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Developing a Dynamic Real Estate Listings Portal with User-Friendly Design

Home project in subject: Building Distributed Systems

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Masters in Information
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Author's declaration of originality

I hereby certify that I am the sole author of this thesis and this thesis has not been presented for examination or submitted for defence anywhere else. All used materials, references to the literature and work of others have been cited.

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1 Introduction

As technology advances rapidly, the real estate industry has experienced a major shift. Online real estate websites have significantly changed how buyers, sellers, and professionals find and deal with properties. These websites have created new opportunities for market analysis, data gathering and decision-making that have not been properly utilized. Ranging from user experience issues to technological limitations. This thesis aims to address these challenges by developing a sophisticated real estate listings portal, leveraging the latest technological advancements to enhance user interaction and market accessibility.

The primary objective of this thesis is to solve key problems present in current real estate portals. These problems include suboptimal user interface design and the lack of personalization in property recommendations. By addressing these concerns, the project seeks to significantly improve user-friendliness resulting in user-friendly design.

1.1 Background and Rationale

In recent decades, the rapid advancement of technology has totally transformed numerous industries, with the real estate sector being no exception. The online real estate portals have revolutionized the way individuals and real estate brokers engage in the buying, selling and renting of properties. These platforms have streamlined property transactions and introduced new opportunities for market analysis and data utilization. Despite these advancements there remain challenges that have yet to be fully addressed. The purpose of this thesis is to explore these challenges and develop a real estate listings portal which enhances user interaction and accessibility compared to already existing real estate listing portals.

1.2 Problem Statement

While online real estate portals have simplified the process of property transactions, they exhibit a pattern of suboptimal user interface designs and lack personalized property recommendation features. These limitations can lead to user frustration, inefficient property searches, and missed opportunities for both buyers and sellers. The goal of this

thesis is to identify and address these key problems and create a real estate portal with improved user-friendliness.

1.3 Objectives of the Study

The primary objective of this study is to develop a dynamic and user-friendly real estate listings portal. This involves:

- Designing an intuitive and aesthetically pleasing user interface that simplifies navigation and property search.
- Implementing personalized recommendation features to enhance user experience and match users with suitable properties more effectively.

1.4 Scope and Limitations

This study will focus on the design and development of a real estate listings portal. The scope includes user interface design and implementation of basic personalization features. The study will not include financial aspects of real estate transactions or any integration of legal frameworks.

1.5 Structure of the Thesis

The thesis is structured as follows:

- **Chapter 2: Analysis** – This chapter will provide an analysis of existing online real estate portals.
- **Chapter 3: Methodology** – The tools used in the creation of the portal.
- **Chapter 4: Development of the Real Estate Listings Portal** – This chapter will cover the process of designing and developing the portal, including the implementation of user interface and personalization features.
- **Chapter 5**: **Summary** – This chapter will summarize the development and its findings. Acknowledge found limitations, and suggest areas for future research.

2 Analysis

This chapter provides a general overview and essential understanding of the current advancements in the real estate market, and how the advancements benefit real estate listing portals by creating better user experience. In addition, this chapter offers an analysis of currently active real estate portals in Estonia.

2.1 Modern Advancements of Real Estate Listing Portals

The real estate market in 2024 is undergoing significant transformations driven by technological advancements, shifting market dynamics, and evolving consumer behaviors. Key trends include:

- **PropTech Sector Development:** Primarily focused on profitability of online rental screening software to improve rent payment reporting and to prevent possible fraudulent activities by tenants. The screening software are offered by real estate listing portals like realtor.com. [1] [2]
- **Sustainability and Eco-Friendly Listings:** With a growing focus on building energy-efficient building, the demand for low energy cost homes as increased. [3]
- **VR and AR for Property Viewing:** Virtual Reality (VR) and Augmented Reality (AR) are transforming property viewing experiences. These technologies allow users to take virtual tours of properties, offering a more immersive and detailed perspective than traditional photos or videos. [4]

2.2 State of Active Real Estate Portals in Estonia

This chapter will cover three different Estonian real estate portals.

- **kv.ee**
- **city24.ee**
- **kinnisvara24.ee**

Two of these portals, **kv.ee** and **city24.ee** use a REDE (Real Estate Data Exchange) standard which hasn't been updated since the year 2007. It also includes a variety of outdated, set in stone examples and guidelines. [5]

Table 1. Comparison of User Data in Estonian Real Estate Portals 20.02.2024

	Price/Month (€) Cheapest Sale Listing	Active Listings (Rent)	Active Listings (Sale)	Visitors/Day
kv.ee	37.99€ [6]	6129 [6]	16 433 [6]	104 951 [6]
city24.ee	33.9€ [7]	6040 [8]	13 560 [8]	~ 25 000 [9]
kinnisvara24.ee	12.5€ [10]	4713 [11]	11 998 [11]	~ 27 000 [12]

The number of visitors actively updating can only be found in **kv.ee.** For **kinnisvara24.ee** an estimated number can be found in a blog post and for **city24.ee** the estimated number is mentioned on their contacts page.

From the three previously mentioned options (**see** 2.1 Modern Advancements of Real Estate Listing Portals, **page** 6) only Sustainability and Eco-Friendly Listings are accounted for in Estonian Real Estate Listing Portals. This mainly comes from Estonian Business and Innovation Agency offering a housing loan guarantee with 10% of the estates price as self-financing for energy efficient homes while for others, banks require at least 15% self-financing. [13]

2.2.1 User Interface

All three real estate portals offer initially visible filters and their own version of advanced filters. Well compare how many filters each portal offers for Property Type: flat. First, we have **kv.ee** with 11 easily accessible filters at the top of the page.
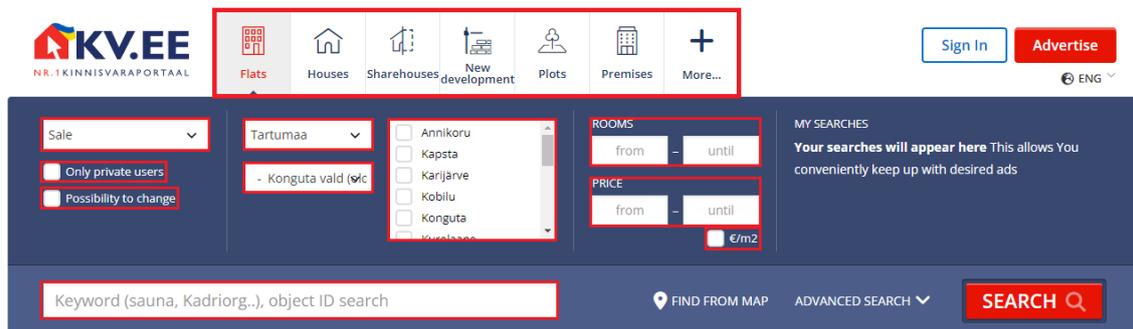
Figure 1. kv.ee initial filters

After clicking on advanced filters, a sub section opens offering another 11 filters.
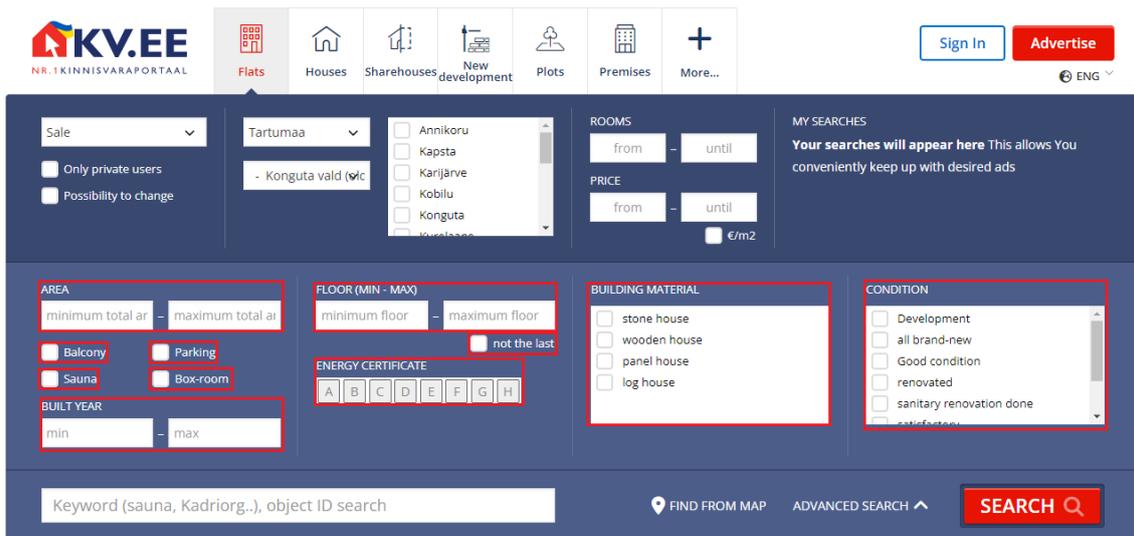
Figure 2. kv.ee advanced filters

Like **kv.ee** filters at the top of the page are also offered by **city24.ee**. This portal offers 14 initially visible filters which is the most of all three portals. But in return 11 of the filters are hidden behind another click to open a dropdown before any values can be set.
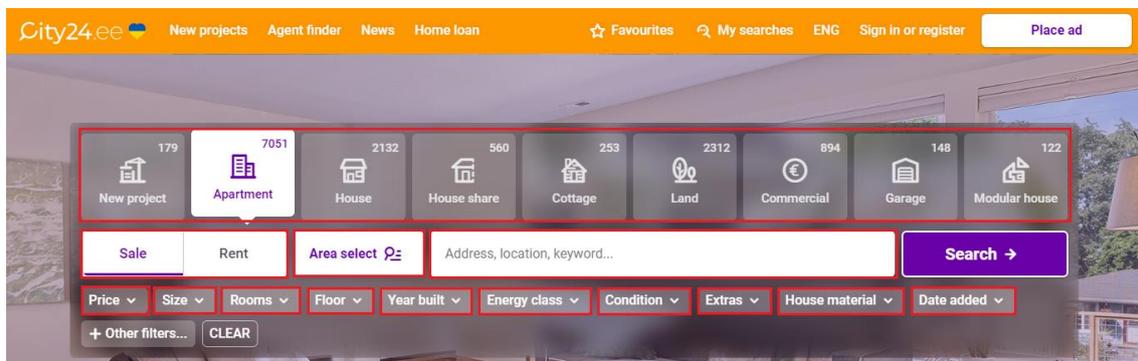
Figure 3. city24.ee initial filters

This is also the case for advanced filters ("Other filters" on **city24.ee**). This exposes another 5 filters inside a dropdown.
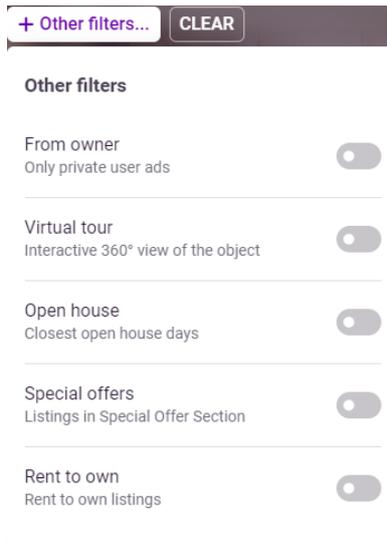
Figure 4. city24.ee advanced filters

kinnisvara24.ee offers filters on the left side of their webpage. With 10 initial filters and 19 filters hidden behind advanced filters ("Detailed search" on **kinnisvara24.ee**).
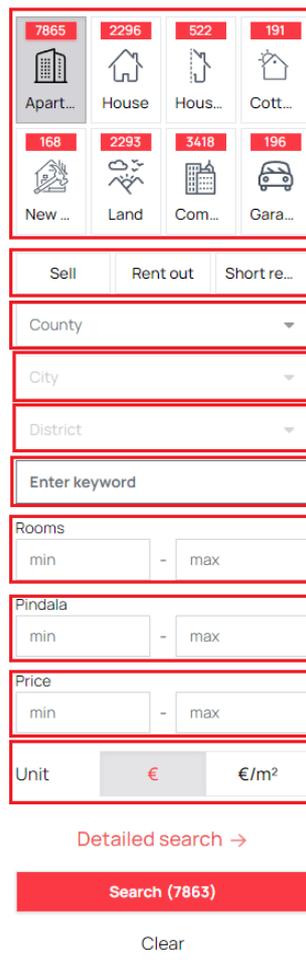
Figure 5. kinnisvara24.ee initial filters

Clicking on "Detailed search" opens a modal in the middle of the page with another 19 filters.

Figure 6. kinnisvara24.ee advanced filters

3 Methodology

.NET 8, C#, Javascript, Figma

4 Development of the Real Estate Listings Portal
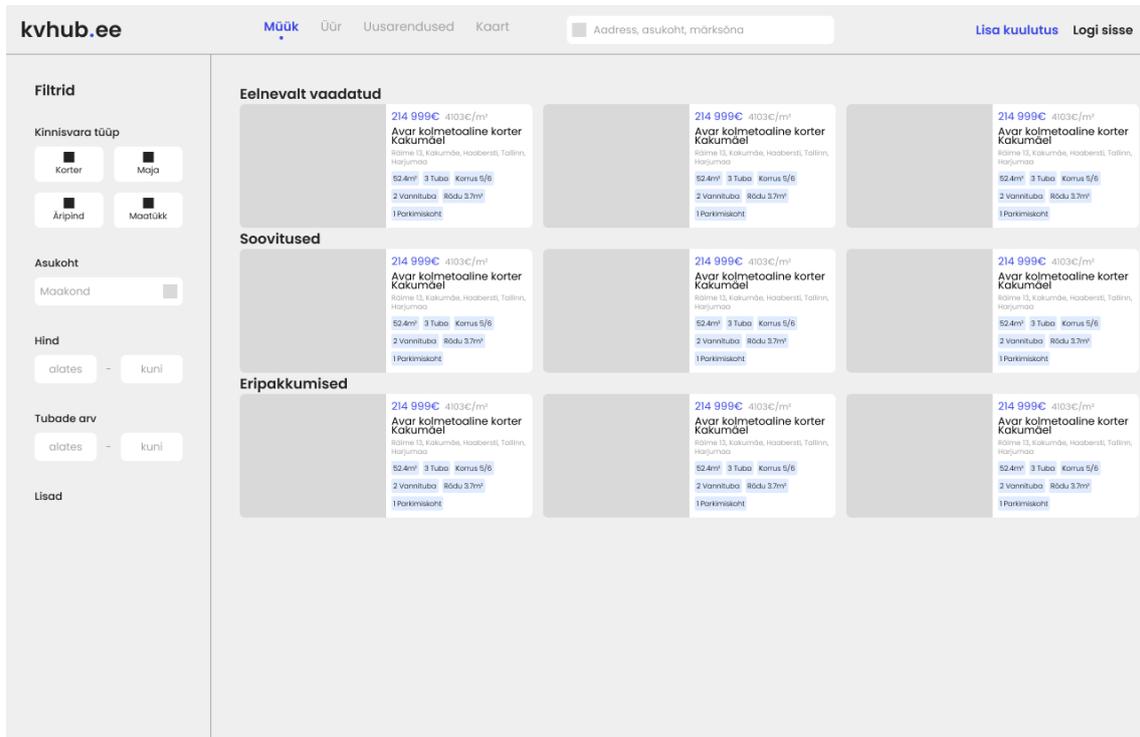

Figure 7. Figma design of product landing page.
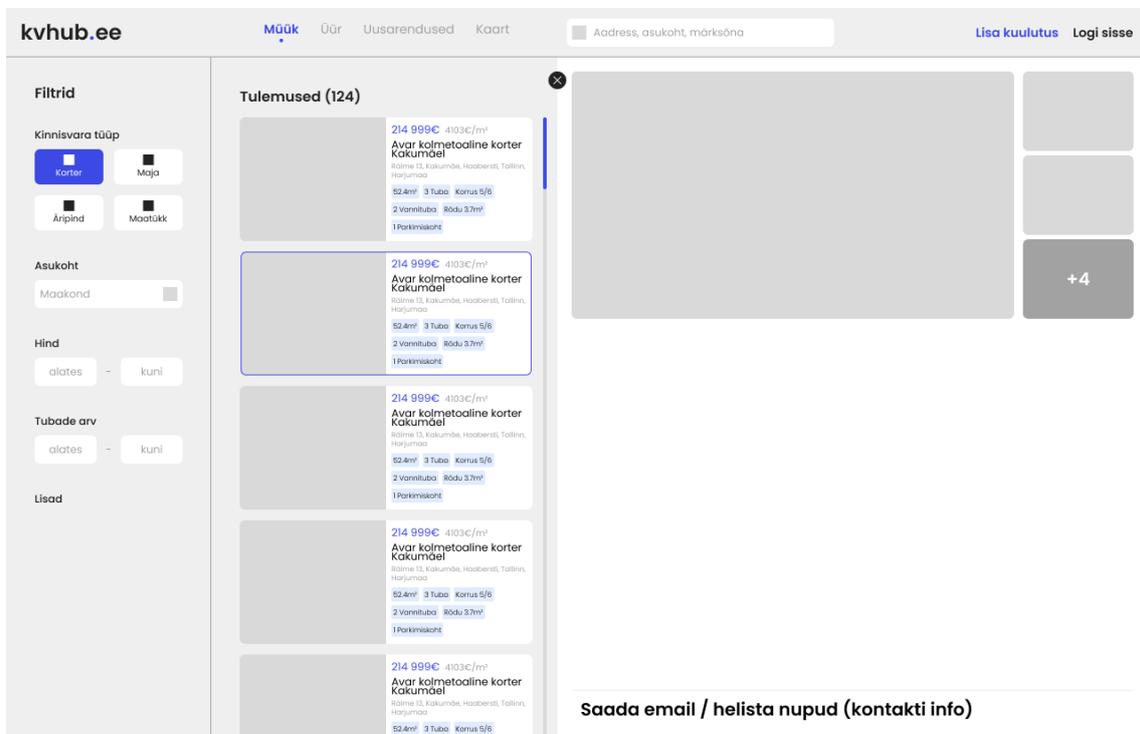
Figure 8. Figma design of product listings search page
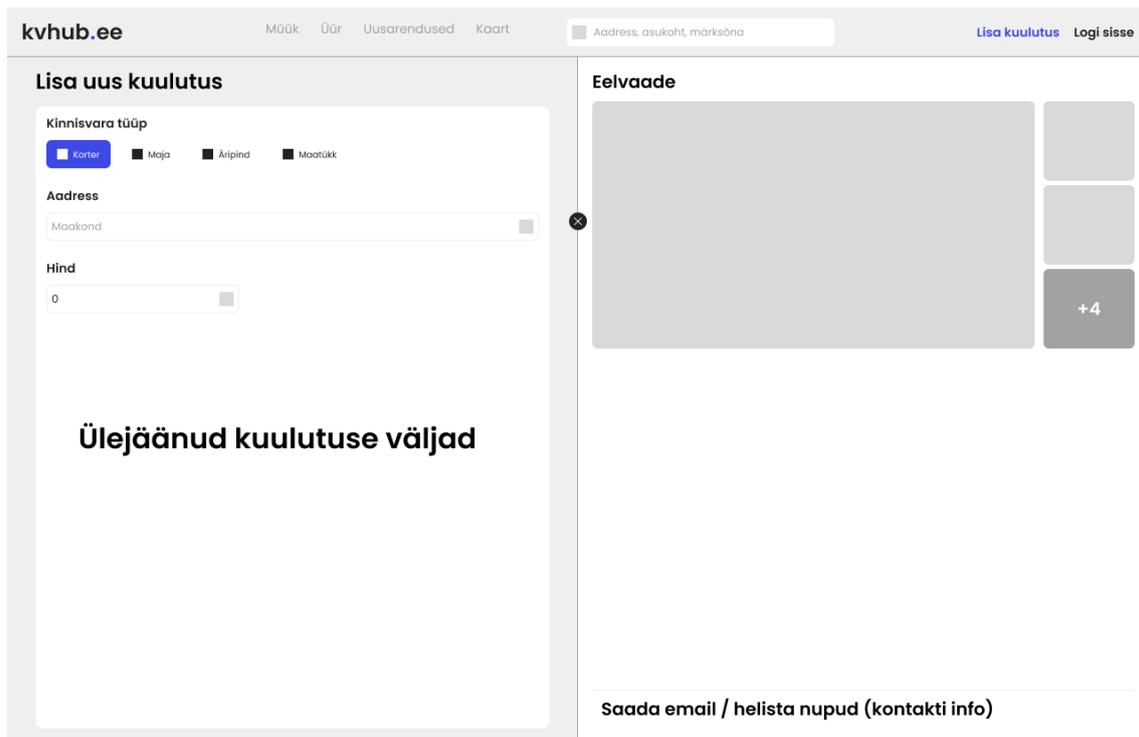
Figure 9. Figma design of product add listing page
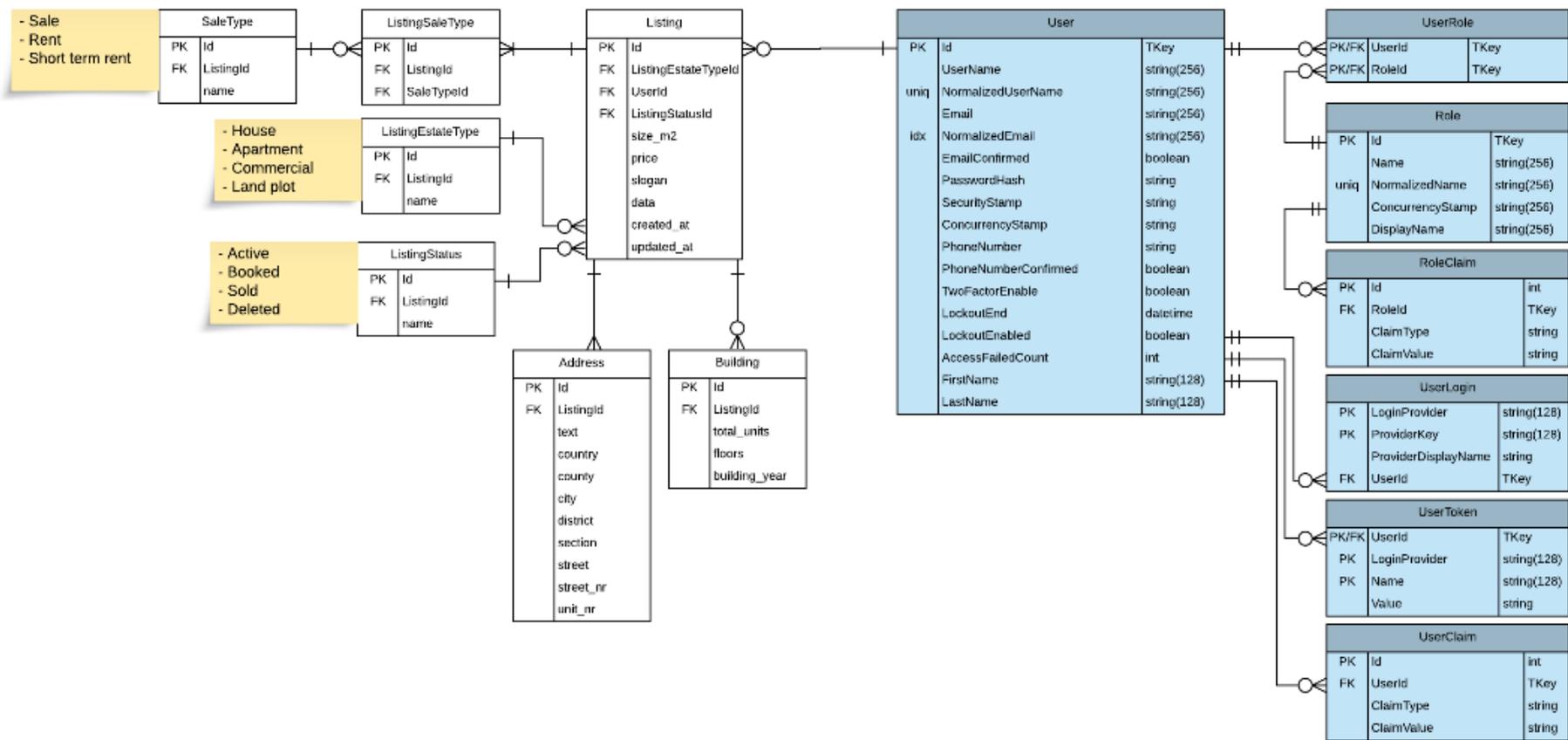
Figure 10. Project ERD

5 Summary

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