

Project HomeFinder

1st Ilian Sebti

Department of Engineering
Hanyang University
Seoul, Korea
Group HomeFinder
ilian.sebti@edu.devinci.fr

2nd William Olsson

Department of Engineering
Hanyang University
Seoul, Korea
Group HomeFinder
lobbeolsson@gmail.com

3rd Nina Lauria

Department of Engineering
Hanyang University
Seoul, Korea
Group HomeFinder
ninalauria01@gmail.com

4th Enkhjin Puntsagnorov

Department of Engineering
Hanyang University
Seoul, Korea
Group HomeFinder
enhjinnasaa48@gmail.com

5th Jeong JinYeong

Department of Engineering
Hanyang University
Seoul, Korea
Group HomeFinder
tttjjjyyy1234@daum.net

Abstract—For our project, we would like to develop a new website that shifts the focus of property search away from geographical features and onto the immediate surroundings of a potential new home. The purpose of this project is to refine and tailor the apartment search experience to the users’ needs. Users should be able to filter their search based on self-selected criteria to obtain the best results for them. The website should have the capability to find all available listings that meet the user’s chosen filters. The results will be displayed on a map, and users can save these results to their favorites for future reference. The advantage of such a search is that users won’t have to conduct their own research to discover what’s nearby the apartment. With the map-based search, it’s easy for users to see the Points of Interest in the vicinity of the location. With enough input data, the website can suggest the best home for the user, making the apartment search more enjoyable and time-saving.

I. ROLE ASSIGNMENTS

Roles	Name	Task description and etc.
User	Nina Lauria	Users navigate through the platform, employing various filters to refine their home searches, while also utilizing functionalities like sorting and favoriting to enhance their experience. They may create accounts for personalized interactions and seek assistance through help sections when needed.
Customer	Ilian Sebti	Customers, such as real estate agencies or sellers, manage their property listings on the platform, ensuring accurate and appealing presentation. They utilize provided analytics and insights to understand market trends and user behavior, adjusting their strategies to enhance visibility and engagement accordingly.

Software developer	Jeong JinYeong / Enkhjin Puntsagnorov	Software developers engage in coding, testing, and optimizing the platform, ensuring its functionalities from search features to data security are robust and user-friendly. They collaborate with stakeholders to align technological implementations with the platform’s vision, ensuring scalability and adaptability to evolving technologies.
Development manager	William Olsson	Development managers oversee the platform’s development process, ensuring alignment with quality and requirements. They manage task distribution among the software development team, facilitate resolution of challenges, and ensure the project adheres to timelines and budgets, while maintaining a focus on quality and user experience.

II. INTRODUCTION

A. Motivation

Our motivation initially sprung from our personal struggles and those of others around us. The collective frustration regarding the conventional online house hunting experience, the endless tabs, the disjointed correlation between home and locality, and the exhaustive manual research struck a chord with us. We realized that while physical properties of a home (such as size, number of rooms, etc.) are pivotal, the impact of location features on the living experience was a significantly underrepresented factor in existing platforms.

We believe that a home is not just a physical space but an environment that significantly influences one’s quality of life. Recognizing the paramount importance of convenience,

accessibility, and connectivity in modern living, we were driven to devise a solution that prioritizes these aspects. Our platform is not just a tool; it's a companion that assists users in finding a home that resonates with their lifestyle, needs, and preferences.

We were also motivated by the prospect of empowering users to make well-informed decisions. By presenting a visual, map-based experience, we offer users a comprehensive view that enables them to evaluate and compare homes based not just on the properties but also on the surrounding infrastructures, such as transportation links, grocery stores, schools, and hospitals. This integrative approach ensures that users can visualize their life in a potential home, foreseeing the conveniences and challenges that the location presents.

B. Problem Statement

The process for creating the problem statement involved several steps. Initially, we identified the problem area of apartment hunting, focusing on the issue that location features are often not adequately considered when searching for a new home. Next, we analyzed the causes and effects of the problem and developed a potential solution.

Following that, we conducted a user forecast to determine our primary target audience and identify other potential beneficiaries of our product. The user forecast also aimed to validate whether there is indeed a demand for such a product.

Online searching for a new abode generally bases itself on the physical properties of the house or apartment. Prioritizing these properties over location features results in an incomplete picture and search experience. Even though the search results are displayed on a map, you still have to research manually to find out where the necessary things are located near your potential new home.

For this reason, we create a platform that turns the search for a new place to live into a visual, map-based experience. It is easy to see which Points of Interest are located near the places you are looking at, and you also see how to get there. Moreover, with sufficiently input data, we could actually suggest the best home for the user.

The solution is suitable for users who do not have to live in a specific place but rely on the availability and connection (transportation) around the property. Companies can use the aggregated data from the real estate platform to understand needs and incorporate the insights into real estate development and real estate pricing.

III. RELATED SOFTWARE

A. Zillow

Zillow is an online real estate marketplace that provides a plethora of data related to available properties, including price estimates, aerial views, and comparative market analyses.

While Zillow does present a wide array of property options with basic location mapping, our platform aims to go a step further by intensively integrating location features into the search experience. Zillow tends to prioritize physical property features and pricing data, whereas our platform is envisaged

to offer a visual, map-based searching experience that prominently highlights Points of Interest (POIs) and demonstrates how to navigate to them.

B. Zigbang

Zigbang stands as the premier real estate Service in South Korea, boasting over 30 million users and a wealth of user data. Not only does it sustain a dominant market presence, but it is also dynamically expanding its offerings by introducing an array of services such as 'IoT service' and 'VR Home Tour service', complementing their staple 'on-tact real estate sales service'. Zigbang notably runs a 'real estate recommendation service' which closely mirrors our 'HomeFinder', characterized by:

- Recommending properties using parameters like school districts, transportation accessibility, and selling prices.
- Enabling users to stay abreast of new listings in real-time via the Favorites feature.

Despite its strengths, Zigbang's recommendations hinge on a limited set of criteria, such as school district and selling price. In contrast, HomeFinder enhances the personalization of its service, recommending properties based on an expanded range of criteria that also encompasses nearby gyms, cafes, and convenience stores.

C. Dabang

Dabang, the second-leading real estate Service in South Korea, has secured 20 million users, providing it with a substantial data reservoir, albeit not as extensive as Zigbang's. Dabang excels in customization within its fundamental service, "on-tact real estate sales service", standing distinctively in comparison with Zigbang by recommending properties based on a multifaceted set of criteria: selling price, property type (rental, lease, sales), square footage, number of floors, parking availability, and elevator availability, among others.

Nonetheless, the service is not without its shortcomings, chiefly that its criteria predominantly spotlight the property's internal characteristics. While the internal facets of a residence are undeniably significant, external factors like proximity to convenience stores and gyms also wield importance in enhancing life quality. Hence, HomeFinder aims to uplift user satisfaction by recommending properties that judiciously consider both internal and external conditions.

D. Naver Real Estate

Naver Real Estate, being the third largest real estate service in South Korea, carries its own set of strengths concerning capital, brand recognition, and a substantial user pool, owing to its inception by Naver, a prominent IT conglomerate. Unlike its counterparts, this service prioritizes information dissemination over direct transactions. Leveraging the robust platform of Naver, it dominates in real estate listings, claiming a remarkable 95 percent share.

Nevertheless, like Zigbang and Dabang, Naver Real Estate concentrates solely on providing a filtering function for the internal conditions of a property and makes uploading photos to

visualize property conditions a challenging task. HomeFinder, therefore, aspires to boost user satisfaction by recommending properties with a balanced consideration of both internal and external conditions, and facilitating the provision of photos to assess the property's condition.

IV. REQUIREMENTS

The information architecture of the website is well-structured and logically constructed. The main categories of the website are the homepage, the resultpage, the detail page, and the contact page.

A. Homepage

- The website must be capable of filtering user searches based on selected criteria, such as location, price range, property type, number of rooms, etc.
- Users should be able to select as many search filters as they wish to refine their search results according to their preferences and needs.
- Intuitive and interactive user interface components should be employed to facilitate easy navigation and usage of search filters.

B. Result Page

- Results should be displayed along with a dynamic map to provide users with a clear spatial understanding of the property locations relative to various Points of Interest.
- The map should be interactive, allowing users to zoom, pan, and click on property markers for more detailed information.
- Users should have the ability to sort search results based on various parameters, such as price (ascending and descending), proximity to Points of Interest, property size, etc.
- The sorting functionality should be straightforward, enabling users to quickly rearrange their search results according to the selected parameter.

C. Favorites Page

- Users should be able to add listings to their favorites for easy access and future reference.
- The favorites page should provide a simplified view of the selected properties, with options to visit the detailed view or remove items from the favorites list.
- It would be beneficial to allow users to categorize or label their favorites for enhanced organization and retrieval.

D. Account Creation Page

- Users should be able to create an account using a simple and secure sign-up process, with necessary validations to ensure data accuracy and security.
- Account management options should be provided to allow users to update their personal information, preferences, and password.

E. View of Nearby Services

- "Nearby Services" provides users with detailed information about essential amenities, such as grocery stores, schools, healthcare facilities, and public transportation options in the vicinity of rental properties.
- Users can access comprehensive details about these services, including their operating hours.

F. Rental term

- User can filter the duration of rent. So that available apartment or house will be shown as time by time. This filter allowing users to select the duration of the lease they are looking for.

G. Accessibility

- User should be able to see the accessibility of apartment.
- Accessibility filter provide a quick view of stairs and elevator information. For each apartment list, collect and store information about the number of floors and the presence or absence of elevators in that apartment.