A WEB-BASED CHARITY APPLICATION TO LINK DONORS AND THE DISADVANTAGED IN THE SOCIETY

Abisagy Apollo
Group A
101329

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School of Computing and Engineering Sciences
Strathmore University
Nairobi, Kenya

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Declaration and Approval

I declare that this work has not been previously submitted and approved for the award of a bachelor's degree by this or any other University. To the best of my knowledge and belief, the work contains no material previously published or written by another person except where due reference is made in the work itself.

Student's signature:

……..…….. [*Signature*]

……..…….. [*Date*]

Approval

The work of ***101329*** was reviewed and approved *(for examination)* by:

Supervisor's signature:

……..…….. [*Signature*]

……..…….. [*Date*]

Abstract

Philanthropy supports projects or endeavours that may be unpopular or controversial to gain the widespread support of the public or government. This is mostly associated with the wealthy. Most donors in Kenya are the Corporates, especially the banks. Today anyone can donate if they have the will and ability as compared to early days when donation was only offered by the wealthy. This project aimed to create an application titled the Charity Application, that smoothened the process for a common mwananchi to donate items they do not need to the less advantaged. The application developed is a web-based application. It used the Agile Scrum Methodology. The programming languages used were PHP, CSS and HTML with MySQL for the database management system. An analysis was carried out and the essential diagrams drawn from the collected facts. The system was then tested during and after development to ensure that it worked as expected.

The project has two access levels. The donor and the charity representative. Both users are required to register to use the application. The donor can donate an item or items, view link organisations, view hotspots and comment. The charity representative on the other hand, can view link organisations, view and add donation categories, add a donation cause, or/and add a link organisation that they have been working with. The developer is still working on the reports. The targeted reports included donations per donor, donation per categories, and year of donation.

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Chapter 1: Introduction

1.1 Background

If you ask any Nairobian whether they consider themselves philanthropists, the answer would mostly likely be no. Philanthropy is mainly associated with the rich in the society (Onyango, 2018). Well, that is certainly not true. It is the tradition of Kenyans to give to the community in times of need (Mutunkei, 2016). This could be through individual contribution or a business celebrating its success by giving back to the community. This is evident from the famine experienced in the year 2011, as Kenyans came together and raised funds to combat famine through the initiative "Kenyans for Kenya" (K4K); a mobile fundraising campaign (BBC, 2011).

Corporations in Kenya have steered in giving back to the disadvantaged through sponsoring students in their education, talents like the Safaricom Youth Orchestra and a wellness programme for the terminal and chronic diseases as it helps sharpen relationships and the company's future (Nzisa, 2016).This however should not make one wait to make a fortune in order to donate. Many at times people have much in their closets that they do not use. These could be clothes and shoes that they have faced off. Sometimes people get new furniture and no room for the old ones or books that are no longer in use. One of the options would be to sell otherwise, if one is not looking to make money from the items it would be wise to donate these items while they are still in good state.

Strathmore University has its students willingly donate food stuff, clothing, stationery and money for a good course by acting as a link between the students and the charity institutions. Organisations that act as links may not be easily reachable to philanthropic individuals hence the need to have an application that smoothens that process.

This project aids both locals and foreigners who wish to donate in Nairobi, to easily recognise organisations for the needy as well as hot spots and the most important needs to these specific people. This will save on time, ensure that the items reach the intended people and appropriately match items offered for donation and the organisations for these needy people.

1.2 Problem Statement

Mistrust hampers a meaningful engagement between the donors and non-profitable organisations for the needy (Stewart, 2017). At times when the donated items reach the charity institutions, the heads of the institutions may embezzle them for their personal use or sell to make profit. Some people have busy schedules and are unable to physically find the institutions for the needy. For this reason, they may opt to trash the items. Some generally do not know the essentials for these institutions for the needy. Therefore, they take lots of time to get the appropriate donation items an example would be diapers for the zero to three-year babies in a children's home. The main stakeholders are individuals or group donors and the needy.

1.3 Aim

This project aims to develop an application that has a database to store information about various organisations that cater for different needs. The information is then displayed for the donors to view the need and donate with they have that is relevant to these charity institutions. The application will also map the hot spots like the slums to help donors to have a clear picture of how to help the disadvantaged and where to focus on linking the donors to the beneficiaries. This will then reduce wastage and time taken before the items reach the respective people.

1.4 Specific Objectives

i. To identify the challenges that both local and foreign donors face when offering items like clothes, food, and sometimes a little fund.
ii. To review current techniques on online donation.
iii. To design and develop a charity bank application.
iv. To test the developed system using unit testing.

1.5 Justification

The individual philanthropist in the Nairobi County as well as the disadvantaged community in Nairobi county stood to benefit from this project because the system that was developed to help them sort the items, shortens the period of delivery to the needy and created trust among the donors and the organisations for the needy as progress reports were issued. This discouraged potential donors from wasting or throwing items that could be beneficial to people.

The system also showed hot spots like slums in Nairobi namely Kibera, Dandora, Mathare and others. This way if one were looking to start an organisation for the needy, they would have the right places to find common problems to be solved in relation to these basic needs.

One does not need to be a billionaire, nor educated nor famous to help the needy. You just need to impact a life with what one currently has. It is okay to give your lovely dress that you have that does not fit or that book you have read.

Mostly, what was donated was a basic need like food, clothes, books and sometimes money to help build homes or churches. The system did not create a perfect link as that was impossible but smoothen the process for the donors especially and make sure that the right items reached the right people. Once this was put in place it attracted other donors whether local or foreign in Nairobi.

1.6 Scope and Limitations

This application stored the relevant information of institutions or organisations that need to be donated to so that it was easily accessible to individuals. It also showed the areas with increased low living standards, so people are free to help as well. The system only allowed the authorised staff access.

The scope focused on one County, Nairobi, because Nairobi is one of the counties with the highest poverty rate in Kenya. The developer was likely to experience time constraints and a steep learning curve throughout the development of the system.

Chapter 2: Literature Review

2.1 Introduction

Donorship and philanthropy has a long history that can be traced back to BC times (McKinlay, 1978). In recent years, donorship has been made easier from big corporates to simple individuals with the will and ability to donate. This chapter aims to explain the current donation process, the challenges faced by donors in Nairobi, review techniques of storing and displaying data, develop a charity bank application and test the developed system using unit testing.

2.2 A Description of Current Donation Process

Corporations set aside some resources to benefit their community through the corporate social responsibility. This has been well done by corporates in Kenya like the banks, Safaricom company and the Mabati rolling mills company. A huge percentage of donations are made by corporates in Kenya. Companies support causes in health, education, environmental conservation, poverty reduction and humanitarian emergencies, among others. Figure 2.1 represents the corporate donor partnerships.

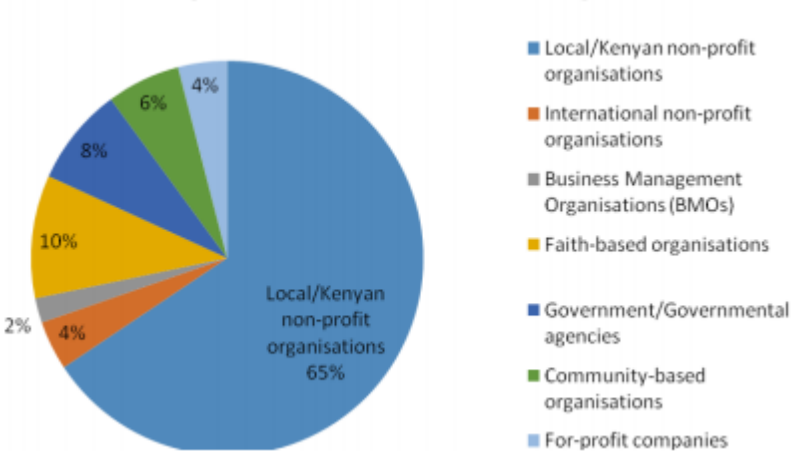

Figure 2.1: Corporate Donor Partnership

Small groups as well like the “chamas” and other groups of folks, come together and make donations to different charity institutions. Some people donate through wireless transactions like Mpesa and banks to specified accounts for the good will. Another way donation is made, is through the marathons and walks initiated by different institutions. An example is the Starehe walk where donations are made to support the education process of young girls.

2.3 Challenges Faced by Donors in Nairobi County

2.3.1 Mistrust Between Donors and the Organisations or/and the Individuals Donated to

There is quote that says, “trust takes years to build, seconds to break and forever to rebuild”. Mistrust arises from the reports of mismanaged funds by leaders in the organisations or individuals donated to. When one organisation mismanaged and squandered what was donated then the donors got the perception that all organisations did the same and got demotivated. Donors look forward to solving problems and their trust is tied to how well organisations use their donations (O'Reilly, 2018).

2.3.2 Uncertainties and Calamities

With the current pandemic that no one prepared for, there was no way to tell the exact economic damage. The predictions were that the economies lost at least 2.4 percent of the value GDP over 2020. The global stock markets have suffered dramatic falls due to the outbreak. The pandemic has heavily affected industries such as travel and tourism, reduced the number of flights, demand for oil and new cars has fallen and there has been reduction in sales that occurred from the closure of shopfronts (Duffin, 2020). Everyone is doing what they can to keep safe and survive the pandemic. This has taken a toll on the charity institutions. Homeless charities have had to close shelters due to the cramped conditions. There are fears that many charity organisations could go under if assistance is not provided (Blythe, 2020).

2.4 Review Current Techniques on Online Donation

Regarding mistrust, the solution provided is the charity navigator. It helps guide intelligent giving by evaluating the financial health, accountability, and transparency. It is the largest and most utilised charity evaluator in America. Another current technique is called the GuideStar. GuideStar’s mission is to revolutionise philanthropy by providing information that advances transparency, enables users to make better decisions and encourage charity giving. In early days, GuideStar shared their data through distributing CD-ROM (Carlman, 2020). These two techniques are only available in America. Figure 2.2 shows the GuideStar theory of change.

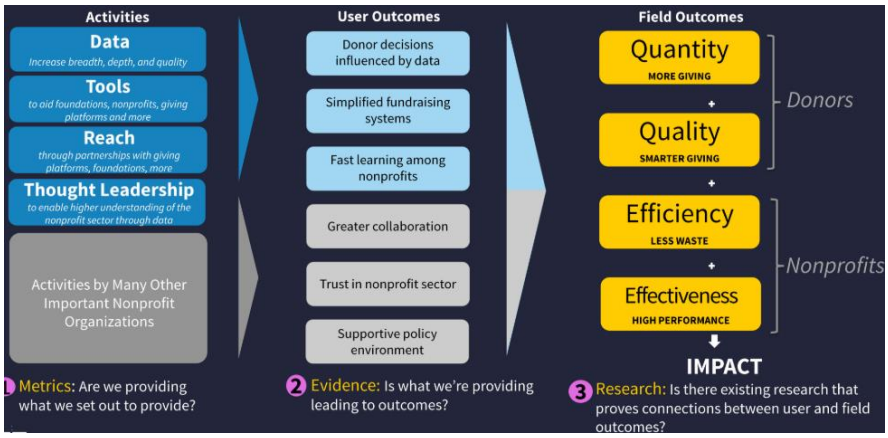

Figure 2.2: GuideStar theory of change.

In Kenya today, people get to know about charity institutions from the websites, friends and family, churches, or schools like Strathmore. Every second-year student in Strathmore is required to offer voluntary service in different institutions. This is how people get to know the charity institutions and even ideas on how to help come up with long lasting solutions. Starehe schools expect that their students should offer voluntary service from time to time.

2.4.1 Gaps in The Existing Process

Today, one who wishes to donate might use the closest person to them that they consider disadvantaged like the house manager, guards, or institutions for the needy around their homes. Sometimes the items they wish to donate are not needs to these people. So, these items might end up stored in a room or thrown out. Other people have busy schedules and are not able to search for these institutions and transport the items to them. A lot of times these items end up in the trash and the street children or families are forced to go through the trash to see what is useful to them.

Foreigners who came to the country for vacation may have wished to donate some items other than money. Most did not know where these institutions were located or what the immediate needs for these institutions were. Some of these institutions for the needy did not have enough resources to advertise themselves online, therefore the scope of the people they reached was limited and might have faced the threat of closing.

Some individual donors of simple items used some organisations as links. An example is Strathmore that is a link between the donors and the needy. Students were asked to donate clothes, books, money for a good course and most of them have no idea of where the items got to. The school does this every end of the year which does not cater for those who would like to donate other times of the year.

2.5 Conceptual Framework

The system requires the user to sign up and login to access the system. The application contains modules for the users to smoothly manoeuvre. A module enables the users to see the various items needed by different people, different categories of organisations and needy individuals, a list of organisations that acted as links and the dates for drop in, and the hotspots like slums where people were generally disadvantaged. Reports of the dispatcher of the items and arrival to the designated places are keyed in and stored. Impact of the donation items on the needy is recorded and sent to the respective donor. Figure 2.3 below is the representation of the conceptual framework.

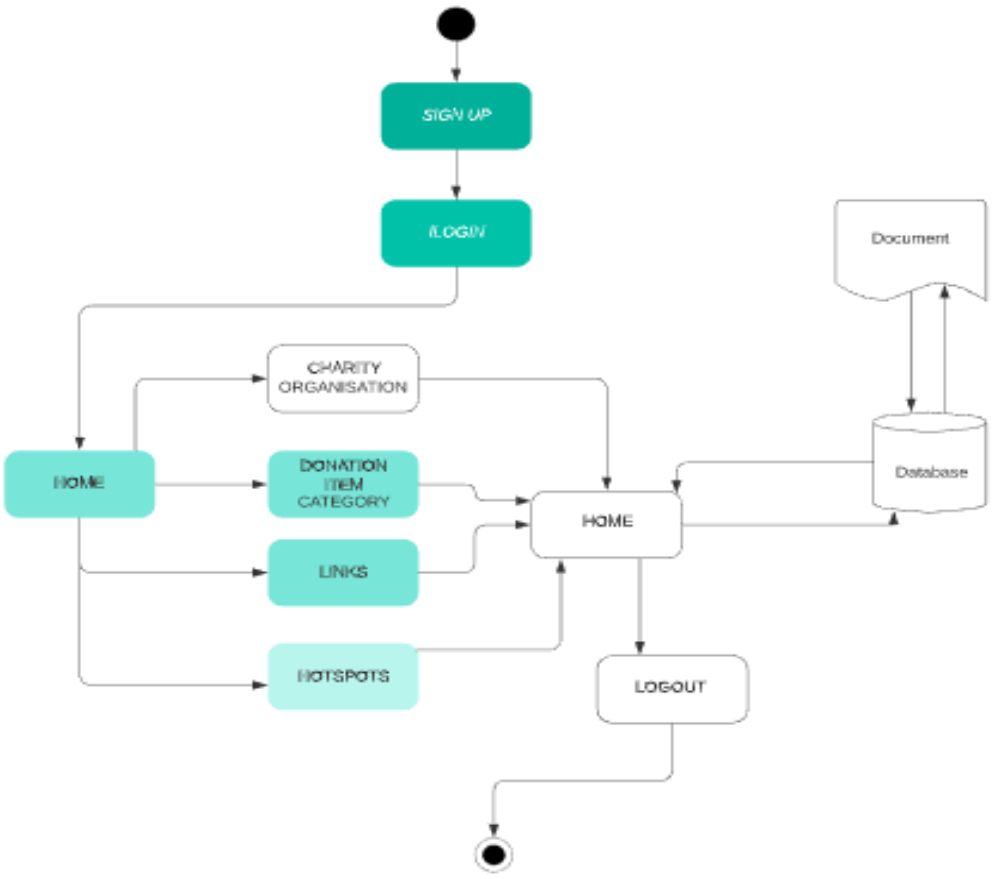

Figure 2.3: Conceptual Framework

Chapter 3: Research Methodology

3.1 Introduction

A methodology is an approach or method that can be employed in managing different kinds of projects. Methodologies can conditionally be divided into traditional and modern approaches. The traditional approach is a step-by-step sequence to design, develop and deliver the product while the modern approach uses different models of the management process. Examples of the modern methodologies include CPM, Lean, Six Sigma, CCPM and Agile Scrum.

To develop this application, the developer used Agile methodology. The methodology is a people and result focused approach to software development which is adaptive to rapid world change. Most popular examples of agile methodology are Scrum, Adaptive Software, Crystal and Lean Software Development, Dynamic System Development Method, and eXtreme Programming.

3.2 Agile Scrum System Development Methodology

This application used Scrum framework, one of the most popular among the Agile methodology. The framework is heuristic; based on continuous learning and adjustment to fluctuating factor. It acknowledges that at the beginning of a project, there are some unknowns, but it evolves through experience. Scrum was ideal for this application development as the methodology implemented the small systems in a short period. The users of the application were involved in the development process and ensured the developed application met the stakeholder's expectations.

Below are the steps the project followed:

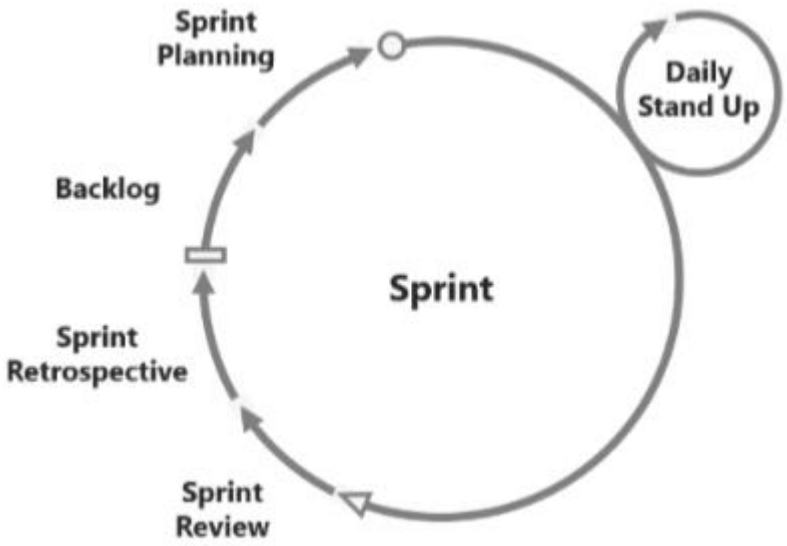

Figure 3.1: Agile Scrum Methodology

3.2.1 Planning

The first step of Agile Scrum methodology is planning. This phase focuses on establishing the general objectives, with the focus being the problem statement. This step is relevant for the application as research on the background information documented and challenges were analysed after which the developer came up with the solutions. The documentation of the tasks was called the product backlog. The tasks were divided into sprints then documented on a sprint backlog.

3.2.2 Story Time

This is the next step of the Agile Scrum Methodology. In this phase, the application requirements were collected and documented. The problem statement was analysed in detail and the features to be implemented were documented as well.

3.2.3 Development

This is the third step of Agile Scrum methodology. This is where the actual coding takes place. The functionalities and the interface were done and developed in this phase.

3.2.4 Testing

This is the fourth step of the Agile Scrum Methodology. Testing was done during and after development to ensure that all the functional specifications worked. This

happened when there was a database connection and that buttons and all the interfaces appeared as designed.

3.2.5 Sprint Review

This is the next step of the Agile Scrum methodology. At this point the application was presented to the stakeholders where the system was reviewed and feedback on performance and user friendliness was provided.

3.2.6 Retrospective

This is the final step of the Agile Scrum methodology, but the steps go in cycle to ensure that the developer meets the stakeholders' goal. The feedback was presented to developer and was needed to work on upgrading the application accordingly.

3.3 Analysis

The application used the Object-Oriented Analysis and Design approach as the application mimics objects in real life. This involved identification of objects, their attributes and their relationship to other objects in the application. It also included the methods that define the set of instructions to be performed.

OOAD is ideal as the code is reusable.

3.2.1 Functional Requirements

Functional requirements specify what the application should do upon development completion. The application enabled the users to see the various items needed by different people, categories of organisations and needy individuals, a list of organisations that act as links and the dates for drop in, and the hotspots like slums where people are generally disadvantaged. Reports of the dispatcher of the items and arrival to the designated places were keyed in and stored.

Impact of the donation items on the needy will be recorded and sent to the respective donor.

3.2.2 Non-Functional requirements

Non-functional requirements describe how the application performs certain tasks. They are best described as the performance attributes. For this application, the charity

organisations were not allowed to internally update reviews. The reviews were to come from donors who had interacted with the charity organisation. The application is totally flexible as one can access from almost any device or browser. The web application offers security as detail is stored in the cloud suppose one's device is stolen then they can still access their data. Web-based applications are scalable as they have room for growth or can easily integrate with other businesses.

3.4 Design

3.4.1 Use Case Diagram

Use case diagrams are useful in the analysis stage. The use case diagrams showed interactions between the users and the application as well as identified the application functionalities. The diagrams helped in planning on the development of the application before the actual development of the charity application.

3.4.2 Class Diagrams

These diagrams are ideal for the design stage. The diagrams showed interrelation of the classes like inheritance. Creation of objects and classes was done using the class diagrams. These diagrams were important in the conceptual modelling and detailed modelling throughout of the designing process.

3.4.3 Sequence Diagram

These diagrams showed the logic flow in the system. The sequence diagrams were essential as they enabled the validation and documentation of the logic and focused on the behaviour of the system.

3.4.4 Database Schema

Database schema represents an overview of a database. The schema showed the organisation of the database; the entities and the relations between each of them. The database was governed by a set of rules from the schema.

3.4.5 Graphical Interface Design

This displayed what the system does. Interfaces of the application include the home page, charity organisation interface, donation item category, links interface and hotspot interface.

3.5 System Development Tools and Techniques

The system used the open-source MySQL database which was easy to use and has a quick processing. The application used CSS, PHP and HTML programming languages because they are easy to learn and use, free and supported by all browsers. The Integrated Development Environment to be used is Brackets which is open source and has debugging tools.

3.6 Method to be Used to Test the Developed System

After the functional requirements of the application are developed, testing was done to ensure that the application does what it was intended to do. There are four popular approaches to testing namely: unit, integration, system and acceptance testing. Testing of the charity application was done to make sure that it met its specified requirements.

In this application testing started by unit testing for each module then later integration testing to ensure that the modules worked properly when integrated. The testing was done on functionality, usability, and performance as these are important for the users ease of use. A documentation was provided as a user guide for future references and deeper understanding of the application. All these tests ensured that the application is user friendly and reduced error occurrence when the application was to be deployed.

3.7 Domain of Execution

The charity bank application is a web-based system. With the internet being commonplace for everyone across the world, web-based applications are accessible 24/7 if one has internet. This gives the users more freedom to choose when and where to use the application. Web- based application also offers flexibility as one can access the application using a browser or a device reaching a wide range of people.

3.8 Proposed Modules and System Architecture

In many ways, the online space is now the most central space. With that said, it would be great to integrate all the donation processes in one application. That way, the donation process is smoothened for both donors and the needy. The application contains modules for the users to smoothly manoeuvre. The application was divided into:

3.8.1 Home Page

The home page consists of the different modules that can only be accessed by authorised personnel. The modules namely are the charity organisations, donation item category, links, and hotspots.

3.8.2 Charity Organisations

These are organisations for the needy that need the donation items. Examples include the children's home, prisons, hospitals, the homeless rescue centre and more. It contained all the relevant information including locations, websites, what needs they catered for and the donation items that would best fit them. It also had a section for reviews from the donors.

3.8.3 Donation Item Category

This showed the different categories of items one could donate. Also, the users' past donation history and the total donations made in a certain period were rendered. One of the donation items in the application would have been vehicles to transport other donation items from people who may not have enough resources to transport them to the needy.

3.8.4 Links

These consisted of organisations or groups that link the donors to the needy. An example would have been a company that had its employees donating every month and the company ensured the items reached the designated people. It contained all the dates, links collected on donation items as well as their locations.

3.8.5 Hotspots

This interface showed all the slums and other places in Nairobi that have a large, disadvantaged population. It also highlighted the needs that should be focused on when looking into helping the needy.

Chapter 4: System Analysis and Design Description

4.1 Introduction

For this chapter, focus is on illustrating the system's architecture, requirements gathering, system requirements both functional and non-functional. The application is accessible to both the administrator and the donors. Basically, the chapter shows interactions in the system.

4.2 Requirements gathering

The known methods of requirements gathering are interviews, use of questionnaires, observation, documentation review, personal experiences, brainstorming and documentation review. Requirements gathering is the identification and collection of both the functional and non-functional requirements. The methods that were effective for this system are documentation review, observation, personal experience and brainstorming. The requirements for this system are creation of trust among the donor and the charity organisations for different needs and smoothen the process of donation and delivery of different items to different organisations.

4.3 System Requirements

These include the functional and the non-functional requirements. That is, the general functioning of the system.

4.3.1 Functional Requirements

Functional requirements describe the processes that the system is intended to execute. Table 4.1 shows what the users can achieve while interacting with the system.

Table 4.1: Functional Requirements

FR1	The system should allow the user to register.
FR2	The system should allow the user to login.
FR3	The system should allow the donor to view the list of link charity organisations.
FR4	The system should allow the donor to view charity organisations.
FR5	The system should allow the donor to view donation categories.
FR6	The system should allow the donor to view the donation cause.
FR7	The system should allow the donor to add quantity.
FR8	The system should allow the donor to donate items.
FR9	The system should allow the donor to view hotspots.
FR10	The system should allow the donor to review.
FR11	The system should allow the admin to add a donation category.

FR12	The system should allow the admin to view the list of link organisation.
FR13	The system should allow the admin to add the donation cause.
FR14	The system should allow the admin to view the donation item categories.
FR15	The system should allow the admin to add a charity organisation.

4.3.2 Non-Functional Requirements

Non-functional requirements make the system user-friendly, ease of use and interactive. Table 4.2 shows the non-functional requirements.

Table 4.2: Non-Functional Requirements

NFR1	The system should grant access to only authorised users.
NFR2	The system should grant privileges to only authorised users.
NFR3	The system should provision for ease of use.
NFR4	The system should allow access from any device.
NFR5	The system should have reviews from the donors only.
NFR6	The system should be easy to integrate.
NFR7	The system should be scalable.

4.4 System Architecture

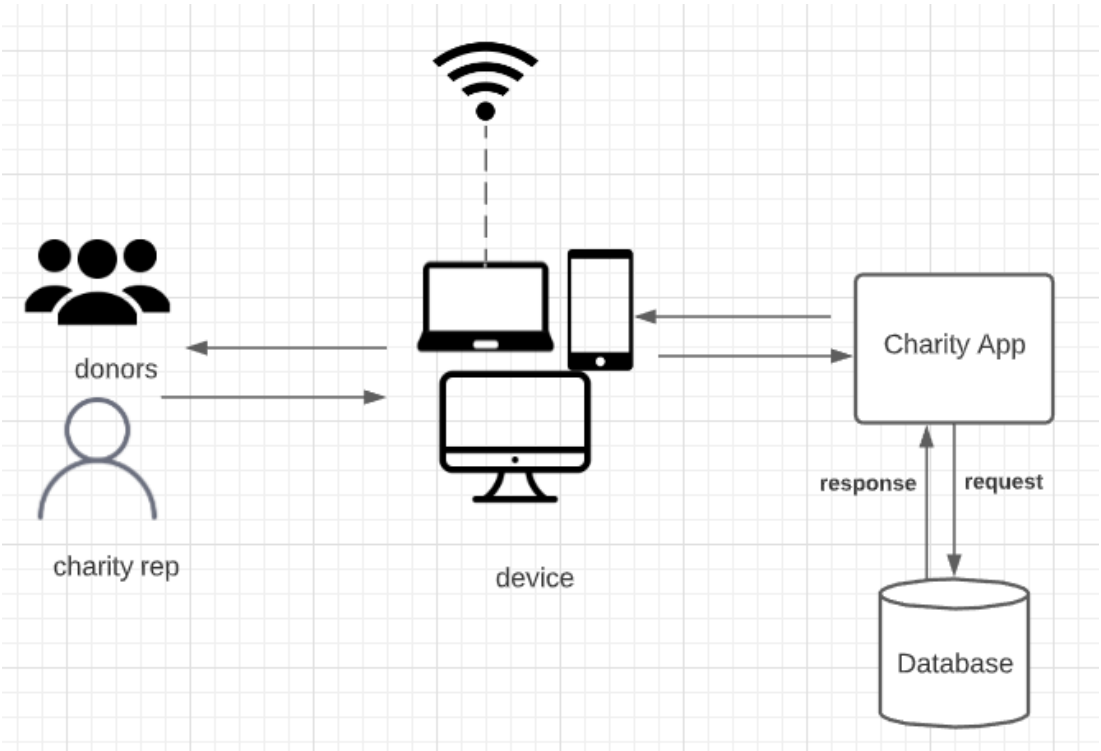

Figure 4.1: The system architecture

The system can be accessed by either a donor or a charity organisation representative who is the admin with respective passwords and usernames. They can then have different interactions with the application depending on what is available for a particular user. When they request for an action, a query is generated and directed to the database where a response is generated and push to the user. The device in use must be connected to the internet.

4.5 System Analysis

4.5.1 Use Case Diagram

The Use Case diagram was used to visually illustrate the different functions of the system related to the users and the goals that were to be achieved. Figure 4.2 is the Use Case diagram for the system.

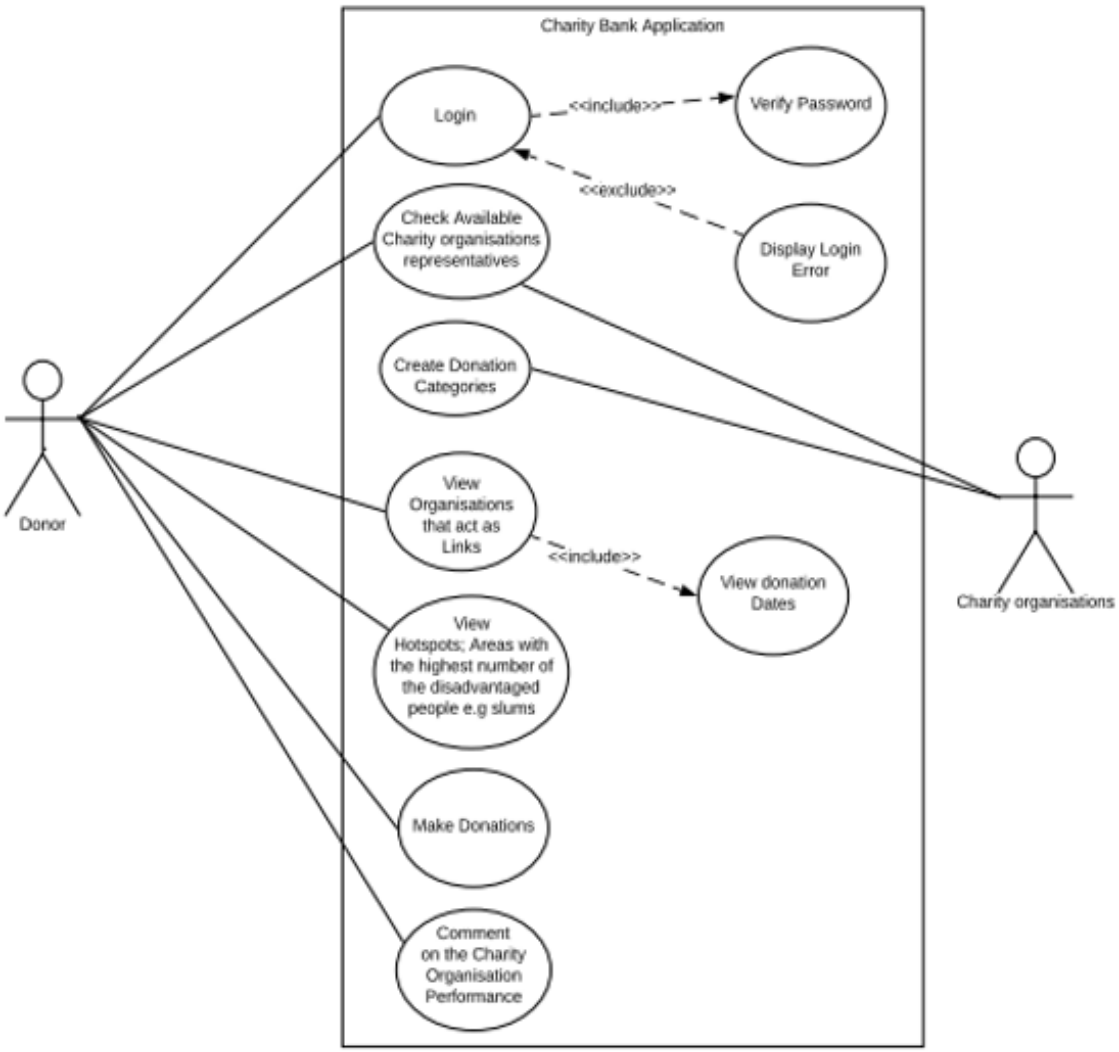

Figure 4.2: The Use Case diagram

4.6 System Design

4.6.1 Database Schema

The database schema represented the logical view of the entire database. It defined the data organisation and its relations. Below is figure 4.3 on the database schema.

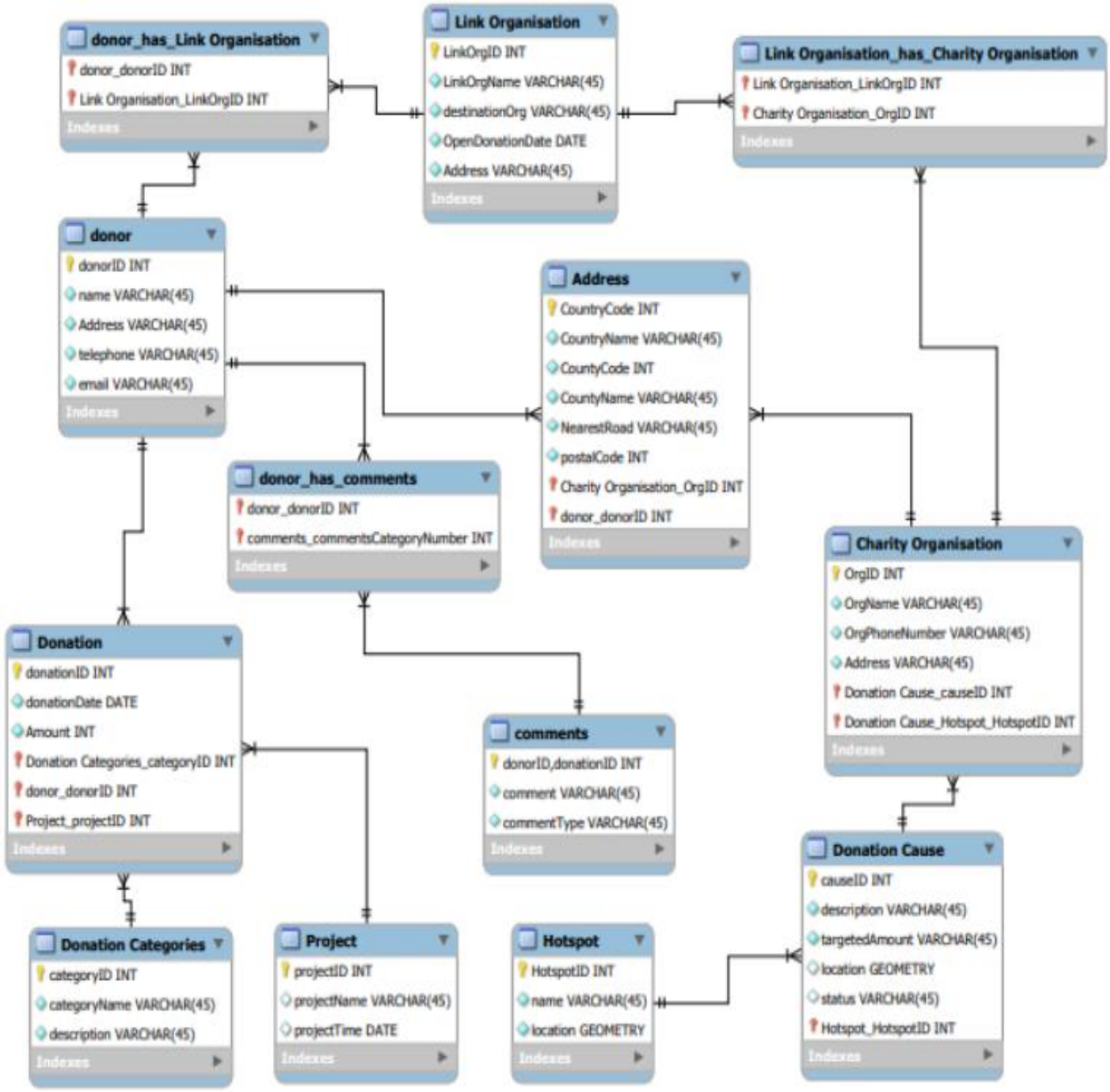

Figure 4.3: The Database Schema

4.6.2 Class Diagram

The class diagrams showed the interactions of all classes in the system and their corresponding attributes and methods. Below is figure 4.4 shows the class diagrams.

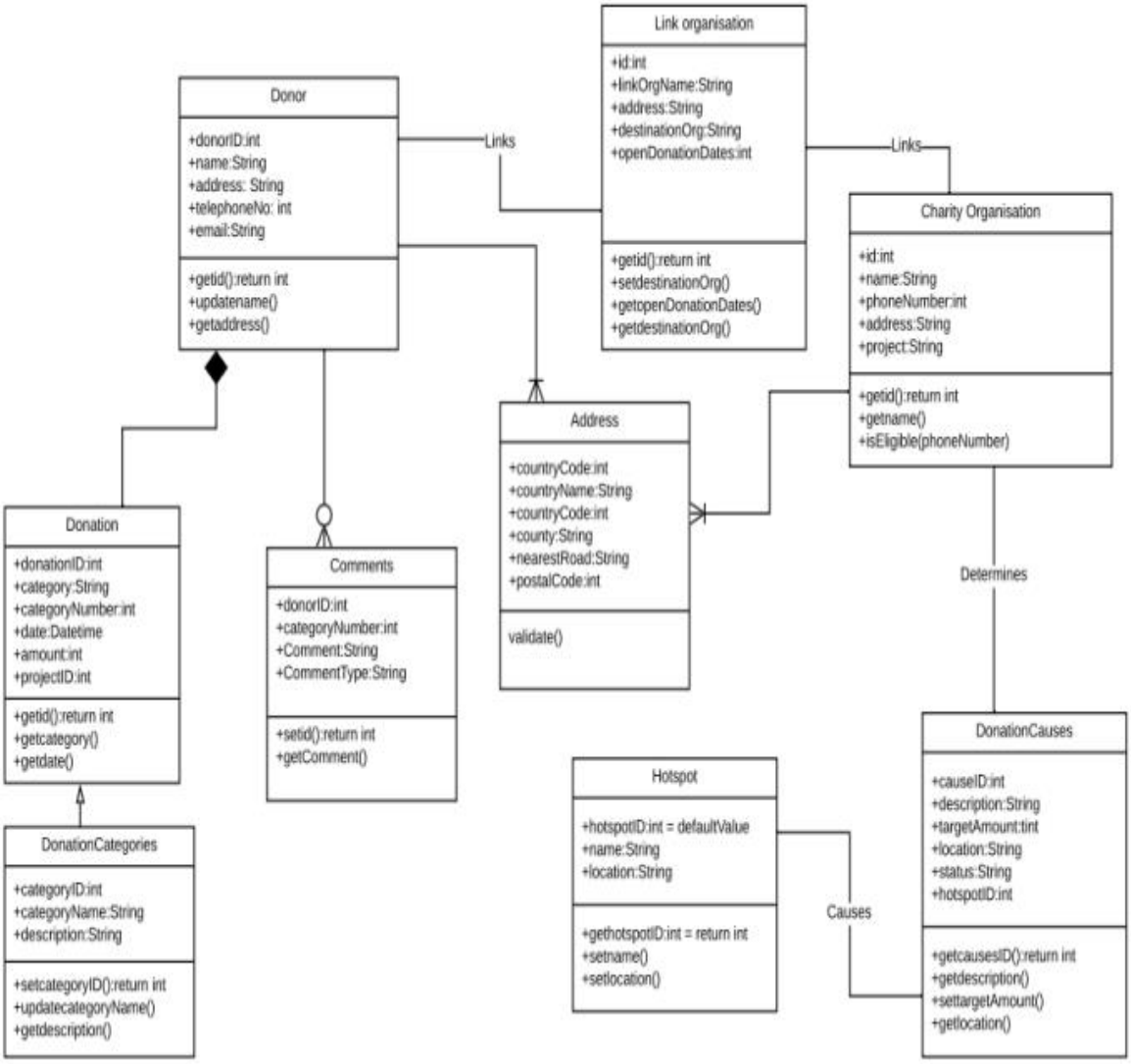

Figure 4.4: The Class diagram

4.6.3 Entity Relationship Model

These were all the entities used to store data that is accessed by both the users, the donor, and the charity representative. Below is figure 4.5 shows the entity relationship diagram.

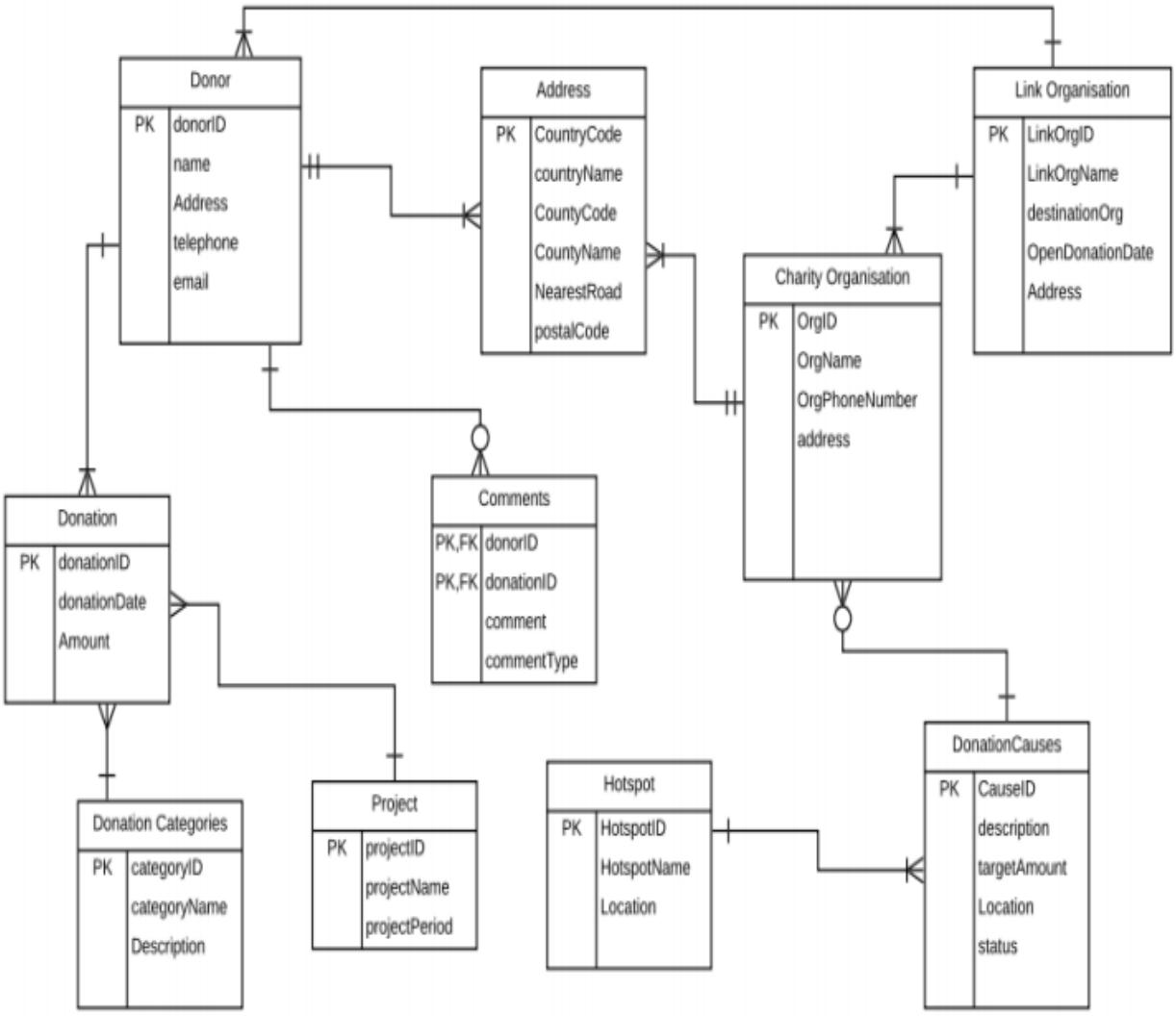

Figure 4.5: Entity Relationship Model

Chapter 5: SYSTEM IMPLEMENTATION AND TESTING

5.1 Introduction

This chapter focuses on the development of the modules that are then integrated to create the whole system. It also includes testing of the various modules and the system to determine if the system does what it was intended to do. Detection of system failures is done and resolved before launching the application to the public.

5.2 Implementation

5.2.1 Installation Procedure

The project was built on Laravel. Laravel is one of the great php frameworks to build web applications on. The following paragraph will explain how to install Laravel 7 on windows 10. First step is to download XAMMP from its official website https://www.apachefriends.org/download.html

After that then install the composer. This is an application-level package manager for the PHP programming language that provides a standard format for managing dependencies of PHP software and required libraries. Installation of composer comes before installing Laravel. To download the composer-Setup.exe file we use https://getcomposer.org/download/

The third step entails the installation of Laravel using composer. Runn the command prompt **composer global require "Laravel/installer"** after the successful installation of Laravel, create a new app using this command,

composer create-project –prefer-dist
Laravel/Laravel Awesome project

Afterwards, create a database in the MySQL server. Then modify the .env file by opening the Laravel app created in brackets or any other editor for working with Laravel projects. Add database details in the file. Migrate the database by running this command **php artisan migrate**. Run the application using **php artisan serv** command. It will open a new tab on your browser with the URL below http://localhost:8000

5.2.2 System Manual

The project has two access levels, the donor, and the charity representative. They both must register before they can login. The project was built using PHP and HTML languages as these were what the developer was familiar with. Below are screenshots of the system's interface that help explain navigation in the system.

5.2.2.1 Registration Interface

Below is a figure 5.1 shows the registration interface of the charity representative or admin.

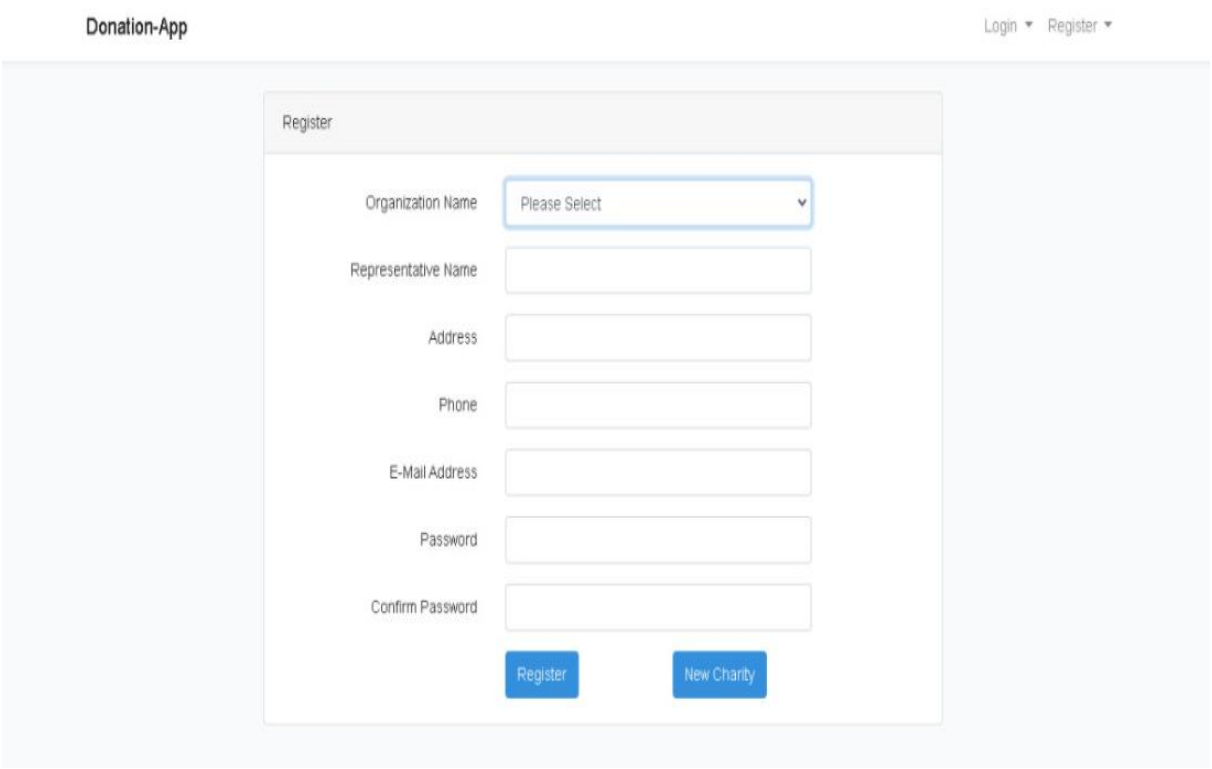

Figure 5.1: Registration of the Charity Representative/ Admin

Figure 5.2 shows the interface on the registration of the donor.

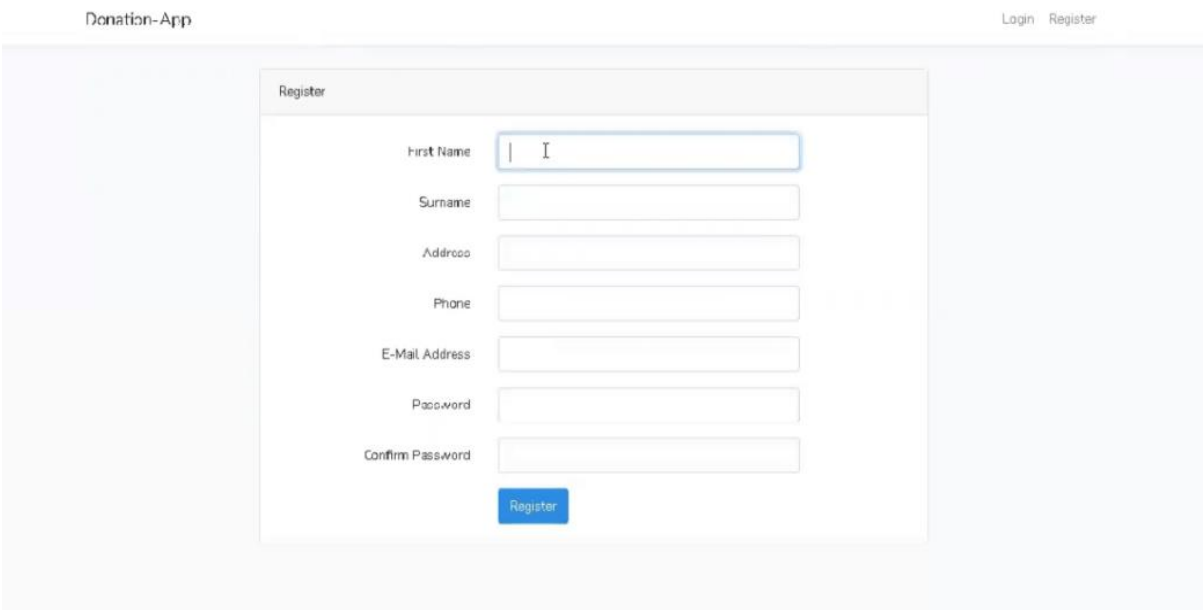

Figure 5.2: Registration of the Donor

5.2.2.2 Dashboard Interfaces

The donor can view and select different organisations, different link organisations, donation categories, donation cause and donate an item and indicate the quantity. They are also able to view hotspots and comment on different charity organisation performance.

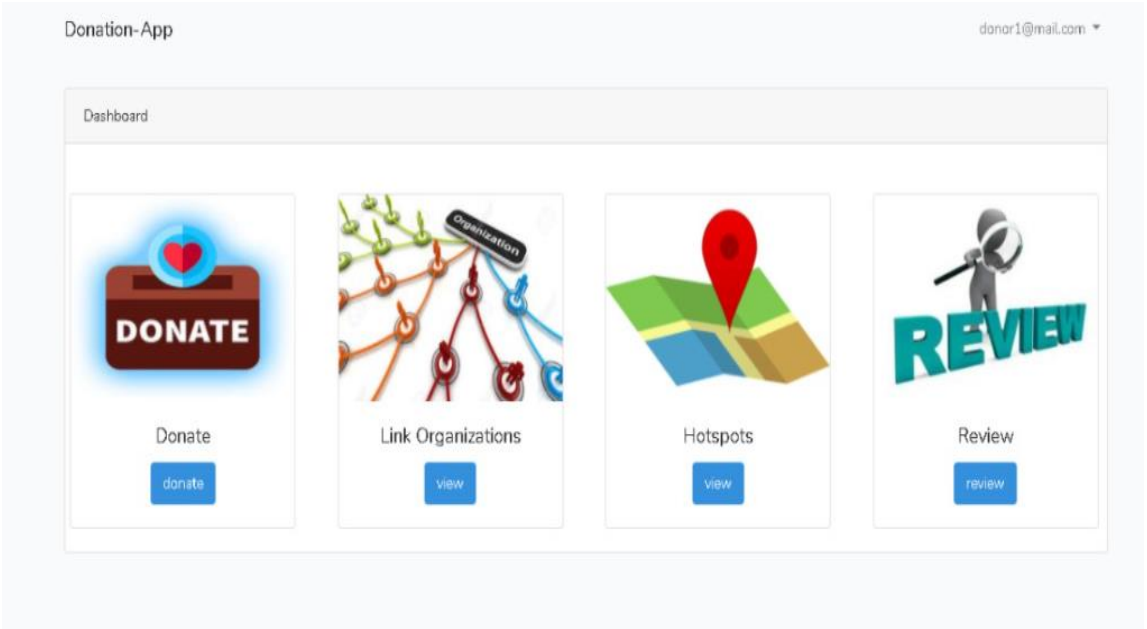

Figure 5.3: Donor's Dashboard

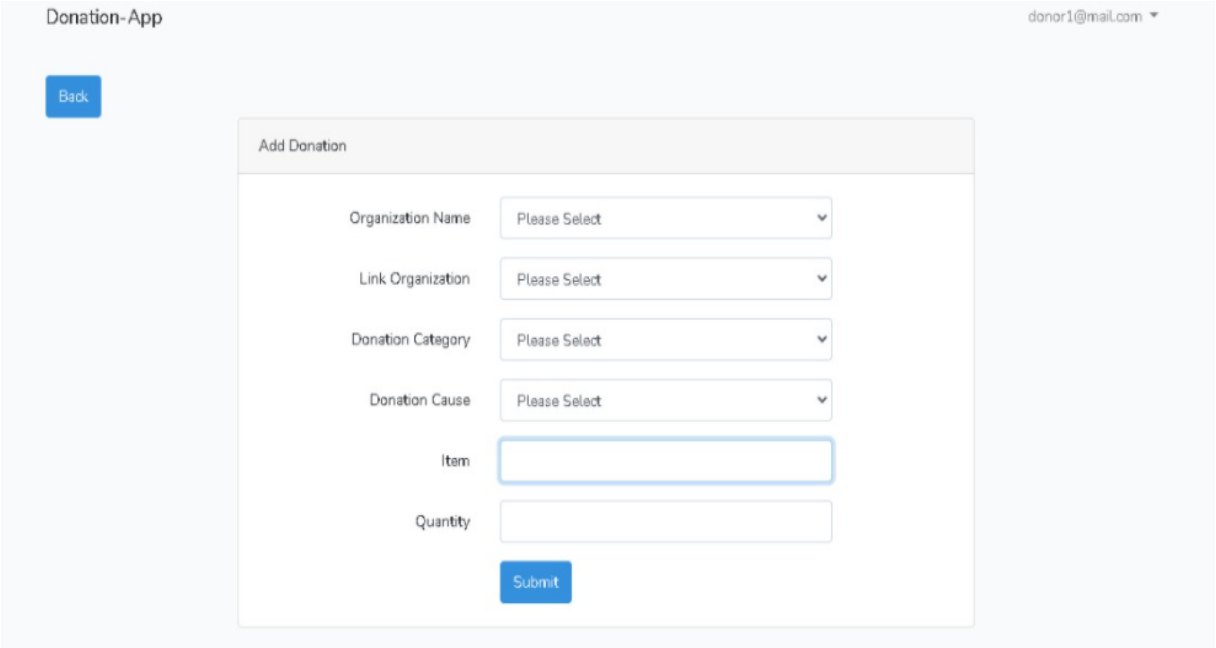

Figure 5.4: Donation Process

The donor must follow the above process to donate.

The representative or admin can add their charity organisation to the system, view link organisations, add a donation category depending on their organisation needs, add a donation cause for the donation, view the existing categories and add a link organisation they work with or wish to work with.

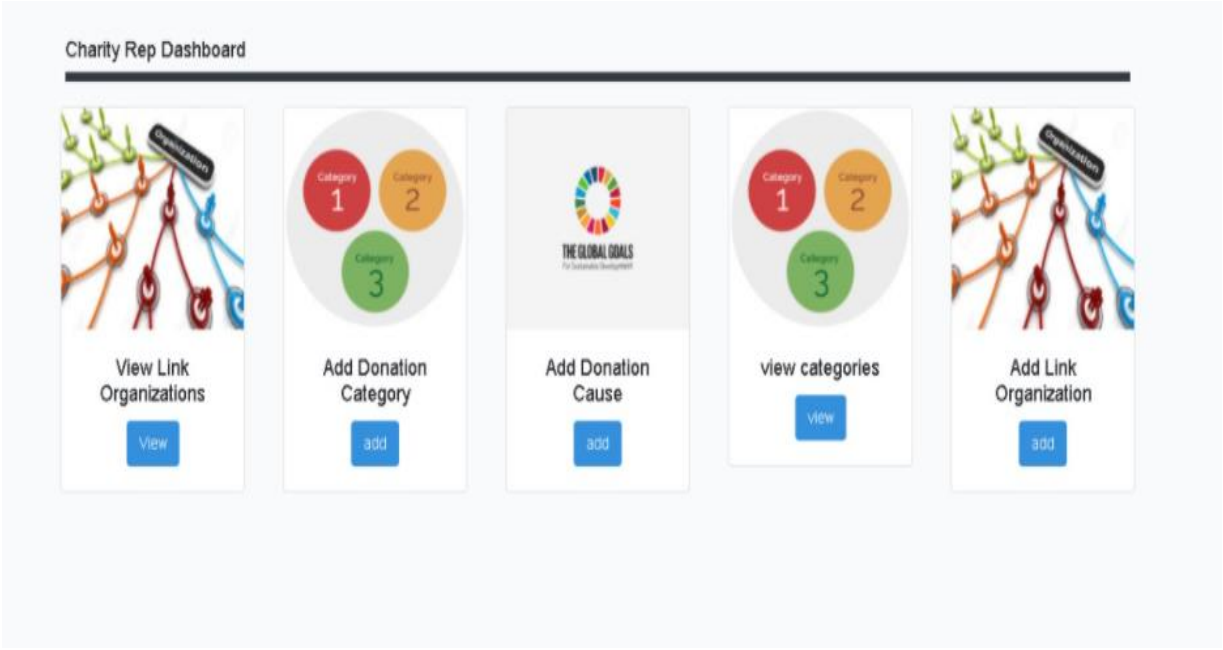

Figure 5.5: Charity Representative Dashboard

Only the admin or the charity organisation representative can add a charity organisation if it does not exist in the system.

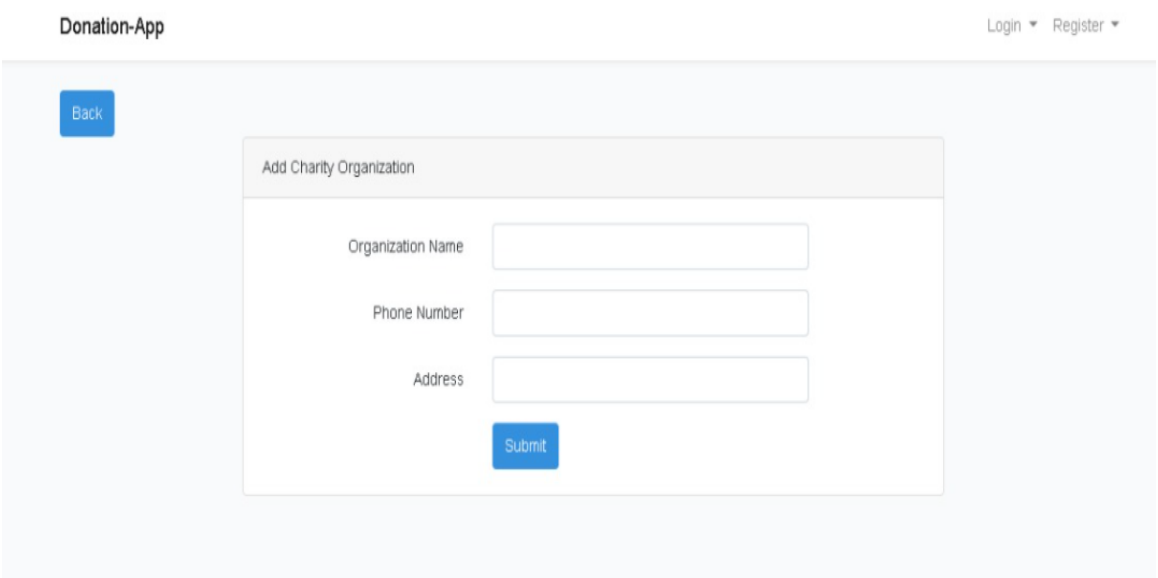

Figure 5.6: Addition of a Charity Organisation

5.2.2.3 Other Interfaces

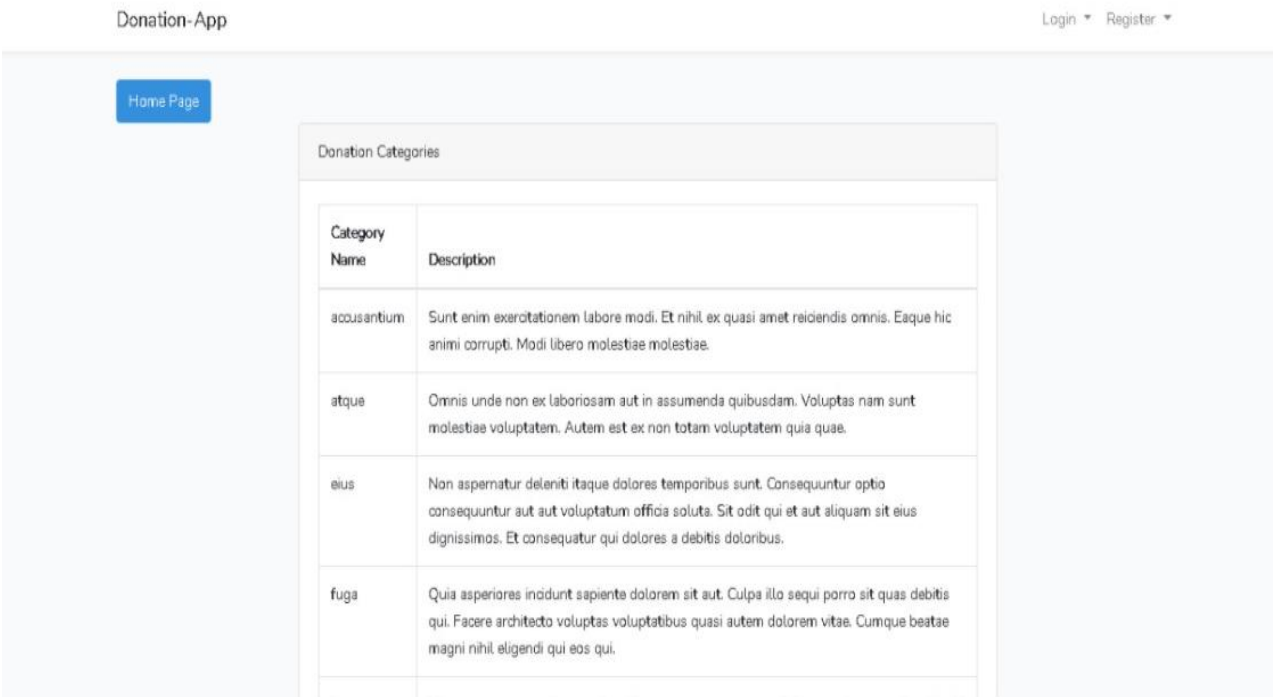

Figure5.7: Donation Categories

The above is donation categories with random data fillers. The finished product should use English as its default language. One can click homepage to go back to the home page.

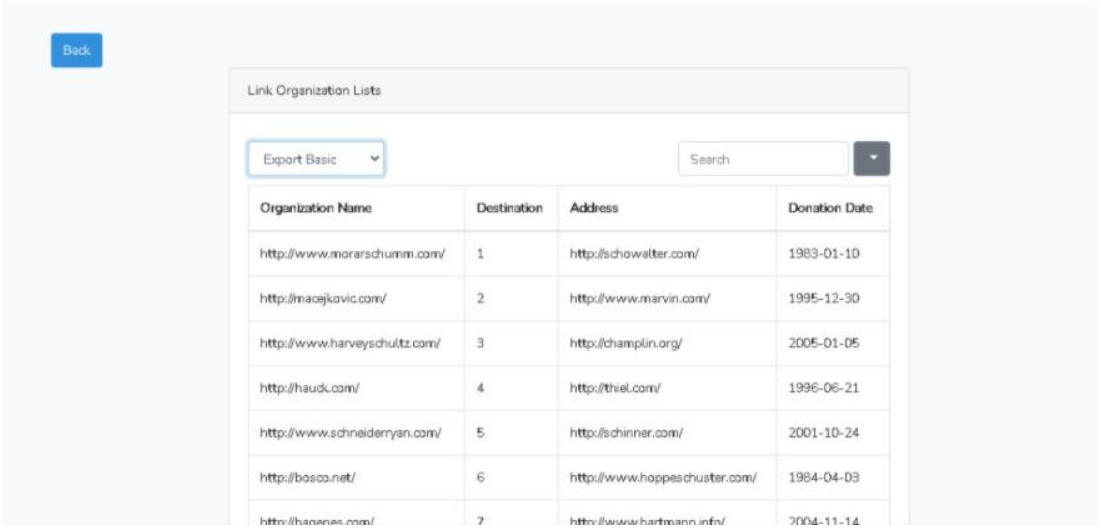

Figure 5.8: The link Organisation Lists

The above shows the list of link organisations with their name, destinations of the donated items their addresses and the date the donation was made to the organisation. One can click back to go to the previous interface.

5.3 Report Generation

Reports provide important details that are used to forecast, improve decision making and guide budget planning. Reports also track progress. The tables from the database created earlier on get data from the database then render using a library called datatables.net, which provide the sort, search and export functions. The search feature enables filtering by year, dates, donor and charity organisation. One can then export to a Portable Document Format. Figure 5.9 shows the interface of the reports..

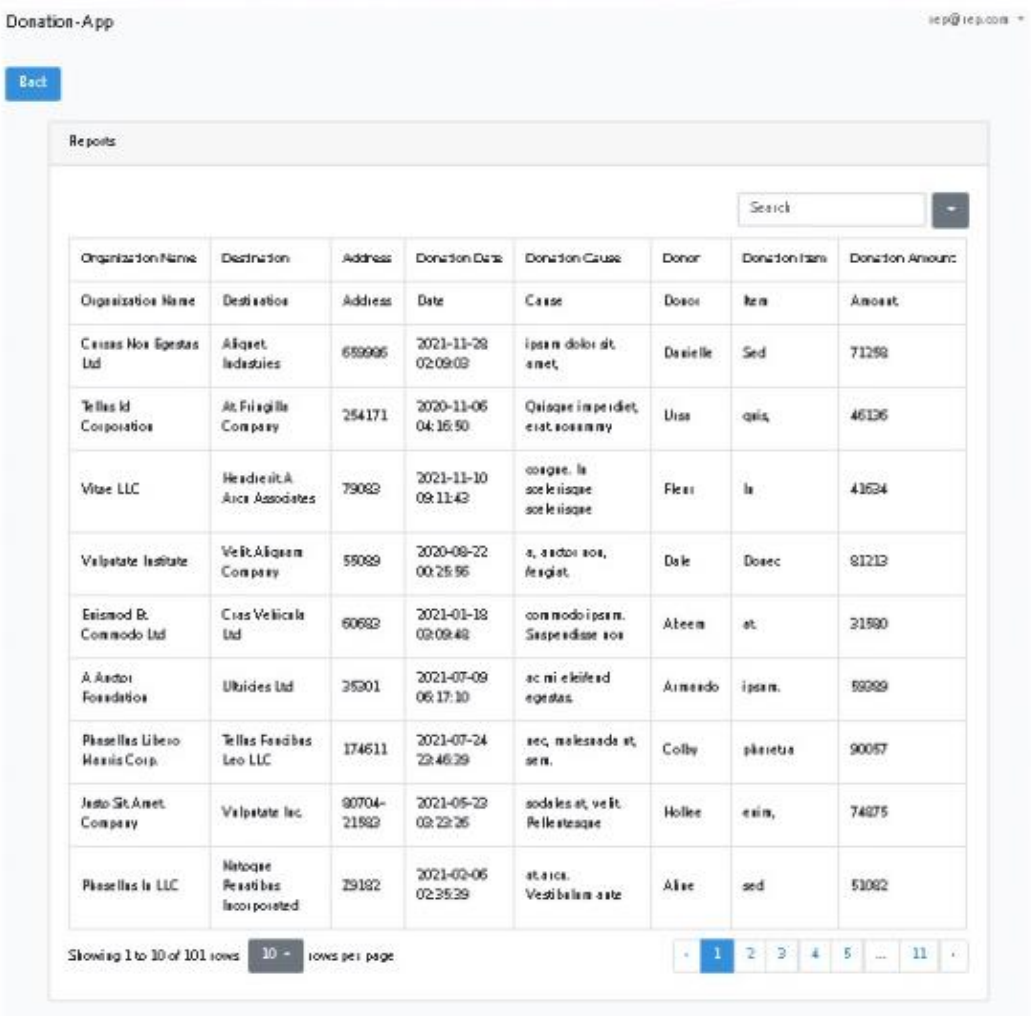

Figure 5.9: Interface of the reports

Figure 5.10 shows part of the report in a Portable Document Format.

Organization Name	Link Organization	Address	Donation Date	Donation Cause	Donor	Donation Item	Donation Amoun
Vivamus Euismod Limited	Lacinia Orci LLP	60325	2020-02-14 01:12:20	Mauris nulla.	Blaze Jonas	luctus	71108
Odio Nam Interdum Corporation	At Pede Inc.	72530	2020-04-09 17:40:59	nec urna	Brendan Lacota	rhoncus.	74407
Habitant Morbi Ltd	Consectetuer Adipiscing LLP	4713	2020-02-23 19:05:12	sed turpis	Vincent Vincent	sapien,	59069
At Ltd	Accumsan Inc.	25871	2020-09-23 21:53:13	Phasellus fermentum	Derek Gage	Cras	63345
Vestibulum Neque Industries	Cras Pellentesque Corporation	95168	2021-09-04 04:49:06	Aliquam rutrum	Ezekiel Alexa	ipsum.	29116
Faucibus Id PC	Consequat Corp.	356391	2021-09-27 10:50:41	lacus. Cras	Cyrus Ila	Aliquam	44259

Figure 5.10: A report in a Portable Document Format (pdf)

5.4 Testing

Testing is done to detect failures and the appropriate measures are taken to make sure that the system works as intended. Below are some of the tests done to ensure that the system does what is intended.

5.4.1 Functional Requirements Testing

Functional requirement testing was done to ensure that the system worked as intended. Table 5.1 that shows the test data used to test for the functional requirements.

Table 5.1: System Testing

Test ID	**Requirement**	**Inspection**	**precondition**	**Test data**
01	FRQ1	Does the system allow the user to register?	The users should register if they are first time users.	First name: Alice Surname: Wonderland Address: 1010 Phone:723132424 Email address: donor1@gmal.com Password: ******** Confirm password: ********

				Organisation name: AAR Address: 4567 Phone: Email address: aar@gmail.com Password: ******** Confirm password: ********
02	FRQ2	Does the system allow the user to login?	The user should access the system by login after they have registered.	Email address:donor1@gmail.com/aar@gmail.com Password:********
03	FRQ3	Does the system allow viewing of the different interactions in the system after login?	The system should allow the user to view the various interfaces provided depending on the level of access.	The donor's and the charity representative dashboards.
04	FRQ4	Does the system allow the donor to add donation?	The system should allow the donor to donate and indicate the item and quantity.	Quantity: 30 Item: books
05	FRQ5	Does the system allow the representative to add an organisation?	The system should allow the rep to add an organisation if it is not in the system.	Organisation Name: Warriors Phone number: 254764511111 Address: 2291
06	FRQ6	Does the system provide a list of link organisations?	The system should provide a list of the link organisations.	Address: http://schowalter.com/ Donation date:12-20 Dec 2021.
07	FRQ7	Does the system allow the rep to add a donation cause and donation category?	The system should allow the rep to add a donation cause and category.	Donation cause: Orphaned children Donation Category: Food

5.4.2 Non-Functional Requirements Testing

The system has icons and notification message that make the system user friendly and provision for easy navigation. The system has provided the option of a review section to the donor access level only. This helps to minimise the possibility of a rep forging reviews. The system can be accessed from both a mobile, a laptop or desktop device. The system also provisioned access to authorised persons only hence the use of email address and passwords.

Chapter 6: CONCLUSION, RECOMMENDATIONS AND FUTURE WORK

6.1 Conclusion

The web Charity application was developed with the aim of helping individuals with items that they do not use but do not know where to take them and might end up trashing the items, creating trust between the donors and charity, smoothen the donation process for busy donors and help donors understand the needs of the different charity organisations they may wish to donate to.

The application helps individuals sort donation items, shortens the period of delivery as one can use a link organisation, creates trust among the donors and the charity organisations as progress reports are issued. This discourages potential donor from wasting or trashing items that could be beneficial to other people. The system shows hotspots, places that are populated with the disadvantaged in the community so that those that wish to start charity organisations are pointed to the right direction.

The application has two access levels: the donor and the charity representative or the administrator. The donor has four modules namely, donate, link organisations, hotspots and the comment or review module. The administrator has five modules namely, view link organisation, add donation category, add donation cause, view categories, and add link organisation. Both users must register and login before they can access the application. The application used a scrum framework that involved use of a prototype to ensure the best results as expected. The developer is still working on generation of reports.

6.2 Recommendations for Future Works

The application currently is used to cater for the people of Nairobi county, Kenya. The application should be scaled up so that it is eventually available to the rest of the world. The application currently only uses English. It would be efficient and more effective if other languages were added to capture more people who would like to make the world a better place. The application could either integrate existing wireless money transfers or have module for wireless money transfers. The application could also either integrate existing tracking systems or have a module for tracking the movement of the items from the donor to the point where it reaches the needy.

The application could also integrate with the organisation called Kiva a U.S.A non-profit organisation. The organisation connects well-wishers who are lenders with a borrower (disadvantaged) with money. One can choose what cause to lend money for. Some of the causes are the women, health, agriculture, and covid-19 (Parkc, 2021).

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Appendix A: Timeline of Activities

	A	B	C	D
1	**Task Name**	**Duration**	**Start**	**Finish**
2	Problem set	4	04-15-20	04-21-20
3	Concept note	7	04-22-20	04-28-20
4	Chapter 1	7	04-29-20	05-13-20
5	Chapter 2	10	05-14-20	05-24-20
6	Chapter 3	7	05-25-20	05-31-20
7	Proposal review	2	06-01-20	06-02-20
8	Proposal submission	1	06-03-20	06-03-20
9	System Analysis	4	06-04-20	06-08-20
10	Design diagrams	20	06-09-20	06-29-20
11	Proposal Presentation	7	07-01-20	07-08-20
12	Data collection and Analysis	22	07-09-20	07-31-20
13	System development	55	08-01-20	09-25-20
14	Implementation	18	09-26-20	10-14-20
15	Documentation and submission	19	10-15-20	11-03-20
16	Final presentaion	3	11-04-20	11-07-20
17				
18				
19				
20				
21