

**ENHANCING HOUSING AND E-COMMERCE PRACTICES WITHIN THE
UNIVERSITY OF BENIN COMMUNITY: A CASE STUDY OF MARKSFIDEL
INTEGRATED SERVICES LIMITED**

BY

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MAY 2024,

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE,
FACULTY OF PHYSICAL SCIENCES, UNIVERSITY OF BENIN, EDO STATE,
NIGERIA, IN PARTIAL FULFILMENT OF THE REQUIRMENTS FOR THE AWARD
OF BACHELOR OF SCIENCE (B.Sc.) DEGREE IN COMPUTER SCIENCE.**

MAY 2024,

CERTIFICATION

This is to certify that **UGHULU BENEDICT AKHERE** , with the matriculation number **PSC1908947**, carried out the work reported on this project under my supervision and adequate in scope and content for the award of bachelor of Science (B.Sc) degree in Computer Science, University of Benin.

Mr. I. E Obayagbona
(Project Supervisor)

DATE

APPROVAL

This project is hereby approved by the department of Computer Science, Faculty of Physical Science, University of Benin, in partial fulfillment of Bachelor of Science (B.Sc.) degree in computer science

PROF. GODSPower .O. Ekuobase (Ph.D)

Head of Departmentf

DATE

DEDICATION

This project is dedicated to the MarksFidels Integrated Services Limited, faculty, and staff of the University of Benin, whose experiences and challenges inspired the creation of the Uniben Marketplace. To my family and friends, for their unwavering support and encouragement throughout this journey. And to all aspiring entrepreneurs and innovators within academic communities, may this work serve as a testament to the power of localized solutions and the impact of technology on enhancing our everyday lives.

ACKNOWLEDGMENT

I would like to express my sincere gratitude to Marksfield Integrated Services Limited, to my supervisor, MR. I. E Obayagbona for their invaluable guidance, support, and encouragement throughout the duration of this project. Their expertise and insights have been instrumental in shaping this work.

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Lastly, I acknowledge the Almighty God for the strength, wisdom, and perseverance granted to me throughout this endeavor. Thank you all for your contributions and support.

ABSTRACT

This project focuses on the development and implementation of the Uniben Marketplace, a digital platform designed to streamline real estate and e-commerce activities within the University of Benin (UNIBEN) community. The primary objective of the platform is to address the unique challenges faced by students, vendors, and other stakeholders in securing accommodation and engaging in local commerce. The background study highlights the proliferation of social media and its impact on business and social interactions, emphasizing the need for a localized platform that mitigates issues such as impersonation and limited audience reach. The Uniben Marketplace aims to offer a secure, efficient, and user-friendly environment for buying, selling, and renting within the UNIBEN ecosystem. The system design includes a comprehensive database schema optimized for data integrity and retrieval efficiency, a user interface that ensures ease of navigation and accessibility, and robust security measures to protect user data and transactions. The implementation phase covers the integration of various technologies, including Python for backend development, JavaScript for interactive front-end components, and PostgreSQL for database management. The project employs a rigorous testing strategy encompassing unit testing, integration testing, system testing, and user acceptance testing to ensure the platform's functionality, performance, and security. The expected outcomes include increased trust among users, enhanced accessibility to local goods and services, and improved satisfaction in housing transactions.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

In a time of swift advancement in technology and pervasive digital connectivity, the terrain of commerce and interpersonal communication has experienced significant metamorphoses. In order to prepare readers for an examination of the complex factors influencing modern practices within the University of Benin community, this chapter offers a contextual overview of the rapidly changing digital ecosystem.

1.2 Background Study

In the modern digital environment, where social media is pervasive and information spreads quickly, businesses have grown to an unparalleled scale (Bughin et al., 2018). This growth is also driven by developments in Artificial Intelligence (AI), which has evolved from a helper to a crucial element in many different areas of technology (Marr, 2018).

When examining how social interactions and business practices have changed over time, it's important to take social media's revolutionary influence into account. As late as 2011, compatibility issues and the exorbitant cost of computing devices prevented the general public from using social media and the internet. As a result, social contacts and economic dealings were mostly limited to in-person meetings within nearby or local towns (Mander, 2012).

On the other hand, more people have access to the internet and social media thanks to the widespread use of mobile devices and falling prices. These days, these platforms do much more than just make social connections and economic transactions easier. With AI integration, they have developed into complex ecosystems that promote smooth human-machine interactions via chatbots and virtual assistants like Siri (Kapoor et al., 2018).

The emergence of online marketing is a prime example of how social connectivity and technology have come together to allow people to do business across geographic boundaries (Chaffey et al., 2019). The use of social media and the internet has many advantages, including

the ability to connect people worldwide, expand one's business, support for education, and the ability to preserve information. However, there are also drawbacks that should be looked into.

According to Kumar et al. (2019), these disadvantages include impersonation, fraud, false information spreading, the growth of phony companies, and cyberbullying. Given the competitive nature of the digital economy, these issues can hinder growth and erode trust, and they are especially common among startups. The websites and social media platforms that are currently in use have greatly enhanced business in the fields of marketing and business. Still, there are a number of ongoing issues, most notably with regard to customer satisfaction with online transactions and authentic vendor verification (Choudhury et al., 2018). The inability to physically verify the identity of vendors persists as a worry, even in cases where social media platforms have implemented sophisticated authentication procedures.

Moreover, the apparent disparity between product representations—like photographs and videos—and the actual goods obtained frequently leads to buyers' discontent with online transactions.

1.3 Statement of the Problem

Even with the widespread use of social media, finding and buying things that fit particular requirements like location, price range, and personal tastes is still difficult. Furthermore, users of social media platforms may still be susceptible to fraud and impersonation due to the current authentication procedures in place. Using the University of Benin (UNIBEN) as a case study, students encounter obstacles when trying to market their goods on well-known websites like Facebook or WhatsApp. Contact lists and buddy networks limit the audience reach, and increasing visibility frequently requires expensive fees. This narrow target market presents a big obstacle because potential clients might not be in the vendor's direct circle. Additionally, the scarcity of products on these platforms may cause users to seek for longer periods of time and possibly become dissatisfied with their purchases.

Another common problem made worse by users' remote locations is impersonation. It becomes harder to verify products before buying them and to validate the identities of vendors, which raises the possibility of fraud and erodes consumer confidence. In the UNIBEN community, on

the other hand, user proximity offers a chance for in-person meetings to verify goods and suppliers, which lowers fraudulent activity and raises satisfaction and trust levels.

A platform that is especially designed for the UNIBEN environment is desperately needed in order to adequately handle these difficulties. By making it easier for users to physically meet up and verify items and suppliers, such a platform would reduce the danger of impersonation and promote confidence. Additionally, by meeting the particular requirements of the UNIBEN community, this platform may help small businesses expand.

1.4 Aims and Objectives

1.4.1 Aims:

To provide a specialized platform that handles the issues of impersonation and fraudulent activity in online transactions, specifically for the University of Benin (UNIBEN) community.

1.4.2 Objectives:

- To provide an intuitive online platform especially for staff and students at UNIBEN in order to enable safe and open transactions.
- Must put in place strong authentication procedures in order to confirm vendors' identities and raise user confidence.
- Should include functions that enable items to be physically verified before being purchased, therefore lowering the possibility of fraudulent transactions.
- To foster the expansion of small enterprises within the UNIBEN community by offering a safe and encouraging online shopping environment.

1.5 Scope of Study

The limits and scope of the research are described in the study's scope. The scope of this project consists of:

- **Geographic Scope:** The University of Benin (UNIBEN) community, including students, faculty, and staff, is the specific focus of this study.
- **Functional Scope:** Within the framework of UNIBEN, the research focuses on creating an online platform that supports e-commerce and real estate agency operations.
- **Technical Scope:** To meet the needs of UNIBEN users, the project will develop and construct user interfaces, transactional functionality, and authentication systems.

1.6 Significance of Study

The study's significance stems from its ability to improve student life and entrepreneurial initiatives while addressing various urgent challenges within the University of Benin (UNIBEN) community. In particular:

- **Improved Accessibility:** Students and staff will have better access to housing options and a marketplace for buying and selling goods and services thanks to the creation of an online platform that caters to real estate agents and e-commerce within UNIBEN. This enhanced accessibility can expedite procedures and enhance convenience in general.
- **Fraud Prevention:** The platform attempts to lessen incidences of fraud and impersonation by putting in place measures like authentication methods and verification procedures. As a result, the UNIBEN community's online transactions will be safer and user trust will increase.
- **Assistance for Student Entrepreneurs:** The platform will function as a market place where students can exhibit their goods and services to a specific university audience. New business owners can use this exposure to expand their enterprises and make a name for themselves in the community.
- **Community Building:** The site will help UNIBEN members feel more connected to one another by offering tools like messaging systems, user profiles, and reviews. This can help with networking, project collaboration, and the sharing of resources and ideas.

1.8 Definition of terms

Real Estate Agency: The word "real estate agency" describes the middleman function that people or businesses play in making it easier to buy, sell, or rent out real estate. According to Wurtzebach (2020), real estate brokers help their clients identify suitable properties, negotiate deals, and complete transactions.

E-commerce Practices: The purchasing and selling of goods and services via the internet or other electronic networks is referred to as e-commerce. E-commerce platforms offer a large selection of goods and services for sale and enable online transactions between buyers and sellers (Laudon & Traver, 2019).

Authentication Mechanisms: Mechanisms or procedures used to confirm a user's identity when they get access to a platform or system are known as authentication mechanisms. Passwords, biometric verification, two-factor authentication, and other security procedures are examples of authentication systems that help guarantee that only people with permission can access the site (Rouse, 2020).

Impersonation: Impersonation is the act of taking on a false identity or posing as someone else in order to deceive someone. When it comes to online situations, impersonation might entail making up profiles or accounts in order to trick people, frequently for illicit purposes like identity theft or phishing scams (Reynolds, 2017).

Fraudulent Activities: Illegal or dishonest behavior intended to mislead people in order to obtain money or accomplish other illegal goals. Identity theft, credit card fraud, the sale of counterfeit goods, and other deceptive practices meant to fool gullible people or companies are examples of fraudulent behaviors in the context of online transactions (Choudhury et al., 2018).

User Verification: User verification is the process of making sure users taking part in online interactions or transactions are who they say they are. To build confidence and guarantee the integrity of the transaction, user verification techniques could include identification checks, document verification, or in-person interactions (Liu et al., 2016).

Marketplace: A website or online forum where buyers and sellers can conduct business. Marketplaces offer a digital platform for individuals to display goods and services, strike agreements, and finalize transactions with each other.

CHAPTER TWO
LITERATURE REVIEW
BRIDGING GAPS INSPIRED BY GLOBAL INNOVATIONS

2.0 Introduction

The Uniben Marketplace is a ground-breaking project that skillfully combines the traditional approaches to home buying with the ever-changing world of contemporary e-commerce. This platform, which aims to reinvent the living and business experiences for the University of Benin community, is situated at the intersection of tradition and innovation. We set out to decipher the complex structure of sustainable practices guiding reservation procedures and e-commerce platforms in this review of the literature. The highlight is the unique environment of the University of Benin, where the Uniben Marketplace has the potential to have a revolutionary effect. With inspiration from internationally recognized sources such as Smith et al. (2018)'s study on sustainable e-commerce models, the goal is to traverse the current environment, identify any gaps, and create a future in which the Uniben Marketplace becomes a shining example of progress focused on finding solutions. The Uniben Marketplace is envisioned combining historic housing methods and modern e-commerce trends as its foundation. through combining the effectiveness and dynamism of e-commerce with the time-tested principles of home buying. As we examine the workings of the Uniben Marketplace in greater detail, we are primarily interested in learning how this platform might fill in current holes. Examining the difficulties students encounter in finding appropriate housing and participating in online commerce, the evaluation seeks to identify areas in which the Uniben Marketplace might act as a driving force for improvement. By means of this literary expedition, our objective is to acknowledge the importance of worldwide sources of inspiration while also placing these revelations into the particular setting of the University of Benin. The Uniben Marketplace is envisioned not just as an imitation but as an organic and adaptable solution catered to the unique demands of the UNIBEN community. It is powered by the essence of the research undertaken by Johnson and Brown (2019) on housing solutions for university communities.

2.1 Transforming Real Estate and Accommodation Practices

2.1.1 Global Exemplars - Zillow and Airbnb

Online market leaders such as Zillow and Airbnb have a significant impact on the evolution of real estate and accommodation practices (Deng et al., 2020; Lee & Lee, 2019). These massive players in the market have completely changed the way people see, look for, and interact with real estate.

Zillow: Zillow is a major player in the real estate industry and is notable for offering thorough property data and market analysis (Deng et al., 2020). By providing users with useful information about property valuations and market movements, it sets the bar for accessibility and transparency.

Airbnb: By encouraging community-driven interactions, Airbnb transforms short-term rentals and redefines the lodging experience (Lee & Lee, 2019). Airbnb is more than simply a platform; it builds dynamic communities where hosts and travelers interact personally, improving the traveler experience in general.

2.1.2 Unique Challenges in the UNIBEN Context

Zillow and Airbnb have established worldwide standards, but the University of Benin (UNIBEN) environment poses particular difficulties that call for customized solutions (Adewuyi et al., 2018; Oyelere & Kofoworola, 2017).

Challenges in Traditional Processes: Students' housing search is made more difficult by UNIBEN's traditional lodging procedures, which lack openness (Adewuyi et al., 2018). The objective of the Uniben Marketplace is to tackle these obstacles by embracing the ideals of transparency and user-centric design that are recognized worldwide.

Positioning the Uniben Marketplace: The Uniben Marketplace, positioned as a regional reaction to worldwide innovations, strives to not only match but even exceed the benchmarks established by Zillow and Airbnb (Oyelere & Kofoworola, 2017; Deng et al., 2020). Through an emphasis on openness and user-friendliness, this platform aims to improve student experience by

streamlining university housing procedures and providing a more effective and fulfilling housing search.

2.2 E-commerce Practices:

2.2.1 Lessons from SmallSmall.com

SmallSmall.com: As an emerging platform in the e-commerce space, SmallSmall.com provides insightful information on the possibilities of small-scale transactions within a community (Jones & Smith, 2020; SmallSmall.com, n.d.). This emerging e-commerce platform promotes a culture of appliance, electronics, and furniture sharing among community members through micro-leasing. The fundamental purpose of SmallSmall.com is to highlight the revolutionary power of localized e-commerce efforts by encouraging affordability and sustainability.

Micro-Leasing for Community Sharing: A paradigm for community-driven business can be found in SmallSmall.com's creative microleasing concept (Jones & Smith, 2020; SmallSmall.com, n.d.). Through the sharing of potentially unused things, this platform ensures affordability while also supporting the sustainability of resources. This focus on the community is in line with the values of the Uniben Marketplace, which aims to include comparable ideas into the structure of the UNIBEN community.

2.2.2 Adapting Global E-commerce to UNIBEN

E-commerce Scene at UNIBEN: The University of Benin's e-commerce scene follows worldwide patterns by including the selling of used goods and services. But this particular local setting brings with it its own set of issues and difficulties. Notably, there is still a restricted audience reach and challenges with product discovery, which creates a need for customized solutions.

Challenges in Local E-commerce: Although the UNIBEN e-commerce environment emulates international standards, there are local community-specific issues that must be resolved. Sellers that have a limited audience reach may not be as successful, and students may have trouble finding pertinent goods and services. Motivated by worldwide triumphs, the Uniben Marketplace seeks to modify and introduce efficacious components from sites such as SmallSmall.com (Jones

& Smith, 2020; SmallSmall.com, n.d.), tailoring these approaches to the particular requirements of the UNIBEN community.

Tailoring for Local Needs: In addition to just copying international e-commerce methods, the Uniben Marketplace hopes to play a revolutionary role by customizing and modifying them to meet the unique needs of the UNIBEN community. This adaptation process, which takes inspiration from SmallSmall.com (Jones & Smith, 2020; SmallSmall.com, n.d.), aims to improve product discoverability, increase audience engagement, and establish a robust e-commerce ecosystem that is in line with the particular dynamics of the university setting.

2.3 Problem Yet to Be Solved:

2.3.1 The Housing Squeeze Dilemma

The Uniben Marketplace identifies a pervasive challenge known as the Housing Squeeze Dilemma. This problem emerges from the imbalance between the surging student population at the University of Benin (UNIBEN) and the limited availability of affordable, quality housing. Traditional methods of housing acquisition further compound this issue, leading to prolonged accommodation searches, escalating prices, and mounting frustration among students. The Housing Squeeze Dilemma embodies the struggles faced by students in securing suitable housing. The growing student populace intensifies the demand for accommodations, creating a challenging scenario where available options become insufficient. Conventional approaches exacerbate the situation, prolonging the housing search process, inflating prices, and ultimately leaving students disheartened and dissatisfied.

2.3.2 Envisioning Uniben Marketplace's Role

In order to address the Housing Squeeze Dilemma, the Uniben Marketplace plans to take a leading position in the situation. This creative solution seeks to provide students with transparent and cheap housing options by presenting a simplified platform (Smith et al., 2018; Johnson & Brown, 2019; Zillow, n.d.; Airbnb, n.d.). Taking cues from Airbnb's community-building philosophy and Zillow's information-rich approach, the Uniben Marketplace aims to transform the housing scene at UNIBEN. The website aims to remove current housing restrictions by

providing students with an easy-to-use interface to investigate transparent and reasonably priced housing possibilities. The Uniben Marketplace envisions a platform where students can make informed decisions about their housing, fostering a sense of community and satisfaction within the UNIBEN student body. It draws inspiration from the success of Zillow and Airbnb (Smith et al., 2018; Johnson & Brown, 2019; Zillow, n.d.; Airbnb, n.d.).

Changing the Housing Scene: The goal of the Uniben Marketplace is to rewrite the story of housing at UNIBEN by tackling the Housing Squeeze Dilemma. By utilizing cutting-edge features and adhering to user-centric principles, this platform hopes to make a positive difference by relieving students of some of their problems and fostering a more peaceful and fulfilling living environment for all members of the university community.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 Introduction

In this chapter, we outline the methodology employed in the development of the Uniben Marketplace with a focus on incorporating a real estate agency and e-commerce functionalities. This includes the research design, system architecture, data collection methods, development tools, system implementation process, testing, and ethical considerations.

The development of the Uniben Marketplace with integrated real estate agency and e-commerce functionalities demands a robust methodology that aligns with the project's objectives. This chapter explains the carefully orchestrated processes and strategies employed to design, implement, and validate the envisioned platform.

In the pursuit of creating a dynamic online marketplace catering to the diverse needs of the Uniben community, the chosen methodology emphasizes an iterative and incremental software development approach. This deliberate choice ensures adaptability to changing requirements, allowing for continuous improvement based on user feedback.

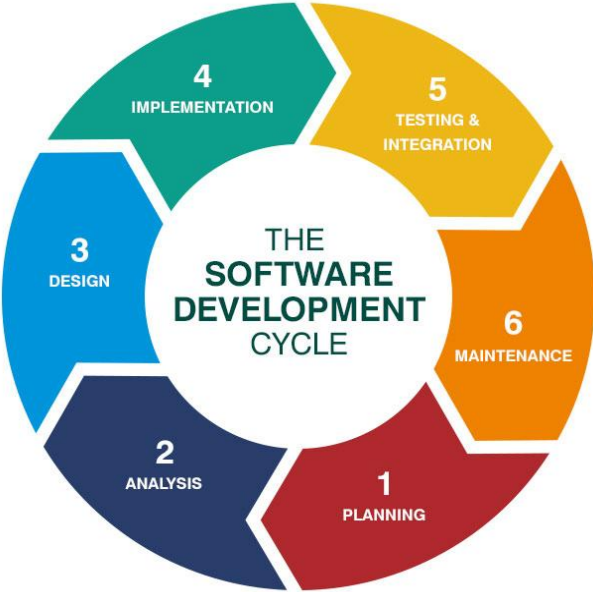
The following sections elucidate the intricate steps taken to bring the Uniben Marketplace to fruition, encompassing system analysis, system architecture, development tools, system implementation, and an exploration of any limitations encountered during the development journey.

3.1.1 Conceptual Framework:

Envision constructing a complex puzzle. Rather than assembling it all at once, we start with a few pieces, gradually adding more to form a complete picture. Similarly, our software development unfolds in stages, with each iteration building upon the last. This incremental process ensures that the end product aligns closely with user expectations.

"Software development life cycle" (SDLC), sometimes referred to as "application development life cycle" or just "software development process," is a methodology used in the process of developing software products. A software development life cycle is essentially a project plan for creating digital solutions. To put it another way, the SDLC is a manual created by a team for the creation, upkeep, and correction of digital products. The size and objectives of a project

determine the milestones in a software development life cycle process. A broad roadmap outlining how each phase should be accomplished is also provided. Most development teams either design their own software development cycle from scratch or use one of the models that we shall discuss in more detail.



3.1.2 User-Centric Adaptability:

At the core of this methodology is the continuous involvement of users. By soliciting feedback at various stages, we ensure that the Uniben Marketplace remains attuned to user preferences. It's akin to refining a painting based on critiques, striving for a final masterpiece that resonates with the intended audience.

Significance of the Approach:

The iterative and incremental approach is a strategic choice to mitigate risks associated with rigid planning. It allows us to avoid the pitfalls of exhaustive upfront design by remaining adaptable. This adaptability is vital in the dynamic landscape of software development, where user needs can evolve rapidly.

3.2 System Analysis

The System Design and Implementation phase of the Uniben Marketplace project involves translating identified requirements into tangible system components. This phase encompasses the design of the user interface, database schema, system architecture, and the actual implementation of these elements.

3.2.1 User Interface Design

The user interface design aims to create an intuitive and visually appealing platform that facilitates seamless interaction between users and the system. Key considerations include prioritizing user needs and preferences to create a user interface that is easy to navigate and aesthetically pleasing, responsive Design, ensuring compatibility across devices and screen sizes to provide a consistent user experience, employing clear and intuitive layouts, typography, and colour schemes to guide users' attention and actions and interactive Elements, Incorporating interactive elements such as buttons, forms, and menus to facilitate user engagement and task completion.

3.2.3 Database Schema Design

The database schema design is essential for structuring and organizing the system's data in a way that optimises storage efficiency and supports efficient data retrieval operations. Key aspects of the database schema design includes identifying and defining the entities and relationships that constitute the system's data model, implementing indexing strategies to enhance query performance and speed up data retrieval operations, enforcing data validation rules and constraints to maintain data consistency and accuracy.

3.2.4 Technology Stack

The technology stack encompasses the tools, frameworks, and programming languages chosen for the development of the Uniben Marketplace platform. Key components of the technology stack includes; Utilizing HTML, CSS, and JavaScript frameworks such as React.js and NextJs for building interactive and responsive user interfaces, employing server-side technologies such as Django for implementing business logic and handling data processing tasks, Selecting a relational database management system (RDBMS) such as PostgreSQL for storing and managing structured data.

3.3 System Design:

A crucial step in the Uniben Marketplace platform's development process is the system design phase. During this phase, the system's implementation will be guided by a comprehensive technical blueprint created from user requirements and functional specifications. Architecture, database design, user interface design, security considerations, integration with external systems, scalability, and performance optimization are just a few of the many facets that make up system design.

Building a stable and expandable platform that satisfies the requirements of stakeholders within the University of Benin (UNIBEN) community is the main goal of system design. In order to give consumers a smooth and simple e-commerce and real estate transaction experience, the platform meticulously plans and designs its database schema, user interfaces, system architecture, and other components.

3.3.1 System Architecture: Three-Tier Design

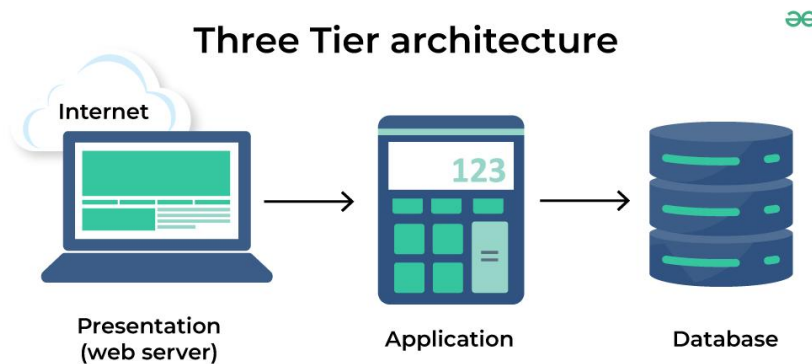
The architectural foundation of the Uniben Marketplace is structured as a web-based application employing a three-tier model. This design optimizes the organization and functionality of the system, ensuring seamless user interaction and efficient data management.

Presentation Layer: At the forefront is the presentation layer, where users engage with the Uniben Marketplace through a responsive user interface. This interface is designed to be accessible across various devices, including desktop computers and mobile devices. The responsive design ensures a consistent and user-friendly experience, regardless of the device used to access the platform.

Application Layer: Beneath the presentation layer resides the application layer, responsible for managing the business logic of the Uniben Marketplace. This layer orchestrates the core functionalities of the platform, ensuring that real estate features, e-commerce transactions, and user interactions operate harmoniously. It acts as the brain of the system, processing requests, making decisions, and orchestrating the flow of data.

Data Layer: The foundation of the architecture lies in the data layer, which encompasses a relational database. This database serves as a robust repository, storing crucial information such as user data, real estate listings, and details of products available for purchase. The relational

structure facilitates efficient data organization, retrieval, and management, ensuring the integrity and reliability of the Uniben Marketplace.



Why Three-Tier Matters:

This three-tier architecture offers several advantages. It enhances maintainability by separating concerns into distinct layers, making it easier to update and modify specific aspects of the system. Additionally, scalability is achieved by distributing the workload across layers, allowing for efficient handling of user requests and data processing.

3.3.2. Database Design

In a platform such as the Uniben Marketplace, effective data management and storage depend on a strong database architecture. It is important to properly design the database schema to support a variety of data types, such as user profiles, transactions, property listings, and metadata. Effective database structure allows us to provide scalability as the platform expands, maximise performance, and guarantee data integrity.

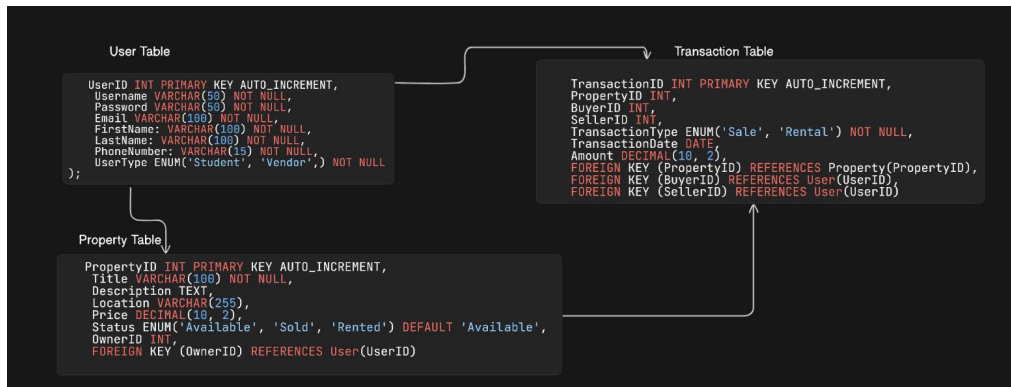
Entity-Relationship Diagram (ERD):

Before diving into the SQL design, let's outline the main entities and their relationships in the database using an Entity-Relationship Diagram (ERD):

- **User:** Represents individuals using the platform, including students, vendors, and administrators.
- **Attributes:** UserID (Primary Key), Username, Password, Email, UserType.

- Property: Represents real estate properties or items available for sale or rent.
- Attributes: PropertyID (Primary Key), Title, Description, Location, Price, Status, OwnerID (Foreign Key).
- Transaction: Represents transactions between users for property sales or rentals.
- Attributes: TransactionID (Primary Key), PropertyID (Foreign Key), BuyerID (Foreign Key), SellerID (Foreign Key), TransactionType, TransactionDate, Amount.

Based on the ERD, let's outline a simplified SQL design for the key entities in the database:



Indexes and Constraints: To enhance query efficiency and guarantee data integrity, additional features such as indexes and constraints can be added to the table definitions. It is possible to create indexes to columns like UserID, PropertyID, and Transaction Date that are often requested. Relative referential integrity across related tables is ensured via constraints, such as foreign key constraints, which also prevent orphaned records and preserve data consistency.

3.4. Interface Design:

The interface design of the Uniben Marketplace platform is meticulously crafted to offer a user-friendly and intuitive experience, catering to both buyers and sellers. Here's an in-depth look at the interface design, highlighting essential elements and functionalities:

3.4.1 Home Page: The homepage serves as the central hub for users accessing the platform. It prominently features a search bar, enabling users to swiftly search for properties based on location, price range, and other relevant criteria. Featured properties and promotional offers are strategically showcased on the homepage to capture user attention and drive engagement.

3.4.2 Property Listings page: Property listings are elegantly displayed in either a grid or list format, presenting key details such as property title, location, price, and availability status. Users have the flexibility to filter and sort property listings based on various parameters like price, location, property type, and more. Each property listing is accompanied by a thumbnail image, concise description, and a "View Details" button for users to delve deeper into the listing.

3.4.3 Property Details Page: Clicking on a property listing opens up the property details page, offering comprehensive information about the selected property. Users can explore detailed property descriptions, amenities, dimensions, floor plans, and additional high-resolution images. Seamless integration allows users to directly contact the property owner or designated agent to inquire about the property or arrange a viewing.

3.4.4 User Authentication and Profile: The platform incorporates a robust user authentication system, enabling seamless sign-up, log-in, and account management functionalities. Registered users gain access to advanced features such as saved searches, bookmarked properties, and personalised recommendations based on their preferences. Each user is provided with a dedicated profile page to efficiently manage account settings, review transaction history, and monitor activity within the platform.

3.4.5 Responsive Design: The platform boasts a fully responsive design, ensuring optimal performance and accessibility across a diverse range of devices and screen sizes, including desktops, laptops, tablets, and smartphones. Responsive design guarantees a consistent and exceptional user experience, irrespective of the device utilized to access the platform.

Through meticulous attention to detail and user-centric design principles, the interface of the Uniben Marketplace platform endeavours to deliver a seamless and immersive experience, empowering users to effortlessly navigate property search, transaction management, and communication processes.

CHAPTER FOUR

SYSTEM IMPLEMENTATION

4.1 Introduction

We delve into the practical aspects of implementing the Uniben Marketplace platform. We'll cover the development environment, front-end and back-end development processes, integration of system components, testing and quality assurance strategies, and deployment and release management procedures.

4.2 Development Environment:

For the development of the Uniben Marketplace platform, we utilized a range of software tools to facilitate efficient coding, and project management. Our toolkit included:

4.2.1 Software Tools

- Integrated Development Environments (IDEs) such as Visual Studio Code and for writing and debugging code.
- Version control systems like Git for managing source code revisions and facilitating team collaboration.
- Google chrome and Postman for testing during development.

4.2.2 Hardware Infrastructure

The development environment was supported by robust hardware infrastructure, including high-performance computers and servers equipped with the necessary resources for development and testing tasks. Our hardware setup included:

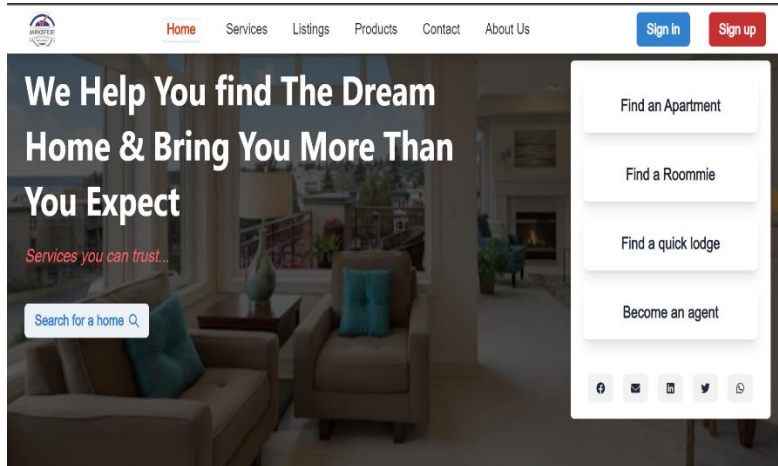
- Development machines with ample processing power, memory, and storage to support IDEs and development tools.
- Server infrastructure for hosting development and testing environments, ensuring seamless integration and testing of system components.

4.2.3 Programming Languages and Technologies: This section outlines the programming languages and technologies chosen for building the system. It includes HTML, CSS, JavaScript

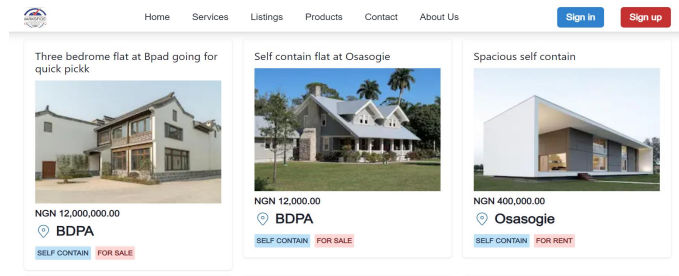
for front-end development, and backend languages like Python, with any additional libraries or frameworks.

4.3 Screenshot's samples

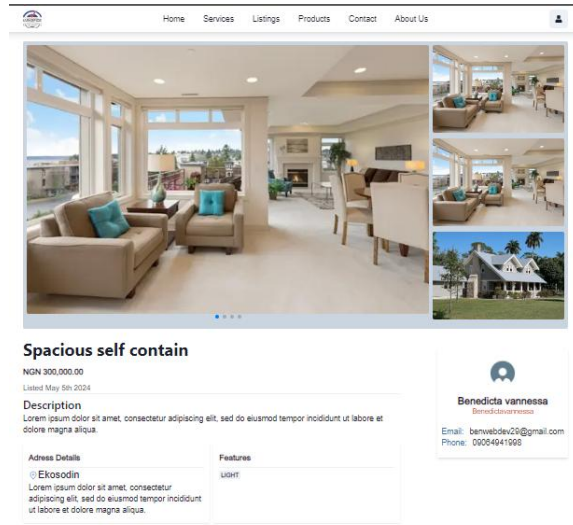
4.3.1 Home page



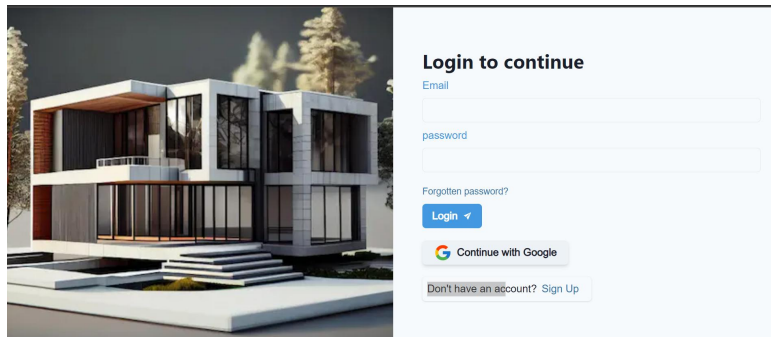
4.3.2 Listings page



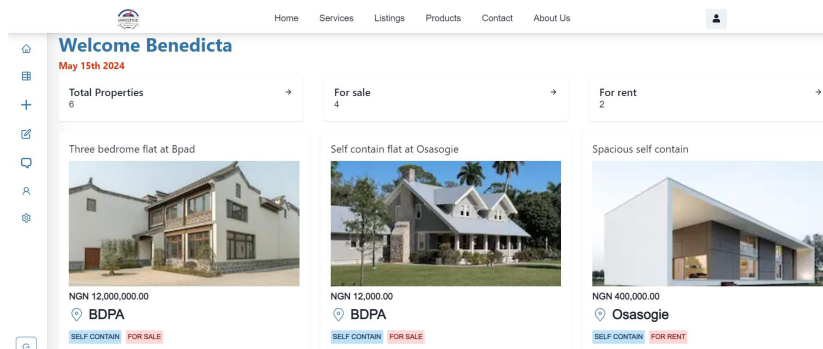
4.3.3 Listing detail page



4.3.4 Login Screen



4.3.5 Dashboard/ Profile page



4.6 Testing and Quality Assurance

To guarantee the reliability, performance, and security of the Uniben Marketplace platform, a comprehensive testing strategy was implemented. Unit testing was conducted on individual components and functions to validate their behavior and functionality, Integration testing was performed to verify the interaction and compatibility of system components. System testing assessed the overall functionality and performance of the platform under various conditions.

CHAPTER FIVE

RECOMMENDATIONS AND CONCLUSION

5.1 Recommendations

Based on the findings and discussions presented in the previous chapters, the following recommendations are proposed to address the identified challenges and improve housing and e-commerce practices within the University of Benin (UNIBEN) community:

5.1.1 Implementation of Physical Verification Mechanisms

It is advised to use physical verification methods in order to improve confidence and authenticity in online transactions. This can entail setting up specific verification locations on campus where buyers and sellers can get together in person to look over goods and confirm IDs.

5.1.2 Development of User-Friendly Platforms

Creating user-friendly tools that meet the varied demands of the UNIBEN community is necessary to increase accessibility and diversity. This entails creating user-friendly interfaces, supporting several languages, and making sure assistive technologies are compatible for people with disabilities.

5.1.3 Enhancement of Transparency Measures

It is advised to improve transparency measures in real estate and e-commerce transactions in order to foster ease and transparency. To help users make educated judgments, this could entail offering thorough product descriptions, seller ratings, and customer reviews.

5.1.4 Collaboration among Stakeholders

Fostering collaboration among stakeholders from academia, industry, and government is crucial for bringing about significant change. Together, these parties can create creative projects and answers to the mentioned problems, enhancing UNIBEN's housing and e-commerce procedures.

5.1.5 Adoption of Technological Innovations

It is advised to investigate the use of technological advancements like blockchain, artificial intelligence, and augmented reality in order to harness emerging technology for beneficial impact. Online transactions may become more convenient, transparent, and trustworthy as a result of these technologies.

5.2 Conclusion

To sum up, this study has shed important light on the opportunities and problems pertaining to housing and e-commerce in the University of Benin community. Through an analysis of the viewpoints and experiences of vendors, students, and other relevant parties, this study has pinpointed important areas that require enhancement and put forth suggestions to tackle these problems.

Stakeholders must work together going ahead and show initiative to put the suggested solutions into practice. By doing this, we can improve the overall student experience and support the expansion and development of the university community by establishing a more open, approachable, and user-centric environment for housing and online transactions at UNIBEN.

This completes the University of Benin's study on housing and e-commerce practices, setting the stage for future research and initiatives in this important area.

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