



Tribhuvan University

Faculty of Computer Science & Information Technology
Kirtipur, Kathmandu

A FINAL YEAR PROJECT REPORT

ON

Naya Aasha

For the partial fulfillment of the requirements for the Bachelor's Degree in
Computer Science and Information Technology under Tribhuvan University

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Submitted to

Chitwan College of Technology

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SUPERVISOR’S RECOMMENDATION

I hereby recommend that this project prepared under my supervision by Mr. Ankit Poudel Ms. Ankita Dhital and Ms. Nikita Sharma entitled “Naya Aasha” subjected to a platform for orphanage management and charity coordination for the fulfillment of the requirements for the degree of four years Bachelor Degree in Computer Science and Information Technology be processed for the evaluation.

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This project is the result of collective efforts, and we are profoundly thankful to everyone who has contributed directly or indirectly to its completion. We sincerely appreciate all the guidance, support, and motivation we have received, and we hope that this project serves as a testament to the collaborative efforts and dedication of all involved.

Team Members of “Naya Aasha - A Orphanage Connecting Platform” Project:

- Ankit Poudel
- Ankita Dhital
- Nikita Sharma

ABSTRACT

Naya Aasha is an innovative online platform designed to streamline orphanage management and enhance charity coordination. By bridging the gap between donors, orphanages, and volunteers, Naya Aasha empowers users to contribute meaningfully to the welfare of children in need. The platform offers features such as orphanage profiles, donation tracking, volunteer registration, and event management, fostering transparency and accountability in charitable activities. Through an intuitive interface and secure functionalities, users can effortlessly connect with orphanages, make contributions, and participate in charitable initiatives. Additionally, Naya Aasha ensures informed decision-making by providing consistent and accurate information about ongoing activities and campaigns.

This project report aims to comprehensively analyze Naya Aasha's features and its impact on orphanage management and charity coordination, encompassing system analysis, design, development, and testing phases. Furthermore, it explores the platform's core components, including its database architecture, user-friendly interface, and the application of the Waterfall development methodology. By examining Naya Aasha's algorithms and testing processes, this report guarantees the platform's reliability and effectiveness.

In conclusion, this project report seeks to provide a holistic understanding of Naya Aasha and its potential to transform orphanage management and charity coordination, while also discussing limitations and proposing future enhancements.

Contents

SUPERVISOR’S RECOMMENDATION.....	i
ABSTRACT.....	iii
LIST OF ABBREVIATION.....	vi
LIST OF TABLES.....	vii
LIST OF FIGURES.....	viii
CHAPTER 1: INTRODUCTION.....	9
1.1 Introduction.....	9
1.1.1 Problem Statement.....	9
1.2 Objectives.....	9
1.3 Scope and Limitation.....	9
1.4 Development Methodology.....	10
1.4.1 Development Methodology Chosen for This Project.....	10
1.6 Report Organization.....	11
Chapter 1: Introduction.....	11
Chapter 2: Background Study & Literature Overview.....	11
Chapter 3: System Analysis & Design.....	11
Chapter 4: Implementation and Testing.....	11
Chapter 5: Conclusion and Future Recommendations.....	12
Chapter 6: References.....	12
CHAPTER 2: BACKGROUND STUDY.....	13
2.1. Background Study.....	13
2.1.1. Introduction.....	13
2.1.2. Current State of the Industry.....	13
2.1.3. Major Players in the Industry.....	13
2.1.4. Challenges Faced by the Sector.....	13
2.1.5. Conclusion.....	14
2.2. Literature Review.....	14
2.2.1. Introduction.....	14
2.2.2. Review of Similar Projects.....	14
2.2.3. Theories.....	14
2.2.4. Results.....	14
2.2.5. Conclusion.....	14
Chapter 3: System Analysis and Design.....	16
3.1. System Analysis.....	16
3.1.1. Requirement Analysis.....	16
3.1.1.1. Functional Requirements.....	16
3.1.1.2. Use Case Diagram.....	18

3.1.1.3. Non-Functional Requirements.....	19
3.1.2 Feasibility Study.....	19
3.1.2.1 Technical Feasibility.....	19
3.1.2.2 Operational Feasibility.....	19
3.1.2.3 Economic Feasibility.....	19
3.1.2.4 Schedule Feasibility.....	19
Fig: 3.1.2.4. Gantt Chart.....	20
3.1.2 Analysis.....	21
3.1.2.1 System Architecture and Overview.....	21
3.1.2.1.1 Flowchart.....	22
3.1.2.1.2.1 Class Diagram.....	23
3.1.2.1.1. Sequence Diagram.....	24
Volunteer registration sequence diagram.....	24
CHAPTER 4: IMPLEMENTATION AND TESTING.....	25
4.1. Coding Tools.....	25
4.1.1. Front End.....	25
4.1.1.1. HTML, CSS, and JavaScript.....	25
4.1.1.2. Visual Studio Code.....	25
4.1.1.3. GitHub.....	25
4.1.2. Back End.....	25
4.1.2.1. PostgreSQL.....	26
4.1.2.2. Ruby on Rails.....	26
4.2. Testing.....	26
4.2.1. Unit Testing.....	26
Table 2: 4.2.1. Unit Testing.....	27
4.2.2. System Testing.....	28
CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS.....	29
5.1. Lessons Learnt.....	29
5.2. Conclusion.....	29
5.3. Future Recommendations.....	29
CHAPTER 6: REFERENCES.....	30

LIST OF ABBREVIATION

CSS	:	Cascading Style Sheet
HTML	:	Hyper Text Markup Language
DFD	:	Data Flow Diagram
SRS	:	Software Requirements Specification
GDP	:	Gross Domestic Product
TAM	:	Technology Acceptance Model
API	:	Application Programming Interface
AI	:	Artificial Intelligence

LIST OF TABLES

Table 1: 3.1.2.4. Gantt Chart

Table 2: 4.2.1. Unit Testing

Table 2: 4.2.2. System Testing

LIST OF FIGURES

Fig: 1.1.5. Waterfall Model

Fig: 3.1.1.2. Use case Diagram

Fig: 3.1.3.1.1. Flowchart

Fig: 3.1.2.1.2 Case Diagram

Fig: 3.1.3.1.3 State and Sequence State

Fig :3.1.3.1.4 Activity Diagram

CHAPTER 1: INTRODUCTION

1.1 Introduction

Naya Aasha is an online platform designed to assist users in connecting with orphanages, making donations, and coordinating charitable activities, enabling them to contribute meaningfully to society. This platform serves as a one-stop solution for donors, volunteers, and orphanage administrators seeking to find and manage resources based on their needs, events, and goals. While Naya Aasha specializes in offering a wide range of tools and essential information, it focuses on fostering transparency and trust, helping users make well-informed decisions about their contributions and participation in charitable initiatives.

1.1.1 Problem Statement

- Lack of a centralized platform for orphanage-related information and activities.
- Limited awareness about donation opportunities and ways to contribute effectively.
- Inconsistent information and lack of transparency in orphanage management and donation tracking across platforms.
- People are unaware of the various orphanages and charitable initiatives that need support, and there is a lack of clear information on how to contribute or volunteer effectively.

1.2 Objectives

The main objectives of this project are:

- To provide a centralized platform for orphanage-related information and activities.
- To increase awareness about donation opportunities and ways to contribute effectively.
- To enhance transparency in orphanage management and donation tracking.
- To bridge the gap between donors, volunteers, and orphanages.

1.3 Scope and Limitation

Naya Aasha is an essential online platform dedicated to enhancing orphanage management and streamlining charitable activities. Specializing in connecting donors, volunteers, and orphanages, it simplifies processes such as donation tracking, volunteer registration, and event coordination. The platform accommodates diverse user needs by providing detailed information about orphanage profiles, ongoing campaigns, and specific requirements, fostering transparency and trust. Naya Aasha ensures a user-friendly experience, empowering individuals to contribute effectively to the welfare of children. By bridging the gap between donors and orphanages, the platform serves as a vital tool for those committed to making a meaningful difference in society.

While Naya Aasha facilitates improved coordination, it primarily focuses on orphanage management and may not address broader charity domains. Additionally, the platform relies on accurate and timely updates from orphanage administrators, which may impact the reliability of real-time information. The success of donation drives and volunteer participation heavily depends on user engagement and awareness, which might require continuous promotional efforts.

1.4 Development Methodology

The development of Naya Aasha begins with a discovery phase to identify the key challenges faced by orphanages, donors, and volunteers, as well as user preferences for platform functionalities. The next step involves designing an intuitive, visually appealing UI/UX that highlights transparency, accessibility, and ease of navigation. The platform is then implemented using modern web technologies to ensure responsiveness and user-friendliness. Core features include orphanage profiles, donation tracking, volunteer registration, and event management tools. Rigorous testing is conducted to validate usability, performance, and compatibility across devices and browsers.

Post-launch, user feedback and platform performance are monitored to drive continuous improvement. This iterative approach ensures that Naya Aasha remains a reliable and impactful tool for orphanage management and charitable activities, adapting effectively to evolving user needs and market dynamics.

1.4.1 Development Methodology Chosen for This Project

The development methodology selected for this project is the **Waterfall Development Methodology**. This methodology was chosen because it provides a structured and logical flow for the project process. Each phase must be completed before the next phase begins, ensuring a clear progression from start to finish. It is widely used in software development and is easy to understand and implement.

One of the advantages that will benefit this project is that the Waterfall model works effectively for projects where requirements are well understood. The methodology allows for clear departmentalization and control over each phase. Additionally, the project cost and timeline can be estimated accurately once all requirements are gathered and defined.

The Waterfall methodology for Naya Aasha includes the following phases:

- **Requirements Gathering:** Identifying platform requirements and creating a comprehensive Software Requirements Specification (SRS) document, including features like donation tracking, volunteer registration, and orphanage profiles.
- **Design:** Developing the software architecture and detailed system design based on the gathered requirements, focusing on a user-friendly interface and a robust database structure.
- **Implementation:** Developing the platform according to the design specifications using modern web technologies, ensuring responsiveness and functionality.
- **Testing:** Conducting rigorous testing to validate usability, performance, and compatibility, ensuring the platform meets functional and non-functional requirements.

- **Deployment:** Launching the platform and making it available to orphanages, donors, and volunteers.
- **Maintenance:** Monitoring and updating the platform as needed to ensure it continues to meet the needs of all stakeholders, adapting to user feedback and evolving requirements.

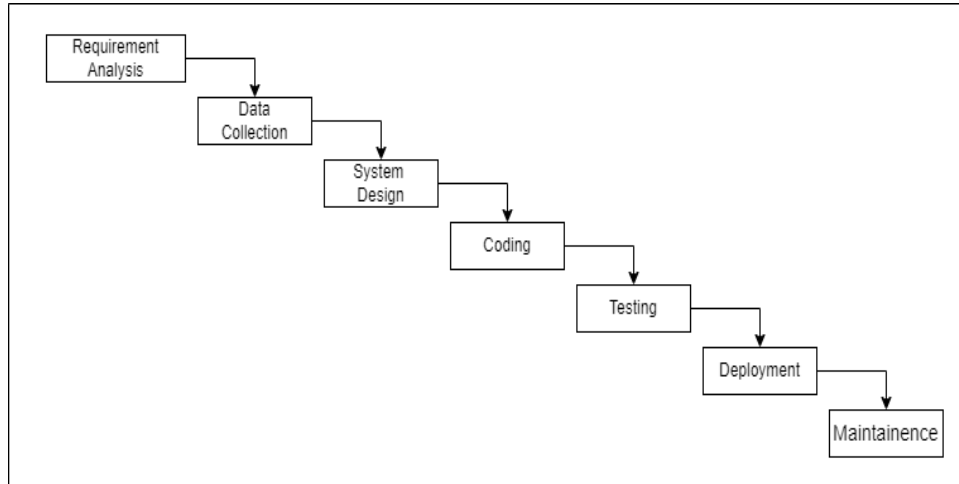


Fig: 1.5.1. Waterfall Model

1.6 Report Organization

The chapter plan for this project report is structured as follows:

Chapter 1: Introduction

This chapter provides a brief introduction to Naya Aasha. It also discusses the problem definition, the objectives of the project, its scope, and limitations.

Chapter 2: Background Study & Literature Overview

This chapter includes a review of the domain of orphanage management and charity coordination, current challenges faced in this area, and an overview of existing solutions. It encompasses studies of existing systems and projects from sources such as internet blogs, websites, project reports, books, and journals.

Chapter 3: System Analysis & Design

This chapter involves a detailed study of the requirements and goals of the platform and the design of systems and procedures to achieve them efficiently. It includes the requirement specifications and feasibility analysis conducted during project initiation. This chapter also features diagrams such as Data Flow Diagrams (DFD), Database Schemas, Flowcharts, Class Diagrams, and State and Sequence Diagrams.

Chapter 4: Implementation and Testing

This chapter highlights the software, tools, and technologies used for developing Naya Aasha. It also details the implementation process and various tests conducted to ensure the system's functionality, reliability, and performance.

Chapter 5: Conclusion and Future Recommendations

This chapter summarizes the project's overall conclusions and discusses potential future enhancements to improve the platform's functionality and user experience.

Chapter 6: References

This section lists all references cited throughout the project report, including journals, books, websites, and other relevant sources.

CHAPTER 2: BACKGROUND STUDY

2.1. Background Study

2.1.1. Introduction

The charitable sector plays a vital role in addressing societal challenges, with a particular focus on providing support and resources to vulnerable populations such as orphans. However, the lack of an integrated platform for managing donations, volunteer participation, and orphanage needs often leads to inefficiencies and missed opportunities for collaboration. This report seeks to explore the landscape of orphanage management and charitable platforms, analyzing the current state of the sector, key participants, and the challenges they face.

2.1.2. Current State of the Industry

Orphanages across the globe, including those in Nepal, face difficulties in resource management, volunteer coordination, and maintaining transparency. Many rely on traditional methods for organizing campaigns and seeking donations, which limits their reach and efficiency. Efforts to improve these processes include the adoption of digital tools for managing resources, promoting transparency, and fostering donor trust. However, the lack of a centralized system hampers these initiatives, leaving many orphanages underserved and underfunded.

2.1.3. Major Players in the Industry

Several organizations and platforms are working to bridge the gap between donors and orphanages. Globally recognized charities like UNICEF and Save the Children provide large-scale support, while smaller, community-focused initiatives directly assist individual orphanages. Digital platforms like GoFundMe and Benevity help streamline fundraising efforts, but often lack tailored features for orphanage management. In Nepal, grassroots organizations play a crucial role in mobilizing resources and raising awareness about the needs of orphaned children.

2.1.4. Challenges Faced by the Sector

The orphanage management sector faces numerous challenges, including:

- **Limited Resources:** Many orphanages lack the funds and infrastructure necessary for effective operations.
- **Transparency Issues:** Donors often hesitate due to concerns about how their contributions are utilized.
- **Lack of Awareness:** Potential donors and volunteers are often unaware of the specific needs and ongoing campaigns of orphanages.
- **Technological Barriers:** Many organizations lack access to digital tools that can simplify resource management and enhance outreach.
- **Sustainability Concerns:** Maintaining long-term support and scaling operations remain significant hurdles.

2.1.5. Conclusion

A centralized platform like Naya Aasha has the potential to address these challenges by providing an integrated solution for orphanage management. By fostering transparency, streamlining donation processes, and enhancing volunteer coordination, NayaAasha can play a transformative role in improving the efficiency and effectiveness of charitable activities in Nepal and beyond.

2.2. Literature Review

2.2.1. Introduction

Online platforms for charitable activities and resource management have gained significant traction in recent years due to their ability to connect donors, volunteers, and organizations. This literature review provides an overview of the studies conducted on digital solutions for managing donations and volunteering, analyzing theories and findings that highlight their impact on the charitable sector.

2.2.2. Review of Similar Projects

Various researchers have explored digital platforms for managing charitable activities. Studies indicate that ease of use, perceived trust, and transparency are critical factors influencing the adoption of such platforms. Research also highlights the importance of features like real-time tracking of donations and feedback mechanisms, which foster donor confidence and encourage repeated contributions.

2.2.3. Theories

- **Technology Acceptance Model (TAM):** TAM identifies perceived usefulness and ease of use as key determinants in the adoption of digital solutions, making it a foundational theory for understanding user behavior in the context of charitable platforms.
- **Unified Theory of Acceptance and Use of Technology (UTAUT):** UTAUT expands on TAM, emphasizing factors such as performance expectancy, social influence, and facilitating conditions as critical drivers of technology adoption.

2.2.4. Results

Studies reveal that the adoption of digital platforms significantly enhances the efficiency of charitable organizations. Platforms that provide detailed information about donation utilization and offer intuitive interfaces see higher user engagement. For example, research in similar domains indicates that features like transparency reports and real-time updates positively influence donor retention and satisfaction.

2.2.5. Conclusion

Digital platforms have become indispensable tools for charitable organizations, streamlining processes and fostering trust among stakeholders. By incorporating user-friendly features and ensuring transparency, platforms like Naya Aasha can drive

meaningful change in the way orphanages and charities operate, ultimately benefiting the communities they serve.

Chapter 3: System Analysis and Design

3.1. System Analysis

System analysis involves collecting and interpreting facts, identifying problems, and decomposing the system into its components. It aims to study a system or its parts to identify objectives. It is a problem-solving technique used to enhance the system's efficiency and ensure that all components work cohesively to accomplish their purpose. This chapter focuses on requirement analysis and feasibility study for Naya Aasha.

3.1.1. Requirement Analysis

Requirement Analysis, also known as Requirement Engineering, defines user expectations for new or modified software. It includes both functional and non-functional requirements.

3.1.1.1. Functional Requirements

To meet the expectations of Naya Aasha users, a comprehensive set of functional requirements was identified, driven by system analysis and user feedback. These requirements include:

User Registration and Authentication

Users can create accounts, log in, and securely authenticate themselves to access personalized features.

Orphanage Profiles with Detailed Information

Each orphanage will have a dedicated profile page containing information such as location, facilities, needs, photos, and contact details.

Donation Management System

A seamless donation process allowing users to contribute funds, items, or services to orphanages. Features include donation tracking and history for users.

Event Management and Connectors

Integration of events related to the orphanages, such as fundraisers or volunteer programs, with details and participation options.

Search and Filter Functionality

Advanced search and filtering options to help users find specific orphanages based on location, needs, or other criteria.

User Dashboard

A personalized dashboard where users can manage their donations, view their activity history, and receive updates.

Volunteer Opportunities

Listings of available volunteer opportunities at orphanages, with options for users to express interest or apply.

Feedback and Review System

Users can provide feedback or reviews for orphanages to help others make informed decisions.

Reports and Analytics for Admins

Tools for administrators to track donations, user activities, and generate reports for better management.

3.1.1.2. Use Case Diagram

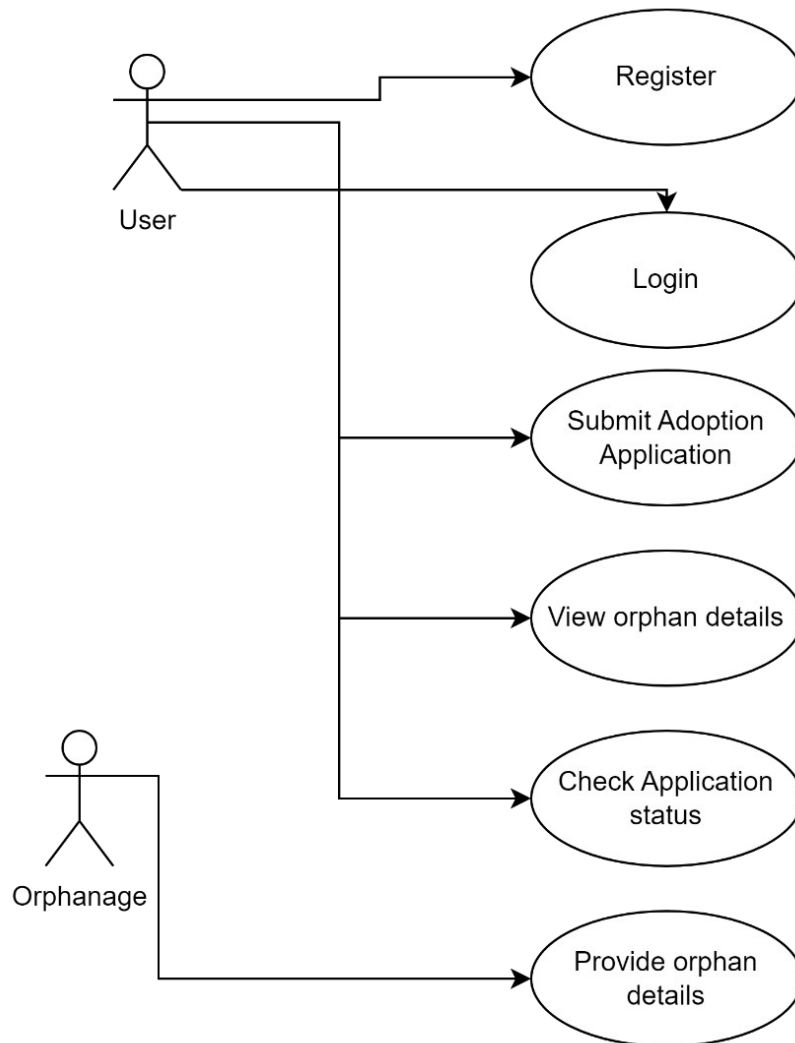


Fig.3.1.1.2. Use case Diagram

3.1.1.3. Non-Functional Requirements

The non-functional requirements for Naya Aasha focus on ensuring reliability, security, and usability:

- **Performance:** The platform must be fast and responsive, ensuring minimal load times.
- **Reliability:** High system uptime is necessary, even during peak usage.
- **Scalability:** The platform should accommodate growth and increasing user demand.
- **Usability:** A user-friendly interface must be provided for easy navigation and functionality.
- **Accessibility:** The platform should adhere to accessibility standards, catering to users with disabilities.

These requirements ensure a robust and user-friendly system for all stakeholders.

3.1.2 Feasibility Study

The feasibility study evaluates the viability of Naya Aasha across technical, operational, economic, and schedule domains.

3.1.2.1 Technical Feasibility

The proposed technical stack includes HTML, CSS, JavaScript, PostgreSQL, and the Rails framework. This modern stack ensures high performance, scalability, and security for Naya Aasha, meeting the functional and non-functional requirements.

3.1.2.2 Operational Feasibility

Focus groups and surveys confirmed that Naya Aasha's features align with user needs. The intuitive design and robust customer support ensure wide acceptance and satisfaction.

3.1.2.3 Economic Feasibility

The economic feasibility of the Naya Aasha project is evaluated through a cost-benefit analysis, which demonstrates its viability and sustainability. Despite being a non-profitable initiative, the project is designed to be economically sustainable through its revenue model, particularly leveraging advertising opportunities. These revenue streams ensure that the operational costs can be covered, allowing the organization to maintain and expand its impact without the need for generating profit. The focus is on creating value for the community rather than financial gain, ensuring that Naya Aasha remains a financially feasible and impactful project in the long term.

3.1.2.4 Schedule Feasibility

The schedule feasibility analysis accumulated to be of 16 weeks for completion of the project. Multiple milestones and minutes were created to keep track of time. The following Gantt Chart shows the time allocated for the design completion:

Phases& Months	1 W	2 W	3 W	4 W	5 W	6 W	7 W	8 W	9 W	10 W	11 W	12 W
Requirement and analysis												
Design phase												
Development Phase												
Testing Phase												
Deployment Phase												
Documentation s												

Fig: 3.1.2.4. Gantt Chart

3.1.2 Analysis

Analysis refers to the process of examining data, information, or findings to draw conclusions or insights that will inform decision-making or drive action. It involves interpreting and synthesizing data, identifying patterns and trends, and drawing conclusions based on the evidence presented.

Analysis may involve several components, such as:

- **Data Analysis**
The process of analyzing data collected during the project. It involves examining the data to identify patterns and trends and drawing conclusions based on the evidence presented.
- **SWOT Analysis**
The process of analyzing the strengths, weaknesses, opportunities, and threats of the project or organization. This analysis helps to identify areas for improvement and potential risks that need to be addressed.
- **Cost-Benefit Analysis**
The process of comparing the costs and benefits of a particular project or action. It helps to determine whether a project or action is feasible and whether it will deliver a return on investment.
- **Risk Analysis**
The process of identifying potential risks and assessing their likelihood and impact on the project. It helps to develop risk mitigation strategies and contingency plans.

3.1.2.1 System Architecture and Overview

Systems Architecture is a generic discipline used to handle objects (existing or to be created) called "systems," in a way that supports reasoning about their structural properties. Systems Architecture addresses the conceptual and practical difficulties in the description and design of complex systems.

3.1.2.1.1 Flowchart

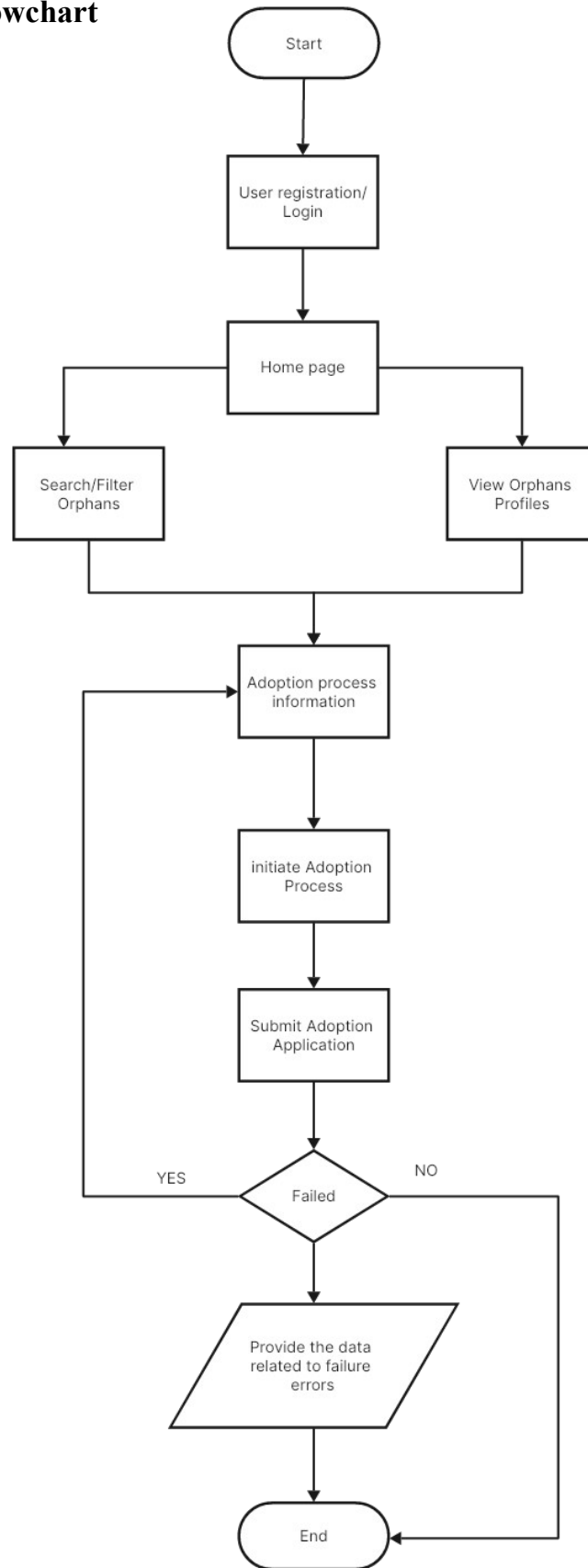


Fig: 3.1.3.1.1. Flowchart

3.1.2.1.2.1 Class Diagram

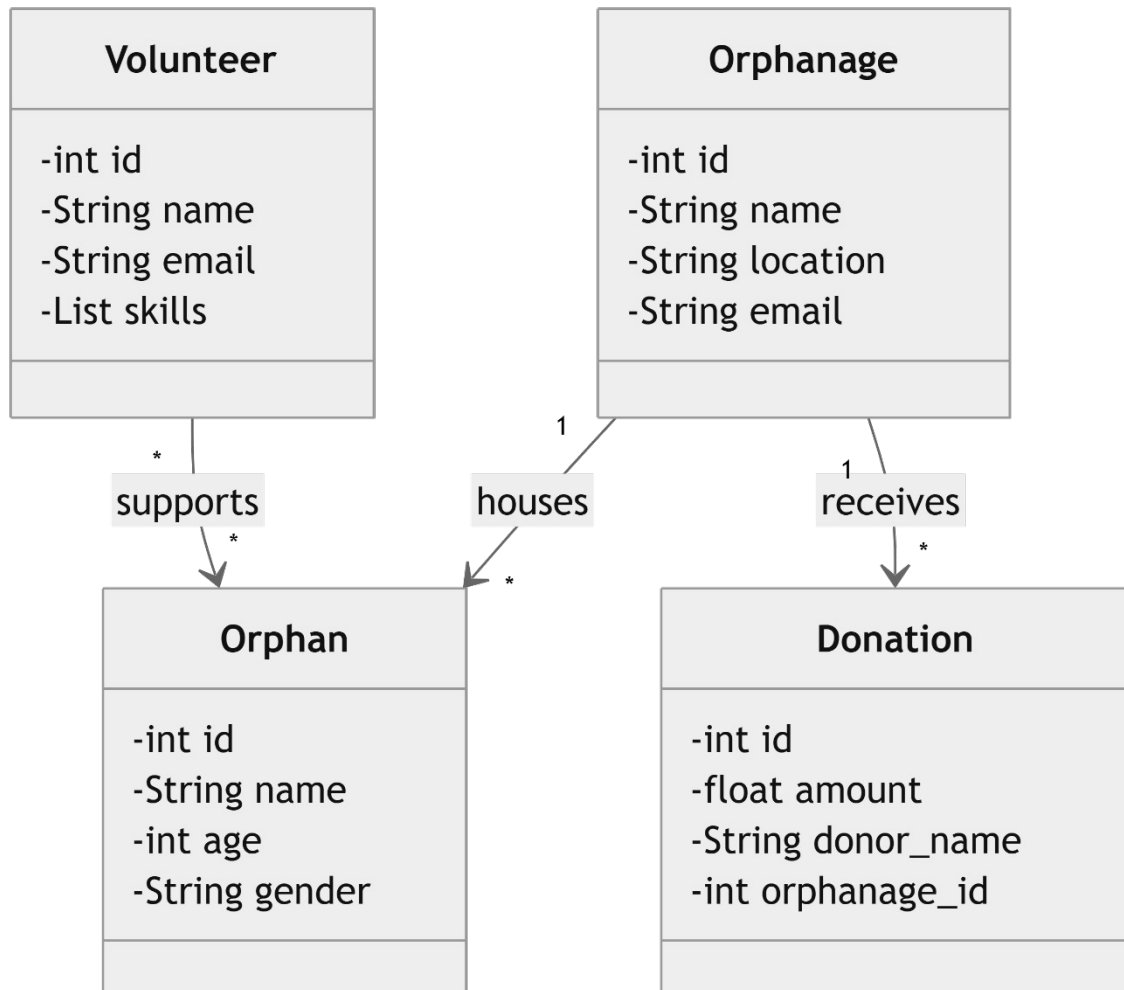


Fig: 3.1.3.1.2. Class Diagram

3.1.2.1.1. Sequence Diagram

Volunteer registration sequence diagram

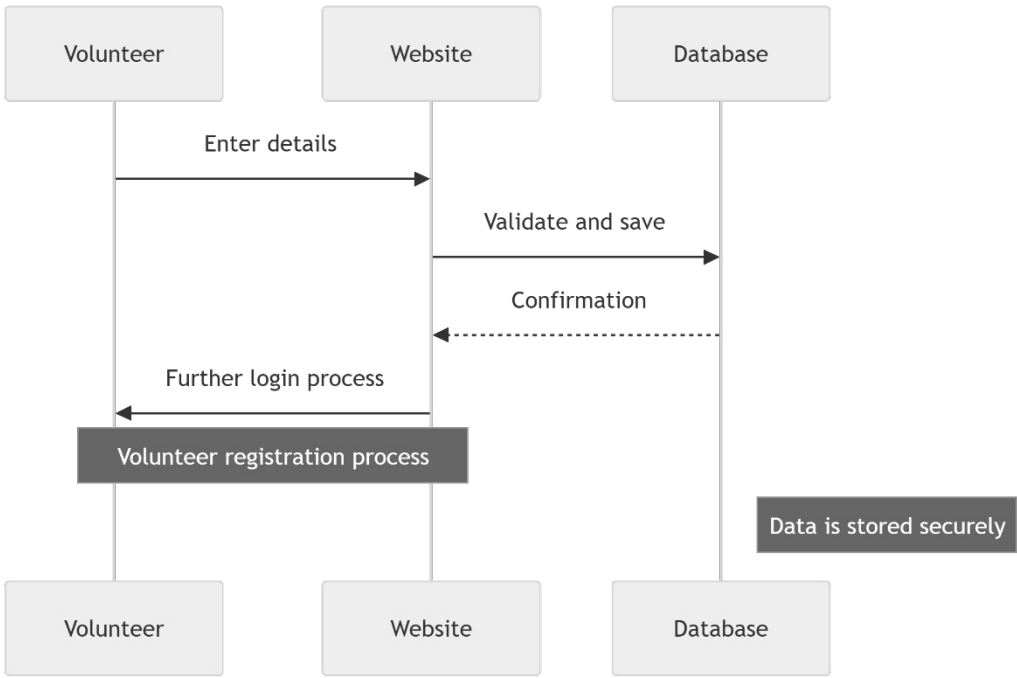


Fig: 3.1.3.1.3. Sequence Diagram

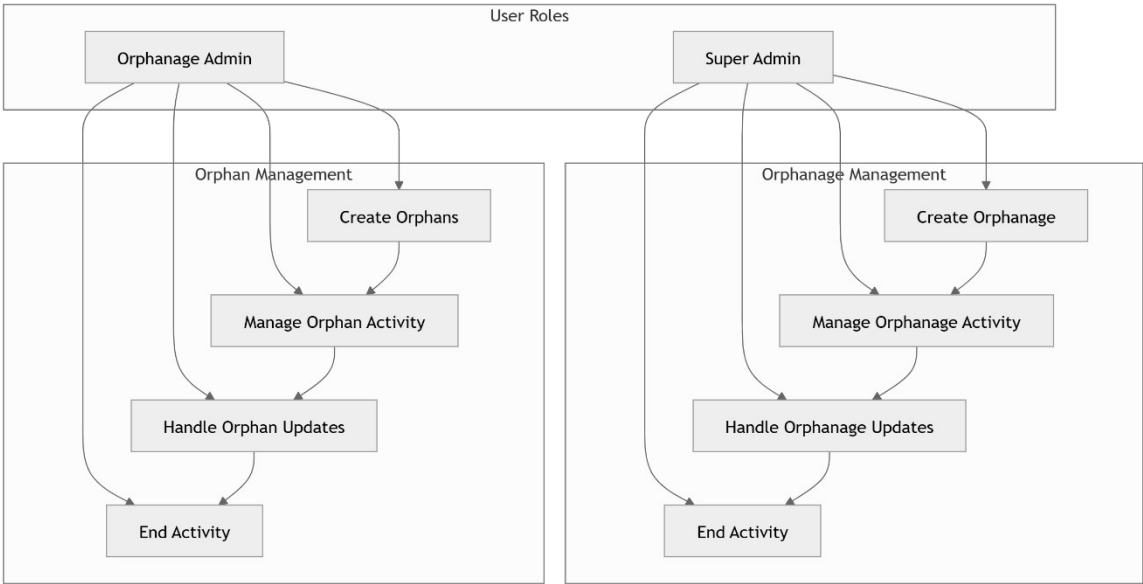


Fig: 3.1.3.1.4. Activity Diagram

CHAPTER 4: IMPLEMENTATION AND TESTING

4.1. Coding Tools

Coding tools are the tools for software developers to create, debug, maintain, or otherwise support other programs and applications. The term usually refers to relatively simple programs that can be combined to accomplish a task, much as one might use multiple hands to fix a physical object. Different frontend and backend tools were used in this project.

4.1.1. Front End

Frontend tools are used to build attractive website layouts and applications with ease. The frontend is the part that users interact with. React, Visual Studio Code, etc., were used in the frontend. Frontend tools help convert data into a graphical interface using HTML, CSS, and JavaScript, enabling users to view and interact with the data.

4.1.1.1. HTML, CSS, and JavaScript

HTML, CSS, and JavaScript are the core technologies used for building websites and web applications:

- **HTML (HyperText Markup Language):** Structures web content, defining elements like headings, paragraphs, links, and images.
- **CSS (Cascading Style Sheets):** Manages presentation, controlling layout, colors, fonts, and overall visual design.
- **JavaScript:** Adds interactivity and dynamic behavior to web pages, allowing developers to manipulate HTML and CSS, handle user inputs, and make websites more engaging.

Together, these technologies form the backbone of modern web development, enabling scalable, maintainable, and interactive web applications. A large community of developers supports these technologies, providing resources, tutorials, and frameworks.

4.1.1.2. Visual Studio Code

Visual Studio Code (VS Code) is a lightweight and powerful code editor developed by Microsoft. It is available as a free and open-source tool for building modern web and cloud applications.

4.1.1.3. GitHub

GitHub is a web-based platform providing hosting for software development and version control. It enables developers to store and manage their code, collaborate with others, and track changes in their projects. GitHub simplifies teamwork on the same codebase, regardless of location. It also serves as a centralized platform for storing and managing project code, ensuring easy access and updates.

4.1.2. Back End

The backend consists of the server, application, and database that work behind the scenes to deliver information to the user. The tools used in this process are called backend tools.

4.1.2.1. PostgreSQL

PostgreSQL is a powerful, advanced, and feature-rich relational database management system (RDBMS) widely used for managing structured and semi-structured data. It supports:

- An object-relational model
- JSON/JSONB for semi-structured data
- Powerful indexing
- ACID compliance for data reliability and consistency
- Extensibility and scalability

PostgreSQL's strong developer community, extensive documentation, and diverse extensions make it a secure, maintainable, and high-performance database choice.

4.1.2.2. Ruby on Rails

Ruby on Rails is a powerful and flexible web application framework that provides a range of features for building web applications in Ruby. Key features include:

- **Convention-over-configuration approach:** Simplifies development
- **Active Record ORM:** Eases database interactions
- **Scaffolding:** Speeds up development
- **Security and scalability:** Ensure maintainability and high performance

Rails enables rapid and efficient development, making it an excellent choice for web applications.

4.2. Testing

4.2.1. Unit Testing

Unit testing is a software development process in which the smallest testable parts of an application, called units, are individually and independently scrutinized for proper operation. Unit testing is often automated but can also be done manually.

Unit testing must be performed with the awareness that it may not be possible to test every input scenario that will occur when the program runs in a real-world environment.

In **Nepal Wonders**, unit testing was conducted in the following forms:

T.C ID	Test Scenario	Test Case	Test Steps	Expected Result	Actual Result	Pass/Fail
1	Check Login Functionality	Check response on entering valid username and password	1 Launch App 2 Click Get Started buttons 3 Click Already have on account button. 4 Enter username and password 5 Click Sign In button	Login must be successful	Login Successful	Pass

Table 2: 4.2.1. Unit Testing

4.2.2. System Testing

System testing means testing the system as a whole. All the modules/components are integrated to verify whether the system works as expected. System testing is done after integration testing. This part of the testing methodology involves testing the entire system for errors and bugs. No errors and bugs were found during system testing.

Table 2: 4.2.2. Unit Testing

S. N	Test Case	Expected Result	Actual Result
1	Trying to register leaving blank textbox	Login error indicating missing information	As expected,
2	Trying to login with invalid username	Login error indicating invalid username	As expected,
3	Trying to login with different password	Login error indicating invalid password	As expected,

CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS

5.1. Lessons Learnt

Working on a project like **Naya Aasha** over an extended period provided our team with invaluable lessons and experiences. Key takeaways include:

1. Learning the importance of teamwork and effective collaboration.
2. Gaining knowledge about web applications and their functionalities.
3. Understanding frontend and backend technologies, as well as report documentation.
4. Developing skills to manage databases efficiently.

5.2. Conclusion

In conclusion, the **Naya Aasha** platform serves as a significant step towards enhancing user convenience and engagement. It provides a seamless way for users to explore and reserve support services, browse detailed information, and interact with intuitive features designed to empower users in need.

The project demonstrates how modern technologies can deliver responsive, dynamic, and scalable web applications. By combining these tools, the **Naya Aasha** platform achieves its goal of creating an inclusive and efficient solution for users.

5.3. Future Recommendations

To further improve **Naya Aasha** and adapt to future technological trends, the following recommendations are proposed:

- **Artificial Intelligence (AI) Integration:** Incorporate AI to deliver personalized experiences by analyzing user behavior and preferences. This will enhance user satisfaction and foster long-term engagement.
- **Chatbots:** Add chatbots for 24/7 customer support, assisting users with queries and guiding them through the platform effectively.
- **Augmented Reality (AR):** Introduce AR features for immersive virtual walkthroughs of the services and facilities, enriching the user experience.
- **Mobile Optimization:** Ensure the platform is fully optimized for mobile devices, as mobile usage continues to rise. This will make the platform accessible and convenient for all users.

By implementing these recommendations, **Naya Aasha** can continue to grow as a reliable and innovative platform in the future.

CHAPTER 6: REFERENCES

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