



WACHEMO UNIVERISTY

COLLEGE OF ENGINEERING & TECHNOLOGY SCHOOL OF
COMPUTING & INFORMATICS DEPARTMENT OF
SOFTWARE ENGINEERING

Project Title: GEEZ BROKER

Under the guidance of

Feysa k.

Group members

Member Name	ID NO:
1. Natnael Alemayehu-----	1404624
2. Musie Hadush-----	1404580
3. Elsa Solonom-----	141481
4. Ermias Mekonen-----	1403552
5. Teshome Bekelcho-----	13D2131
6. Birhanu Alemayehu-----	1403136
7. Mulatua dembelo-----	1400101

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1.1 Introduction

This section provides an overview of the Geez Broker system, including its purpose, scope, intended audience, and document structure.

Purpose

The purpose of this Software Requirements Specification (SRS) document is to guide the development team in creating the Geez Broker system. It outlines the functional and non-functional requirements needed for a successful implementation. By clearly defining these requirements, the document aims to ensure understanding among stakeholders and facilitate development.

Scope

The Geez Broker system will be a web-based platform designed specifically for Geez Broker, a house brokerage firm in Hosanna, Ethiopia. Its goal is to simplify the house brokering process by offering a centralized platform for:

- * Sellers to list their properties
 - * Buyers to search and request properties
 - * Brokers (Geez Broker) to facilitate transactions between sellers and buyers
- This document describes the features and functionalities that will be part of the system to achieve these objectives.

Audience

The primary audience for this document includes:

- Members of the development team responsible for implementing the Geez Broker system
- Project stakeholders such as instructors, evaluators, and other interested parties

It is crucial for all stakeholders to have a clear understanding of the system requirements outlined in this document to ensure alignment and successful project execution.

Document Structure

This document is organized into several sections:

- ✚ **Introduction:** Provides an overview of the purpose, scope, audience, and organization of the SRS document.
- ✚ **Existing System:** Describes the current local and informal brokerage system in Hosanna, including its participants and limitations.
- ✚ **Proposed System:** Outlines the key features and functionalities of the new real estate brokerage system.
- ✚ **System Requirements:** Defines the functional and non-functional requirements for the real estate brokerage system.
- ✚ **System Architecture, Implementation and Deployment:** Presents the high-level design and technical architecture of the real estate brokerage system.
- ✚ **Appendices:** Contains supplementary information, such as a glossary, references, and additional documents.

This structure ensures clarity and easy navigation for stakeholders seeking insight into the requirements and specifications of the Geez Broker system.

1.2 Background

Organization Background

Geez Broker is a leading company in the real estate industry, focused on providing innovative solutions specifically designed for the Ethiopian market. We are committed to using technology to benefit our clients and have earned a reputation as a reliable partner in the house brokerage sector.

System/Application Background

The idea for the House Broker website project came from our deep understanding of the challenges faced by brokers in the Ethiopian real estate market. Through collaboration with industry experts and drawing on our own experiences, we identified key issues in the brokerage process:

- ✚ **Limited Broker Tools:** Existing methods used by brokers often lack efficient tools for managing property listings and facilitating transactions, resulting in time-consuming processes and missed opportunities.
- ✚ **Fragmented Communication:** Communication between brokers, sellers, and buyers is often disjointed, leading to delays and misunderstandings that hinder successful transactions.
- ✚ **Manual Approval Processes:** Traditional approval processes for property listings are manual and prone to errors, causing inefficiencies and delays in making properties available to potential buyers.

In response to these challenges, the House Broker website project aims to modernize the brokerage process by introducing a comprehensive, web-based platform specifically tailored for Geez Broker. This platform will streamline property management, communication, and transaction facilitation, empowering brokers to serve their clients more efficiently and effectively.

By embracing technology and automation, Geez Broker seeks to elevate the standard of brokerage services in Ethiopia and provide a seamless experience for sellers, buyers, and brokers alike.

1.3 Statement of Problem

The Geez Broker system aims to address several key challenges faced by brokers, sellers, and buyers in the Ethiopian real estate market. These challenges include:

- ✚ **Fragmented Brokerage Process:** The current brokerage process is fragmented, with brokers relying on different tools and manual methods for managing property listings and facilitating transactions. This fragmentation leads to inefficiencies and delays.
- ✚ **Communication Barriers:** Communication between brokers, sellers, and buyers is often hindered by language barriers, time differences, and the lack of a centralized communication platform. This lack of effective communication can result in misunderstandings and delays in the transaction process.
- ✚ **Inefficient Approval Processes:** The manual approval processes for property listings are time-consuming and prone to errors. Sellers must wait for brokers to

review and approve their listings before they can be made available to potential buyers, leading to delays in listing properties on the market.







1.4 Objective

1.4.1 General Objective

The general objective of the Geez Broker system is to modernize and streamline the house brokering process for Geez Broker, thereby improving efficiency, transparency, and customer satisfaction in the Ethiopian real estate market.

1.4.2 Specific Objectives

To achieve the general objective, the following specific objectives have been identified:

-  **Develop a Web-Based Platform:** Create a user-friendly, web-based platform specifically tailored for Geez Broker to facilitate the listing of properties, communication between brokers, sellers, and buyers, and the facilitation of transactions.
-  **Implement Property Management Tools:** Incorporate tools and features for brokers to efficiently manage property listings, including uploading, editing, and approving listings, as well as categorizing properties based on various criteria.
-  **Enhance Communication Channels:** Establish centralized communication channels within the platform to enable seamless communication between brokers, sellers, and buyers, reducing misunderstandings and delays in the transaction process.
-  **Automate Approval Processes:** Implement automated approval processes for property listings to reduce manual review times and streamline the process of making properties available to potential buyers.
-  **Expand Market Reach:** Develop mechanisms to expand the market reach of Geez Broker by promoting listed properties to a wider audience, attracting more potential buyers and increasing the likelihood of successful transactions.
-  **Ensure Transparency:** Enhance transparency in the brokerage process by providing comprehensive property details, pricing information, and transaction histories to all stakeholders, fostering trust and informed decision-making.







By systematically addressing these specific objectives, the Geez Broker system aims to achieve its general objective of modernizing and streamlining the house brokering process for Geez Broker, ultimately improving efficiency, transparency, and customer satisfaction in the Ethiopian real estate market.

1.5 Proposed System




Proposed Geez Broker system is a comprehensive web-based instrument. This platform is designed to transform house brokering process for Geez Broker. The aim is to offer

augmented efficiency and transparency. It seeks to improve user satisfaction in the Ethiopian housing market.


Key Features of the Proposed System:

-  **User-Friendly Interface:** The system will have an intuitive interface. It'll be easy to navigate. This ensures a seamless journey for brokers sellers and buyers.
-  **Property Listing Management:** Brokers access robust tools for handling property listings. They can upload, edit categorize and approve listings with ease.
-  **Centralized Communication:** System provides centralized communication channels. These are for brokers, sellers and buyers to interact. It promotes efficient communication and reduces misunderstandings.
-  **Automated Approval Processes:** Approval processes for property listings will be automatic. This expedites making properties available to buyers. It also minimizes manual review times.
-  **Market Reach Expansion:** We'll implement mechanisms. The intention is to expand market reach of Geez Broker. Listed properties will be promoted to a larger audience to attract more potential buyers.
-  **Transparency Enhancements:** The System will ensure transparency. Comprehensive property details pricing information and transaction histories will be provided to all stakeholders. This encourages trust and educated decision-making.

Technological Components:

-  **Web-Centric Platform:** This system will be designed as a web-centric platform. Consequently it will be accessible via desktop and mobile devices. This strategy ensures flexibility and convenience for users, catering to their varying needs and preferences.
-  **Database Administration:** There will be the deployment of a robust database management system. Its purpose is to efficiently store and retrieve property listings user information and transaction data.
-  **Safety Precautions:** We will implement tight security measures. The aim is to safeguard user data. These steps will also protect against unauthorized access or data breaches.

Expected Benefits:

-  **Improved Efficiency:** The proposed system is set to refine the house brokering process. This translates into reduced manual tasks and administrative overhead for brokers.

- ✚ **Enhanced Transparency:** The system aims at providing both transparent and comprehensive information. This enhancement will foster trust and confidence among brokers sellers, as well as buyers.
- ✚ **Increased Market Reach:** Market reach would be expanded and targeted promotion efforts initiated. More potential buyers would be attracted. This increases the odds of successful transactions.
- ✚ **Greater Customer Satisfaction:** The system boasts a user-friendly interface. It also hosts enhanced features. Collectively these result in superior user experience. Thus, greater satisfaction among brokers sellers and buyers would be a natural consequence.

Technology Stack

The House Broker website is under development. A robust technology stack is being employed. The components of this technology stack will include:

- ✚ Frontend: HTML, CSS, JavaScript
- ✚ Backend: PHP
- ✚ Payment Gateway Integration (Future Plan): Chapa Telebirr, CBEBIRR
- ✚ In future plans, the integration of telebirr is key. cbebirr is essential as well.
- ✚ Mapping and Geolocation: Google Maps API
- ✚ Security: Password Hash (Encrypting User's Password for Safety)
Password hashing introduces an additional security barrier. It accomplishes this by encrypting user passwords. Uniquely coded passwords are the result of this process almost infeasible to decode. Data security is thereby enhanced through this method. Here, original passwords remain concealed. This rings true even if unauthorized parties manage to infiltrate the system. In end, password hashing emerges as a key security protocol. This practice effectively mitigates the potential for unlawful access to sensitive user information.
- ✚ Cloud Hosting: Yegara Host(sub-domain: J-tabor)

In general, significant advancement is embodied in the proposed Geez Broker system. This system represents a transformative shift in the house brokering industry. It promises to elevate standards. Redefining practices in the Ethiopian real estate market is its aim.

1.6 Literature Review and Related Work

1.6.1 Overview

The development of the Geez Broker system gleans insights from the literature. It also takes cues from related works within the real estate technology sector and brokerage practices. This section engages in a review of key studies. These studies along with

certain frameworks and platforms hold relevance to the objectives and functionalities of the proposed system.

Literature Review:

Modernizing Real Estate Brokerage Practices: Numerous studies have highlighted the need for modernization in real estate brokerage practices. The goal is to adapt to changing market dynamics and enhancements in technology. The research underscores the critical nature of technology for improving efficiencies. It brings about transparency and raises customer satisfaction during the brokerage process.

Web-Based Real Estate Platforms: Research into web-based real estate platforms delves into the factors that lead to success. Key findings are diverse. They range from the requisition of user-friendly interfaces to the value of robust property management tools. There's a focus on centralized communication channels. Transparent transactions are also vital.

Automated Approval Systems: Research on automated approval systems in real estate demonstrates their capabilities. Effectiveness in reducing manual review times and streamlining the property listing process is glaring. Automation has the potential to significantly advance efficiency and precision in property approval processes. This change brings benefits for brokers and customers.

Related Work:

Existing Real Estate Platforms: The analysis of current real estate platforms grants priceless insights. We learn about industry norms beneficial practices and user predilections. Zillow, Realtor.com and Trulia are platforms offering an abundance of features and functionalities. Features and functionalities that act as benchmarks for the Geez Broker system's development.

Local Brokerage Practices: Grasping local brokerage practices and market dynamics remains vital. It is essential when tailoring the Geez Broker system to the Ethiopian real estate market. Delving into strategies and challenges that local brokers encounter is informative. It informs the design and implementation of the system to cater better to broker's sellers and buyers in Ethiopia.

Technological Innovations in Real Estate: Exploring technological advancements in the real estate sector is exciting. These advancements include artificial intelligence, block chain, and virtual reality. This exploration sparks ideas for future enhancements and features of the Geez Broker system. These innovations possess the potential to revolutionize the brokerage process and improve user experiences.

Through a synthesis of insights derived from an extensive review of relevant literature and related work, the Geez Broker system has its focus. It is designed to integrate tested strategies and premier practices. In doing so, it also innovates to meet the distinctive needs and hurdles of the Ethiopian real estate market. Granting the system a solid foundation this methodology adheres to well-established principles.

At the same time, it primes the system to provide state-of-the-art solutions. Broker's sellers and buyers alike can benefit from this. The overarching goal remains unchanged - to tailor effective interventions for the unique challenges intrinsic to the Ethiopian real estate market.

1.7 Scope and Limitation

1.7.1 Scope

The Gamut of the Geez Broker system focuses primarily on the creation of an all-encompassing web-based platform. This platform is designed explicitly for Geez Broker. Geez Broker is a property brokerage firm situated in Hossana, Ethiopia. The system seeks to contemporize and streamline the brokering process of houses. It achieves this by offering tools and functionalities. These functionalities enable brokers to manage property listings effectively.

They also facilitate interaction among brokers, sellers and buyers. The system controls transactions. It oversees these transactions right from listing until closure.

❖ Key components of the system include:

- ✚ User-friendly interface exists for brokers, sellers and buyers. Property listing management tools are designed for brokers. The interface aims to provide a seamless experience. It targets brokers, sellers, and buyers. The purpose of property listing tools is clear. These are exclusively for brokers.

- ✚ Centralized communication channels

❖ Property Listing Approvals:

- ✚ The Automation Process

In the evolving real estate landscape, automation is revolutionizing property listing processes, enhancing efficiency, and reducing costs for brokers. While automation streamlines workflows and improves accuracy, challenges like erroneous approvals due to system faults or intentional misrepresentations persist. Continuous algorithm evolution and AI technology play crucial roles in refining system performance and error detection. The transition to automated approval processes offers enhanced efficiency, accuracy, and cost savings, benefiting real estate businesses. Careful implementation and vigilance are essential to maximize automation benefits, minimize disruptions, and uphold the industry's reputation. This technology shift holds promise in preventing fraud and driving growth in the broker system.

- ✚ Enhancements for Transparency: Detailed Property Data and Pricing

The system is to be formulated keeping scalability as a primary focus. This consideration allows for future growth. It also encourages the inclusion of additional features and functionalities. These can align with fluctuating market necessities and rising needs.

1.7.2 Limitations:

The Geez Broker system despite possessing a broad purview has certain inherent limitations that warrant acknowledgement:

- ✚ **Geographic Focus:** The system is deliberately designed for the real estate market of Ethiopia. It's tailored to serve brokers sellers and buyers in the city of Hosanna. There's a possibility for adaptability to other Ethiopian regions. However, its applicability may be restricted in markets outside of Ethiopia. This is due to variations in regulation market dynamics and users' preferences.
- ✚ **Technical Infrastructure:** The successful rollout of the Geez Broker system depends heavily on the presence of sufficient technical infrastructure. Reliable internet connectivity and access to computing devices are a part of these requirements. Users who lack adequate technology access may encounter difficulties. Fully exploiting the system's features might pose a challenge for them.
- ✚ **Data Accuracy:** The system is committed to offering accurate and current property information. The accuracy of the data depends on punctual input and verification from brokers and sellers. Errors in property listings might be present due to human error. It may happen because of incomplete information provided by sellers.
- ✚ **Security Concerns:** Though armed with security measures like encryption and access controls the Geez Broker system might still be vulnerable. Security threats may include unauthorized access, data breaches, and cyber-attacks. It is essential to continuously monitor these potential risks. Periodic updates to security protocols are necessary to mitigate risks effectively.
- ✚ **Legal and Regulatory Compliance:** The system strives for compliance with pertinent legal and regulatory requirements. These regulations are part of the real estate transactions domain in Ethiopia. Changes in legislation or regulatory frameworks however may affect the functioning and operation of the system. Such changes necessitate constant monitoring and updating for compliance.

Recognition of these limits is crucial. These understanding aids management in calibrating expectations. It also ensures the Geez Broker system's effective rollout and usage within its pre-determined scope and context.

1.8 Methods and Tools

1.8.1 Requirements Gathering Techniques/Methods

- ✓ To gather requirements for the Geez Broker system, the following techniques will be employed:
 - **Interviews:** Conducting interviews with stakeholders, including brokers, sellers, and buyers, to understand their needs, preferences, and pain points in the brokerage process.
 - **Observation:** Observing brokers and users in their natural work environments to identify workflow patterns, challenges, and opportunities for improvement.
 - **Document Analysis:** Reviewing existing documentation, such as business documents, contracts, and reports, to extract relevant information and requirements.

1.8.2 System Analysis and Design Methods

- ✓ The system analysis and design for the Geez Broker system will be conducted using the following methods:
 - **Use Case Modelling:** Identifying actors, use cases, and their interactions to capture the functional requirements of the system.
 - **Entity-Relationship Diagrams (ERDs):** Modelling the relationships between entities to design the database schema and ensure data integrity.
 - **Flowcharting:** Creating flowcharts to visualize the flow of information and processes within the system, facilitating analysis and design decisions.

1.8.3 Requirement Validation & Verification



Making sure the listed system requirements are precise, complete, and in agreement with the needs of both sellers and purchasers is the process of requirement validation and verification in the Geez Broker System. Ensuring the safety and integrity of property transactions and fostering user confidence depend heavily on this validation and verification procedure. The technology can provide a secure platform where buyers and sellers feel comfortable committing to transactions by confirming and verifying the requirements. Verifying user information, validating the accuracy of property information, and making sure the system works as intended to satisfy the needs of all stakeholders are some steps in the validation process. The Geez Broker System seeks to improve property transactions by offering a dependable and trustworthy platform through stringent validation and verification.

1.8.4 System Implementation Methods (How to Use Methods)

- ✓ The implementation of the Geez Broker system will follow Agile Development Adopting an agile development approach to iteratively build and deliver functionality in short development cycles, allowing for flexibility and adaptation to changing requirements.

1.8.5 Development Environment and Programming Tools

The Geez Broker system will be developed using the following development environment and programming tools:

-  Operating System: Windows(windows 10 recommendable)
-  Integrated Development Environment (IDE): Visual Studio Code

- ✚ Version Control System: Git for managing source code repositories
- ✚ Programming Languages and Frameworks:
 - **Backend:** PHP
 - **Frontend:** HTML, CSS, JavaScript for building interactive user interfaces
 - **Database:** SQL

These methods and tools will guide the development process of the Geez Broker system, ensuring efficiency, quality, and adherence to requirements throughout the software development lifecycle.

1.9 Significance of the Project

The Geez Broker system is really important. It focuses on a variety of issues facing the real estate sector. This encourages positive results for all parties involved. Its importance is distinguished by the following features.

1.9.1 Addressing Industry Challenges

The Geez Broker system directly tackles industry challenges faced by brokers, such as lack of clear information sharing, part-time commitment of brokers, and resistance to adopting new technologies. By addressing these challenges, the system aims to enhance transparency, streamline workflows, and improve efficiency in real estate transactions. This proactive approach not only benefits brokers but also contributes to the overall growth and sustainability of the real estate market in Hosanna.

1.9.2 Empowering Clients and Stakeholders

Through enhanced transparency improved communication avenues and easily accessible property listings, the system fortifies both clients (sellers/buyers) and stakeholders (brokers/administrators). Clients experience a heightened degree of control gaining profound insight into property transactions. As for brokers, they receive an upgrade in tools and processes. Their service to clients becomes more efficient.

1.9.3 Boosting Economic Growth and Development

The Geez Broker system promotes development and economic expansion. This is achieved by streamlining real estate transactions and getting rid of brokerage process inefficiencies. As a result, this procedure advances the real estate industry. An increase in market accessibility and transparency may draw in more investors. It stimulates business ventures. Enhances the local economy in the end.

1.9.4 Promoting Technological Innovation

Operating as a catalyst for technological advancement in Ethiopia's property sector the project employs state-of-the-art technologies. These include web-based platforms, automation and data analytics. The Geez Broker system charts a course for imminent progress fostering the adoption of innovative solutions.

1.9.5 Elevating User Experience and Satisfaction

Enhanced user interfaces accentuated usage improvement. Processes were streamlined to foster efficiency. Upgraded communication channels amplify satisfaction for all users. Sellers, buyer's brokers and administrators each accrue significant benefits. They advantage from a user-friendly platform that simplifies property business. It cultivates confidence and loyalty.

1.10. Beneficiaries of the System or Application

Geez Broker system exists as a valuable resource. It caters to a broad range of stakeholders involved in Ethiopia's real estate. System beneficiaries include:

Brokers:

- ✚ **Efficiency:** Brokers reap benefits from refined procedures for managing property listings and finalizing transactions. Contact with clients becomes more direct. The system enables them to oversee the complete brokerage operation from listing to closing efficiently. This saves time and resources.
- ✚ **Enhanced Service:** Brokers have access to comprehensive property data. They have automated approval systems too. These resources illuminate their capacity to deliver supreme service to clients. Consequently satisfaction and trust are amplified.
- ✚ **Market Reach:** System broadens brokers' market reach. It advertises listed properties to an expansive audience, enticing potential buyers. Meanwhile the likelihood of achieving successful transactions grows.

Sellers:

- ✚ **Market Visibility:** Sellers gain increased exposure for properties. This is attained through the Geez Broker system. A broader pool of potential buyers is now accessible.
- ✚ **Transparency:** The system provides understanding via transparent pricing data. It also provides comprehensive property listings. Seller's confidence is boosted during the transaction periods. Informed decision-making is facilitated.
- ✚ **Efficiency:** Sellers enjoy many profits of optimized approval procedures. These procedures permit properties to be listed. They can also be marketed more rapidly. The minimization of time on the market becomes a guarantee. This amplifies sale chances.

Buyers:

- ✚ **Listings Access:** Buyers obtain access to a comprehensive database of property listings via Geez Broker system. It simplifies the process of discovering properties that align with their unique criteria.
- ✚ **Transparency:** The system provides transparent information on property detail prices. The transaction methods are also clear. Such transparency empowers buyers. It equips them with the information required to make educated decisions confidently.
- ✚ **Communication:** The system permits buyers to communicate directly with brokers. This enables them in inquiries and setting viewing arrangements. It further aids in negotiations. This results in smooth transaction experiences.

Administrators:

- ✚ **Operational Efficiency:** Streamlined processes benefit administrators. Included are user management data management and maintenance. They ensure fluid operation of Geez Broker system.
- ✚ **Data Analysis:** System offers valuable data to administrators. Insights into user behaviour are key. Market trends and performance metrics are crucial too. They enable informed decision-making. They also allow strategic planning.
- ✚ **Compliance:** Administrators maintain compliance with regulations. They also pay heed to industry standards. The integrity and trust of Geez Broker system are thus sustained.

Local Community:

- **Economic Development:** Geez Broker system propels economic growth in the local community. The system invigorates real estate activities attracting investments. It births jobs in the brokerage sector.
- **Enhanced Practices:** Geez Broker system champions transparency, efficiency and professionalism. It enhances real estate transactions. As a result it assists in refining industry practices and standards. The larger community reaps major benefits.

In sum up, Geez Broker system functions as valuable instrument. The stakeholders within Ethiopia's real estate sector find it useful. The system streamlines transactions. It encourages transparency. The system serves as an important contributor to development economically and socially.

1.11 Feasibility Study

A feasibility study assesses the viability and potential success of a project, examining various aspects including technical, economic, operational, legal, political, and other factors. Here's an overview of each feasibility study for the Geez Broker system:

1. Technical Feasibility Study:

- ✚ **Infrastructure:** The technical feasibility of the Geez Broker system depends on the availability of reliable internet connectivity and sufficient computing resources to support the web-based platform.
- ✚ **Technology Stack:** The chosen technology stack, including programming languages, and development tools, should be suitable for building a scalable, secure, and user-friendly system.
- ✚ **Integration:** The system must be compatible with existing technologies and systems used by brokers, sellers, and buyers, ensuring seamless integration and interoperability.

2. Economic Feasibility Study:

- ✚ **Cost-Benefit Analysis:** An economic feasibility study evaluates the costs associated with developing, implementing, and maintaining the Geez Broker system, compared to the expected benefits and returns on investment.
- ✚ **Revenue Generation:** The system's revenue potential, including subscription fees, transaction fees, and advertising revenue, should be assessed to determine its financial viability and sustainability.

- ✚ **Market Demand:** Analysis of market demand for real estate services and the willingness of stakeholders to adopt the Geez Broker system can help assess its economic feasibility.

3. Operational Feasibility Study:

- ✚ **User Acceptance:** The operational feasibility of the system depends on user acceptance and adoption by brokers, sellers, and buyers. User feedback and engagement during the development process can provide insights into potential challenges and opportunities for improvement.
- ✚ **Training Needs:** Assessing the training needs of users to effectively use the system and adapt to new workflows is crucial for ensuring operational feasibility.
- ✚ **Workflow Integration:** The system should align with existing brokerage processes and workflows, minimizing disruption and ensuring smooth transition and adoption.

4. Legal Feasibility Study:

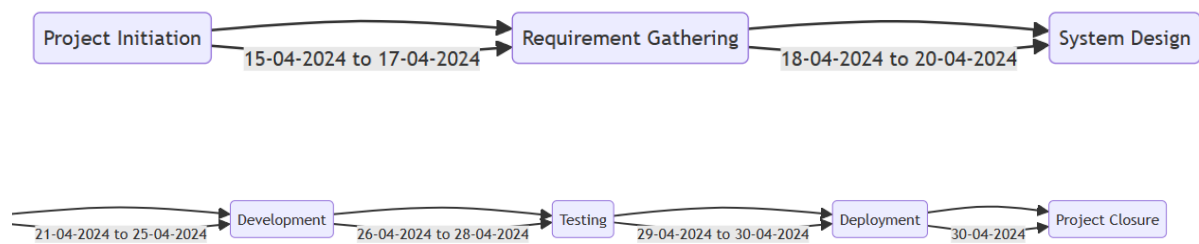
- ✚ **Regulatory Compliance:** The Geez Broker system must comply with relevant laws, regulations, and industry standards governing real estate transactions, data protection, and privacy.
- ✚ **Contractual Agreements:** Legal feasibility involves reviewing and negotiating contractual agreements with stakeholders, including brokers, sellers, buyers, and third-party service providers, to ensure legal compliance and protect the interests of all parties involved.

By conducting a thorough feasibility study across these dimensions, the viability and potential success of the Geez Broker system can be effectively evaluated, informing strategic decision-making and mitigating potential risks and challenges.

1.12 Project Plan

1.12.1 Time Schedule (Time Estimation, PERT Chart)

- ✚ **Time Estimation:** Time estimation for the Geez Broker project involves breaking down tasks into smaller, manageable units and estimating the time required to complete each task. This can be done using historical data, expert judgment, and input from team members. Tasks should be categorized, prioritized, and assigned to team members based on their skills and availability.
- ✚ **PERT Chart:** A Program Evaluation and Review Technique (PERT) chart is a visual representation of the project schedule, illustrating the sequence of tasks, their dependencies, and the estimated duration for each task. By using optimistic, pessimistic, and most likely estimates for task durations, a PERT chart helps identify critical path tasks and estimate the overall project timeline.
 - ❖ Here's an example of a simplified PERT chart for the Geez Broker project:



1.12.2 Budget Plan (Cost Estimation Techniques)

✚ **Cost Estimation Techniques:** Cost estimation for the Geez Broker project involves predicting the financial resources required to complete the project within the specified scope, timeline, and quality standards. Several cost estimation techniques can be used, including:

- **Expert Judgment:** Expert judgment involves consulting with experienced individuals or professionals in the field to estimate costs based on their knowledge and expertise. This technique relies on the insights and judgment of subject matter experts to provide accurate cost estimates.
- **Estimation by Analogy:** This technique involves comparing the Geez Broker project to similar projects that have been completed in the past to estimate costs. By identifying similarities and differences between projects, cost estimators can make informed comparisons and extrapolate costs for the Geez Broker project.
- **Top-Down Approach:** The top-down approach involves estimating costs at the project level and then breaking them down into smaller components or work packages. This technique is useful for high-level planning and budgeting but may lack detail for accurate cost estimation at lower levels.
- **Bottom-Up Approach:** The bottom-up approach involves estimating costs for individual tasks or work packages and then aggregating them to determine the total project cost. This technique provides greater accuracy and granularity but requires more detailed analysis and effort.

By using a combination of these cost estimation techniques, project managers can develop a comprehensive budget plan for the Geez Broker project, ensuring that financial resources are allocated effectively and efficiently to achieve project objectives.

CHAPTER -2- DESCRIPTION OF THE EXISTING SYSTEM OR APPLICATION

2.1 Introduction

Established brokerage system in Hosanna Ethiopia works predominantly via intermediaries. These agents are widely recognized as "delalas." Acting as

intermediary's delalas enable property transactions. They depend on customary methods. They do this without assistance from automated systems or online platforms.

The current system starkly contrasts with modern automated brokerage systems. It heavily relies on manual procedures and face-to-face meetings. Delalas function as crucial connectors. They link sellers and potential buyers. They often depend on personal connections and local knowledge to match properties with potential buyers.

In Hosanna, an absence of an automated system signifies that property transactions often happen informally. Access to centralized databases or online listings is extremely limited. Sellers resort to delalas for marketing their properties. They do it either through word-of-mouth or physical signs. Buyers on the other hand, need to engage directly with delalas. This is done to inquire about available properties.

Despite delalas successfully aiding in the execution of transactions the dilemmas stemming from the lack of a contemporary brokerage system cannot be overlooked. Problems such as constrained market reach arise. There are also inefficiencies in communication and flaws in transaction processes. Additionally, the dearth of transparency concerning property listings and pricing is concerning.

Given these hindrances introduction of the Geez Broker system holds monumental importance. This development marks a shift in the brokerage industry of Hosanna. It brings about a web-based platform. The platform amplifies efficiency. It also boosts transparency and accessibility. Such perks cater to the needs of brokers, sellers and buyers.

2.1.1 Participants in the Existing System

- ✚ **Buyer (Property searcher):** These individuals or families are in the market to purchase or lease properties. Their intent is either residential or commercial. Their reliance lies with real estate agents. Agents identify properties that align with the searchers' preferences and budget.
- ✚ **Real Estate Brokers ('Delala'):** They play the go-between role connecting seekers and owners of properties. Often, they charge steep fees or commissions for this service. It causes an escalation in the overall transaction cost that both the seeker and owner bear. Interestingly brokerage is just part-time work for some. Thus, the level of commitment can be less than perceptible.
- ✚ **Seller (Property Proprietors):** These could be individuals or corporate bodies intending to part with their properties either through a sale or lease. Their reliance is also on real estate agents for showcasing their properties. The agents have the responsibility to find the potential buyers or renters.

2.1.2 Processes in the Existing System

1. **Property Search:** Property Seekers express their preferences to real estate agents. They share their specific requirements as well. In response the agents look for

properties that match these given criteria. Generally, this process relies on physical meetings. Sometimes it necessitates visits to different properties.

2. **Negotiation and Transaction:** Once a suitable property is found, negotiations begin. The negotiations occur between the person seeking the property and property owner. Naturally the real estate agent takes on a facilitator role. Important elements of this process involve a discussion about transactional stipulations. Specified matters include price and sale or lease terms. They also dive into other conditions. All parties actively partake in the negotiation of these conditions.
3. **Documentation and Closure:** After an agreement is reached, documentation becomes essential. The real estate agent is tasked with the preparation of such documents. These documents may consist of contracts and different types of agreements. Next the transaction progresses towards its conclusion. Unsurprisingly, this culminates in fee payments. Finally all legal formalities are executed as a part of this step.

2.1.3 Challenges of the Existing System

The prevailing system faces myriad challenges. These include:

- **Cost Inefficiency:** Property brokers exert exorbitant fees. This escalates total transaction expenses for individuals seeking and possessing properties.
- **Transparency Deficit:** There's a dearth of transparency in transaction procedures. Such situation fuels distrust among parties. Potential disputes can also result.
- **Mandatory Physical Meetings:** Face-to-face encounters between parties are obligatory. They may prove time-consuming. The lack of trust makes these meetings particularly inconvenient.

We can deduce that the present real estate infrastructure heavily relies on conventional methods. These techniques are riddled with inefficiencies and lack transparency. A demand for a thoroughly modern solution is discernible. It must be cost-effective. It needs to provide transparency to well address these hindrances.

A main objective exists. This is to refurbish the complete real estate transaction experience for all concerned parties.

2.2 Business Rules and Constraints

The existing brokerage system in Hossana operates within a set of business rules and constraints that shape the dynamics of property transactions. These rules and constraints are influenced by cultural norms, market dynamics, and regulatory factors.

✓ Below are some key business rules and constraints:

- **Role of Delalas (Brokers):** Delalas act as intermediaries between sellers and buyers, facilitating property transactions. They are responsible for connecting

sellers with potential buyers, negotiating terms, and overseeing the transaction process.

- **Commission-Based Compensation:** Delalas typically earn commissions based on the value of the property transaction. This commission structure incentivizes delalas to negotiate favourable deals for both sellers and buyers while maximizing their own earnings.
- **Local Market Knowledge:** Delalas rely on their local market knowledge and personal networks to identify properties for sale and match them with interested buyers. This localized approach allows delalas to cater to the specific needs and preferences of clients within the community.
- **Informal Transaction Processes:** Property transactions in Hossana often occur through informal channels, with limited documentation and reliance on verbal agreements. While this informal approach may facilitate flexibility and trust between parties, it can also lead to ambiguity and disputes.
- **Limited Market Visibility:** The absence of centralized databases or online listings restricts the visibility of properties available for sale. Sellers rely on delalas to market their properties through word-of-mouth or physical signage, limiting the reach of potential buyers.
- **Trust-Based Relationships:** Trust plays a crucial role in the brokerage process, as sellers and buyers rely on delalas to represent their interests fairly and honestly. Delalas build trust through their reputation, integrity, and track record of successful transactions.
- **Regulatory Compliance:** While the brokerage industry in Ethiopia may be subject to certain regulatory requirements, the enforcement of these regulations may vary. Delalas are expected to operate within the bounds of the law and adhere to ethical standards in their business practices.

These business rules and constraints shape the operations of the existing brokerage system in Hossana, providing a framework within which property transactions are conducted. As the Geez Broker system is introduced, these rules and constraints will need to be considered and accommodated to ensure successful integration and adoption within the local market.

2.3 Naming Convention and Definition

In the existing brokerage system in Hossana, Ethiopia, certain naming conventions and definitions are commonly used to describe roles, processes, and terms related to property transactions. These conventions help establish clarity and consistency within the brokerage community. Here are some key naming conventions and their definitions:

- **Delala (Broker):** A delala, often referred to as a broker, is an intermediary who facilitates property transactions between sellers and buyers. Delalas play a central role in connecting parties, negotiating deals, and overseeing the transaction process.

- **Seller ('shach' in Amharic):** The seller is the party who owns the property and wishes to sell it. Sellers may engage delalas to market their properties, negotiate offers, and finalize sales agreements.
- **Buyer ('bet felagi' in Amharic):** The buyer is the party interested in purchasing a property. Buyers may approach delalas to inquire about available properties, view listings, and make purchase offers.
- **Property Listing:** A property listing is a formal description of a property that is available for sale. Listings typically include details such as location, size, features, and asking price.
- **Commission:('tikm 'in Amharic)** A commission is a fee paid to the delala for their services in facilitating a property transaction. Commissions are typically calculated as a percentage of the sale price and are negotiated between the delala and their client.
- **Negotiation:('dirdr' in Amharic)** Negotiation refers to the process of reaching mutually acceptable terms between the seller and buyer. Delalas play a key role in facilitating negotiations and ensuring that both parties' interests are represented.
- **Transaction Agreement('wl' in Amharic):** A transaction agreement is a legally binding document that outlines the terms and conditions of the property transaction. This agreement may include details such as the sale price, payment terms, and conditions of sale.
- **Market Value('meshecha waga' In Amharic):** Market value is the estimated worth of a property based on prevailing market conditions, comparable sales, and other factors. Delalas may provide guidance on pricing properties based on their knowledge of the local market.

These naming conventions and definitions provide a common language for stakeholders involved in property transactions and help ensure clear communication and understanding throughout the process. As the Geez Broker system is introduced, it will be important to align with these conventions while also introducing any new terminology specific to the system.

2.4 Functions or Main Activities of Existing System

In the existing brokerage system in Hossana, Ethiopia, several main functions and activities are performed by delalas (brokers) to facilitate property transactions. These functions are essential for connecting sellers with buyers and ensuring the smooth execution of transactions. Here are the main activities of the existing system:

Property Listing and Marketing:

- Delalas work with sellers to list properties that are available for sale.
- They gather information about the property, including its location, size, features, and asking price.

- Delalas market the properties to potential buyers through various channels, including word-of-mouth, physical signage, and personal networks.

Buyer Inquiry and Property Viewing:

- Delalas interact with potential buyers who express interest in properties listed for sale.
- They provide information about available properties, answer questions, and arrange property viewings for interested buyers.
- Delalas accompany buyers to view properties and provide guidance and insights during the viewing process.

Negotiation and Offer Management:

- Delalas facilitate negotiations between sellers and buyers to reach mutually acceptable terms.
- They communicate offers and counteroffers between parties and provide guidance on pricing and negotiation strategies.
- Delalas ensure that offers are properly documented and conveyed to the relevant parties.

Transaction Coordination and Documentation:

- Delalas oversee the transaction process from offer acceptance to closing.
- They coordinate with sellers, buyers, and other stakeholders to ensure that all necessary documentation is completed and signed.
- Delalas may assist in arranging property inspections, appraisals, and other due diligence activities required for the transaction.

Closing and Handover:

- Delalas facilitate the closing of the property transaction by ensuring that all parties fulfill their obligations.
- They coordinate the transfer of ownership and the exchange of funds between the seller and buyer.
- Delalas oversee the handover of keys and possession of the property to the buyer upon completion of the transaction.

Post-Sale Support:

- Delalas may provide post-sale support to both sellers and buyers, addressing any questions or concerns that arise after the transaction.
- They maintain on-going relationships with clients and may offer additional services or assistance as needed.

These functions and activities form the core of the existing brokerage system in Hossana, with delalas playing a central role in facilitating property transactions and ensuring the satisfaction of both sellers and buyers. As the Geez Broker system is introduced, these functions will serve as a foundation for designing and implementing

new features and processes to enhance efficiency and effectiveness in property transactions.

2.5 Players of Existing System or Application

In the existing brokerage system in Hossana, Ethiopia, several key players are involved in property transactions. These players perform different roles and responsibilities to facilitate the buying and selling of properties. Here are the main players of the existing system:

Delalas (Brokers):

- Delalas, also known as brokers, serve as intermediaries between sellers and buyers in property transactions.
- They are responsible for connecting sellers with potential buyers, negotiating deals, and overseeing the transaction process.
- Delalas play a crucial role in providing guidance and assistance to both parties throughout the transaction.

Sellers:

- Sellers are individuals or entities who own properties and wish to sell them.
- They rely on delalas to market their properties, find suitable buyers, and negotiate sale terms.
- Sellers provide information about their properties to delalas and participate in the negotiation and closing processes.

Buyers:

- Buyers are individuals or entities who are interested in purchasing properties.
- They approach delalas to inquire about available properties, view listings, and make purchase offers.
- Buyers rely on delalas to provide information about properties, guide them through the purchasing process, and negotiate terms with sellers.

Property Inspectors:

- Property inspectors may be involved in the transaction process to assess the condition of properties.
- They conduct inspections to identify any issues or defects that may affect the value or safety of the property.
- Property inspectors provide reports and recommendations to buyers and sellers to inform their decision-making.

Legal Professionals:

- Legal professionals, such as lawyers or notaries, may be engaged to provide legal advice and assistance in property transactions.
- They review contracts, verify property ownership, and ensure that transactions comply with relevant laws and regulations.

- Legal professionals help protect the interests of buyers and sellers by ensuring that transactions are legally binding and enforceable.

Financial Institutions:

- Financial institutions, such as banks or mortgage lenders, may be involved in providing financing for property purchases.
- They assess buyers' creditworthiness, offer mortgage loans, and facilitate the transfer of funds between parties.
- Financial institutions play a critical role in enabling buyers to finance property purchases and complete transactions.

These players collaborate and interact within the existing brokerage system to facilitate property transactions and ensure the smooth execution of deals. Each player brings unique skills and expertise to the transaction process, contributing to the overall success and satisfaction of sellers and buyers.

2.6 Organization Structure

In the existing brokerage system in Hosanna, Ethiopia, the organization structure is typically informal and decentralized, with delalas (brokers) operating as independent agents or small-scale businesses. While there may not be a formal organizational hierarchy, there is a loose structure that governs the relationships and interactions among stakeholders. Here is an overview of the organization structure:

Delalas (Brokers):

- Delalas are the primary actors within the brokerage system, serving as independent agents or small business owners.
- They operate individually or in small groups, often working from home offices or small storefronts in local neighbourhoods.
- Delalas have autonomy over their business operations, including marketing, client relations, and transaction management.

Informal Networks:

- Delalas may form informal networks or associations with other brokers to share information, collaborate on deals, and support each other's businesses.
- These networks facilitate communication and collaboration among delalas, allowing them to leverage collective resources and expertise.

Client Relationships:

- Delalas build and maintain relationships with clients, including sellers, buyers, and other stakeholders in the community.
- They rely on personal networks, referrals, and word-of-mouth marketing to attract clients and generate business.

Support Services:

- Delalas may engage with various support services, such as legal professionals, property inspectors, and financial institutions, to assist with transaction-related activities.
- While these services are external to the brokerage business, they play an important role in facilitating property transactions and ensuring compliance with legal and regulatory requirements.


Market Dynamics:

- The organization structure of the brokerage system is also influenced by market dynamics, including supply and demand for properties, local economic conditions, and competition among brokers.
- Delalas may adapt their business strategies and operations in response to changing market conditions to remain competitive and meet the needs of clients.

Overall, the organization structure of the existing brokerage system in Hossana is characterized by its decentralized and informal nature, with delalas operating as independent agents within the local community. While there may not be a formal hierarchy or organizational chart, there is a cohesive network of stakeholders working together to facilitate property transactions and serve the needs of clients.

2.7 Documents used in the Existing System or Application

In the existing brokerage system in Hosanna, Ethiopia, various documents are used throughout the property transaction process to facilitate communication, record important information, and ensure compliance with legal and regulatory requirements. These documents play a crucial role in documenting agreements, verifying property details, and formalizing transaction terms.

 Here are some of the key documents used in the existing system:

Property Listings:

- ✓ Property listings are documents that provide detailed information about properties available for sale.
- ✓ They typically include details such as property location, size, features, asking price, and contact information for the seller or Delala.
- ✓ Property listings serve as marketing materials to attract potential buyers and inform them about available properties.

Offer Letters:

- ✓ Offer letters, also known as purchase offers or bid letters, are documents submitted by buyers to express their interest in purchasing a property.
- ✓ Offer letters outline the proposed purchase price, terms and conditions of the offer, and any contingencies or conditions that must be met for the offer to be valid.
- ✓ Offer letters serve as formal proposals from buyers to sellers and are used as the basis for negotiation and counteroffers.

Sales Agreements:

- ✓ Sales agreements, also known as purchase agreements or sales contracts, are legal documents that outline the terms and conditions of a property sale.
- ✓ Sales agreements detail the purchase price, payment terms, closing date, and other provisions agreed upon by the seller and buyer.
- ✓ Sales agreements are signed by both parties to formalize the sale transaction and create a legally binding contract.

Property Deeds:

- ✓ Property deeds are legal documents that transfer ownership of real estate from one party to another.
- ✓ Property deeds contain detailed descriptions of the property, including its boundaries, legal description, and any encumbrances or easements.
- ✓ Property deeds are recorded with the appropriate government authority to officially transfer ownership of the property from the seller to the buyer.

Disclosure Statements:

- ✓ Disclosure statements are documents provided by sellers to disclose any known defects, hazards, or material information about the property.
- ✓ Disclosure statements help buyers make informed decisions about purchasing a property and protect sellers from potential legal liabilities.
- ✓ Disclosure requirements may vary depending on local regulations and may include information about property condition, environmental hazards, and legal disputes.

Financial Documents:

- ✓ Financial documents, such as loan applications, mortgage agreements, and payment receipts, may be used to facilitate financing and payment transactions.
- ✓ These documents provide evidence of financial arrangements between buyers, sellers, and financial institutions involved in the transaction.

Correspondence and Communication Records:

- ✓ Correspondence records, including emails, letters, and messages exchanged between parties, document communication related to the transaction.
- ✓ Communication records serve as a record of agreements, negotiations, and instructions exchanged between buyers, sellers, delalas, and other stakeholders.
- ✓ These documents are essential for managing property transactions, ensuring transparency, and protecting the interests of both sellers and buyers within the existing brokerage system in Hossana. As the Geez Broker system is introduced, digitizing and automating these documents can streamline the transaction process, improve efficiency, and enhance the overall user experience.

2.8 Strengths and Weaknesses of the Existing System or Application

2.8.1 Strengths of the Existing System or Application

The existing brokerage system in Hossana, Ethiopia, possesses several strengths that contribute to its functionality and effectiveness:

Local Expertise: Delalas have extensive knowledge of the local real estate market, including property values, neighbourhood dynamics, and market trends. Their deep understanding of the local context allows them to provide valuable insights and guidance to clients.

Personalized Service: Delalas offer personalized service to clients, tailoring their approach to meet the specific needs and preferences of buyers and sellers. This personalized approach fosters trust and loyalty among clients and enhances the overall customer experience.

Flexible Negotiation: The informal nature of property transactions allows for flexible negotiation between parties. Delalas have the autonomy to negotiate terms and conditions that are mutually beneficial for sellers and buyers, accommodating their unique circumstances and preferences.

Community Connections: Delalas have established relationships within the local community, allowing them to leverage personal networks and referrals to attract clients and facilitate transactions. Their connections with other stakeholders, such as legal professionals and financial institutions, help expedite the transaction process.

Efficient Communication: Direct communication between delalas and clients facilitates efficient information exchange and decision-making. Clients have direct access to delalas, enabling them to ask questions, seek advice, and receive timely updates throughout the transaction process.

2.8.2 Weakness of the Existing System or Application

Despite its strengths, the existing brokerage system in Hossana also has several weaknesses that may limit its efficiency and effectiveness:

Limited Market Reach: The reliance on traditional marketing channels, such as word-of-mouth and physical signage, may limit the reach of property listings to a local audience. Properties may not receive sufficient exposure to attract potential buyers from outside the immediate area.

Manual Processes: The use of manual processes and paperwork in property transactions can result in inefficiencies and delays. Delalas may spend significant time on administrative tasks, such as documentation and record-keeping, detracting from their ability to focus on client service and deal negotiation.

Transparency Issues: The informal nature of property transactions may lead to transparency issues, particularly regarding property information and pricing. Sellers

and buyers may not have access to comprehensive market data or standardized pricing mechanisms, resulting in uncertainty and asymmetry of information.

Limited Technology Adoption: The existing brokerage system lacks technological infrastructure, such as web-based platforms or digital tools, to support property transactions. Delalas may face challenges in adopting new technologies and integrating them into their business operations.

2.8.2.1 Alternative Solutions

To address the weaknesses of the existing brokerage system, alternative solutions could be explored:

Digitalization and Automation: Implementing digital tools and automated systems can streamline transaction processes, reduce paperwork, and enhance efficiency. Web-based platforms could be developed to facilitate property listings, offer management, and communication between stakeholders.

Market Expansion: Expanding marketing efforts beyond traditional channels to include online platforms and social media can broaden the reach of property listings and attract a wider audience of potential buyers. Digital marketing strategies could be employed to target specific demographics and geographic areas.

Training and Capacity Building: Providing training and support to delalas on technology adoption, digital literacy, and business management can empower them to adapt to changing market dynamics and leverage new opportunities. Capacity-building initiatives could focus on enhancing skills in negotiation, communication, and customer service.

Regulatory Reform: Advocating for regulatory reforms to streamline property transaction processes, improve transparency, and protect consumer rights can create a more favourable operating environment for delalas and enhance market efficiency. Collaboration with government agencies and industry associations could help drive regulatory changes.

CHAPTER -3- REQUIREMENT SPECIFICATION AND ANALYSIS

3.1 Introduction

In this section, we will provide an introduction to the requirement specification and analysis process for the Geez Broker system. We'll outline the importance of defining functional and non-functional requirements, conducting user needs analysis, and analysing the scope of the project. This introduction will set the stage for the subsequent sections, guiding the reader through the detailed analysis of system requirements.

3.2 Description of the Proposed System or Applications

3.2.1 User Characteristics

The proposed House Broker website aims to cater to a diverse range of users involved in property transactions, including:

- **Property Seekers/Buyers:** Individuals or entities looking to purchase or rent residential or commercial properties.
- **Property Owners/Sellers:** Individuals or entities seeking to sell or rent out their properties to potential buyers or tenants.
- **Real Estate Agents/Brokers:** Licensed professionals acting as intermediaries between property seekers and property owners, facilitating transactions and providing advisory services.

3.2.2 Constraints

Several constraints may impact the development and implementation of the House Broker website, including:

- **Regulatory Compliance:** Compliance with local, state, and federal regulations governing real estate transactions, licensing, and consumer protection.
- **Data Privacy:** Adherence to data privacy laws and regulations to protect the confidentiality and security of user information and transactions.
- **Technological Compatibility:** Compatibility with various devices, browsers, and operating systems to ensure accessibility and usability for all users.

3.2.3 Assumptions and Dependencies

The development and success of the House Broker website depend on certain assumptions and dependencies, including:

- **User Adoption:** Assumption that users will adopt and utilize the platform for property transactions, leading to increased engagement and transaction volumes.
- **Technical Infrastructure:** Dependency on reliable hosting services, database management systems, and web development frameworks to support the functionality and scalability of the website.
- **Market Dynamics:** Assumption that market demand for online real estate platforms will continue to grow, driving user engagement and transaction activity.

3.3 Requirement Specifications

3.3.1 Functional Requirements

User Registration and Authentication:

- Users should be able to register for an account on the House Broker website.
- The system should provide authentication mechanisms to ensure secure access to user accounts.

Property Listing and Search:

- Property owners should be able to list their properties for sale or rent on the platform.
- Property seekers should be able to search for properties based on various criteria such as location, price range, property type, and amenities.

Messaging and Communication:

- Users should be able to communicate with each other through messaging features within the platform.
- Real estate agents should be able to communicate with their clients and manage inquiries efficiently.

Appointment Scheduling:

- Property seekers should be able to schedule appointments to view properties through the platform.
- Real estate agents should be able to manage their schedules and appointments effectively.

Transaction Management:

- The system should facilitate the negotiation and finalization of property transactions between buyers and sellers.
- Users should be able to track the progress of their transactions and access relevant documentation.

Feedback :

- Users should be able to leave feedback and ratings for properties, agents, and overall user experience.
- Real estate agents should be able to view and respond to user feedback to improve their services.

3.3.2 Non-functional Requirements

Performance:

- The system should be responsive and able to handle a large volume of concurrent users and property listings.
- Page loading times should be optimized to provide a smooth user experience.

Security:

- User data should be encrypted and protected against unauthorized access or breaches.

- The system should implement secure authentication mechanisms to prevent account hijacking or identity theft.

Scalability:

- The system architecture should be designed to accommodate future growth and scalability requirements.
- Infrastructure and database resources should be scalable to support increasing user activity and data storage needs.

Reliability:

- The system should be available and operational 24/7 with minimal downtime for maintenance or upgrades.
- Backup and disaster recovery mechanisms should be in place to ensure data integrity and continuity of service.

Usability:

- The user interface should be intuitive and user-friendly, catering to users of varying technical proficiency.
- Navigation should be clear, and features should be easily accessible to users.

Regulatory Compliance:

- The system should comply with relevant laws and regulations governing real estate transactions, data privacy, and consumer protection.
- Legal documentation and disclosures should be provided to users in accordance with regulatory requirements.

These functional and non-functional requirements will guide the development and implementation of the House Broker website, ensuring that it meets the needs and expectations of its users while adhering to industry standards and best practices.

3.4 System Modelling

In the system modelling phase, we identify the actors and use-cases of the Geez Broker system to understand its structure and interactions.

3.5.1 Actor Identification

Actors:

Geez Broker Employee: Employees of Geez Broker who manage property listings, handle inquiries, negotiate terms, and facilitate transactions.

Seller: Individuals or entities who own properties and wish to sell them through Geez Broker.

Buyer: Individuals or entities interested in purchasing properties listed on Geez Broker.

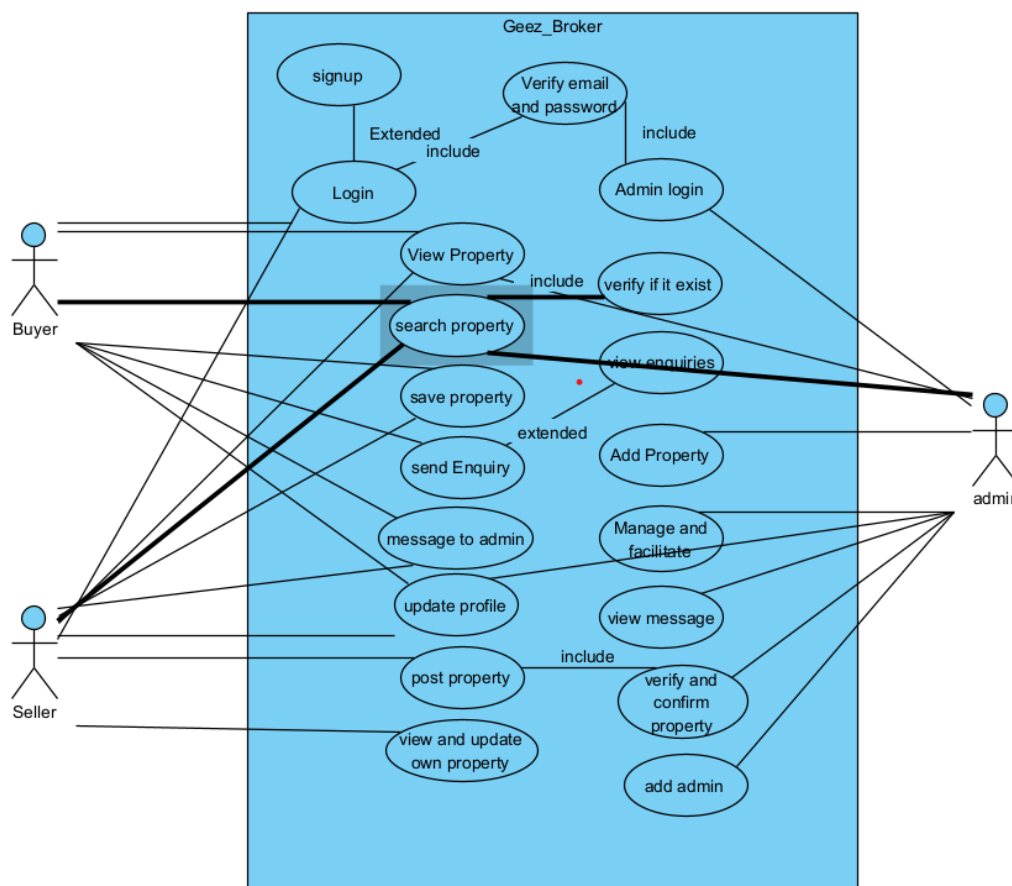
Administrator: System administrators who oversee the operation and maintenance of the Geez Broker system.

3.5.2 Use-Case Identification

Use-Cases:

- **Manage Property Listings:** Geez Broker employees add, update, or delete property listings.
- **Handle Buyer Inquiries:** Geez Broker employees respond to inquiries from potential buyers, schedule property viewings, and provide information.
- **Facilitate Negotiations:** Geez Broker employees facilitate negotiations between sellers and buyers.
- **Manage Transactions:** Geez Broker employees oversee the transaction process, including generating sales contracts, managing payments, and coordinating property transfer.
- **Provide Post-sale Support:** Geez Broker employees provide support to sellers and buyers after transactions are completed.
- **Administer System:** Administrators manage system functionalities, user accounts, and configurations.

3.4.3 Use-Case Diagram



3.5.4 Description of Use-Cases

Manage Property Listings:

Description: Geez Broker employees add, update, or delete property listings on the system.

Actors: Geez Broker Employee

Preconditions: Geez Broker Employee is authenticated.

Post conditions: Property listings are updated in the system.

Handle Buyer Inquiries:

Description: Geez Broker employees respond to inquiries from potential buyers, schedule property viewings, and provide information.

Actors: Geez Broker Employee, Buyer

Preconditions: Inquiry is received from a potential buyer.

Postconditions: Buyer inquiry is addressed, and further action is taken as necessary.

Facilitate Negotiations:

Description: Geez Broker employees facilitate negotiations between sellers and buyers.

Actors: Geez Broker Employee, Seller, Buyer

Preconditions: Negotiation request is initiated by a seller or buyer.

Postconditions: Negotiation outcomes are communicated to relevant parties.

Manage Transactions:

Description: Geez Broker employees oversee the transaction process, including generating sales contracts, managing payments, and coordinating property transfer.

Actors: Geez Broker Employee, Seller, Buyer

Preconditions: Sale agreement is reached between a seller and buyer.

Postconditions: Transaction is successfully completed, and property ownership is transferred.

Provide Post-sale Support:

Description: Geez Broker employees provide support to sellers and buyers after transactions are completed.

Actors: Geez Broker Employee, Seller, Buyer

Preconditions: Transaction is completed successfully.

Postconditions: Post-sale support is provided as needed.

Administer System:

Description: Administrators manage system functionalities, user accounts, and configurations.

Actors: Administrator

Preconditions: Administrator is authenticated.

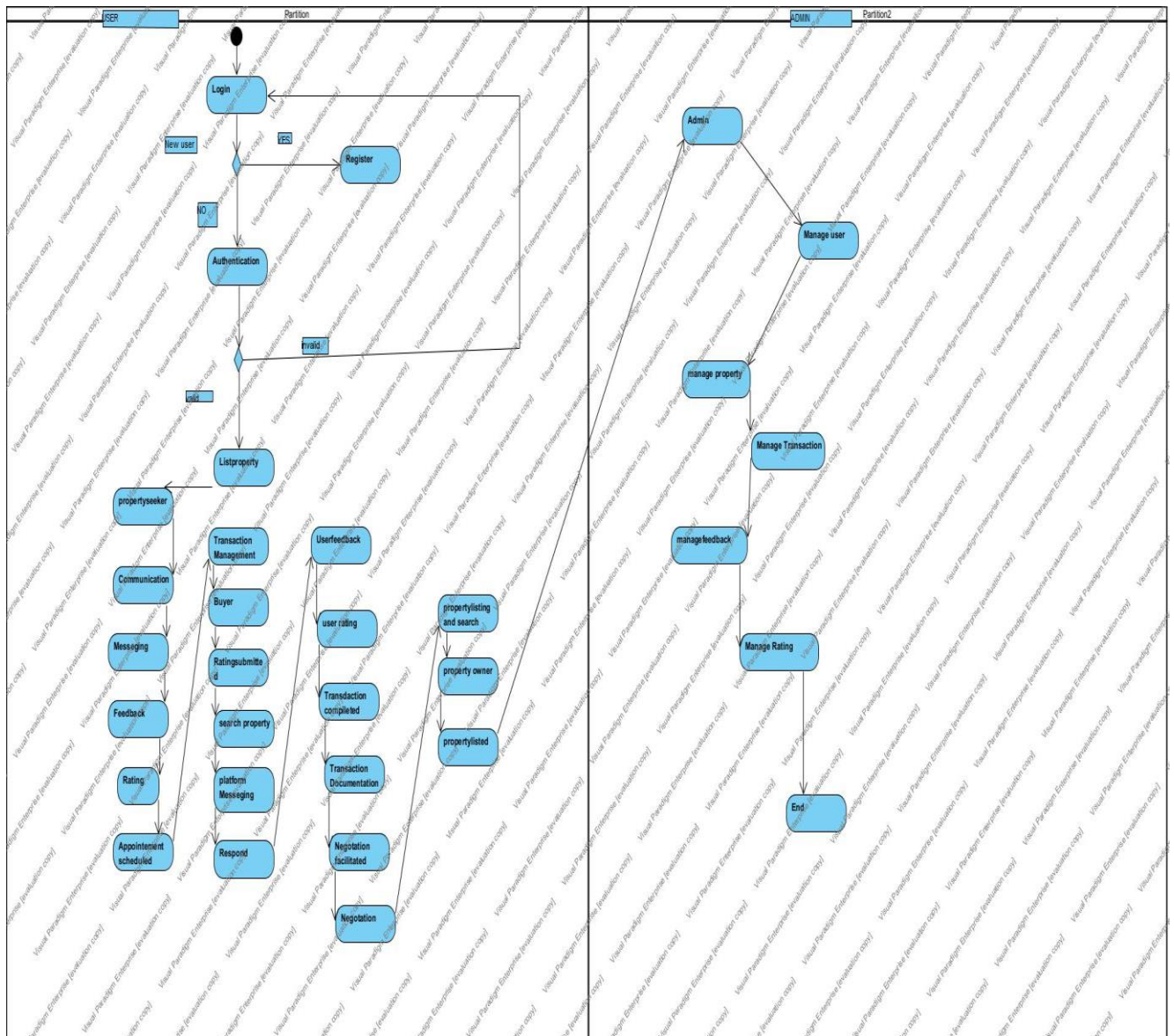
Postconditions: System configurations and user accounts are updated as necessary.

This system modelling section provides a comprehensive understanding of the actors, use-cases, and their interactions within the Geez Broker system.

3.5. Requirement Analysis

In this pivotal phase of our Software Requirements Specification (SRS) documentation, we delve deep into analyzing the requirements for the Geez Broker website. Our objective is to ensure that these requirements are not only comprehensive and accurate but also feasible for implementation. Let's break down this process into its essential components:

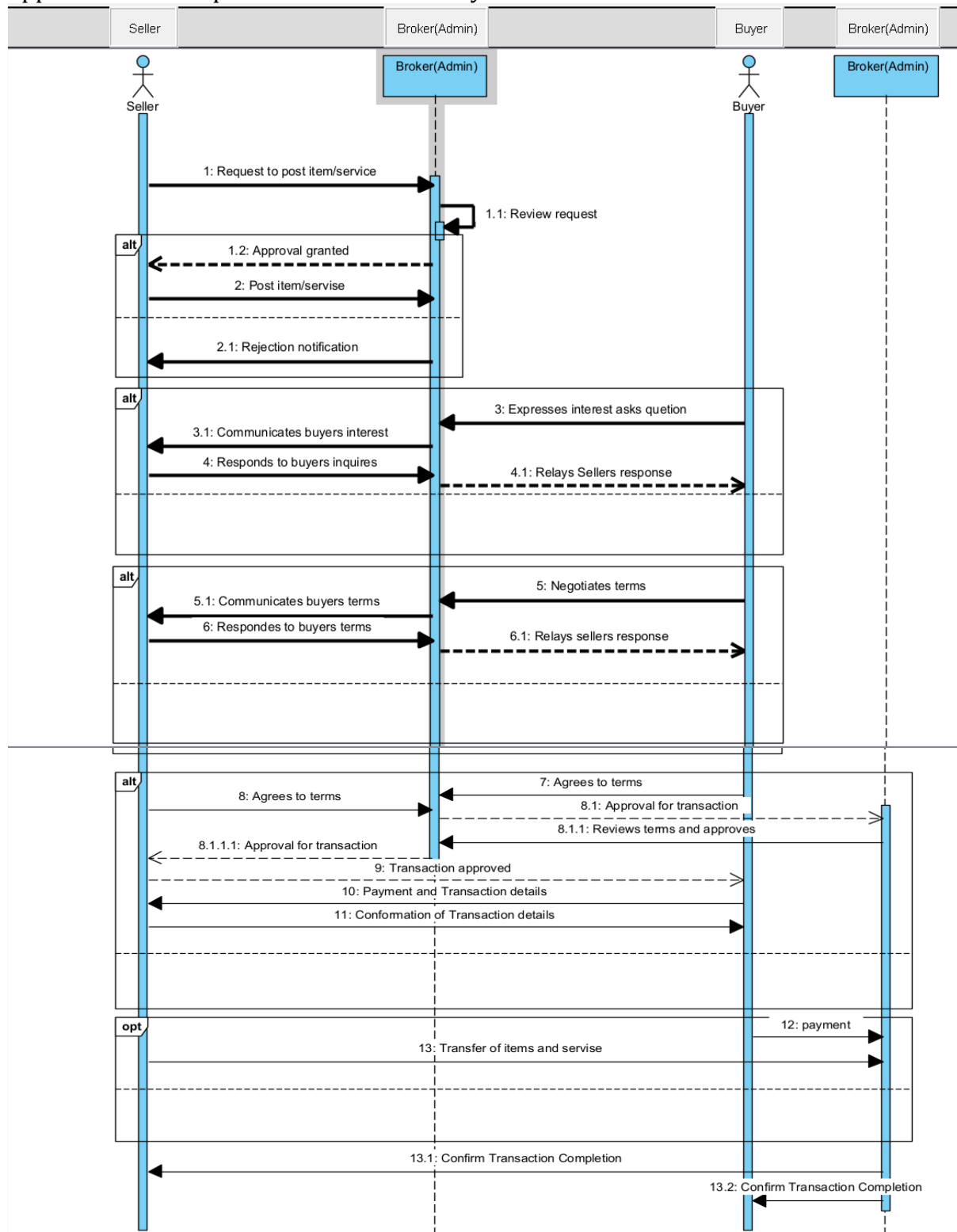
3.5.1 Activity Diagram



Activity diagrams serve as visual aids, illustrating the flow of activities or processes within the Geez Broker system. They provide a clear depiction of the sequence of actions performed by both actors and system components to accomplish specific tasks and goals. By examining these diagrams, stakeholders can gain a comprehensive understanding of how the system functions in various scenarios.

3.5.2 Sequence Diagram

In the sequence diagram, we delve deeper into the interactions between actors and system components over time. This diagram showcases the exchange of messages and the chronological order of activities within the Geez Broker system. By mapping out these interactions, we can identify potential bottlenecks, dependencies, and opportunities for optimization within the system.



3.5.3 Requirement Validation & Verification

Validation and verification are critical processes to ensure the quality and correctness of the requirements. Here's how we ensure that the requirements accurately capture stakeholder needs and are feasible for implementation:

3.5.3.1 Validity Checks

We conduct validity checks to ensure that the requirements align with the intended functionalities and objectives of the Geez Broker system. This involves verifying that the requirements address the core needs and expectations of stakeholders, leaving no room for ambiguity or misinterpretation.

3.5.3.2 Consistency Checks

Consistency checks are essential to ensure that the requirements do not contradict each other and are compatible with the overall system design. By identifying and resolving any discrepancies or conflicts between different requirements, we maintain coherence and integrity throughout the SRS documentation.

3.5.3.3 Completeness Checks

Completeness checks are conducted to verify that all necessary functionalities and features have been adequately captured in the requirements. We ensure that no critical aspects of the Geez Broker system are overlooked or omitted, providing stakeholders with a comprehensive overview of the system's scope and capabilities.

3.5.3.4 Realism Checks

Realism checks assess the feasibility and practicality of implementing the requirements within the constraints of the project. This involves evaluating whether the proposed functionalities and features are achievable given the available resources, technology, and timeline. Realism checks may include:

- Assessing the technical feasibility of implementing the proposed functionalities within the existing infrastructure and technological capabilities.
- Evaluating the availability of resources, including personnel, funding, and technology, to support the development and implementation of the requirements.
- Considering potential constraints such as time, budget, and regulatory requirements that may impact the feasibility of implementing certain functionalities.

By conducting realism checks, the project team can ensure that the requirements are grounded in reality and feasible to implement within the constraints of the project.

3.5.3.5 Verifiability

Verifiability checks assess the ease with which the requirements can be verified and validated to ensure that they are implemented correctly. This involves establishing clear criteria and methods for verifying that the implemented system meets the specified requirements. Verifiability checks may include:

- Defining test cases and acceptance criteria to validate that the implemented system satisfies each requirement.
- Ensuring that requirements are expressed in a clear, unambiguous manner that facilitates testing and validation.
- Establishing mechanisms for tracking and documenting the verification process, including test results and compliance with acceptance criteria.

By ensuring verifiability, the project team can effectively validate and verify that the implemented system meets stakeholder needs and requirements, leading to a successful project outcome.

CHAPTER 4: SYSTEM DESIGN

4.1 Introduction

The system design phase of the Broker website encompasses the architectural and technical specifications necessary for the development and implementation of the platform. This chapter outlines the overarching design principles and methodologies employed to realize the goals and functionalities detailed in the previous chapters of this document. The system design ensures that the Broker website operates efficiently, securely, and meets the requirements of its diverse user base, including buyers, sellers, and administrative personnel.

4.2 Design Considerations for the System

Component Reusability:

A fundamental design principle for the Broker website is the promotion of component and module reuse to bolster efficiency and maintainability. Modular and reusable components not only minimize redundancy but also expedite development and facilitate future updates. To foster reuse, the following strategies will be employed:

- **Componentization:** The system will be decomposed into smaller, autonomous components, enabling their reuse across various segments of the application.
- **Design Patterns:** Implementation of design patterns such as Factory, Singleton, and Observer will encapsulate reusable logic, fostering flexibility and extensibility.

Future Adaptability:

Anticipating and accommodating future changes is paramount for the longevity and adaptability of the Broker website. The system will be architected with flexibility and scalability in mind to accommodate evolving requirements and technological advancements. To facilitate future changes, the following design strategies will be embraced:

- **Modular Architecture:** The system will adopt a modular architecture, allowing individual components to be modified or substituted without causing disruptions elsewhere.
- **Loose Coupling:** Dependencies between components will be minimized to mitigate the ripple effects of modifications and enhance system resilience.
- **Abstraction Layers:** Introduction of abstraction layers will isolate high-level business logic from implementation details, simplifying modifications and enhancements.

Component Refactoring:

Refactoring, the process of restructuring code without altering its external behavior, will be employed to enhance readability, maintainability, and performance. In the context of the Broker website, refactoring will address code smells, optimize performance, and elevate maintainability. Key refactoring concepts for components include:

- **Code Clean-up:** Identification and elimination of redundant or unnecessary code segments to streamline the codebase and enhance readability.
- **Performance Enhancement:** Analysis and optimization of critical components to improve performance and responsiveness, such as database queries or rendering algorithms.
- **Design Refinement:** Restructuring components to adhere to best practices and design principles, including encapsulation, separation of concerns, and the single responsibility principle.

By proactively addressing these design considerations during the system design phase, the Broker website will be architected to be robust, flexible, and easily maintainable, capable of adapting to future changes and scaling effectively.

4.3 Design Patterns

Design patterns play a crucial role in shaping the architecture and structure of the Broker website. By leveraging established design patterns, we can address common design challenges, promote code reuse, and enhance maintainability. The following design patterns will be utilized in the development of the Broker website:

Factory Method Pattern:

- The Factory Method pattern will be employed to encapsulate the instantiation logic of objects, allowing subclasses to alter the type of objects that will be created.
- For example, a Property Factory class could be implemented to create instances of different types of properties (e.g., residential, commercial) based on user input.

Singleton Pattern:

- The Singleton pattern will be utilized to ensure that a class has only one instance and provides a global point of access to it.
- For instance, a User Manager class could be implemented as a Singleton to manage user authentication and authorization throughout the system.

Observer Pattern:

- The Observer pattern will be applied to establish a one-to-many dependency between objects, ensuring that when one object changes state, all its dependents are notified and updated automatically.
- For example, a Property Listing class could act as a subject, while multiple Buyer classes act as observers, receiving notifications when new properties are listed.

Strategy Pattern:

- The Strategy pattern will be utilized to define a family of algorithms, encapsulate each one, and make them interchangeable.
- For instance, a Payment Strategy interface could define various payment methods (e.g., credit card, bank transfer), with concrete implementations for each method.

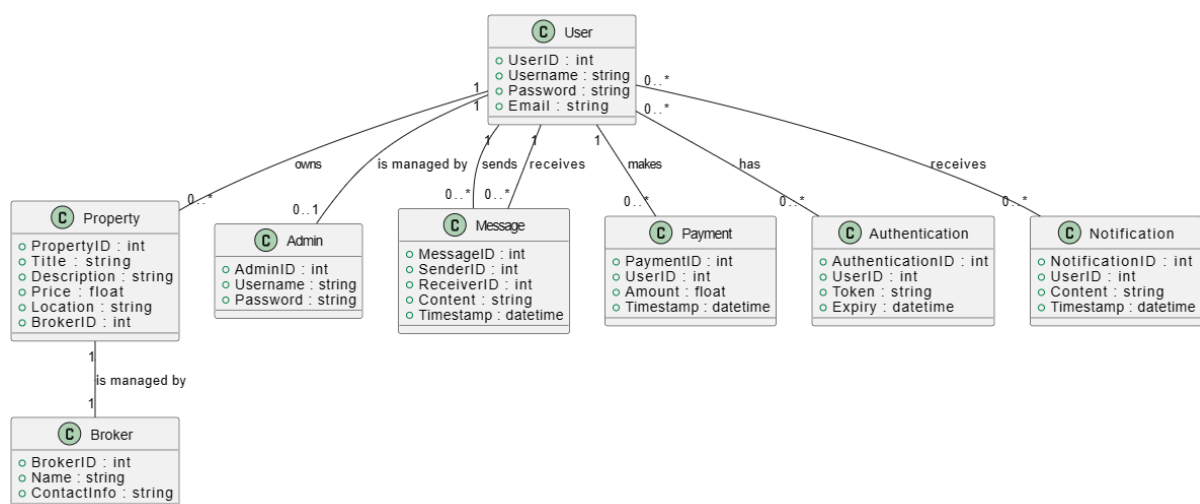
Facade Pattern:

- The Facade pattern will be employed to provide a unified interface to a set of interfaces in a subsystem, simplifying the usage of complex systems.
- For example, a PropertySearchFacade could provide a simplified interface for users to search for properties, internally coordinating with various subsystems such as the database and search algorithms.

These design patterns will be carefully implemented throughout the development of the Broker website to improve code organization, enhance maintainability, and facilitate future updates and enhancements.

4.4 Class Diagram

The class diagram for the Broker website illustrates the various classes and their relationships within the system. It provides a visual representation of the system's architecture, including its entities, attributes, methods, and associations. The class diagram serves as a blueprint for developers to understand the structure of the system and implement the necessary functionality. Below is an outline of the key classes and their relationships in the Broker website:



User Class:

- ✓ Attributes: UserID, Username, Password, Email
- ✓ Methods: Register(), Login(), Logout()

Property Class:

- Attributes: PropertyID, Title, Description, Price, Location
- Methods: AddProperty(), EditProperty(), DeleteProperty(), SearchProperty()

Agent Class:

- Attributes: AgentID, Name, ContactInfo
- Methods: AddProperty(), EditProperty(), DeleteProperty(), ViewProperty()

Admin Class:

- Attributes: AdminID, Username, Password
- Methods: ApproveProperty(), DeleteProperty(), ViewReports()

SearchFilter Class:

- Attributes: LocationFilter, PriceFilter, PropertyTypeFilter
- Methods: ApplyFilter(), ResetFilter()

DatabaseManager Class:

- Methods: ConnectToDatabase(), ExecuteQuery(), UpdateDatabase()

Future Enhancements:

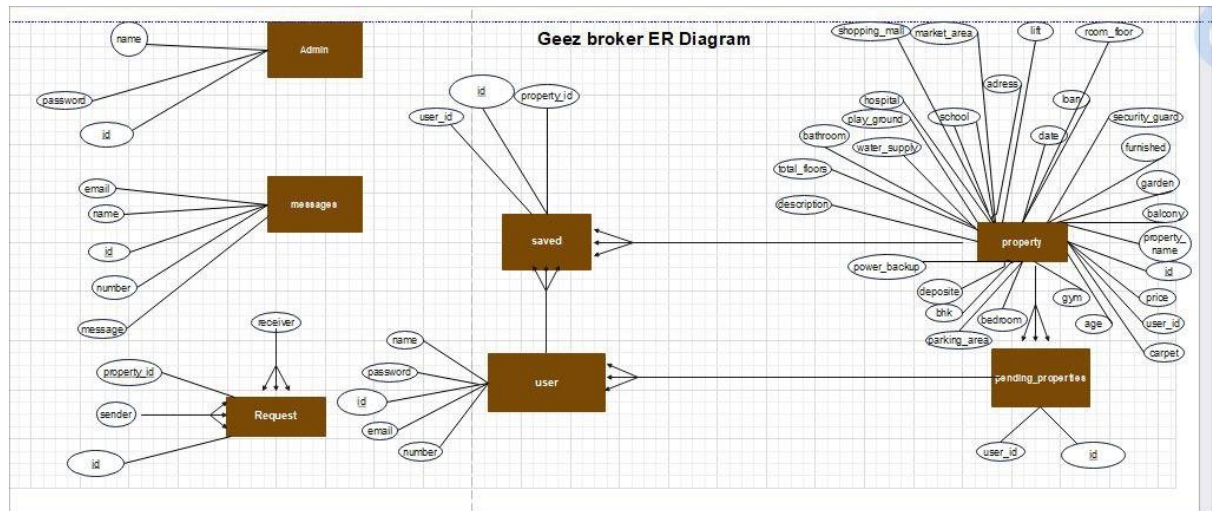
- **PaymentManager Class: (Planned for Future)**
 - Methods: ProcessPayment(), VerifyPayment()
- **AuthenticationManager Class: (Planned for Future)**
 - Methods: AuthenticateUser(), AuthorizeUser()
- **DatabaseManager Class: (Planned for Future)**
 - Methods: ConnectToDatabase(), ExecuteQuery(), UpdateDatabase()
- **NotificationManager Class: (Planned for Future)**
 - Methods: SendNotification(), ReceiveNotification()
- **AuthenticationManager Class:**
 - Methods: AuthenticateUser(), AuthorizeUser()

The class diagram illustrates the relationships between these classes, such as inheritance, association, and aggregation, to depict how they interact and collaborate within the Broker website system. It serves as a valuable tool for developers to understand the system's architecture and implement the required functionality effectively.

4.5 Database Model

4.5.1 Entity Relationship Diagram (ERD)

Below is an Entity Relationship Diagram (ERD) illustrating the database model for the House Broker website.



The database model for the Broker website outlines the structure of the database tables and their relationships, providing a foundation for storing and managing data efficiently.

Here's an overview of the database model tailored to your system:

✓ **User Table:**

Fields: UserID (Primary Key), Username, Password, Email

✓ **Property Table:**

Fields: PropertyID (Primary Key), Title, Description, Price, Location, BrokerID (Foreign Key)

✓ **Broker Table:**

Fields: BrokerID (Primary Key), Name, ContactInfo

✓ **Admin Table:**

Fields: AdminID (Primary Key), Username, Password

✓ **Message Table:**

Fields: MessageID (Primary Key), SenderID (Foreign Key), ReceiverID (Foreign Key), Content, Timestamp

✓ **Future Enhancements:**

- *Payment Table: (Planned for Future)*

Fields: PaymentID (Primary Key), UserID (Foreign Key), Amount, Timestamp

- *Authentication Table: (Planned for Future)*

Fields: AuthenticationID (Primary Key), User ID (Foreign Key), Token, Expiry

- *Notification Table: (Planned for Future)*

Fields: NotificationID (Primary Key), UserID (Foreign Key), Content, Timestamp

This database model reflects the current structure of the Broker website system, focusing on tables related to users, properties, brokers, admins, and messages. Additionally, it acknowledges the plans to incorporate future enhancements such as payment processing, authentication, and notification management into the database model.

4.5.2 Persistence Modelling

The database model outlined earlier can be implemented using a relational database management system (RDBMS) such as MySQL, PostgreSQL, or SQLite. In this implementation, each entity in the model corresponds to a table in the database, with attributes mapped to columns. Relationships between entities are established using foreign key constraints, ensuring data integrity and facilitating efficient data retrieval.

4.5.3 Mapping with Normalization

The database model adheres to normalization principles, aiming to reduce redundancy and enhance data integrity. The key normalization techniques applied include:

- ✚ **First Normal Form (1NF):** This ensures that each attribute contains atomic values, and there are no repeating groups within rows. By organizing data into distinct tables with each column containing atomic values, we avoid data duplication and maintain consistency.
- ✚ **Second Normal Form (2NF):** 2NF eliminates partial dependencies by ensuring that non-key attributes depend on the entire primary key. This is achieved by breaking down tables into smaller, more focused entities, where each table represents a single subject or entity.
- ✚ **Third Normal Form (3NF):** 3NF eliminates transitive dependencies by ensuring that non-key attributes depend only on the primary key and not on other non-key attributes. By further refining the database structure and organizing data to minimize redundancy, we improve data consistency and simplify data maintenance.

By applying normalization techniques, the database model is optimized for efficiency, scalability, and maintainability, ensuring that data is stored in a structured and normalized manner. This enhances data integrity and facilitates seamless data manipulation and retrieval operations within the Broker website system.

4.6 Subsystem Decomposition

Subsystem decomposition involves breaking down the Broker website system into smaller, more manageable subsystems, each responsible for specific functionalities or features. This decomposition facilitates a modular and organized approach to system development and maintenance. Here's a breakdown of the subsystems within the Broker website:

User Management Subsystem:

- ✚ Responsible for managing user accounts, registration, login, and authentication processes.
- ✚ Includes functionality for user profile management, password reset, and account activation.

Property Management Subsystem:

- ✚ Handles property-related operations such as listing, searching, viewing, and editing.
- ✚ Includes features for property categorization, pricing, location mapping, and image uploading.

Messaging Subsystem:

- ✚ Facilitates communication between users, brokers, and administrators.
- ✚ Supports features such as sending, receiving, and managing messages, notifications, and alerts.

Broker Management Subsystem:

- ✚ Manages broker accounts, profiles, and properties associated with each broker.
- ✚ Includes functionalities for broker registration, verification, and property portfolio management.

Admin Management Subsystem:

- ✚ Administers system-wide operations, including user management, property approval, and reporting.
- ✚ Provides functionalities for admin authentication, authorization, and access control.

Search and Filtering Subsystem:

- ✚ Implements search and filtering functionalities to enable users to find properties based on specific criteria.
- ✚ Includes features for location-based searching, price range filtering, and property type categorization.

Future Enhancements:

- ✓ **Payment Integration Subsystem: (Planned for Future)**
 - ✚ Integrates payment processing functionalities for property transactions and service fees.
- ✓ **Authentication Subsystem: (Planned for Future)**
 - ✚ Implements advanced authentication mechanisms such as two-factor authentication and social login.

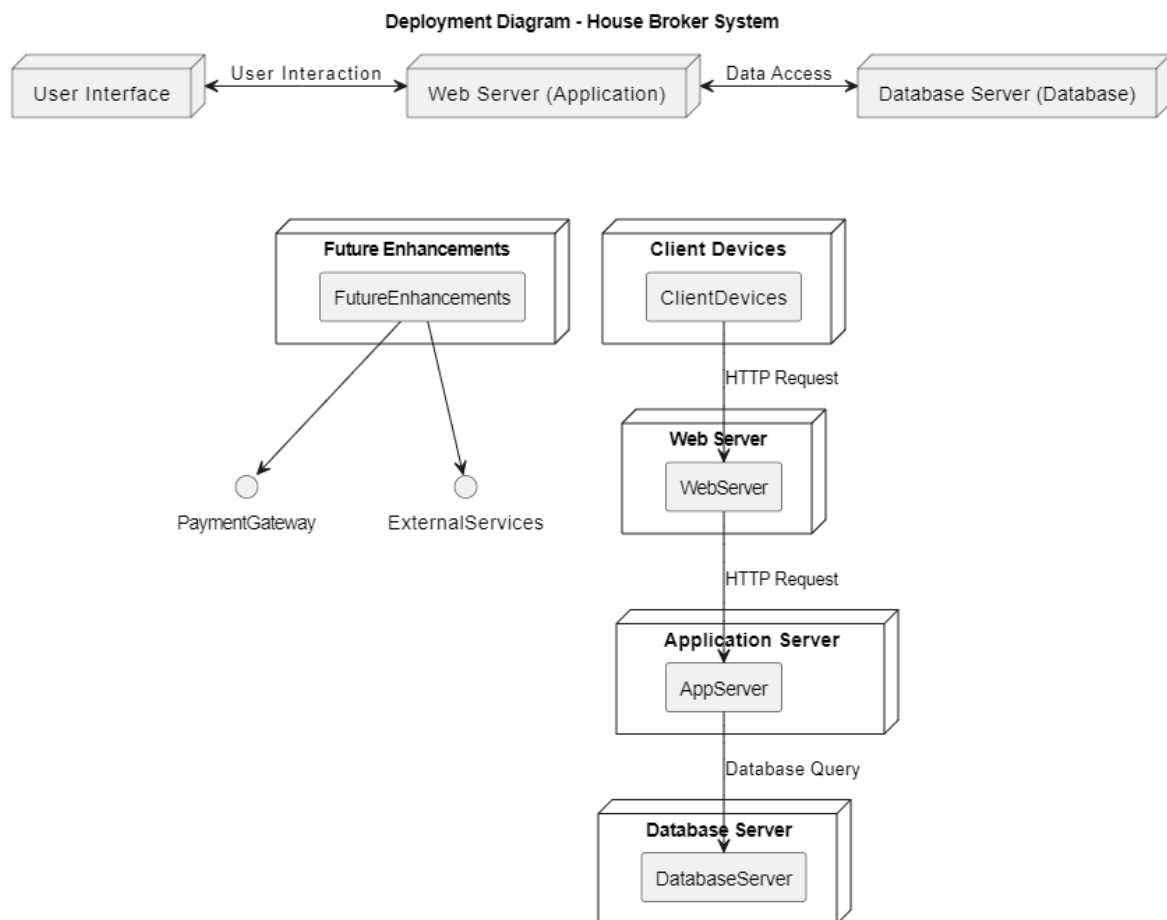
✓ **Notification Subsystem: (Planned for Future)**

- Manages notifications, alerts, and updates to keep users informed about relevant activities and events.

By decomposing the system into these subsystems, the development process can be organized, and responsibilities can be distributed effectively. Each subsystem can be developed, tested, and maintained independently, contributing to the overall efficiency and scalability of the Broker website system.

4.7 Deployment Diagram

The deployment diagram illustrates the physical deployment of the Broker website system, including the distribution of components across hardware nodes and networks. It provides insights into how the system is deployed in a real-world environment.



Here's a depiction of the deployment diagram for the Broker website:

Client Devices:

- Represents the various client devices such as desktop computers, laptops, tablets, and smartphones used to access the Broker website.

Web Server:

- Hosts the web application and serves web pages to client devices over the internet.
- Runs web server software such as Apache, Nginx, or Microsoft IIS.

Application Server:

- ✚ Executes the application logic and processes user requests received from client devices.
- ✚ Runs application server software such as Node.js, Tomcat, or Django.

Database Server:

- ✚ Stores and manages the system's data, including user accounts, property listings, and messages.
- ✚ Runs a relational database management system (RDBMS) such as MySQL, PostgreSQL, or SQLite.

Future Enhancements:

- ✚ Payment Gateway: (Planned for Future)
 - Represents the integration of a payment gateway service for handling online transactions securely.
- ✚ External Services: (Planned for Future)
 - Depicts connections to external services such as authentication providers, notification services, and mapping APIs.

This deployment diagram illustrates how the Broker website system is deployed across different hardware nodes and networks, enabling users to access the system from various client devices over the internet. It also highlights the potential for future enhancements such as integrating payment gateways and external services to enhance the functionality and user experience of the system.

4.8 System Architecture

The system architecture of the House Broker website is structured around a layered architecture pattern, facilitating modularity, scalability, and maintainability. Below, we provide an overview of the overall system architecture and detail the architectural patterns and styles employed:

4.8.1 Overall System Architecture

The overall system architecture of the House Broker website adheres to a layered architecture pattern, consisting of the following layers:

1. Presentation Layer:

- Responsible for presenting the user interface and interacting with users.
- Includes web pages, forms, and client-side scripts for user interaction.
- Communicates user inputs and actions to the application layer for processing.

2. Application Layer:

- Contains the business logic and application-specific functionality.
- Processes user requests, orchestrates interactions between different components, and executes business rules.

- Interacts with the data access layer to retrieve and manipulate data.

3. Data Access Layer:

- Manages data access and persistence.
- Handles interactions with the database, including querying, updating, and deleting data.
- Provides an abstraction layer for decoupling the application logic from the underlying data storage implementation.

4.8.2 Detail of Architectural Patterns and Styles

The House Broker website employs the following architectural patterns and styles to achieve its design goals:

- **Model-View-Controller (MVC):**
 - ✚ Used to structure the presentation layer, application layer, and data access layer.
 - ✚ Promotes separation of concerns, allowing for modular development and easier maintenance.
 - ✚ Facilitates code reuse and scalability by dividing the system into three interconnected components: model (data), view (presentation), and controller (logic).
- **Repository Pattern:**
 - ✚ Implemented within the data access layer to abstract data access operations.
 - ✚ Provides a centralized interface for accessing data from multiple sources, such as databases and external services.
 - ✚ Encapsulates data access logic, promoting code maintainability and testability.
- **Client-Server Architecture:**
 - ✚ Defines a clear separation between client-side and server-side components.
 - ✚ Enables distributed processing, with clients interacting with server-side services through well-defined APIs.
 - ✚ Facilitates scalability and performance optimization by distributing computational load across multiple servers.
- **RESTful Architecture:**
 - ✚ Utilized for designing web services that adhere to the principles of Representational State Transfer (REST).
 - ✚ Emphasizes stateless communication and resource-based interactions using standard HTTP methods (GET, POST, PUT, DELETE).
 - ✚ Enhances interoperability, scalability, and flexibility by promoting a uniform interface and decoupling client and server implementations.
 - ✚

By leveraging these architectural patterns and styles, the House Broker website achieves a well-structured, modular, and scalable system architecture, capable of meeting the demands of its users effectively while facilitating future expansion and maintenance.

4.9 User-Interface (UI) Design

The user interface (UI) design of the House Broker website aims to provide an intuitive and seamless experience for users, facilitating efficient property search, listing management, and transaction processing. Below, we outline the key aspects of the UI design:

4.9.1 Design Principles

The UI design follows these principles to ensure usability and user satisfaction:

- **Simplicity:** The interface is clean and uncluttered, with intuitive navigation and straightforward actions.
- **Consistency:** UI elements, layouts, and interactions are consistent across the website, enhancing usability and reducing cognitive load.
- **Accessibility:** The design prioritizes accessibility, ensuring that all users, including those with disabilities, can access and interact with the website effectively.
- **Feedback:** Users receive clear feedback on their actions, such as successful form submissions, error messages, and status updates.
- **Visual Hierarchy:** Important elements are emphasized through visual hierarchy, guiding users' attention and aiding comprehension.

4.9.2 Key Features

The UI design incorporates the following key features to support users' needs:

- **Property Search:** Users can easily search for properties based on location, price range, type, and amenities, with advanced filtering options for precise results.
- **Property Listings:** Property listings are presented in a visually appealing format, showcasing key details such as images, descriptions, prices, and contact information.
- **User Registration/Login:** Seamless registration and login processes allow users to create accounts, manage profiles, and save favorite properties for future reference.
- **Listing Management:** Property owners and real estate agents can manage their listings, including adding new properties, updating information, and marking properties as sold or rented.

- **Transaction Management:** Users can initiate, track, and manage property transactions, including inquiries, viewing appointments, negotiations, and contract signing.
- **Notifications:** The website sends timely notifications to users, informing them of new property listings, viewing appointments, transaction updates, and system announcements.

4.9.3 Design Elements

The UI design incorporates the following design elements to enhance usability and visual appeal:

- **Responsive Design:** The website is designed to be responsive, adapting seamlessly to different screen sizes and devices, including desktops, laptops, tablets, and smartphones.
- **Intuitive Navigation:** Clear navigation menus, buttons, and breadcrumbs enable users to move between pages and sections of the website effortlessly.
- **Visual Elements:** Consistent use of colors, typography, icons, and imagery creates a cohesive visual identity and reinforces the website's branding.
- **Interactive Components:** Interactive elements such as buttons, forms, sliders, and maps enhance user engagement and enable dynamic interactions.
- **Whitespace:** Adequate whitespace is used to improve readability, organize content, and create a sense of spaciousness within the interface.

4.9.4 Usability Testing

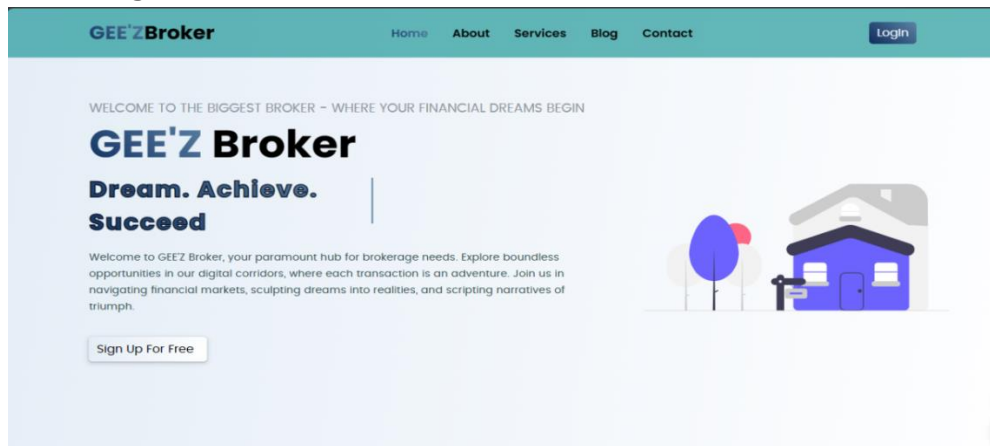
The UI design undergoes rigorous usability testing to identify and address usability issues, gather user feedback, and iteratively improve the design. Usability testing involves tasks such as user interviews, prototype testing, A/B testing, and heuristic evaluations.

By adhering to these UI design principles and incorporating key features and design elements, the House Broker website delivers a user-friendly, visually appealing, and functional interface that meets the needs of its diverse user base.

4.10 UI Flow Diagramming

The UI flow diagram visually delineates the sequential progression of user interactions within the House Broker website's user interface. Below is a formal representation of the UI flow diagram, illustrating the typical user journey:

➤ Home Page:



➤ Register Page:

The screenshot shows the registration page of GEE'Z Broker. The header is teal with the logo 'GeezBroker' on the left and a 'Go To Home Page' button on the right. The main content area has a light blue background. In the center, there is a white box titled 'Create An Account!'. Inside this box, there are five input fields: 'enter your name', 'enter your email', 'enter your number', 'enter your password', and 'confirm your password'. Below these fields is a link: 'already have an account? login now'. At the bottom of the box is a dark blue button labeled 'Register Now'.

➤ Login page:

The screenshot shows the login page of GEE'Z Broker. The header is teal with the logo 'GeezBroker' on the left and a 'Go To Home Page' button on the right. The main content area has a light blue background. In the center, there is a white box titled 'Welcome Back!'. Inside this box, there are two input fields: 'enter your email' and 'enter your password'. Below these fields is a link: 'don't have an account? register new'. At the bottom of the box is a dark blue button labeled 'Login Now'. In the bottom right corner of the page, there is a small watermark that says 'Activate Windows Go to Settings to activate Windows.'

➤ Search Page:

GeezBroker post property

My dashboard filter search about us Send Message saved account

Filter Your Search

enter location offer type

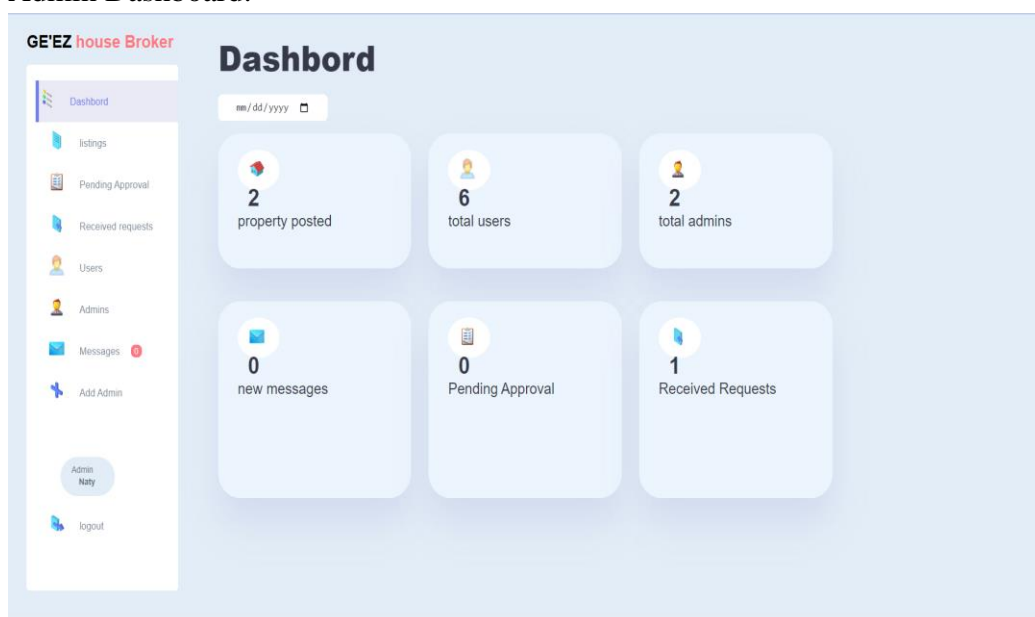
enter ciyt name sale

property type status

flat ready to move

Search Property

➤ Admin Dashboard:



➤ All Listing:

GE'EZ house Broker All listings

search listings...

12000 ETB
HAWASSA

view property
delete listing
Add to Pending

30000 ETB
HAWASSA

view property
delete listing
Add to Pending

Dashboard listings Pending Approval Received requests Users Admins Messages Add Admin Admin Naty logout

➤ All Users:

GE'EZ house Broker **USERS**

<p>name : Dagmawi lencho number : 0907310034 email : dagmawilencho@gmail.com properties listed : 0</p> <p>delete user</p>	<p>name : Dagmawi Lencho number : 0907310034 email : dagilencho@gmail.com properties listed : 2</p> <p>delete user</p>	<p>name : Natnael Alemayehu number : 0983274449 email : Naty@gmail.com properties listed : 0</p> <p>delete user</p>
<p>name : jeremiah number : 0912194159 email : jer@gmail.com properties listed : 0</p> <p>delete user</p>	<p>name : Muse Hadush number : 0922919549 email : Muse@gmail.com properties listed : 0</p> <p>delete user</p>	<p>name : Elsa number : +251989057 email : tsion8111@gmail.com properties listed : 0</p> <p>delete user</p>

Navigation Sidebar:

- Dashboard
- Listings
- Pending Approval
- Received requests
- Users**
- Admins
- Messages
- Add Admin
- logout

Reference

1. [Wendu Fikadu, .R (2008). "Brokers Research F." 3-20.]
2. Wikipedia , IAsk search engine, good and others websites.