

Vaid

Software Requirements Specification

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Vaid Team

Revision History

Date	Description	Author	Comments

Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

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Table of Contents

REVISION HISTORY	II
DOCUMENT APPROVAL	II
1. INTRODUCTION	IV
1.1 PURPOSE	IV
1.2 SCOPE	IV
1.3 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS	IV
1.4 OVERVIEW	IV
2. GENERAL DESCRIPTION	V
2.1 PRODUCT PERSPECTIVE	V
2.2 PRODUCT FUNCTIONS	V
2.3 USER CHARACTERISTICS	V
2.4 GENERAL CONSTRAINTS	V
2.5 ASSUMPTIONS AND DEPENDENCIES	V
3. SPECIFIC REQUIREMENTS	V
3.1 EXTERNAL INTERFACE REQUIREMENTS	VI
3.1.1 <i>User Interfaces</i>	vi
3.1.2 <i>Hardware Interfaces</i>	vi
3.1.3 <i>Software Interfaces</i>	vi
3.1.4 <i>Communications Interfaces</i>	vi
3.2 FUNCTIONAL REQUIREMENTS	VI
3.3 USE CASES	VI
3.4 CLASSES / OBJECTS	VI
3.5 NON-FUNCTIONAL REQUIREMENTS	VII
3.5.1 <i>Performance</i>	vii
3.5.2 <i>Reliability</i>	vii
3.5.3 <i>Availability</i>	vii
3.5.4 <i>Security</i>	vii
3.5.5 <i>Maintainability</i>	vii
3.5.6 <i>Portability</i>	vii
3.6 DESIGN CONSTRAINTS	VII
3.7 LOGICAL DATABASE REQUIREMENTS	VII
A. APPENDICES	VII
A.1 APPENDIX 1	VIII

1. Introduction

This Software Requirement Specification (SRS) document provides a comprehensive overview of the requirements for the development of this project, detailing the functional and non-functional

requirements, as well as constraints and dependencies, necessary for the successful design, development, and implementation of the software product. This document serves as a blueprint for the developers, guiding them throughout the development process to ensure that the final product meets the needs and expectations.

1.1 Purpose

The purpose of this SRS is to clearly define the scope and requirements of this project in order to guide the team in building a software solution that aligns with the objectives and expectations. This document serves as a communication tool ensuring a common understanding of the project goals, functionalities, and constraints.

1.2 Scope

The software product to be developed is a comprehensive platform for managing and facilitating the operations of Non-Governmental Organizations (NGOs). This platform encompasses various modules and functionalities aimed at digitizing and integrating internal operations of NGOs, as well as improving the process of volunteer, events and resources management.

Relevant Benefits, Objectives, and Goals:

- Improve efficiency and effectiveness in NGO operations through digitalization and integration of processes.*
- Simplify and optimize the volunteer selection and management process.*
- Optimize the events and activities management process.*
- Enhance collaboration and communication within NGOs and with volunteers.*
- Provide a centralized platform for resource allocation and project management.*
- Optimize the resources management process of the NGOs.*
- Increase transparency and accountability in volunteer engagement and project execution.*

Consistency with Higher-Level Specifications:

The scope outlined in this document is consistent with the overarching objectives and goals defined in higher-level specifications, ensuring alignment with the overall vision and requirements of the software product.

1.3 Definitions, Acronyms, and Abbreviations

*NGO: Non-Governmental Organization
SRS: Software Requirement Specification
PWA: Progressive Web Application
AI: Artificial Intelligence
PO: Product Owner
CSV: Comma-Separated Values
API: Application Programming Interface
UI: User Interface
UX: User Experience*

[Note: Additional definitions, acronyms, and abbreviations may be included as needed throughout the document or in separate appendices.]

1.4 Overview

This subsection provides a brief overview of the content and organization of the Software Requirement Specification (SRS), outlining what to expect to find within the document and how it is structured for easy reference and understanding.

Content Description:

The SRS document comprehensively details the requirements for the development of the project, a software platform aimed at managing and facilitating the operations of Non-Governmental Organizations (NGOs) and streamlining the volunteer selection and management process. The document covers a wide range of topics, including:

Introduction: Provides an overview of the complete SRS document, including its purpose and intended audience.

General Description: Describes the general factors that affect the product and its requirements, such as product perspective, functions, user characteristics, constraints, assumptions, and dependencies.

Specific Requirements: Details the specific functional and non-functional requirements of the software product, organized into sections based on different aspects of the system's functionality.

Appendices: Contains supplementary information.

2. General Description

The General Description section of the SRS provides an overview of the factors that influence the product and its requirements. It does not detail specific requirements but aims to provide clarity and context to facilitate understanding of the subsequent requirements.

2.1 Product Perspective

The software product, a platform for managing NGO operations and volunteer engagement, exists within the context of similar management systems and digital platforms designed for organizational efficiency and community engagement. It interfaces with NGOs, volunteers, administrators, and possibly third-party systems, enriching their interactions and processes.

2.2 Product Functions

- The software product will facilitate the registration of NGOs into the platform, providing them unique profiles for managing their operations.*
- It will offer an online and immersive application form for individuals interested in volunteering, enabling them to submit relevant personal information and qualifications.*
- The platform will provide a dashboard for each registered organization, offering tools for volunteer and staff management, events and activities management, and other internal processes.*
- A volunteer list with tags and AI filtering capabilities will be implemented, allowing organizations to easily identify suitable volunteers based on skills, availability, and location.*
- The system will allow for the management of volunteer and organization accounts, including role assignment, permissions, and participation tracking.*
- E-learning resources will be available for volunteers, with administrators being able to upload relevant training videos categorized by topic.*
- An events calendar will display all scheduled events organized by the NGO, accessible to both administrators and volunteers.*
- The system will be accessible as a Progressive Web Application (PWA), ensuring mobile access and responsive design.*

- *The NGO will be able to create, edit and publish events, allowing volunteers to join them.*
- *The NGO will have the capability to create, edit, and publish tasks, and invite specific volunteers.*
- *Once the event is created, the NGO will be able to use a flyer automatically generated by the software for promotion.*
- *The software offers statistical reporting capabilities for the NGO as a whole and for individual events.*
- *The NGO will be able to publish the events and tasks on a notice board, allowing volunteers to view all the events and tasks published by the NGO. Additionally, volunteers can click on an event or task to be directed to it.*
- *The software provides a resource management system for adding and modifying actual stock.*
- *The software provides a buy/sell management system that allows for registering purchases, sales, and their respective receives.*
- *The software includes functionality to record donations.*
- *The software provides a feature for adding existing volunteers who are not registered on the platform.*

2.3 User Characteristics

The system will support two types of user privileges, NGO, and Volunteer.

Volunteer Functionalities:

Registration and Authentication:

- *Create a volunteer account.*
- *Log in to the platform.*

NGO Enrollment:

- *Fill out a form to join an NGO.*
- *Submit the join request to the desired NGO.*

Access to E-learning:

- *Access educational resources provided by the platform.*
- *Complete online courses, modules, or tutorials.*

Event Calendar:

- *View a calendar of scheduled events and activities.*
- *Get details on event dates, times, and locations.*

Use of PWA (Progressive Web App):

- *Access the platform through a progressive web application.*
- *Enjoy an app-like experience on mobile devices.*

Attend Events and Activities:

- *Register to participate in specific events or activities.*
- *Mark attendance once they have participated in an event.*

NGO Functionalities:

Registration and Authentication:

- Register an account for the NGO.
- Log in to the platform as an NGO representative.

RRHH Management:

- View a list of volunteers and staff who have applied to join the NGO.
- Accept, reject, or manage volunteer applications.

Event and Task Creation:

- Create events and activities to engage volunteers.
- Assign specific tasks to volunteers or teams.

Viewing Statistics:

- Access relevant statistics and metrics about the NGO's performance.
- View data on participation, event impact, etc.

Resource Management:

- Manage available resources for the NGO, such as funds, materials, etc.
- Record and update the status of resources.

Event Calendar:

- View a calendar of scheduled events and activities.
- Get details on event dates, times, and locations.

2.4 General Constraints

The project is significantly constrained by time limitations. While a longer timeframe would allow for the creation of a larger and more comprehensive platform, that is not available to us. Consequently, the project team must focus on maximizing the efficiency of the allotted time, prioritizing essential features and functionalities to deliver a viable solution within the established timeframe.

2.5 Assumptions and Dependencies

Assumptions:

- It's assumed the NGO has minimum knowledge about all the members of the NGO.
- It's assumed that users will have access to a stable Internet connection to utilize the system's functionalities.
- It's assumed the users will have basic computer knowledge.
- It's assumed the software will have a stable and reliable hosting infrastructure to ensure continuous availability and performance.

Dependencies:

- The software development process may depend on feedback from NGOs to ensure alignment with their needs and expectations.

- The software depends on a MySQL database.
- The software depends on frameworks like Django and NextJS.

3. Specific Requirements

This section contains all of the functional and quality requirements of the system. It gives a detailed description of the system and all its features.

3.1 External Interface Requirements

This section provides a detailed description of all inputs into and outputs from the system. It also gives a description of the hardware, software and communication interfaces and provides basic prototypes of the user interface

3.1.1 User Interfaces

The user interface of the software shall adhere to the following requirements:

- The user interface shall be intuitive, visually appealing, and responsive across different devices and screen sizes. It should incorporate modern design principles to enhance the user experience.
- Upon accessing the platform, users are presented with the landing page, which provides an overview of the platform's features and functionalities.
- Users who are not logged in are presented with options to either log in or register for a new account. Clear and prominent buttons for login and registration are provided to facilitate user engagement.
- Once logged in, users are directed to the dashboard, which serves as the central hub for accessing various functionalities and managing their account.
- The dashboard layout is tailored based on the user's role, with distinct sections and options available for volunteers and NGOs.
- Volunteer users are provided with functionalities relevant to volunteering, such as browsing events, accessing e-learning resources, and managing their profile.
- NGO users are presented with administrative functionalities, including managing events, volunteers, resources, and accessing statistical reports.
- Navigation within the platform is intuitive, with a consistent menu structure and clear labeling of features to facilitate ease of use and navigation.
- Interactive elements such as buttons, forms, and menus are designed to be user-friendly and accessible, with appropriate feedback mechanisms to guide users through actions and processes.
- The user interface incorporates responsive design principles, ensuring optimal viewing and interaction experiences across a range of devices, including desktops, laptops, tablets, and smartphones.

3.1.2 Hardware Interfaces

The software shall be compatible with standard hardware configurations commonly used by NGOs and volunteers, including desktops, laptops, tablets, and smartphones.

3.1.3 Software Interfaces

The software shall integrate with third-party services or APIs for functionalities such as payment processing, notifications, and geolocation services.

3.1.4 Communications Interfaces

The software shall support communication between users within the platform through messaging features and notifications. Additionally, it should allow for email notifications and alerts to keep users informed about relevant activities and updates.

3.2 Functional Requirements

This section includes the requirements that specify all the fundamental actions of the software system.

3.2.1 Registration and Login

3.2.1.1 Introduction

The registration and login functionalities allow users to create accounts and securely access the NGO management platform. Users can register as either volunteers or organizations (NGOs) to access the platform's features and functionalities based on their roles.

3.2.1.2 Inputs

Registration:

- *User's full name*
- *Email address*
- *Password*
- *Role selection (volunteer or organization)*
- *Additional organization details (for NGO registration)*

Login:

- *Email address*
- *Password*

3.2.1.3 Processing

Registration:

- *Upon receiving registration inputs, the system verifies the uniqueness of the email address and validates the password strength.*
- *If the email address is unique and the password meets the security requirements, the system creates a new user account with the provided details.*
 - *For organization registration, additional information such as organization name, contact information, and mission statement may be collected and stored in the database.*
- *The system assigns the appropriate role (volunteer or organization) to the newly registered user based on the selection made during registration.*

Login:

- *Upon receiving login inputs, the system authenticates the user by verifying the provided email address and password against the stored credentials in the database.*
- *If the credentials match, the user is granted access to the platform and directed to the dashboard corresponding to their role (volunteer or organization).*
- *If the credentials do not match or the user account is inactive or suspended, an error message is displayed, and the user is prompted to retry or reset their password.*

3.2.1.4 Outputs

Registration:

- *Successful registration confirmation message.*
- *Newly created user account with assigned role and profile details.*

Login:

- *Successful login confirmation message.*

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- Access granted to the platform, redirecting the user to the corresponding dashboard.

3.2.1.5 Error Handling

Registration:

- If the email address is already associated with an existing account, an error message indicating the need to use a different email address is displayed.
- If the password strength requirements are not met, an error message prompting the user to choose a stronger password is displayed.
- If any other input validation fails (e.g., empty fields), relevant error messages are displayed to guide the user in correcting the inputs.

Login:

- If the provided email address or password is incorrect, an error message indicating invalid credentials is displayed, prompting the user to retry.
- If the user account is inactive or suspended, an error message informing the user of the account status is displayed, prompting them to contact support for assistance.

3.2.2 Creation of Volunteer Registration Form

3.2.2.1 Introduction

The automatic creation of a volunteer registration form feature allows NGOs to generate immersive and interactive forms for volunteers to register and provide relevant information. These forms streamline the volunteer registration process, ensuring that NGOs collect necessary data efficiently.

3.2.2.2 Inputs

Organization details: Organization name, contact information, mission statement (if required). Volunteer registration form customization options: Field labels, types of information to collect (e.g., personal details, skills, availability), form layout preferences.

3.2.2.3 Processing

- Upon selecting the option to create a volunteer registration form, the system prompts the NGO administrator to provide organization details and customization preferences for the form.
- Based on the provided inputs, the system dynamically generates an immersive and interactive registration form tailored to the NGO's requirements.
- The form includes fields for collecting volunteer information such as full name, email address, contact number, address, skills, availability, areas of interest, and any additional details deemed necessary by the NGO.
- The system automatically validates form inputs to ensure data accuracy and completeness, providing real-time feedback to users if any errors or discrepancies are detected.
- NGOs have the option to preview the generated form before finalizing and publishing it for volunteer registration.

3.2.2.4 Outputs

Generated volunteer registration form: An immersive and interactive form with customized fields and layout based on the organization's preferences.

Preview of the form: NGO administrators can review the form layout and content to ensure it aligns with their requirements before making it available for volunteers.

3.2.2.5 Error Handling

Input validation: The system validates all form inputs to ensure that required fields are filled out correctly and that data is in the expected format (e.g., valid email addresses, phone numbers).

Real-time feedback: If any errors or inconsistencies are detected during data entry, the system provides immediate feedback to users, highlighting the problematic fields and suggesting corrections.

Error messages: Clear and concise error messages are displayed to guide users in rectifying input errors and completing the registration process successfully.

3.2.3 Dashboard Functionality

3.2.3.1 Introduction

The dashboard functionality provides users with an intuitive and centralized interface to access and manage the features and functionalities of the NGO management platform. The dashboard layout and available options vary based on the user's role, distinguishing between volunteers and organizations (NGOs).

3.2.3.2 Inputs

User authentication: Role-based authentication to determine the user's role (volunteer or organization).

User preferences: Customization options for dashboard layout and content display.

3.2.3.3 Processing

- Upon successful login, the system identifies the user's role (volunteer or organization) based on their authentication credentials.*
- For volunteer users, the dashboard presents functionalities tailored to their volunteer activities, such as browsing events, accessing e-learning resources, managing their profile, and viewing volunteer statistics.*
- For organization (NGO) users, the dashboard displays administrative functionalities relevant to managing the NGO's operations, including creating and managing events, tasks, resources, volunteers, and accessing statistical reports on volunteer engagement and event impact.*
- The system dynamically generates the dashboard layout and content based on the user's role, ensuring that volunteers and organizations have access to relevant features and information.*
- Interactive elements such as menus, buttons, and widgets allow users to navigate through the dashboard and perform various actions seamlessly.*
- User preferences for dashboard layout and content display may be saved and applied to personalize the user experience for future sessions.*

3.2.3.4 Outputs

Volunteer dashboard: A personalized dashboard interface for volunteers, displaying options and functionalities related to volunteer activities and engagement.

Organization (NGO) dashboard: A customized dashboard interface for organizations, presenting administrative features and tools for managing NGO operations and volunteer engagement.

Dynamic content: Real-time updates and notifications may be displayed on the dashboard to inform users about upcoming events, tasks, or important announcements.

3.2.3.5 Error Handling

Role identification: The system accurately identifies the user's role during authentication to ensure that the appropriate dashboard layout and functionalities are presented.

Access control: Users are granted access only to functionalities and data relevant to their role, preventing unauthorized access to sensitive information or administrative features.

Error messages: Clear and informative error messages are displayed to users in case of authentication failures or other unexpected errors, guiding them to resolve the issue and proceed with accessing the dashboard.

3.2.4 List of Volunteer Candidates with AI Filtering

3.2.4.1 Introduction

The list of volunteer candidates features NGOs with a comprehensive view of individuals who have filled out the volunteer registration form and expressed interest in volunteering. The list is enhanced with tags and AI filtering capabilities to facilitate efficient identification of suitable candidates based on skills, availability, and other relevant criteria.

3.2.4.2 Inputs

Volunteer registration form data: Information provided by individuals during the volunteer registration process, including personal details, skills, availability, and areas of interest.

AI filtering parameters: Criteria for filtering volunteer candidates based on predetermined attributes or characteristics.

3.2.4.3 Processing

- *Upon submission of the volunteer registration form, the system captures and stores the data provided by individuals in a centralized database.*
- *The system analyzes the data using artificial intelligence algorithms to extract relevant information and identify key attributes or characteristics of volunteer candidates.*
- *Based on the identified attributes, the system assigns tags to volunteer candidates, categorizing them according to skills, availability, interests, or other relevant criteria.*
- *NGOs can utilize the AI filtering capabilities to specify criteria for selecting volunteer candidates, such as specific skills, availability on certain dates, or interest in particular types of activities.*
- *The system applies the AI filtering parameters to the list of volunteer candidates, automatically generating a filtered list that matches the specified criteria.*
- *Volunteers in the filtered list are displayed with relevant tags indicating their attributes, making it easier for NGOs to identify suitable candidates for specific roles or activities.*

3.2.4.4 Outputs

List of volunteer candidates: A comprehensive list of individuals who have filled out the volunteer registration form, displayed with relevant tags indicating their attributes (e.g., skills, availability).

Filtered list of volunteer candidates: A dynamically generated list of volunteer candidates that matches the specified criteria set by the NGO using AI filtering parameters.

3.2.4.5 Error Handling

Data validation: The system ensures that volunteer registration form data is accurately captured and stored in the database, minimizing data entry errors and inconsistencies.

AI model accuracy: The system continuously monitors and evaluates the performance of the AI algorithms used for filtering volunteer candidates, ensuring accuracy and reliability in candidate selection.

Transparent filtering criteria: NGOs are provided with clear and intuitive interfaces to specify filtering criteria, with informative feedback on how the criteria impact the resulting list of volunteer candidates.

3.2.5 E-learning for Volunteers

3.2.5.1 Introduction

The e-learning feature for volunteers enables NGOs to provide educational resources and training materials in the form of videos. NGOs can upload educational videos to the platform, allowing volunteers to access and enhance their skills, knowledge, and capabilities remotely.

3.2.5.2 Inputs

Educational videos: Video files containing training materials, tutorials, or educational content relevant to volunteer activities and initiatives.

Video metadata: Descriptive information about the videos, such as title, description, duration, and category (e.g., skill development, project-specific training).

3.2.5.3 Processing

- *NGO administrators access the e-learning section of the platform and initiate the process of uploading educational videos.*

- *The system provides an interface for administrators to upload video files from their local storage or external sources.*

- *Upon uploading, the system processes the video files, extracting metadata and generating thumbnails or previews for each video.*

- *NGO administrators provide descriptive information about the uploaded videos, including titles, descriptions, and categorization tags.*

- *The system organizes the uploaded videos into a structured library or repository, making them easily accessible to volunteers.*

- *Volunteers navigate to the e-learning section of the platform and browse the available videos based on categories or search filters.*

- *Upon selecting a video, volunteers can stream or download the content for offline viewing, depending on the platform's capabilities and permissions.*

- *NGOs may periodically update the e-learning library by adding new videos, modifying existing ones, or removing outdated content as needed.*

3.2.5.4 Outputs

E-learning library: A centralized repository of educational videos accessible to volunteers, organized by categories or topics.

Video playback interface: A user-friendly interface for streaming or downloading videos, with options for playback controls, full-screen mode, and quality settings.

Video metadata display: Descriptive information about each video, including titles, descriptions, duration, and categorization tags.

3.2.5.5 Error Handling

File format validation: The system verifies that uploaded video files adhere to supported formats and file size limits, preventing compatibility issues or performance degradation.

Metadata completeness: NGO administrators are prompted to provide all required metadata for uploaded videos, ensuring that each video is adequately described and categorized.

Access control: The system enforces access permissions to ensure that only authorized users (e.g., registered volunteers) can view and access the e-learning content.

Error messages: Clear and informative error messages are displayed to users in case of upload failures, metadata validation errors, or other unexpected issues, guiding them in resolving the issues and completing the upload process successfully.

3.2.6 HR Management

3.2.6.1 Introduction

The HR management feature enables NGOs to visualize and manage members and volunteers effectively. NGO administrators can access a centralized dashboard to view information about members and volunteers, manage their profiles, track participation, and perform administrative tasks related to HR management.

3.2.6.2 Inputs

Member and volunteer data: Information collected during registration and engagement, including personal details, contact information, roles, skills, availability, and participation history.

Administrative actions: Commands or instructions provided by NGO administrators to perform HR management tasks, such as adding new members, updating profiles, assigning roles, and tracking participation.

3.2.6.3 Processing

- NGO administrators access the HR management section of the platform, where they can view and manage information about members and volunteers.

- The system retrieves and displays relevant data about members and volunteers, including their profiles, roles, skills, and participation history.

- Administrators can perform various actions, such as adding new members, updating existing profiles, and assigning roles or permissions based on organizational needs.

- The system tracks and records participation data, including event attendance, and contributions, to provide insights into individual and organizational engagement.

3.2.6.4 Outputs

Member and volunteer profiles: Detailed profiles containing information about individual members and volunteers, including personal details, roles, skills, and participation history.

Participation tracking records: Comprehensive records of volunteer activities, event attendance, and contributions, allowing administrators to monitor engagement and assess performance.

Reports and analytics: Analytical insights and visualizations summarizing HR management data, such as volunteer demographics, engagement trends, and resource utilization metrics.

3.2.6.5 Error Handling

Data integrity validation: The system validates member and volunteer data to ensure accuracy, completeness, and consistency, preventing data entry errors or discrepancies.

Access control: The system enforces access permissions to ensure that only authorized administrators can view and manage HR information, protecting sensitive data and maintaining privacy.

Error messages: Clear and informative error messages are displayed to administrators in case of data validation errors, access violations, or other system issues, guiding them in resolving the issues and completing HR management tasks successfully.

3.2.7 Calendar

3.2.7.1 Introduction

The calendar feature provides a visual representation of events organized by the NGO, allowing volunteers and members to view event details, dates, times, and locations conveniently. The calendar enhances communication and coordination among stakeholders by centralizing event information in one accessible interface.

3.2.7.2 Inputs

Event data: Information about upcoming events organized by the NGO, including event titles, descriptions, dates, times, locations, and any additional details.

Administrative actions: Commands or instructions provided by NGO administrators to add, modify, or remove events from the calendar.

3.2.7.3 Processing

- NGO administrators access the calendar management section of the platform, where they can add, edit, or remove events from the calendar.

- Upon adding a new event, administrators provide relevant details such as the event title, description, date, time, location, and any associated resources or requirements.
- The system validates the event data and updates the calendar display to reflect the newly added event, making it visible to volunteers and members.
- Volunteers and members access the calendar section of the platform, where they can view the upcoming events organized by the NGO.
- The calendar displays event details in a user-friendly format, allowing users to browse events by date, view event descriptions, and access additional information as needed.

3.2.7.4 Outputs

Calendar display: A visual representation of events organized by the NGO, presented in a calendar format with dates, times, and event details.

Event details: Information about each event, including the event title, description, date, time, location, and any associated resources or requirements.

3.2.7.5 Error Handling

Data validation: The system validates event data to ensure that all required fields are filled out correctly and that dates and times are formatted accurately.

Access control: The system enforces access permissions to ensure that only authorized administrators can add, edit, or remove events from the calendar, preventing unauthorized modifications.

Error messages: Clear and informative error messages are displayed to administrators and users in case of data validation errors, access violations, or other system issues, guiding them in resolving the issues and completing calendar-related tasks successfully.

3.2.8 Add Existing Volunteers

3.2.8.1 Introduction

The "Add Existing Volunteers" feature enables NGO administrators to add volunteers who are already associated with the organization to the platform either manually or by importing data from a CSV file. This functionality provides flexibility and efficiency in managing volunteer information within the system.

3.2.8.2 Inputs

Volunteer data: Information about existing volunteers, including their personal details, contact information, roles, skills, and any other relevant attributes.

Administrative actions: Commands or instructions provided by NGO administrators to initiate the process of adding existing volunteers either manually or via CSV import.

3.2.8.3 Processing

- *Manual addition:* NGO administrators can manually input volunteer data into the system by filling out a designated form or interface within the platform.

- *CSV import:* Alternatively, administrators have the option to import volunteer data from a CSV (Comma-Separated Values) file. They upload a CSV file containing volunteer information, and the system parses the data to populate the volunteer database automatically.

- *Data validation:* The system validates the volunteer data entered manually or imported from the CSV file to ensure accuracy, completeness, and consistency. It checks for any formatting errors, missing fields, or duplicates and provides feedback to administrators for correction if needed.

- *Confirmation:* Once the volunteer data is successfully added to the system, administrators receive confirmation notifications or reports indicating the status of the import process and any potential issues encountered.

3.2.8.4 Outputs

Added volunteers: A list or summary of volunteers successfully added to the platform, including their details and any relevant attributes.

Error reports: Notifications or reports highlighting any errors or issues encountered during the manual addition or CSV import process, along with guidance on how to address them.

3.2.8.5 Error Handling

Data validation: The system performs thorough validation of volunteer data to identify and flag any errors or inconsistencies, such as invalid formats, missing fields, or duplicate entries.

Error notifications: Clear and informative error messages are provided to administrators in case of data validation failures or other issues during the manual addition or CSV import process.

The messages guide administrators on resolving the errors and ensuring successful data integration.

Rollback mechanism: In the event of critical errors or data corruption, the system may offer a rollback mechanism to revert the changes and restore the database to its previous state, preserving data integrity.

3.2.9 Record Transactions: Purchases, Sales, and Donations

3.2.9.1 Introduction

The "Record Transactions" feature allows the NGO to log and track purchases, sales, and donations made, along with their corresponding invoices. This functionality provides transparency and accountability in financial transactions, enabling the organization to maintain accurate records for auditing and reporting purposes.

3.2.9.2 Inputs

Transaction details: Information about each transaction, including transaction type (purchase, sale, donation), transaction date, description, amount, and any associated documentation (e.g., invoices).

Administrative actions: Commands or instructions provided by NGO administrators to initiate the process of recording transactions within the system.

3.2.9.3 Processing

- Purchase recording: NGO administrators log details of purchases made by the organization, including the date of purchase, vendor information, item descriptions, quantities, unit prices, and total amounts. They may also upload digital copies of purchase invoices for documentation purposes.

- Sale recording: Similarly, administrators record details of sales transactions conducted by the organization, including the date of sale, customer information, item descriptions, quantities sold, unit prices, and total amounts. They attach sales invoices or receipts as supporting documentation.

- Donation recording: In addition, administrators document donations received by the organization, capturing details such as the donor's information, donation date, donation amount, and any specific designation or purpose for the donation. They upload donation receipts or acknowledgement letters as proof of receipt.

- Data validation: The system validates transaction data entered by administrators to ensure accuracy, completeness, and consistency. It verifies that all required fields are filled out correctly and that any attached documents meet specified criteria (e.g., file format, size).

- Confirmation: Once transactions are successfully recorded, administrators receive confirmation notifications or reports indicating the status of the recording process and any relevant details.

3.2.9.4 Outputs

Transaction records: A comprehensive log or database of recorded transactions, including details such as transaction type, date, description, amount, and associated documentation (e.g., invoices, receipts).

Invoice attachments: Digital copies of invoices or receipts uploaded as supporting documentation for each transaction, accessible for reference or auditing purposes.

3.2.9.5 Error Handling

Data validation: The system performs rigorous validation of transaction data to detect and flag any errors or inconsistencies, such as missing information, invalid formats, or discrepancies between attached documents and transaction details.

Error notifications: Clear and informative error messages are provided to administrators in case of data validation failures or other issues during the recording process. The messages guide administrators on resolving the errors and ensuring accurate transaction recording.

3.2.10 Manage Stock

3.2.10.1 Introduction

The "Manage Stock" feature enables the NGO to maintain and update its inventory of products by adding new products and editing existing ones. This functionality facilitates effective stock management, ensuring that accurate and up-to-date information is available regarding the organization's available resources.

3.2.10.2 Inputs

Product details: Information about each product in the NGO's stock, including product name, description, category, quantity, unit price, supplier information, and any other relevant attributes.

Administrative actions: Commands or instructions provided by NGO administrators to initiate the process of managing stock, including adding new products or editing existing ones.

3.2.10.3 Processing

- *Add new products: NGO administrators can add new products to the organization's stock by entering relevant details such as product name, description, category, quantity on hand, unit price, and supplier information. They may also upload images or documents related to the product.*

- *Edit existing products: Similarly, administrators have the ability to edit details of existing products in the stock, such as updating quantities, prices, or supplier information, or modifying product descriptions or categories as needed.*

- *Data validation: The system validates product data entered by administrators to ensure accuracy and completeness. It verifies that all required fields are filled out correctly and that any attached documents or images meet specified criteria.*

- *Confirmation: Once products are successfully added or edited, administrators receive confirmation notifications or reports indicating the status of the process and any relevant details.*

3.2.10.4 Outputs

Updated stock inventory: A comprehensive inventory list or database of products, including details such as product names, descriptions, categories, quantities, prices, and supplier information.

Confirmation notifications: Notifications or reports confirming the successful addition or modification of products in the stock, along with any relevant information or changes made.

3.2.10.5 Error Handling

Data validation: The system performs validation checks on product data to identify and flag any errors or inconsistencies, such as missing information, invalid formats, or conflicting entries.

Error notifications: Clear and informative error messages are provided to administrators in case of data validation failures or other issues during the stock management process. The messages guide administrators on resolving the errors and ensuring accurate product management.

Conflict resolution: In cases where conflicts or discrepancies arise, such as duplicate product entries or conflicting data, the system may prompt administrators to resolve the issues before proceeding with the stock management tasks.

3.2.11 Event Management

3.2.11.1 Introduction

The "Event Management" feature allows NGO administrators to create and edit events within the platform. Upon creating an event, the system automatically generates a flier that can be used for promotional purposes on social media and other channels. This functionality streamlines the event management process and enhances outreach efforts.

3.2.11.2 Inputs

Event details: Information about each event, including event title, description, date, time, location, contact person, registration details, and any other relevant attributes.

Administrative actions: Commands or instructions provided by NGO administrators to initiate the process of creating or editing events within the system.

3.2.11.3 Processing

- Create new events: NGO administrators can create new events by entering relevant details such as the event title, description, date, time, location, and contact information. They may also specify registration requirements or other event-specific details.

- Edit existing events: Similarly, administrators have the ability to edit details of existing events, such as updating event dates, times, locations, descriptions, or contact information, or modifying registration settings as needed.

- Automatic flier generation: Upon creating or editing an event, the system automatically generates a promotional flier using the event details provided. The flier is designed to be visually appealing and informative, with key event information displayed prominently.

- Data validation: The system validates event data entered by administrators to ensure accuracy and completeness. It verifies that all required fields are filled out correctly and that event details are formatted appropriately.

- Confirmation: Once events are successfully created or edited, administrators receive confirmation notifications or reports indicating the status of the process and any relevant details.

3.2.11.4 Outputs

Event listings: A comprehensive list or calendar of events, including details such as event titles, descriptions, dates, times, locations, and registration information.

Promotional flyers: Automatically generated flyers for each event, containing visually appealing designs and key event information, suitable for distribution on social media platforms and other promotional channels.

3.2.11.5 Error Handling

Data validation: The system performs validation checks on event data to identify and flag any errors or inconsistencies, such as missing information, invalid formats, or conflicting entries.

Error notifications: Clear and informative error messages are provided to administrators in case of data validation failures or other issues during the event creation or editing process. The messages guide administrators on resolving the errors and ensuring accurate event management.

Flier generation errors: If errors occur during the automatic flier generation process, such as formatting issues or missing information, the system may provide feedback to administrators and offer options for correcting the issues before proceeding.

3.2.12 Event Management

3.2.12.1 Introduction

The "Task Management" feature enables NGO administrators to create and edit tasks within the platform. This functionality facilitates the organization and assignment of tasks to volunteers, streamlining project management and collaboration efforts.

3.2.12.2 Inputs

Task details: Information about each task, including task title, description, due date, priority level, assignee(s), and any other relevant attributes.

Administrative actions: Commands or instructions provided by NGO administrators to initiate the process of creating or editing tasks within the system.

3.2.12.3 Processing

- Create new tasks: NGO administrators can create new tasks by entering relevant details such as the task title, description, due date, priority level, and assignee(s). They may also specify additional task parameters or requirements.

- Edit existing tasks: Similarly, administrators have the ability to edit details of existing tasks, such as updating task descriptions, due dates, priorities, assignees, or other task-specific settings as needed.

- Data validation: The system validates task data entered by administrators to ensure accuracy and completeness. It verifies that all required fields are filled out correctly and that task details are formatted appropriately.

- Confirmation: Once tasks are successfully created or edited, administrators receive confirmation notifications or reports indicating the status of the process and any relevant details.

3.2.12.4 Outputs

Task listings: A comprehensive list or dashboard of tasks, including details such as task titles, descriptions, due dates, priorities, assignees, and status.

Task assignments: Notifications or alerts sent to assigned volunteers, informing them of new tasks or any updates to existing tasks.

3.2.12.5 Error Handling

Data validation: The system performs validation checks on task data to identify and flag any errors or inconsistencies, such as missing information, invalid formats, or conflicting entries.

Error notifications: Clear and informative error messages are provided to administrators in case of data validation failures or other issues during the task creation or editing process. The messages guide administrators on resolving the errors and ensuring accurate task management.

3.2.13 Notice Board

3.2.13.1 Introduction

The "Notice Board" feature allows NGO administrators to publish events and tasks on a centralized notice board within the platform. This functionality enables administrators to communicate important information and opportunities to volunteers, facilitating engagement and participation.

3.2.13.2 Inputs

Event and task details: Information about each event and task to be published on the notice board, including titles, descriptions, dates, times, locations, and any other relevant attributes.

Administrative actions: Commands or instructions provided by NGO administrators to initiate the process of publishing events and tasks on the notice board.

3.2.13.3 Processing

- *Publish events: NGO administrators can publish upcoming events on the notice board by entering relevant details such as event titles, descriptions, dates, times, locations, and any registration instructions or requirements.*
- *Publish tasks: Similarly, administrators have the ability to publish tasks on the notice board, providing details such as task titles, descriptions, due dates, priorities, and any specific instructions or requirements for volunteers.*
- *Display formatting: The system formats and displays published events and tasks on the notice board in an organized and user-friendly manner, making it easy for volunteers to browse and access relevant information.*
- *Notification: Once events and tasks are published on the notice board, volunteers may receive notifications or alerts informing them of new postings and encouraging them to engage with the opportunities presented.*

3.2.13.4 Outputs

Notice board display: A centralized notice board within the platform showcasing published events and tasks, including details such as titles, descriptions, dates, times, and any registration or participation instructions.

Volunteer engagement: Increased visibility and awareness of events and tasks among volunteers, leading to greater engagement and participation in organizational activities.

3.2.13.5 Error Handling

Data validation: The system performs validation checks on event and task data to identify and flag any errors or inconsistencies, such as missing information, invalid formats, or conflicting entries.

Error notifications: Clear and informative error messages are provided to administrators in case of data validation failures or other issues during the publishing process. The messages guide administrators on resolving the errors and ensuring accurate publication of events and tasks on the notice board.

3.2.14 Statistical Reports

3.2.14.1 Introduction

The "Statistical Reports" feature enables the NGO to receive comprehensive statistical reports for each event conducted. This functionality provides valuable insights into event performance, attendance, impact, and other key metrics, facilitating data-driven decision-making and strategic planning.

3.2.14.2 Inputs

Event data: Information about each event, including event titles, dates, times, locations, participant lists, attendance records, feedback surveys, and any other relevant attributes.

Reporting parameters: Criteria or specifications provided by the NGO to customize the content and format of the statistical reports, such as date ranges, event categories, participant demographics, or specific metrics of interest.

3.2.14.3 Processing

- Generate event reports: The system processes event data to generate statistical reports for each conducted event based on the specified reporting parameters. The reports may include metrics such as attendance numbers, participant demographics, engagement levels, feedback ratings, and any other relevant performance indicators.

- Data analysis: The system analyzes event data to identify trends, patterns, and insights that can inform decision-making and strategic planning. This may involve aggregating and summarizing

data, performing statistical calculations, and visualizing results through charts, graphs, or tables.

- Customization options: The system offers customization options for the format and content of the statistical reports, allowing the NGO to tailor the reports to its specific needs and preferences.

- Delivery method: The system delivers the generated reports to the NGO in a timely manner, using preferred communication channels such as email, web portal, or downloadable files.

3.2.14.4 Outputs

Statistical reports: Detailed reports for each conducted event, containing relevant metrics, analysis, and insights to assess event performance and impact.

Data visualization: Visual representations of event data through charts, graphs, or tables to facilitate interpretation and understanding of key trends and patterns.

Decision support: Actionable insights and recommendations derived from the statistical reports to guide future event planning, execution, and evaluation efforts.

3.2.14.5 Error Handling

Data integrity: The system ensures the accuracy and integrity of event data used for generating statistical reports, performing validation checks and error corrections as needed.

Reporting errors: In case of errors or inconsistencies in the generated reports, the system provides notifications to the NGO, allowing for prompt resolution and reprocessing of the reports.

Feedback mechanisms: The system solicits feedback from users on the quality and usefulness of the statistical reports, enabling continuous improvement and refinement of the reporting process.

3.2.15 Personalization Options

3.2.15.1 Introduction

The "Personalization Options" feature allows users to customize their dashboard experience by selecting preferences such as dark mode or light mode, as well as choosing their preferred language for the platform interface. This functionality enhances user satisfaction and accessibility by accommodating individual preferences and needs.

3.2.15.2 Inputs

User preferences: Preferences expressed by users regarding their preferred dashboard appearance (dark mode or light mode) and language selection for the platform interface.

Interface localization: Support for multiple languages and localization of platform content to accommodate users from diverse linguistic backgrounds and regions.

3.2.15.3 Processing

Theme selection: Users have the option to choose between dark mode and light mode for their dashboard appearance. The system applies the selected theme to the dashboard interface, adjusting colors, contrast, and visual elements accordingly.

Language selection: Users can select their preferred language for the platform interface from a list of available language options. The system translates interface text and labels into the selected language, providing a localized experience for users.

User-specific settings: The system stores user preferences for dashboard customization in user profiles or settings, ensuring that the selected theme and language persist across sessions and devices.

3.2.15.4 Outputs

- *Customized dashboard: A personalized dashboard interface reflecting the user's selected theme (dark mode or light mode) and language preferences, providing an enhanced user experience tailored to individual needs and preferences.*
- *Improved accessibility: Enhanced accessibility for users with different visual preferences or requirements, including the ability to choose a theme that maximizes readability and reduces eye strain.*
- *Language localization: A localized platform interface available in multiple languages, allowing users to interact with the platform in their preferred language and facilitating inclusivity and user engagement.*

3.2.15.5 Error Handling

Theme application: The system ensures that the selected theme (dark mode or light mode) is applied correctly to the dashboard interface, addressing any display issues or inconsistencies that may arise.

Language translation: The system verifies the accuracy and consistency of language translations, conducting quality checks to identify and rectify any translation errors or ambiguities.

User feedback: The system solicits feedback from users regarding their customization preferences and experiences, allowing for continuous improvement and refinement of the personalization options feature.

3.3 Use Cases

This section describes specific scenarios or interactions between users and the system.

3.3.1 Volunteer Search and Match Use Case

- *Description: An NGO administrator searches for volunteers with specific skills to match them with relevant tasks or projects.*
- *Actors: NGO Administrator, System*
- *Preconditions: Administrator logs in to the NGO dashboard.*
- *Main Flow:*
 - 1_ *Administrator accesses the volunteer management section.*
 - 2_ *Administrator enters search criteria such as skills, interests, or availability.*
 - 3_ *System filters the volunteer database based on the search criteria.*
 - 4_ *System presents a list of matched volunteers with relevant skills and availability.*
 - 5_ *Administrator selects suitable volunteers and assigns them to tasks or projects.*
- *Postconditions: Volunteers are matched with appropriate tasks, enhancing project efficiency and volunteer engagement.*

3.3.2 NGO Event Creation Use Case

- *Description: An NGO creates a new event on the platform.*
- *Actors: NGO Administrator, System*
- *Preconditions: Administrator logs in to the NGO dashboard.*
- *Main Flow:*
 - 1_ *Administrator navigates to the event creation section.*
 - 2_ *Administrator fills out the event details (title, description, date, location).*
 - 3_ *System validates the inputs and adds the event to the calendar.*
 - 4_ *System generates a promotional flier for the event.*
- *Postconditions: New event is added to the platform and ready for promotion.*

3.3.3 Notice Board Management Use Case

- *Description: An NGO administrator creates and manages announcements, events, and tasks on the notice board for volunteers to view and engage with.*

- *Actors: NGO Administrator, Volunteer, System*
- *Preconditions: Administrator logs in to the NGO dashboard.*
- *Main Flow:*
 - 1_ *Administrator creates a new event, or task.*
 - 2_ *System validates the input and adds the announcement to the notice board.*
 - 3_ *Volunteers log in to the platform and navigate to the notice board section.*
 - 4_ *Volunteers view the list of events, and tasks published by the NGO.*
 - 5_ *Volunteers click on an item to view more details or express interest in participating.*
- *Postconditions: Volunteers stay informed about upcoming events and tasks, fostering better communication and engagement within the NGO community.*

3.3.4 E-Learning Use Case

- *Description: An NGO administrator uploads, and manages e-learning resources for volunteers to access and enhance their skills and knowledge.*
- *Actors: NGO Administrator, Volunteer, System*
- *Preconditions: Administrator logs in to the NGO dashboard.*
- *Main Flow:*
 - 1_ *Administrator accesses the e-learning section.*
 - 2_ *Administrator uploads videos.*
 - 3_ *System validates the uploaded content and adds it to the e-learning library.*
 - 4_ *Volunteers log in to the platform and navigate to the e-learning section.*
 - 5_ *Volunteers browse the available resources and select a video of interest.*
- *Postconditions: Volunteers have access to a variety of educational materials to enhance their skills and knowledge, contributing to their personal and professional development within the NGO.*

3.3.5 Platform as a PWA Use Case

- *Description: A user accesses the software as a Progressive Web Application (PWA) on their mobile device for a seamless and app-like experience.*
- *Actors: User, System*
- *Preconditions: User has a compatible mobile device with internet connectivity.*
- *Main Flow:*
 - 1_ *User opens the web browser on their mobile device and navigates to the platform's website.*
 - 2_ *User receives a prompt to add the website to their home screen as a PWA for easy access.*
 - 3_ *User accepts the prompt, and the platform's icon is added to their home screen.*
 - 4_ *User taps on the platform's icon from their home screen to launch the PWA.*
 - 5_ *System loads the PWA interface, providing a responsive and optimized user experience similar to a native mobile app.*
- *Postconditions: User successfully accesses the NGO management platform as a PWA on their mobile device, enjoying the convenience of app-like navigation and responsiveness.*

3.3.6 Resource Management Use Case

- *Description: An NGO administrator manages the allocation, and utilization of resources such as funds, materials, and equipment within the organization.*
- *Actors: NGO Administrator, System*
- *Preconditions: Administrator logs in to the NGO dashboard.*
- *Main Flow:*
 - 1_ *Administrator accesses the resource management section of the platform.*
 - 2_ *Administrator views the list of available resources.*
 - 3_ *Administrator updates resource quantities or status based on incoming donations, purchases, or usage.*
 - 4_ *System generates reports on resource availability for financial planning and transparency.*
- *Postconditions: NGO effectively manages its resources, ensuring optimal allocation and utilization for various projects and activities while maintaining financial accountability.*

3.4 Classes / Objects

3.4.1 Volunteer

3.4.1.1 Attributes

- *Name: The name of the volunteer.*
- *Email: Email address of the volunteer for communication purposes.*
- *Location: The geographical location of the volunteer.*
- *Skills: Skills possessed by the volunteer, which can be utilized by NGOs.*
- *Availability: Availability schedule of the volunteer for event participation.*
- *Language Preference: Preferred language for communication and platform interface.*
- *Dashboard Preferences: Preferences for dashboard customization, such as theme (dark/light mode) and language.*
- *Events Participated: List of events in which the volunteer has participated.*
- *Tasks Assigned: Tasks assigned to the volunteer by NGOs.*

3.4.1.2 Functions

- *Registration and Login*
- *Dashboard*
- *E-learning*
- *Calendar*
- *Notice Board*
- *Personalization Options*
- *Selection Form*

3.4.2 NGO

3.4.2.1 Attributes

- *Name: The name of the NGO.*
- *Email: Email address of the NGO for communication purposes.*
- *Location: Geographical location of the NGO's headquarters or office.*
- *Mission: Mission statement or description of the NGOs objectives and activities.*
- *Events Organized: List of events organized by the NGO.*
- *Volunteers Registered: List of volunteers registered with the NGO.*
- *Tasks Created: Tasks created by the NGO for volunteer engagement.*
- *Resources: Resources managed and utilized by the NGO, such as funds, materials, and facilities.*
- *Reports: Statistical reports and analytics generated for events and organizational performance.*

3.4.2.2 Functions

- *Registration and Login*
- *Dashboard*
- *E-learning*
- *Calendar*
- *Personalization Options*
- *Event Creation*
- *Task Creation*
- *List of Volunteer*
- *Resource Management*
- *HR Management*
- *Add existing volunteers*
- *Statistical reports*
- *List of volunteer candidates*

3.5 Non-Functional Requirements

This section addresses the performance, reliability, availability, security, maintainability, and portability aspects of the software.

3.5.1 Performance

- Concurrent user sessions shall be supported without significant degradation in performance.

3.5.2 Reliability

- The system shall ensure that user data is backed up daily to prevent data loss in case of system failure.

- The system shall have a built-in error logging mechanism to track and record system errors for debugging purposes.

- The system shall provide a mechanism for users to report technical issues or errors, with a guaranteed response time of 24 hours during business days.

3.5.3 Availability

- The platform shall be accessible 24/7 from any location with an internet connection.

3.5.4 Security

- User data shall be encrypted during transmission and storage to prevent unauthorized access.

- Access to sensitive functionalities shall be restricted based on user roles and permissions.

3.5.5 Maintainability

- Code documentation and commenting shall be maintained for ease of maintenance by developers.

3.5.6 Portability

- The platform shall be compatible with major web browsers (Chrome, Firefox, Safari, Edge) and mobile devices (iOS, Android).

3.6 Design Constraints

- The software shall be designed with cross-browser compatibility, ensuring consistent functionality and appearance across different web browsers such as Chrome, Firefox, Safari, and Edge.

- The software shall incorporate feedback mechanisms and user testing throughout the development process to gather user input and iterate on design improvements based on user preferences and needs.

- The software shall support multiple languages to accommodate users from diverse linguistic backgrounds, with support for language localization and internationalization.

3.7 Logical Database Requirements

- The system shall use a relational database management system to store user data, event details, and other relevant information.

- Backup and recovery mechanisms shall be implemented to protect against data loss and ensure continuity of operations in case of system failures.

A. Appendices

A.1 Appendix 1

We've had the privilege of meeting with various NGOs, and civil associations, including prominent organizations such as Cruz Roja, Fundación Vicentina, Vaso de Leche, among others. These meetings have been crucial in gaining first hand insight into how these organizations operate, what their needs are, and how our software can be tailored to effectively meet them. In addition to understanding their internal processes and challenges, these interactions have allowed us to establish strong relationships that will undoubtedly strengthen our future collaboration. We are committed to developing a tool that not only streamlines their daily tasks but also enhances their impact on the communities they serve.