6/21/2023

Disaster Management System

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

A disaster is a serious problem that occurs over a short period or long period which will cause widespread human, resources, economic and even environmental loss that may be caused by natural or man-made even in Sri Lanka. The damage caused by those disasters may depend on climate, geographical location, human negligence, and errors occurring in a man-made system. Even though there are systems, still a disaster is crucial. As the existing system is deployed for the government, the general public in Sri Lanka is not much familiar with a system which helps them to reduce the risk of death on their own. Therefore, as a result this website "Help + US" the "Disaster management system for Sri Lanka" will give pop-up messages about safe and unsafe locations, will find safe and nearest places and will provide a service for donations.

1.1 Purpose

The purpose of this document is to provide a detailed description of the Disaster Management System for Sri Lanka which is to be implemented for the general public. The intention of this document is to capture the essence of what is required for the successive design and implementation phases of the project. This software requirement specification document will explain the purpose and features of the system, the main GUIs of the system, what is to be accomplished by the system, the restrictions and constraints under which it must operate and how the system will react to external stimuli. This is intended for the stakeholders and the developers of the system and will be proposed to the other parties involved in the approval of this system.

1.2 Document Conventions

Following conventions are used in writing this SRS.

- Line spacing for text is 1.5.
- Sub headings are in font size 14pts, bold and “Times New Roman”
- All other text including descriptions is in font size 12pts, normal font and “Times New Roman”.
- Main headings are in font size 18pts, bold and “Times New Roman”
- The references are written according to the IEEE format.
- Please refer Appendix A – Glossary for the definitions of terms and acronyms necessary to properly interpret this SRS document.

1.3 Intended Audience and Reading Suggestions

This document is assembled with the requirements of the client and the methodology used in realizing the goals set by the developers, that is, to meet the client's requirements. Henceforth, the readers that would find this document helpful are the users, testers, documentation writers, developers, project managers of the system.

- **Users** of the system are the Administrator, Assistant manager, managers, Accountant and general public. This will be convenient for them to get an idea of the functionality, features, and restraints of the software.

- **Testers** will need to have this document in hand to test the system against the documentation to check if the performance of the functions implemented is by the required level that was stated and agreed upon.

- **Documentation Writers,** who are responsible in writing maintenance documents of the system, will need this SRS to check the initial agreements, so as to check the specification to have clarifications on what the restraints, functionality and scope of the system are.

- **Developers** will find this document necessary in order to abide by the guidelines and evaluate the progress of the system in the development. They will also use it as a future reference in calling to what requirements they had approved upon to develop the software.

- **Project Managers and Directors** of the system plays a vital role in the proper execution of the project; therefore, they will need this document in order to manage the developers, with realization of what must be accomplished and what they are assigned with.

1.4 Product Scope

The main objective of this software is to show the disaster hazards on the map which is visible to every users who use the map which is also implement a web-based application. After the evaluation of the time frame and resources, the project objectives were decided. Realistic set of objectives were denoted to be achieved from the estimation of the time frame and resources available. To meet the client specified requirements at the end of the agreed time frame, several functions were identified.

- Administrative function of User management and System management
  Inserting, updating, search and deleting the details of the camp, refugees, locations, disasters and users.
  - Administers users' system
  - Error correction of the system
  - Permission control management
- Administration of User details
  - Manage the types of users
- Management of disaster details
- Managing temporary safe shelters for refugees.
- Analyzing the details of the victims.
- Administrative functions of handling quality constraints
  - Data backup and restoration system

- Manage reports and documents of the camp
- Manage reports and documents of the refugees
- Manage reports and documents of the camp and refugees assigned to each camp
- Manage reports and documents of the disasters

- Communication
  - SMS service through the system
- Administrative functions of handling quality constraints
  - Data backup and restoration system
  - Bi-lingual system
  - Manage reports and documents
- Administration of patron accounts and activity.

By meeting these requirements, the system will be user-friendly, time-saving, and easy to preserve with superior security and system restoration and backup.

Goals that can be achieved with the help of our software are as follows.

- Use of technology to increase efficiency and increase performance.
- Increase the safety of users.
- Search and shows temporary and safe shelters.
- Help victims using donations.
- Notify the users by alerting them before a disaster.
- Guide the users by giving the instructions to follow before, during and after a disaster.

The key benefits of the software are as follows.

- The efficiency and quality of daily activity can be increased.
- Better security privileges.
- Easy maintainability.
- Backup and restoration of data will ensure integrity and security.
- Easy maintainability.
- Can be expandable

2. Overall Description

2.1 Product Perspective

The proposed Disaster Management System being developed is a web application. The system is being built for the general public. The purpose of this is to help the public to overcome disastrous moments. At present, the general public in Sri Lanka is not familiar with a disaster management system. The system would help in improving the workflow between the various processes of disaster management. And also, it will be easy to keep track of disaster locations which are risky and safe areas which can be used to shelter the people who are victims. This product would incorporate the tried and tested functionalities of the system and also would minimize the problems encountered when using unreliable features. The new system proposed is to help the general public who can notify them by themselves using this application on hand. The major components of the overall system are shown in the below figure 2.1.1.

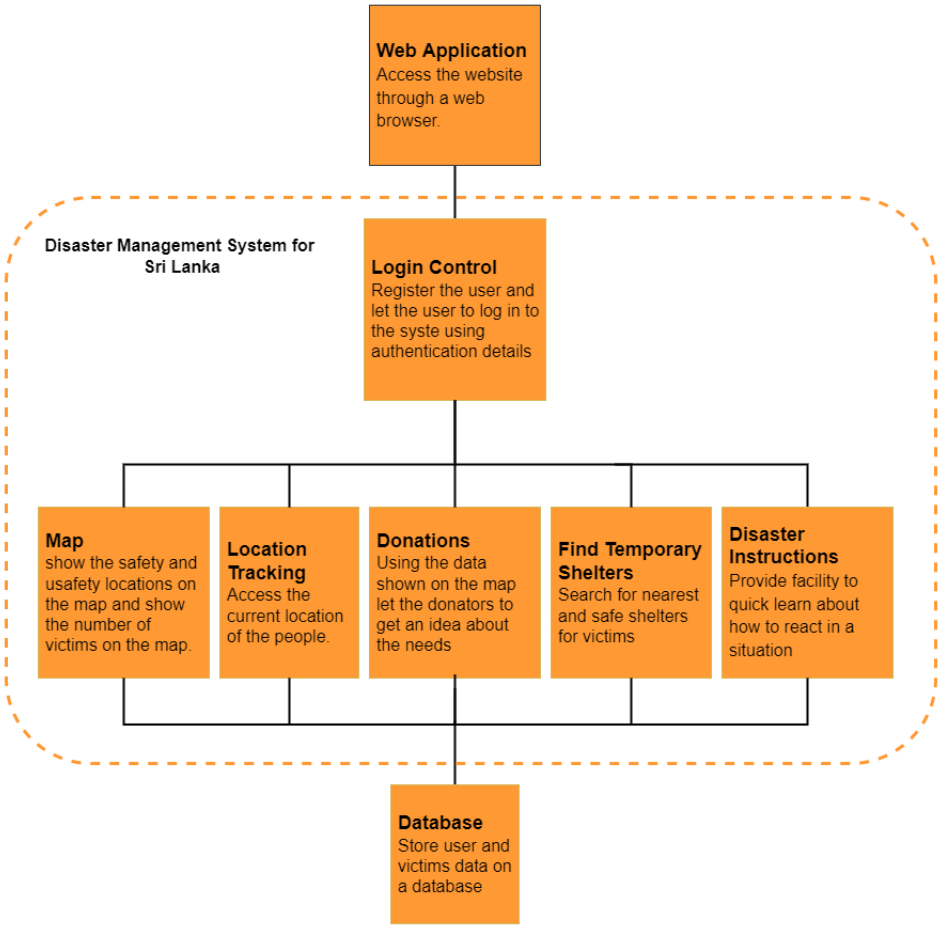


Figure 2.1.1 Architecture design of the disaster Management System

2.2 Product Functions

2.2.1 Authenticate User

F1 :	Authenticate User
Summary :	The system should allow the users to successfully login once the validated username and password are submitted.
Input :	Username/ Emil/ User ID and password
Process :	The system will check with the database for a valid login. If the provided username and password are valid, the main home page applicable to the user is displayed, else the user will be denied of access.
Output :	Message of successful login and display of the home page else an error message for invalid login.

2.2.2 Add refugee details

F2 :	Add refugee details
Summary :	Gathered information of refugee will be added by the relevant data entry operators to the system. Hence each record added to the system will acquire a unique ID, thereby, being able to easily keep track of the relevant records.
Input :	Refugee details
Process :	The system will save the entered details in the database after validation of each input data.
Output :	A successful message is given if the data has been added and will show the detailed view of

	the already entered refugee else, an error message will be displayed.

2.2.3 Add Camp Details

F3 :	Add Camps
Summary :	The gathered information about the camps located in the safety locations will be added by the relevant data entry operators to the system. Hence each record added to the system will acquire a unique ID, thereby, being able to easily keep track of the relevant records.
Input :	Camp Details
Process :	The system will save the entered details in the database after validation of each input data.
Output :	A successful message is given if the data has been added and will show the detailed view of the already entered camps else, an error message will be displayed.

2.2.4 Add disaster Location Details

F3 :	Add disaster locations
Summary :	Gathered information on the disaster locations will be added by the relevant data entry operators to the system.
Input :	Disaster type, location Details
Process :	The system will save the entered details in the database after validation of each input under the

	Added disaster type table and the identification table.
Output :	A successful message if the data has been added else, an error message will be displayed.

2.2.5 Search Safety location

F2 :	Search
Summary :	Allows any user to easily find safety locations and the nearest safety camps that can move when in a disaster.
Input :	Search field
Process :	The system should search the word given by the user in the database. If the system found any results, it will display a complete set of details on the screen for the users.
Output :	Details of the searched item or an error message notifying“ There is no matched data/ No results “

2.2.6 Search for location

F2 :	Search
Summary :	Allows any user to easily find any location that is safe, risky or affected by dropping the pointer on the map.
Input :	Drop the pointer
Process :	The system should search the location given by the user in the database. If the system found any results, it will display a pop-up on the screen for the users.
Output :	Details of the searched item or an error message notifying“ There is no matched data/ No results “

2.2.7 Send an Email

F3 :	Send an email to the patron(s)
Summary :	The system will allow authenticated users to send reminders on disaster descriptions through an email notification.
Input :	Email address, message, subject
Process :	The system will check the format of the email address provided and validate the email address. Then the relevant notification to be sent to the users will be validated and processed and will be sent.
Output :	Successful message if the email is sent else an error message will be displayed.

2.2.8 Create disaster Report

F9 :	Creation of reports for the disaster
Summary :	The system will allow administrators to generate statistical reports relevant to disaster moments.
Input :	Disaster type, location, time
Process :	When the details are provided it will be validated with the database. Once proper details are provided statistical reports will be generated.
Output :	Generated reports with tables or graphs else and an error message will be displayed if unable to generate a report.

2.2.9 Backup and Restore Database

F5 :	Backup and restore the database
Summary :	The system allows the administrator to create a backup of the data which is stored in the database. The administrator can restore the previously backed-up data. Hence the system provides a systematic way to restore the backed-up data in case of hardware or software failures. He/she is allowed to back up and restore the database at the click of a button.
Input :	Database hostname, port name, master user name, master password, backup destination
Process :	The table queries and constraints, data queries will be saved to a .sql file in the destination folder. The backed-up .sql file will be restored to the server.

Output :	Message acknowledging the success of database back-up and restoration else an error message.

2.2.10 Search Camp/ Refugee/Guidelines details.

F11 :	Search Camp/ Refugee/ Guidelines details.
Summary :	Allows the authenticated users to easily find refugee details, Camp details of who are the victims of any disaster.
Input :	Keyword(s) to search
Process :	The system should search the word(s) given by the user in the database. If the system found any results, it will display a complete set of details on the screen for the users.
Output :	Details of the searched item or an error message notifying "There is no matched data/ No results "

2.2.11 Update Camp/ Refugee/Guidelines Records

F12 :	Update Camp/ Refugee/ Guidelines Records
Summary :	The system will allow the authenticated users to update the records which were previously stored about the temporary shelters (camps) in the database at any time on request.
Input :	Field(s) to be updated.
Process :	The system will validate the updated field(s) and store them in the database by replacing the previous data of the record.

Output :	Display a success message or else an error message.

2.2.12 Retrieve or Change Password

F9 :	Retrieval or change of user password
Summary :	The system will allow the user to retrieve the password in any preferred way or change the old password to a new one.
Input :	New password code received by email/ SMS and password question and answer or new password and old password.
Process :	The above input fields will be validated and checked with the database and if the new password is provided it will be saved to the database.
Output :	Display of successful message or else an error message of failure to process.

2.2.13 Delete Camp/Refugee/ Guidelines/ Location/ Disaster Records

F10 :	Deleting Camp/Refugee/ Guidelines/ Location/ Disaster records from the database
Summary :	The system will allow only authenticated users to perform the deletion operation of records stored by the system.
Input :	Record ID

Process :	The system will check with the database for the record and any constraints related to the record to be deleted. And it will retrieve the entire data specific to the provided ID and if constraints are not found related to the record, the system will allow the deletion.
Output :	A successful message or an error message.

2.2.16 Send alerts

F11 :	Send alerts
Summary :	This system will allow authenticated users to send relevant alerts to the users by notifying them about the disasters.
Input :	Mobile number, reminder, User ID
Process :	The system will check with the database for valid inputs. And once validation is successful the relevant reminder will be sent.
Output :	Message of successful sending of the reminder to relevant parties else an error message will be displayed.

2.2.17 Contact using emergency contact numbers

F11 :	Contact using emergency contact numbers
Summary :	This system will allow the users to contact people with contact numbers which the user has entered when logging in.
Input :	Mobile number, reminder, User ID
Process :	The system will check with the database for valid inputs. And once validation is successful the relevant reminder will be sent.
Output :	Message of successful sending of the reminder to relevant parties else an error message will be displayed.

2.2.18 User donate camps

F11 :	User donate Camps
Summary :	This system will allow the users to donate to the camps where the victims are in.
Input :	User ID
Process :	The system will check with the database for valid inputs. And once validation is successful the relevant donations description will be sent.
Output :	Message of successful sending of the donation to relevant parties else an error message will be displayed.

2.2.19 Customize User profile

F13 :	Customize User profile
Summary :	This allows the user to change the appearance of their display screens. The ability to make changes will differ according to the user's privilege.
Input :	Select the required change to be made.
Process :	The changes will be made to the relevant user according to their preference.
Output :	Success message or error message.

2.3 User Classes and Characteristics

The system will be used by different user groups. Each will have their roles to be performed in the system. All the functions assigned to these user groups are considered highly important. The list of user groups and their functionality with regard to the system are given below.

- **Administrator**

  The administrator of the disaster management system can log in to the system and select any operation to be performed by the system. The administrator has the full capacity to control and manage the entire system's functionalities and its activities by users. He/ she can regulate and restrict user permissions and filter the functionality according to their roles, generate system document templates, handle refugee and camp details, manage users' accounts and details, disaster management in certain areas, employee management, system back-up and restore when required private document management, change application settings, control the entire web-based application, manage inquiries/ notifications and communications, administer changes to the system database and handle the operations of a disaster. They need to collect timely details of the relevant disasters from relevant parties and should update the application.

- **Working Staff**

  They are given an authenticated user login to perform the basic functions of the disaster management system. They are able to add data to the system, collect disaster details, add camps, add refugee details, search the available details of refugees, and camps and customize their user profiles.

- **Donors**

  The donors can view the details of the refugee camps such as no of refugees, no of casualties, availability status of the food, resources and their needs which are on a relevant location. Using the details, donors will be able to donate to the refugee camps.

- **General public**

  The general public is the main user of the disaster management system and is given the opportunity to know about the current situation of disasters in his/ her area. They need to have basic computer skills to use the system. They are able to view the risky, affected and safe locations on the map, and make donations by visiting the "donations" on a web-based application, Also, users can view the guidelines that should follow before, during and after a disaster and through the system user will be able to contact the family in an emergency.

- **Refugee**

  Using an authorized username and a password can log in to the system. They can get notified and when in a disaster refugees can move to the nearest and safe place to save their selves. Also can follow instructions which can follow during a disaster.

- **Emergency responders**

  They are provided with authenticated user login and password where they can respond to an emergency when getting a notification on a certain disaster. They can notify themself by visiting the map to find the places which are high risk. Even they can process donations through the system.

2.4 Operating Environment

The Disaster Management System will be running on Microsoft Windows 8,10,11 operating system-based platforms. It is highly recommended that all the workstations will be connected with the centralized database server which will be running with SQLite. Visual studio code, Django is used to implement the web-based application. The database will be installed in the server and the system will be installed in workstations. The users will need to have Desktop PCs or a smartphone. The users making direct involvement with the system should have basic computer literacy to operate and work with the system.

2.5 Design and Implementation Constraints

- The "Help+Us" Disaster management system consists of subprocesses and they are carried out by various departments. These departments are not connected to a network. Hence a new server machine is required to make the required connection between the workstations.

- The required database management system is SQLite. The database SQLite server should be installed in the database system.

- Python is the programming language and HTML, CSS and Javascript are the additional programming languages that will be used for the development of the product.

- Since the system's information affects the disasters performed in Sri Lanka, the system must be equipped with a proper security mechanism.

- The servers should have 250GB of initial Hard disk drive and the memory should be 10GB.

- The users must have the ability to work in a web-based environment. Therefore, basic knowledge of technical skills and literacy will be required. Hence potential users will be required to be trained.

- SMTP, IP, TCP and Amazon SNS protocols will be used.

2.6 Project Documentation

All the documents are created during the development phase of the system and will be handed over to the client along with the software.

- The project proposal will have all the basic descriptions of what we are going to develop for the system which includes simple metaphors about essential functionalities of the system.

- Software Requirement Specification is an agreement between the client and the development team. It is the legal contract between the two parties involved. This document addresses how to tackle the current issues by the use of the system that is to be implemented.

- The final report will represent the technical background of the system and will be handed over only after the design, implementation phase and testing are completed.

- The user Manual would basically be a guidebook of the system, which includes information on how to use the system.

2.7 User Documentation

There are documents that are handed over to the client to take better use of the system, in order to simplify the adaptation process and to troubleshoot any problems if it arises. These documents are compiled with the intention of delivering an obligatory guideline on how to use the software with proper use. The basic documentation for the users will be as follows.

- User Manual is a guide which includes the GUIs and how to make proper use of each GUI. The user manual will be given as a hard copy or a soft copy as requested by the client.

- Tutorials will be an optional document if requested by the user. Upon the delivery of the system, the users should have a basic tutorial to follow in order to familiarize themselves with the system.

2.8 Assumptions and Dependencies

- The system will need a total list of its users and the employment hierarchy.

- The Administrator should possess an excellent computer skills in order to manage the entire system.

- The administrators should have proper internet facilities to get the disaster water levels, rainfall and other details to analyse and input to the system.

- When a hard copy of forms is needed, the system should be facilitated with a printer in order to take print outs.

- All users of this system must have a basic knowledge of computer skills in order to use the software.

The system needs the following products.

- SQLite 3.12.2 version to store the database.
- Visual Studio Code 1.79.2 version to develop the system.
- iReport 5.5.0 and JasperReports to generate reports.

3. External Interface Requirements

3.1 User Interfaces

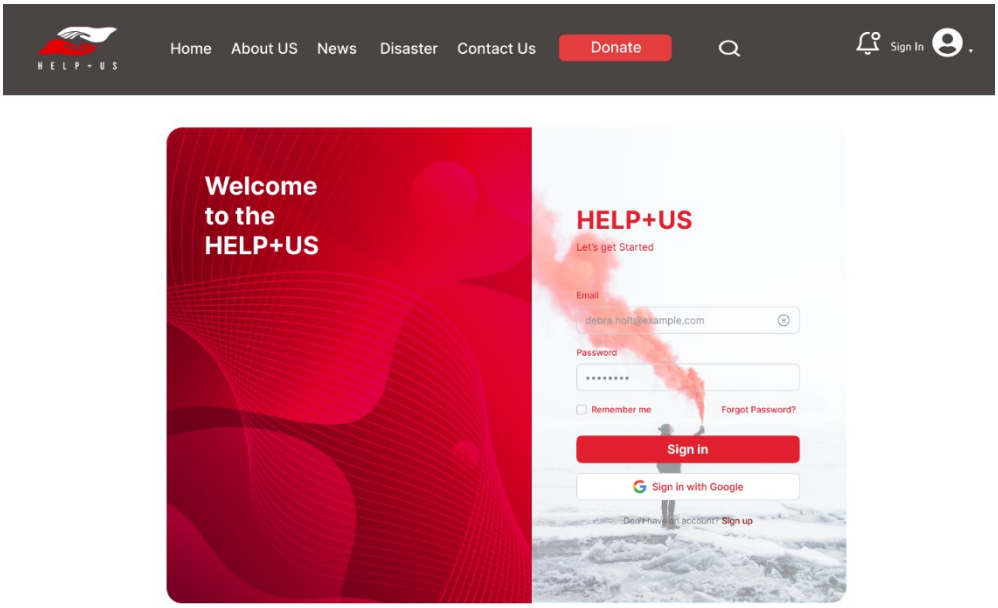


Figure 3.1.1 User Login Interface

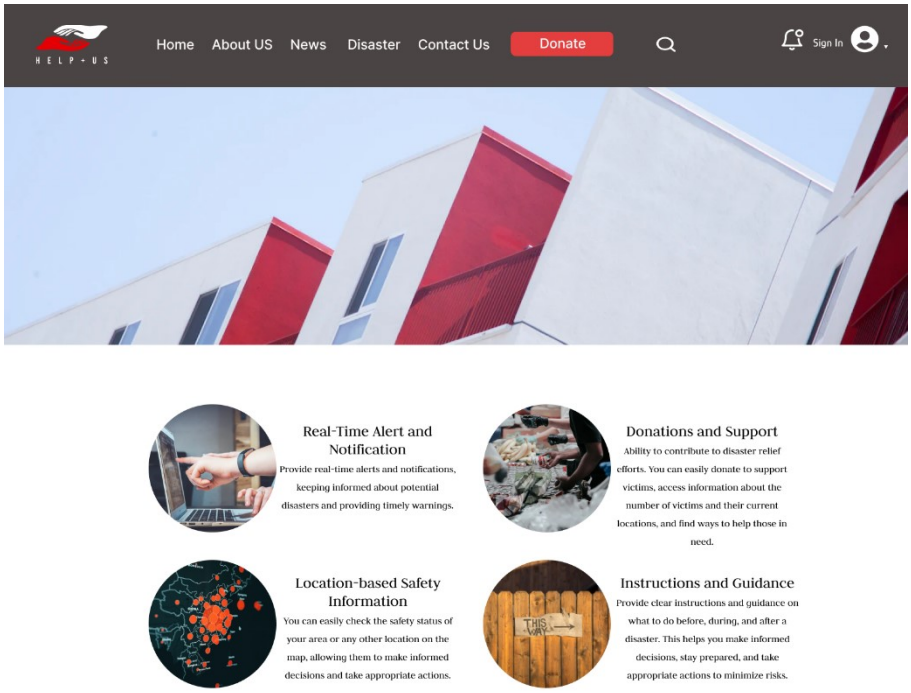


Figure 3.1.2 Home Page

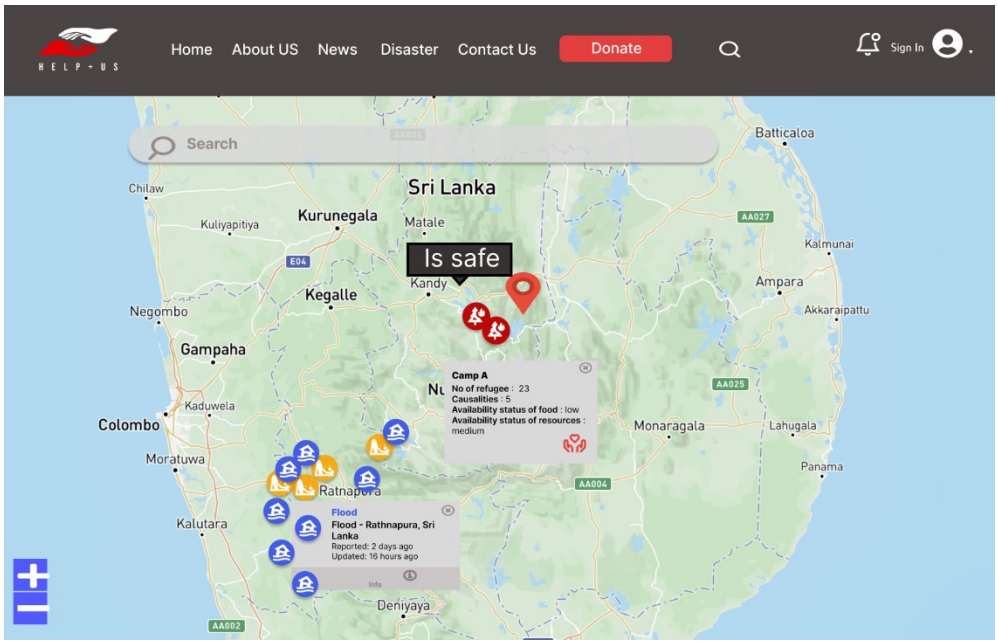


Figure 3.1.3 Map Inerface

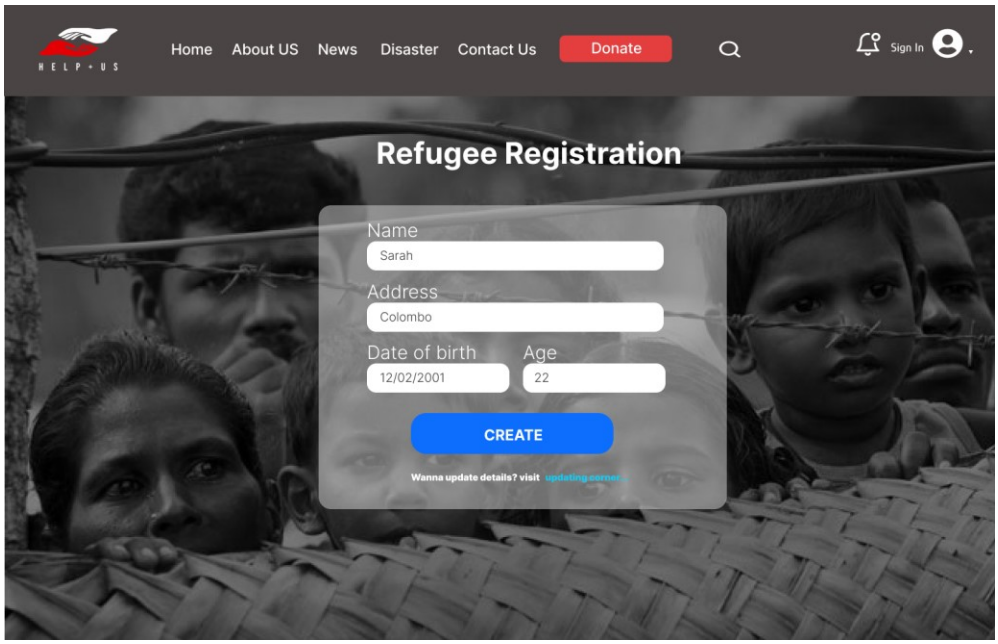


Figure 3.1.4 Refugee Registration Interface

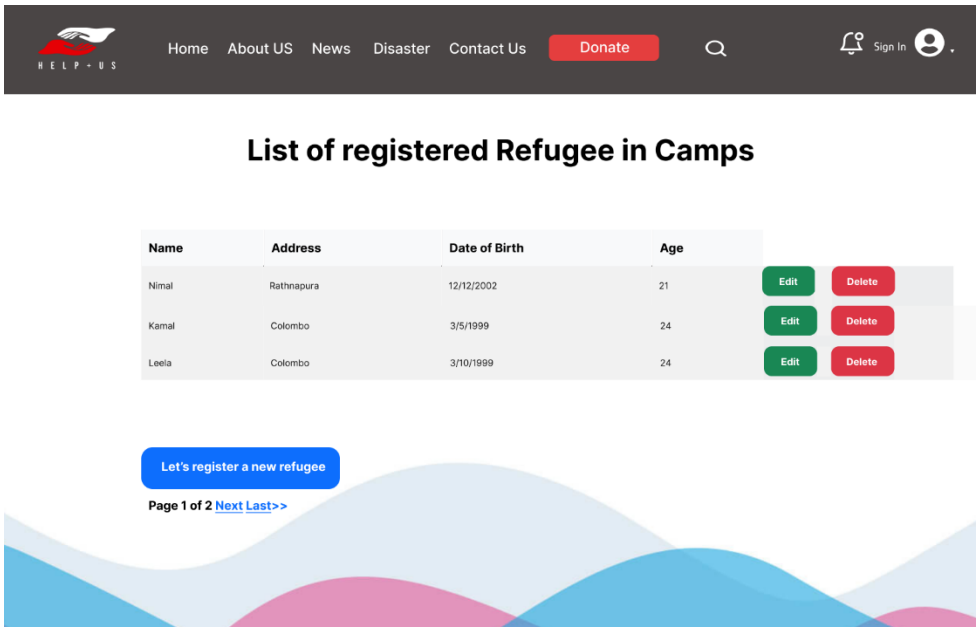


Figure 3.1.5 Refugee Detailed View Interface

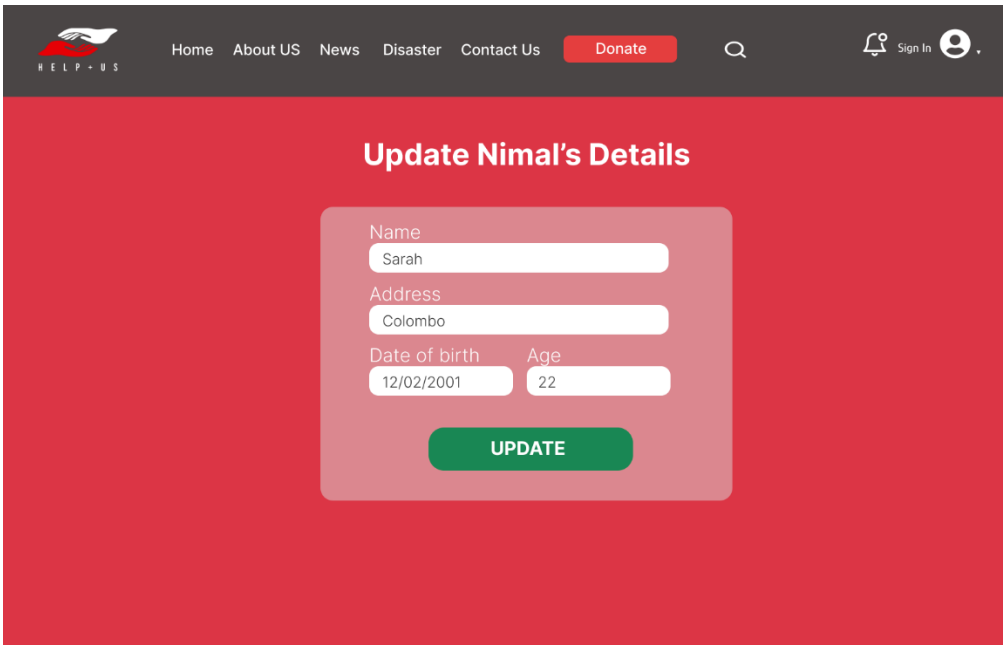


Figure 3.1.6 Refugee Updation Interface

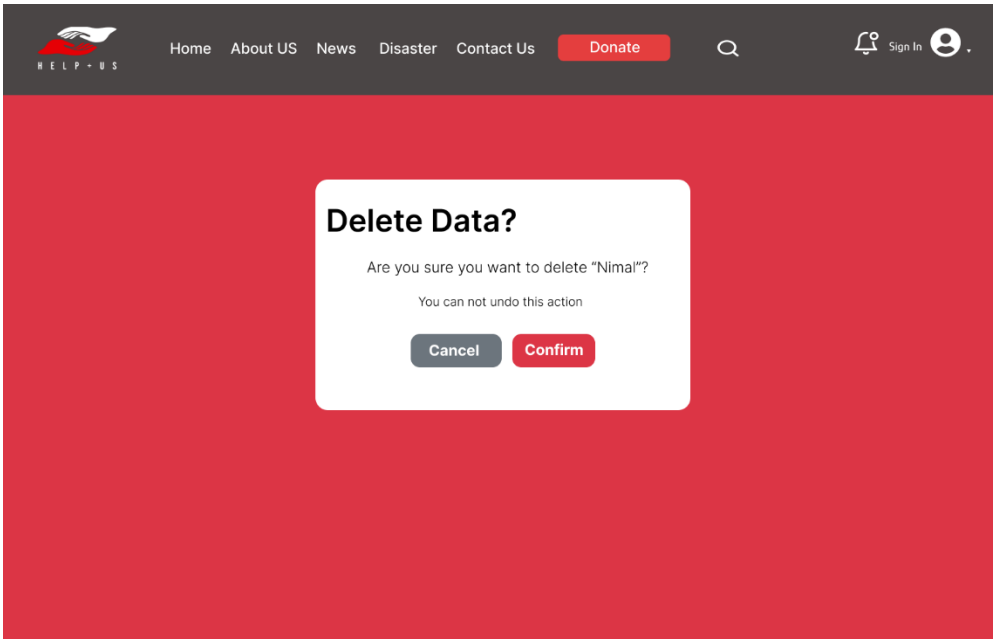


Figure 3.1.7 Refugee Deleting Interface

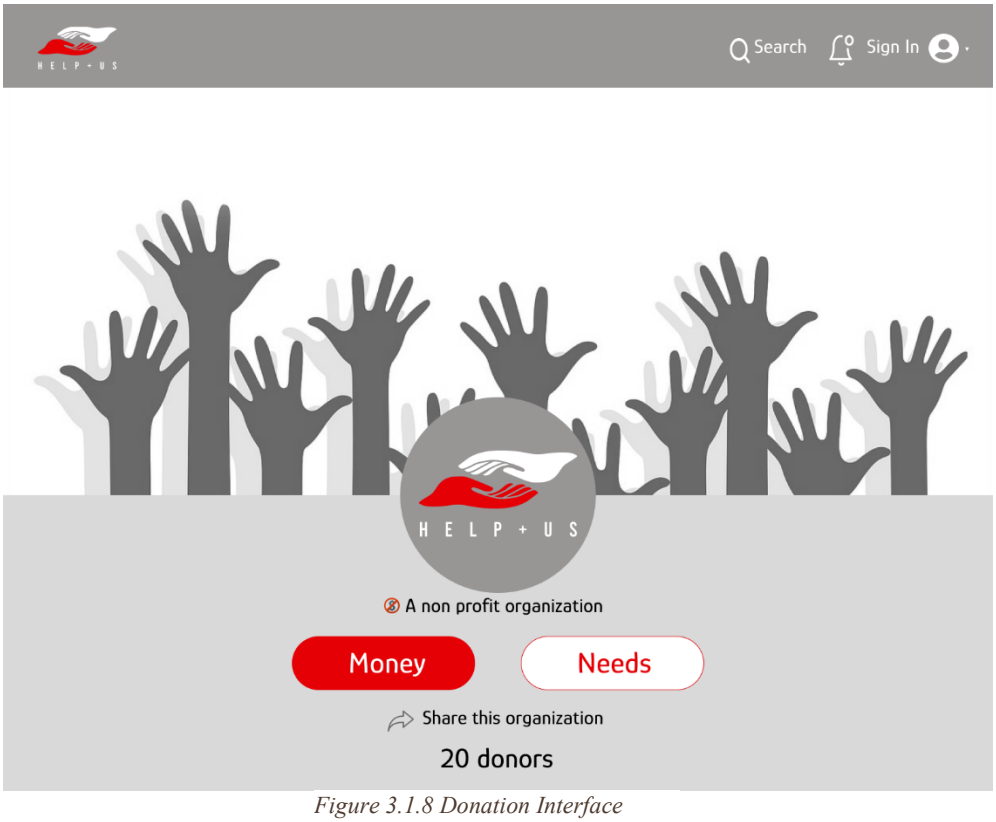


Figure 3.1.8 Donation Interface

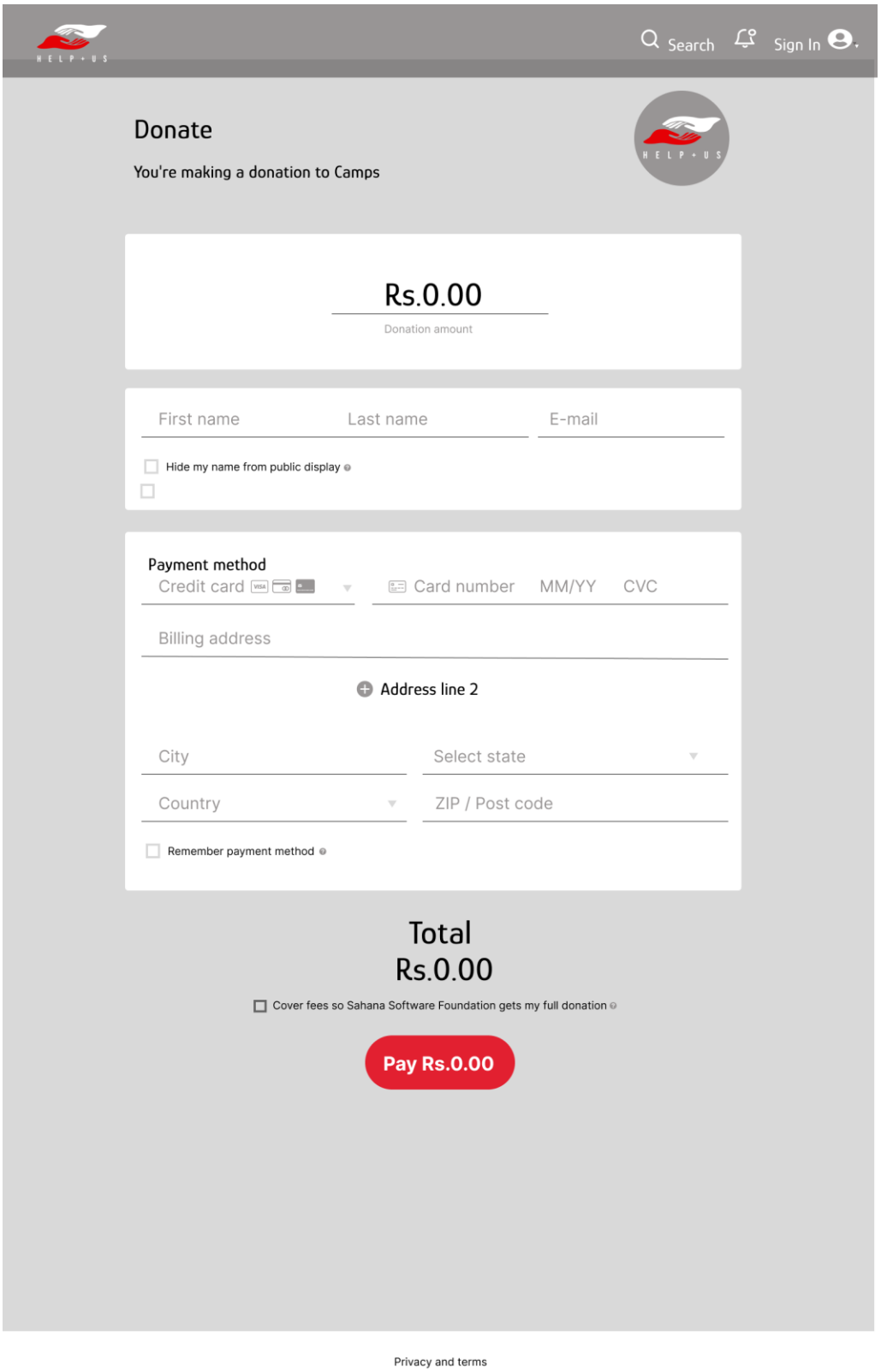


Figure 3.1.9 Money Donation Interface

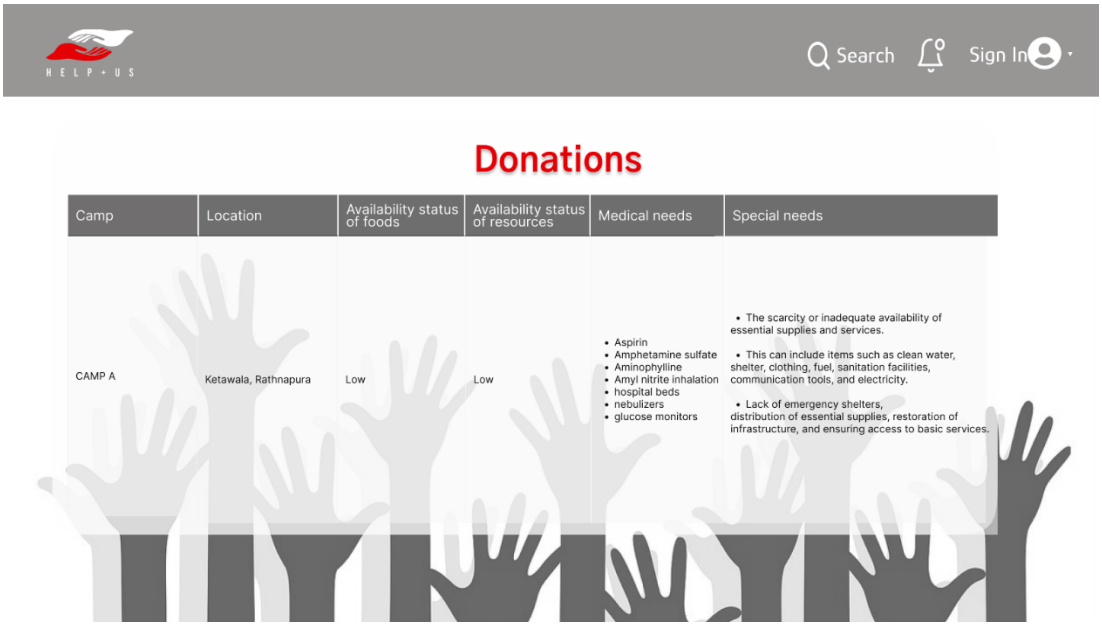


Figure 3.1.10 Donation Needs Interface

3.2 Hardware Interfaces

The client will require a 2.8 GHz Processor or above, 2GB or above RAM, and 40 GB or above Hard disk Drive [1]. The operating system will be optimally Microsoft Windows 8. In addition to this, a printer should be configured for taking hard copies, and a mouse, and keyboard are required. Users can connect to the web application via any ISP.

3.3 Software Interfaces

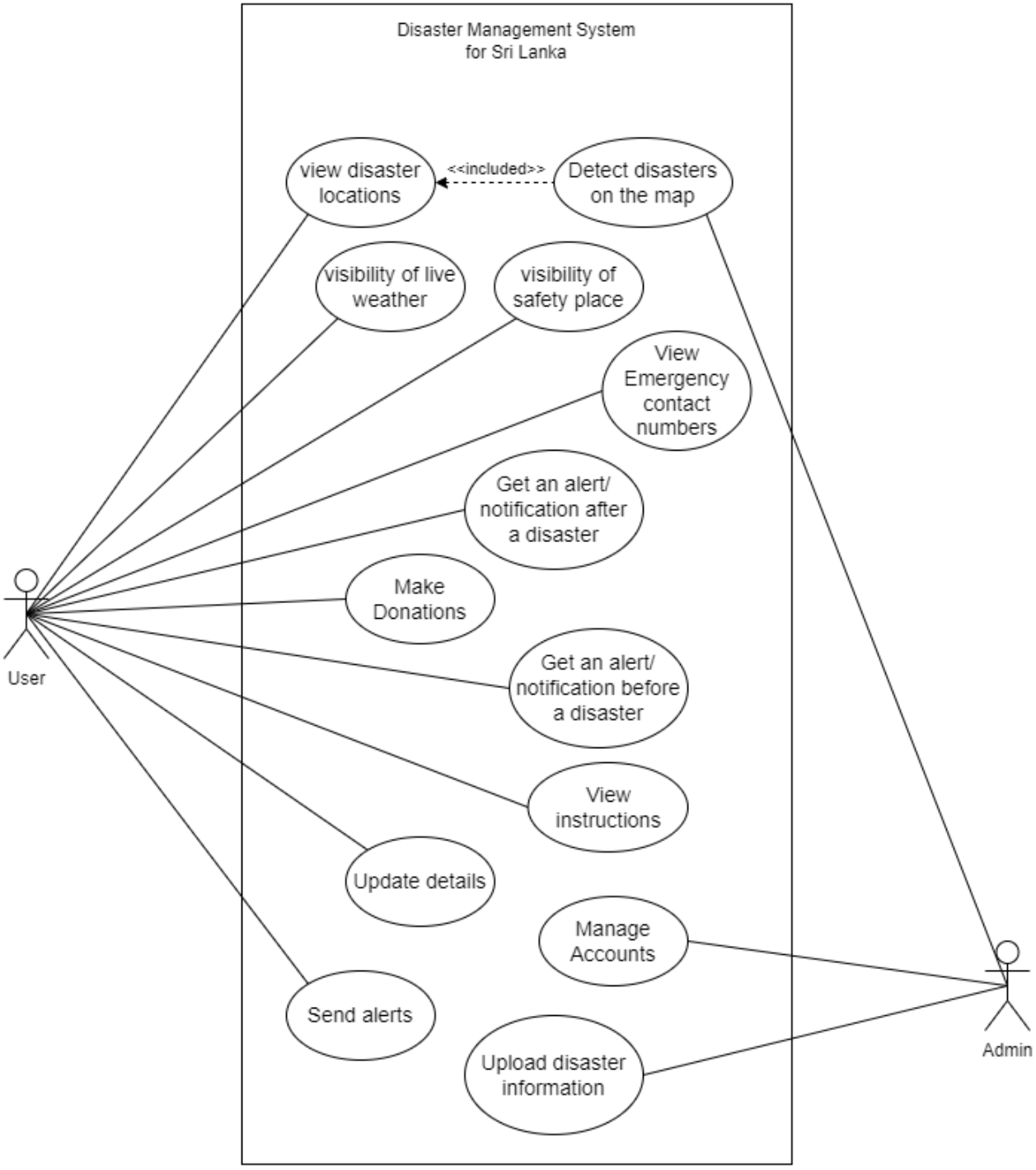
The database of the system will be designed and maintained using SQLite 3.12.2 and Visual Studio Code 1.79.2 will be used to design the interfaces and develop the coding of the system. ireports 5.5.0 and JasperReports will be used in order to create reports for the disaster management system.

3.4 Communications Interfaces

Communication Function	Standard
SMS	Amazon SNS
Email	SMTP
File Uploading	FTP

4. System Features

Use Case diagram



Use Case Narrative

4.1 Authenticate User

Use Case Name :	Authenticate user
Pre-Conditions :	System is up and running.
Primary Actor(s) :	Administrator, Librarian, Assistant librarian, Working Staff, Book Circulation involved personnel, Patron
Main Success Scenario :	1. The use case begins when the system prompts for username and password. 2. User enters their respective username and password. 3. System validates the input fields. 4. The use case ends when the system displays the welcome home page and redirects to the relevant user Main page.
Extension :	3a).System identifies that the username or password is wrong. 3b).System generates an error message notifying login failure. 3c).User is prompted again to re-enter username or password. 3d).Return to main step 3).

4.2 Add Refugee Details

Use Case Name :	Add refugee details
Pre-Conditions :	System is up and running. Admin has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario:	1. The use case begins when the admin enters the relevant interface to enter the data. 2. Admin inputs the details to the fields. 3. Admin clicks the “Create” button. 4. The system validates the data. 5. Data is saved to the database and the use case ends.
Extension :	4a). If invalid inputs are provided, the admin is prompted to re-enter the data. 5a). If an error occurs; a message will be displayed notifying failure to save the data.

4.3 Add Camp Details

Use Case Name :	Add Camp details
Pre-Conditions :	System is up and running. Admin has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario:	1. The use case begins when the admin enters the relevant interface to enter the data. 2. Admin inputs the details to the fields. 3. Admin clicks the “Create” button. 4. The system validates the data. 5. Data is saved to the database and the use case ends.

Extension :	4a). If invalid inputs are provided, the user is prompted to re-enter the data. 5a). If an error occurs; a message will be displayed notifying failure to save the data.

4.4 Add Disaster Location Details

Use Case Name :	Add Disaster Location details
Pre-Conditions :	The system is up and running. Admin has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario:	1. The use case begins when the admin enters the relevant interface to enter the data. 2. Admin inputs the details to the fields. 3. Admin clicks the “Create” button. 4. The system validates the data. 5. Data is saved to the database and the use case ends.
Extension :	4a). If invalid inputs are provided, the user is prompted to re-enter the data. 5a). If an error occurs; a message will be displayed notifying failure to save the data.

4.5 Search Safety Location

Use Case Name :	Search Safety Location details
Pre-Conditions :	The system is up and running. The user has successfully logged or not into the system and granted location access permissions.
Primary Actor(s) :	Administrators, System users, Community, and emergency service providers, refugee
Main Success Scenario :	1) Use case begins when the user enters the "Search" interface. 2) The user can search any location to find the nearest safe location. 3) Use case ends when the search results are displayed.
Extension:	4a). If there are no results, a message is displayed.

4.6 Search for Location

Use Case Name :	Search for Location
Pre-Conditions :	The system is up and running. The user has successfully logged in or is not in the system.
Primary Actor(s) :	Administrators, System users, Community, and emergency service providers, refugee
Main Success Scenario :	1) Use case begins when the user drops the pointer on the map on a certain area. 2) The use case ends when the search results are displayed with a pop-up message by displaying "Is a safe area" or "Is an unsafe area".
Extension:	4a). If there are no results, a message is displayed.

4.7 Send an email

Use Case Name :	Send an email
Pre-Conditions :	System is up and running. User has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario :	1. Use case begins when the user selects the mail option. 2. It gets the email address of the user when the user ID is provided. 3. The system validates the entered email address. 4. Use case ends when an email is sent to the relevant party.
Extension :	3a). System prompts a message by notifying that the provided mail addresses are invalid. 3b). When a user enters the invalid details it again allows the user to re-enter the correct mail address.

4.8 Create Disaster Report

Use Case Name :	Create Disaster report
Pre-Conditions :	System is up and running. User has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario :	1) Use case begins when the user selects the “Create Report” operation. 2) User selects the type of report (e.g.: bar chart, tables etc.). 3) A drop-down list is given to choose the item the report should be generated for. 4) User presses the “Generate report” button. 5) System processes the inputs and retrieves the data.

	6) Report is generated.
Extension :	5a) If the system fails to process or retrieve the data, an error message will be displayed. 6a) If step 5 fails, report will not be generated and an error message will be displayed.

4.9 Back-up and Restore database

Use Case Name :	Back-up and restore database
Pre-Conditions :	System is up and running. Administrator has successfully logged into the system. The database requires back-up and restore.
Primary Actor(s) :	Administrator
Main Success Scenario :	1) Use case begins when the administrator enter the interface and enter the relevant fields. 2) User select “Back-up Database” or “Restore Database” button. 3) System prompts a confirm message for the entered inputs. 4) User confirms the details. 5) A copy of the database is saved to the destination path if “back-up Database” button is selected else, if “Restore Database” button is selected, the saved back-up file will be retrieved and restored to the system and the use case ends.

Extension :	4a).If the user didn't confirm the details, use case is terminated. 5a).If problems occur, a relevant message is displayed.

4.10 Search Camp/ Refugee details

Use Case Name :	Search Camp/ Refugee details
Pre-Conditions :	The system is up and running. The user has successfully logged into the system.
Primary Actor(s) :	Administrators
Main Success Scenario :	3) The use case begins when the user enters the "Search" interface. 4) The user can search any refugee/ or assigned camp to know which refugee is in which camp and the availabilities for a camp. 5) The use case ends when the search results are displayed.
Extension:	4a). If there are no results, a message is displayed.

- Location/ Disaster/ guidelines details are also searched as above mentioned

4.11 Update Camp Records

Use Case Name :	Update Camp Records
Pre-Conditions :	System is up and running. User has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario :	1. The use case begins when the user selects the relevant interface to update a record. 2. The user clicks the "Edit" on the detail view the relevant Record. 3. The system displays the updatable fields of the record. 4. The user makes the necessary changes and presses the "Update" button. 5. The system validates the data and replaces the previous data of the record with the updated data. 6. The use case ends on the success of the update.
Extension :	5a). If invalid data is identified by the system, the user is prompted to re-enter. 5b). Return to step 4.

- Refugee/ location/ Disaster details are also updated as above mentioned.

4.12 Delete Refugee Records

Use Case Name :	Delete Refugee records
Pre-Conditions :	System is up and running. User has successfully logged into the system.
Primary Actor(s) :	Administrator
Main Success Scenario :	1) Use case begins when the user enters the relevant interface.

	2) User clicks on the "Delete" button in the detail view of the relevant record. 3) The system validates the details. 4) The system checks the related constraints with the data and deletes the relevant record and it will be moved to the detail view. 5) The use case ends after all the operations.
Extension :	4a) If the constraint prohibits the delete, an error message will be displayed and use case will be terminated.

- Camp/ Location/ Disaster records are also deleted as above mentioned.

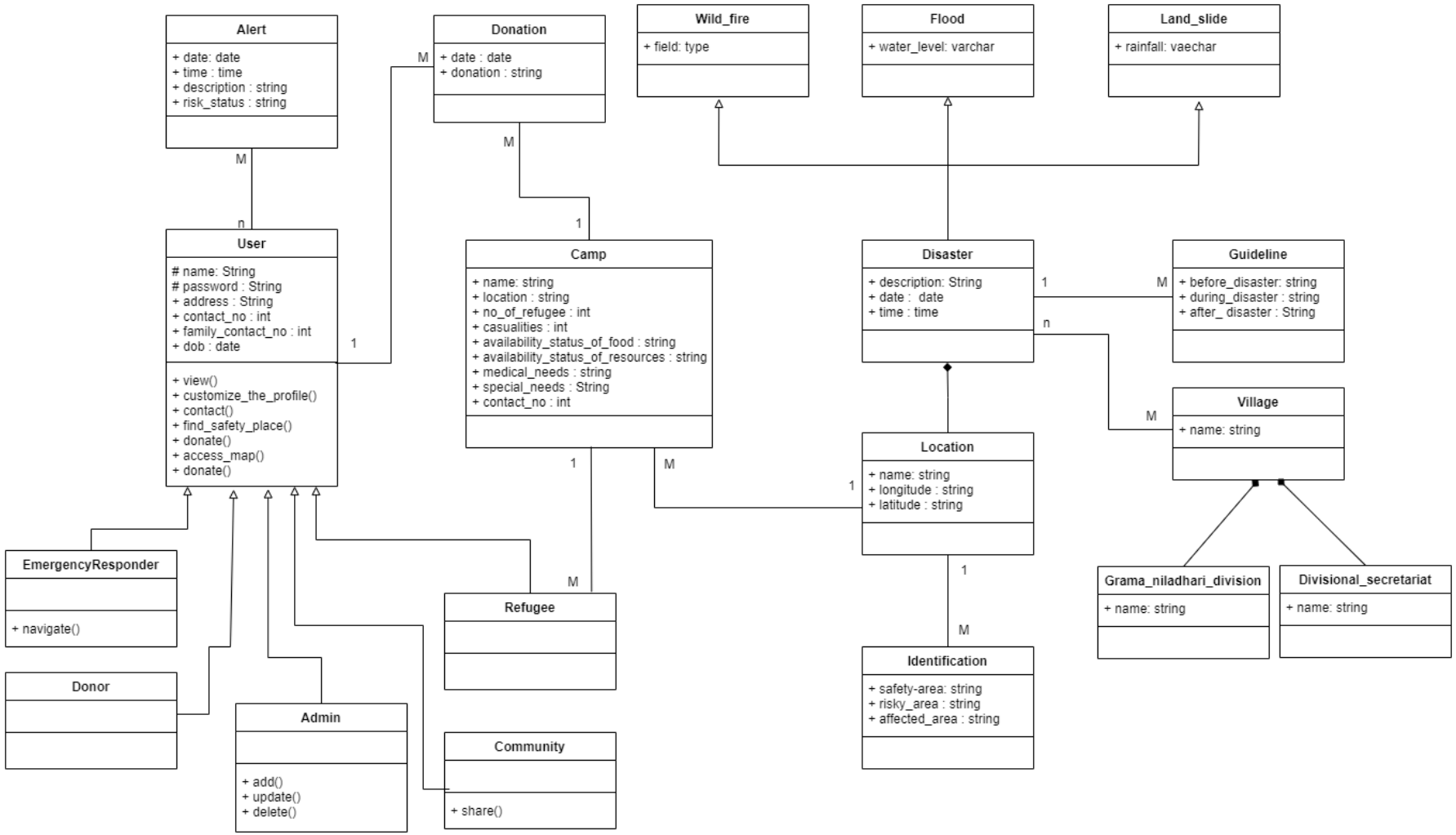
4.13 Send Alert

Use Case Name :	Send Alert
Pre-Conditions :	The system is up and running. The user has successfully logged into the system.
Primary Actor(s) :	Admin
Main Success Scenario :	1. The use case begins when the user selects the SMS option. 2. The system automatically gets the phone number when logging in to the system. 3. The system validates the details. 4. The use case ends when an SMS is sent to the relevant person successfully.
Extension :	3a). System prompts a message by saying that provided phone number is invalid. 3b). Ask the user to re-enter the phone number.

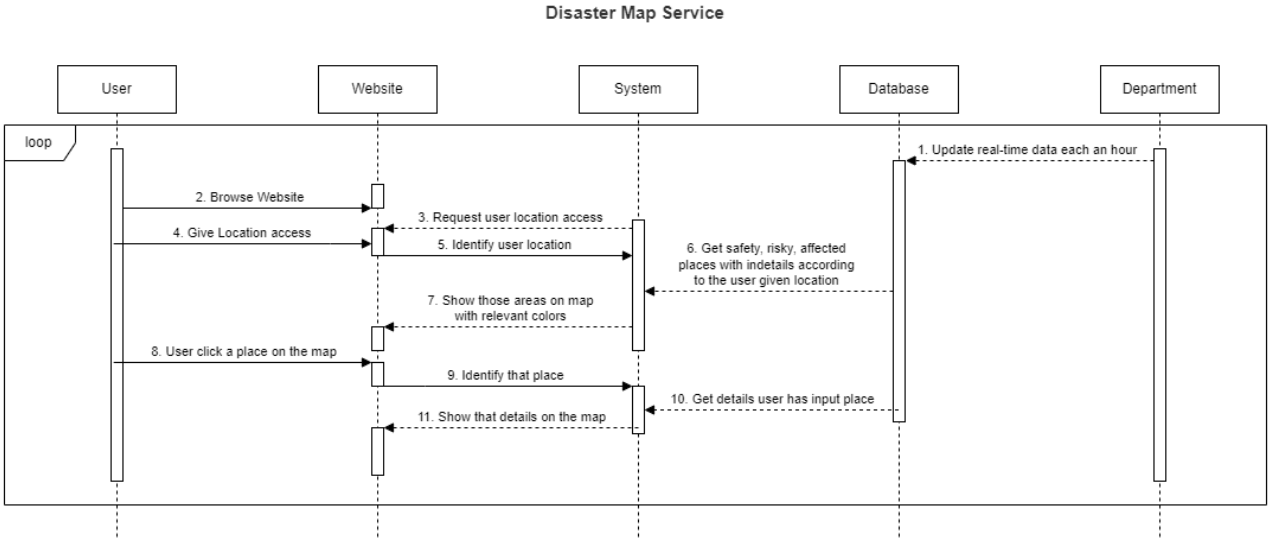
4.14 User donate Camps

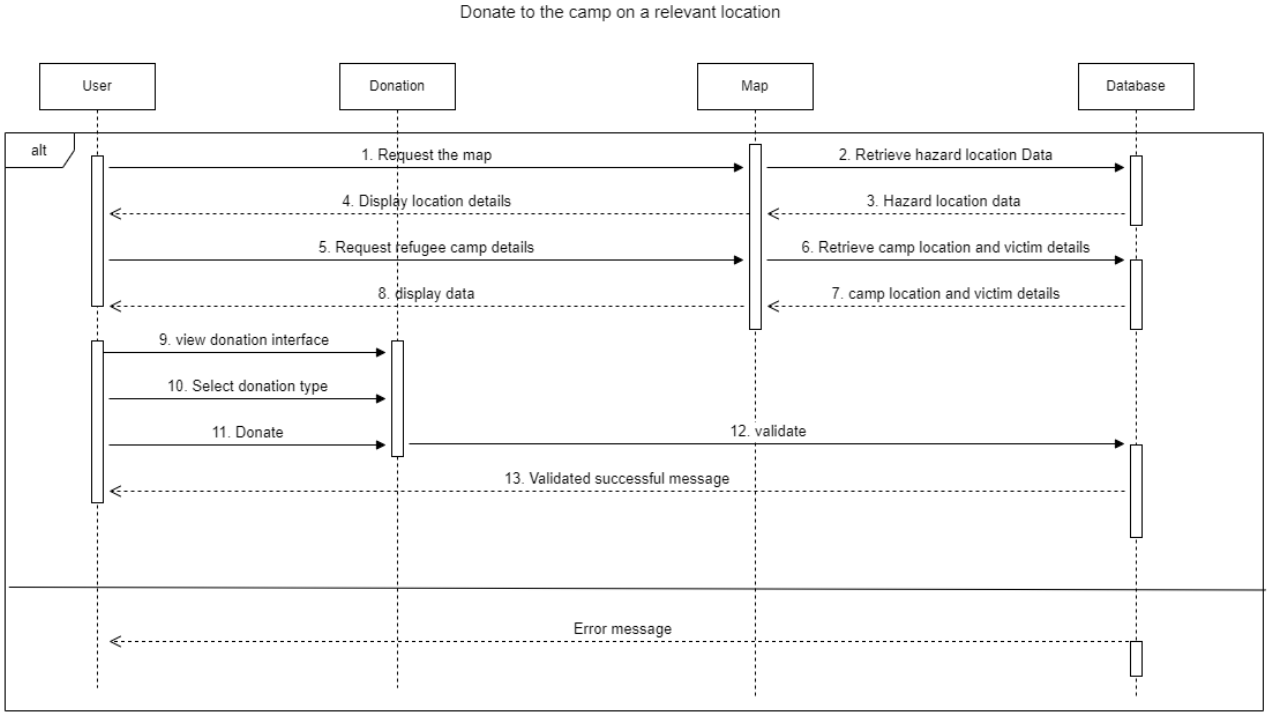
Use Case Name :	User Donate Camps
Pre-Conditions :	The system is up and running. The user has successfully logged in or is not in the system.
Primary Actor(s) :	Admin, Community, Emergency service provider, refugee
Main Success Scenario :	1.) The use case begins when the user selects the Donate option. 2.) The system automatically will show a list of camps and details which can be donated. 3.) The system validates the details. 4.) The use case ends when a donation is sent to the relevant camp successfully.
Extension :	3a). System prompts a message by saying that provided details are invalid. 3b). Ask the user to re-enter the phone number.

Class Diagram

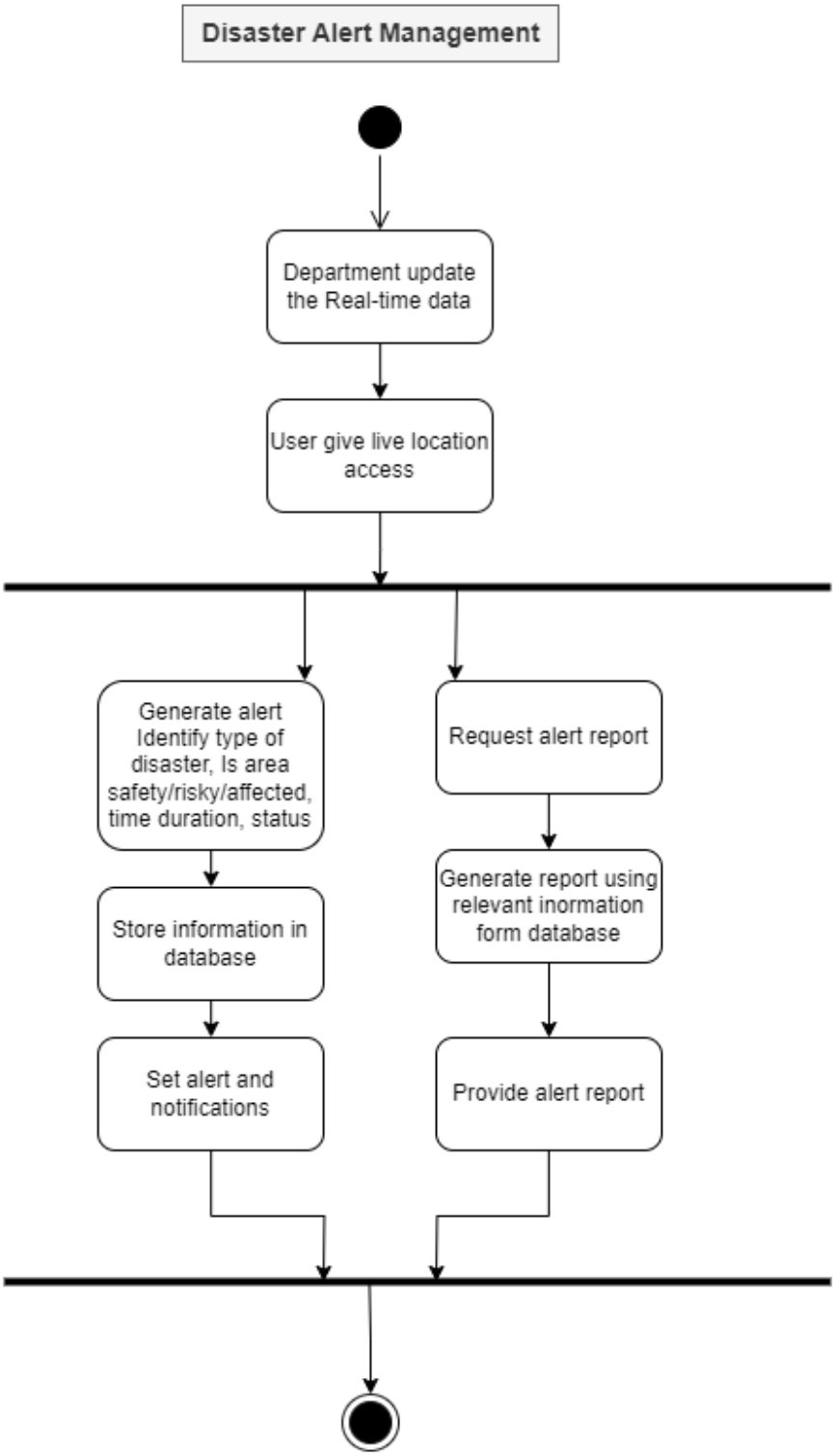


Sequence Diagram

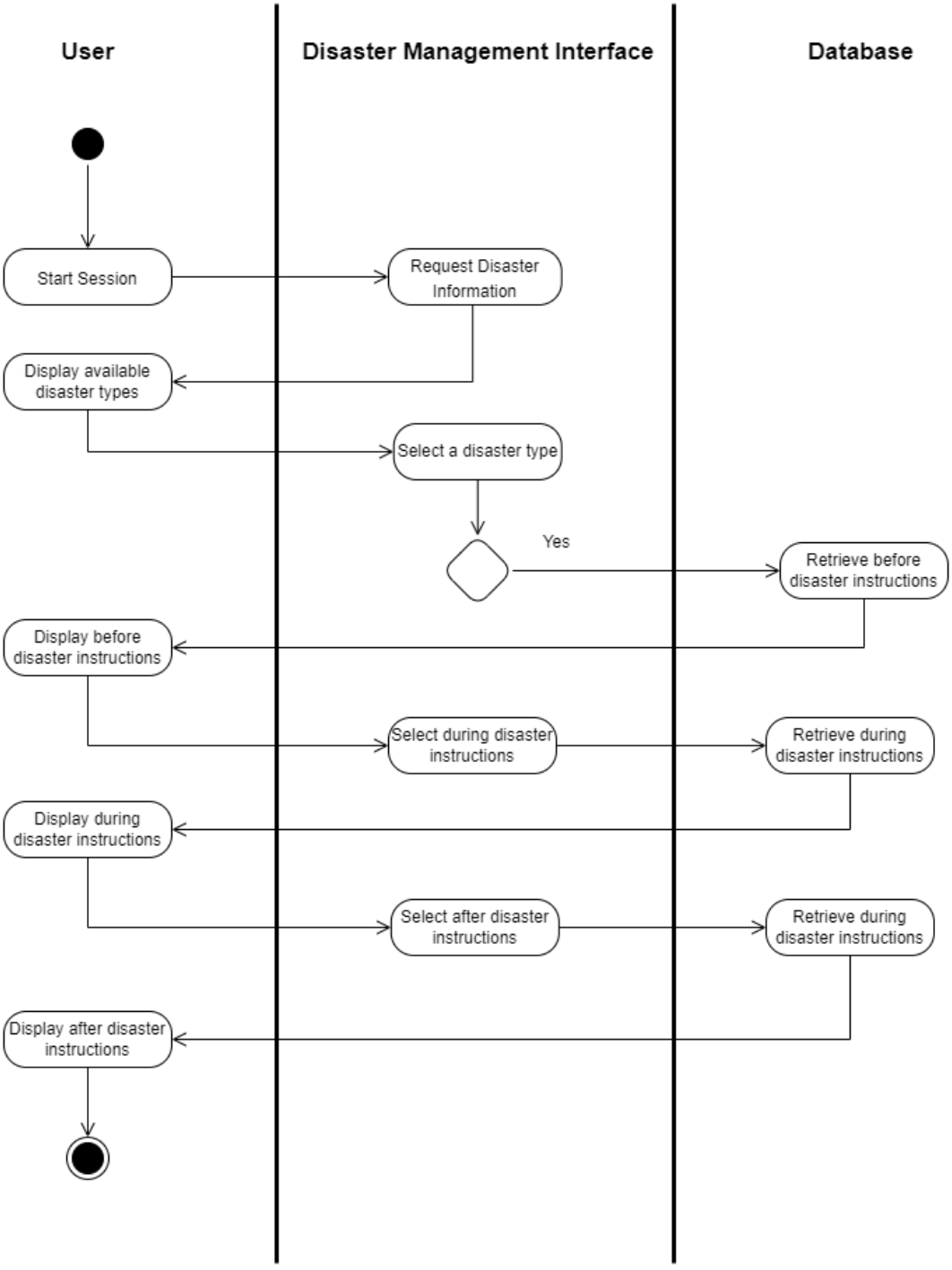




Activity Diagram



Users should be able to get directions on what they should do before, during and after the disaster.



5. Other Nonfunctional Requirements

5.1 Performance Requirements

The proposed system will be used by multiple users accessing the system simultaneously.
The maximum response time will be within 6 seconds.
The average response time for the system to respond will be 2 seconds.
The web application should be able to handle a huge amount of workload.
The system should also be able to handle and adapt to clients' future modifications and changes to requirements.
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5.2 Safety Requirements

The use of this software system is only a solution to computerize Disaster Management of the data. The safety of the product and its users and ethical issues should be given consideration when using this system. Data could be lost, damaged or harmed due to virus or technical failures. Therefore, we are taking measures to prevent these hazards. The constraints take effect on shaping the software to be more trustworthy, reliable and genuine. Back-up and restoration of data as required by the client to prevent loss of data from unexpected database crashes and avoid the accumulation of data that would affect the performance of the system.

5.3 Security Requirements

When the users log in to the system, they must provide an authenticated username and a valid password. The particular user should be given different user privileges according to the disaster management system user hierarchy. Users should adhere to the access permissions given to them and should avoid any malpractices such as violation of access rights. Any attempt in using the system in an unethical way is prevented within the system. Any modification to the system should be regulated by the system administrator.

5.4 Software Quality Attributes

- Availability

  The Administrator can access all the data stored in the database at any time period. Other users can access the data according to their access privileges. The system is available 24 hours daily for operations. The system will need 10-15 minutes of downtime for database backup purposes.

- Security

  Unauthorized persons cannot access the system as it requires an authenticated user name and password. If any user uses the system without login can only view the map. Therefore, the reliability of the data is high.

- Usability

  The user-friendly interfaces make the system easier to use and can adapt to it without much constrain.

- Maintainability

  The Disaster Management System makes it easy to maintain and the programming constraints are followed consistently throughout the whole application.

- Reliability

  The system runs on at least 99% reliability. If any system failure occurs, the crash recovers with back-ups.

- Integrity

  All the important data are secured in the system as only authorized personnel can access the system, thus, ensuring the integrity of the data that is being stored.

5.5 Business Rules

Each user of the system should have an authenticated username and password. If any user does not log into the system can only view the disaster location on the map.

- An Administrator login gets the full capacity to control the entire system. They are allowed the capability to make any changes required to the system and control the users and their activities in the system.

- The general public is allowed to view the disaster locations and details and can perform donations only. They get an alert before a disaster only if they are registered to the system. They do not have the full capacity to control the system or its activities.

- The refugee is allowed view the disaster locations and details and can perform donations only. Also, will be able to get alerts and contact emergency numbers when in a disaster.

- Working Staff has the basic functionalities to perform in the system and do not have the full functioning capacity in the system.

- Emergency Responders are allowed any activity with regard to get decisions and acting against an emergency.

- The donors have the ability to donate to a certain camp using money donation, food and resources using the web application by searching the camp details.

6. Other Requirements

Below are the additional requirements and constraints of the system to be implemented.

- The system must follow the development standards.

- Web application development should be done in Python language in Visual Studio Code.

- SQLite should be the database management software, and there should be enough storage to hold all the data.

Appendix A: Glossary

IEEE	Institute of Electrical and Electronics Engineers
GUI	Graphical User Interface
SRS	Software Requirements Specification
PDF	Portable Document Format
SMS	Short Message Service
HTML	Hyper Text Markup Language
CSS	Cascade Style Sheet
SMTP	Small Mail Transfer Protocol
IP	Internet Protocol
ISP	Internet Service provider
Amazon SNS	Amazon Simple Notification Service
FTP	File Transfer Protocol

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