# Apartment Sales Price and Analysis in Ilsan-gu, Goyang-si, Korea

Since I used a translator, I would like to inform you that there may be errors in the grammar. Please understand.

## A. Introduction

### A.1. Description & Disscusion of the Background

 Real estate ownership in Korea is closely related to wealth accumulation. There are many ways to multiply wealth, such as stocks, savings, and funds, but among them, real estate is the fastest and most wealthy. In particular, recently, apartment prices in Seoul have risen so much that 'goyang-si Ilsan' and 'Seongnam-si Bundang-gu' are emerging around Seoul. So, I'm going to express it so that I can see at a glance the clustering price of the apartment (100㎡) in Ilsan, Goyang, which is also where I live and is very interested. By analyzing the clustered location, we want to check which location is suitable.

## A.2. Data Description

The sale price of the apartment was provided by the Ministry of Land, Infrastructure and Transport. In Ilsan Seo-gu and Ilsan Dong-gu, we obtained data such as transaction price (one year), construction year, and contract date. Google spreadsheets were used to obtain longitude and latitude. Among spreadsheet functions, there is a function that displays addresses in longitude and latitude. In addition, Ilsan City is a city in which I live, so I know the atmosphere of the city or the main base. I will analyze it using the knowledge I know.

## B. Methodology

1. Preparation and selection of preferred area chart
   - Dedicated areas are grouped to represent the number of transactions in a bar graph. The purpose is to check the area preferred by the buyer. The result was found to be the most preferred area of 50㎡~100㎡.



Preference by dedicated area
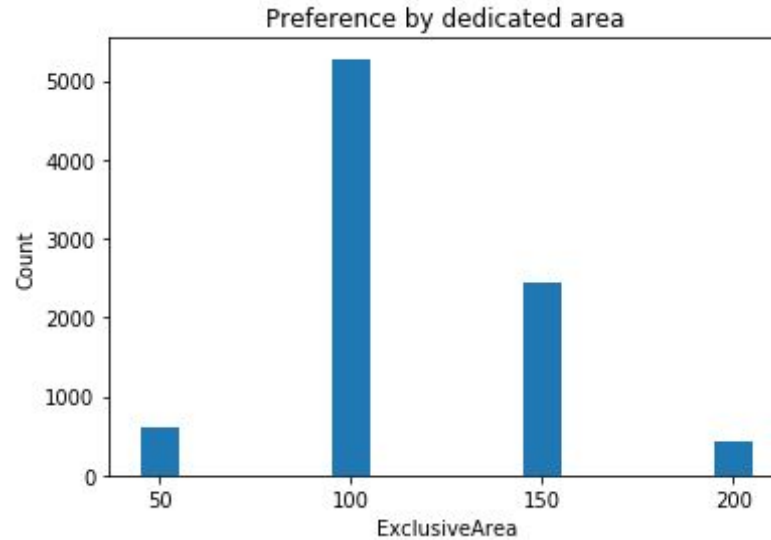
2. Construction Year and Sales Amount Trend
  - Further analysis was conducted based on the preferred apartment
  area of 50㎡ to 100㎡. The amount of sales by construction year was
  confirmed. The purpose is that the sales amount will decrease as the
  construction year gets older. If you look at the graph, as expected,
  the recently built apartment will increase the sales amount.
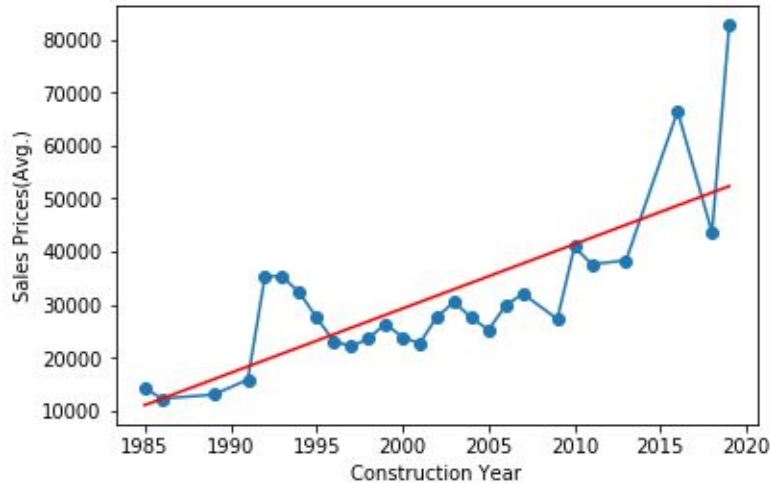
3. Comparative analysis of exclusive area and sales amount
 - Exclusive areas were grouped and compared with a box plot. As the
 area increases, the trading amount increases, but the rising point is not
 large. It is estimated that the demand for 90㎡ to 100㎡ will be higher than
 other areas, as the average value increases significantly when it is
 widened from 90㎡ to 100㎡.



Boxplot grouped by gr
SalesPrices
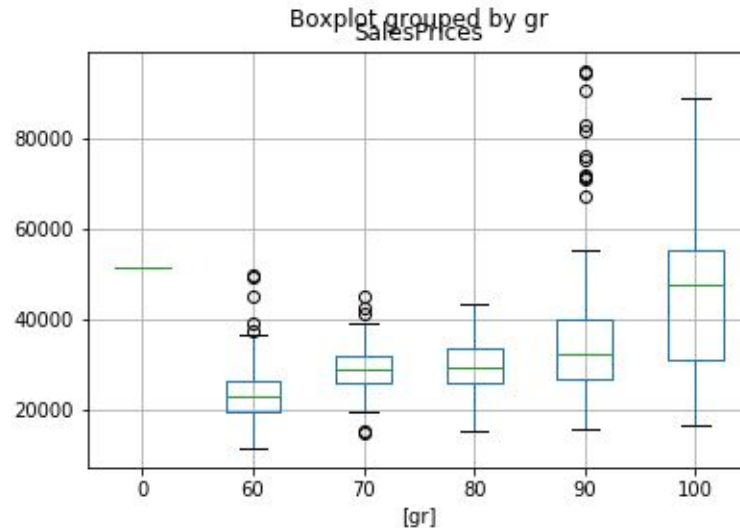
4. Ilsan-gu Clustering (based on apartment sales price)
 - Clustering is based on the apartment sale price and is shown on the map. K-means algorithm was used and the K value was verified using the Elbow technique. K=2 and marked on the map for each cluster.

 - When looking at the distribution of sales prices, new apartments near the lake seem to have high sales prices.
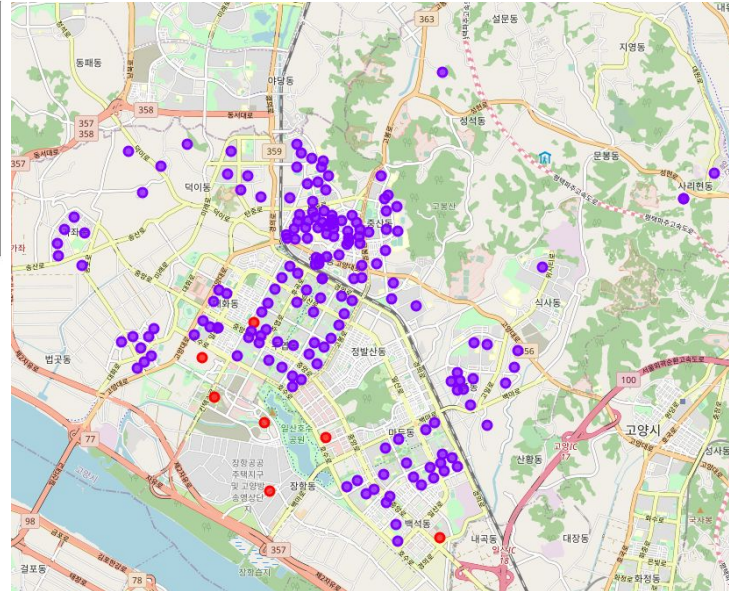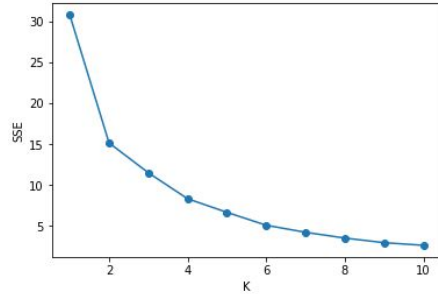
## D. Discussion

1. The most preferred area for apartment sales is between 50㎡ and 100㎡.
2. The apartment sale price decreases as the construction year gets older.
3. When comparing the area between the exclusive areas, the trend of rising is small as the area is larger, but the selling price increases rapidly from 90㎡ to 100㎡.
  It can be estimated that the area between 90㎡ and 100㎡ is in high demand.
4. The new apartment near the lake has a high transaction price (Cluster 1)
   Cluster 0 <600 million
   Cluster 1> 600 million

## E. Conclusion

  -It was very interesting to be able to integrate data science in real life through this project. Moreover, because I am the first project I am living in, I was more concerned and wanted to do better. Based on this project, I will try to apply it with different directions.