch Protection

PR Reviews



## GitHub Actions

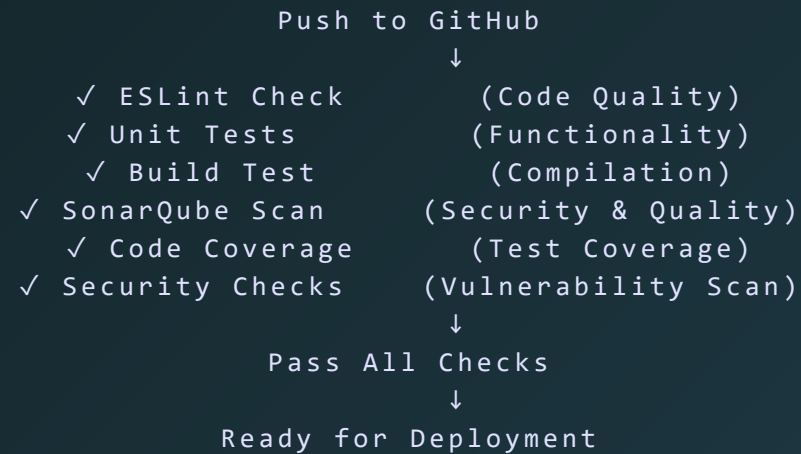
Automated testing, linting, and build verification on every push



## SonarQube

Code quality analysis, security scanning, and coverage reporting

### CI/CD PIPELINE STAGES





## 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

## 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

### ✗ 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

Blood Donor Finder Platform  
Saving Lives Through Technology

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