Step 2: Rough charts are attached in the pdf along with this

Step 3: The KPI defined below are used as story points while dashboards are not clear

at this point

Note: Zameen dataset is used for the analysis Problem Statement:

This dataset gives information about properties listed on the portal for sale. The organization is interested in knowing about the pricing trends for each type of property in all provinces and cities and how many listings they are getting over time. They also want to know about the performance of each agency and their agents who are bringing listings.

Steps:

1. Applying group by to study data and analyze the condition of the dataset
2. Drop the URL column from the data as it's not helpful in the analysis.
3. Trimmed the columns required
4. Property_type, location, city, province, longitude, latitude, baths, bedrooms, date.added, year.added, purpose are ok
5. Longitude and latitude are not very much helpful in the context of the analysis, so they were removed.
6. Location_id is also dropped because location_id and property_id serves the purpose of indexing so we can drop both.
7. Area size, Area_type and area are not very helpful for our analysis that's why we drop them as well.

KPI:

1. **Temporal analysis of average prices across provinces**
2. **Temporal trends of Property types**
3. **Best performing Agencies and Agents**
4. **Temporal Analysis of area categories**
5. **Temporal trends w.r.t specifications**

Dimensions:

Time:

1. **date.added** Geographic:

1. province
   2. city

Normal:

   1. purpose
   2. property_type **Third-**

 party:

   1. Agency 2.
   Agent

Strategy:

- Identifying the hierarchies to be used from the dataset
- Longitude and latitude not included in the hierarchy to keep things simple
- Replaced missing values from agency and agents
- Dropped rows from price with incorrect entries

Temporal Analysis of prices Using multiple Dimensions

- **Temporal analysis of average price across provinces:**
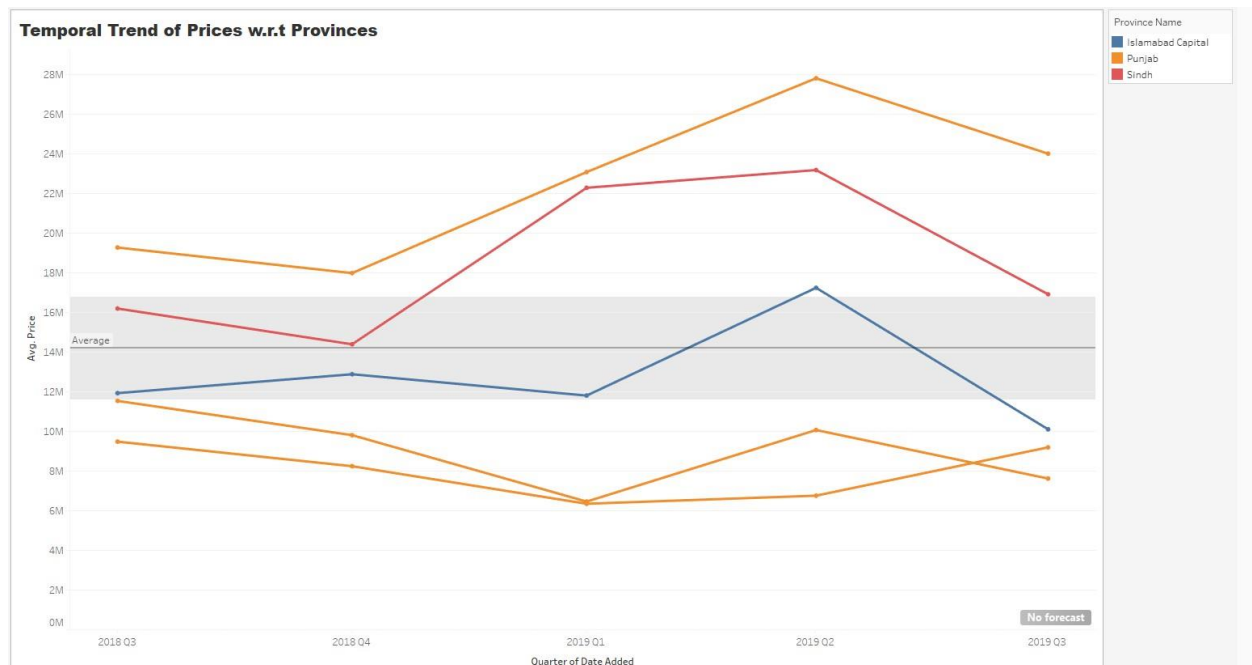
Average property prices of Lahore and Karachi are found to be higher than average. There is a somewhat similar trend between Karachi and Lahore. While Islamabad showed a dip from Q4 of 2018 and then rose from Q12019 and the prices went above average in this case.

For Rawalpindi and Faisalabad both showed a drop from Q4 2018 but prices in Rawalpindi increased significantly as compared to Faisalabad.
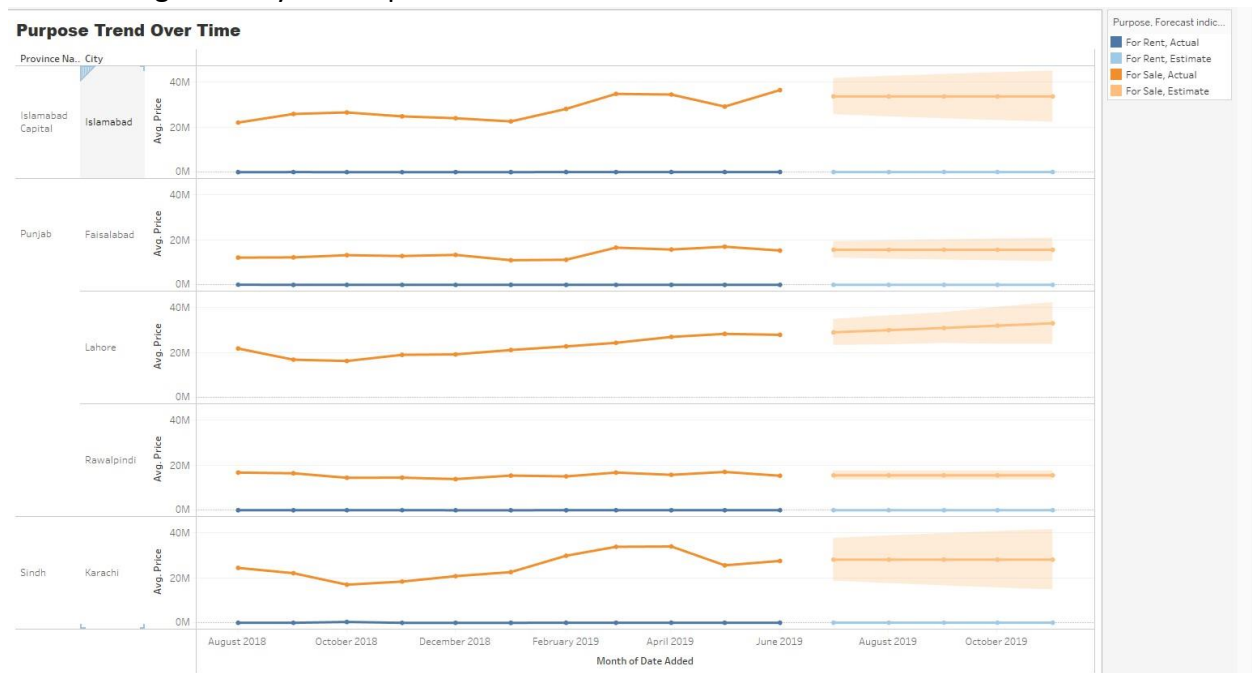

It's cleared that very little number of properties are being registered for rent while those for sale have increased prices among all the provinces. Karachi and Islamabad are leading having the highest prices for property sale.

- **Temporal Analysis of average prices across cities for different purposes and property types:**

Property Type Trend Over Time

Over the yearly analysis farmhouses have performed very well in terms of average sale prices as Islamabad, Punjab and Sindh averages 147 million, 41 million and 65 million respectively while rent is very low as there are very less properties registered for sale. Farmhouses are the best performing property type for all but there is a significant decrease in prices for farmhouses in Islamabad and Sindh while those in Punjab increased their prices. It also shows a decrease in most of the property types in 2019 as compared to others.

It supports the results found in the above chart as it shows farmhouses in Bahria town have the highest average prices and dominates all the other locations with 200 million average prices in the year 2018 then the average prices crumbled to 11 million. After Bahria town Islamabad comes Bahria town Sindh and DHA defence of Sindh having the highest average prices. Unlike Islamabad Sindh and Punjab showed a very little decrease in the average prices of properties.

- **Best performing Agencies and Agents**
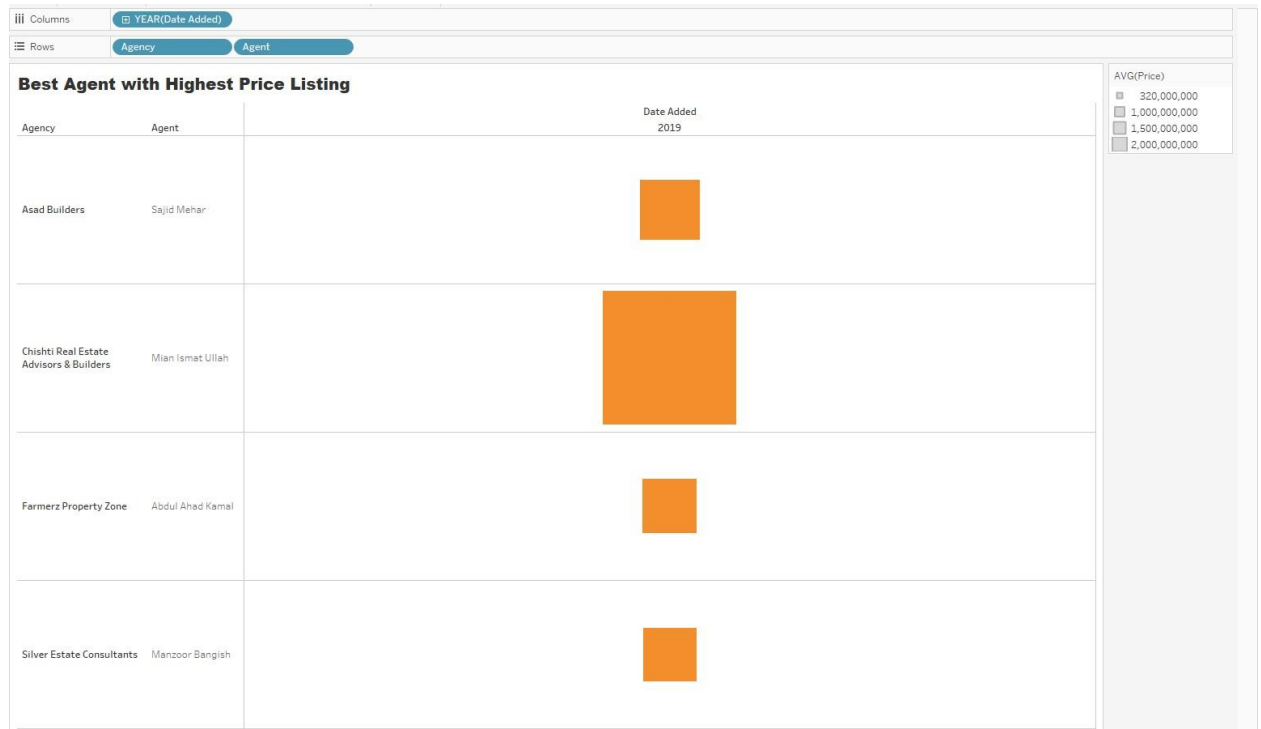
Chisti Real Estate and Mian Ismat ullah is found to be the best agency and agent out of all as it can be clearly seen from the chart. As they have the highest average prices among all which shows they have brought the most expensive properties as compared to others.

- **Temporal Analysis of area categories**

Area price
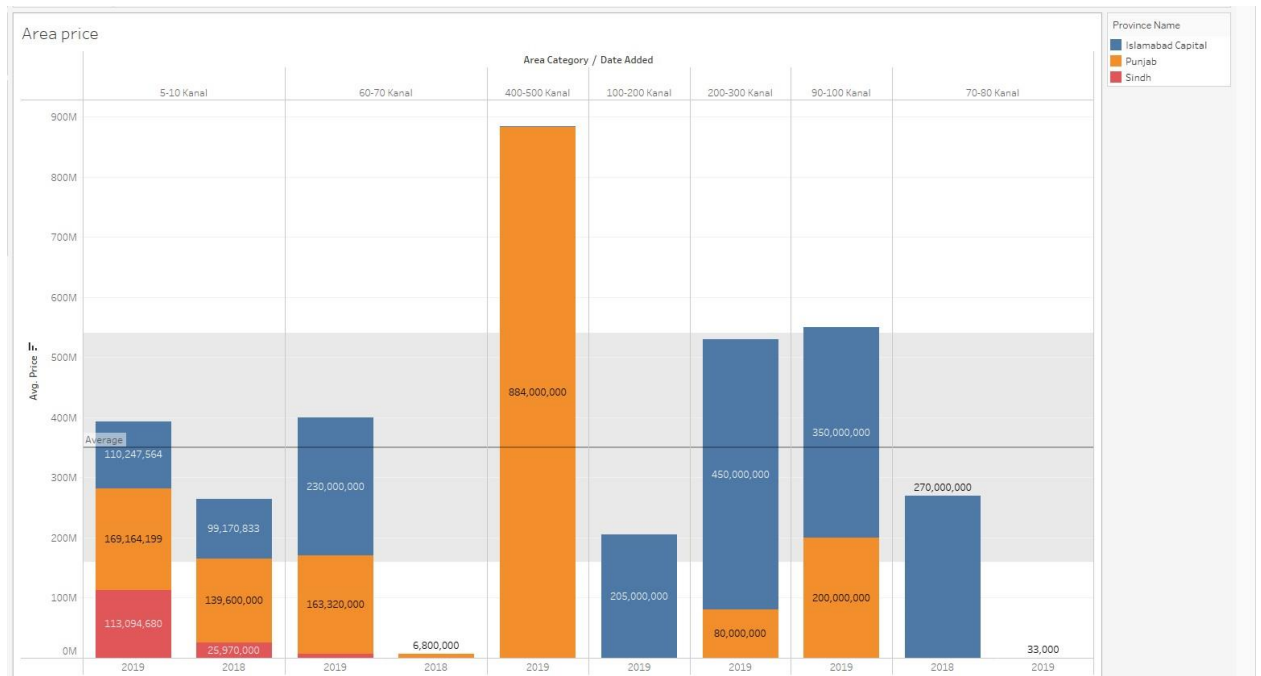
In order to understand the change in prices w.r.t the area acquired by the property which is represented by the area category. Following are the insights:

- Sindh only has properties of size 5-70 Kanal only.
- Punjab has the highest average prices for all the lands notably 400-500 Kanals.
- Islamabad has all type of properties belonging to different area categories, but properties of 60-70 Kanal and 70-80 Kanal are close to none in the years 2018 and 2019 respectively.

- **Temporal trends w.r.t specifications**

Top 5 No of Bedroom w.r.t Prices
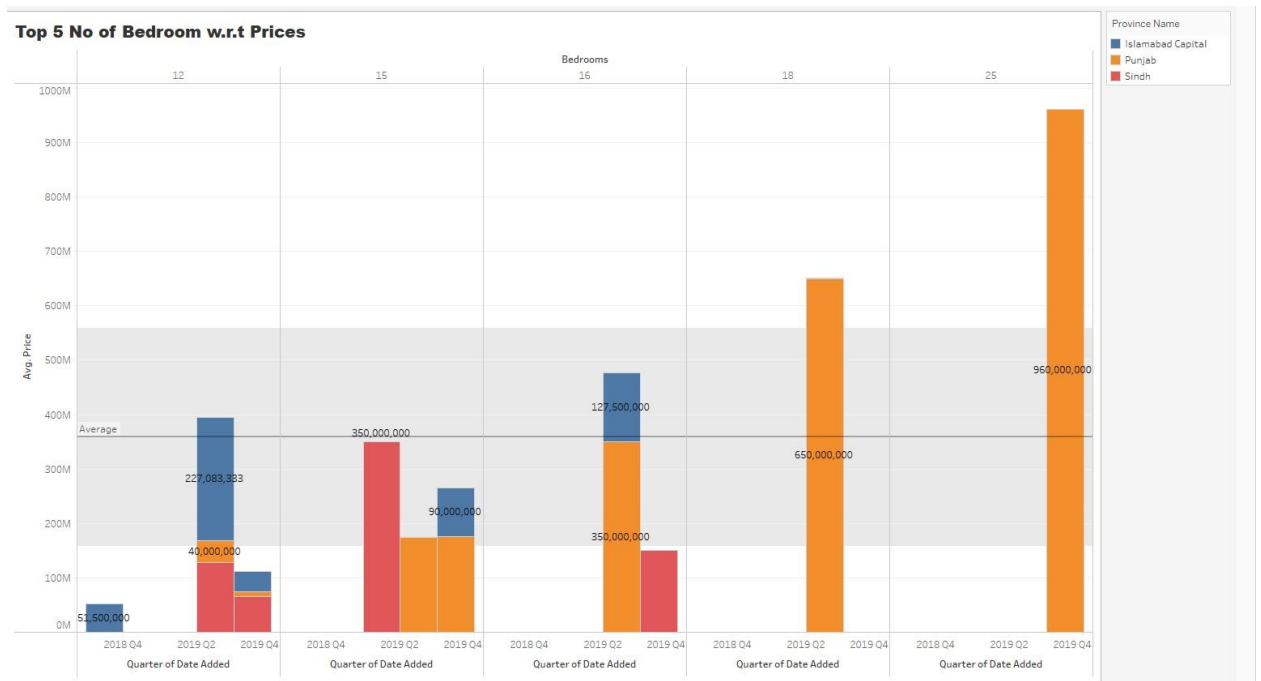
In order to understand the relation between property specification and prices I used this chart. It showed that Punjab is dominated by the properties having 25 bedrooms. While in Sindh and Punjab properties have less than 16 rooms whereas Islamabad has 227 million average prices while Sindh has 350 million.

Price Over Time w.r.t Baths
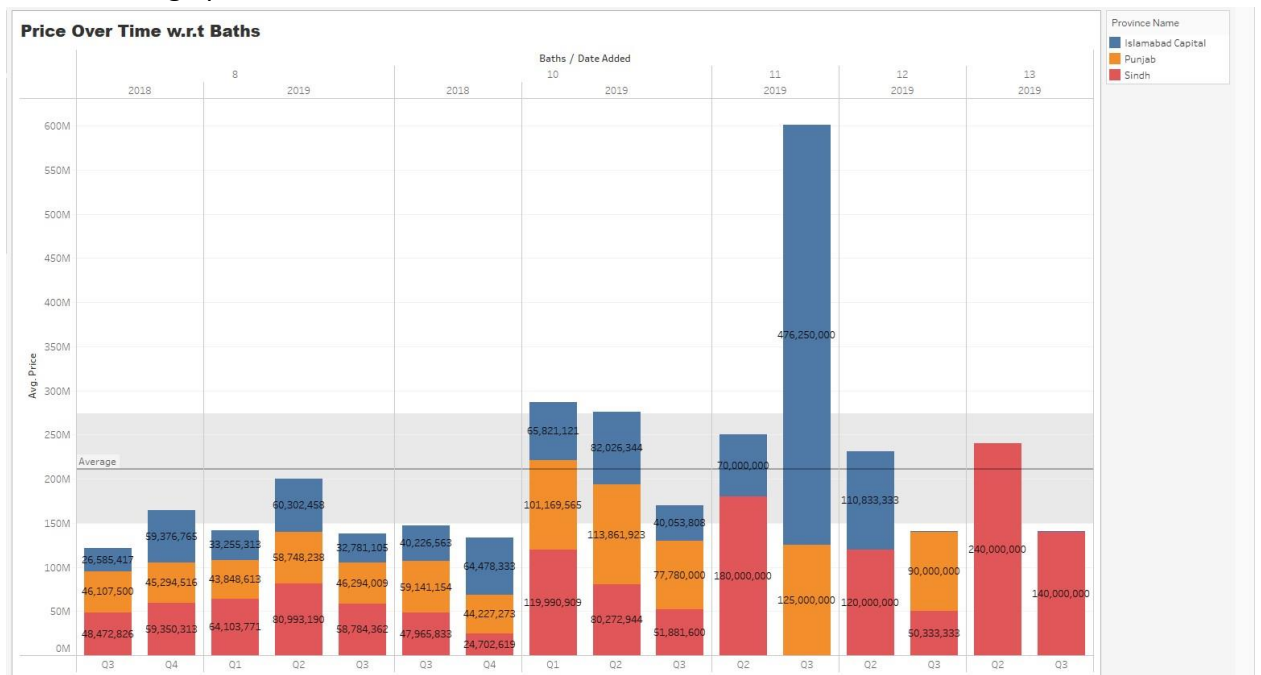
When it comes to the no of bathrooms for properties I found out that Islamabad's highest average price is 476 million in the year 2019 for properties having 11 baths while for Sindh it was 13 baths and for Punjab it is 10 baths having the highest average prices.