**PROJECT PROPOSAL ON:**

**E-COMMERCE GROCERY APPLICATION**

**(A Case Study of Green Light Supermarket F.C.T Abuja)**

**BY:**

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**CHAPTER ONE**

**1.1** **BACKGROUND OF THE STUDY**

Food and grocery shopping has undergone a revolution in every retail sector, with noticeable changes in customer purchasing behavior driven by high-income growth, changing lifestyles, and cost-effective and efficient online and mobile technology. Consumers' need for ease has grown as they devote less time to shopping and more to other activities, and their attention has frequently been diverted to virtual shopping as an alternative medium. Thus, the rapid expansion of the internet is altering the way people browse for and purchase items and services, and it has quickly become a worldwide phenomenon. As a result, one of the primary motivators behind customer preferences for online purchasing has been convenience. Although still in its early stages, online grocery is gaining pace and becoming increasingly incorporated into the everyday lives of customers in various areas. Despite the development and significance of online grocery shopping, little is known about how individuals buy goods online. Khan et al. (2020)

Grocery shopping in the 21st century is changing drastically, and one major element of this change is online grocery shopping (Peregrin, 2018). Given this prior work, when juxtaposed with in-store shopping, online grocery shopping has the potential to dramatically limit the impact of both the cognitive barriers to healthy food access as well as community access barriers related to healthy food purchase within the supermarket food environment: consumers can shop online at any time and online grocery shopping allows low-income food desert dwellers and customers with limited mobility to order groceries online and have them delivered (Appelhans, 2019).

**1.2 STATEMENT OF THE PROBLEM**

The factors that influence the course of development of this work is the problem that customer encounter when they want to purchase groceries, customer have to practice in-store shopping, and some even go around with a lot of cash to purchase groceries which is very dangerous and risky, all this problem motivate me to embark on this project work in order to eradicate the above problems mentioned. Thus, it is necessary to introduce an information system that would be used for the recording of event regarding and complication related to grocery ordering.

**1.3 AIM AND OBJECTIVE OF THE STUDY**

The project is aimed at developing an e-commerce grocery platform that can be used by anyone interested in purchasing groceries while using **green light supermarket as a case study** which will efficiently meet customers grocery demands and ensure proper financial accountability.

**OBJECTIVES**

In other to achieve the aim of this project the following objectives are set and considered relevant for the achievement. This includes:

1. To reveal the related literature on E-commerce grocery business to customer.
2. To design E-commerce grocery business to customer and to meet customer transactions needs.
3. To implement the system and evaluate his efficiency in terms of system information needs / output.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1.1 Kamble et al. (2022). Online Grocery Shop.**

This study focuses on consumer decision-making processes in the online grocery shopping sector. Unlike previous research primarily centered on consumer motivations and attitudes in online shopping, this study delves into the pre-decisional, decisional, and post-decisional phases through a mixed-methods approach. The research highlights the complementarity of retail channels, where online grocery shopping is favored for major trips, while traditional stores remain popular for smaller purchases. These insights contribute to a deeper understanding of this specific retail market and offer valuable knowledge for both academia and management.

Furthermore, the study utilized a set of specific technologies and tools for its implementation. These included the XAMPP Server with Version 8.0.11 as the server environment. The web development aspects were covered using HTML, CSS, JavaScript, and PHP, with PHP Version 7.3.21 being employed. The data storage and management system relied on MySQL, specifically Version 8.0.13. Additionally, the study incorporated the use of QR codes for certain functionalities. This technology stack was instrumental in building and running the online platform, ensuring its functionality and performance.

In conclusion, while this study effectively employed a range of technologies, there remains a research gap in understanding the evolving landscape of online platforms. As technology continues to advance, new tools and frameworks emerge, influencing user behaviors and expectations. Future research should aim to bridge this gap by investigating how emerging technologies and changing consumer preferences impact the design and functionality of online platforms. Additionally, exploring the integration of innovative features like augmented reality (AR) and virtual reality (VR) within online shopping environments presents a promising avenue for further investigation.

**2.1.2 Aidin et al. (2022). Grocery Apps and Consumer Purchase Behavior: Application of Gaussian Mixture Model and Multi-Layer Perceptron Algorithm.**

This study investigates and compares the popularity of common grocery apps in Hungary and Iran by analyzing data from users who have experience with these apps. Using machine learning algorithms, including Gaussian mixture models (GMM) and multi-layer perceptron (MLP), the study clusters customers and predicts consumer behavior. The results highlight Wolt in Hungary and Snappfood in Iran as the most popular grocery apps. In Iran, users are categorized into three groups based on app services, with full covariance achieving higher accuracy. In Hungary, five apps garnered favorable user ratings. The study's emphasis on accuracy in clustering and demographic information, as well as its creative approach to market segmentation through machine learning, holds significance for online business managers.

More so, the study employs both supervised and unsupervised machine learning approaches, encompassing several stages: data import, preprocessing, data split into training and testing sets, model creation, training, clustering/prediction, and model accuracy assessment. The Gaussian Mixture Model (GMM) is a central algorithm used, designed for data clustering through probabilistic modeling. GMM assumes data points result from a mixture of Gaussian distributions with unknown parameters, differing from distance-based clustering methods like k-means.

In conclusion, future researchers should consider conducting comparative studies that employ the current MLP model in different countries to gain a deeper understanding of consumer behavior variations on a global scale. This approach can provide valuable insights into regional and cultural differences, aiding marketers and businesses in tailoring their grocery app strategies accordingly. This will contribute to a more nuanced and precise understanding of the factors influencing grocery app adoption.

**2.1.3 Mohammed et al. (2021). Smart Online Grocery Shopping App Development.**

Economic growth contributes to the worldwide spread of e-commerce by increasing demand for online services, which increases the number of providers and the size of their delivery networks. People have changed their focus from markets to apps to restrict the transmission of the COVID-19 virus during the pandemic. Most stores, malls, and markets use their applications. The research gaps were filled in this work by building and evaluating a conceptual model for online grocery shopping as well as the aspects that influence the customer's attitude. Then, create clever mobile apps that can reply to all consumer requirements and e-commerce features like an expert system

Furthermore, the system used clever data mining to collect client history and aggregate items depending on consumer wants. It gives updates about new goods and special discounts. The Flutter programming language and the Android studio tools are used to develop the suggested mobile application for online grocery shopping that is compatible with many operating systems (Android and IOS).

In conclusion, the protective situation produced by Covid-19 enforced a mobility ban and the necessity to distance. The necessity of having a mobile app for sale over the Internet that provides a quick and safe method to purchase and reduces the hassle of transferring between markets becomes clear here.

**2.1.4 Mohammad et al. (2020). Development of an E-Commerce-Based Online Web Application for the COVID-19 Pandemic.**

Daily, people must visit a grocery store to obtain necessities. To obtain the necessary products, individuals go to a grocery store, select items from various shelves, pay for the item, and leave. However, this technique may not always appear to be extremely convenient. People these days are extremely busy. They usually neglect to make time for grocery shopping because of their hectic schedule. Some individuals attempt to avoid it due to traffic, merely to escape crowds. Furthermore, after considering all of the challenges and causes of the troubles, we believe that an online grocery shop is an ideal answer to all of the problems.

Furthermore, the researchers developed an "Online Grocery Shop" online application for everyone to make shopping easier, safer, more entertaining, and more effective while also saving time. There are two user profiles in the system: a customer account and an admin account. Customers may order things using a valid Gmail address and a secure password. They can confirm their order after completing the registration procedure successfully.

Finally, the method can make people's lives easier, more convenient, and more pleasant, as well as have an impact on Bangladesh's economy. In exchange, internet shopping has allowed many small shops to enter the market that would not have been able to do so if they had to bear the hefty costs of establishing a brick-and-mortar store. In the end, it was a win-win situation for both the buyer and the seller.

**2.1.5 Zikra et al. (2019). Design and Implementation of an Online Grocery Store**.

E-commerce has grown in popularity as the internet has grown in popularity. The fundamental goal of e-commerce is to deliver a convenient and better buying experience. It has not only displaced conventional shopping but also brought convenience and ease of purchasing from your workstation. Consumers no longer have to visit stores at specific times; they may buy practically anything from anywhere at any time. Continuing this trend, there is a need for an online grocery shop since it can improve the present system even more. Consumers no longer need to go to a local food shop; they can get anything while sitting at home at any time. It is quick, easy, and adaptable. It offers multi-vendor shopping in a single window.

Moreso, this web shop may be built with a variety of technologies, including PHP, JavaScript, and JSP. The basic architecture of websites is built using HTML/CSS and PHP. MySQL is used to store customer and vendor information (sellers).

In conclusion, the built online store will allow users to buy grocery items from a broad variety using a secure payment method. It will improve the customer experience and encourage a hassle-free purchasing environment.

**2.2 SUMMARY OF LITERATURE REVIEW**

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| **S/N** | **Title** | **Author** | **Year** | **Methodology** | **Recommendation** | **Research Gap** |
| 1 | Development of E-Commerce-Based Online Web Application for COVID-19 Pandemic | Mohammed et al. | 2020 | Key technologies employed included HTML, CSS, JavaScript, jQuery, and PHP. MySQL was chosen as the relational database management system (RDBMS) to facilitate the database design process. To support local host development, XAMPP was utilized | The researcher should consider developing mobile apps for both Android and iOS platforms, implementing social media and mobile number sign-up options, enabling product return functionality, and incorporating coupon codes, special deals, and referral programs to attract and retain customers | Investigating personalized shopping recommendations, improving the app's user interface and accessibility features, and conducting user surveys. |
| 2 | Smart Online Grocery Shopping App Development | Mohammed | 2021 | The methodology for creating the mobile grocery shopping app involved using the Flutter programming language and Android Studio software. | The recommendation for this mobile shopping app is to expand its reach further by linking with a broader range of international stores. | While the app addresses several convenience and accessibility issues research into enhancing user experience is necessary. |
| 3 | Design and Implementation of Online Grocery Store | Zikra et al. | 2019 | The web store is implemented using PHP and MySQL. PHP is chosen for its open-source nature, interactive web page development, and compatibility with HTML, adding responsiveness | The study recommends the continued development and enhancement of online grocery shopping platforms to provide users with an even more seamless and secure shopping experience. This includes improving the user interface, enhancing the security of payment options, and implementing features that further reduce fuel costs. | Future research should focus on addressing these gaps to make online grocery shopping even more efficient and appealing to a broader range of consumers |
| 4 | Online Grocery Shop | Kamble et al. | 2022 | XAMPP Server with Version 8.0.11 as the server environment. The web development aspects were covered using HTML, CSS, JavaScript, and PHP, with PHP Version 7.3.21 being employed. The data storage and management system relied on MySQL, specifically Version 8.0.13. | It is recommended that future research in this area continues to explore and leverage advancements in web development technologies and database management systems. | While this study effectively employed a range of technologies, there remains a research gap in understanding the evolving landscape of online platforms |
| 5 | Grocery Apps and Consumer Purchase Behavior: Application of Gaussian Mixture Model and Multi-Layer Perceptron Algorithm | Aidin | 2022 | The study employs both supervised and unsupervised machine learning approaches, encompassing several stages: data import, preprocessing, data split into training and testing sets, model creation, training, clustering/prediction, and model accuracy assessment | Research gaps exist in areas like improving user experience, enhancing security in payment options, and increasing the security of the application even further |  |

**CHAPTER THREE**

**3.1 PROPOSED METHODOLOGY**

A comprehensive inquiry such as this is used in the research technique to unearth new facts or information about the current system. The research method used in this study is the primary and secondary source of data collection.

**Primary Source of Information**

This includes data gathered directly or indirectly from target users, with no edits or suggestions from other writers. This main source's material is considered more accurate and credible. As a result, the goal is to incorporate the knowledge gleaned from this source into the project in order to satisfy the criteria. Interviews and observations were used as primary source data collection strategies.

**Secondary Source of Information**

This essentially includes all of the information that someone can receive from existing sources such as books, the internet, case studies, articles, newsletters, and other relevant publications. The resources obtained from the internet in particular were quite relevant; various search engines, particularly Google, made it very easy to find information

**3.2 CHOICE OF PROGRAMING LANGUAGE**

HTML and CSS will be employed in designing the front-end, Python and JavaScript technology will be used as the scripting language; SQLite will be used as the database (backend), Django will be used as the backend. The combination of the above will help build a very robust platform that will be useful, fast, and handy.

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