NGO Fundraiser System

Technical Documentation Report

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1. Executive Summary

Relief Core is a full-stack web application designed to facilitate transparent and secure fundraising for NGO campaigns. The platform enables donors to contribute to various social causes while providing administrators with comprehensive tools for campaign management, expense tracking, and impact reporting.

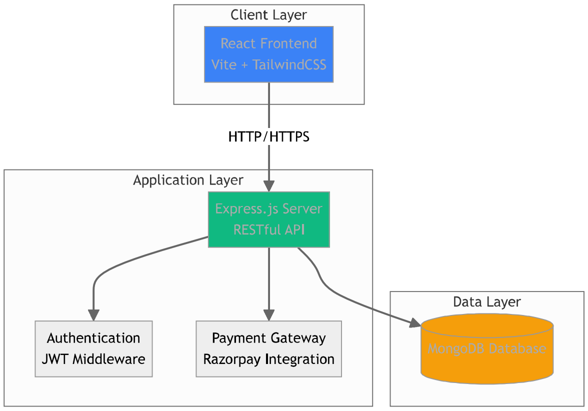
Key Features

- **User Management:** Role-based access control (Admin/Donor)
- **Campaign Management:** Create, track, and manage fundraising campaigns
- **Secure Payments:** Integration with Razorpay payment gateway
- **Expense Tracking:** Transparent expense logging and categorization
- **Impact Analytics:** Real-time dashboards with visual analytics
- **Certificate Generation:** Automated donation certificates (PDF)

2. System Architecture

2.1 High-Level Architecture

The system follows a **three-tier architecture** pattern with clear separation of concerns:



2.2 Technology Stack

Frontend

- **Framework:** React 19.2.0 with React Router DOM
- **Build Tool:** Vite 7.2.4
- **Styling:** TailwindCSS 3.4.1 with custom design system
- **UI Components:** Lucide React (icons), Recharts (analytics)
- **State Management:** React Context API
- **HTTP Client:** Axios 1.13.2
- **PDF Generation:** jsPDF 4.0.0

Backend

- **Runtime:** Node.js with Express.js 5.2.1
- **Database:** MongoDB 9.1.4 with Mongoose ODM
- **Authentication:** JWT (jsonwebtoken 9.0.3) + bcryptjs 3.0.3
- **Payment Processing:** Razorpay 2.9.6, Stripe 20.2.0
- **Email Service:** Nodemailer 7.0.12
- **Development:** Nodemon 3.1.11

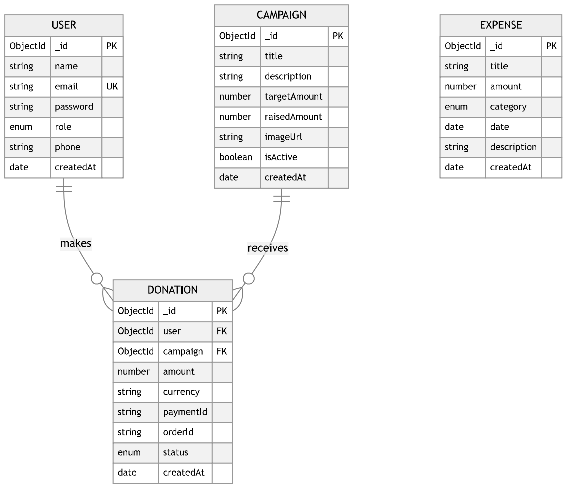
2.3 API Architecture

The backend exposes **5 primary route modules**:

Route Module	Endpoint	Purpose
Auth Routes	`/api/auth`	User registration, login, profile management
Campaign Routes	`/api/campaigns`	Fetch active campaigns
Donation Routes	`/api/donations`	Payment processing, donation history
Admin Routes	`/api/admin`	Campaign CRUD, user management, analytics
Expense Routes	`/api/expenses`	Expense logging, CSV export

3. Database Schema

3.1 Entity-Relationship Diagram



USER		
ObjectId	_id	PK
string	name	
string	email	UK
string	password	
enum	role	
string	phone	
date	createdAt	

CAMPAIGN		
ObjectId	_id	PK
string	title	
string	description	
number	targetAmount	
number	raisedAmount	
string	imageUrl	
boolean	isActive	
date	createdAt	

EXPENSE		
ObjectId	_id	PK
string	title	
number	amount	
enum	category	
date	date	
string	description	
date	createdAt	

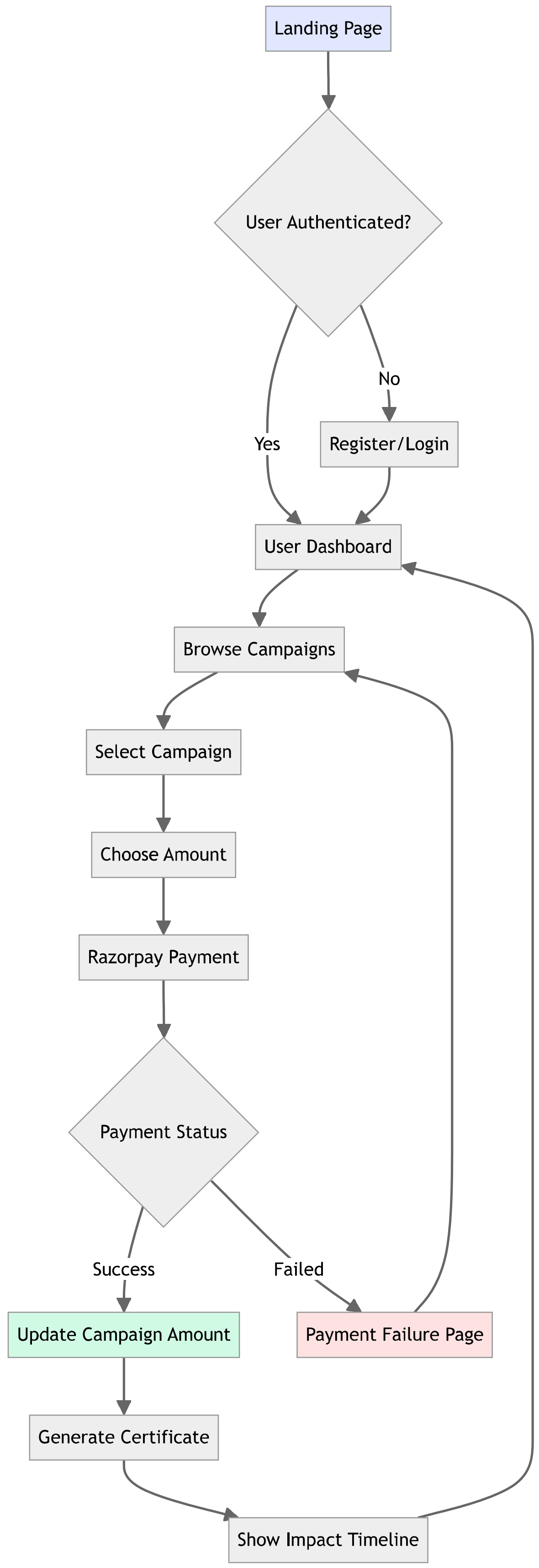
DONATION		
ObjectId	_id	PK
ObjectId	user	FK
ObjectId	campaign	FK
number	amount	
string	currency	
string	paymentId	
string	orderId	
enum	status	
date	createdAt	

3.2 Schema Details

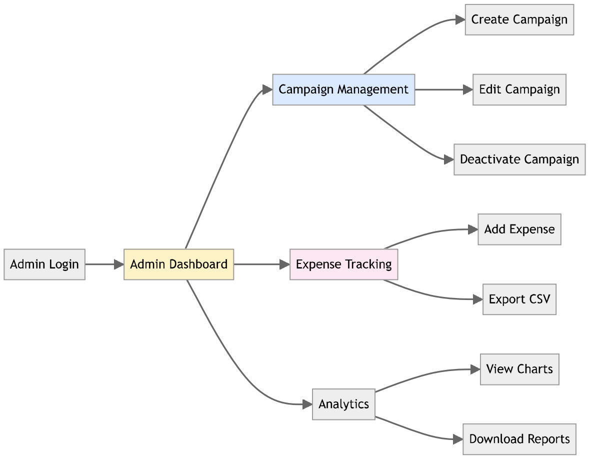
- **User Collection:** Roles (user/admin), Passwords hashed via bcryptjs.
- **Campaign Collection:** Real-time tracking of raised amounts, Soft delete (isActive).
- **Donation Collection:** Audit trail with Razorpay IDs (orderId, paymentId).
- **Expense Collection:** Categorized expenses (Medical, Logistics, etc.) independent of campaigns.

4. User Flow Diagrams

4.1 Donor Journey



4.2 Admin Workflow

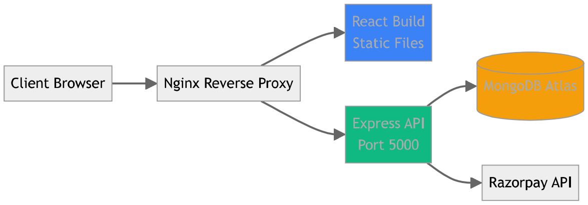


5. Key Design Decisions

- **Security:** JWT Auth, CORS restrictions, and bcrypt password hashing.
- **Payments:** Razorpay for INR compliance, atomic database updates on success.
- **Frontend:** Optimistic UI updates, Context API for state, Responsive Tailwind design.
- **Database:** Denormalized `raisedAmount` for read performance, Soft deletes.

6. Deployment Architecture

6.1 Recommended Setup



6.2 Environment Configuration

Backend (.env)

```
 MONGO_URI=mongodb://localhost:27017/ngo-fundraiser
JWT_SECRET=<secure-random-string>
CLIENT_URL=http://localhost:5173
RAZORPAY_KEY_ID=<razorpay-key>
RAZORPAY_KEY_SECRET=<razorpay-secret>
PORT=5000
```

7. Conclusion

Relief Core successfully demonstrates a production-ready NGO fundraising platform. The system prioritizes transparency, security, and user experience while maintaining scalability. The modular architecture allows for easy feature additions and third-party integrations.

Document Prepared By: Development Team | **Repository:** github.com/atharv-pdarshi/ngo-fundraiser-system