PROJECT OUTLINE

DATE: 14th of November 2023

PROJECT TITLE: Housing Market Analysis

CONTENT

- Objective
- Introduction
- Methodology
- Insights

OBJECTIVE: The primary objective of this project is to understand the key determinants of housing prices in a particular area. It aims to provide valuable insights for homeowners, buyers, and real estate professionals to make informed decisions.

INTRODUCTION: The real estate market is a vital part of any economy, and housing prices are influenced by a multitude of factors. This project seeks to gain insights into the relationship between various house features and their impact on housing prices. By analyzing the provided dataset, we can help individuals and real estate stakeholders understand the price dynamics better.

METHODOLOGY:

- Data Gathering
- Dataset description
- Data Cleaning and Preparation
- Data Modelling
- Data Visualization and Dashboard
- Insights
- Questions and answers

DATA SOURCE:
The dataset used in this project is obtained from

DATASET DESCRIPTION:

Price: The price of the house.
Area: The total area of the house in square feet.
Bedrooms: The number of bedrooms in the house.
Bathrooms: The number of bathrooms in the house.
Stories: The number of stories in the house.
Mainroad: Whether the house is connected to the main road (Yes/No).
Guestroom: Whether the house has a guest room (Yes/No).
Basement: Whether the house has a basement (Yes/No).
Hot water heating: Whether the house has a hot water heating system (Yes/No).

Air conditioning: Whether the house has an air conditioning system (Yes/No).
Parking: The number of parking spaces available within the house.
Prefarea: Whether the house is located in a preferred area (Yes/No).
Furnishing status: The furnishing status of the house (Fully Furnished, Semi-Furnished, Unfurnished).

Extract statistical summaries using formulas and functions.

a. Count (=COUNTIF (A1:A10, <3))
b. Total (=SUM)
c. Minimum (=MIN)
d. Maximum (=MAX)
e. Mean (=AVERAGE)
f. Median (=MEDIAN)
g. Mode (=MODE)
h. Range (=RANGE)
i. Q1: =QUARTILE (A1:B10, 1))
j. Q2: =QUARTILE (A1:B10, 2))
k. Q3: =QUARTILE (A1:B10, 3))
l. Q4: =QUARTILE (A1:B10, 4))
m. Standard deviation (=STDEV),
n. Variance (=VAR),
o. Standardization with Z-sore (=),
p. Hypothesis testing
    i. T-Test: T.TEST (range1, range2, tails, type)
    ii. Z-Test: Z.TEST (range1, test statistics, STDEV)
q. Correlation: =CORREL (A1:A10, B1:B10)
r. Kurt (=A1:A10)
s. Skew (=A1:A10)

12. Apply some visual charts to the data (Histogram, scatter plot, box plot etc.)

QUESTIONS:

1. Do houses with more bedrooms, bathrooms, and stories tend to have higher prices?
2. Are furnished houses more expensive?
3. Are houses with more parking spaces more expensive?
4. Are houses connected to main road more expensive?
5. **Question: What is the average price of houses in preferred areas compared to non-preferred areas?**

   Answer: The average price of houses in preferred areas is higher than in non-preferred areas. On average, houses in preferred areas tend to have a higher market value.

6. **Question: How does the number of stories in a house relate to its price?**

   Answer: The number of stories in a house has a positive correlation with its price. Generally, houses with more stories tend to be priced higher.

7. **Question: Do fully furnished houses have a higher price compared to semi-furnished or unfurnished houses?**

   Answer: Yes, fully furnished houses tend to have a higher average price compared to semi-furnished or unfurnished houses. Buyers are willing to pay more for houses that come with complete furnishings.

8. **Question: What is the average price per square foot in this dataset?**

   Answer: The average price per square foot is obtained by dividing the average 'Price' by the average 'Area' of houses. This metric provides an estimate of the cost efficiency of the houses in the dataset.

9. **Question: Is there a difference in house prices based on whether they have a guest room or a basement?**

   Answer: Houses with a guest room tend to have a slightly higher average price compared to houses without one. However, the presence of a basement does not seem to have a significant impact on house prices in this dataset.

Housing Market Analysis