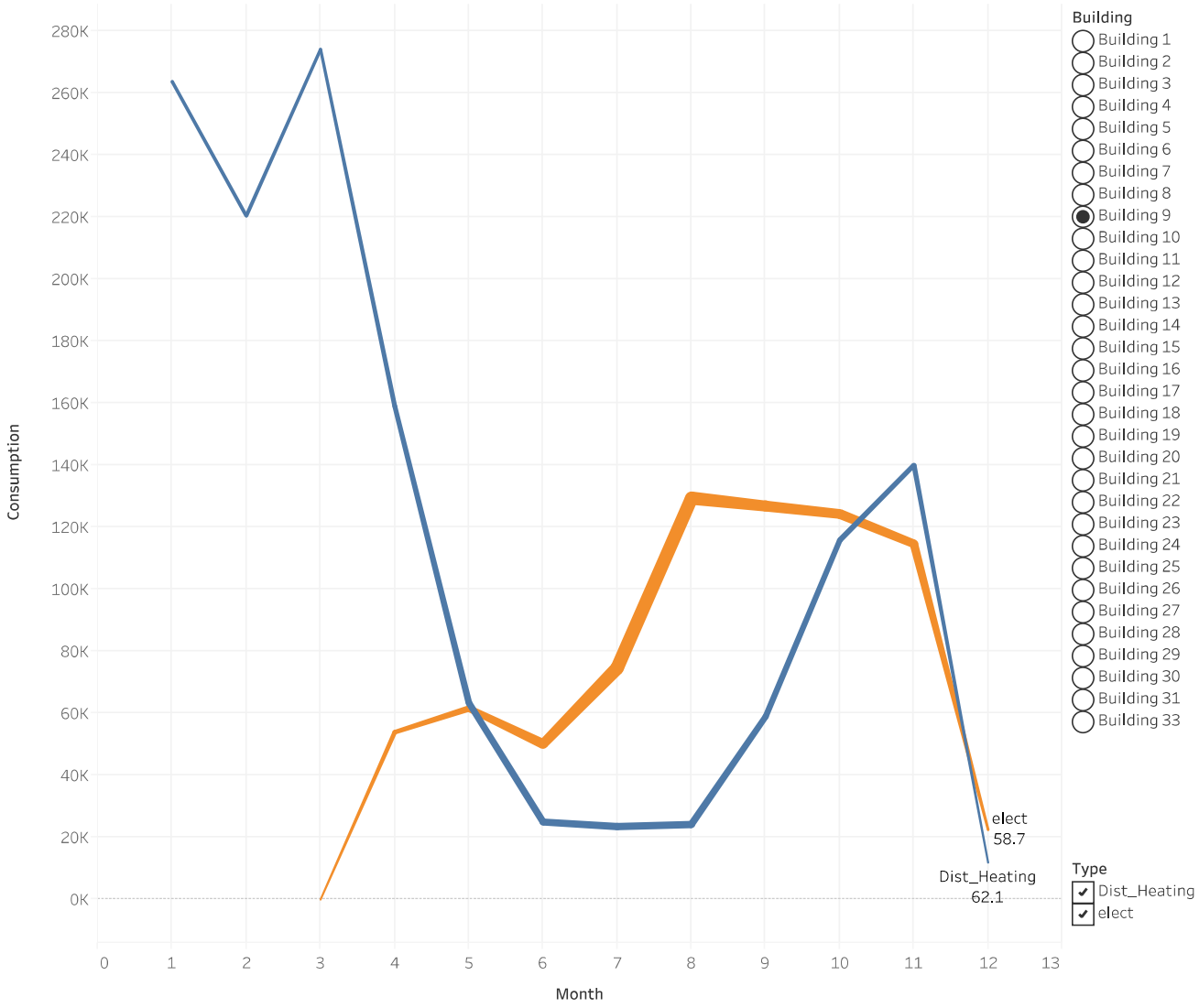
Contrast for electricty and dist heating consumption

Trend Analysis for Dist Heating and Electricity consumption for each..

Dist Heating and Electricity consumption by Build..



The chart represents trend analysis for a particular building based on the type of usage - electricity or heating.
The Trend analysis over the months (TIME SERIES) describes the following:
The consumption based on the heating is HIGH for the months January to March. The consumption for electricity is low in these months or even 0. This proves that the temperature is cooler in the months of January to March.
The thickness of the lines depicts the temperatures, the thicker the line. more is the temperature.

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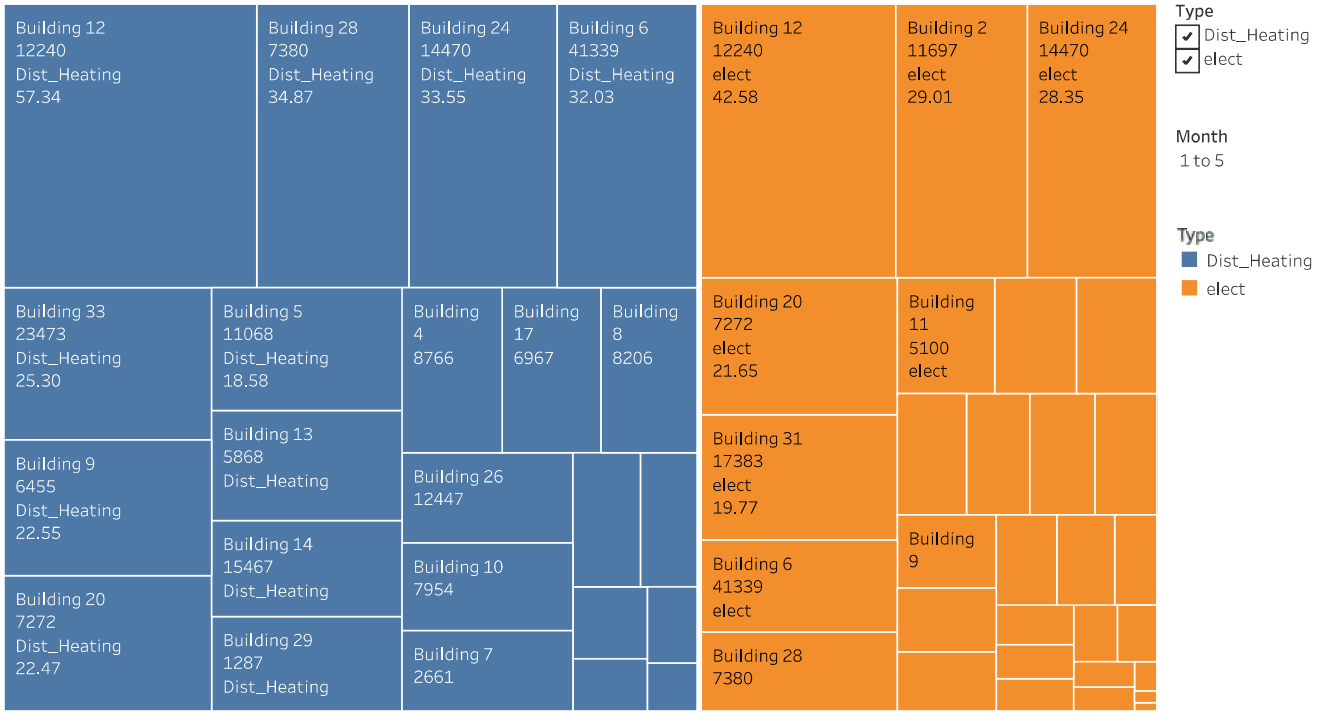


The HEAT MAP depicts the consumption based on the type of usage - electricity or heating. The larger the area of the map, more the consumption
The plot also gives the area of the building and the average consumption
We can identify relation between area and consumption. We can identify the months in which the heating and electricity consumption are high.

Feature based analysis

Average Temperature and Consumption analysis based on the ..	Pie chart for share of % consumption by building	Constrast for average consumption on working days and Holi..	Top 10 buildings by consumption	Average consumption based on area

Average Temperatures for a given condition

Average Consumption
HIGH CONSUMPTION
REGULAR CONSUMP..

Conditions	Avg. Temperature F	Avg. Consumption
Light Thunders..	55.0	20.0
Ice Crystals	19.4	24.0
Thunderstorm	62.9	24.2
Unknown Preci..	33.7	24.7
Heavy Rain Sho..	66.0	25.7
Heavy Fog	26.7	26.0
Light Fog	34.0	26.0
Snow Grains	23.5	28.3
Fog	46.2	84.4
Light Thunders..	69.5	89.0
Patches of Fog	41.5	91.4
Thunderstorms..	61.5	92.1
Heavy Rain	51.3	94.0
Rain Showers	50.7	95.6
Light Rain Sho..	51.1	97.5
Heavy Drizzle	42.8	99.9
Scattered Clou..	52.7	103.0
Clear	45.2	107.5
Drizzle	43.9	112.0
Rain	43.6	112.1
Light Drizzle	44.7	114.7
Light Rain	46.5	116.9
Partly Cloudy	47.6	117.5
Shallow Fog	31.9	118.5
Mostly Cloudy	45.2	118.9
Overcast	37.5	121.7
Heavy Snow	26.5	127.9
Light Ice Pellets	32.0	129.8
Mist	34.4	131.0
Unknown	43.0	148.4
Light Freezing ..	30.4	148.5
Freezing Rain	28.6	151.2
Light Freezing ..	21.4	153.1
Light Snow Gra..	25.2	156.9
Light Ice Crysta..	13.7	172.6
Light Freezing ..	28.4	175.3

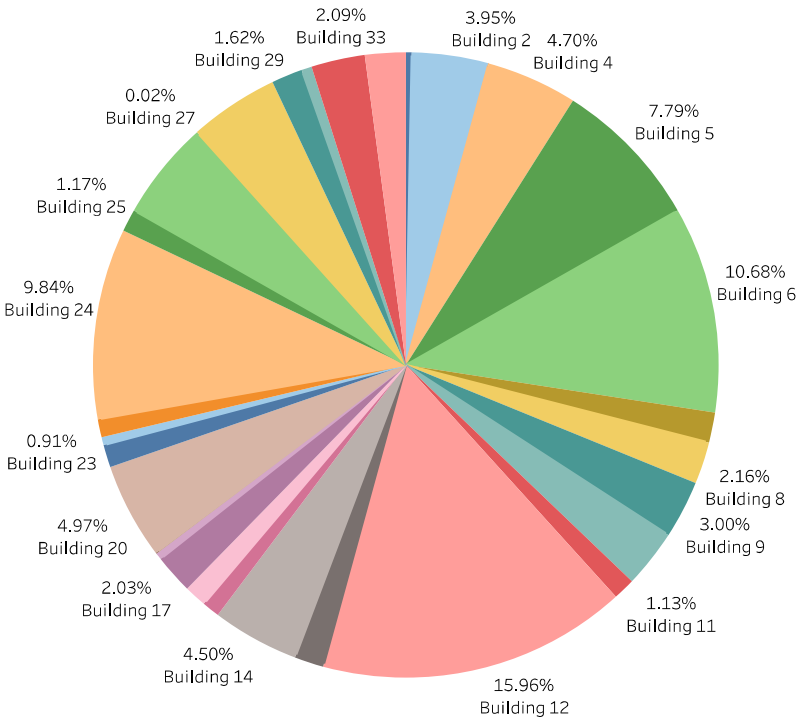
The chart provides an average value for Temperature and consumption based on the condition. We have created bin
to check if the consumption and temperature are high

Feature based analysis

Average Temperature and Consumption analysis based on the ..	Pie chart for share of % consumption by building	Constrast for average consumption on working days and Holi..	Top 10 buildings by consumption	Average consumption based on area

Consumption share of each building by Month

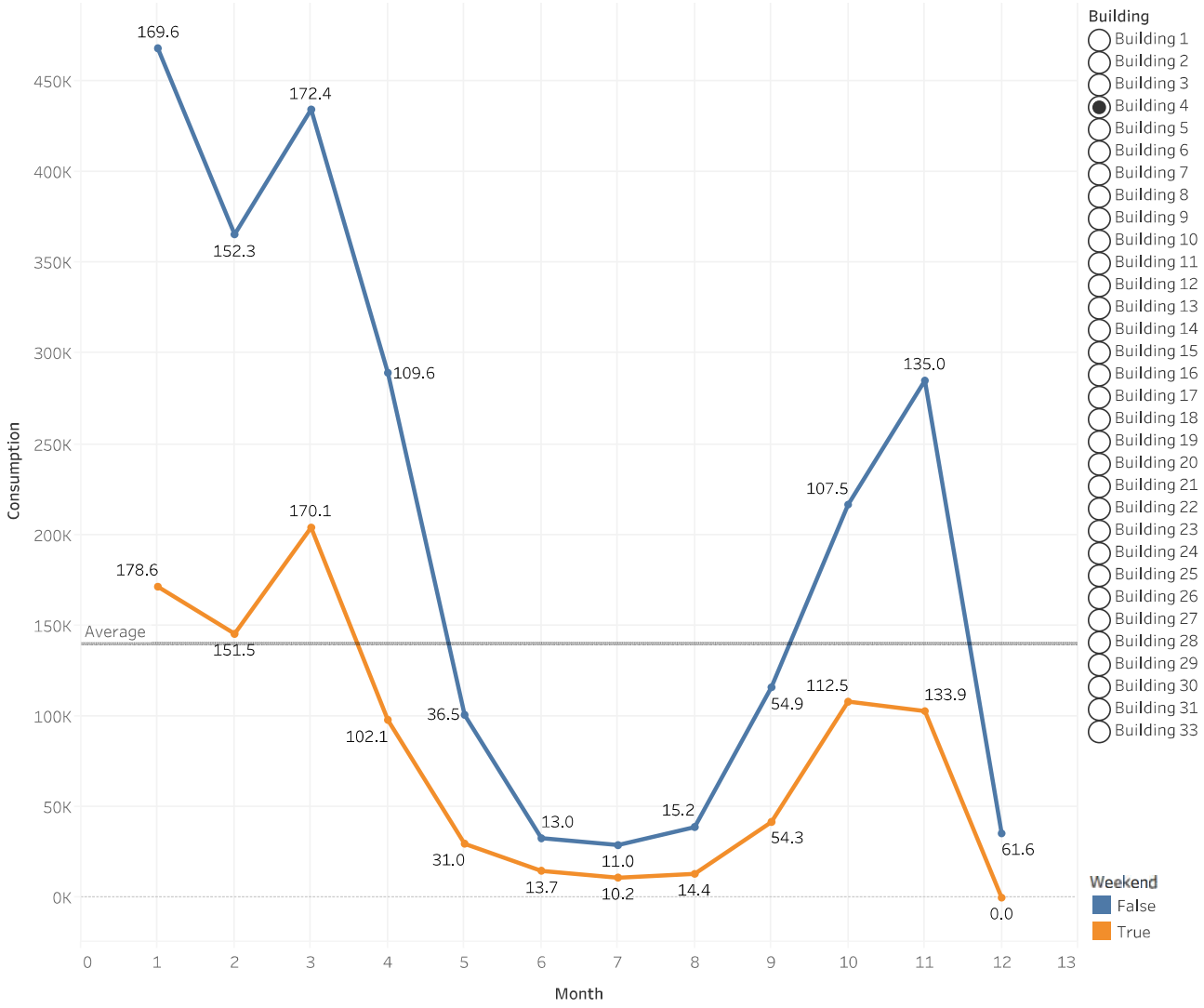
Month
1 to 12



The pie chart gives the percentage of usage based on consumption per building based on the months of the year.
We can identify the buildings that have more usage and contribute to higher overall consumptions.

Feature based analysis

Average Temperature and Consumption analysis based on the ..	Pie chart for share of % consumption by building	Constrast for average consumption on working days and Holi..	Top 10 buildings by consumption	Average consumption based on area

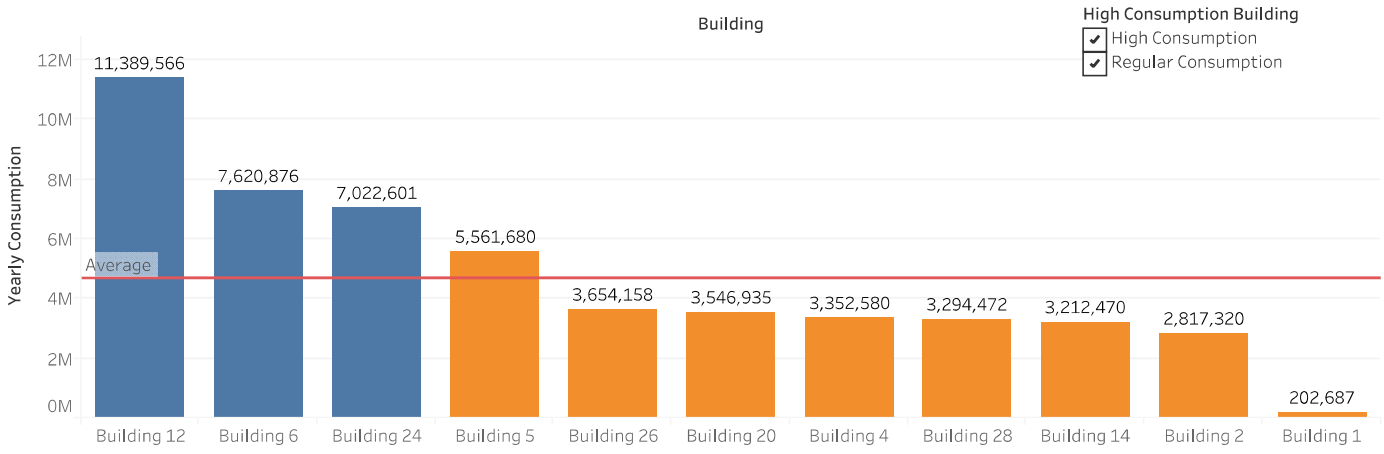


For a given building, over a period of the year, we can identify the consumption for a working day and holiday. The graph represents that the consumption is complementary on those days. We have used clustering techniques to cluster the Weekend as True or False.

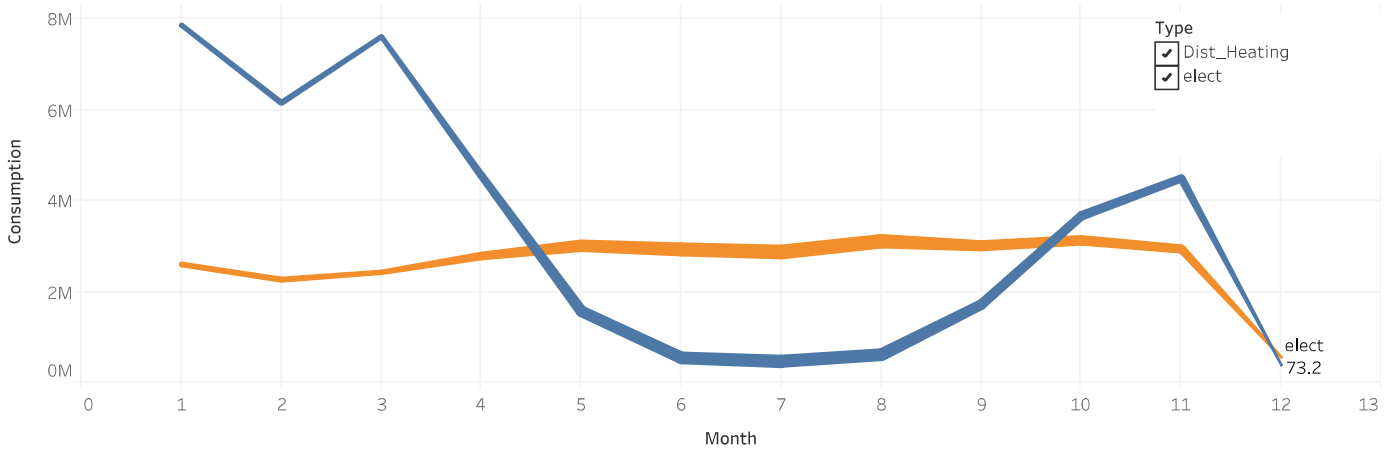
Feature based analysis

Average Temperature and Consumption analysis based on the ..	Pie chart for share of % consumption by building	Constrast for average consumption on working days and Holi..	Top 10 buildings by consumption	Average consumption based on area

Yearly Consumption for Top 10 Buildings



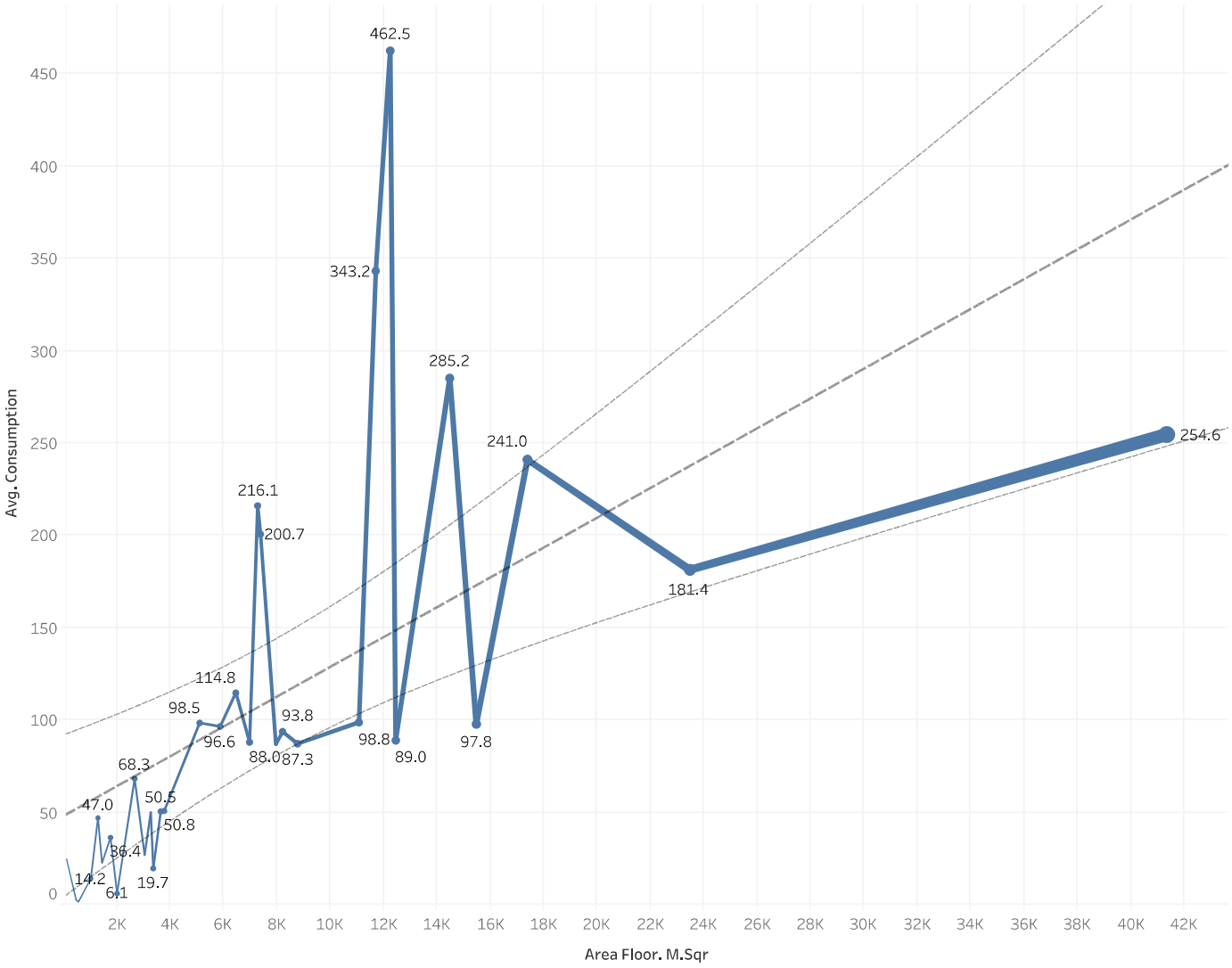
Trend Analysis for Monthly Consumption by type of usage for each building



The first graph depicts the TOP 10 buildings with the highest consumption. We have clustered the Buildings based on consumption as High and Low.
The trend analysis for a particular building gives more insights on consummation over the months. Thicker the lines more the temperature. The usage - elect and dist heating are complementary.

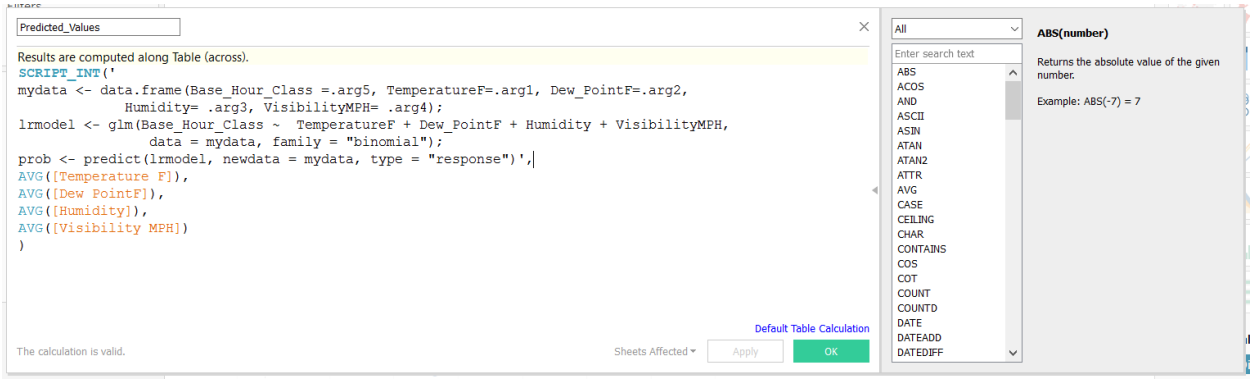
Feature based analysis

Average Temperature and Consumption analysis based on the ..	Pie chart for share of % consumption by building	Constrast for average consumption on working days and Holi..	Top 10 buildings by consumption	Average consumption based on area

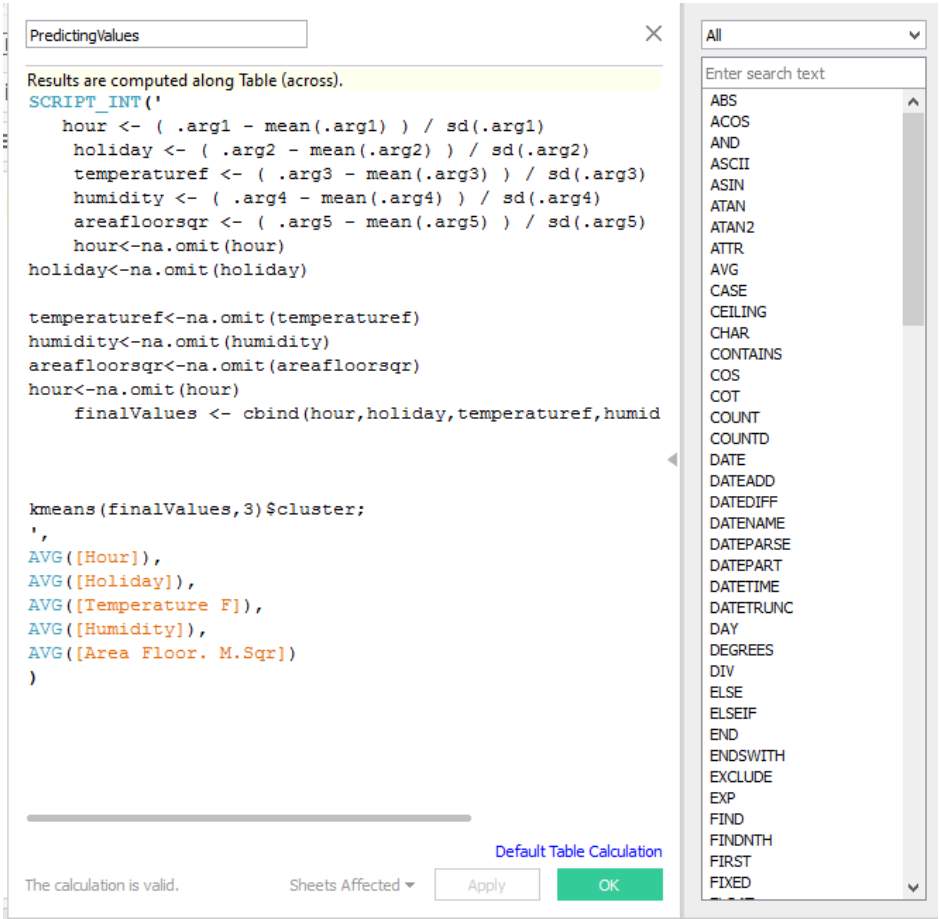


Average consumption based on Area: Most buildings with similar areas have a liner form of consumption. There are buildings whose area is more than usual and their consumption's are higher. The thicker the line, more the area. For buildings whose area is less, the consumption is less. As the area increases, the consumption increases.

Logistical Regression:



K-means Clustering :



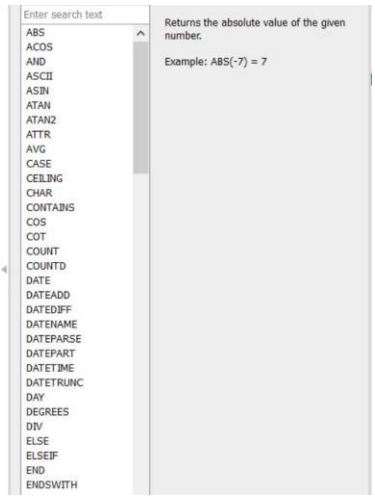
Neural Network Regression:

Results are computed along Table (across).

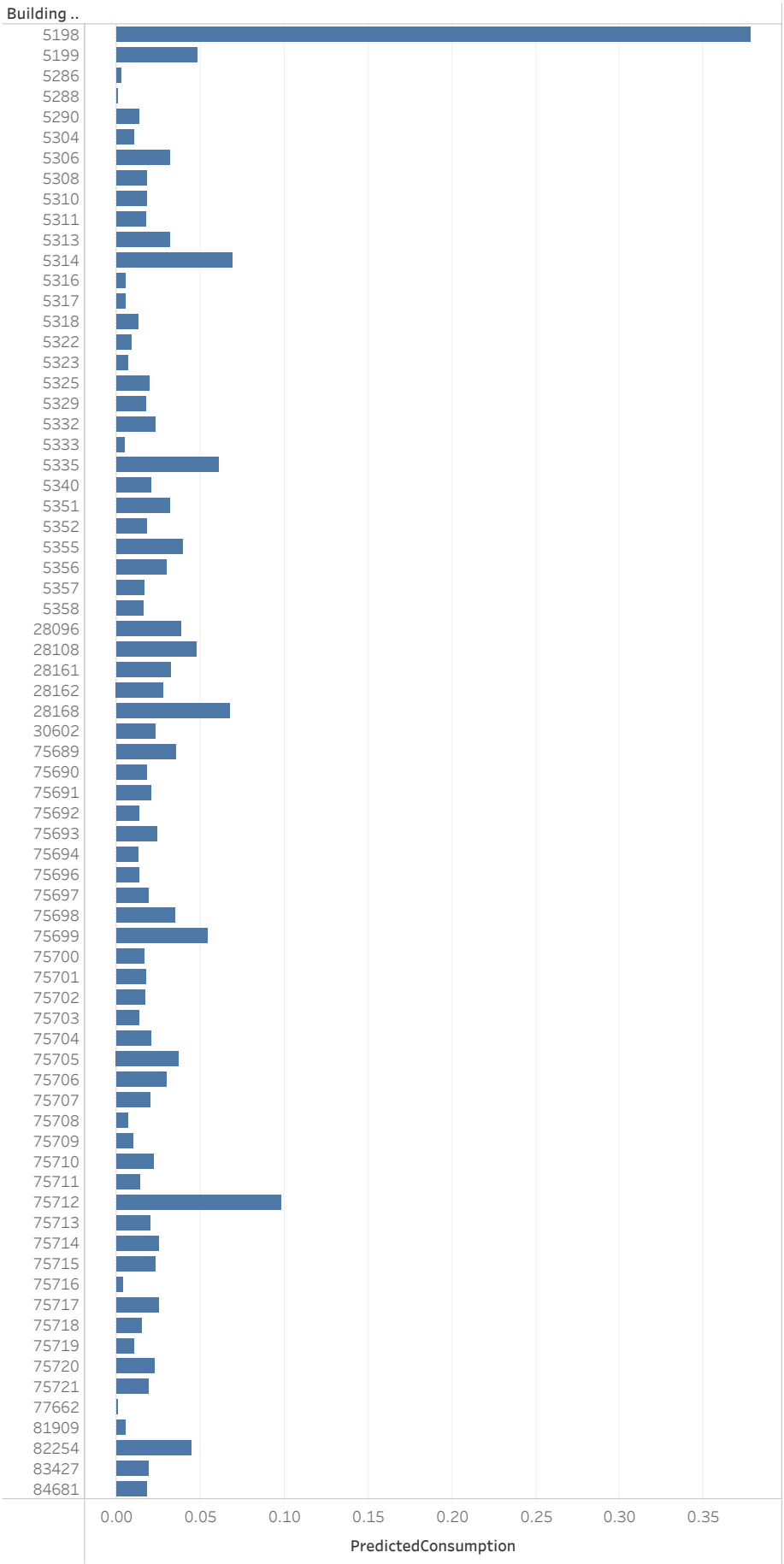
```
SCRIPT_REAL("
library(nnet)
neural<-nnet(.arg1 ~ .arg2 + .arg3+.arg4 +.arg5 +.arg6,linout=TRUE,size=10)
neural$fitted
"
,
AVG([Normalized Consumption]),



AVG([Temperature F]),
AVG([Dew PointF]),
AVG(Humidity),
AVG([Visibility MPH]),
AVG([Wind Dir Degrees])
)
```

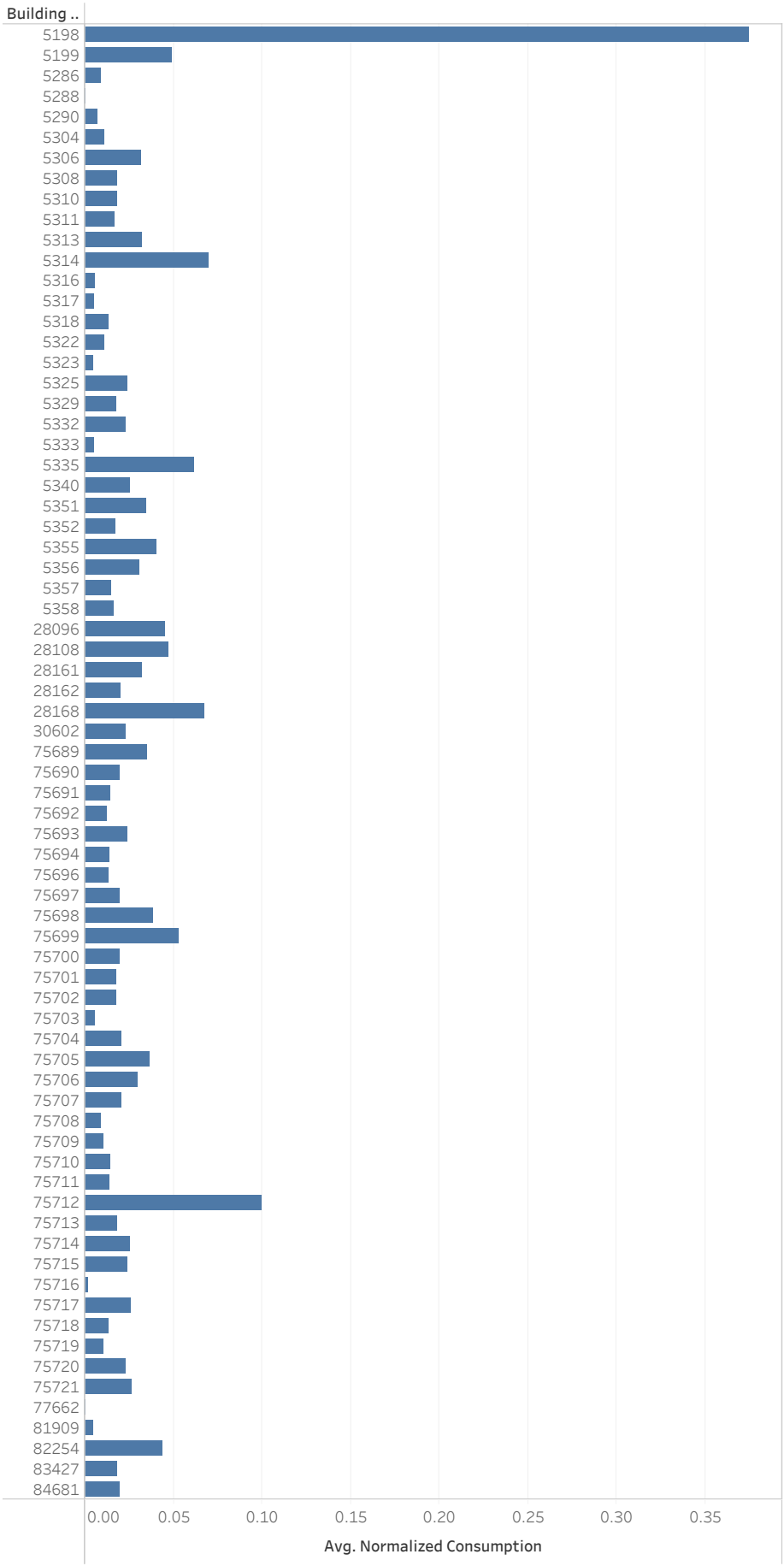


Building Consumption for a Year



PredictedConsumption and average of Normalized Consumption for each Building ID.

Building Consumption for a Year



PredictedConsumption and average of Normalized Consumption for each Building ID.