MIDTERM

Part 3

Team 11
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INTRODUCTION

As an intern at Tarja and Pasi Inc.,an energy modeling consultancy in Finland, we are supposed to work for an international project to help monitor and reduce energy consumption of 78 buildings owned by Vokia Inc. so as to make the buildings more energy efficient.

GOAL

1. To perform exploratory data analysis in Tableau on the data obtained after cleaning and wrangling.
2. To build dashboards in Tableau to analyse and get insights about the consumption for each building around the year for both types - heat and electricity.
3. To integrate and fit our prediction, classification and model in Tableau using RServe.

MATERIALS

Complete clean, wrangled and predicted data from Part 1 .

IMPLEMENTATION

1. Import the data file in Tableau.
2. Perform exploratory analysis and create dashboards for visualisation of data using various graphs and charts.

TABLEAU CHARTS & GRAPHS

Following are various graphs used to visualize data the data in different perspectives.

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1. Pie chart : shows different weather conditions what were the different temperatures and dew point values as seen below.
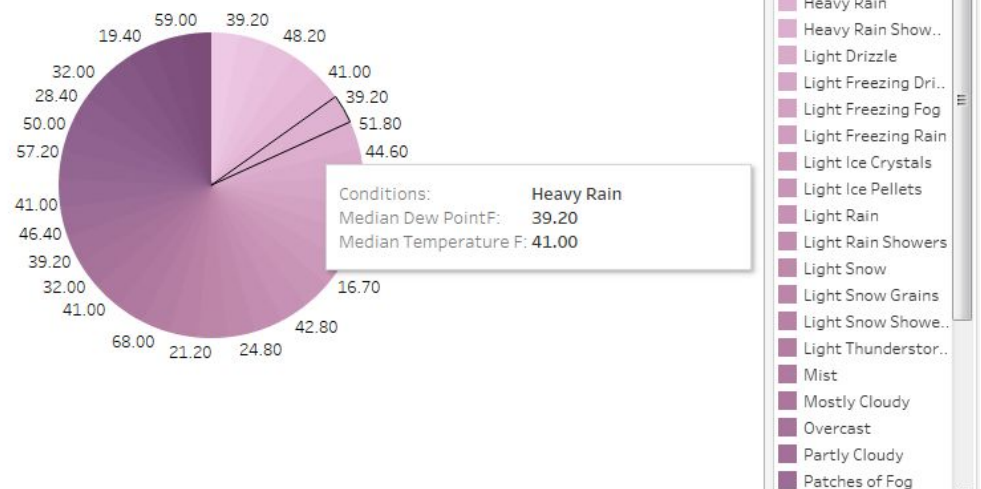

2. Stacked bar chart : This chart indicated that on various weather conditions how does power consumption varies for each building based on its type. For instance - filtered for consumption type electric and selected multiple buildings 2,6 & 11 to get the comparison.

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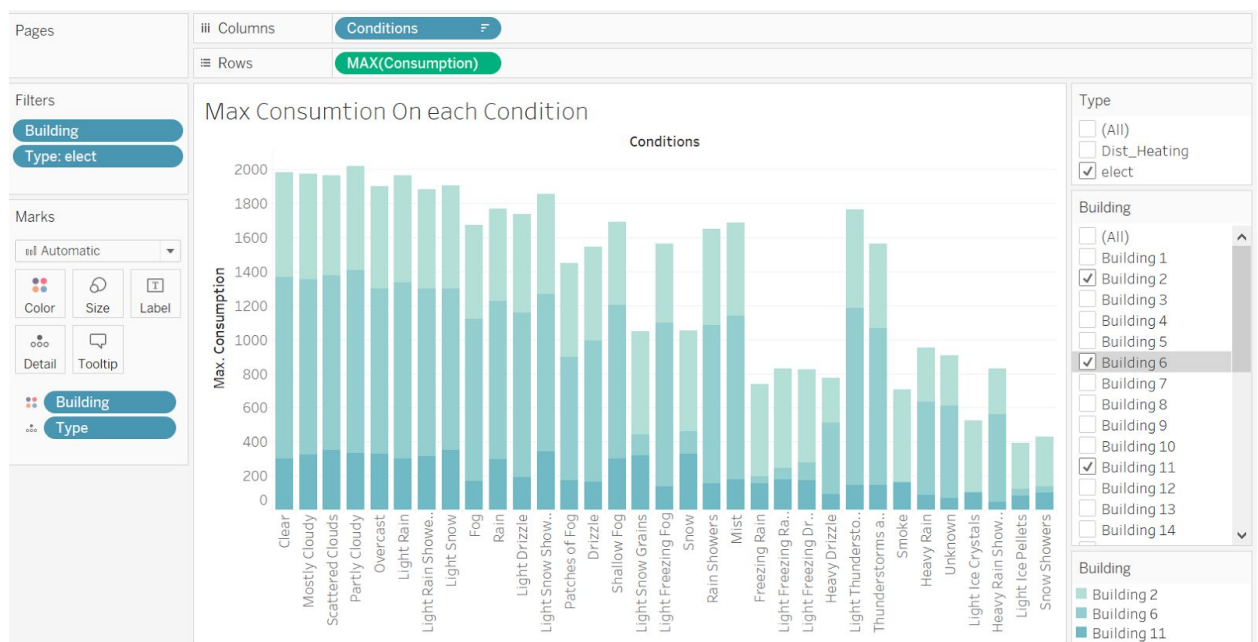
3. Side by side circle graph : Gives the comparison of power consumption for each or multiple buildings based on temperature for a particular type. The values are indirectly proportional during the summer months. For instance for building1 where the temperature is high in May - August the electric consumption is less
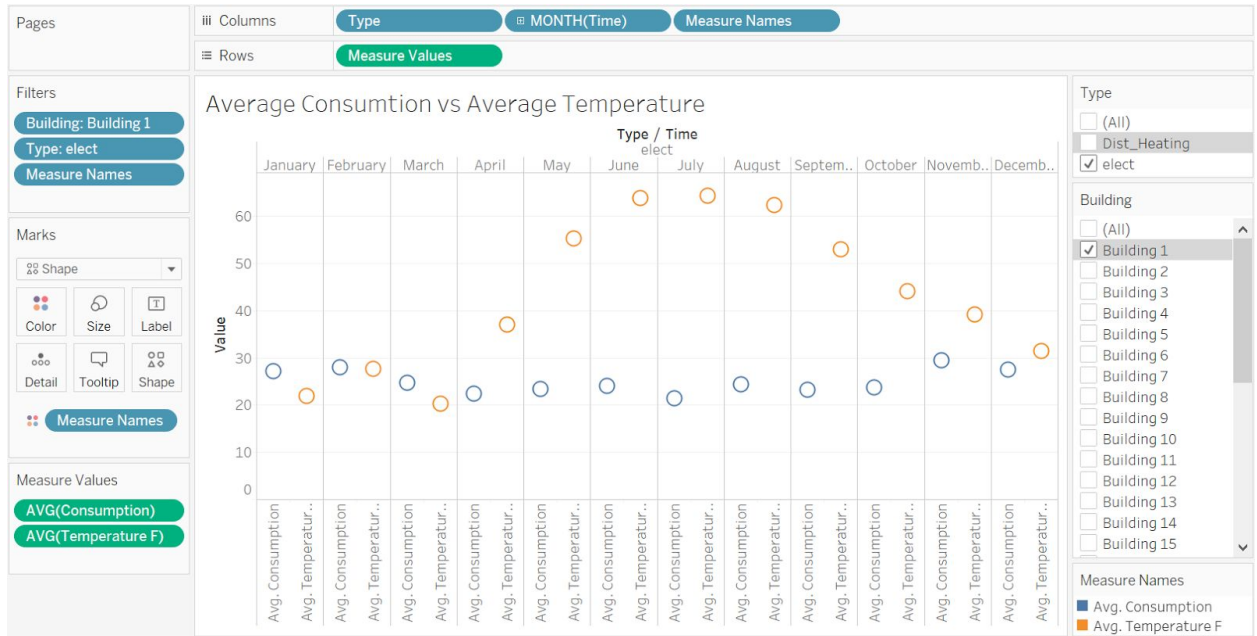

4. Bar Chart : It gives percentage of total consumption for each building based on meter type.


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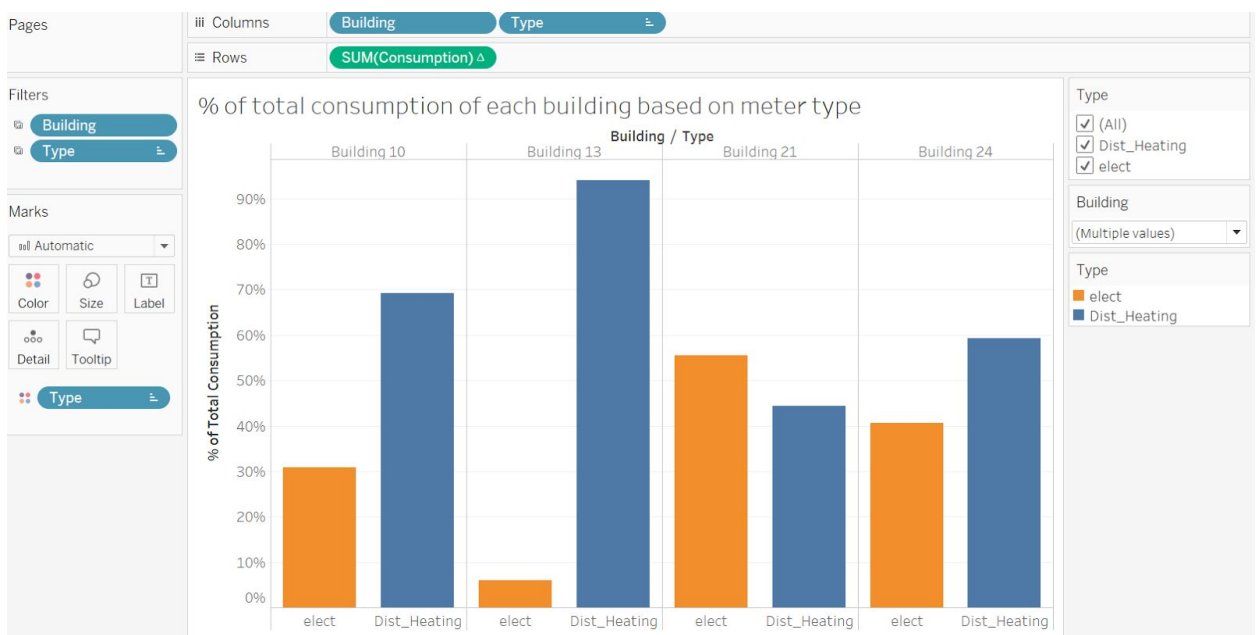
5. Tree map : Based on the meter type it fetches total consumption for each building and compared for heat and electric type of power consumption.As seen below, we can interpret that the building 12 consumed maximum power and it goes on decreasing for other buildings.
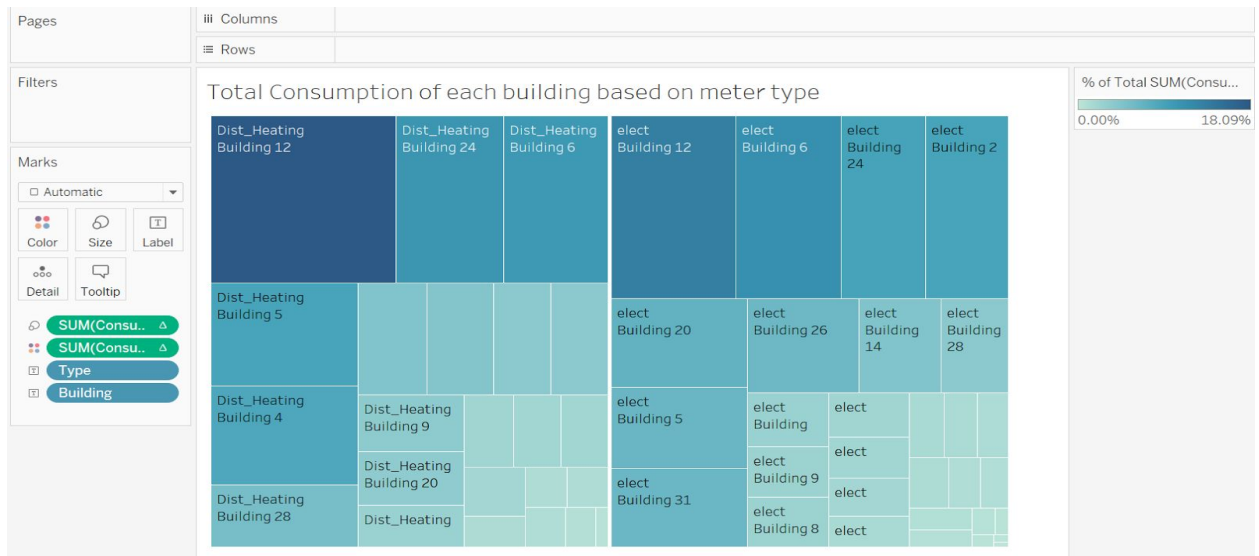

6. Pareto Chart: Tells 80% of power consumption depends on 20% of conditions. Reference line in the graph tells the breakage of consumption and conditions at 80 - 20.


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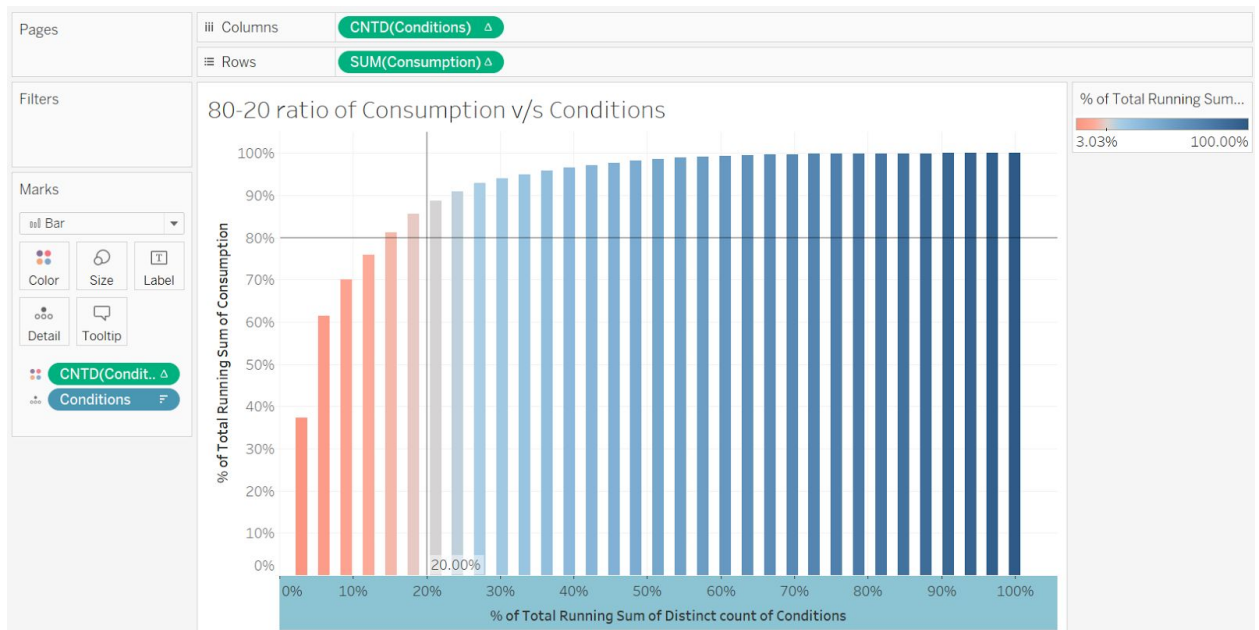
7. Cycle Chart: Gives average power consumption for all the building, where average consumption is grouped on quarter. For each quarter reference line tells average for that quarter and nodes of the lines gives average for particular month with the help of time series.
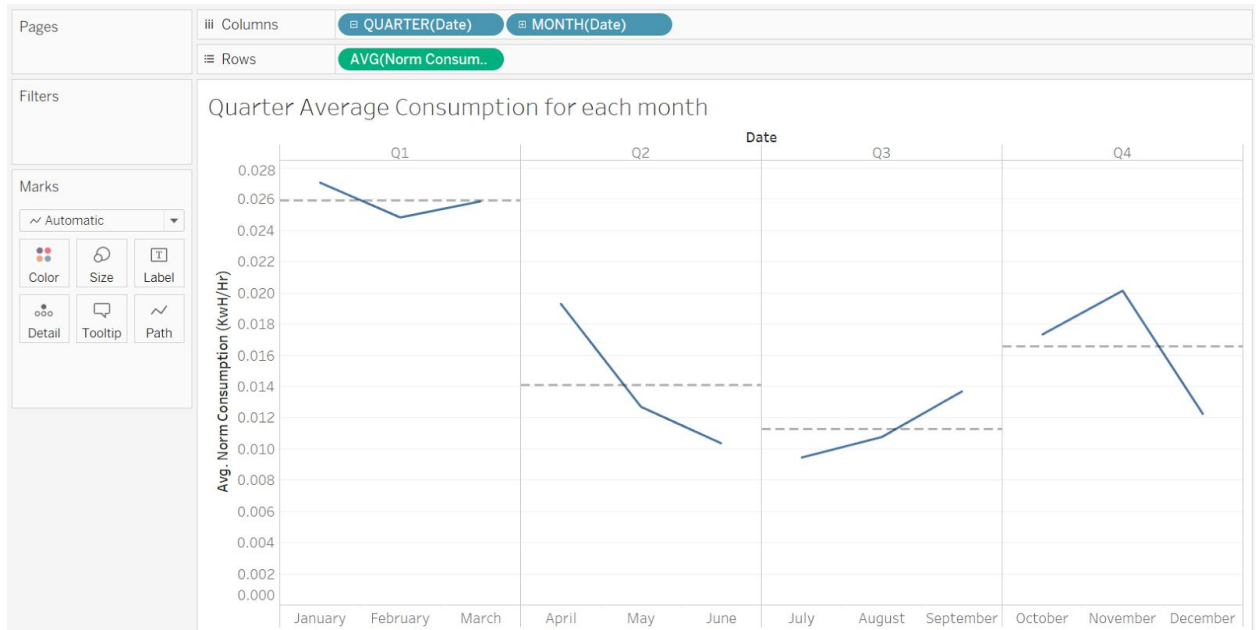

8. Scatter Plot: Gives information with the help of time series consumption for each hour and for each day. Filtered on day 1 of January month for building 1.

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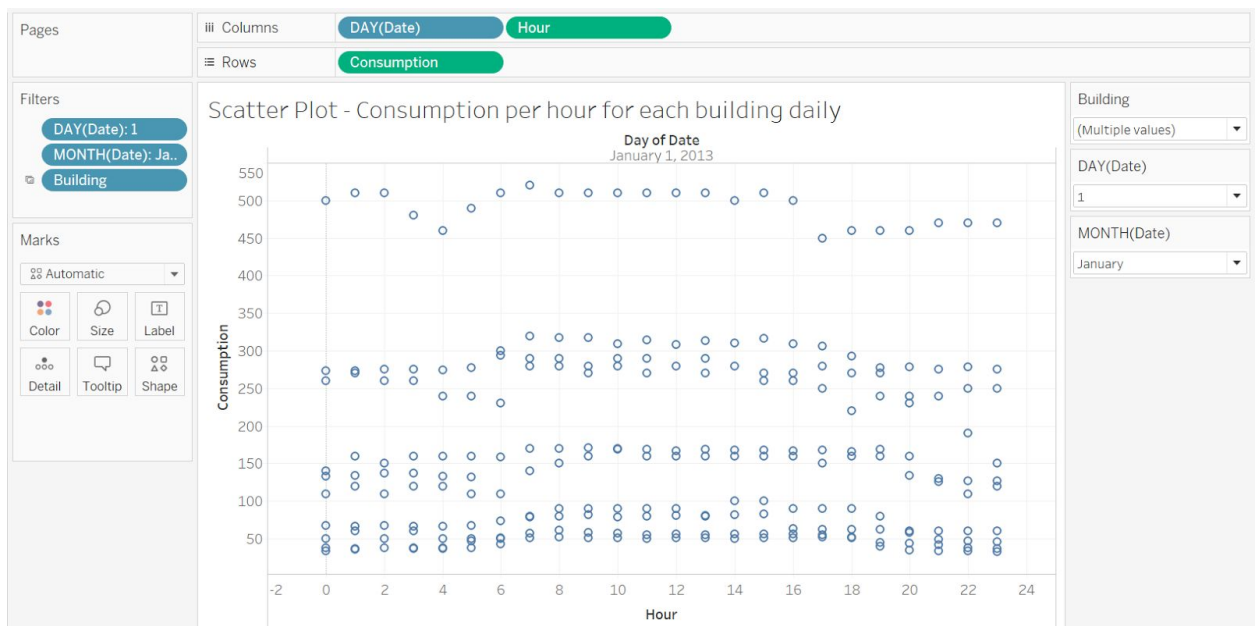
9. Line Chart: Gives total value of power consumption for each quarter. Filtered on combination of building10 and 13. Consumption is shown for heat and electricity individually.
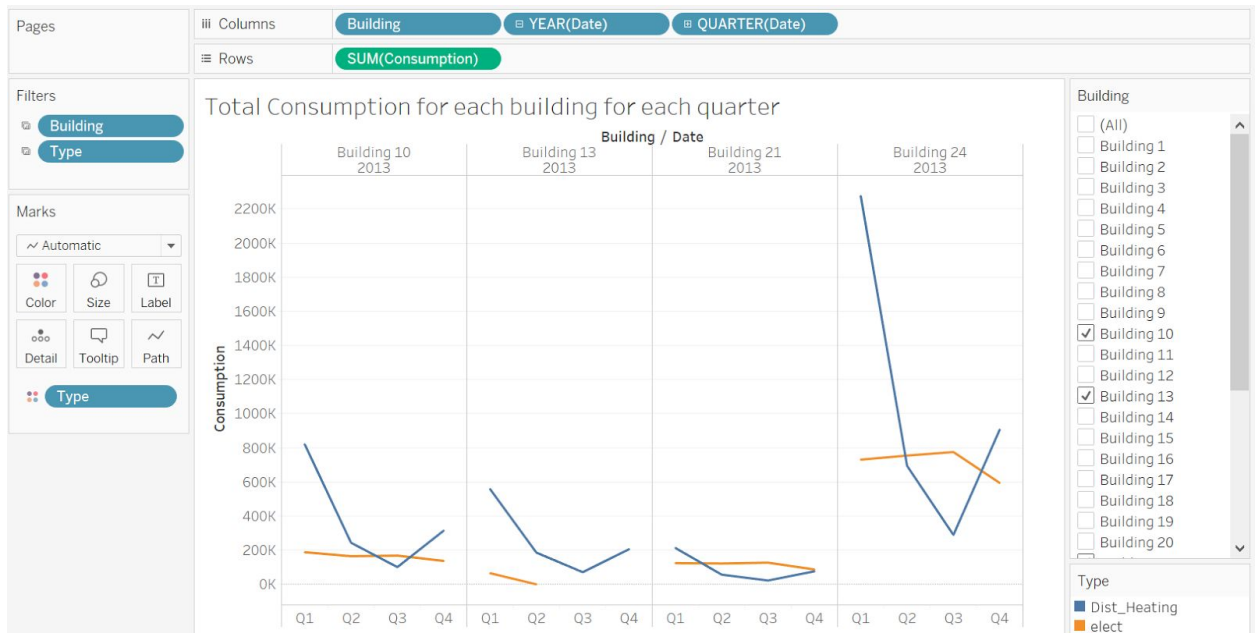
10. Line Graph: Tells consumption for each building based on area sq. ft. It is sorted in ascending order.

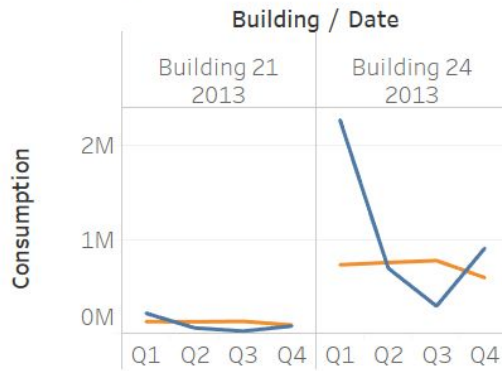Team Members : Kinjal Gada, Krutika Dedhia, Ankur Vora
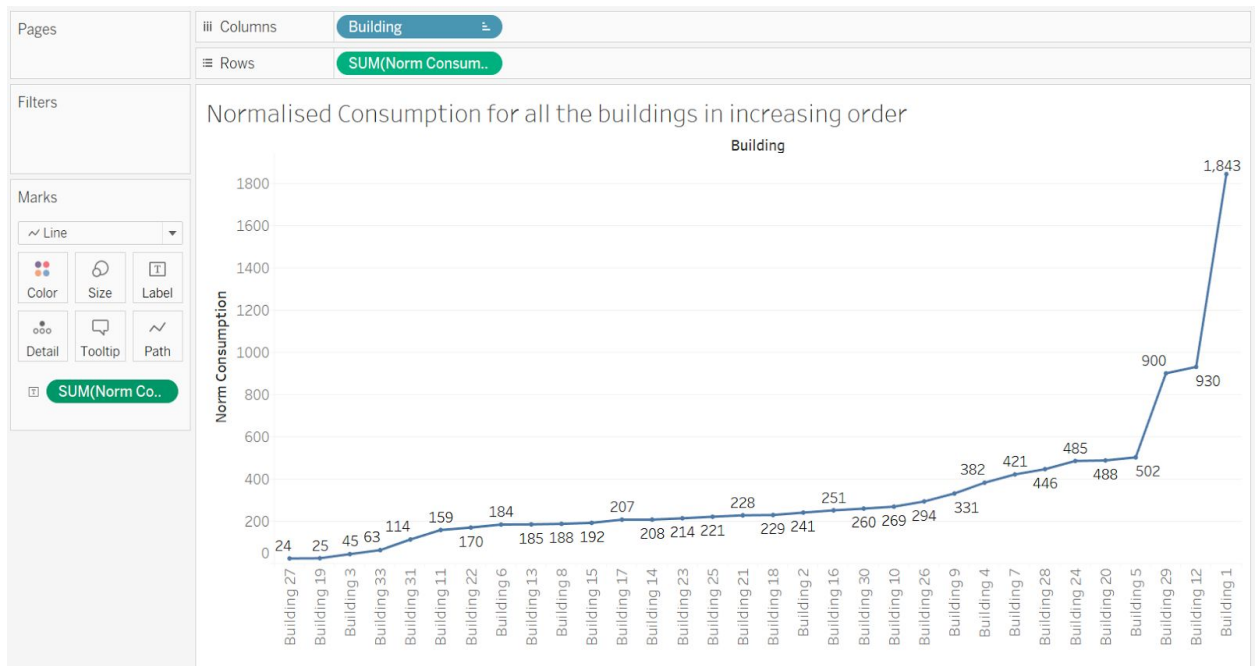
11. Bar Chart : gives total consumption value for each building based on meter type. Filtered on building 10 and 13 to get the comparison of consumption between these two buildings.
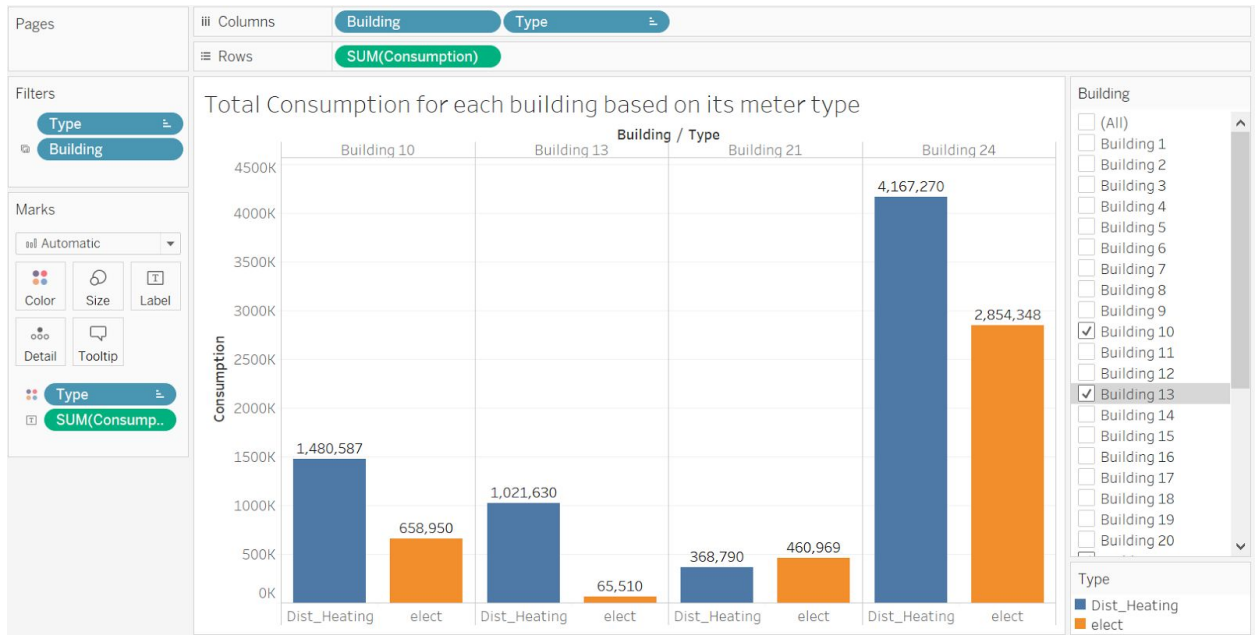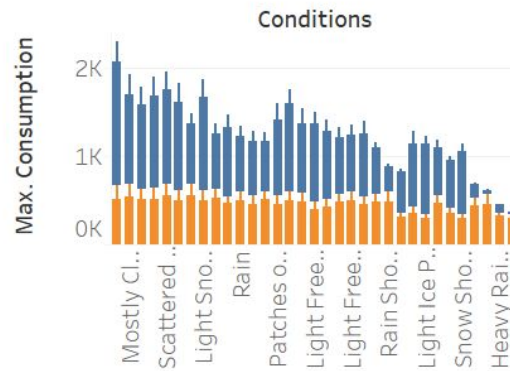
DASHBOARD:

R-Serve
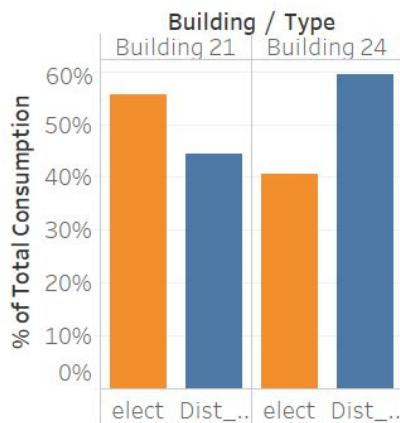
-   Install 'RServe' package to integrate R with Tableau.
-   Create 'calculated field' named 'ExpectedNormConsumption'.
-   Process features.
-   Compute function lm and pass all the features which affect the model.
-   Apply the changes and click 'Ok'
-   Drag and drop new created column into workspace and compare it with normalised consumption

For Building 14,.

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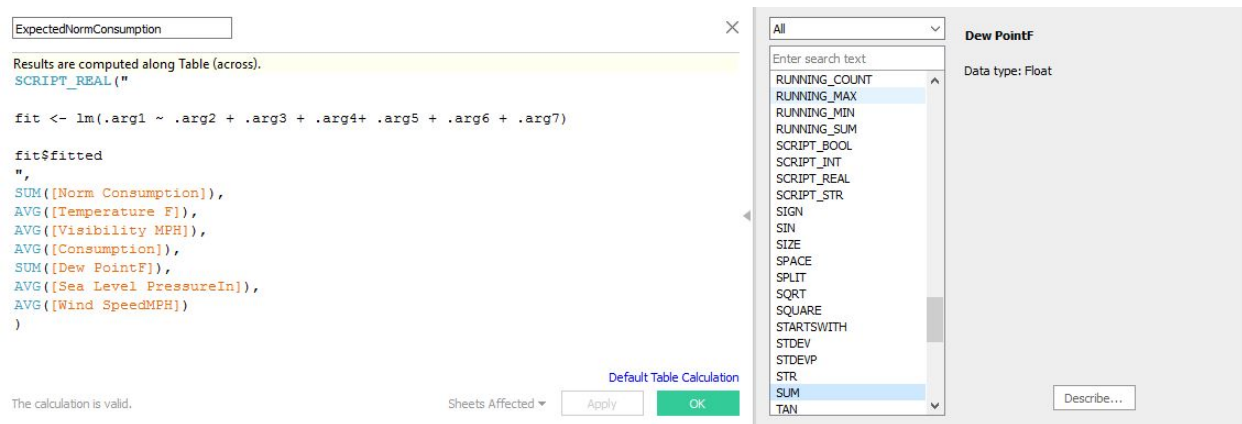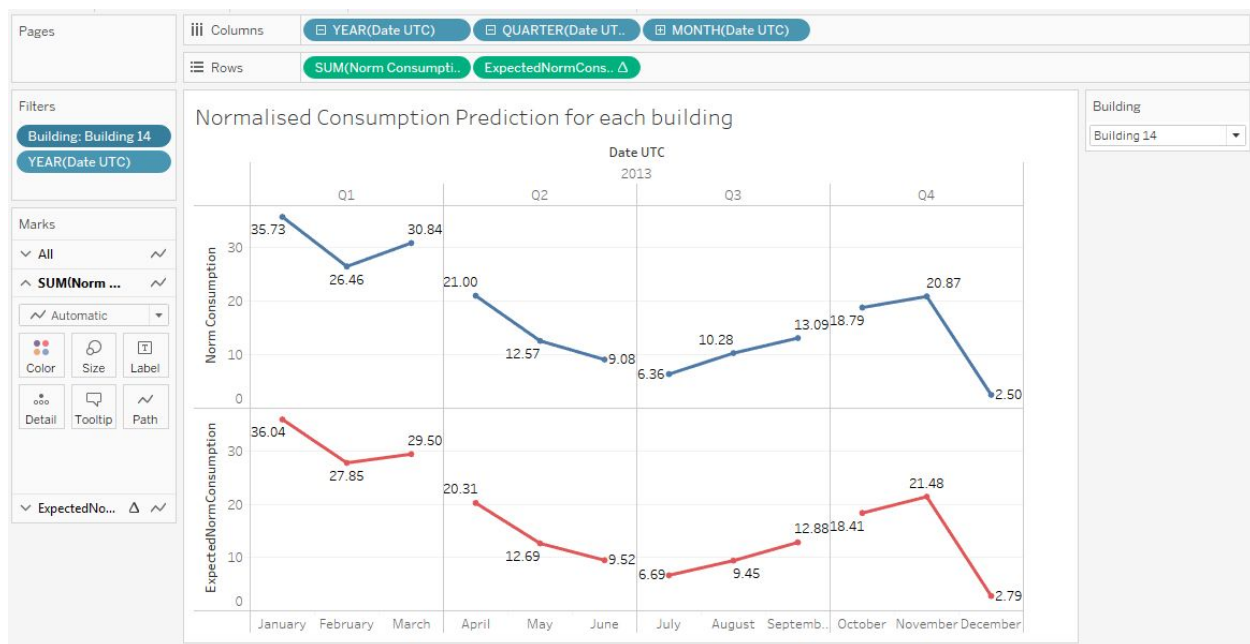
CONCLUSION

In this part, we have conducted exploratory data analysis using Tableau for each building based on different dimensions and measures. We have been able to compare and get insights of the consumption values for various parameters.

REFERENCES

1. http://www.tableau.com/sites/default/files/media/using-r-and-tableau-software_0.pdf (R-Serve)