Kalaparty, Kameswari Naga Bhargavi

Visualisation of a retail store performance

**Introduction:**

The data given is a retail company data and this paper will be looking at the possible visualisations to understand the overall performance of the retail company outlets. The data set has 3 columns, the first one is unnamed and unique to all values, hence it has been considered as an identifying value and has been named as ID. This could also be considered as store ID for the ease of advancement of analysis. The values in this column are numeric hence the level of measurement is quantitative. The second variable location\_value\_1, is a KPI (Key Performance Indicator) this could be considered as a performance indicator of how well the store is adding value to the location. This column also has numeric values which are discrete and quantitative. The third column has engagement\_score\_1, it is also a KPI and can be considered to be the customer engagement score for each outlet. The data in the column is again numeric, discrete and quantitative. The final column is client\_index \_1 a KPI, this could be indicating the client satisfaction on each store, the values are ordinal and categorical, level of measurement is qualitative as though these are words and not numbers they ordered from negative to positive which is a scale.

**Visualisations:**

We will now be visualising the given data and drawing inferences on the retail store performance.

Chart, scatter chart

Description automatically generated

(1) Scatter plot of store ID’s KPIs

The above visualisation plots the mean of KPI’s (location value and engagement score) to the respective store id’s. The performance KPI mean of the stores ID’s is almost similar to each other and there is no huge variance. However, couple of stores on the top of the graph (approximately store id’s: 15, 29, 90, 135) have better performance and others are falling behind them.

Chart, bar chart

Description automatically generated

(2) Bar graph for mean values of KPI’s

The above visualisation explains differences in the averages of the KPI’s between the low medium and high category data. The values on the y-axis denotes the mean value and the hues compare the two KPI’s location value and engagement score. The location value’s mean and the engagement score’s mean are both in the increasing order. However, location value median for all three client index is higher than the mean values of client index for engagement score.

Chart, histogram

Description automatically generated

(3a) Hisplot for Location\_value denoting frequency

Chart, histogram

Description automatically generated

(3b) Hisplot for Engagement\_Score denoting frequency

The above visualisations compares the data for the uncertainty, the histograms with a curve denotes the distribution of the data. Bell curve usually denotes normally distributed data, however both the variables in our data: location value and engagement score are not normally distributed, this means that the data has values which are not symmetrical or have extreme values.

A picture containing graphical user interface

Description automatically generated

(4) Correlation heat map for comparing store values with KPI’s

The above correlation heat map is giving us an analysis on the store ID’s and the KPI’s (location values and engagement score). The Store ID’s when compared with Location value and engagement score are negative which mean there is no corelation. There is a very mild correlation between Location value and engagement score.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **location\_value\_1** | **engagement\_score\_1** | **client\_index\_1** |
| 85 | 47 | 100 | Medium |
| 13 | 43 | 89 | Low |
| 135 | 49 | 75 | High |
| 29 | 51 | 71 | High |
| 158 | 47 | 60 | Medium |
| **ID** | **location\_value\_1** | **engagement\_score\_1** | **client\_index\_1** |
| 9 | 54 | 29 | Medium |
| 37 | 53 | 22 | High |
| 18 | 52 | 48 | Medium |
| 144 | 52 | 48 | Medium |
| 29 | 51 | 71 | High |

The above two tables compare if the stores that excel in one KPI also excel in the other. The first table denotes the top 5 store ID’s with highest scores in location\_value variable, however, the same stores did not perform the same in the engagement score and client index. The second table compares the top 5 performing stores according to the engagement\_score and location value is closer to the highest.

**Conclusions:**

All in all, the visualisations mentioned above defined the variations of KPI values between the store and if few are performing less than the others. Higher the ID lower the KPI. Also, the differences of means between the 3 categories are compared and had a huge variation in the same.