

NGO Donation Management System

Repository: <https://github.com/C0deEnigma/ngo-donation-management-system>

1. Introduction

The **NGO Donation Management System** is a web-based platform built using the Django framework. Its primary goal is to streamline the interaction between a **Non-Governmental Organization (NGO)** and **donors**, enabling transparent campaign management, efficient donation handling, and centralized administrative control.

The system follows Django's **Model–View–Template (MVT)** architecture and is structured as a collection of modular Django apps, each responsible for a distinct domain of functionality.

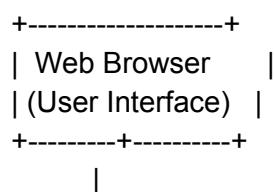
2. System Architecture

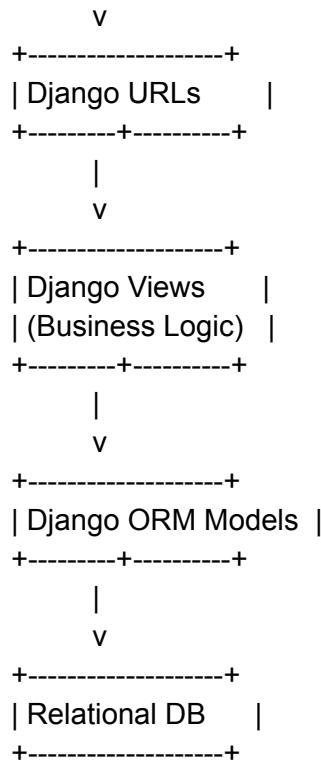
2.1 High-Level Architecture

The system follows a classic **three-tier architecture**:

1. **Presentation Layer**
 - HTML templates rendered using Django Template Language (DTL)
 - CSS served via Django static files
2. **Application Layer**
 - Django views (function-based or class-based)
 - Business logic for campaigns, donations, registrations, and authentication
3. **Data Layer**
 - Django ORM
 - Relational database (SQLite used in initial development; switched to MySQL for scalability)

2.2 Architectural Diagram





2.3 Modular App Design

App Name	Responsibility
accounts	Authentication, user profiles, roles
registrations	Registration for user in campaigns
campaigns	Campaign creation, display, and lifecycle
donations	Donation processing and history tracking
pages	Static and informational pages

This modularity improves **maintainability, scalability, and testability**.

3. Database Schema

1. User

Extends Django's `AbstractUser` and represents all platform users (admins and donors).

Key Fields

- `id` (PK)
- `username` (*unique, required*)
- `email` (*unique, required*)
- `password`
- Standard Django auth fields (`is_staff`, `is_superuser`, etc.)

Constraints

- `email` is unique
 - `username` remains Django-default (unique)
-

2. Campaign

Represents a fundraising campaign run by the NGO.

Key Fields

- `id` (PK)
- `title`
- `description`
- `goal_amount` (*nullable*)

- `start_date`
- `end_date (nullable)`
- `is_active`
- `image (nullable)`
- `created_at`

Indexes

- `is_active`
- `start_date`

Notes

- Campaigns are ordered by newest first
 - Campaigns cannot be deleted if registrations exist
-

3. Registration

Links a **User** to a **Campaign** (one registration per user per campaign).

Key Fields

- `id (PK)`
- `user_id (FK → User)`
- `campaign_id (FK → Campaign)`
- `name (optional)`
- `created_at`

Constraints

- **Unique (user_id, campaign_id)**

Delete Rules

- User deletion → registrations deleted
 - Campaign deletion → blocked if registrations exist
-

4. Donation

Stores donation transactions linked to a registration.

Key Fields

- `id` (PK)
- `registration_id` (FK → Registration, nullable)
- `amount`
- `payment_status` (*Pending / Success / Failed*)
- `payment_provider`
- `transaction_id` (*nullable*)
- `created_at`

Indexes

- `payment_status`
- `created_at`

Constraints

- Conditional Unique (transaction_id, payment_provider)

- Applied only when transaction_id is not null or empty

Delete Rules

- Registration deletion → donation retained with `registration_id = NULL`

Relationships (Summary)

Design Notes

- Ensures **one registration per user per campaign**
 - Supports **safe payment retries**
 - Prevents campaign deletion when dependent data exists
 - Optimized for **scalable MySQL deployments**

4. System Flow Diagrams

4.1 User Registration & Login Flow

User → Register/Login → Authentication



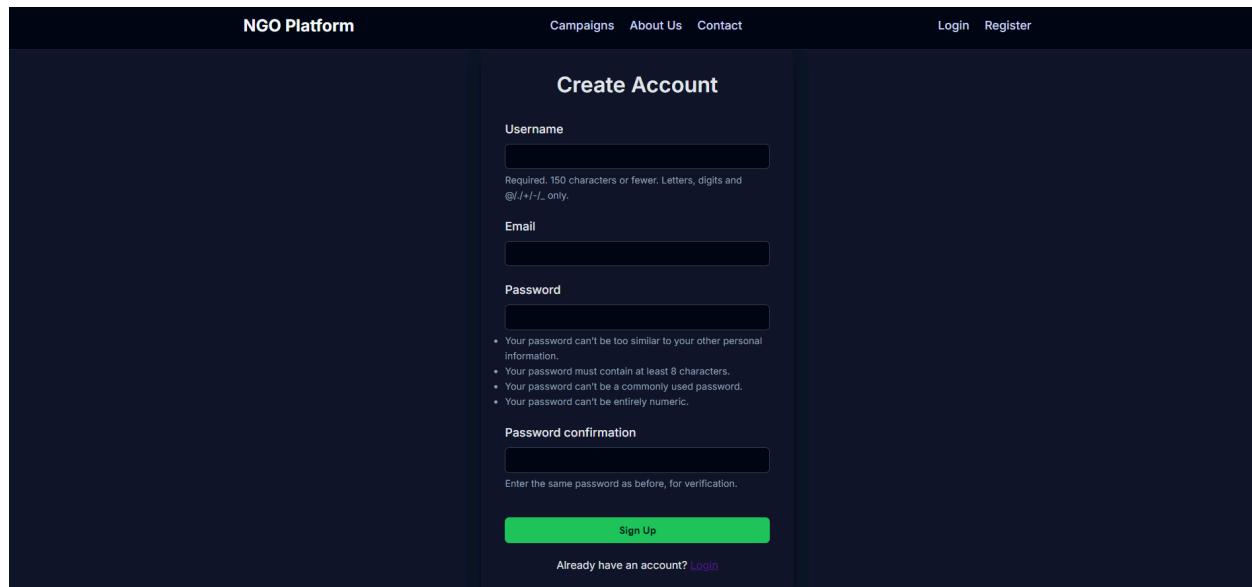
Role Assigned



User Dashboard



Home page



Create Account

Username

Required. 150 characters or fewer. Letters, digits and @/_/+/-/_ only.

Email

Password

Your password can't be too similar to your other personal information.
Your password must contain at least 8 characters.
Your password can't be a commonly used password.
Your password can't be entirely numeric.

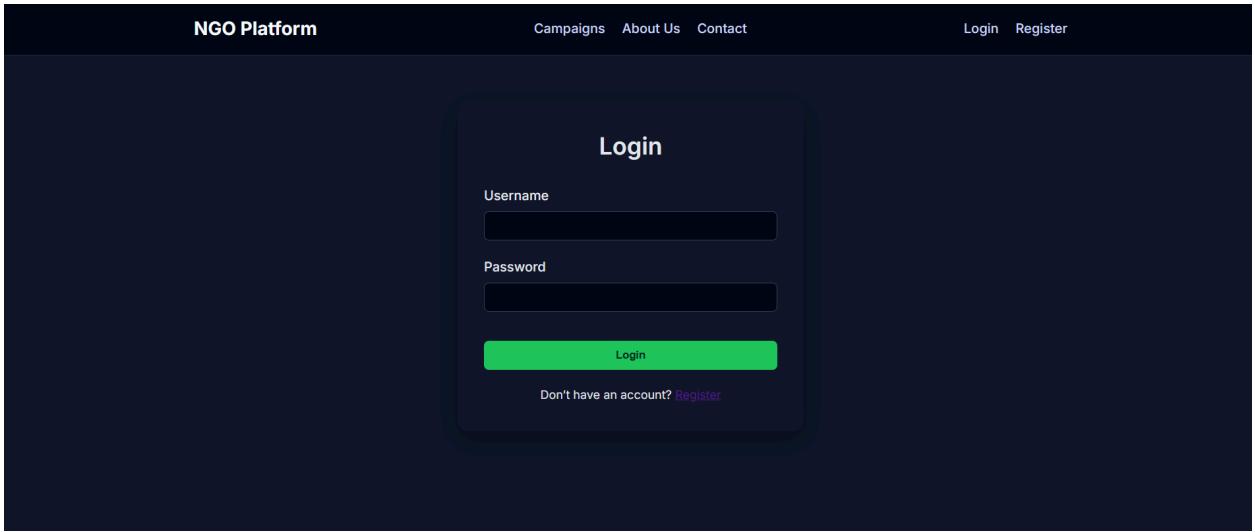
Password confirmation

Enter the same password as before, for verification.

Sign Up

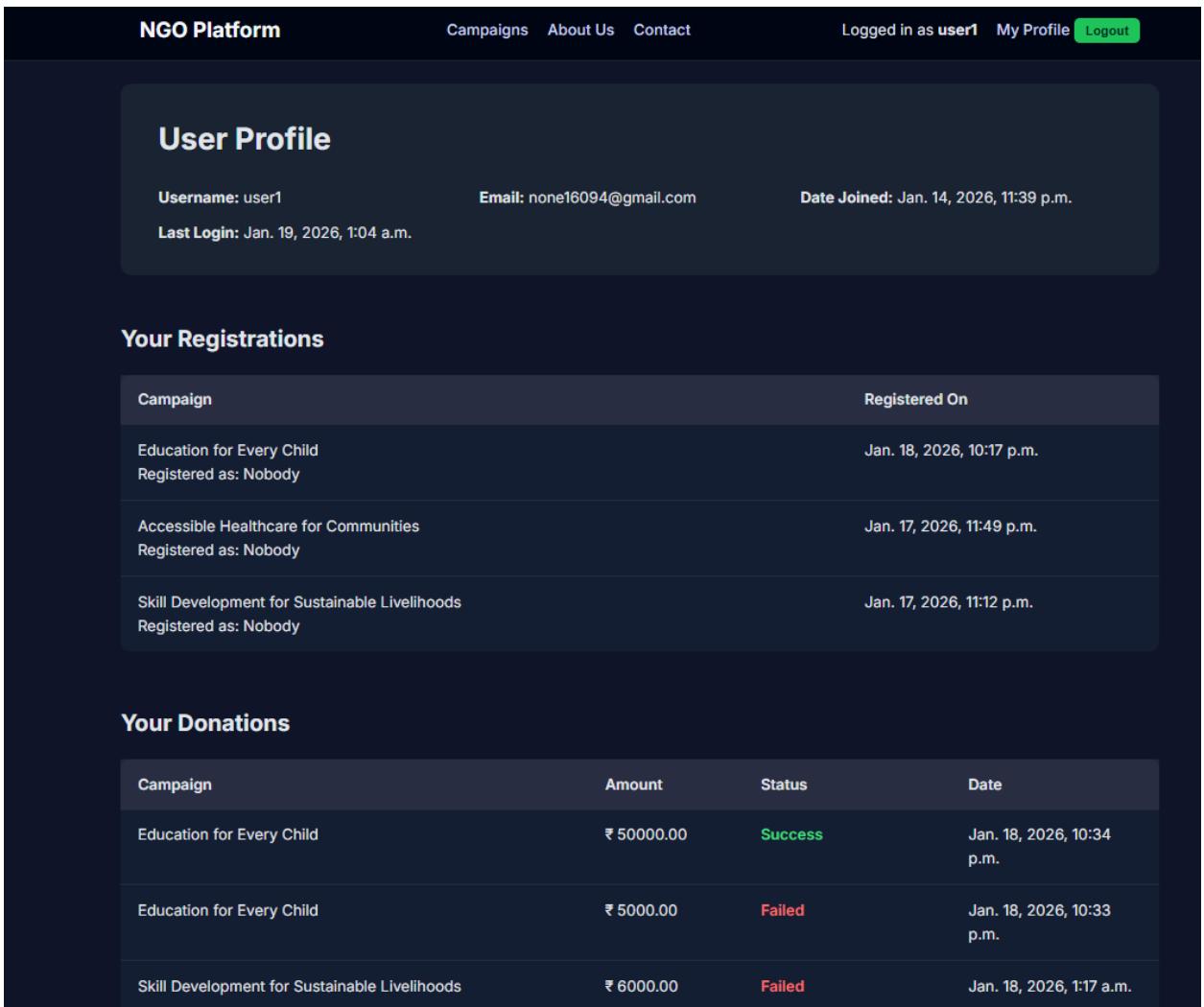
Already have an account? [Login](#)

Sign up page



The login page features a dark-themed header with the "NGO Platform" logo, navigation links for "Campaigns", "About Us", and "Contact", and user links for "Login" and "Register". The main area is a light-colored card titled "Login" containing fields for "Username" and "Password", a green "Login" button, and a link for users without an account to "Register".

Login Page



The user profile page shows the logged-in status ("Logged in as user1") and provides a "Logout" link. It includes sections for "User Profile" (with fields for Username, Email, Date Joined, and Last Login), "Your Registrations" (listing three campaigns registered under "Nobody"), and "Your Donations" (listing three donations made to different campaigns). The "Your Registrations" table has columns for "Campaign" and "Registered On". The "Your Donations" table has columns for "Campaign", "Amount", "Status", and "Date".

Campaign	Registered On
Education for Every Child Registered as: Nobody	Jan. 18, 2026, 10:17 p.m.
Accessible Healthcare for Communities Registered as: Nobody	Jan. 17, 2026, 11:49 p.m.
Skill Development for Sustainable Livelihoods Registered as: Nobody	Jan. 17, 2026, 11:12 p.m.

Campaign	Amount	Status	Date
Education for Every Child	₹ 50000.00	Success	Jan. 18, 2026, 10:34 p.m.
Education for Every Child	₹ 5000.00	Failed	Jan. 18, 2026, 10:33 p.m.
Skill Development for Sustainable Livelihoods	₹ 6000.00	Failed	Jan. 18, 2026, 1:17 a.m.

User dashboard (after login)

The screenshot shows the Django administration interface. The top navigation bar includes links for 'WELCOME, CODEENIGMA', 'VIEW SITE / CHANGE PASSWORD / LOG OUT'. The main content area is titled 'Site administration' and contains several sections: 'ACCOUNTS' (with 'Users' sub-section), 'AUTHENTICATION AND AUTHORIZATION' (with 'Groups' sub-section), 'CAMPAIGNS' (with 'Campaigns' sub-section), 'DONATIONS' (with 'Donations' sub-section), and 'REGISTRATIONS' (with 'Registrations' sub-section). Each section has 'Add' and 'Change' buttons. To the right, a sidebar displays 'Recent actions' and 'My actions' with a list of items, each with a delete icon and a link.

Admin Dashboard (Django Default authentication)

The screenshot shows the 'Select user to change' page for the 'users' model. At the top, there is a search bar with a magnifying glass icon and a 'Search' button. Below the search bar, there is an 'Action:' dropdown menu set to '-----', a 'Run' button, and a message indicating '0 of 4 selected'. The main table lists four users:

<input type="checkbox"/>	USERNAME	EMAIL	STAFF STATUS	ACTIVE	DATE JOINED
<input type="checkbox"/>	aurora	kaushik11064@gmail.com	✗	✓	Jan. 18, 2026, 1:21 a.m.
<input type="checkbox"/>	C0deEnigma	kaushik9261@gmail.com	✓	✓	Jan. 13, 2026, 9:08 p.m.
<input type="checkbox"/>	Jiangly	shivam_k3@ch.iitr.ac.in	✗	✓	Jan. 18, 2026, 4:25 a.m.
<input type="checkbox"/>	user1	none16094@gmail.com	✗	✓	Jan. 14, 2026, 11:39 p.m.

At the bottom left, there is a message '4 users'.

Admin (users)

Select campaign to change

ADD CAMPAIGN +

Action:	-----	Run	0 of 3 selected			
<input type="checkbox"/>	TITLE	GOAL AMOUNT	TOTAL DONATIONS (₹)	START DATE	END DATE	IS ACTIVE
<input type="checkbox"/>	Skill Development for Sustainable Livelihoods	4000000	20000.00	Jan. 13, 2026	Jan. 31, 2026	✓
<input type="checkbox"/>	Accessible Healthcare for Communities	5000000	21050.00	Jan. 13, 2026	-	✓
<input type="checkbox"/>	Education for Every Child	10000000	120000.00	Jan. 13, 2026	Jan. 28, 2026	✓

3 campaigns

Admin (campaigns) - Total aggregated amounts mentioned per campaign as mentioned in requirements of admin dashboard.

Select registration to change

ADD REGISTRATION +

Action: -----			Run	0 of 8 selected
<input type="checkbox"/>	NAME	USER	CAMPAIGN	CREATED AT
<input type="checkbox"/>	Nobody	user1	Education for Every Child	Jan. 18, 2026, 10:17 p.m.
<input type="checkbox"/>	Jiangly	Jiangly	Skill Development for Sustainable Livelihoods	Jan. 18, 2026, 7:44 a.m.
<input type="checkbox"/>	Jiangly	Jiangly	Accessible Healthcare for Communities	Jan. 18, 2026, 4:25 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Skill Development for Sustainable Livelihoods	Jan. 18, 2026, 2:35 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Education for Every Child	Jan. 18, 2026, 1:32 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Accessible Healthcare for Communities	Jan. 18, 2026, 1:23 a.m.
<input type="checkbox"/>	Nobody	user1	Accessible Healthcare for Communities	Jan. 17, 2026, 11:49 p.m.
<input type="checkbox"/>	Nobody	user1	Skill Development for Sustainable Livelihoods	Jan. 17, 2026, 11:12 p.m.

8 registrations

FILTER

Show counts

By campaign

- All
- [Skill Development for Sustainable Livelihoods](#)
- [Accessible Healthcare for Communities](#)
- [Education for Every Child](#)

By created at

Any date

- Today
- Past 7 days
- This month
- This year

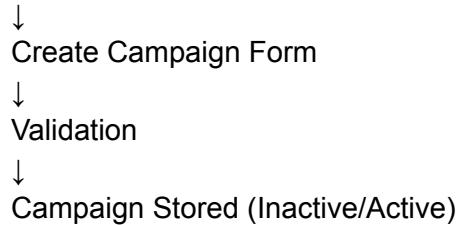
Admin (registrations for campaigns)

DONATIONS									
Donations		Run 0 of 15 selected							
	Action:	NAME	USER	CAMPAIGN	AMOUNT	PAYMENT STATUS	PAYMENT PROVIDER	TRANSACTION ID	CREATED AT
<input type="checkbox"/>	Nobody	user1	Education for Every Child	50000.00	Success	stripe_test	-		Jan. 18, 2026, 10:34 p.m.
<input type="checkbox"/>	Nobody	user1	Education for Every Child	5000.00	Failed	stripe_test	-		Jan. 18, 2026, 10:33 p.m.
<input type="checkbox"/>	Jiangly	Jiangly	Skill Development for Sustainable Livelihoods	500.00	Failed	stripe_test	-		Jan. 18, 2026, 7:44 a.m.
<input type="checkbox"/>	Jiangly	Jiangly	Accessible Healthcare for Communities	50.00	Success	stripe_test	-		Jan. 18, 2026, 4:40 a.m.
<input type="checkbox"/>	Jiangly	Jiangly	Accessible Healthcare for Communities	100.00	Failed	stripe_test	-		Jan. 18, 2026, 4:40 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Skill Development for Sustainable Livelihoods	10000.00	Success	stripe_test	-		Jan. 18, 2026, 2:36 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Skill Development for Sustainable Livelihoods	10000.00	Failed	stripe_test	-		Jan. 18, 2026, 2:35 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Education for Every Child	70000.00	Success	stripe_test	-		Jan. 18, 2026, 1:32 a.m.
<input type="checkbox"/>	Shivam Kaushik	aurora	Accessible Healthcare for	16000.00	Success	stripe_test	-		Jan. 18, 2026, 1:24 a.m.

Donations (Registrations for campaign) - Data can be exported to csv, as mentioned in the requirements of admin dashboard.

4.2 Campaign Creation Flow

Admin Dashboard



CAMPAIGNS	
Campaigns	+ Add
user1 500.00 Pending	Change
user1 500.00 Pending	Change
Jiangly 100.00 Pending	Change
Jiangly 10.00 Pending	Change
aurora → Skill Development for Sustainable Livelihoods Registration	Change
user1 40000.00 Pending	Change
user1 5000.00 Pending	Change
Education for Every Child Campaign	Change
Accessible Healthcare for Communities Campaign	Change
Skill Development for Sustainable Livelihoods	Change

Django administration

Home > Campaigns > Campaigns > Add campaign

Add campaign

Title:

Description:

Goal amount:

Start date: Today Note: You are 3.5 hours ahead of server time.

End date: Today Note: You are 3.5 hours ahead of server time.

Is active

Image: No file chosen

Created at: -

Total Donations (₹): -

4.3 Donation Process Flow

Donor Login

↓

Browse Campaigns

↓

Select Campaign

↓

Register for Campaign

↓

Enter Amount

↓

Submit Donation

↓

Donation Record Saved

↓

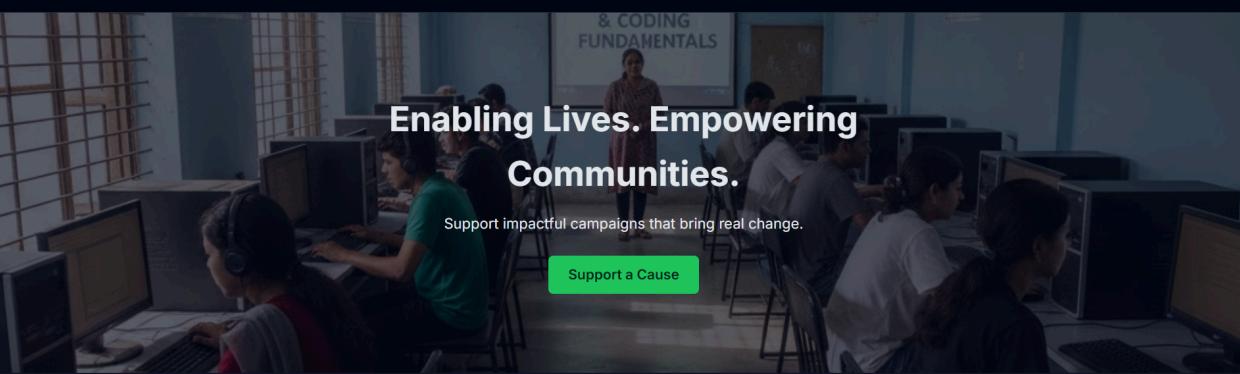
Campaign Amount Updated

4.4 Sequence Diagram (Donation)

Donor → Campaign Page → Registration Page → Donation Form → View

View → Donation Model → Database

Database → View → Confirmation Page



Enabling Lives. Empowering Communities.

Support impactful campaigns that bring real change.

[Support a Cause](#)

Our Campaigns



Go to campaigns from nav bar



Skill Development for Sustainable Livelihoods

This campaign focuses on equipping individuals with practical and employable skills to enhance livelihood opportunities. Training programs are designed to improve technical, vocational, and soft ...

Goal: ₹ 4000000

Status: Active

[View Campaign](#)



Accessible Healthcare for Communities

This campaign is dedicated to providing essential healthcare services to underserved populations. The initiative supports medical camps, preventive care, and access to basic treatment facilities ...

Goal: ₹ 5000000

Status: Active

Click view campaign to go to detailed page of a campaign

The screenshot shows the NGO Platform dashboard. At the top, there's a navigation bar with links for 'Campaigns', 'About Us', and 'Contact'. On the right, it says 'Logged in as C0deEnigma' with a 'Logout' button. Below the navigation, there's a summary card with the following details:

Goal Amount	₹ 5000000
Start Date	Jan. 13, 2026
End Date	None

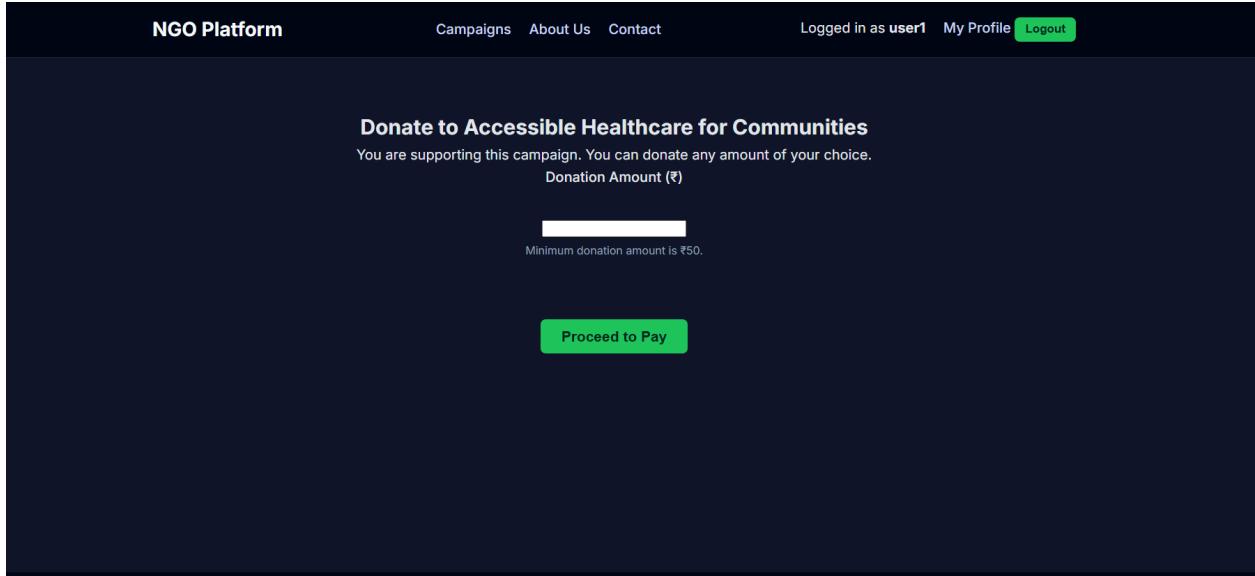
Below this card, the word 'Description' is bolded. Underneath, there's a paragraph of text about the campaign's purpose: "This campaign is dedicated to providing essential healthcare services to underserved populations. The initiative supports medical camps, preventive care, and access to basic treatment facilities for individuals who lack adequate healthcare resources. Our goal is to improve overall well-being and ensure timely medical support for those in need." A green 'Register' button is located at the bottom right of this section.

Click Register for registering for a campaign

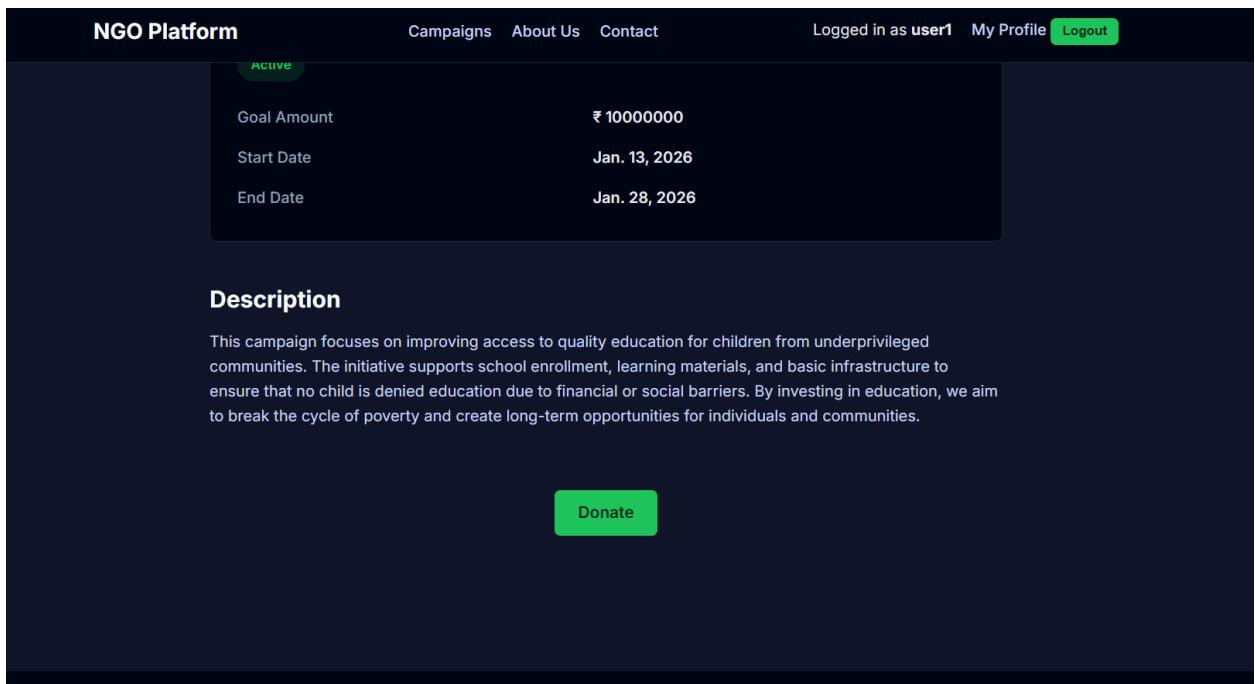
The screenshot shows a modal window titled 'Register for Campaign' in large white font. Below the title, the campaign name 'Accessible Healthcare for Communities' is displayed in bold black font. A descriptive paragraph follows, stating: "This campaign is dedicated to providing essential healthcare services to underserved populations. The initiative supports medical camps, preventive care, and access to basic treatment facilities for individuals who lack adequate healthcare resources. Our goal is to improve overall well-being and ensure timely medical support for those in need."

Inside the modal, there's a form field labeled 'Your Name (optional)' with a placeholder 'Leave blank for anonymous registration'. At the bottom of the modal are two buttons: a green 'Confirm Registration' button and a grey 'Cancel' button.

Fill your name and confirm registration (Anonymous registrations are allowed)



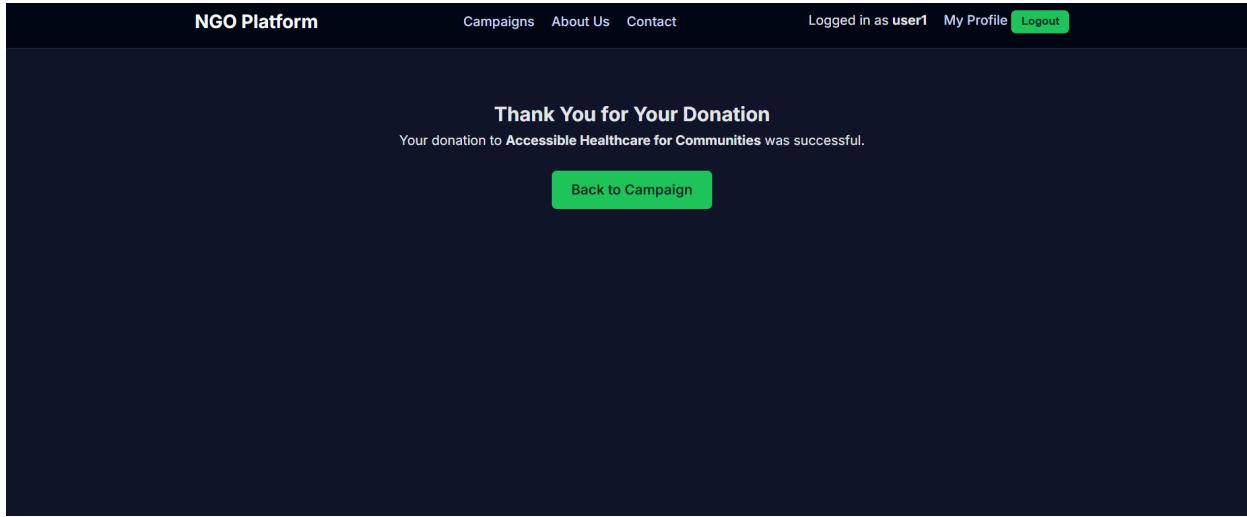
You will be redirected to the donations page once the registration is complete. After completion of registration, there will be option for donation on campaigns details page as well, as shown in image below -



Then, you will be redirected to the mock payment gateway (stripe).
 For successful transaction use card details - 4242 4242 4242 4242 and any future expiry and any cvc.

If you abort the payment, you will be redirected to a page where you get the option to retry payment -

If the payment is successful, you will be redirected to payment success page -



5. Key Design Decisions (Elaborated)

5.1 Django Framework Selection

- Rapid development with built-in authentication
- Secure defaults (CSRF, XSS protection)
- Scalable architecture suitable for NGO platforms

5.2 Role-Based Access Control

- Different dashboards and permissions for Admin and Donor
- Prevents campaign creation or approval for users other than Admins

5.3 Campaign-Centric Donation Model

- All donations are linked to campaigns
- Enables accurate reporting and transparency

5.4 Media Handling

- Campaign images improve donor engagement
- Django's MEDIA_ROOT used for file handling

6. Assumptions (Detailed)

1. **Database:** SQLite is used during development; switched to MySQL for higher scalability.
 2. **Payments:** Donation records assume external payment confirmation or mock payments using Stripe.
 3. **Security:** Django's default middleware stack is enabled.
 4. **Scalability:** System is designed for higher traffic, with future horizontal scaling possible.
-

7. Future Enhancements

- REST API using Django REST Framework
 - Real payment gateway integration instead of mock-up
 - E-mail authentication during sign-up
 - Deployment
-

8. Conclusion

The NGO Donation Management System demonstrates a **clean, modular, and scalable Django architecture**. With clearly separated concerns, well-defined data relationships, and extensibility in mind, the system provides a strong foundation for real-world NGO fundraising and management platforms.