CROWDFUNDING

MINOR PROJECT REPORT

Submitted by

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BACHELOR OF ENGINEERING

in

Information Technology

College of Technology

Silver Oak College of Engineering & Technology

SILVER OAK UNIVERSITY

EDUCATION TO INNOVATION

Silver Oak University, Ahmedabad

October, 2024

Silver Oak College of Engineering & Technology
Opp. Bhagwat Vidhyapith, S.G. Highway, Ahmedabad-382481

CERTIFICATE

This is to certify that the Minor Project report submitted along with the Internship entitled **CROWDFUNDING** has been carried out by **Amipara Mitkumar** under my guidance in partial fulfillment for the Bachelor of Engineering in Information Technology, 7th Semester of Silver Oak University, Ahmedabad during the academic year 2024-25.

Prof. Naimish Patel
Internal Guide

Head of the Department

Silver Oak College of Engineering & Technology
Opp. Bhagwat Vidhyapith, S.G. Highway, Ahmedabad-382481

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DECLARATION

We hereby declare that the Minor Project report submitted along with the Project entitled **CROWDFUNDING** submitted in partial fulfillment for the Bachelor of Engineering in Information Technology to Silver Oak University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof . Naimish Patel,** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student	Sign of Student
Amipara Mitkumar	

Silver Oak College of Engineering & Technology
Opp. Bhagwat Vidhyapith, S.G. Highway, Ahmedabad-382481

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Name of the Student	Sign of Student
Gami Meet	

ACKNOWLEDGEMENT

I would like to take this opportunity to express my sincere gratitude and appreciation to those who have supported me throughout the journey of completing my Minor Project. I am acutely aware that I did not reach this point entirely on my own. First and foremost, I would like to thank my Internal guide, **Prof. Naimish Patel,** for their invaluable guidance and feedback throughout the project's development. Their expertise and mentorship were instrumental in steering me in the right direction and ensuring the project's success.

I extend my heartfelt thanks to the faculty members and instructors at **Silver Oak University** for providing a robust educational foundation and creating an environment conducive to independent research and learning. Their dedication to academic excellence has been an inspiration.

Last but not the least, I would like to acknowledge the support and understanding of my friends and family. Their encouragement, patience, and belief in my abilities motivated me to persevere through the challenges and obstacles encountered during this internship.

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ABSTRACT

This project explores the design, development, and deployment of a crowdfunding platform, leveraging the capabilities of modern web technologies such as React.js and Node.js Crowdfunding has transformed how individuals and organizations fund initiatives, allowing creators to raise capital directly from supporters without traditional financial intermediaries. The project presents a comprehensive, user-centric platform that enables users to create, promote, and manage campaigns while facilitating secure and transparent transactions. Key features include user authentication, project categorization, real-time updates, and dynamic progress tracking. Additionally, the platform implements backend optimizations for scalable data handling and secure payment processing, ensuring an efficient user experience even under high traffic. This project demonstrates how crowdfunding platforms can democratize funding opportunities and highlights the critical role of technology in supporting innovative financing models.

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CHAPTER 1
INTRODUCTION

1.1 Overview of the Report

This report outlines the development of a crowdfunding platform aimed at facilitating funding for creative and innovative projects. It covers the design, development, and implementation of the platform, with a focus on creating a secure, user-friendly, and scalable experience for users. Built using Node.js and JavaScript, the project delivers a functional platform where users can create, promote, and support campaigns, with real-time funding progress tracking and seamless transaction processes. Key challenges included ensuring secure payment processing and data handling, which were addressed to enhance user trust. The final platform aligns with crowdfunding goals, with potential for future feature expansion and optimizations to support a growing user base.

1.2 PURPOSE

The purpose of this report is to document the entire process of developing a crowdfunding platform, from initial planning to final implementation. It aims to provide a comprehensive understanding of the project's objectives, which include creating a secure, user-friendly, and scalable platform for funding and promoting projects. The report details key design and technical decisions, such as the use of Node.js and JavaScript to enable real-time updates and secure transactions. Additionally, it highlights challenges encountered during development, like ensuring data security and smooth user navigation, and discusses how these issues were addressed. The report concludes with recommendations for potential future enhancements, such as advanced user analytics and additional payment options, to improve the platform's functionality and user experience.

1.3 OBJECTIVE

The objective of this report is to provide a detailed account of the development process of the crowdfunding platform. It explains how the platform was designed and built to meet the needs of both project creators and supporters. The report focuses on key decisions made regarding the platform's design, technology, and functionality, such as utilizing Node.js and JavaScript for real-time updates and secure transactions, and ensuring the platform is scalable and user-friendly. Additionally, it evaluates how the platform aligns with its goal of democratizing funding by improving access to capital for creators and offering an intuitive experience for backers. The report also addresses challenges faced during development, such as ensuring data security and optimizing payment processing, and discusses the strategies implemented to overcome them.

1.4 SCOPE

- **Design and Development:** The report covers the design and development phases of the crowdfunding platform, including user interface design, choice of technologies (Node.js and JavaScript), and implementation of secure payment processing and real-time campaign tracking features.

- **Features and Functionality:** It details the core features of the platform, such as campaign creation, user registration, progress tracking, and secure donation processing.

- **User Experience:** The scope includes an analysis of user experience (UX) considerations, focusing on ease of navigation, accessibility, and ensuring a seamless experience on both desktop and mobile devices.

- **Testing:** The report discusses the testing phase, including performance and security testing to ensure the platform operates efficiently and securely across multiple devices and browsers.

- **Exclusions:** The report does not cover post-launch marketing efforts, ongoing content updates, or future feature enhancements beyond the current project scope.

1.5 TECHNOLOGY AND LITERATURE REVIEW

This section of the report explores the tools, frameworks, and technologies employed in the development of the crowdfunding platform. The platform was built using Node.js and JavaScript, which provided the flexibility, scalability, and real-time capabilities necessary to support dynamic campaign updates and secure transactions.

Technology Overview:

This section outlines the key technologies used in the development of the crowdfunding platform:

- **Backend Framework:** The platform was built using Node.js, chosen for its scalability and real-time capabilities, enabling secure and efficient handling of user requests and transactions.

- **Frontend Development:** JavaScript, HTML5, and CSS3 were used to create a responsive, interactive design that works seamlessly across devices, ensuring a user-friendly experience.

- **Payment Integration:** Secure payment gateways are integrated to handle transactions safely, ensuring data encryption and user trust.

- **Security Measures:** SSL/TLS encryption and authentication protocols were implemented to protect user data and ensure secure access.

- **Real-Time Functionality:** WebSockets or similar technologies were used for real-time campaign updates, enhancing engagement and transparency.

Literature Review:

- **User Experience (UX) Best Practices:** Research highlights the need for intuitive navigation, fast load times, and clear calls-to-action. For crowdfunding platforms, easy campaign creation and smooth donation processes are crucial for user engagement.

- **Security and Trust:** Studies emphasize the importance of secure payment systems and data encryption to build trust, especially for financial transactions.

- **Real-Time Updates:** Real-time campaign updates are essential for keeping backers informed and engaged, encouraging continued support.

- **SEO and Visibility:** Effective SEO practices, such as keyword optimization, improve visibility and help crowdfunding campaigns reach a broader audience.

CHAPTER 2
Website Performance Analysis

2.1 Page Load Speed

- **User Experience:** Fast-loading websites reduce user frustration and decrease the likelihood of users abandoning the site.

- **SEO Rankings:** Search engines like Google prioritize faster websites in rankings, enhancing the platform's visibility.

- **Mobile Users:** With more users on mobile, quick load times are essential to meet expectations for limited bandwidth and smaller screens.

2.2 Mobile Responsiveness

- **Adapts to All Screen Sizes:** The platform's layout and content automatically adjust for smartphones, tablets, and desktops.

- **Enhanced User Experience:** Provides a smooth, intuitive experience across all devices.

- **Mobile-Friendly Design:** Optimized images, fonts, and navigation for smaller screens improve usability.

- **Faster Load Times:** Mobile-specific optimizations reduce load times, boosting performance on mobile networks.

- **Increased Engagement:** Ensures all features are fully accessible on mobile, supporting user interaction without limitations.

2.3 Performance Optimization Recommendations

- Image Compression: Use tools like Tiny PNG to compress images without quality loss, improving load times.
- Implement Caching: Apply browser and server-side caching to reduce load times for returning users.
- Leverage CDN: Use a CDN to distribute content across global servers for faster delivery.
- Minify Code: Minify and combine CSS, JavaScript, and HTML to reduce file size and HTTP requests.
- Optimize Hosting: Evaluate hosting services regularly to ensure responsive performance, especially under high traffic.
- Reduce Redirects: Minimize redirects to prevent unnecessary load time increases.
- Enable Lazy Loading: Load media only as it enters the viewport to speed up initial page loads.
- Regular Monitoring: Use tools like Google PageSpeed Insights to track and optimize performance.
- Optimize Web Fonts: Limit font types and weights to essential options to reduce their impact on load speed.

CHAPTER - 3

SEO Analysis

3 SEO Analysis

3.1On-Page SEO:

Figure 3.1 On Page Seo Structure

3.2Timeline Chart:

	June	July	August	September	October
Gathering the information					
Research					
Analysis					
Design & coding					
Testing & validation					

Table 1.1 Time Line Chart

3.3 Activity Diagram

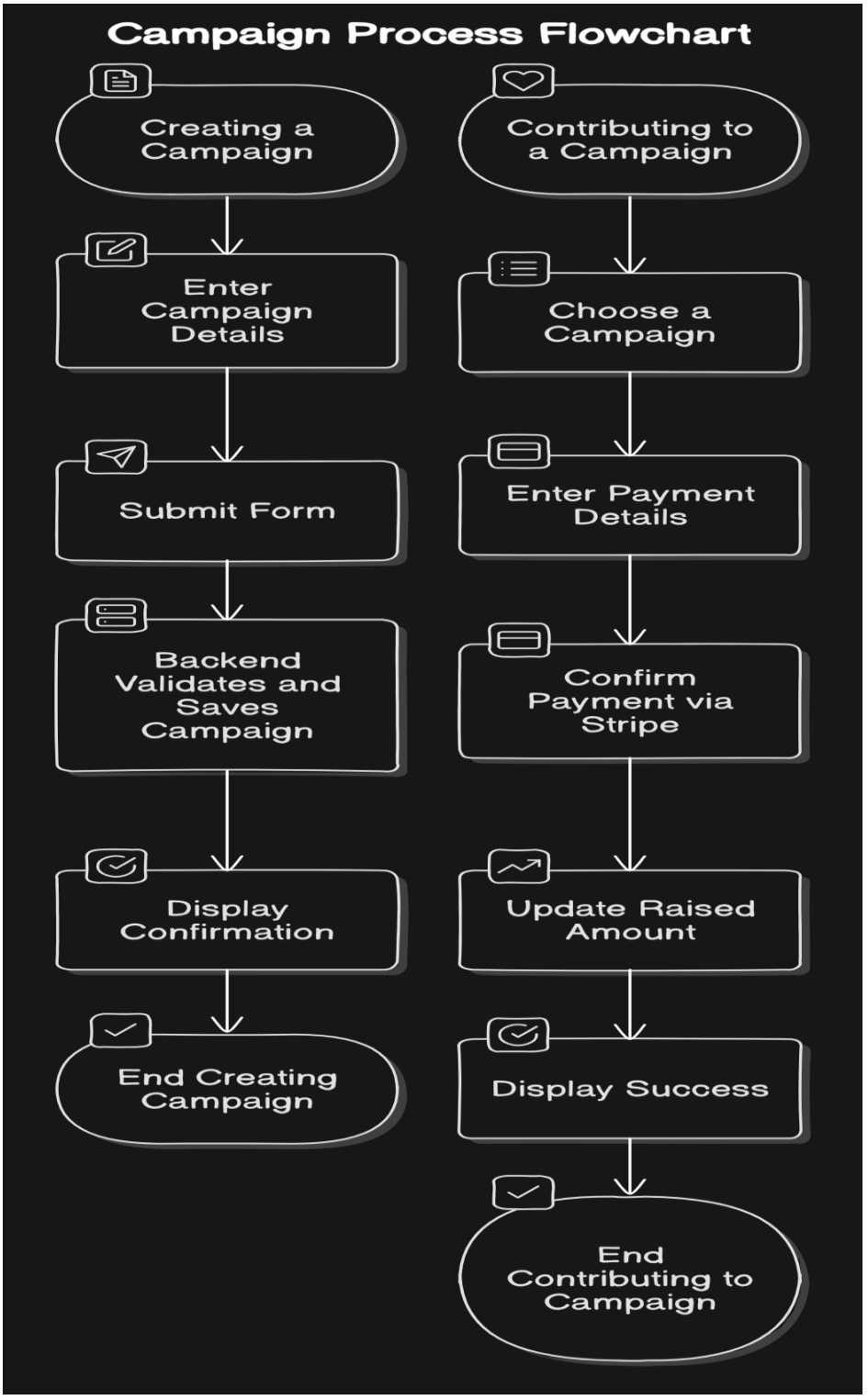

Figure 3.3 Activity Diagram

3.4 Class Diagram

Figure 3.4 Class Diagram

3.5 Data Flow Diagram

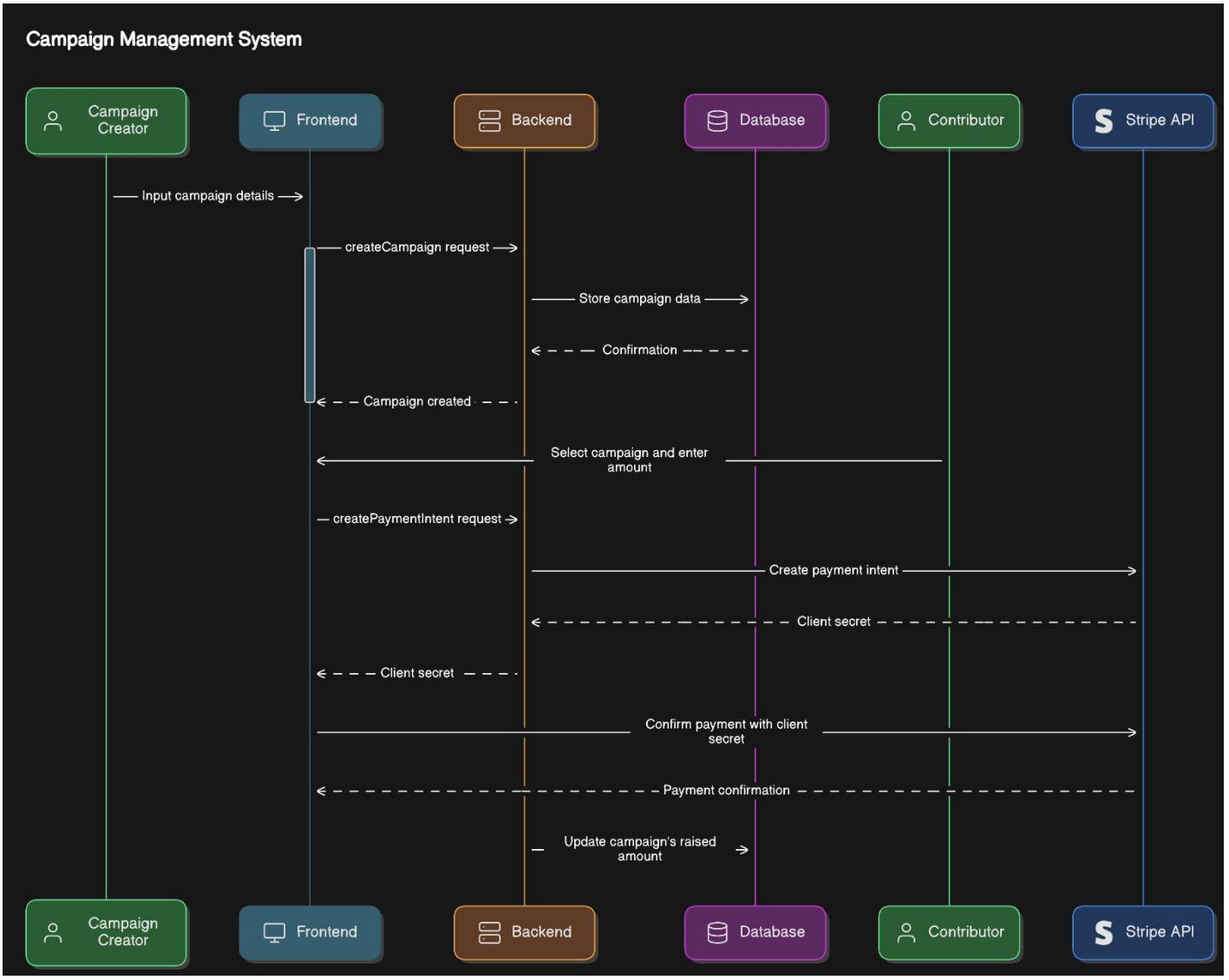

Figure 3.5 Data Flow Diagram

3.6 Use Case Diagram

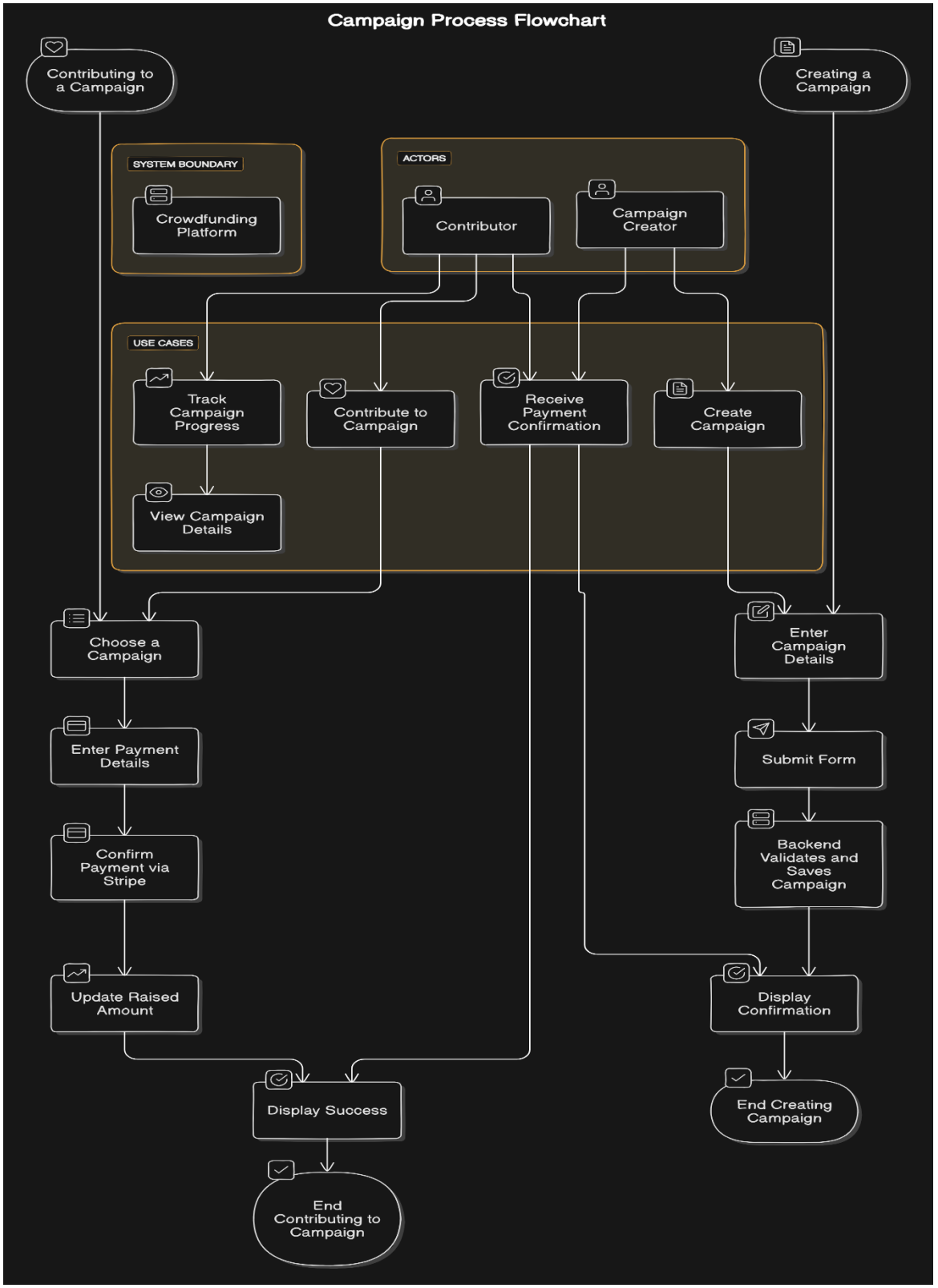

Figure 3.6 Use Case Diagram

CHAPTER – 4

IMPLEMENTATION

4.1 Home Page

Figure 4.1 Home Page Design

4.2 List Display

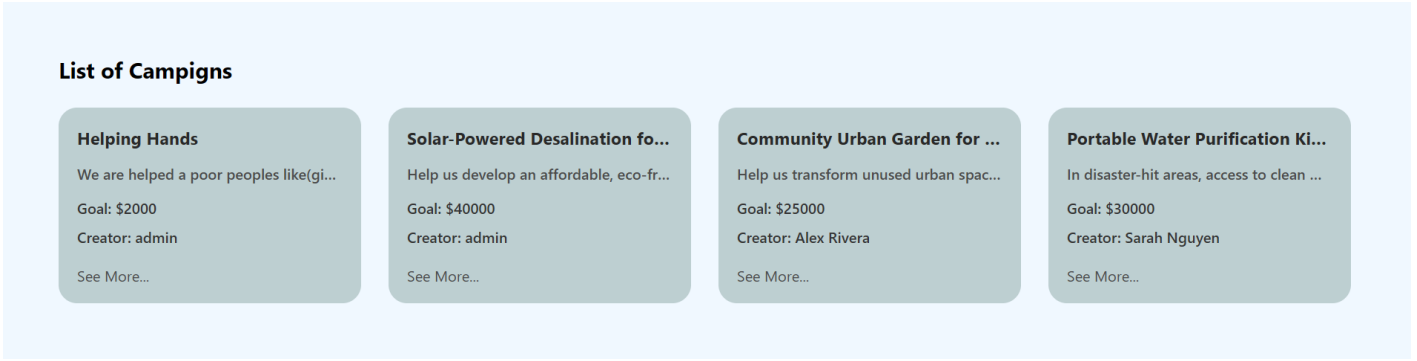

Figure 4.2 List of Campaigns

4.3 Contact

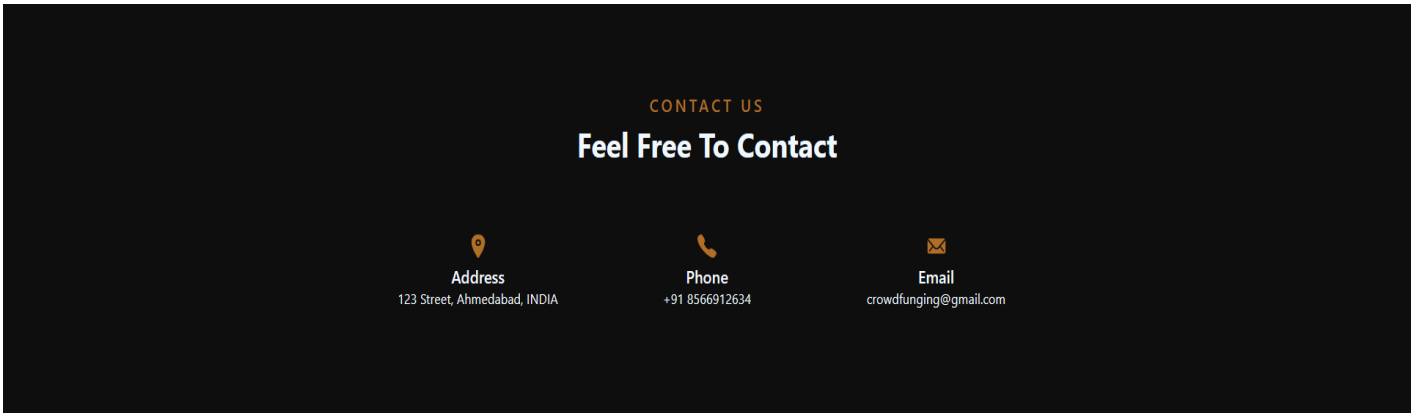

Figure 4.3 Footer page of Website

4.4 Campaign

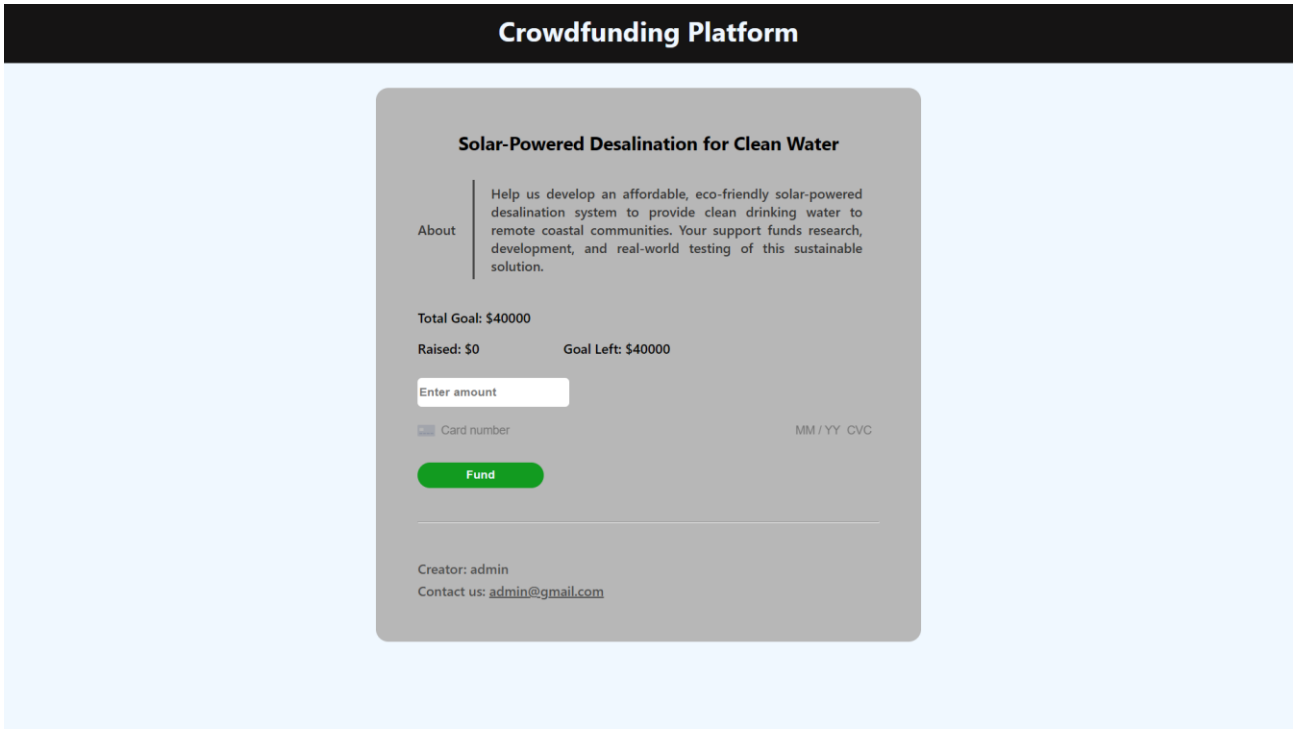

Figure 4.4 View Single Campaigns

CHAPTER – 5

TESTING

1. TESTING PLAN:

Functional Testing

- **Feature Testing:** Verify that all platform features, such as campaign creation, donation processing, and user registration, function as intended.

- **Navigation and Links:** Test all links, buttons, and navigation paths to ensure they direct users to the correct pages.

- **Usability Testing:** Assess ease of navigation and user-friendly design to confirm a smooth user experience.

Performance Testing:

- **Page Load Speed:** Test load times to ensure the platform performs efficiently on both desktop and mobile.

- **High Traffic Simulation:** Simulate heavy user activity to verify the platform's ability to handle multiple users simultaneously.

- **Lazy Loading:** Confirm lazy loading is applied to media for optimized initial loading and improved performance.

Compatibility Testing:

- **Browser and Device Compatibility:** Verify that the platform functions correctly on major browsers (Chrome, Firefox, Safari) and devices (mobile, tablet, desktop).

- **Operating System Compatibility:** Test on various operating systems, including Windows, macOS, Android, and iOS, to ensure consistent performance across platforms.

Security Testing:

- **SSL Encryption:** Confirm that SSL encryption is enabled to secure data transmission.

- **Vulnerability Protection:** Test for protection against common threats like SQL injection.

Accessibility Testing:

- **WCAG Compliance:** Ensure the platform complies with WCAG guidelines to meet accessibility standards.

- **Keyboard and Screen Reader Compatibility:** Test for keyboard navigation and screen reader support to ensure the platform is accessible to users with disabilities.

Content Testing:

- **Spelling and Grammar:** Verify correct spelling, grammar, and consistency in branding across the platform.

- **Accuracy of Information:** Ensure all content, including campaign details, funding goals, and user instructions, is accurate and up-to-date.

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CONCLUSION

6.1 OVERALL ANALYSIS OF PROJECT VIABILITIES

The crowdfunding platform project is highly viable, combining strong technical, operational, and market considerations to create a secure, user-friendly platform that enhances campaign visibility and supports project creators. By utilizing modern web technologies like Node.js and JavaScript, optimizing for SEO, ensuring payment security, and providing real-time updates, the platform is well-positioned to meet both user and business needs. With low initial development costs and the potential for significant user growth, this project offers promising returns on investment and stands to contribute positively to the crowdfunding ecosystem in the long term.

6.2 DATES OF CONTINUES EVALUTION

1st Internal Project Review Record				
Presentation Time	From	9:00 AM	To	9:30 AM
Presentation Date	Date	19-09-2024	-	-

Table 2.1: 1st Project Review

2nd Internal Project Review Record				
Presentation Time	From	2:30 PM	To	2:45 PM
Presentation Date	Date	25-10-2024	-	-

Table 2.2: 2st Project Review

6.3 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

- **Slow Page Load Speed:**
Solution: Implement caching, optimize JavaScript/CSS, and use a CDN to improve load times.

- **Mobile Responsiveness Issues:**
Solution: Use responsive design and test across multiple devices to ensure proper display.

- **Security Vulnerabilities:**
Solution: Use SSL encryption, update the platform's dependencies, and run regular security scans to prevent threats.

- **Content Management Challenges:**
Solution: Use CMS solutions and automation tools for managing content and ensuring smooth updates.

- **SEO Optimization Issues:**
Solution: Conduct keyword research, optimize content, and focus on SEO best practices to improve search rankings.

- **Browser Compatibility Issues:**
Solution: Test the platform across multiple browsers and ensure CSS prefixes for compatibility.

- **Customer Experience Issues:**
Solution: Conduct usability testing, enhance CTAs, and improve navigation for better user experience.

- **Online Payment Integration:**
Solution: Ensure proper configuration of payment gateways and test transactions for secure processing.

- **Lack of Real-Time Updates:**
Solution: Implement real-time campaign progress updates and integrate with back-end systems for instant tracking.

- **Lack of Analytics Integration:**
Solution: Integrate Google Analytics or other tracking tools to monitor user behavior and improve platform performance.

6.4 SUMMARY OF PROJECT WORK

The crowdfunding platform project aims to create a secure, user-friendly online space that enhances user engagement and supports successful campaigns. The platform is designed to be fully responsive, ensuring smooth performance on desktops, tablets, and smartphones. Key features include campaign creation, real-time progress tracking, secure donation processing, and user-friendly navigation. SEO optimization is implemented to increase campaign visibility, while performance enhancements ensure fast load times. Security measures such as SSL encryption and secure payment gateways protect user data and transactions. Overall, the platform provides a reliable and efficient environment for campaign creators and backers.

6.5 LIMITATION AND FUTURE ENHANCMENT

The crowdfunding platform has some limitations, including limited third-party integrations, basic analytics, scalability challenges during high traffic periods, manual campaign updates, and no multi-language support. Future enhancements could involve integrating with more payment gateways, implementing advanced analytics for better user insights, improving scalability through cloud hosting, automating content updates, and adding multi-language support. Additionally, integrating with more platforms and expanding features like donor management and reporting tools would further improve the user experience. These improvements would ensure the platform remains competitive and continues to provide value in the long term.

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2. **Kickstarter. (2024).** *About Kickstarter.* Available at: https://www.kickstarter.com

3. **Crowd Supply. (2024).** *Crowdfunding Electronics, Hardware, and Product Design.* Available at: https://www.crowdsupply.com

TECHNOLOGY

1. **React.js:** https://react.dev
2. **Node (Express.js):** https://expressjs.com
3. **MongoDB:** https://www.mongodb.com/docs
4. **Strapi API:** https://docs.stripe.com