Requirements Document

1. Introduction

1.1 Purpose

The goal of this Software Requirements Specification (SRS) is to specify the requirements for a real estate platform that will transform the real estate purchase process by using publicly available housing information and allowing customers to handle transactions fully online.

1.2 Scope

The software offers a comprehensive platform for house buyers, investors, and real estate professionals to access extensive property information, make comparisons, calculate ROI, and learn about the community. The platform will eliminate the middlemen (real estate brokers), simplifying and expediting the purchasing and selling process for local real estate investors. The real estate platform will be a web-based application providing a comprehensive suite of tools and features made to assist homeowners, homebuyers, investors, and real estate professionals in making informed decisions regarding property purchases. Within the scope of the project the system will include a detailed home comparison, a real time ROI calculator, and a neighborhood insights dashboard. Direct integration with financial institutions including mortgage approvals, 3d modeling of properties and property management tools are out of the scope of this project.

1.3 Definitions, Acronyms, and Abbreviations

ROI: Return on Investment
API: Application Programming Interface
MERN: MongoDB, Express, React, Node.js
SRS: Software Requirements Specification

1.4 References

HomeHarvest API

Google Places API

Yelp API

Crime Data API

Reality in US API

SchoolDigger k-12 School Data API

Realtor Data API

Crime Data by ZipCode API

Local Business Data API

TripAdvisor API

Zillow API

Forward and Reverse Geocoding API

Redfin.com data API

1.5 Overview

The remainder of this paper gives a comprehensive overview of the product, including its primary features, user types, and constraints. It then goes into depth on the detailed requirements for each system feature and component.

2. Overall Description

2.1 Product Perspective

The real estate platform is envisioned as a self-contained system that would transform the way people purchase, sell, and invest in real estate. While it will interface with a variety of third-party APIs for data retrieval and analysis, the platform's fundamental functionality and user experience will remain self-contained. The system will function within the larger context of the real estate market, enhancing existing services while offering a distinct value proposition through its feature set and emphasis on empowering users to make educated choices without the need for conventional real estate agents.

2.2 Product Functions

The 3 main functions of the product include:

Detailed Home Comparison
Real-Time ROI Calculator
Neighborhood Insights Dashboard

2.3 User Characteristics

The system caters to three main user types:

Single Home Buyers:
Individuals looking to purchase a home for personal use. Typically first-time or occasional home purchasers, who may have limited knowledge of real estate terminology and a broad overview of the process. These users are likely to use the platform intensively during their home search period, through desktop and mobile devices. Although likely to be used intensively for a short duration they are expected to drop site visitation until the next purchase.

Investors:

Professionals or individuals seeking to invest in real estate properties. These users generally have a high technical interest in the market as well as real estate terminology and investment strategies. Investors tend to focus on identifying properties with high ROI potential.

Real Estate Professionals:

This type of user tends to consist of licensed real estate agents, brokers, and other industry experts. They have an expert understanding of real estate procedures, rules, and market trends and are dedicated to supporting clients and handling various transactions.
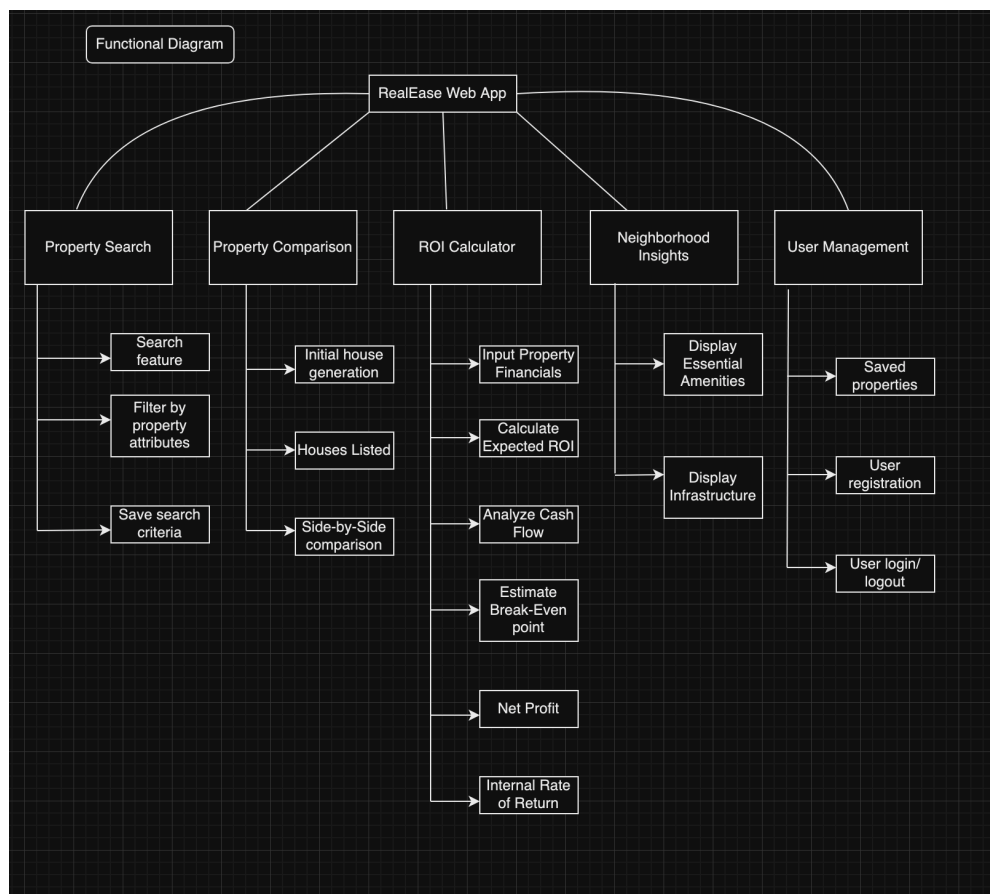
2.4 Constraints

Usability, money and resources, data quality, and technological limits are some of the constraints we expect to face and include into our plans. For example, the system must adhere to local and national real estate rules. Data privacy and security measures must be developed to secure user information, and the platform must be accessible and responsive across a wide range of devices and screen sizes. The user interface must be intuitive and accessible to users of various technical skill levels. The creation and continuing operation of the platform must be completed within the budgeted amount. The choice of technology and third-party services must strike a balance between functionality and cost-effectiveness. Property and neighborhood data must be kept up to date and accurate to ensure the platform's dependability. The system should be designed to work well within the constraints of typical web hosting setups. Finally, the integration with third-party APIs must take into account the rate limits and data use constraints imposed by these services.

2.5 Assumptions and Dependencies

Assumptions:

User adoption depends on the assumption that there is a strong market demand for an online-only real estate platform that does not use traditional real estate agents. The system is dependent on the constant availability of extensive and accurate real estate data from third-party APIs. It is assumed that the present regulatory climate will continue to allow online-only real estate transactions in the target areas. Furthermore, the chosen technology stack (MERN) and related tools must remain available and supported. The intended users are required to have basic knowledge of online and mobile apps, as well as dependable internet connectivity, in order to fully utilize the platform's capabilities. Finally, the platform's success depends on the assumption of generally steady real estate market circumstances that coincide with ROI calculations as well as other analysis tools.

Dependencies:

The platform is significantly reliant on third-party APIs for data retrieval and analysis, which must be available, reliable, and supported continuously. For premium features or

services, the platform relies on reputable payment gateways to ensure secure transactions. The scalability and dependability of the cloud hosting provider chosen are critical to the platform's functioning. Accurate mapping services are required for features like neighborhood insights and property location information. The platform may also rely on relationships with legal and compliance services to conduct real estate transactions. Real-time data feeds are critical for the accuracy of the ROI calculator and market analysis tools, which rely on current property prices, rental rates, and economic indicators. Finally, the quality of property listings and neighborhood insights may be determined by active user-generated material.

---

3. Specific Requirements

3.1 Functional Requirements

3.1.1 Detailed Home Comparison

Dashboard that will provide the user with a comprehensive summary/overview of the specific neighborhood given the city name or zip code, which the user would input. The dashboard will provide the user with info about the neighborhood, giving them a deeper understanding about the things around them as well as the community they would be joining. For instance, the user would enter a city name or zip code and then would receive a list of essential amenities and infrastructure.

Essential Amenities:

- Schools: Quality of education institutions in the area.
- Neighborhoods: List of neighborhoods and what demographic they contain (family, single, younger, …)
- Crime: Crime rate in the area.
- Demographic: What age and type of people make up the area.
- Food options: Nearby restaurants, grocery stores.
- Entertainment: Local attractions, parks, and recreational facilities.

- Hospitals: Proximity to healthcare facilities for emergencies and wellness.
- Libraries: Availability of community resources and learning spaces.

Infrastructure:

- Public transportation: Ease of commuting and accessibility.
- Public safety: Presence of police and fire stations for community protection.

3.1.2 Real-Time ROI Calculator

The system provides a tool for calculating potential ROI based on user input and real-time data. Users should be able to input purchase price, down payment, closing costs, property taxes, insurance, maintenance costs, rental income, sale price, and holding period. The system will then calculate and display net profit, annualized ROI, cash-on-cash return, break-even point, and internal rate of return (IRR). These calculations will be updated in real-time as users modify input values.

3.1.3 Neighborhood Insights Dashboard

We intend to provide a dashboard that will provide the user with a comprehensive summary/overview of the specific neighborhood given the city name or zip code, which the user would input. The dashboard will provide the user with info about the neighborhood, giving them a deeper understanding about the things around them as well as the community they would be joining. The dashboard will display information on schools, neighborhoods, crime rates, demographics, food options, entertainment, hospitals, libraries, public transportation, and public safety. Therefore, data shall be presented in an easy-to-understand format with visual aids where appropriate.

3.2 Interface Requirements
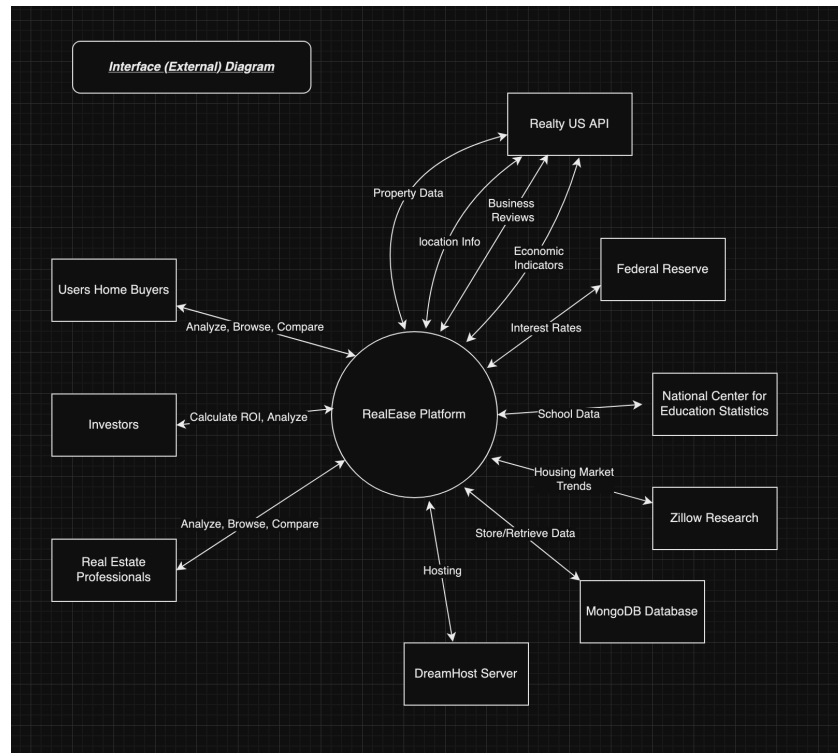
3.2.1 User Interfaces

The user interface of our software aims to be responsive and adaptive in order to seamlessly respond to different sizes and devices, including desktops, tablets, and mobile devices. We intend to follow modern web design standards and principals, to ensure easy navigation and clear information. For instance a clear color scheme and typography, aligned with brand guidelines, will be consistent across the application.

3.2.2 Software Interfaces

The system must interact with several third-party APIs for data retrieval, such as criminal statistics, school information, real estate listings, and local company data. Also a secure API gateway will be used to manage all external API connections.

3.3 Performance Requirements

The system must handle several concurrent users without significantly reducing performance. Search results and computations must be provided within 3 seconds of user input under typical network circumstances. Also the system will be available 99.9% of the time, barring scheduled maintenance times.

4. Appendixes

Appendix A: Glossary of Terms

API: Application Programming Interface

MERN: MongoDB, Express, React, Node.js

ROI: Return on Investment

SRS: Software Requirements Specification

Appendix B: List of Referenced APIs

HomeHarvest API

Google Places API

Yelp API

Crime Data API

Reality in US API

SchoolDigger k-12 School Data API

Realtor Data API

Crime Data by ZipCode API

Local Business Data API

TripAdvisor API

Zillow API

Forward and Reverse Geocoding API

Redfin.com data API

Appendix C: User Types and Characteristics

Single Home Buyers

Investors

Real Estate Professionals