PAPER NAME

Group 7_Grounds For Growth.pdf

AUTHOR

Sophia Cueto

WORD COUNT

11093 Words

CHARACTER COUNT

59861 Characters

PAGE COUNT

61 Pages

FILE SIZE

2.6MB

SUBMISSION DATE

Apr 26, 2024 4:32 PM GMT+8

REPORT DATE

Apr 26, 2024 4:33 PM GMT+8

25% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

- 17% Internet database
- 7% Publications database
- Crossref database
- Crossref Posted Content database
- 22% Submitted Works database

CHAPTER 1 – INTRODUCTION

1.1. PROJECT CONTEXT

Over 2.25 billion cups of coffee are consumed every day worldwide, making coffee consumption a crucial aspect of modern-day living. An estimate of about 250,000 metric tons of coffee grounds ends up in landfills every year. Based on a statistical report, (Philippines: Coffee Consumption 2021 | Statista, 2021) the Philippines in terms of coffee consumption numbers with an approximate of 3.3 million 60-kilogram bags in the years 2020-2021. Considering the vast assessment of waste indulged, used coffee grounds have become a significant contributor to the sizeable amount of trash from this widespread consumption of coffee, which increases the amount of organic waste in landfills and the severity of generating greenhouse gases and damaged soil. Despite that, coffee grounds are potential resources that can be utilized as an agent for an effective method of treating and alleviating waste such as the creation of other products like candles and biofuel and can even be a natural plant fertilizer used for composting. Nescafe, a big corporate brand, was recycling spent coffee grounds to produce energy back in 2008. Theyli further support the claim by stating that by using biomass as a substitute for bunker fuel, we prevent the adverse air emission pollution which is a natural by-product of combustion of fossil fuels (Philippine Star, 2008).

The concept of donating coffee grounds is one creative way to address the issue of coffee waste. With this, coffee grounds are gathered from cafes and coffee shops and donated to local organizations that may utilize them effectively, and at the same time they can sell the donated coffee grounds using the system.

The researchers saw the opportunity to develop a website that will also be in line with the United Nation's Sustainable Development Goals, specifically tackling Responsible Consumption and Production (12) and Life on Land (15). Providing an easier way to redistribute SCGs (spent coffee grounds) for people with recycling and reusing intentions helps reduce the ecological footprint of coffee joints while also possibly reducing the contribution of SCGs to the country's total waste. This idea prevents these potential resources from ending up in landfills, which lowers waste production while simultaneously fostering a healthy local economy.

Having said that, this capstone will serve as an opportunity to create a coffee grounds donation system. The researchers will look at the possible advantages of such a system, including its efficacy on the environment, economy, and society. The researchers intend to look onto various solutions to address the difficulties and obstacles that could occur while making such a system.

In general, this will shed light on the potential of wasted coffee grounds as a useful resource and the advantages of establishing a donation system to encourage sustainability and help local communities.

1.2. TECHNICAL BACKGROUND

1.2.1. Equipment/Hardware

LAPTOP

CATEGORY	Specifications
PROCESSOR	Intel Pentium 4
OPERATING SYSTEM	Windows 7
MEMORY	Minimum 1 GB; Recommended 4 GB or above
HARD DRIVE	Minimum 32 GB; Recommended 64 GB or more

1.2.2. Software

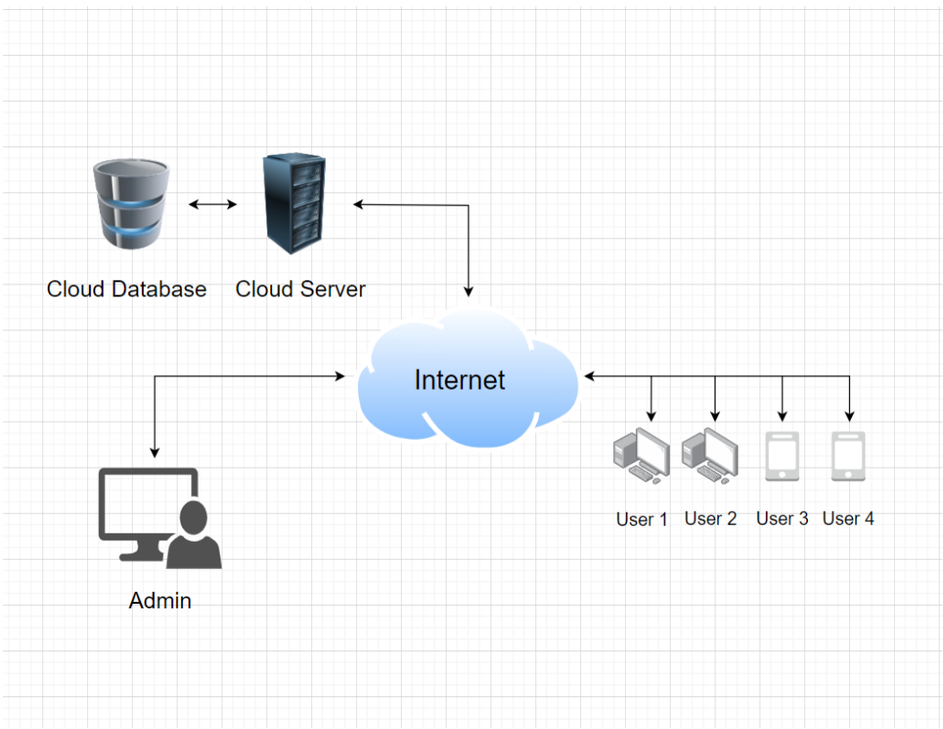
CATEGORY	SPECIFICATIONS
IDE	Visual Studio Code
LANGUAGE	PHP
FRAMEWORK	Laravel
UI/UX	Figma

1.2.3. Peopleware/Manpower

Position	Responsibilities
Café Owner	• The founder of the coffee shop • The one who manages the staff of the coffee business. • From a hierarchical standpoint, the café owner also supervises and account the profit of the coffee business
Barista	• The one who makes coffee orders.

	• The one who works in the kitchen to make and serve drinks from the menu, such as tea, sandwiches, coffee. • The one who attempts to satisfy customers on their orders.
Café Accountant	• Records the transactions, such as expenses, profits, and revenues. • The café accountant analyzes and prepare monthly financial statements to keep the coffee business running • Audits and prepare reports to the café owner

1.2.4. Network Infrastructure/Architecture



The Grounds for Growth web-based system, which is run on the Grounds for Growth web-app that utilizes Cloud server over the Internet, is administered by a single administrator who authorizes and responds to all inquiries. The cloud database stores data that is sent from the application. Only the administrator and registered users are permitted access all of the features of Grounds for Growth. Users ask questions about the donations, and the administrator reviews and approves the queries before responding.

1.2.5. Storage, Backup and Recovery Procedure

The developers will be implementing a cloud-based server provided by the webhost that will store all the management system's data. Only the

administrators will be able to access the cloud server to prevent potential threats to the data.

1.2.6. Security Procedures

Users will be asked to register and login after deciding to use the website, they are free to look at various information on the website as a non-registered user but there will certainly be restrictions. These accounts will be stored on the aforementioned cloud-based server.

1.2.7. Policies and Procedures

Users

Account Registration

- Users need to provide accurate and complete information during the registration process.
- The website is targeted only to café owners to use for donations.

User Responsibility

- The user should be responsible for maintaining confidential and credible data in their accounts.
- In case of changes, users must update account information to avoid misprocessing of purchases or donations

User Account Security

- Any suspicious activities in their accounts must be reported to the admins.
- Users must take note that we will never ask for their password via email or communication channels for no reasonable explanations.

Donations

- Users must ensure the accuracy of the information details before confirmation, if not, the donation process will be terminated.

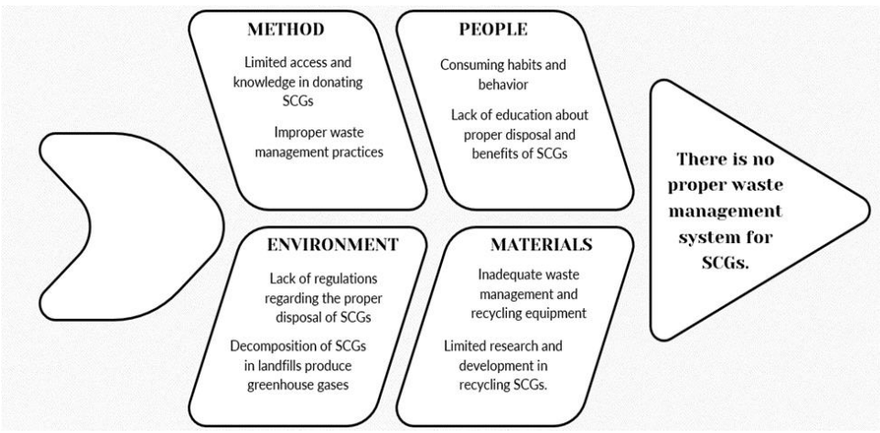
Processing Payments

- Admins will secure payment methods to protect information of the users.

- The donors of the spent coffee grounds are responsible for the transaction fees.

1.3. PROBLEM ANALYSIS

1.3.1. Fishbone Diagram



The main problem lies in a well-planned waste management system for SCGs. The main problem lies in four categories: People, Materials, Method, and Environment. These four factors are connected to the main problem.

People

Consumer habits such as excessive coffee consumption play a huge role in the accumulation of SCGs. As human behavior plays a vital role in this issue, the lack of education to the public about proper coffee waste disposal and benefits of spent coffee grounds for the environment leads to mismanagement of valuable coffee resources.

Materials

The materials highlight the challenges in terms of infrastructure. Inadequate waste management and recycling equipment can also cause the diminishing of efficient waste disposal for SCGs. In addition, there are limited studies and development for innovating solutions in recycling SCGs.

Method

Limited access and knowledge in donating SCGs and lack of knowledge about certain solutions in managing SCGs is lacking effort. Furthermore, improper waste management practices also worsen the problem, leading to unnecessary disposal to landfills of SCGs.

Environment

The environmental aspect firstly focuses on the lack of regulations that govern the disposal of SCGs, meaning that they are often disposed improperly. Furthermore, the decomposition of SCGs in landfills produces harmful greenhouse gases, which leads to the degradation of the environment.

1.3.2. Problem and Solution Statement

SCGs pose a significant challenge in environmental sustainability. Furthermore, the lack of efficient exchange platform for used coffee grounds creates a gap between the benefits of environmental sustainability and the waste from coffee consumption. Existing methods for SCGs do not fully address its potential for valuable fertilizing resources. Moreover, the absence of an existing platform for SCG (spent coffee grounds) producers inhibits the potential benefits in the environment.

In addition, creating an online exchange platform for SCGs can foster environmental preservation. The platform must address issues that relate to the supplier and the recipients, promote user trust, ensure secure transactions, and provide educational resources to reach its target users the potential of SCGs in the environment.

1.3.3. Problem – Requirements Matrix

The problem lies as there is no proper waste management system for spent coffee grounds, contributing to landfill waste

Problems	Solutions
1. The lack of community-driven actions when it comes to proper disposal and management of spent coffee grounds.	Development of a donation-focused system where businesses and individuals with SCGs can distribute these SCGs to people who want to use them for recycling purposes.
2. Deciding on a PHP framework to implement that is both efficient and beginner friendly.	The researchers chose Laravel as their framework because after browsing through numerous paperwork, Laravel was seen as the most prominent framework for beginner web developers.
3. Inefficient Donation Tracking	The system will use a Database for storing and organizing donation records. It will also link the User profiles to donation history.
4. Limited access and knowledge in SCGs	The researchers will develop an intuitive platform that will address and educate users about the benefits of SCGs and can address donations. The researchers intend on developing a website that can provide information regarding SCGs.
5. Inadequate waste management equipment	The researchers will develop a website that will specialize in coffee shops donating coffee grounds. The donated coffee ground will be recycled by the researchers to sell on the e-commerce platform of Grounds for Growth in order to facilitate and process the SCGs properly.

1.4. PURPOSE AND DESCRIPTION

The main objective of this capstone project is to provide an effective platform for managing the donation of spent coffee grounds, providing a service that exchanges coffee grounds as a new product instead of waste, which will align in promoting sustainability, community fostering engagement, and using spent coffee grounds as a valuable resource for compost in agriculture.

1.5. SPECIFIC OBJECTIVES

1. To design an intuitive user experience interface for both donation and e-commerce functionality.
2. To integrate effective data management techniques in handling user information and transactional data.
3. To develop a system that will provide its users coffee ground listing and searching functionalities, which will allow users to list their coffee grounds for donation, which will include details such as quantity, location, and information.
4. To promote and contribute to the exploration of innovative SCG recycling strategies and applications in order to increase overall sustainability.
5. To provide its users with information on how to properly manage these coffee grounds they plan on collecting as well as to educate the users about the reusability of coffee grounds.

1.6. SCOPE AND LIMITATIONS

The online application will give charitable groups a platform to sign up, log in, and display their events on the internet. The app will allow donors to sign up for and donate to their chosen charity events that are showcased on the charity website. People who are less fortunate can register and seek charitable groups for their requirements. Administrators may manage and verify whether organizations and their events are legitimate or not. The online application will benefit society in an unprofitable way. The online application will just provide a platform for the nonprofit groups to register for and advertise their events. It will not be responsible for any

transactions between donors and nonprofit organizations. When requesting essentials from charitable organizations, those in need must present the appropriate documentation. However, the online application cannot guarantee that the charitable organizations will meet their needs. The administrator of the online application will complete the validation procedure for the charitable organizations. The legitimacy of the groups, however, cannot be guaranteed by the online application. Any legal disputes between charitable organizations and donors or those in need are not the responsibility of the website application.

1.7. SIGNIFICANCE OF THE STUDY

Giving to charity has always been important to our society since it assists the less fortunate. But over time, there have been conflicts and concerns with trust and transparency, which have led to a decrease in support from donors. These challenges have highlighted the necessity for developing gift management systems that resolve the problems faced by contributors generally. In our nation, there is an urgent need for a trustworthy contribution management system that tackles the issues faced by both backers and inheritors. By increasing the accessibility and openness of charitable contributions, we want to improve society by assisting those in need. With the help of our technology, we want to regain donors' confidence and develop a more effective and successful charitable giving strategy.

1.8. DEFINITION OF TERMS

Spent coffee grounds (SCG): The residue obtained during the brewing process of coffee. It is typically a wet, dark brown material that is rich in organic matter.

Donation system: A system that allows individuals or organizations to donate goods or services to others in need. In the case of spent coffee grounds, a donation system would allow individuals or businesses to donate their used coffee grounds to a recycling or composting facility.

PHP: A popular general-purpose scripting language that is especially usuited to web development. Fast, flexible, and pragmatic,

Laravel: Laravel is an easy-to-use web framework that will help you create extensible PHP-based websites and web applications at scale. Before creating a web app or website, you need to make a foundational decision as to what technology you are going to use.

Upcycling: The process of converting waste materials into new products of higher quality or value. SCGs can be upcycled into a variety of products, such as compost, fertilizer, and biogas.

CHAPTER 2 – REVIEW OF RELATED LITERATURE/SYSTEMS

ALTERNATIVE USES FOR SPENT COFFEE GROUNDS (SCGs)

Gardening uses for used coffee grounds do not stop with compost. Many individuals decide to utilize coffee grinds as fertilizer by dumping them directly into the ground. Coffee grinds will not instantly contribute nitrogen to your soil, but they will add nitrogen to your compost. The advantage of utilizing coffee grounds as fertilizer is that it increases the amount of organic material in the soil, which enhances aeration, drainage, and water retention. The spent coffee grounds will also encourage the growth of microorganisms that are good for plant growth and attract earthworms. (Rhoades, 2022).

Uses for used coffee grounds (SCG) include biotechnological (bioethanol, volatile aromatic compounds, carotenoids, fungi, and enzymes), energy-related (combustion, pyrolysis, torrefaction, gasification, hydrothermal carbonization), and environmental (composting) applications. SCGs are simple to break down by microbes and release CO2 into the atmosphere due to their high quantity of transformable chemicals. However, a C retention of more than 85% is possible when SCG is added directly to soil. This SCG application for the environment with relation to climate change seems promising (Perez-Burillo et al., 2022).

According to the study of Saberian et. Al (2021), SCGs could be used as aggregates in building materials for a variety of civil engineering projects. Also, Salazar-Loper et. Al (2019) stated that SCG is the source of chemicals known as nutraceuticals, including phenolic compounds, melanoidins, and antioxidant dietary fiber, which have been linked to positive impacts on human health, particularly gastrointestinal and cardiovascular illnesses, weight loss, and cancer prevention.

To develop a systematically system that sorts, classifies, and guides users towards SCGs content and compounds according to their purpose as this can be sold and exchanged to a wide variety of people and opportunists especially to those pursuing a study that also caters the use of spent coffee grounds rather than ending up in landfills. According to a 2019 review (McNutt and He, 2019) spent SCGs can be of direct use, a holistic process towards zero waste approach without much procedure mainly for compositional reuse or for the latter, can be used for biorefinery.

With this concept, users can identify their interests and be guided sequentially by the system about the procedure of both its respective classifications.

ONLINE DONATION PLATFORM

Based on the study of Asyraf, J.A and Luckayardi S. (2019), technological developments provide convenience for the community, especially in business. People are more comfortable making payments online and do not need to leave home, only using cell phones and the internet can all be done quickly and efficiently. Through this site, people have the convenience of donating, not worrying about transfer payments and the public can monitor the distribution of donations they have given.

Alzahrani et.al (2020) presented a study entitled "E-Sharing: Developing a Web Based Online Donation System" there must be a platform that users must be able to donate quickly with only one click, hence there must be some quick, easy, intuitive, and secure means to do such online donations. The Unified Modelling Language (UML), SQL Server to build the database, and the ASP.NET and Visual Basic programming languages were used to design and develop the proposed work.

The paper "Reduction of Food Waste Through Donation Using Online Food Management System for Orphanage" by Rajvor et.al (2021) describes that wastage of food is increasing day by day. They proposed to develop a web-based platform "Surplus Food for Orphanage" that connects food providers and donors. By reducing food waste, the system will encourage more people to donate food to orphanages and make it easier for them to do so. PHP, HTML, and CSS are the programming languages that are used to create the system. They use MySQL for Database and XAMP for web server. This website will be beneficial for diminishing the wastage of food in a country.

Based on the study of Azyraf and Luckyardi (2019), the community today benefits from technological advancements, particularly in business. Online transactions are more comfortable for customers, and they can be completed swiftly and effectively without requiring them to leave their homes. Through the website, anyone may donate easily without worrying about money transfers, and the public can keep track of how their funds are being used.

According to Shrum (2022), statistics shows that 54% of contributors globally prefer to make donations online, and this number is rising yearly. With an aggregate gain of more than 32% over the previous three years, it rose by 21% in 2020. Thus, donations are shifting online. Since your procedure is automated through online system, you have quick access to your data. To get a comprehensive view of your fundraising activities, you may run reports and track your incoming donations in real-time. Getting rid of manual entry also cuts down on human mistakes.

According to Keela (2021), nonprofits all over the world are seeing the value of providing online giving alternatives to their supporters as the world becomes more digital. They can profit from using the online donation system to boost donor involvement. Online donations provide quicker and more flexible transactions. Additionally, it offers a safer platform to safeguard their data and donations.

Innovative techniques are helping donation sites that use a basic mobile payment system get notice. In Korea, online donations increased quickly, from 3.0% of all personal donations in 2013 to 23.2% in 2019. The online donation method can be used in one of the following ways: direct donations can be made through a platform or an online bank from a prior donation using account transfers; participatory methods based on blogs or social media; or funding methods such as a long walk or a crowdfund. Notably, non-profit organizations are experimenting with a new contribution technique utilizing blockchain that is novel in terms of management efficiency and ethical enhancement. Non-profit organizations that manage donations, including donation management or fund management transparency (Kim, Kim, 2021).

Donors can contribute money to organizations that are in need using online contribution platforms like DonorsChoose, GlobalGiving, or CrowdFunder. In a typical situation, contributors provide financial support to assist collect the desired amount within a predetermined timeframe after a fundraiser file a request outlining her need. Although the purpose of these platforms is to balance out social imbalances, skewed contribution tendencies may make the allocation of resources to the needy even more unjust. Prior studies have examined how biased information, models, or human behavior affect inequity in various socio-technical systems, but they have mainly

ignored the choice architecture that governs how funding decisions are made (Chakraborty, Mota, Biega, et al., 2019).

For many years, there has been an unfriendly climate for the philanthropic sector. The rising level of rivalry among organizations, reluctance to give owing to strong competition, and the current health crisis, which has taken a lot of donations away from other causes, are all elements that encourage charities to differentiate themselves and maximize their tactics. Charities may use their websites to engage with donors and generate more money in this way. The internet gives you the chance to make a global donation request, grabbing the interest and money of many people in the process. As a result, the capacity of organizations to spur the act of giving online is a major problem and has transitioned from being a differentiator to becoming a key determinant in their success and sustainability (Bataoui, Boch, 2023).

The significance of the credibility of the three primary online contribution components—campaigns, websites, and donation organizations—through a credibility transfer mechanism has not been addressed in prior studies on online donations. Using the legitimacy of campaigns, websites, and organizations as a starting point, this model can subsequently identify the elements that affect a person's motivation to contribute online. The Elaboration Likelihood Model (ELM) hypothesis, which describes the process of someone expanding a message through a core route or a peripheral route, is then connected to each of these elements (Purwandari, Khairiyah, Purwaningsih, 2022).

As the Internet continues to transform our lives, contribution procedures are also being updated to reflect the rapidly changing nature of technology, rendering outdated more traditional forms of fundraising. For instance, internet technologies are used by event planners to raise money while also promoting exposure and recruiting volunteers. Crowdfunding, which has grown quickly in recent years, has arisen as a new type of micro-financing on the Internet. Popular crowdfunding platforms like Indiegogo and Kickstarter focus mostly on equity- or reward-based fundraising initiatives. (Zhang, Tan, Sun, et al., 2020).

SOFTWARE DEVELOPMENT

According to a journal done by Solanki, et al. (2017), Laravel is the most advantageous among the frameworks available for use in PHP in website development. Laravel was also voted as the easiest to use framework overall and that is why the researchers deem it necessary to implement Laravel as their starting framework for PHP website development.

The integration of the Laravel framework for updating old websites was proved to be significant by an article done by Soegoto (2018). Soegoto (2018) stated that the four factors considered for the Brand Image of the website when updating using Laravel were Reputation, Recognition, Affinity, and Brand Loyalty where the implementation of the framework impacted the influence of each factor significantly and putting into practice the advantages of Laravel as an up-to-date framework in web development.

Laravel was also proved useful by a study conducted by Wicaksono and Pakereng (2020), where they made a library information system implementing Laravel as the framework. Wicaksono and Pakereng (2020) stated that, with the use of Laravel, modifications for user authentication functions were easier to create and that database structure was easily created with the built-in function of Laravel, migration, without having to interact directly with the database.

CHAPTER 3 – METHODOLOGY

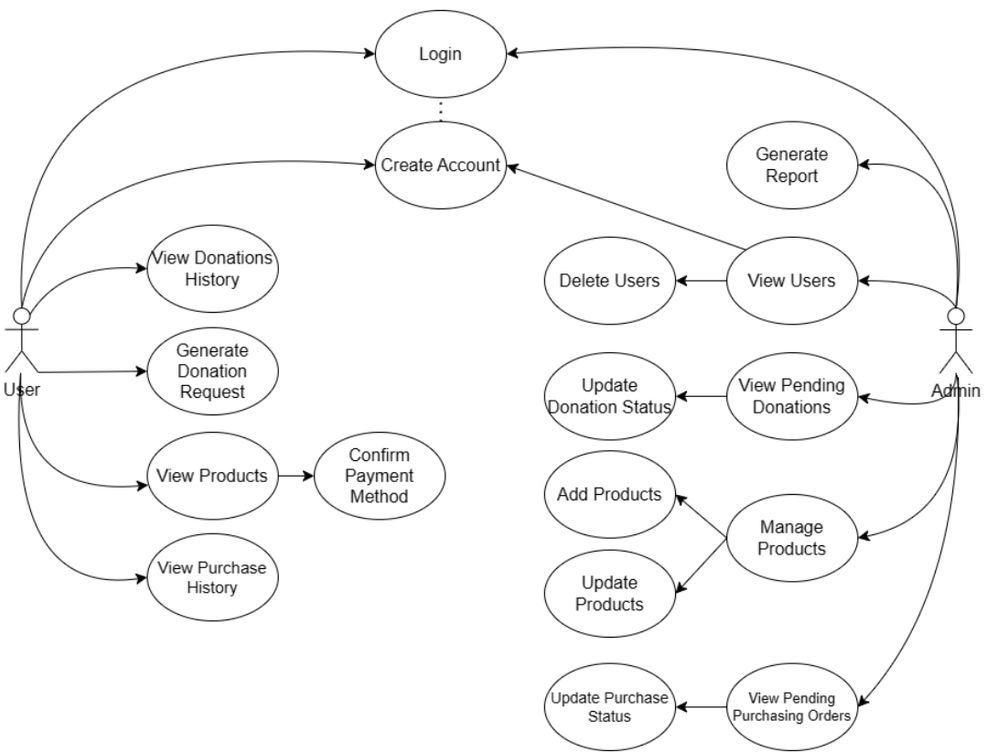
3.1. REQUIREMENTS ANALYSIS

3.1.1. Requirements – Features Matrix

Features / Requirements	Content Management System	Donation System	Featured Product Page	Product Order System	Registration of Accounts	Order / delivery status	Admin authority controls
The administrators must be able to revise or edit content of the website	✓						✓
The website must be able to hold multiple administrators that can manage the website.							✓
Users that currently own a coffee business are only allowed to create an account.		✓			✓		
The website should be able to allow administrators to receive the amount of donations they receive on the website		✓		✓		✓	
The website should incorporate a feature where users can track the process of their donations or orders.		✓		✓		✓	
The website should be able to also control and read the orders they receive from the featured product page				✓		✓	
The website should allow users to order the featured products on the website.	✓		✓				✓

3.1.2. Use Case Diagram

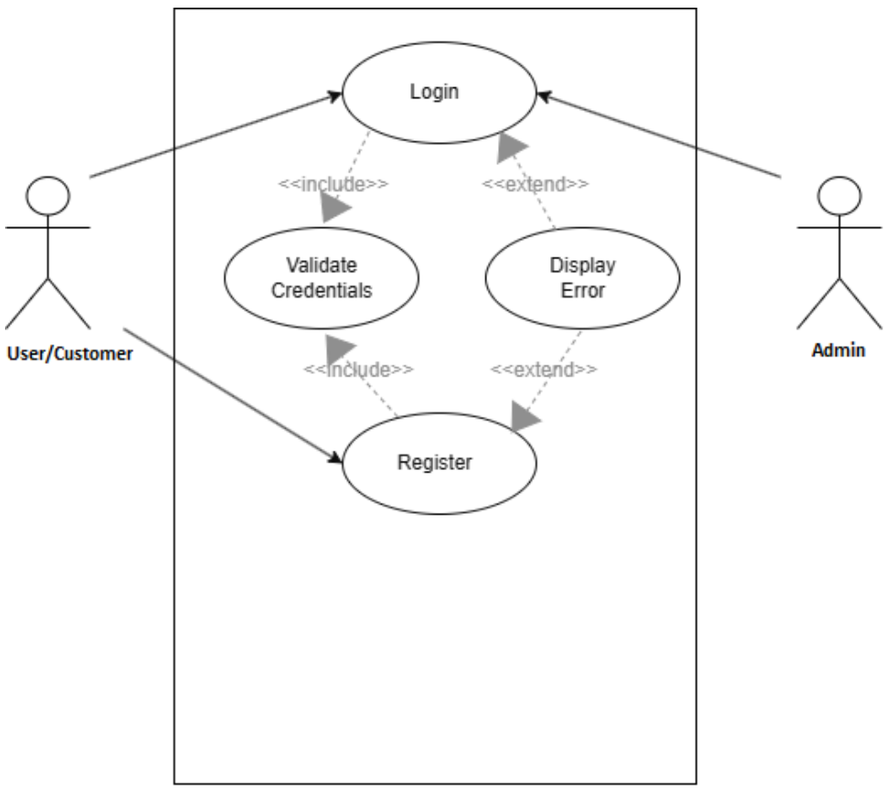
- Overall Use-Case Diagram



As shown in the figure above, both the admin and the regular user can login through the system and register an account, but the admin is allowed to

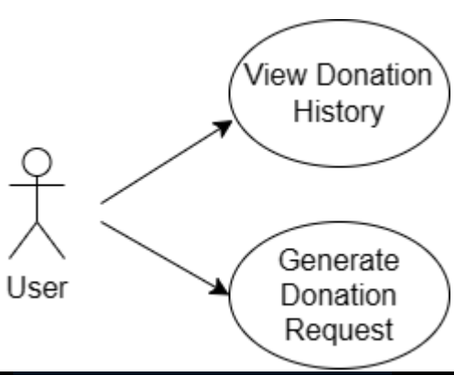
delete users. The admin can generate an overall report of the website's details. The admin can also view pending donations and update their statuses, manage products by adding, updating, or deleting products, and view pending purchasing orders and updating their status.

- Login Use-Case Diagram



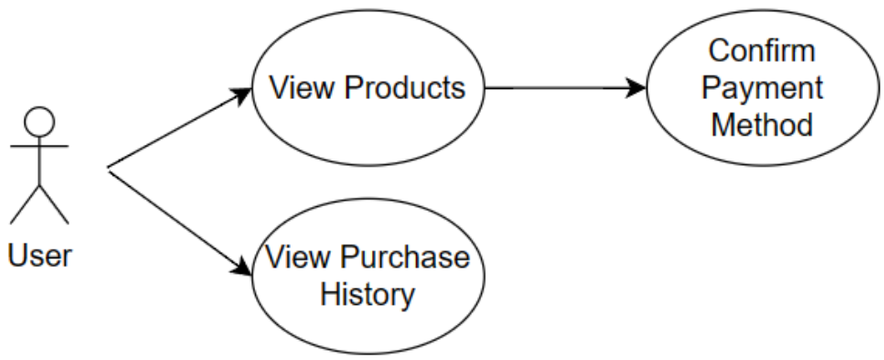
A partition of the previous use-case diagram is the Login feature, the Login feature involves the register feature and will include the validation of credentials. Incorrect credentials will result in displaying an error message for the user. Some features within the website will not be accessible and will be locked until the user logs in with their account.

- User - Donation Use-Case Diagram



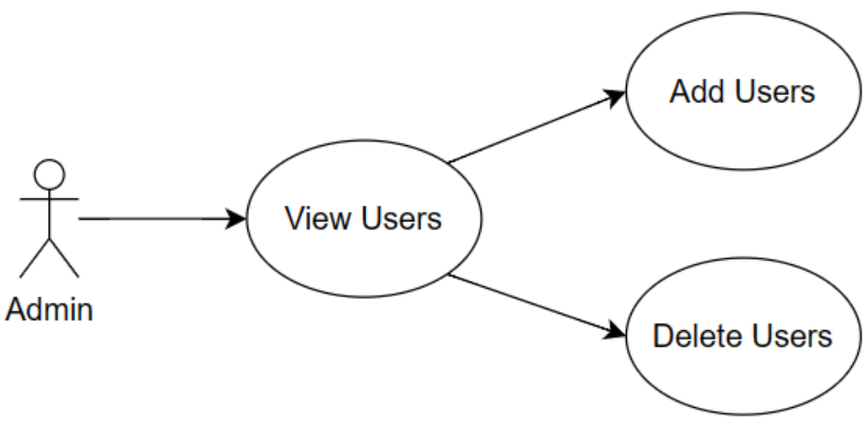
The figure above displays how the regular user can view donation history and also generate donation requests. The website will automatically fill up some parts of the information required but will still ask for details regarding the item for donation itself, the method of donation whether pickup or delivery, and the date and location of when and where the donation will happen.

- User - Purchase Use-Case Diagram



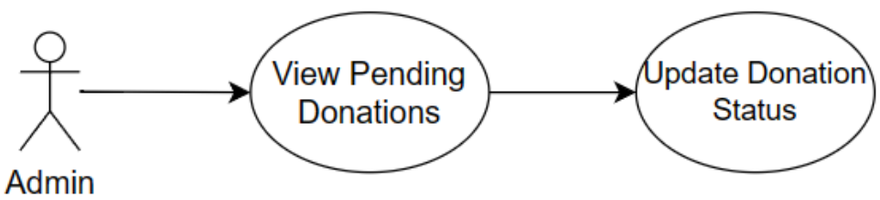
The diagram above shows a simple presentation of how users can purchase products on the website. Users can view products available to them and add items to their carts, they can then view their carts and either remove items from it or proceed to purchasing to generate a purchase order. Once purchase orders are set, users can check on their purchase history for updates about their purchases.

- Admin - Manage Users Use-Case Diagram



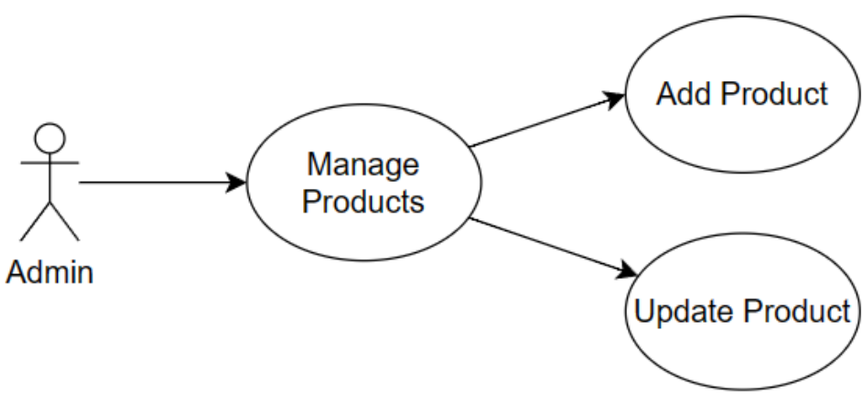
Admins can directly add users and delete users in the view users part of the admin user-interface. The details of the users registered only include their name, email address, and addresses.

- Admin - Manage Pending Donations Use-Case Diagram



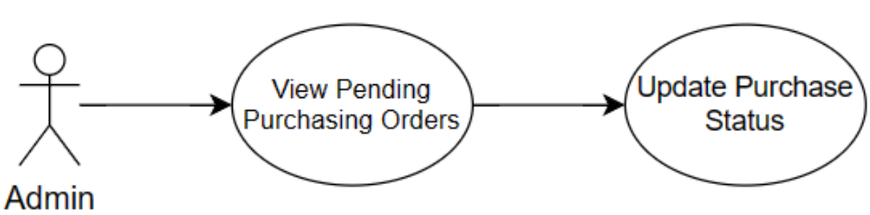
Once donation orders are requested by users, admins can update these orders by either approving them or not. Once an order is complete, the admin will change the status to completed.

- Admin - Manage Products Use-Case Diagram



The admin can register products on the website by providing necessary information about the item. The admin must provide the name, category, description, price, quantity available, and the preview image of the product to successfully register an item. The admin can also update the details of the product and also delete them.

- Admin - Manage Pending Purchases Use-Case Diagram



Admins can view pending purchasing orders of users and update them according to the mode of delivery, from “processing” to “to be received” to “completed”, this also includes “cancelled”.

3.1.3. Use Case Report

- Use Case Report – Login

Use Case Name	Login	
Purpose	To authenticate if the user is registered in the system as a customer or as an admin	
Actors	Admin, Café Owners, Customers	
Triggers	The user accesses other features that require an account to progress.	
Preconditions	The user must be registered and not logged in.	
Post-conditions	The user has logged in to the website.	
Basic Flow	Actor	System
	1. Press the login button 2. Input email address and password 3. Click “Login” button	1.1. Display login page 3.1. Validate inputted email and password
Alternative Flow	1a. If the user is logged in, display profile button.	
Include Use-Case	Validate Credentials	
Extend Use-Case	Display Error	
Priority	High	
Frequency	Every time a user wants to use a feature in the website	

- Use Case Report – Register

Use Case Name	Register	
Purpose	To add an account to the system.	
Actors	Café Owners, Customers	
Triggers	The user does not have an account and wishes to create one.	
Preconditions	The user must not have an account.	
Post-conditions	The user has registered an account.	
Basic Flow	Actor	System
	1. Press the Register here button 2. Input necessary information 3. Click Register button	1.1. Display Register page 3.1. Validate information whether everything fits their appropriate criteria. 3.2. Successfully register the account in the system.
Alternative Flow	1a. If the user already owns an account, proceed to login.	
Include Use-Case	Validate Credentials	
Extend Use-Case	Display Error	
Priority	High	

Frequency	Every time a user wants to register an account on the website.

- Use Case Report – User: Donation

Use Case Name	Donation	
Purpose	To navigate the users to the donation page to make a donation order for the admin.	
Actors	Café Owners, Customers	
Triggers	The user wishes to donate SCGs through the use of the website.	
Preconditions	The user must be logged in on the website.	
Post-conditions	The user has successfully made a donation.	
Basic Flow	Actor	System
	1. Press the Make Donation button 2. Input required information 3. Select mode of donation 4. Input additional information 5. Click “Confirm” button	1.1. Display Donation page 3.1. Display which additional information is required regarding which type of mode of donation is selected. 5.1. Verify if the inputted information is complete and fits the data required. 5.2. Add request to pending donation requests.
Alternative Flow	1a. If the user wishes to purchase, press Shop button.	
Include Use-Case	Validate Donation Data	
Extend Use-Case	Display Error	
Priority	High	
Frequency	Whenever a registered or non-registered user wishes to donate SCGs through the use of the system.	

- Use Case Report – User: Purchase

Use Case Name	Purchase	
Purpose	To navigate the users to the shop page to make a purchase order for the admin.	
Actors	Customers	
Triggers	The user wishes to purchase products provided by the website.	
Preconditions	The user must be logged in on the website.	
Post-conditions	The user has successfully made a purchase order.	
Basic Flow	Actor	System
	1. Press the Shop button 2. Click Add to Cart button for desired items 3. Click Cart button 4. A) Click Desired method of Payment. 5. Upload Proof of Payment	1.1. Display Shop page 2.1. Add item to Cart of the user. 3.1. Display Cart page 3.2. Display list of items inside the cart. 4.1. Add request to pending purchasing orders.

Alternative Flow	1a. If the user wishes to donate, press Make Donation button.
Include Use-Case	Validate Donation Data
Extend Use-Case	Display Error
Priority	High
Frequency	Whenever a registered or non-registered user wishes to purchase an item through the use of the system.

- Use Case Report – Admin: Manage Users

Use Case Name	Manage Users	
Purpose	To manage registered users in the system by the admin.	
Actors	Admin	
Triggers	The admin wishes to manage users in the system.	
Preconditions	The user must be an admin.	
Post-conditions	The user has successfully made changes to a user.	
Basic Flow	Actor	System
	1. Press the Users button. 2. Select Manage Users. 3. Click Delete button on a user. 4. Click “Confirm” button	2.1. Display Users list 3.1. Display confirmation message. 4.1. Delete the data of the user.
Alternative Flow	2a. If the user wishes to add an account, press Add User button. 2b. Display window containing Register page.	
Include Use-Case	Validate Donation Data	
Extend Use-Case	Display Error	
Priority	High	
Frequency	Whenever the admin wishes to manage users in the system.	

- Use Case Report – Admin: Manage Pending Donations

Use Case Name	Manage Pending Donations	
Purpose	To manage pending donations made by regular users.	
Actors	Admin	
Triggers	The admin wishes to manage pending donations in the system.	
Preconditions	The user must be an admin.	
Post-conditions	The user has successfully updated donation requests.	
Basic Flow	Actor	System
	1. Press the Manage Donations button. 2. Click Update button on an order. 3. Set status of the order. 4. Click Update button.	1.1. Display Pending orders list 2.1. Display donation order details. 3.1. Display drop-down list of pending, approved, disapproved, and completed. 4.1. Move order to appropriate list depending on the status selected.

Alternative Flow	2a. If the user wishes to view approved donations, click Approved tab. 2b. If the user wishes to view disapproved donations, click Disapproved tab. 2c. If the user wishes to view completed donations, click Completed tab. 4a. If the user does not wish to continue updating the order, click Close button.
Include Use-Case	Validate Donation Data
Extend Use-Case	Display Error
Priority	High
Frequency	Whenever the admin wishes to manage orders in the website.

- Use Case Report – Admin: Manage Products

Use Case Name	Manage Products	
Purpose	To manage products in the system.	
Actors	Admin	
Triggers	The admin wishes to manage products registered in the system.	
Preconditions	The user must be an admin.	
Post-conditions	The user has successfully updated donation requests.	
Basic Flow	Actor	System
	1. Press the Products button. 2. Click Add Products. 3. Provide information required. 4. Click Details Tab. 5. Click Add Product button.	2.1. Display Add Product page 4.1. Display Details Tab. 5.1. Check if all required information is provided and fits the appropriate criteria. 5.2. Add product to the products list.
Alternative Flow	2a. If the user wishes to manage existing products, click Manage Products. 2a.1. Select a product to edit or delete.	
Include Use-Case	Validate Product Data	
Extend Use-Case	Display Error	
Priority	High	
Frequency	Whenever the admin wishes to manage orders in the website.	

- Use Case Report – Admin: Manage Pending Purchases

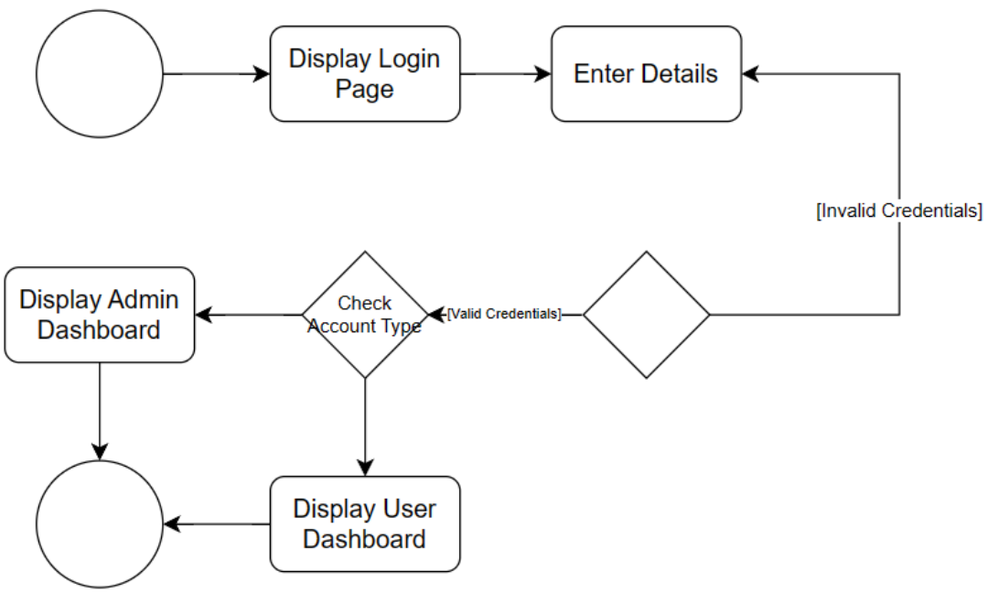
Use Case Name	Manage Pending Purchases	
Purpose	To manage pending purchase orders made by regular users.	
Actors	Admin	
Triggers	The admin wishes to manage pending orders in the system.	
Preconditions	The user must be an admin.	
Post-conditions	The user has successfully updated purchase orders.	
Basic Flow	Actor	System
	1. Press the Manage	1.1. Display Pending orders list

	Orders button. 2. Click Update button on an order. 3. Set status of the order. 4. Click Update Order Status button.	2.1. Display Update Product window. 3.1. Display drop-down list of processing, to receive, completed, and cancelled. 4.1. Change the order status of the order depending on the selected status.
Include Use-Case	Validate Donation Data	
Extend Use-Case	Display Error	
Priority	High	
Frequency	Whenever the admin wishes to manage orders in the website.	

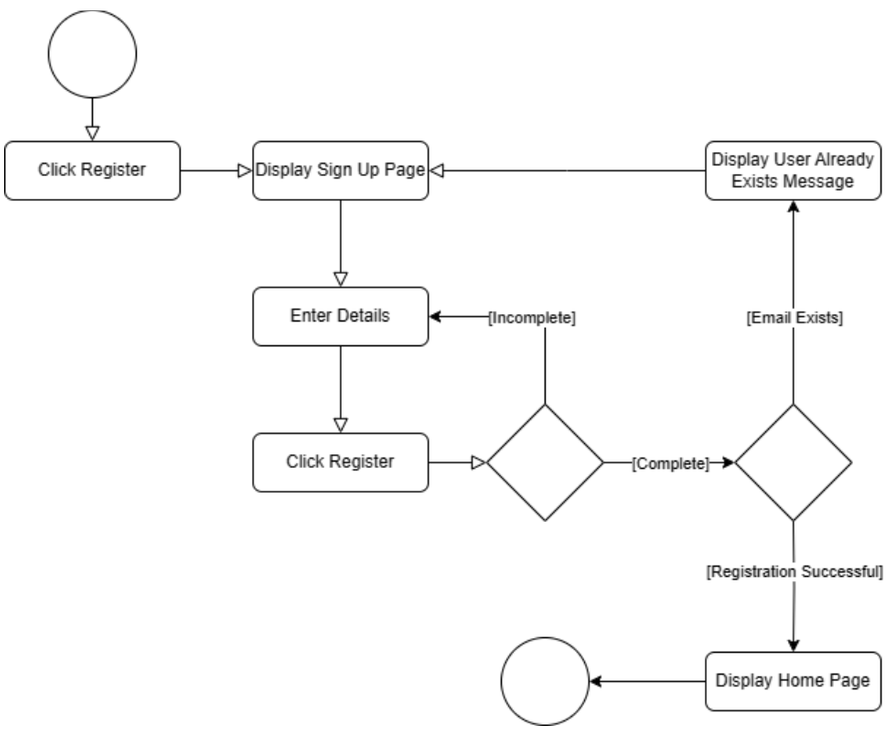
3.2. DESIGN SPECIFICATIONS

3.2.1. Activity Diagram

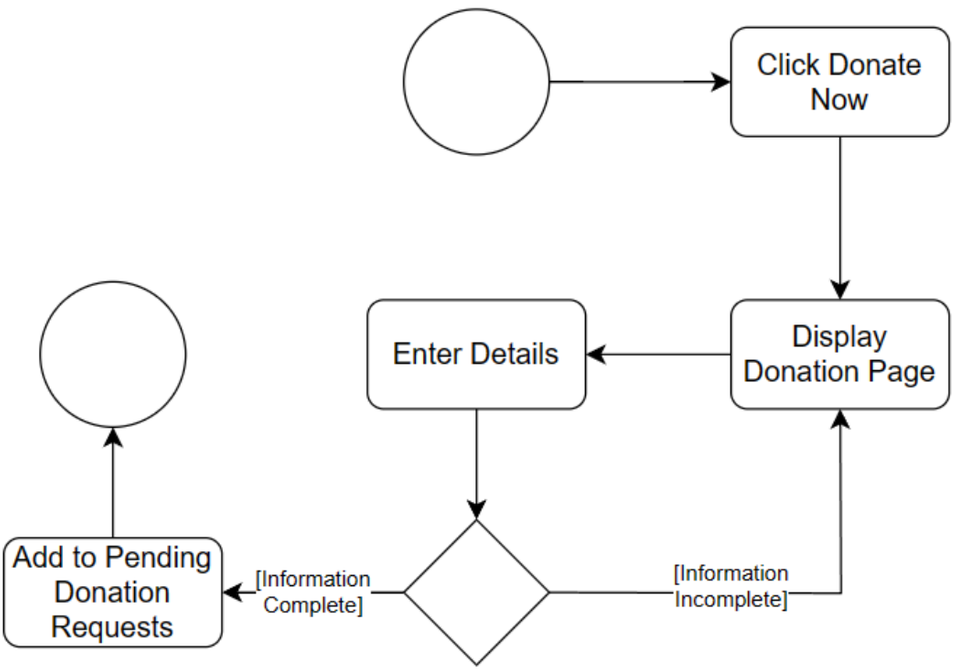
- Activity Diagram - Login



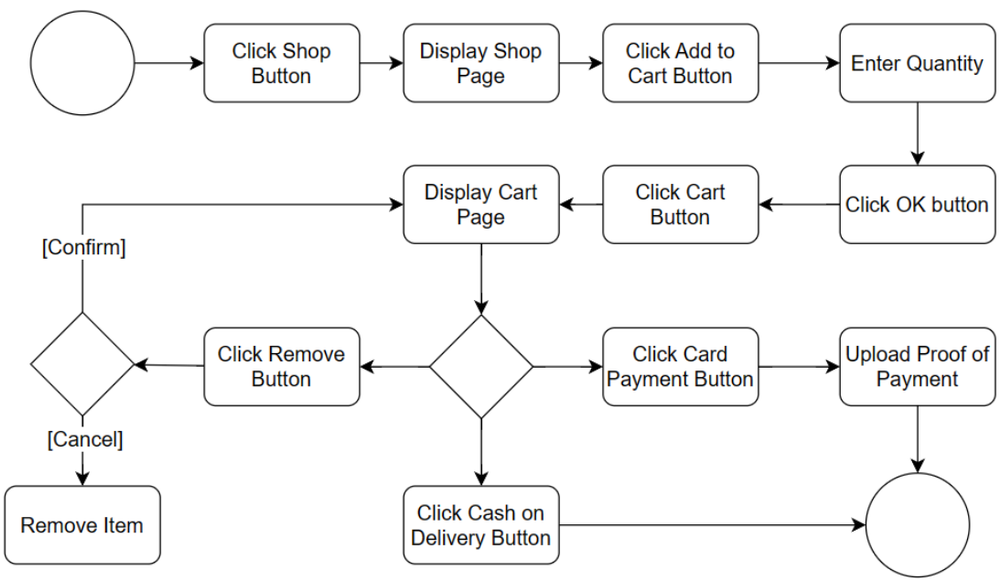
- Activity Diagram – Register



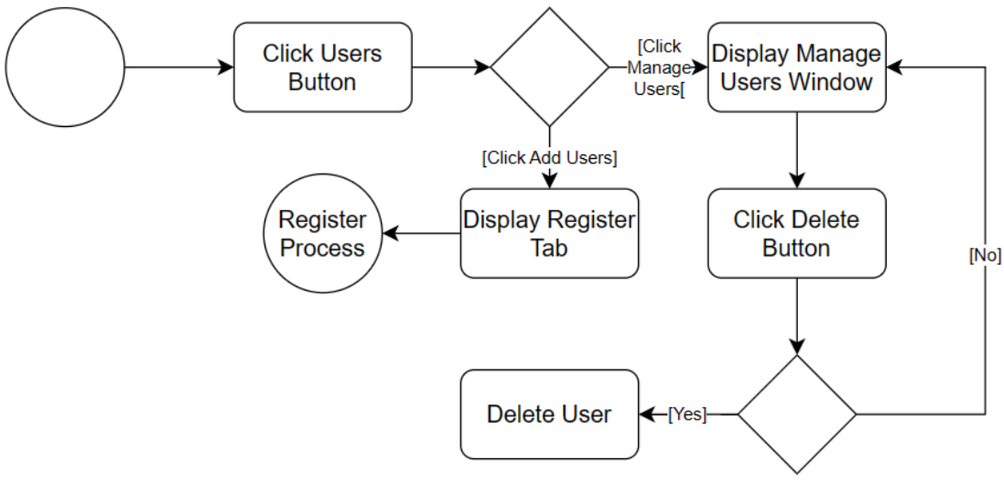
- Activity Diagram – Donation



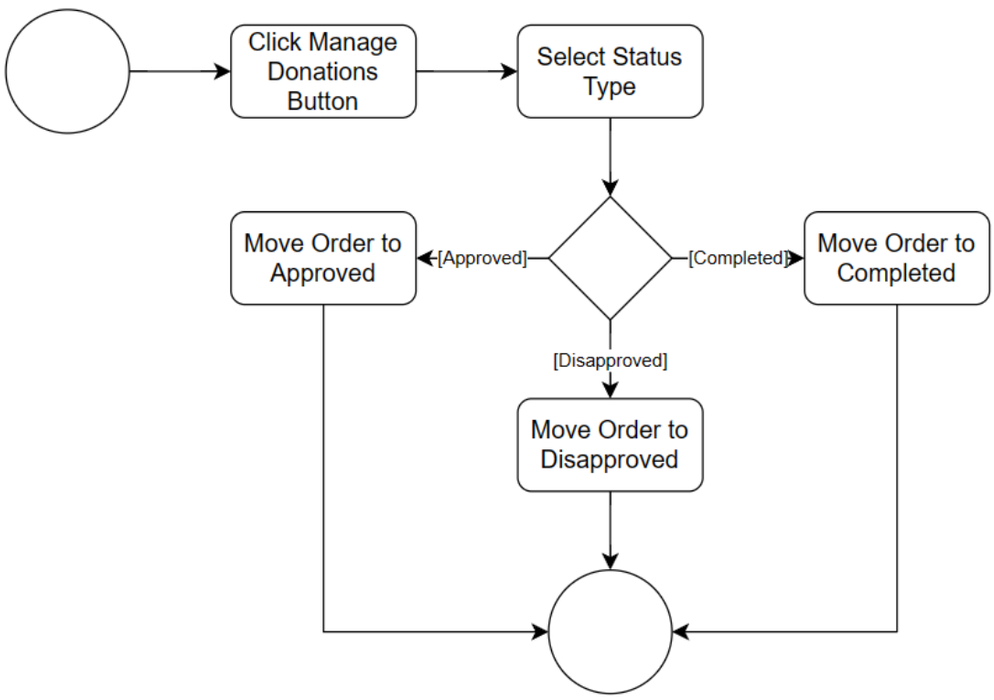
- Activity Diagram – Purchase



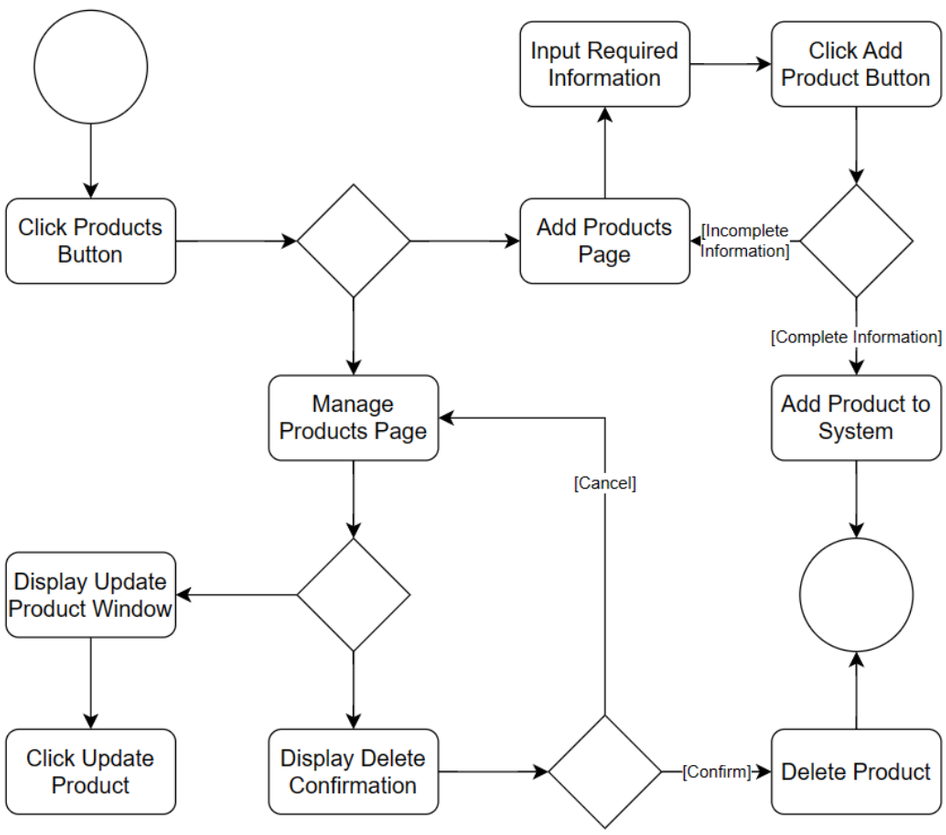
- Activity Diagram – Manage User



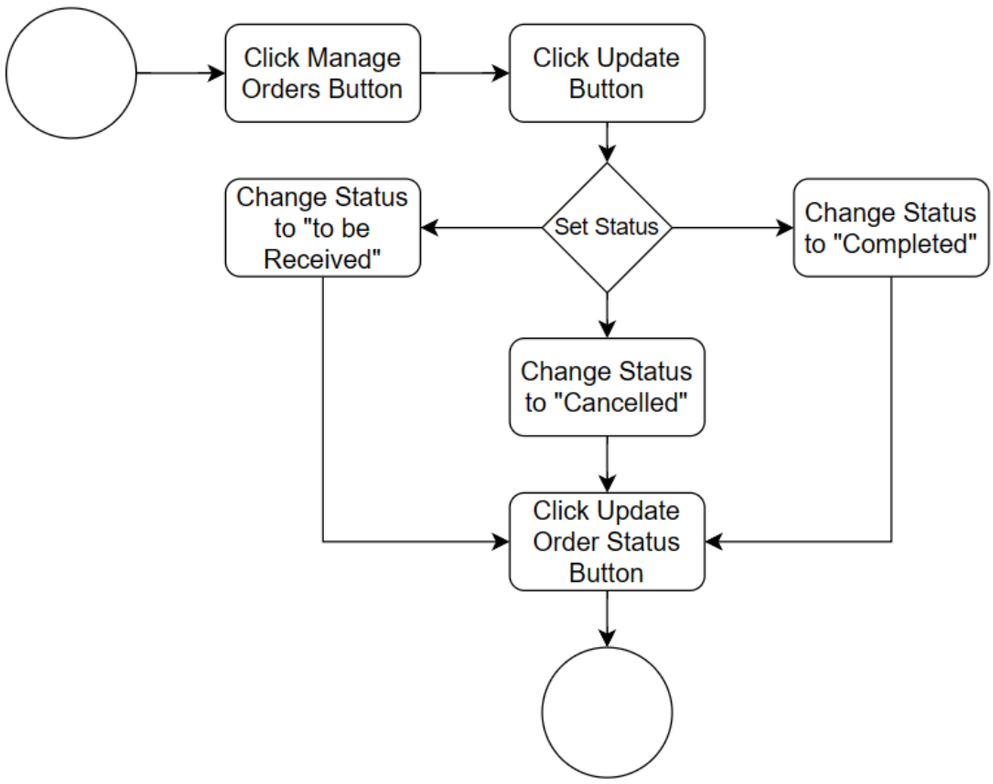
- Activity Diagram – Manage Pending Donations



- Activity Diagram – Manage Products


Input Required Information
Click Add Product Button
Click Products Button
Add Products Page
[Incomplete Information]
[Complete Information]
Manage Products Page
Add Product to System
[Cancel]
Display Update Product Window
Click Update Product
Display Delete Confirmation
[Confirm]
Delete Product

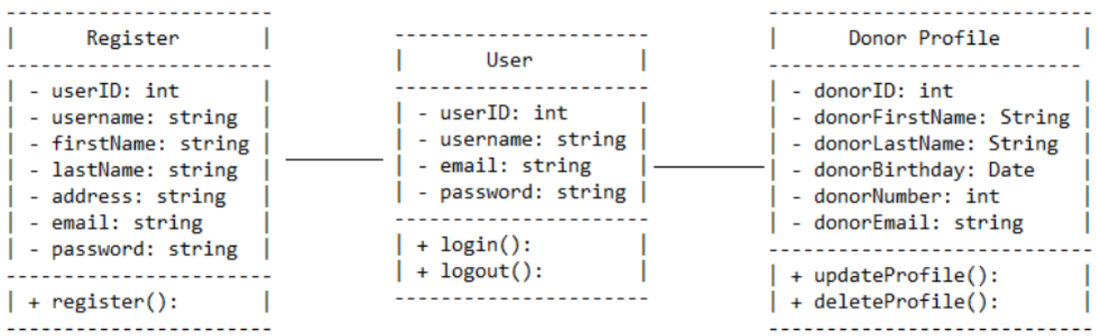
- Activity Diagram – Manage Pending Purchases



3.2.2. Class Diagram

- Overall Class Diagram

- Login Class Diagram

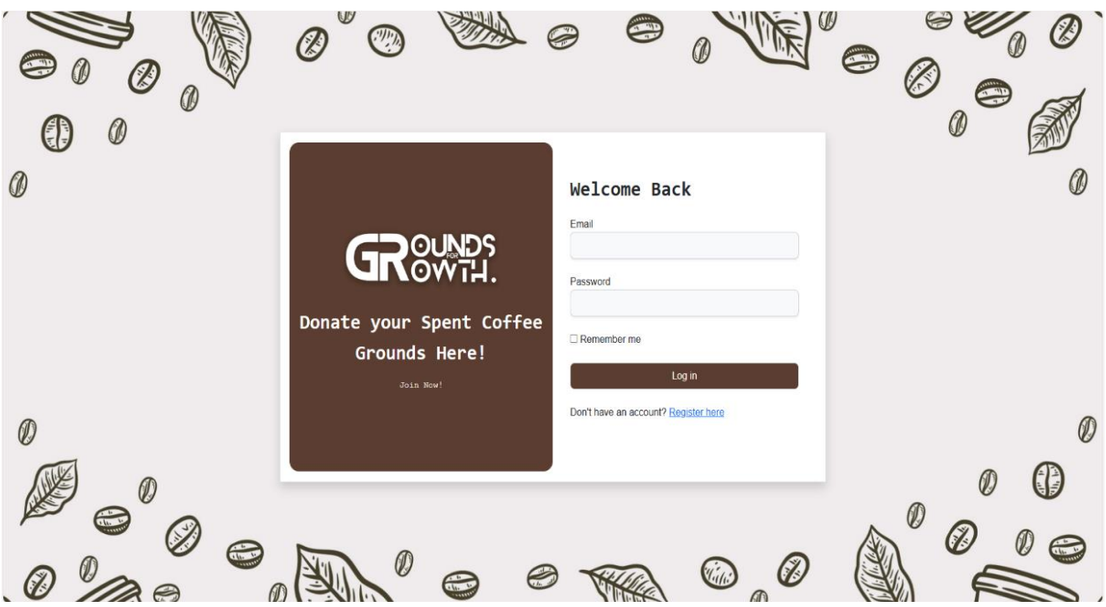


- Donation Class Diagram

3.2.3. GUI (Graphical User Interface) Design

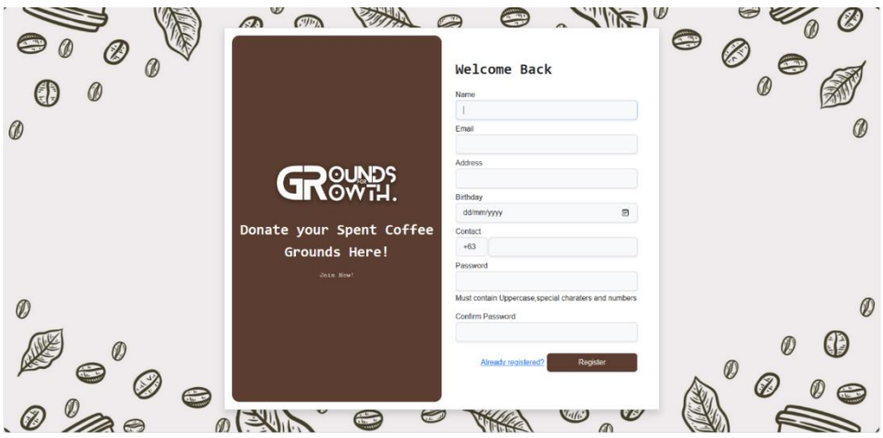
- Login Page

Description: The user inputs his registered username and password to access.



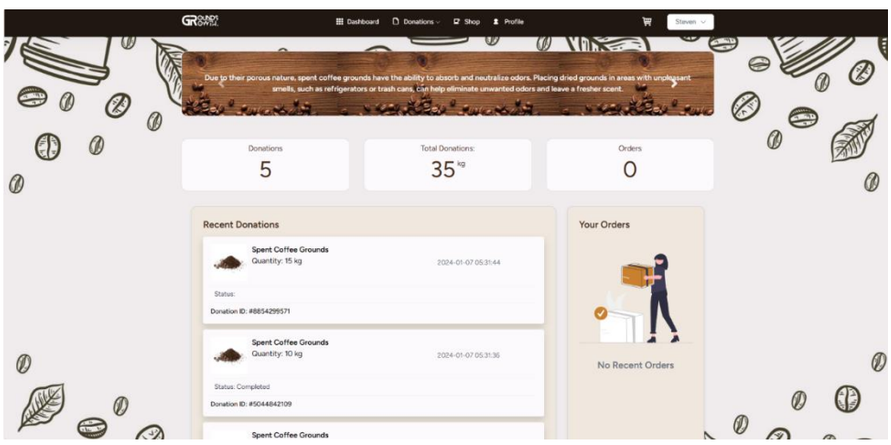
- Sign Up Page

Description: The user can register for an account to gain access to the system.



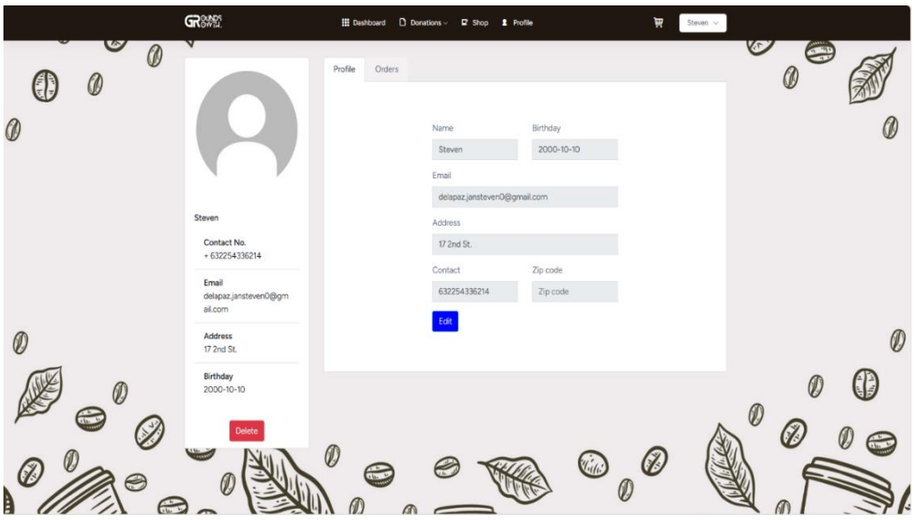
- User Dashboard

Description: This is where the user can manage the orders and donations made on the website. A carousel feature is also inserted in the user dashboard to educate users about spent coffee grounds.



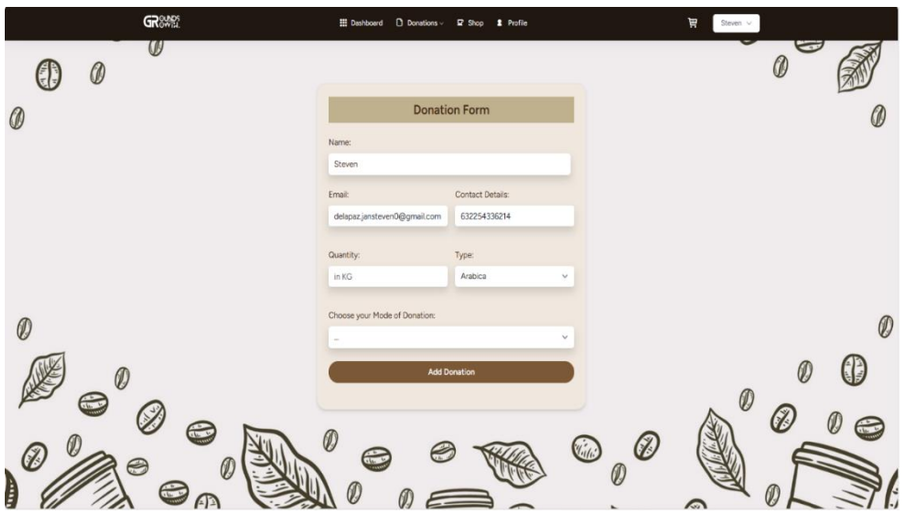
- User Profile

Description: This is where the user can see his/her information.


Dashboard
Donations
Shop
Profile
Steven
Profile
Orders
Steven
Contact No.
+ 632254336214
Email
delapaz.janstevenO@gmail.com
Address
17 2nd St.
Birthday
2000-10-10
Delete
Name
Steven
Birthday
2000-10-10
Email
delapaz.janstevenO@gmail.com
Address
17 2nd St.
Contact
632254336214
Zip code
Zip code
Edit

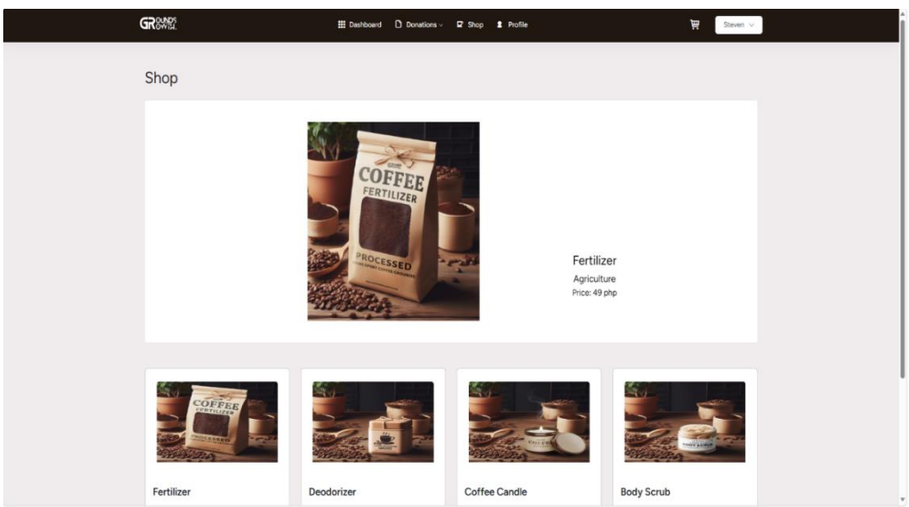
- Donation Page

Description: Where the user can donate their spent coffee grounds in the website.



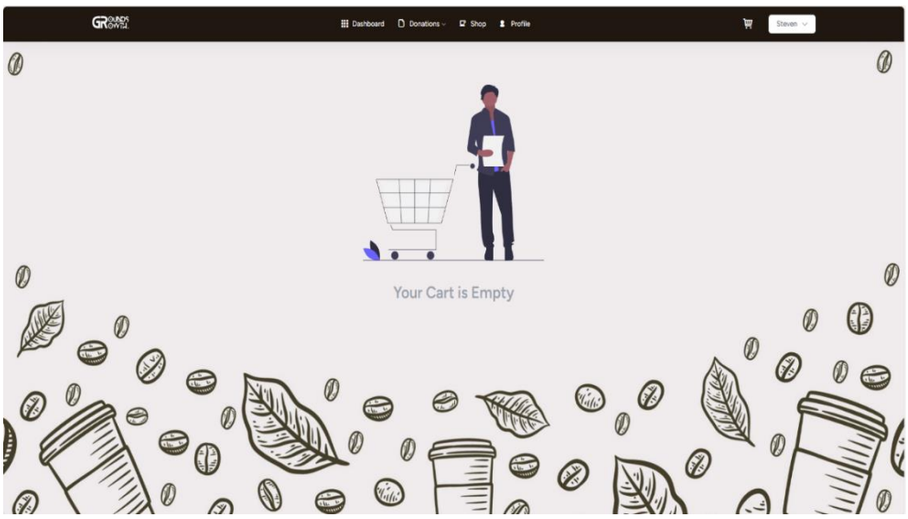
- Shop Page

Description: Where the user can navigate and buy a product that the shop offers.



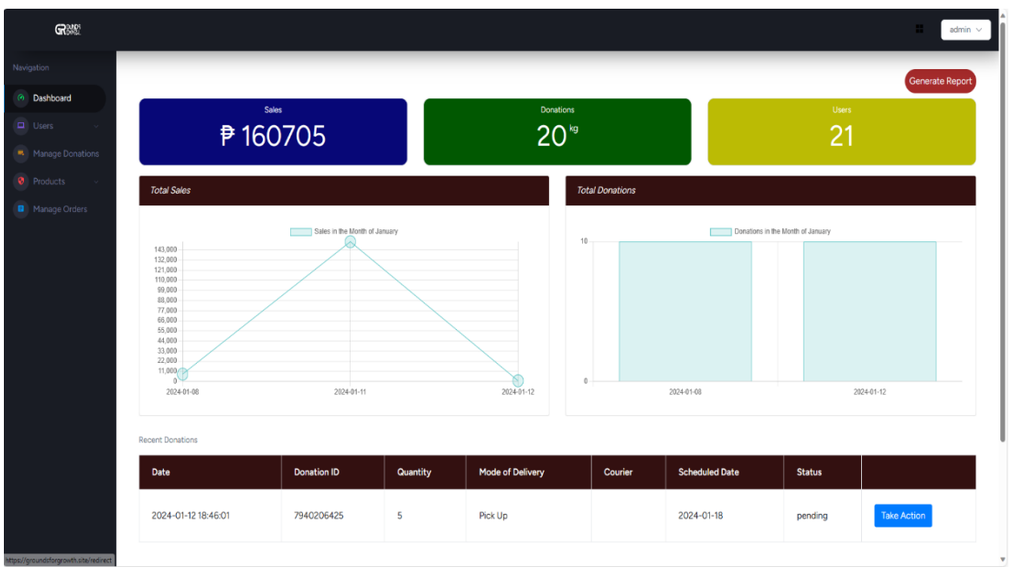
- Cart Page

Description: Where the user can use all the items they added before buying it out.



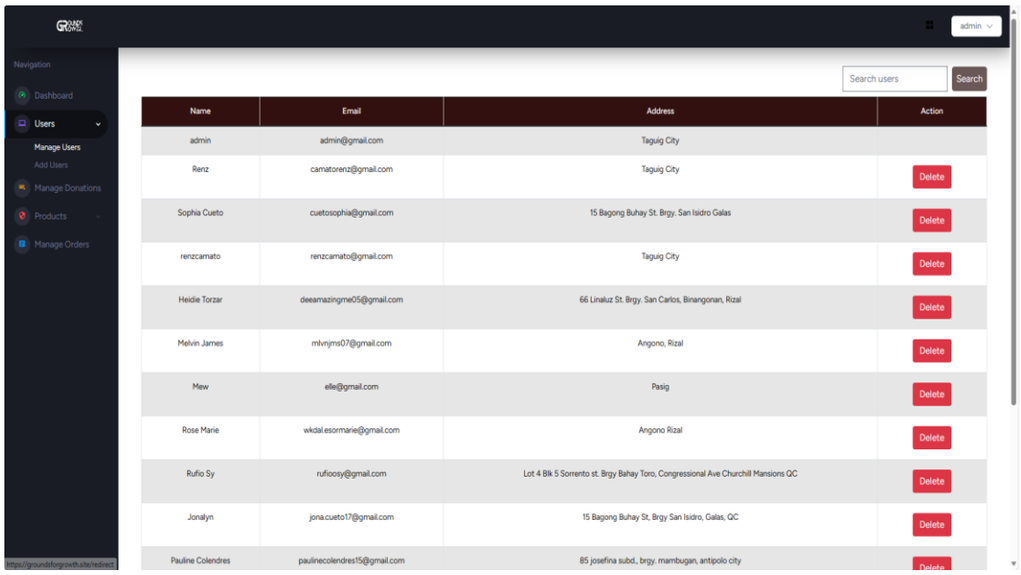
- Admin – Dashboard

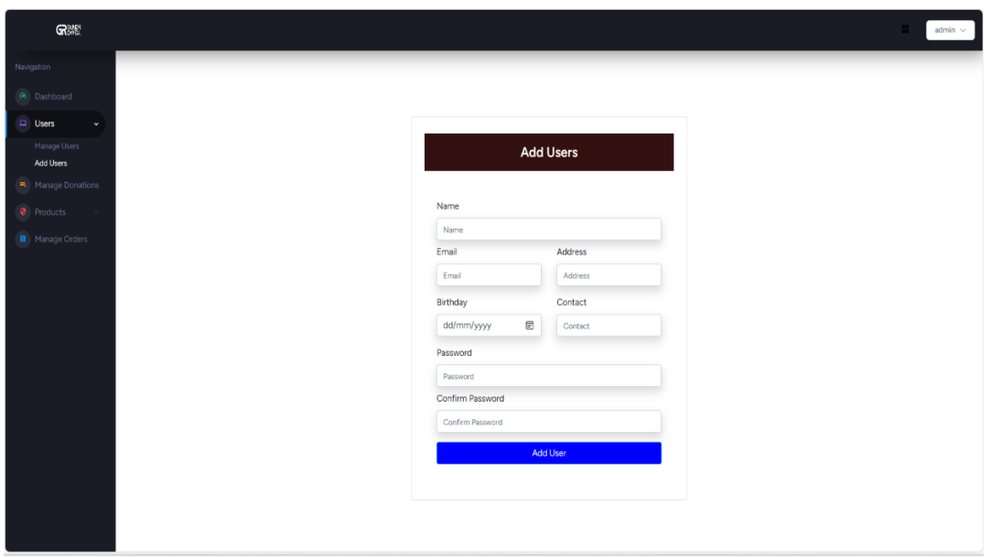
Description: This is where the admin can see all the data that is done within the month, all the recent donations and orders of the users that need to be taken in action.



- Admin – User Management

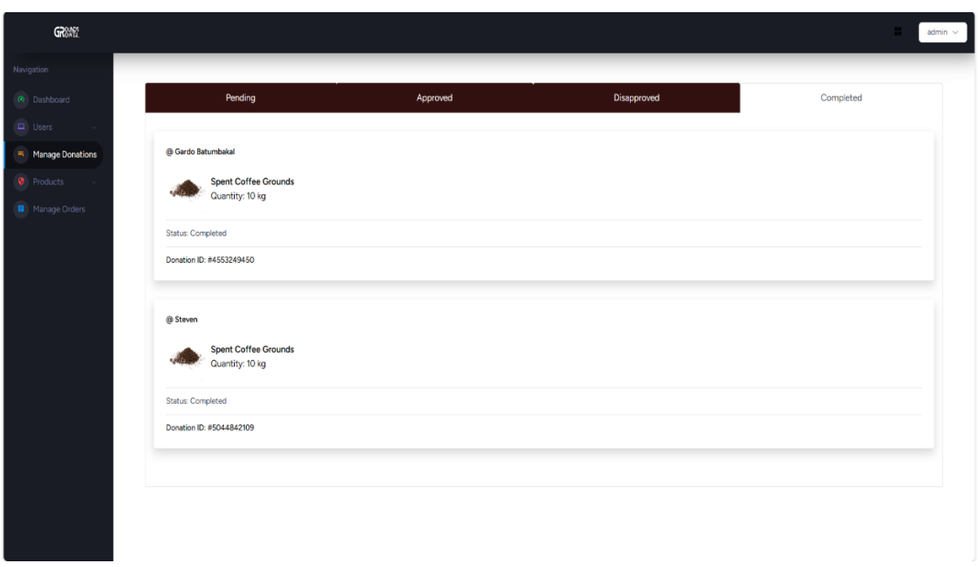
Description: This is where the admin can manage the users in the web application, it allows the admin to delete and add the users.





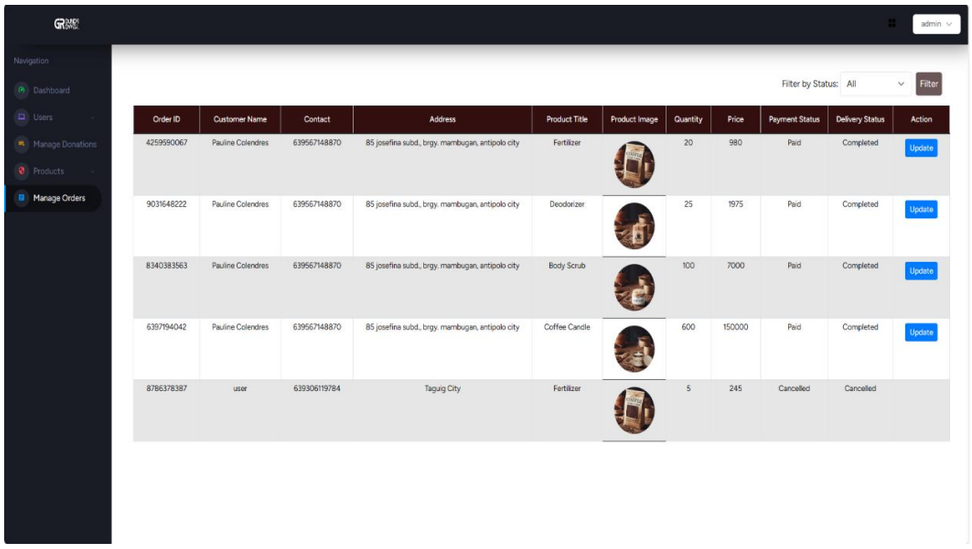
- Admin – Donation Management

Description: This is where the admin can see all the donations separated by its status. If the order is pending, it allows the admin to update the status of the donation.



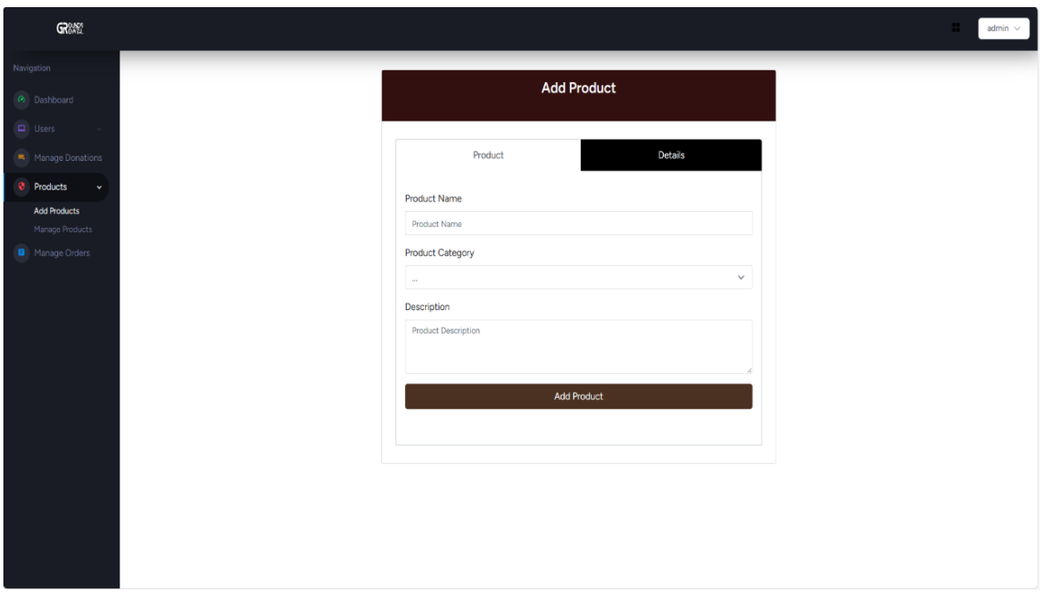
- Admin – Order Management

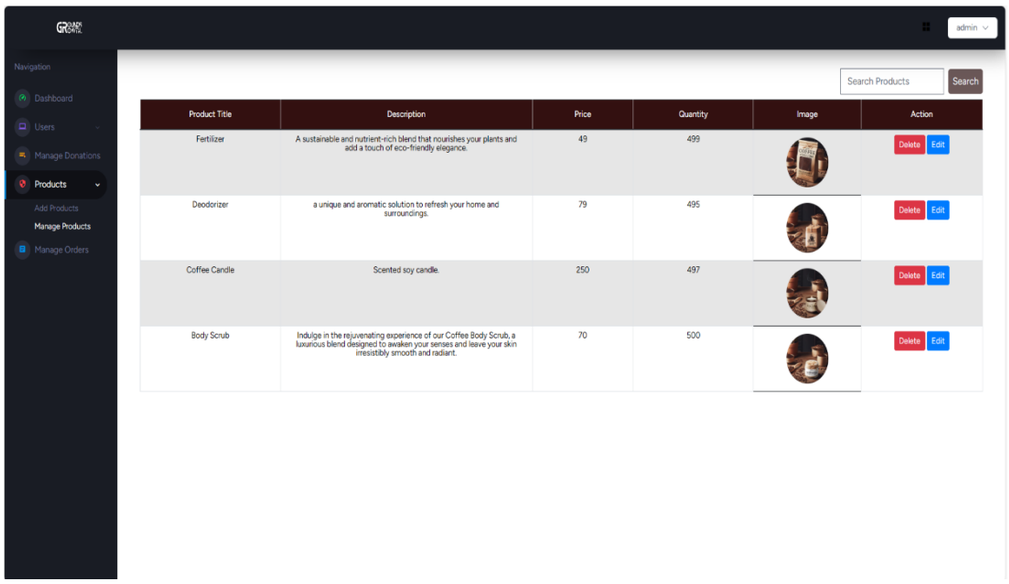
Description: This is where the admin can see all the orders. It allows the admin to update the status of the orders.



- Admin – Product Management

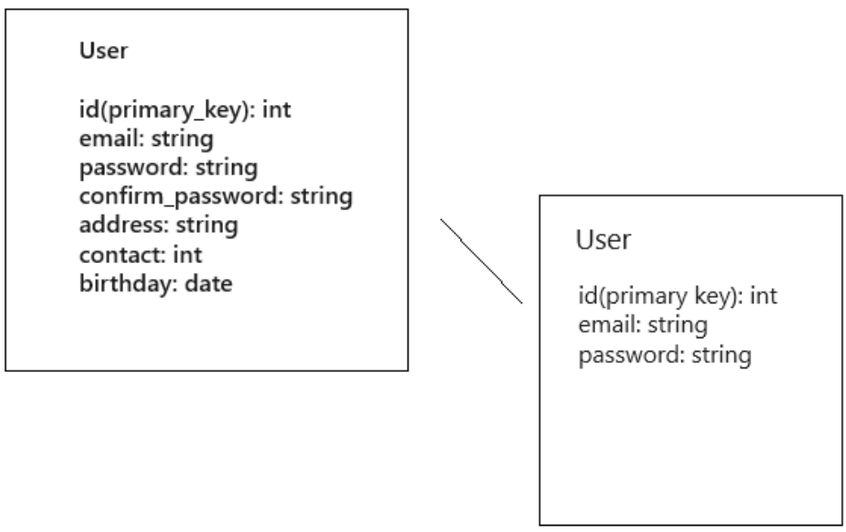
Description: This is where the admin can see all the products that the web application offers. It also allows the admin to add more products to the shop.



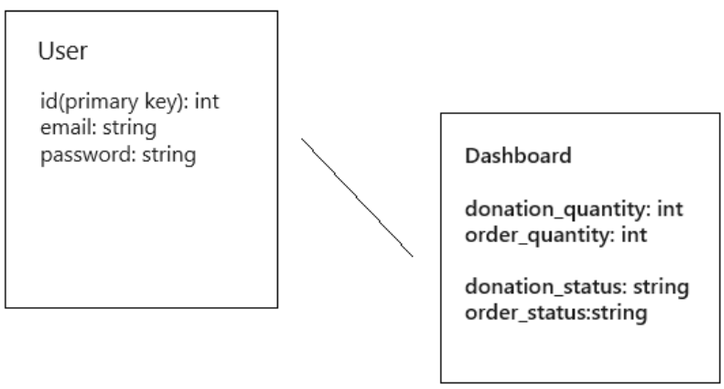

admin
Navigation
Dashboard
Users
Manage Donations
Products
Add Products
Manage Products
Manage Orders
Search Products
Search
Product Title
Description
Price
Quantity
Image
Action
Fertilizer
A sustainable and nutrient-rich blend that nourishes your plants and add a touch of eco-friendly elegance.
49
499
Delete
Edit
Deodorizer
a unique and aromatic solution to refresh your home and surroundings.
79
495
Delete
Edit
Coffee Candle
Scented soy candle.
250
497
Delete
Edit
Body Scrub
Indulge in the rejuvenating experience of our Coffee Body Scrub, a luxurious blend designed to awaken your senses and leave your skin irresistibly smooth and radiant.
70
500
Delete
Edit

3.2.4. Database Schema

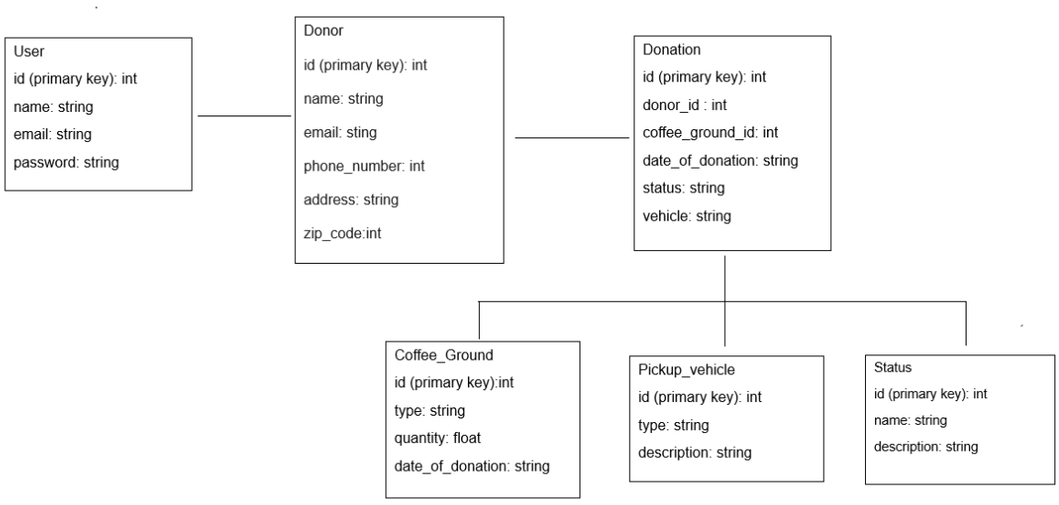
- Register



- Login



- Donate



3.2.5. Database Schema

- Data Dictionary – Carts

Field Name	Type	Key	Null
id	bigint(20)	UNSIGNED	NOT NULL
name	varchar(255)		NOT NULL
email	varchar(255)		NOT NULL
contact	varchar(255)		NOT NULL
address	varchar(255)		NOT NULL
user_id	varchar(255)		NOT NULL
product_id	varchar(255)		NOT NULL
product_title	varchar(255)		NOT NULL
price	varchar(255)		NOT NULL
quantity	varchar(255)		NOT NULL
product_image	varchar(255)		NOT NULL
created_at	timestamp	DEFAULT	NULL
updated_at	timestamp	DEFAULT	NULL

- Data Dictionary – Categories

Field Name	Type	Key	Null
category	varchar(255)		NULL
id	bigint(20)	UNSIGNED	NOT NULL
created_at	timestamp		NULL
updated_at	timestamp		NOT NULL

- Data Dictionary – Donations

Field Name	Type	Key	Null
id	bigint(20)	UNSIGNED	NOT NULL
name	varchar(255)	DEFAULT	NULL
address	varchar(255)	DEFAULT	NULL
contact_number	varchar(255)	DEFAULT	NULL
mode_of_delivery	varchar(255)	DEFAULT	NULL
date	varchar(255)	DEFAULT	NULL
quantity	varchar(255)	DEFAULT	NULL
courier	varchar(255)	DEFAULT	NULL
status	varchar(255)	DEFAULT	NULL
user_id	varchar(255)	DEFAULT	NULL
created_at	timestamp		NULL
updated_at	timestamp		NULL
uuid	varchar(255)		NOT NULL
pickup_location	varchar(255)	DEFAULT	NULL
dropoff_date	varchar(255)	DEFAULT	NULL
reason	varchar(255)		NOT NULL
type	varchar(255)	DEFAULT	NULL

- Data Dictionary – failed_jobs

Field Name	Type	Key	Null
id	bigint(20)	UNSIGNED	NOT NULL
uuid	varchar(255)		NOT NULL
connection	text		NOT NULL

queue	text		NOT NULL
payload	longtext		NOT NULL
exception	longtext		NOT NULL
failed_at	timestamp	DEFAULT	NOT NULL

- Data Dictionary – Migration

Field Name	Type	Key	Null
id	int(10)	UNSIGNED	NOT NULL
migration	varchar(255)		NOT NULL
batch	int(11)		NOT NULL

- Data Dictionary – Orders

Field Name	Type	Key	Null
id	Bigint(20)	UNSIGNED	NOT NULL
name	varchar(255)		NOT NULL
email	varchar(255)		NOT NULL
contact	varchar(255)		NOT NULL
address	varchar(255)		NOT NULL
user_id	varchar(255)		NOT NULL
product_id	varchar(255)		NOT NULL
product_title	varchar(255)		NOT NULL
price	varchar(255)		NOT NULL
quantity	varchar(255)		NOT NULL
product_image	varchar(255)		NOT NULL
payment_status	varchar(255)		NOT NULL
delivery_status	varchar(255)		NOT NULL
created_at	timestamp	DEFAULT	NULL
updated_at	timestamp	DEFAULT	NULL
uuid	varchar(255)		NOT NULL
proof	varchar(255)	DEFAULT	NULL

- Data Dictionary – Password Reset Tokens

Field Name	Type	Key	Null
email	varchar(255)		NOT NULL
token	varchar(255)		NOT NULL
created_at	timestamp	DEFAULT	NULL

- Data Dictionary – Payments

Field Name	Type	Key	Null
id	Bigint(20)	UNSIGNED	NOT NULL
name	varchar(255)		NOT NULL
card_number	varchar(255)		NOT NULL
date	varchar(255)		NOT NULL
cvv	varchar(255)		NOT NULL
created_at	timestamp	DEFAULT	NULL
updated_at	timestamp	DEFAULT	NULL
user_id	varchar(255)		NOT NULL

- Data Dictionary – Personal Access Tokens

Field Name	Type	Key	Null
id	bigint(20)	UNSIGNED	NOT NULL
tokenable_type	varchar(255)		NOT NULL
tokenable_id	bigint(20)	UNSIGNED	NOT NULL
name	varchar(255)		NOT NULL
token	varchar(64)		NOT NULL
abilities	text		NULL
last_used_at	timestamp	DEFAULT	NULL
expires_at	timestamp	DEFAULT	NULL
created_at	timestamp	DEFAULT	NULL
updated_at	timestamp	DEFAULT	NULL

- Data Dictionary – Users

Field Name	Type	Key	Null
id	bigint(20)	UNSIGNED	NOT NULL
name	varchar(255)		NOT NULL
email	varchar(255)		NOT NULL
address	varchar(255)	DEFAULT	NULL
usertype	varchar(255)	DEFAULT	NOT NULL
birthday	date	DEFAULT	NULL
region	varchar(255)	DEFAULT	NULL
contact	bigint(20)	DEFAULT	NULL
email_verified_at	timestamp	DEFAULT	NULL
password	varchar(255)		NOT NULL
two_factor_secret	text	DEFAULT	NULL
two_factor_recovery_codes	text	DEFAULT	NULL
two_factor_confirmed_at	timestamp	DEFAULT	NULL
confirm_password	varchar(255)	DEFAULT	NULL
remember_token	varchar(100)	DEFAULT	NULL
current_team_id	bigint(20)	UNSIGNED	
profile_photo_path	varchar(2048)	DEFAULT	NULL
created_at	timestamp	DEFAULT	NULL
updated_at	timestamp	DEFAULT	NULL
zip	varchar(255)	DEFAULT	NULL

- Data Dictionary – Sessions

Field Name	Type	Key	Null
id	varchar(255)		NOT NULL
user_id	bigint(20)	UNSIGNED	DEFAULT
ip_address	varchar(45)	DEFAULT	NULL
user_agent	text	DEFAULT	NULL
payload	longtext		NOT NULL
last_activity	int(11)		NOT NULL

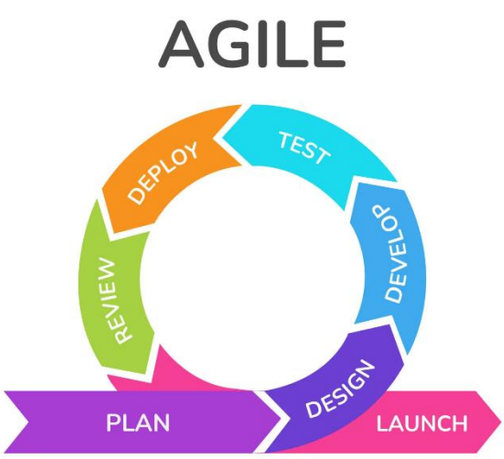
- Data Dictionary – Products

Field Name	Type	Key	Null
id	bigint(20	UNSIGNED	NOT NULL
title	varchar(255)	DEFAULT	NULL
description	varchar(255	DEFAULT	NULL
image	varchar(255)	DEFAULT	NULL
price	varchar(255)	DEFAULT	NULL
quantity	varchar(255)	DEFAULT	NULL
discount_price	varchar(255)	DEFAULT	NULL
created_at	timestamp	NULL	DEFAULT
updated_at	timestamp	NULL	DEFAULT
slug	varchar(255)	DEFAULT	NULL
category	varchar(255)	DEFAULT	NULL

3.3. DEVELOPMENT METHODOLOGY

3.3.1. Process Model

Agile Methodology



The proponents will be using the AGILE Methodology for its reputation when it comes to efficiency, flexibility, and collaboration with the client. Through the use of the Agile Methodology, the proponents can better assign themselves workloads that they excel at and can hasten the development of the system. In response to the close collaboration with the client, the development of the system will be transparent for the clients and where their feedback will be important for developing the system they need.

3.3.2. Development Tools

- Hypertext Preprocessor (PHP) - PHP is an open-source scripting language especially suited for web development (PHP, n.d.). It can be

embedded into HTML where it can execute codes on the server as well as connect the system to the database.

- Hypertext Markup Language (HTML) - HTML is the standard markup language for web development.
- Cascading Style Sheets (CSS) - CSS comes together with HTML because CSS manages how HTML will be presented. CSS provides additional customization on how the HTML code will be displayed on the web page.
- MySQL - MySQL is a relational database system developed by Oracle that is based on structured query language (SQL) (talend, n.d.). MySQL is integral for the system as it will serve as the main database language the proponents will use for storing data.
- Visual Studio Code – VS Code is a source code editor that boasts its speed and efficiency, implementing IntelliSense code completion, and having a debugging feature included.
- Laravel - Laravel is an easy-to-use web framework that will help you create extensible PHP-based websites and web applications at scale. Before creating a web app or website, you need to make a foundational decision as to what technology you are going to use.

3.4. TEST METHODOLOGY/PROCEDURES

3.4.1. Development Testing

The development testing will be processed during the development phase of the project. The researchers intend to evaluate the system while in the process of building and meeting the requirements of the website. Furthermore, the researchers intend to check first the system before letting the client test the website.

3.5. SYSTEM REQUIREMENTS

3.5.1. Hardware Requirements

LAPTOP OR PERSONAL COMPUTER

CATEGORY	Specifications
PROCESSOR	Intel® Core™ i5 or i7 Quad Core Processor (Intel 11 Generation or Newer) or AMD Ryzen 5 or 7 Quad Core (AMD 5000 or 6000 series Ryzen or newer)
OPERATING SYSTEM	Window 7
MEMORY	At least 24 GB RAM (DDR4 SDRAM or newer)
HARD DRIVE	512GB SSD and 1TB HDD
GRAPHICS PROCESSING UNIT	Integrated Graphics card or Dedicated Graphics card.

3.5.2. Software Requirements

SOFTWARE SPECIFICATIONS

CATEGORY	Specifications
OPERATING SYSTEM	Windows 10 Pro (32-bit & 64-bit) Windows 11 Pro (32-bit & 64-bit)
ANTI-VIRUS	Standard Windows Defender
HARD DRIVE ENCRYPTION AES 256-BIT REQUIRED	BitLocker (Windows 10 or 11 Pro)
INTERNET BROWSER	Google Chrome
ARCHIVE SOFTWARE	7-zip, WinZIP, WinRAR
OFFICE SOFTWARE	Microsoft Office 365
PDF FILE SOFTWARE	Adobe Reader
CODING SPECIFIC	Encoder Pro

3.5.3. Peopleware

PEOPLEWARE AND RESPONSIBILITIES

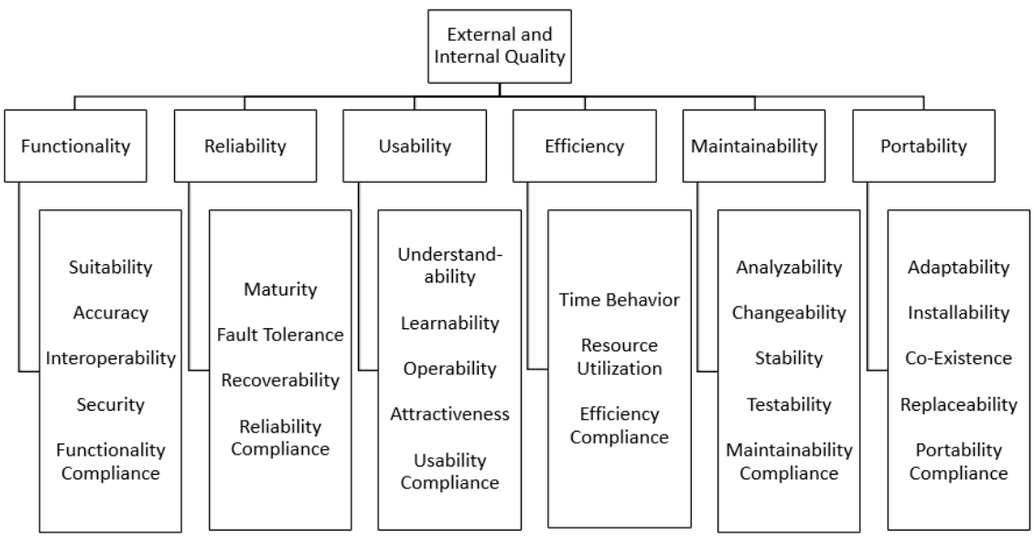
CATEGORY	Responsibilities
TEAM LEADER	In charge of overseeing the documentation of the project, and setting schedules and timeframes for the team
UI/UX DESIGNER	Responsible for the overall user-interface design
FRONT-END DEVELOPER	Transfers the idea of the UI/UX designer into code for the website.
BACK-END DEVELOPER	The backbone of the project is the one responsible for managing the database and connecting the front-end to the system.

3.6. QUALITY PLAN

3.6.1. Tools and Instrument

- ISO 9126-1

  To verify the quality of the system, the proponents implemented ISO 9126-1, an international standard that provides a useful Quality Model for software characteristics. The model, the figure below, contains six quality characteristics, which are functionality, reliability, usability, efficiency, maintainability, and portability. Furthermore, these six qualities are subdivided into several characteristics that contribute to the evaluation of the system.



- User Acceptance Test (UAT)

  An evaluation questionnaire for the system will be provided by the developers, the questionnaire will follow the standards of the ISO 9126-1 model to better grade the qualities of the system. The questionnaire will be given to the client for evaluation and possible adjustments, depending on the feedback. The proponents will be utilizing Google Form as their platform for the survey.

3.6.2. Criteria for Evaluation

Quality Characteristics	Description
Functionality	• The website performs the procedure the clients want accurately. • The system is secure and cannot be accessed without an authorized account. • The website's connection to the database is

	secure and vice versa.
Reliability	• The system can reliably store back-up data in case a failure occurs.
Usability	• The user interface of the website is simple and easily understandable, making it user-friendly. • The website does not use any grandiose terms that the general user cannot understand.
Efficiency	• The proponents will provide the minimum system requirements for running the website efficiently.
Maintainability	• The source code of the system is organized and readily accessible for diagnosis and modifications.
Portability	• The system is a web-based system that can adjust depending on what device the user will access it from, such as laptops, tablets, and smartphones.

3.7. EVALUATION PLAN

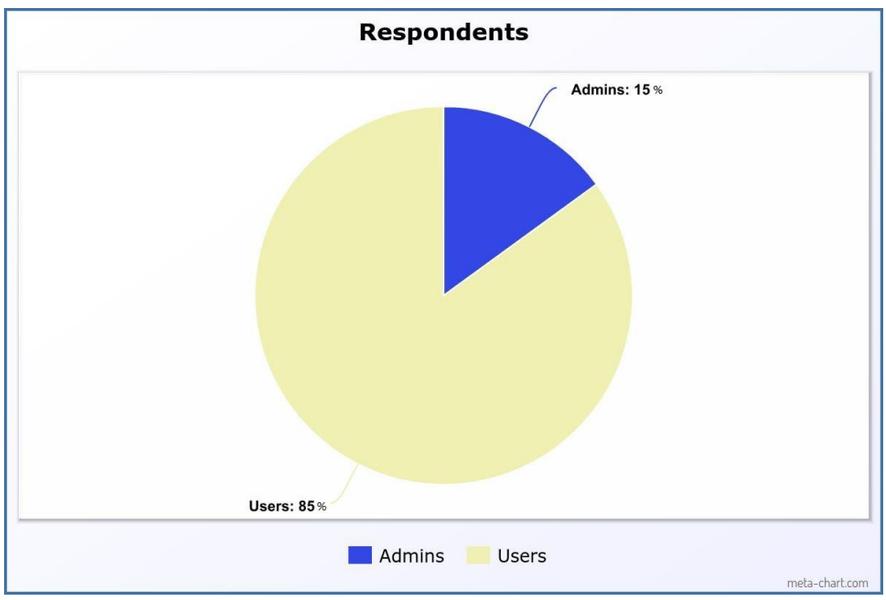
3.7.1. Evaluation Tool for Feedback

According to Kasmadi and Sunariah [22], the Likert scale is a psychometric tool frequently used in survey research and is the most widely used scale in surveys. The respondent indicated how much they agreed or disagreed with a sequence of assertions when answering a questionnaire item. As a result, the scale for several assertions accurately reflects their intensity. This scale is popular because it is simple to use, allows you to freely insert pertinent information, has a high degree of reliability, and can be applied to a wide range of situations. (Abtaliana, A. et al., 2017) [23]

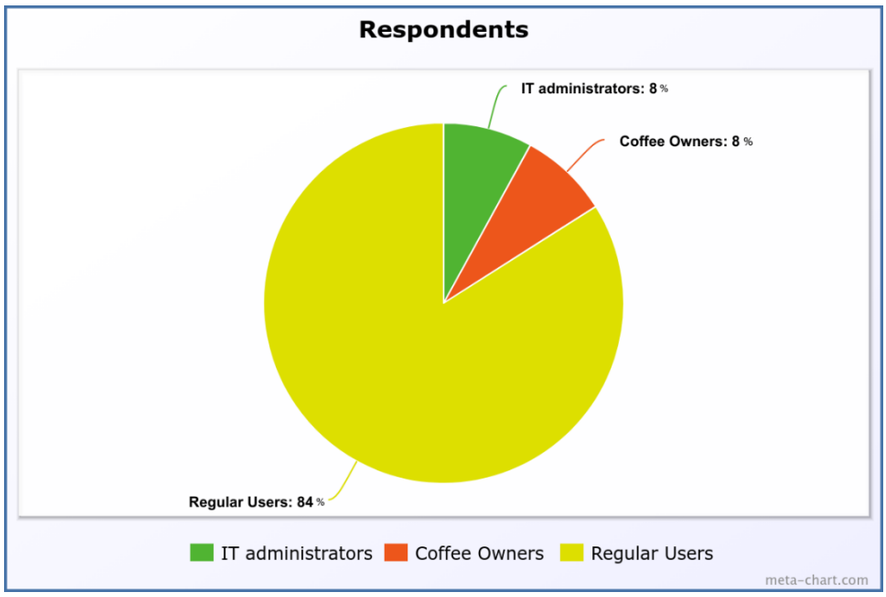
The Likert Scale will be used to interpret user feedback on the system evaluation. Each question under each specific quality characteristic will have a range of 1 to 5, where 1 is **Strongly Disagree** and 5 is **Strongly Agree**. Below is a table to better explain the interpretation of the 5-point Likert Scale.

Scale	Range	Verbal Interpretation
5	4.20 - 5.00	Strongly Agree
4	3.40 - 4.19	Agree
3	2.60 - 3.39	Neither Agree nor Disagree
2	1.80 - 2.59	Disagree
1	1.00 - 1.79	Strongly Disagree

3.7.2. Respondents



Administrators and users will be the two groups of users included in the evaluation. Administrators will receive 15% of the feedback weight throughout the review process, while users will receive 85% of it. Eighty-five percent of the comments will come from the second group of consumers, which consists of all users. Their comments will be vital in reviewing the design, performance, and overall user experience of the system



The users for evaluation will consist of three sets of persons, feedback from the clients will be of the utmost importance. The main client will primarily provide feedback for the Admin side of the system, criticizing the performance, design, and integrity of the system. Other IT Administrators will be asked for feedback to provide the researchers with a different perspective. The second set would be the personnel involved in coffee shops (employees or managers). These persons will be the providers of the coffee ground donation requests so their feedback regarding the User side will be important, primarily focused on design, performance, and how easy it is for them to use. The last set is the general user, these users' feedback will primarily focus on the e-commerce side of the system, because they are possible donors as well their feedback regarding the donation system will be taken into account as well.

3.8. ETHICAL CONSIDERATION

Respondents are not required to identify themselves when answering our questionnaires, and only surveys with specific background requirements will be requested personal information of. The researchers will respect the decisions of the respondents if they wish to remain anonymous. All participants will be informed ahead of time that their feedback will be recorded, as well as their names if they wish to provide it although it is not mandatory. The data gathered for this research will be

treated with utmost confidentiality in accordance with the Data Privacy Act of 2012, RA No. 10173.

3.9. STATISTICAL TREATMENT

The Likert Scale was used to give a numerical value for user's feedback ranging from 1 to 5 to interpret the evaluation of the system. General and specific mean scores are computed to determine the verbal interpretation of each criterion per characteristic, and the overall result of each characteristic. The formula for computing the mean for each criterion is as follows:

$$\bar{x} = \frac{\Sigma x}{n}$$

Where:

$\bar{x}$ = mean

Σx = sum of all data values

n = number of data items in the sample

CHAPTER 4

RESULTS AND DISCUSSION

Respondents

Types of Respondents	No. of Respondents	Percentage
Admin	4	6.78%
User	55	92.33%
Overall Total	**59**	**100%**

In the survey, the respondents were categorized into two groups: administrators (admin) and users. 4 respondents were administrators with a percentage of 6.78% of total respondents. Most of the respondents constitutes about 92.33%, which results in 55 responses. The overall total of respondents gathered in this capstone project is 59.

Admin Questionnaire Results

Respondents' evaluation on Grounds for Growth Website (Admin) - Functionality

TABLE 1 FUNCTIONALITY
1.1. Suitability: How well does the admin panel meet your needs for managing cafe

donations and ecommerce operations?		
	Weighted Mean	Verbal Interpretation
1.1.1. Ease of donation tracking, product management.	4.50	Strongly Agree
1.1.2. Navigation efficiency, reporting tools.	4.25	Strongly Agree
1.2 Accuracy: How accurate is the information presented in the admin dashboard?		
1.2.1. Donation record accuracy, and product inventory accuracy.	4.25	Strongly Agree
1.3 Security: Rate the level of security in place for admin functionalities.		
1.3.1. Access control, data encryption.	3.50	Agree
1.3.2. User authentication, audit trails.	4.00	Agree
TOTAL	**4.10**	**Agree**

The overall results of the functionality system of the admin interface. Statement 1.1.1 got the weighted mean result of 4.50 with the verbal interpretation of "Strongly Agree." However, statement 1.3.1. resulted in a 3.50 weighted mean with a verbal interpretation of "Agree". The total weighted mean of the table got a score of 4.10 with a verbal interpretation of "Agree".

Respondents' evaluation on Grounds for Growth Website (Admin) - Reliability

TABLE 2 **Reliability**		
2.1 Maturity: How mature and stable do you find the admin functionalities?		
	Weighted Mean	Verbal Interpretation
2.1.1. System uptime, error rates.	4.00	Agree
2.1.2. Task completion success rates, system responsiveness.	4.25	Strongly Agree
TOTAL	**4.13**	**Agree**

The summary score of the reliability of the website. Statement 2.1.1. got an overall score of 4.00 with a verbal interpretation of "Agree", while statement 2.1.2. has a

weighted score of 4.25 with a verbal interpretation of "Strongly Agree". The total weighted mean is 4.13 with a verbal interpretation of "Agree".

Respondents' evaluation of the Grounds for Growth Website (Admin) - Usability

TABLE 3
Usability

3.1 Operability: Evaluate the ease of operating the admin interface.

	Weighted Mean	Verbal Interpretation
3.1.1. Task efficiency, error recovery.	3.75	Agree
3.1.2. Consistency in operation, user guidance.	4.25	Strongly Agree
TOTAL	**4.00**	**Agree**

The summary of the results of the usability of the website. Statement 3.1.1 got a score of 3.75 with a verbal interpretation of "Agree". In statement 3.1.1., 1 respondent is dissatisfied with the task efficiency and error recovery of the website. Statement 3.1.2. resulted with a weighted mean of 4.25 with a verbal interpretation of "Strongly Agree". The total weighted mean of the table resulted in a score of 4.00 with a verbal interpretation of "Agree".

Respondents' evaluation of the Grounds for Growth Website (Admin) - Reusability

TABLE 4
Reusability

4.1 Understandability for Reuse: How well can admin users understand and reuse functionalities?

	Weighted Mean	Verbal Interpretation
4.1.1. Documentation clarity, ease of feature reuse.	4.00	Agree
4.1.2. Consistency in design, adaptability.	4.25	Strongly Agree
TOTAL	**4.13**	**Agree**

The summary of reusability of the website. Statement 4.1.1. shows the weighted mean of 4.00 with a verbal interpretation of "Agree", while statement 4.1.2.

shows the weighted mean of 4.25 with a verbal interpretation of “Strongly Agree”. The total weighted mean of table 4 is 4.13, with a verbal interpretation of “Agree”.

Respondents’ evaluation of the Grounds for Growth Website (Admin) - Efficiency

TABLE 5 **Efficiency**		
5.1 Time Behavior: Assess the speed and responsiveness of admin tasks.		
	Weighted Mean	Verbal Interpretation
5.1.1. Task completion time, system response time.	4.25	Strongly Agree
5.1.2. Resource efficiency, transaction speed.	4.50	Strongly Agree
TOTAL	**4.38**	**Strongly Agree**

The efficiency of the website. Statement 5.1.1. shows a weighted mean of 4.25 with a verbal interpretation of “Strongly Agree”. Statement 5.1.2. summarizes the weighted mean of 4.50 with a verbal interpretation of 4.38 with a verbal interpretation of “Strongly Agree”.

Respondents’ evaluation of the Grounds for Growth Website (Admin) - Maintainability

TABLE 6 **Maintainability**		
6.1 Analyzability: Evaluate how easily issues in the admin functionalities can be analysed.		
	Weighted Mean	Verbal Interpretation
6.1.1. Debugging tools, logging.	3.50	Agree
6.1.2. Code readability, system documentation.	3.50	Agree
TOTAL	**3.50**	**Agree**

The table above shows the summary of results of the maintainability of the website. 6.1.1. and 6.1.2. both show the weighted mean of 3.50, which interprets as “Agree”. The total weighted mean of the maintainability of the website is 3.50 with a verbal interpretation of “Agree”.

Respondents' evaluation of the Grounds for Growth Website (Admin) - Portability

TABLE 7
Portability

7.1 Adaptability: How well can the admin functionalities adapt to changes?

	Weighted Mean	Verbal Interpretation
7.1.1. Configuration flexibility, version compatibility.	4.25	Strongly Agree
7.1.2. Data migration ease, system integration.	3.75	Agree
TOTAL	**4.00**	**Agree**

Presented above is the summary of the gathered data of the adaptability of the website. Statement 7.1.1. scored a weighted mean of 4.25 with a verbal interpretation of "Strongly Agree", meanwhile 7.1.2 scored a weighted mean of 3.75 with a verbal interpretation of "Agree".

User Questionnaire Results

User Specifications

User Specifications	No. of Respondents	Percentage
Regular User (E-Commerce User)	52	94.5%
Cafe Owner/Employee (Donator)	3	5.5%
Overall Total	**55**	**100%**

The overall total of respondents in the user interface of Grounds for Growth is 55. 3 of which are the cafe owner or employee, and 52 respondents are the regular user.

Respondents' evaluation of the Grounds for Growth Website (User) - Functionality

TABLE 8
Functionality

8.1. Suitability: How well does the user interface meet your needs for donation and shopping?

	Weighted Mean	Verbal Interpretation
8.1.1. Donation process ease, shopping experience.	4.35	Strongly Agree
8.1.2. Clarity in navigation, order tracking.	4.49	Strongly Agree
TOTAL	**4.42**	**Strongly Agree**

The data shows the summary of results in the functionality of the user interface. According to statement 8.1.1., the weighted mean scores 4.35 with a verbal interpretation of "Strongly Agree". Statement 8.1.2. scores an average of 4.49 which is also equivalent to "Strongly Agree". The total weighted mean scored 4.42 with a verbal interpretation of "Strongly Agree".

Respondents' evaluation of the Grounds for Growth Website (User) - Usability

TABLE 9
Usability

9.1. Learnability: Evaluate how easy it is for users to learn and use the website.

	Weighted Mean	Verbal Interpretation
9.1.1. Onboarding process, user guidance.	4.42	Strongly Agree
9.1.2. Intuitiveness, user assistance.	4.34	Strongly Agree

9.2. Attractiveness: Rate the visual appeal and design attractiveness of the user interface.		
9.2.1. Aesthetics, user engagement.	4.42	Strongly Agree
9.2.2. Consistency in design, responsiveness.	4.51	Strongly Agree
TOTAL	**4.42**	**Strongly Agree**

The data above presents the summary of the usability of the website. Statement 9.1.1 shows the weighted mean of 4.42 with a verbal interpretation of "Strongly Agree". Statement 9.1.2. shows a weighted mean of 4.34 with a verbal interpretation of "Strongly Agree". In statement 9.2.1. shows a weighted mean of 4.42 with a verbal interpretation of "Strongly Agree". Lastly, statement 9.2.2. shows a weighted mean of 4.51 with a verbal interpretation of "Strongly Agree". The total weighted mean of table 9 is 4.42 with a verbal interpretation of "Strongly Agree".

Respondents' evaluation of the Grounds for Growth Website (User) - Efficiency

TABLE 10 **Efficiency**		
10.1 Time Behavior: Assess the speed and responsiveness of user tasks.		
	Weighted Mean	Verbal Interpretation
10.1.1. Donation process time, shopping transaction speed.	4.40	Strongly Agree
10.1.2. Loading times, checkout efficiency.	4.35	Strongly Agree
TOTAL	**4.38**	**Strongly Agree**

The data above shows the results of the efficiency of the user interface. Statement 10.1.1. shows a weighted mean of 4.40 with a verbal interpretation of 'Strongly Agree", while statement 10.1.2. shows a weighted mean of 4.35 with a verbal interpretation of "Strongly Agree". The total weighted mean of table 10 is 4.38 with a verbal interpretation of "Strongly Agree".

Respondents' evaluation of the Grounds for Growth Website (User) - Maintainability

TABLE 11 Maintainability		
11.1 Changeability: How easy is it for users to adapt to changes on the website?		
	Weighted Mean	Verbal Interpretation
11.1.1. Update communication, user adaptability.	4.34	Strongly Agree
11.1.2. Clarity in updates, user feedback.	4.41	Strongly Agree
TOTAL	**4.38**	**Strongly Agree**

Summary of data presents the results of the respondents regarding their experience from the maintainability of the user interface. Statement 11.1.1. shows the weighted mean of 4.34 with a verbal interpretation of “Strongly Agree”, while 11.1.2. resulted with an average of 4.41 with a verbal interpretation of “Strongly Agree”. The total weighted mean is 4.38 with a verbal interpretation of “Strongly Agree”.

Respondents’ evaluation of the Grounds for Growth Website (User) - Portability

TABLE 12 Portability		
12.1. Co-existence: Evaluate the compatibility of the website with different devices and browsers.		
	Weighted Mean	Verbal Interpretation
12.1.1. Cross-browser compatibility, device responsiveness.	4.49	Strongly Agree
12.1.2. Mobile-friendliness, consistent experience.	4.45	Strongly Agree
TOTAL	**4.47**	**Strongly Agree**

The data interprets the summary of the experience of users in the portability of the user interface. Statement 12.1.1. states that the weighted mean is 4.49 with a verbal interpretation of “Strongly Agree”. Statement 12.1.2. states the weighted mean of 4.45 with a verbal interpretation of “Strongly Agree”. The total weighted mean of table 10 is 4.47 with a verbal interpretation of “Strongly Agree”.

The proponents also gather in-depth insights into the experience of users in the user interface. The proponents opted for a qualitative approach by conducting

voice recordings to document their feedback and opinions regarding the Grounds for Growth website.

In the admin interface, two respondents (admin) agreed to give feedback regarding their experience. The first respondent recommended creating a pop-up card to approve donations and product updates to avoid the potential slowdown caused by having separate pages. The first administrator also recommended incorporating a product preview feature on the admin interface to see the list of product details that will be displayed in the admin interface. The second administrator also recommended creating a super admin account to have access and controls to admins on the Grounds for Growth website.

One respondent agreed through a conversation to take their time into reviewing the user interface of the website. The respondent stated that the user interface and design of the website is aesthetically pleasing. Furthermore, the respondent highlighted that there is nothing to further suggest or improve as the user interface of the website are all responsive. The respondent also stated that they did not experience any errors other than the products from the shop page are always out of stock.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The capstone project's main objective is to design and develop a web-based system that will cater to the needs of preserving the environment. The proponents aim to identify the level of compliance of Grounds for Growth regarding the ISO 9126-1 or the system requirements with the help of 59 respondents accordingly. 6.78% out of 59 respondents are administrators and the remaining 92.33% out of the 59 respondents are users, 3 respondents in the users are cafe owners or employees.

SUMMARY OF FINDINGS

Based on the analysis of data, the following findings were determined:

1. The researchers have developed the Grounds for Growth website for the sustainability of the environment. There is a significant positive result with the weighted arithmetic mean from the administrators and its users. The proposed website has provided the following:
    a. The website allows the admin panel to manage cafe donations and ecommerce operations.
    b. The website allows users to meet their needs for donation and shopping.
    c. The website allows users to learn to use the website easily.
    d. The website also provides a visual appeal and design to its user interface.
    e. The website also provides compatibility to different devices and browsers.
2. **Questionnaire results of user and admin.** Based on the gathered data of responses, it can be considered that the present capstone study is feasible since most responses resulted with “Very Satisfactory” and “Satisfactory”. This complies with the ISO 9126-1 standard.
3. **Benefits of using the Grounds for Growth website.** The responses have shown good benefits of using the donation website. The administrator can gather data from the users through the results shown in the admin dashboard.

The respondents from the user interface of the website showed positive results in being user friendly and easy to understand the flow of the website.

Conclusion

Grounds for Growth is a website created for handling donations in spent coffee grounds to recycle into new products. The feature of the system allows the administrator to handle spent coffee ground donations and shop orders, generate reports, and see the latest updates that is happening in the Grounds for Growth website.

The main objective of this capstone project is providing an effective platform for managing the donation of spent coffee grounds, providing a service that exchanges coffee grounds as a new product instead of waste, which will align in promoting sustainability, community fostering engagement, and using spent coffee grounds as a valuable resource for compost in agriculture.

Based on the respondents' rating of the system, the website was helpful for the users in terms of the overall use of the website. The results showed high weighted scores with a verbal interpretation of "Very Satisfactory" and "Satisfactory". The users also benefited from tracking their orders and donations during the process. The users were satisfied with the overall functions of the website.

In conclusion, the Grounds for Growth website will contribute to present students, cafe owners, and future researchers who wish to create a donation web-based system as it provides sustainability for the health of its environment.

Recommendations

The capstone project provided by the researchers will benefit the cafe owners or employees and anyone interested in donating spent coffee grounds for its environment sustainability. Furthermore, future researchers may also benefit by the following recommendation presented by the following:

1. Create a pop-up card for the approval of donations and product updates to avoid the potential slowdown caused by having separate pages. Additionally, incorporate a product preview feature on the admin side for a convenient overview of product details.

2. Create a comprehensive report beyond sales and donations, specifically covering aspects such as impact metrics, transparency reports, and gratitude and recognition reports. This approach provides deeper insights into sales and donation activities, facilitating more informed decision-making and strategic refinement.

25% Overall Similarity

Top sources found in the following databases:

- 17% Internet database
- Crossref database
- 22% Submitted Works database
- 7% Publications database
- Crossref Posted Content database

TOP SOURCES

The sources with the highest number of matches within the submission. Overlapping sources will not be displayed.

1	outwiths.com Internet	4%
2	Berry College on 2024-04-14 Submitted works	1%
3	Our Lady of Fatima University on 2022-04-26 Submitted works	<1%
4	pdfcoffee.com Internet	<1%
5	builtin.com Internet	<1%
6	dev.to Internet	<1%
7	apsydp-df06584b8dfd on 2024-04-26 Submitted works	<1%
8	University of Westminster on 2013-04-29 Submitted works	<1%

9	arandu.iffarroupilha.edu.br Internet	<1%
10	Colegio de San Juan de Letran on 2019-05-07 Submitted works	<1%
11	J A Asyraf, S Luckyardi. "Effectiveness of Online Based Fundraising Sit... Crossref	<1%
12	Dong-Hyuk Kim, Bo-Young Kim. "Online Donation Attitude and Satisfac... Crossref	<1%
13	IUBH - Internationale Hochschule Bad Honnef-Bonn on 2023-07-03 Submitted works	<1%
14	University of Hertfordshire on 2023-08-27 Submitted works	<1%
15	Our Lady of Fatima University on 2022-02-15 Submitted works	<1%
16	The Hong Kong Polytechnic University on 2010-04-16 Submitted works	<1%
17	Xavier School on 2023-03-17 Submitted works	<1%
18	INTI Universal Holdings SDM BHD on 2023-11-19 Submitted works	<1%
19	inex.ie Internet	<1%
20	coursehero.com Internet	<1%

21	qiita.com Internet	<1%
22	Polytechnic University of the Philippines - Sta. Mesa on 2020-07-22 Submitted works	<1%
23	Colorado State University, Global Campus on 2023-01-10 Submitted works	<1%
24	University of Greenwich on 2023-11-28 Submitted works	<1%
25	ryamate.hatenablog.com Internet	<1%
26	Our Lady of Fatima University on 2023-05-18 Submitted works	<1%
27	pastebin.com Internet	<1%
28	manilatimes.net Internet	<1%
29	NorthWest Samar State University on 2024-03-12 Submitted works	<1%
30	dot.egr.uh.edu Internet	<1%
31	github.com Internet	<1%
32	INTI Universal Holdings SDM BHD on 2023-11-20 Submitted works	<1%

33	Sergio Pérez-Burillo, Ana Cervera-Mata, Alejandro Fernández-Arteaga, ... Crossref	<1%
34	mmc on 2022-11-15 Submitted works	<1%
35	scribd.com Internet	<1%
36	Polytechnic University of the Philippines - Sta. Mesa on 2022-03-12 Submitted works	<1%
37	science.gov Internet	<1%
38	researchgate.net Internet	<1%
39	NorthWest Samar State University on 2023-10-05 Submitted works	<1%
40	Pamantasan ng Lungsod ng Valenzuela on 2024-04-01 Submitted works	<1%
41	Arab Open University on 2012-05-07 Submitted works	<1%
42	Asia Pacific University College of Technology and Innovation (UCTI) on... Submitted works	<1%
43	City University on 2020-08-14 Submitted works	<1%
44	Info Myanmar College on 2024-03-27 Submitted works	<1%

45	RMIT University on 2023-03-24 Submitted works	<1%
46	University of Greenwich on 2022-05-10 Submitted works	<1%
47	Our Lady of Fatima University on 2022-02-15 Submitted works	<1%
48	kipdf.com Internet	<1%
49	Quezon City University on 2022-04-10 Submitted works	<1%
50	vocal.media Internet	<1%
51	vulners.com Internet	<1%
52	urs.edu.ph Internet	<1%
53	9pdf.net Internet	<1%
54	Our Lady of Fatima University on 2021-08-10 Submitted works	<1%
55	Our Lady of Fatima University on 2023-05-25 Submitted works	<1%
56	Universidad Pablo de Olavide on 2023-09-04 Submitted works	<1%

57	University of South Australia on 2023-06-11 Submitted works	<1%
58	worldciticolleges on 2022-06-29 Submitted works	<1%
59	London School of Commerce on 2016-02-05 Submitted works	<1%
60	Polytechnic University of the Philippines - Sta. Mesa on 2021-08-19 Submitted works	<1%
61	Universidade Portucalense on 2024-01-03 Submitted works	<1%
62	gllw9.envpsych2011.eu Internet	<1%
63	paultan.org Internet	<1%
64	Texas A&M University, San Antonio on 2017-01-27 Submitted works	<1%
65	The University of Buckingham on 2023-06-12 Submitted works	<1%
66	Universiti Teknologi MARA on 2013-06-21 Submitted works	<1%
67	Wawasan Open University on 2023-06-25 Submitted works	<1%
68	apsydp-df06584b8dfd on 2024-04-11 Submitted works	<1%

69	Abigail T. Velasco, Allen Roi C. Cortez, John Meynard B. Camay, Ian Mi... Crossref	<1%
70	Alloghani, Mohamed Ahmed Mohamed. "An Intelligent Citizen-Centric ... Publication	<1%
71	Quezon City University on 2022-05-11 Submitted works	<1%
72	St Dominic College of Asia on 2019-05-03 Submitted works	<1%
73	The University of the South Pacific on 2016-03-25 Submitted works	<1%
74	University of Arizona on 2021-05-31 Submitted works	<1%
75	Asia Pacific University College of Technology and Innovation (UCTI) on... Submitted works	<1%
76	Far Eastern University on 2021-04-21 Submitted works	<1%
77	London School of Commerce on 2012-11-24 Submitted works	<1%
78	Our Lady of Fatima University on 2022-05-02 Submitted works	<1%
79	Quezon City University on 2022-06-17 Submitted works	<1%
80	Quezon City University on 2022-12-12 Submitted works	<1%

81	Southern Luzon State University on 2022-01-31 Submitted works	<1%
82	TAR University College on 2018-09-04 Submitted works	<1%
83	Technological University Dublin on 2023-07-26 Submitted works	<1%
84	The British College on 2021-07-12 Submitted works	<1%
85	University of Greenwich on 2023-04-11 Submitted works	<1%
86	University of Teesside on 2005-05-11 Submitted works	<1%
87	etd.ils.unc.edu Internet	<1%
88	worldciticolleges on 2022-08-10 Submitted works	<1%
89	computersoftwareplus.com Internet	<1%
90	The British College on 2019-12-06 Submitted works	<1%
91	Universiti Teknologi MARA on 2020-01-28 Submitted works	<1%
92	University of Westminster on 2024-01-07 Submitted works	<1%

93 Asia Pacific University College of Technology and Innovation (UCTI) on... <1%
Submitted works

94 Our Lady of Fatima University on 2023-05-25 <1%
Submitted works