

**Mini Project.**

MulticampusDataAnalysis&EngineeringBootcamp34

# Seoul Real Estate Market Insights

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# oul Real Estate arket Insights

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**1.** Overview

**2.** Documentation

**3.** Features

**4.** Expectations

**5.** Limits & Improvements

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# 1 Overview

## — Target Analysis

Real Estate Investor



Analyze market trends and investment opportunities primarily for financial gain

Real Estate Agency



Accurately provide property listings and market trends to customers

General Trader



Primarily value real estate market information based on personal needs

**Goals**

## Key Objectives

---

1

### In-depth Understanding of Data

Analyzing apartment sales data from various perspectives to identify market trends and patterns

2

### Interactive Dashboard

Building an intuitive dashboard that allows users to explore and filter data easily

3

### Visualizing Regional Trends

Visualizing sales data by region to analyze and present real estate market trends

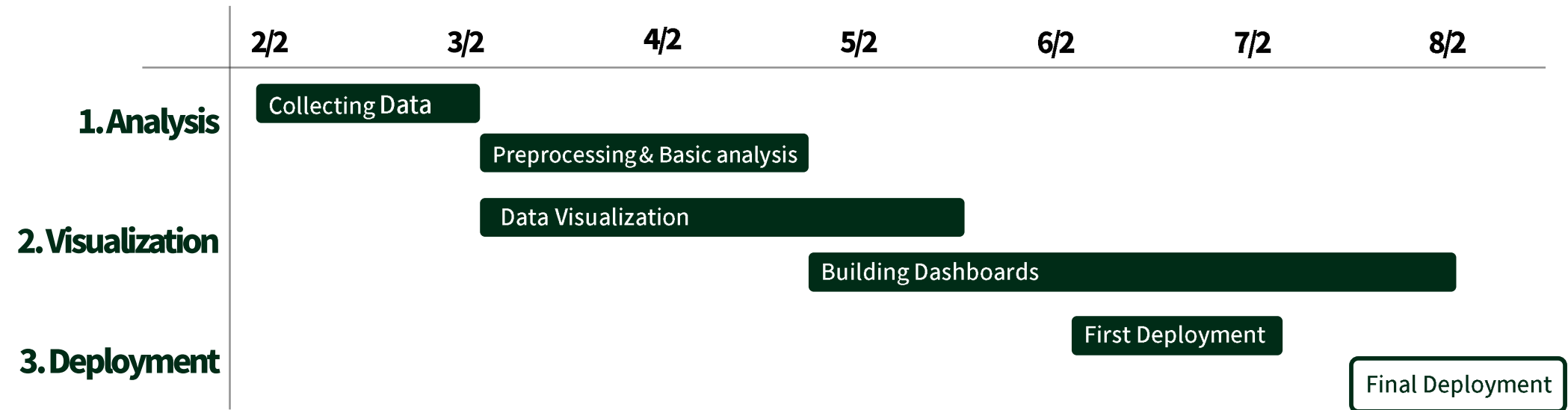
4

### Decision Support

Support data-driven decision-making through analysis based on information

# SCHEDULE

Project Duration  
02.02~08.02



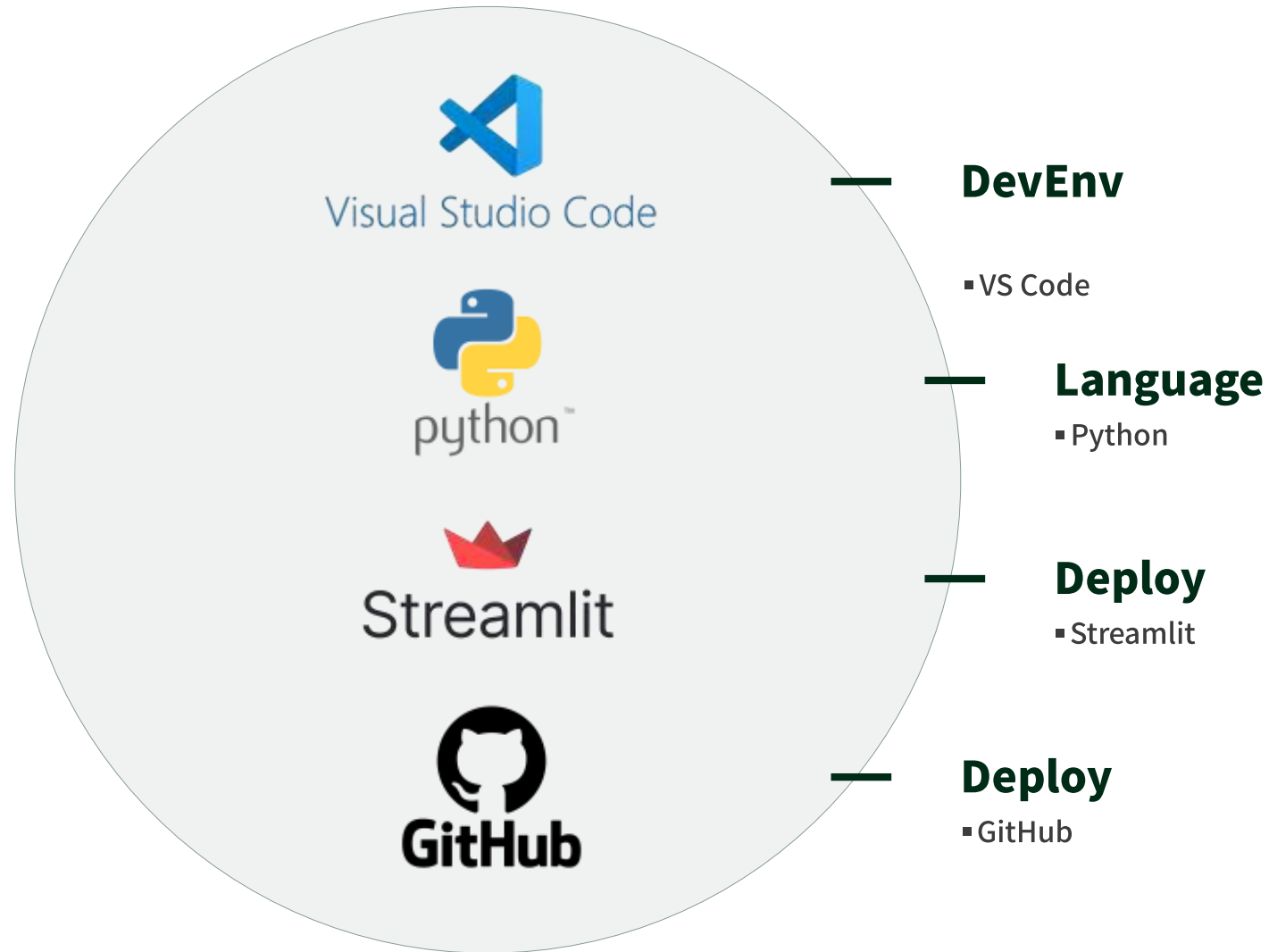




# 2

## Documentation

## — Development Environment

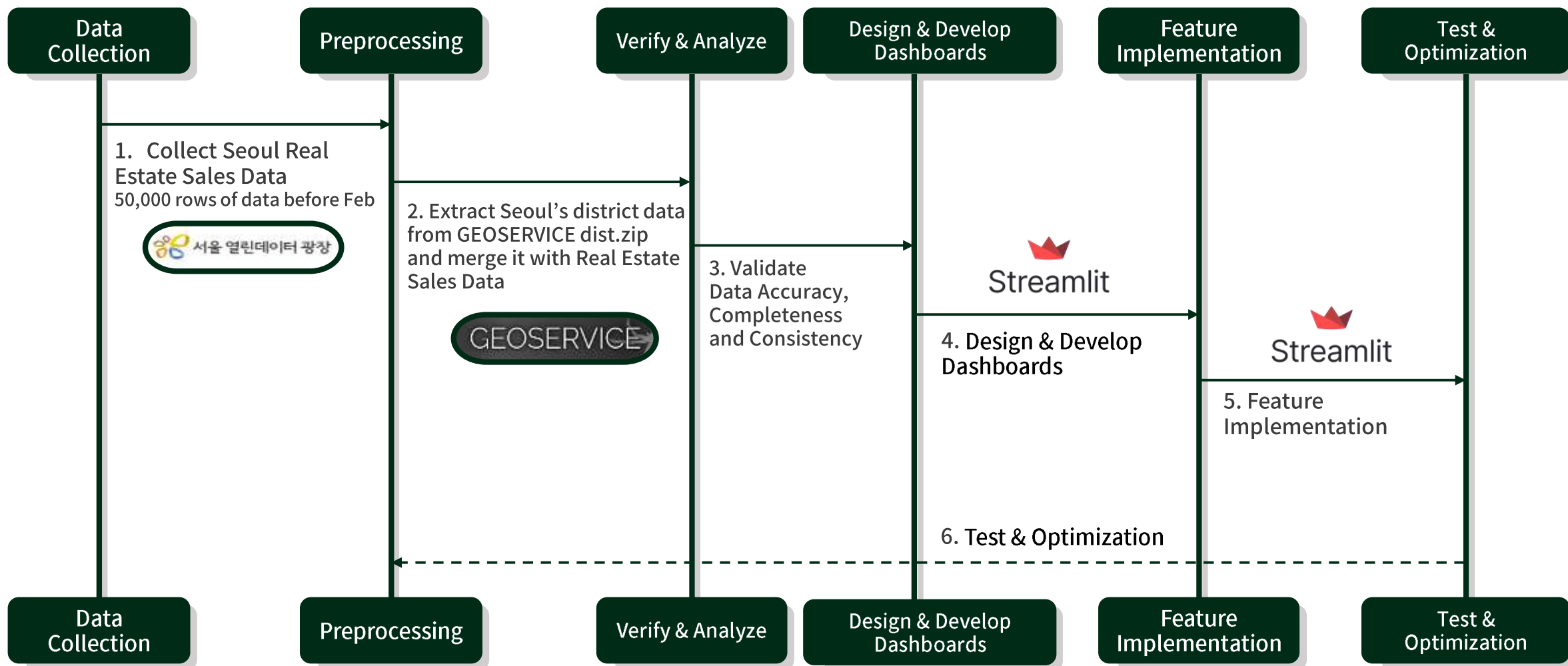


## Libraries Used

- Pandas
- Plotly
- Matplotlib
- Streamlit
- Geopandas
- Numpy
- Jupyterlab
- Folium
- Streamlit-folium



# Work-Flow



WBS

Work Breakdown Structure

	2 / 2	2 / 3	2 / 4	2 / 5	2 / 6	2 / 7	2 / 8
Select a Topic							
Collect Data							
Merge Data							
Connect Geodata							
Visualization							
Build Dashboards							
Streamlit Deploy							
Final report							

All

Analyze

Develop



- ACC\_YEAR
- SGG\_CD
- SGG\_NM
- BJDONG\_CD
- BJDONG\_NM
- LAND\_GBN
- LAND\_GBN\_NM
- BONBEON
- BUBEON
- BLDG\_NM
- DEAL\_YMD
- OBJ\_AMT
- BLDG\_AREA
- TOT\_AREA
- FLOOR
- RIGHT\_GBN
- CNTL\_YMD
- BUILD\_YEAR
- HOUSE\_TYPE
- REQ\_GBN
- RDEALLER\_LAWNDNM

geo\_data

SIG\_CD

SIG\_ENG\_NM

SIG\_KOR\_NM

geometry



The background is a dark green, monochromatic illustration. It features a dense city skyline with various skyscrapers. Overlaid on the city are numerous data visualization elements: bar charts, line graphs, pie charts, and circular progress indicators. Some of these charts contain numerical data. A large, semi-transparent white rectangle is centered over the image, serving as a backdrop for the main text. The overall aesthetic is modern and tech-oriented, suggesting a focus on data analysis or urban planning.

# 3 Features

# Basic Analysis

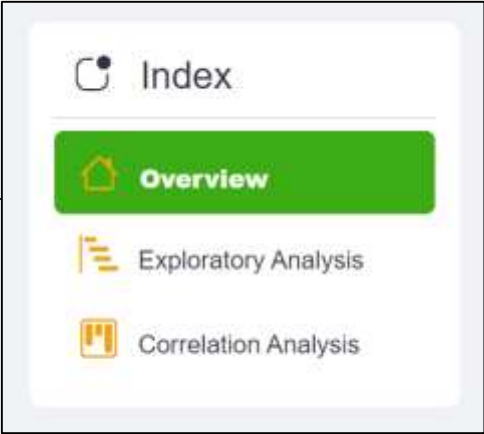


**Page 1**  
**Market Overview**

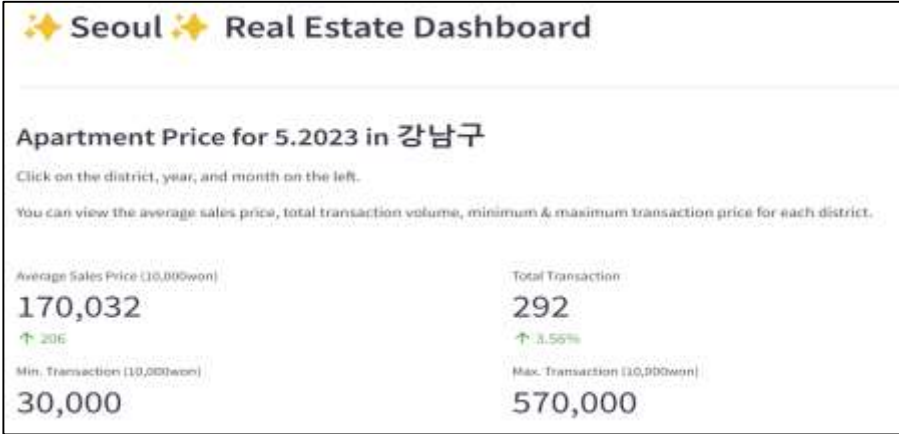
# Market Overview

## Navigation

Within the market overview page, navigation through the menu allows for easy exploration.



You can check price information of the selected district by month.



## Sidebar Filtering

You can easily filter the data by region, year and month.

A sidebar filtering panel with a light blue background. It contains three sections: 'Select a Region.' with a dropdown menu showing '강남구'; 'Select a Year.' with radio buttons for '2023' (selected) and '2024'; and 'Select a Month.' with a horizontal range slider showing '5' to '12'. At the bottom, it says 'Chosen: 2023/5'.

You can check top10 & bottom 10 apartments based on price.

Two tables side-by-side. The left table is titled 'Top 10 Apartments' and the right table is titled 'Lowest 10 Apartments'. Both tables have columns for District, Dong, Apt. Name, and Price.

	District	Dong	Apt. Name	Price
0	강남구	청담동	빌폴라리스	570,000
1	강남구	압구정동	현대7차(73-77,82,85동)	520,000
2	강남구	압구정동	신현대12차	510,000
3	강남구	도곡동	타워팰리스1	490,000
4	강남구	도곡동	타워팰리스1	490,000
5	강남구	도곡동	도곡역세	485,000
6	강남구	논현동	동양파라곤	480,000
7	강남구	압구정동	현대6차(78-81,83,84,86,87동)	468,000
8	강남구	압구정동	현대6차(78-81,83,84,86,87동)	460,000
9	강남구	대치동	래미안대치팰리스	460,000

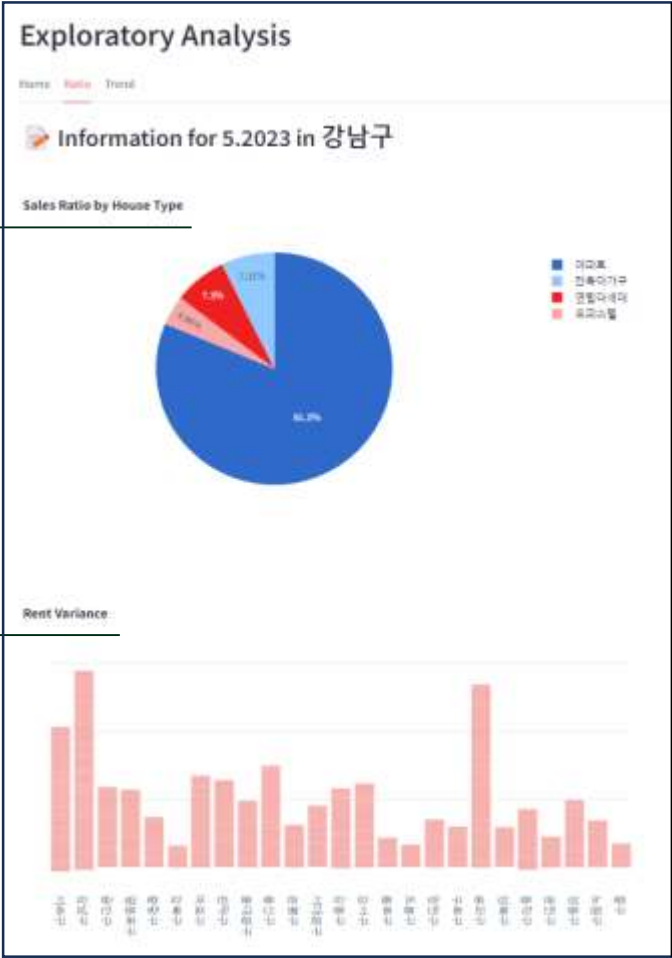
	District	Dong	Apt. Name	Price
0	강남구	대치동	대우아이발콤버스(891-26)	30,000
1	강남구	대치동	태헤관로대우아이빌(891-4)	36,000
2	강남구	도곡동	도곡그린빌	52,000
3	강남구	역삼동	우정예채프롬버스	58,700
4	강남구	논현동	학동	73,000
5	강남구	신사동	하이트빌	75,500
6	강남구	수서동	가치마을	79,500
7	강남구	수서동	가치마을	86,000
8	강남구	수서동	신동아	87,000
9	강남구	도곡동	SK허브트리오	87,000



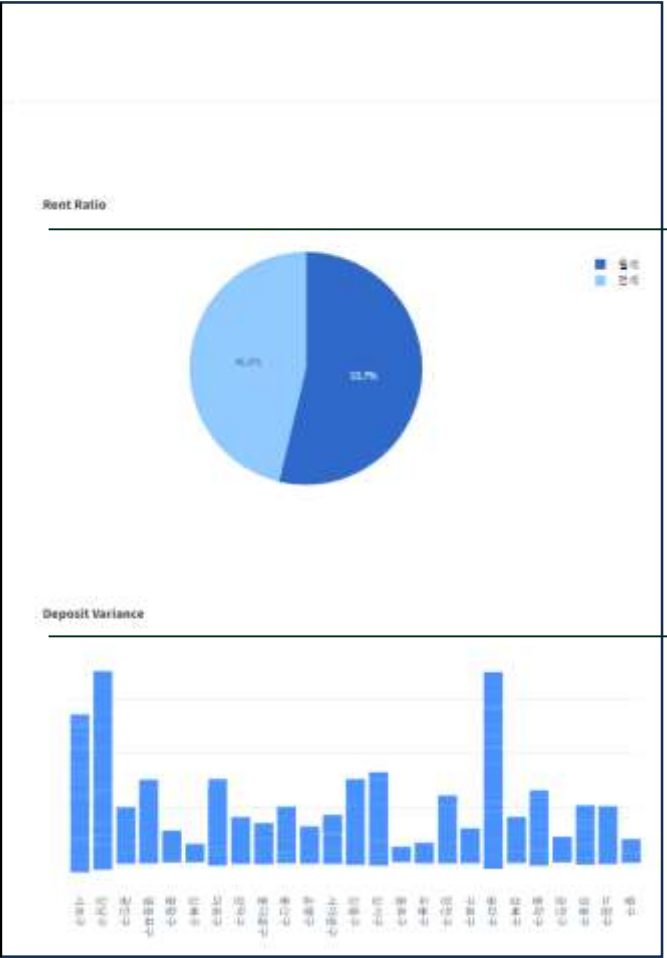
# Market Overview

Exploratory Analysis

Sales Ratio by House Type



Sales Ratio by Rent Type



Variance of Rent

Select a Region.

강남구

Select a Year.

☒ 2023 ☐ 2024

Select a Month.

5 12

Chosen: 2023/7

Variance of Deposit

**Ratio** You can view the ratio of sales & rent for the selected district, month and housing type in the sidebar, as well as the variance of rent & deposit.

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\_\_\_\_\_

Select a Chart,

- ☒ Seoul: Price Trends by House Type
- ☐ Price Trends by District & House Type
- ☐ Transaction Trends by District & House Type

Select a chart to view

You can view the price trend of Seoul, the price trend of each district by house type, and the transaction trend of each district by house type.

# Market Overview

## Exploratory Analysis

Select a Region.

강남구 ▼

Select a Year.

☒ 2023  
☐ 2024

Select a Month.

5

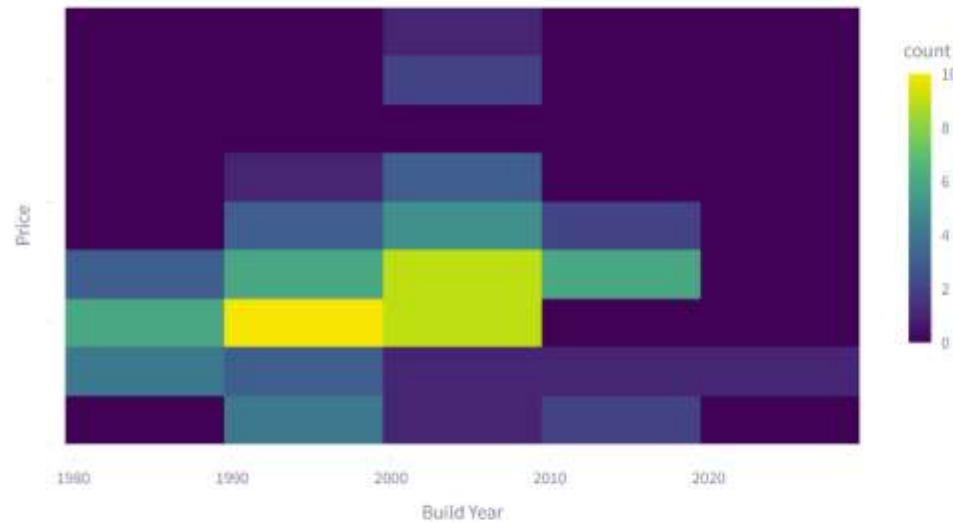
5 12

Chosen: 2023/5

Using the data selected in the sidebar, you can check the correlation between the year of construction and the sales price.

To facilitate understanding for general traders who may find heatmap visualization unfamiliar, additional explanations have been provided to assist in making data-driven decisions.

Correlation between Build Year and Price by District



See explanation

This density heatmap visually represents the distribution of apartment sales prices in Seoul according to the year of construction. It enables a visual understanding of the correlation between variables. Higher density is indicated by yellowish colors, while lower density tends towards purple.

# Basic Analysis



**Page 1**  
Market Overview



**Page 2**  
Price Analysis

# PriceAnalysis

BuildingArea and Sales Price

## Sidebar

## Analysis by House type

Filtering

분석 유형을 선택하세요.

건물 면적과 매매 가격 분석

건물 면적과 매매 가격 분석

자치구별 매매 가격 평균

자치구별 가격 변동 추이

You can check the type of chart and house type.

부동산 유형을 선택하세요.

아파트

아파트

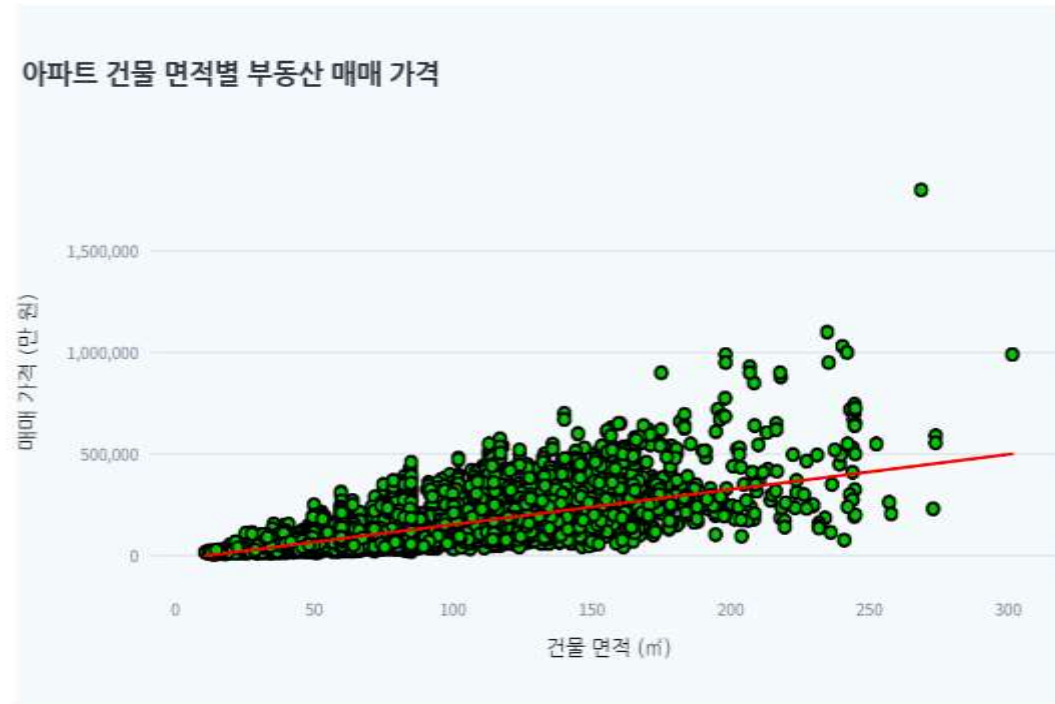
오피스텔

단독다가구

연립다세대

## 부동산 유형별 데이터 분석

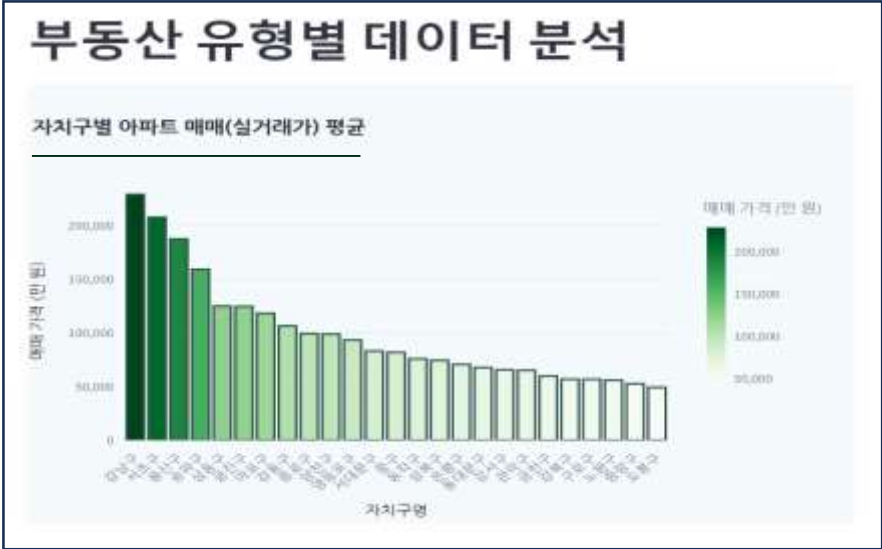
아파트 건물 면적별 부동산 매매 가격



You can check the correlation between size of building and sales price.

# Price Analysis

## Average Sales by District



분석 유형을 선택하세요.

자치구별 매매 가격 평균

년도를 입력하세요.

2024

월을 입력하세요.

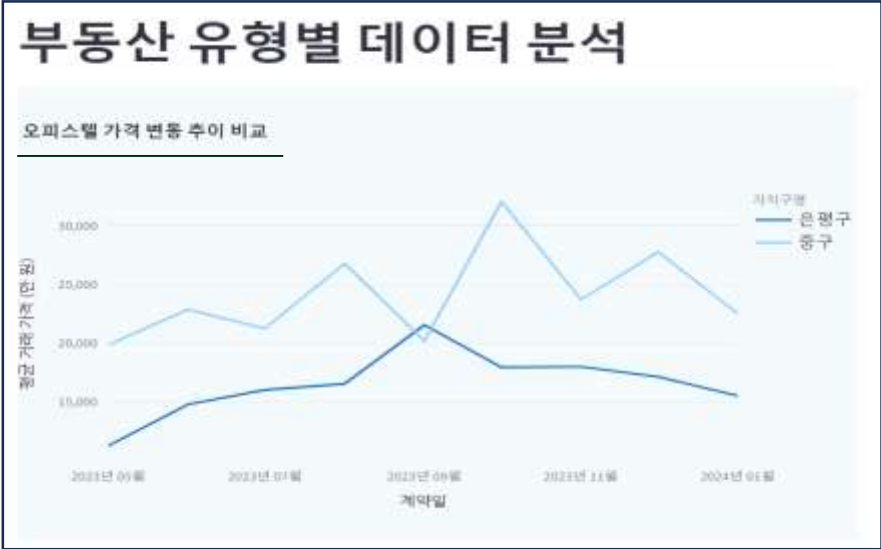
1

부동산 유형을 선택하세요.

아파트

You can check average price for the selected district, month and house type.

## Price Trend by District



분석 유형을 선택하세요.

자치구별 가격 변동 추이

자치구명을 선택하세요.

은평구 × 중구 ×

부동산 유형을 선택하세요.

오피스텔

오피스텔

연립다세대

아파트

단독다가구

You can check price fluctuation by district and house type.



# Basic Analysis



**Page 1**  
Market Overview



**Page 2**  
Price Analysis



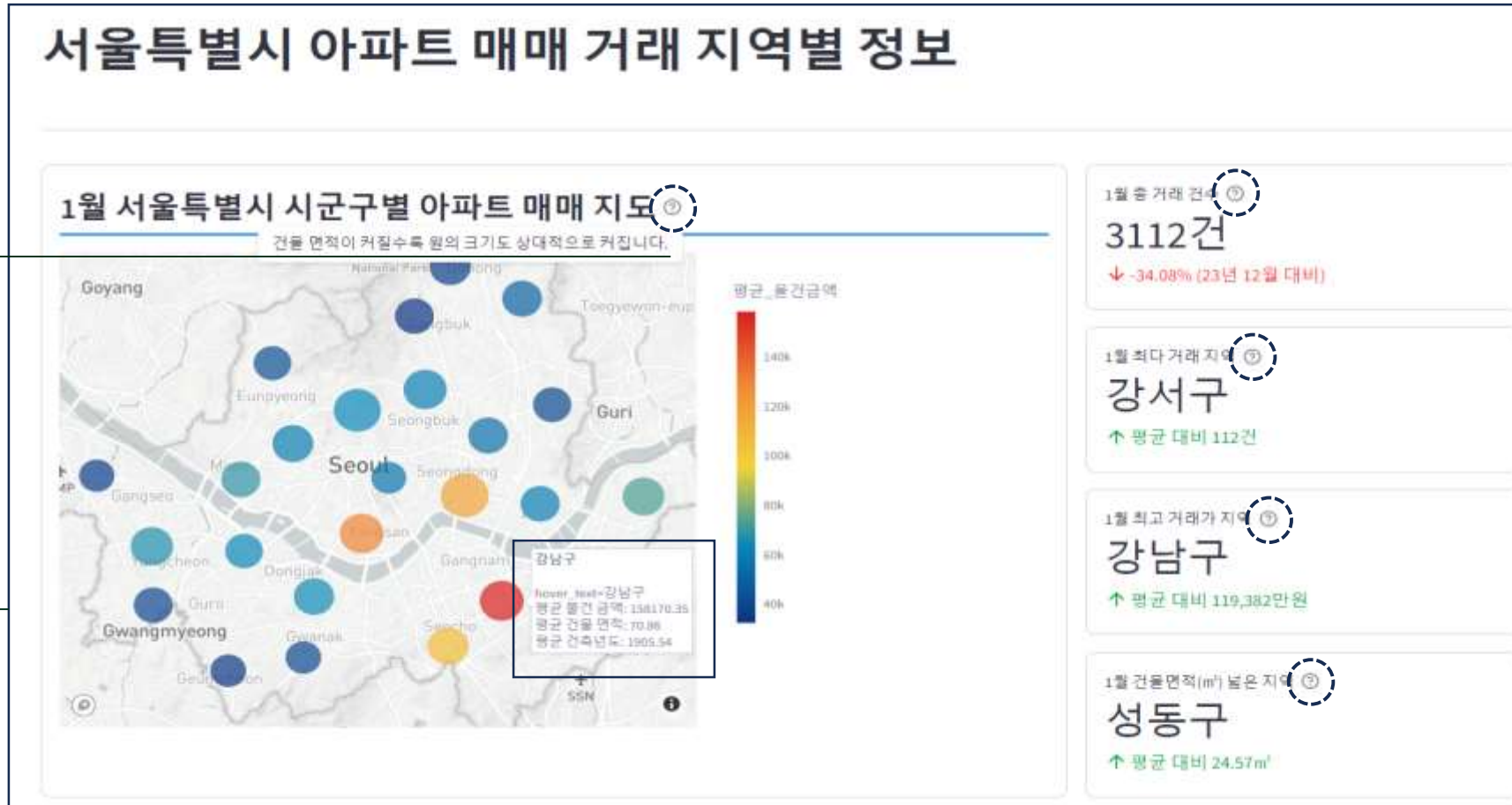
**Page 3**  
Regional Analysis & Comparison

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\_\_\_\_\_

Help function for detailed explanation of chart

You can view the status of apartment sales in Seoul for January 2024 on the map.



## Main Indicators

Key market trends for January are summarized to allow users quickly grasp the main indicators.

# Regional Analysis & Comparison

## Comparison by legal district

Select two regions

Drop-down menu where you can select the legal district of each area

**아파트 매매 데이터 지역별 비교**

첫 번째 지역의 구를 선택하세요:

은평구

두 번째 지역의 구를 선택하세요:

관악구

주요 구의 동을 선택하세요:

응암동

주요 구의 동을 선택하세요:

신사동

계약일을 선택하세요:

2023-09-12

2024-01-31

2023-05-12

2024-01-31

건축년도를 선택하세요:

1969

2023

Select Date and Build year

You can filter data for the desired contract date and construction year

Average Price Trend

Trend of Transaction



Trend of Transaction

Correlation among variables

You can compare price trends, transaction volume trends, transaction amount comparisons and correlation analysis.

Added explanation for general traders

# In-depth Analysis



**Page 4**  
**Predict Reconstruction**



# Predict Reconstruction

Average year of construction

지역별 건축년도 평균 **PickHouseType**

지역별 건축년도 평균

지역별 건축년도 평균

지역별 건축년도 평균

지역별 건축년도 평균

지역별 건축년도 평균

건물 유형을 선택하세요

☒ 서울 재건축연한 기준표

연도	5층 이상 건축물	4층 이하 건축물
1981. 12. 31. 이전	28년	20년
1982	22년	21년
1983	24년	22년
1984	16년	23년
1985	18년	24년
1986		25년
1987		26년
1988		27년
1989	30년	28년
1990		29년
1991. 1. 1. 이후		30년

Click the checkbox to see the Seoul Reconstruction Year Criteria table. This information allows you to identify buildings that exceed the reconstruction year.



You can visualize the average construction year by house type on the map to easily identify areas with many older buildings.





# In-depth Analysis



**Page 4**  
Predict Reconstruction



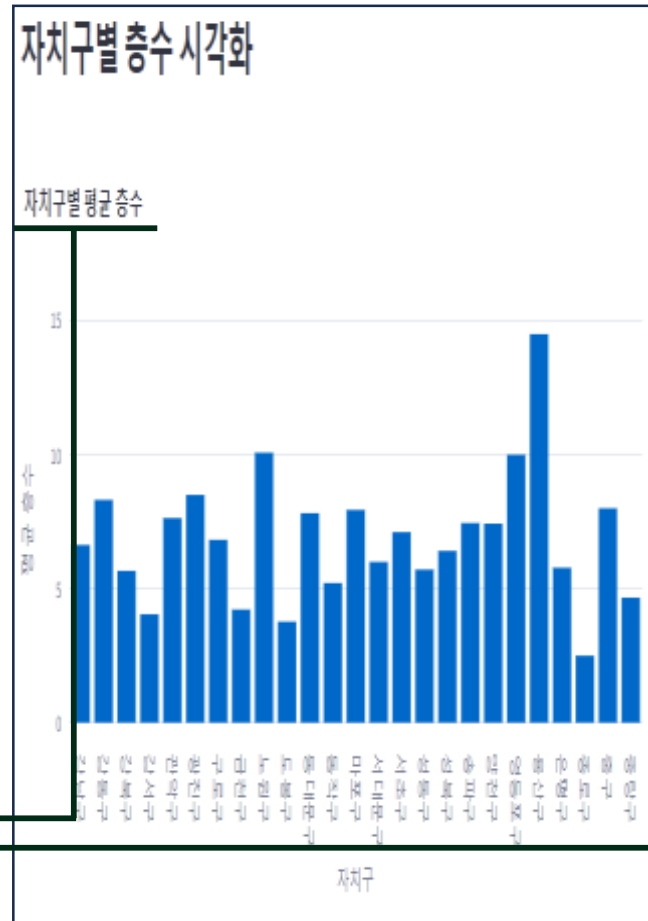
**Page 5**  
Analysis of Floor number

# Analysis of Floor number

Map



Barchart



Map



You can view detailed information relative to floor analysis.

# Analysis of Floor number

## Number of Floor by House Type

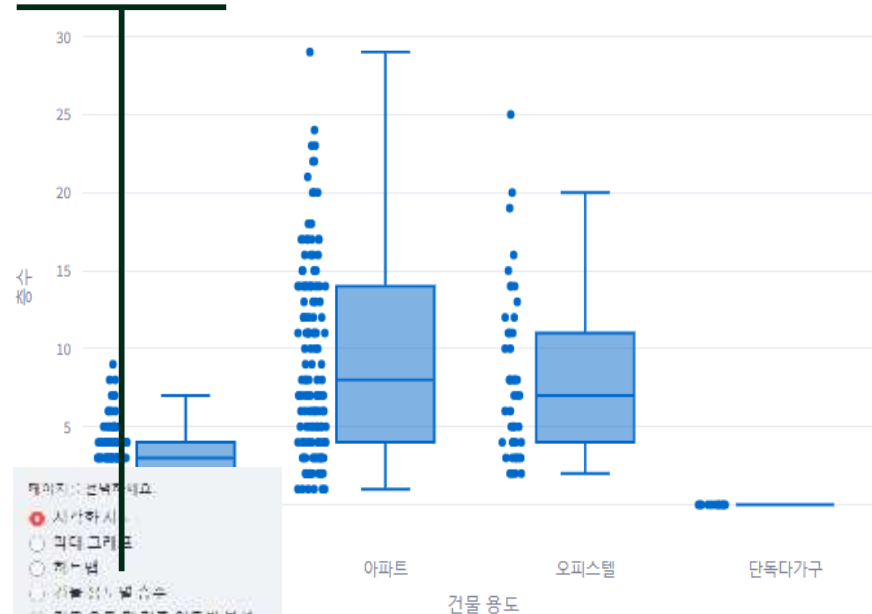
## By House type & Build year

### 건물 용도별 층수 분석

건물 용도 선택

연립다세대 x 아파트 x 오피스텔 x 단독다가구 x

건물 용도별 층수 분포



### 건물 용도 및 건축 연도별 분석

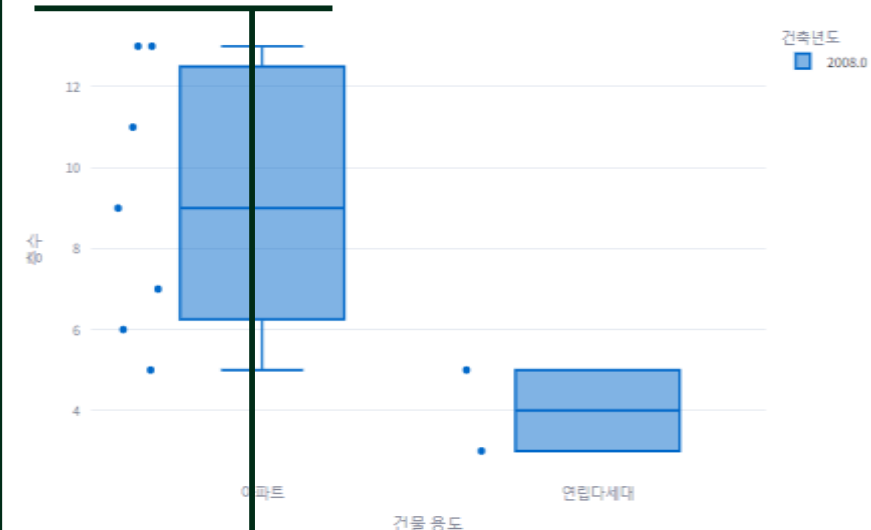
건물 용도 선택

연립다세대 x 아파트 x 단독다가구 x

건축 연도 선택



건물 용도 및 건축 연도별 층수 분포



You can select multiple house types to view the distribution of floors by house type and construction year.





# 4 Expectations

# Expectations

Dashboard users can expect the following benefits and advantages.

## Benefits & Advantages

01

### Provide Market Overview

- Understand the basic trends and situation in Seoul real estate market
- Provide information necessary to determine the optimal timing for market entry

02

### Provide Detailed Transaction Info

- Detailed transaction information by region and time
- Intuitive understanding of the current market situation and regional transaction trends

03

### Understand Key Factors

- Analysis of factors influencing price determination
- Provide essential information for pricing and investment strategy formulation

04

### Info of potential reconstruction

- Analysis of areas with high potential for reconstruction
- Present significant market opportunities for long-term investors and developers

05

### Provide in-depth Insights

- Understand relationships between important variables and support for data-driven decision making
- Provide in-depth analysis through discovery of hidden patterns and trends

06

### Grasp Features of Building

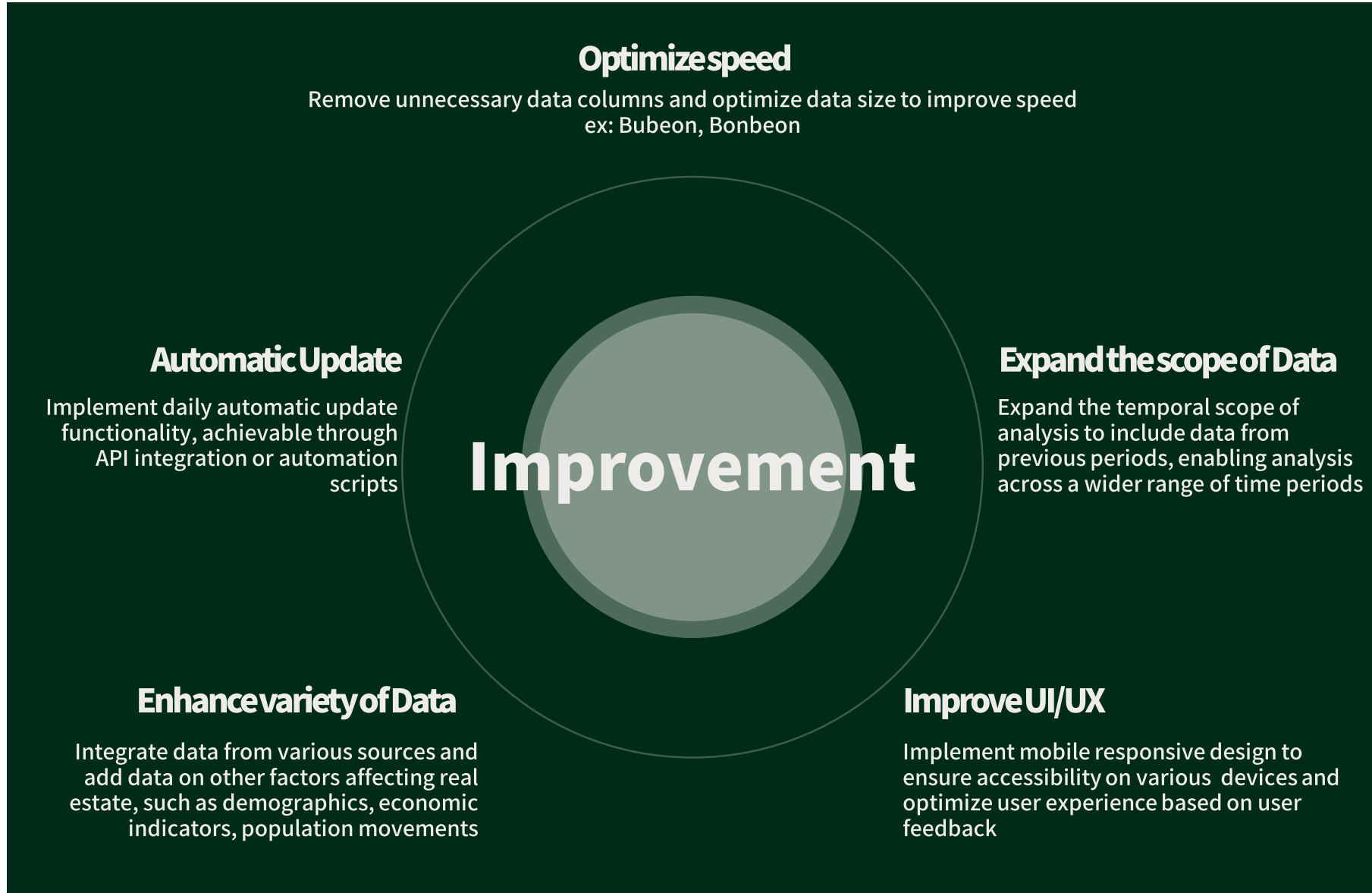
- Analysis of building floors by region to aid understanding of regional building characteristics



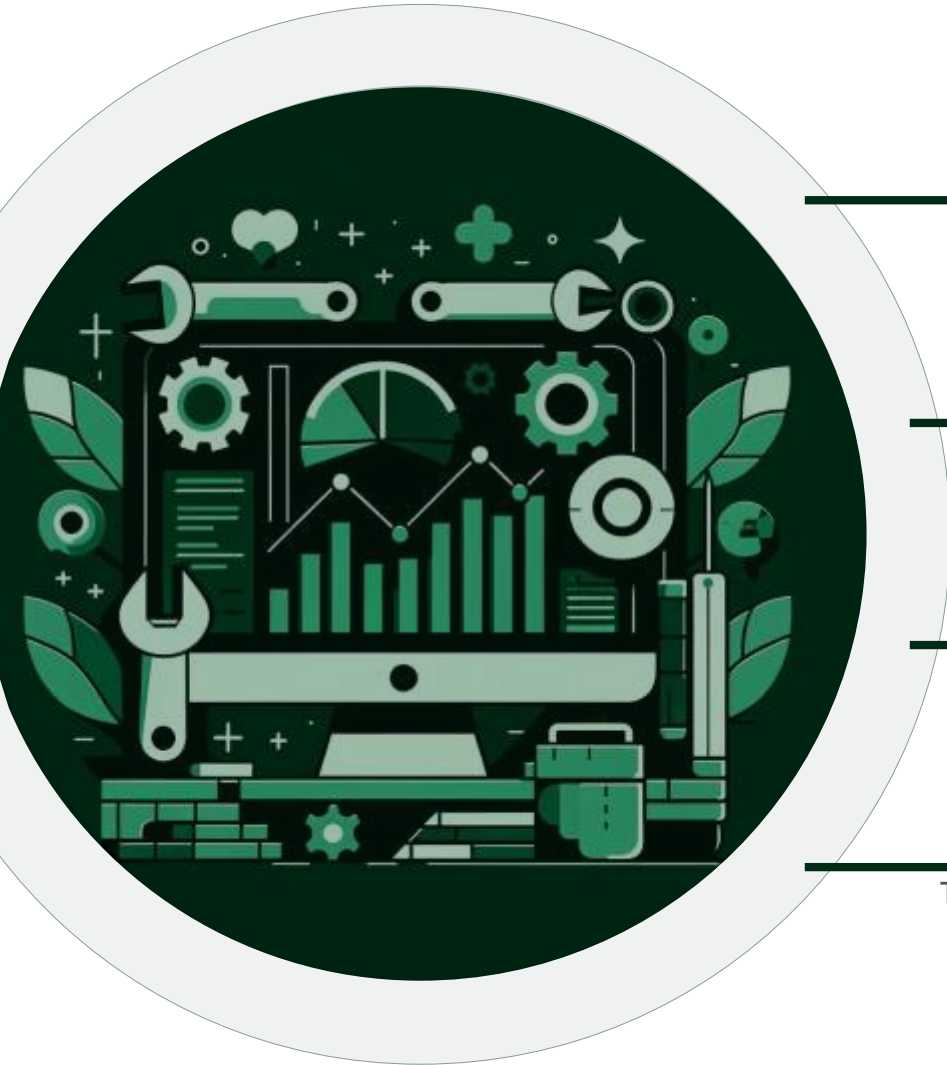
# 5 Improvements



# Areas for Improvements



# Limitations



## **Lack of real-time data updates**

The lack of real-time data updates limits the ability to reflect the latest market trends, resulting in important information being delayed in a rapidly changing real estate market.

## **Limited visualization on the map**

Due to lack of location information for each building and missing building names, precise visualization of buildings on the map could not be implemented.

## **Lack of reconstruction info**

Relying solely on provided reconstruction-related information does not guarantee investment success, and the lack of information on factors such as floor area ratio limits profitability assessment.

## **Need for advanced analytical techniques**

The current dashboard does not support advanced analytical techniques such as machine learning, time series analysis and predictive modeling, resulting in limited provision of advanced insights and predictive information.

# Roles and Responsibilities

Common role: Data analysis, Dashboard & function design



## Dashboard Page Assignment by Team Member

1. Market overview

2. Price analysis

3. Comparison by Region

4. Rebuilding predict

5. Floor analysis

Aggregation and Deployment of Entire Pages

Collection and preprocessing of Geodata  
Planning & creating presentation

Team leader and presentation

**BYE**  
Thank you

**Q & A**

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