Zenatix Solutions Task
Utkarsh Kumar Srivastava

Task Solution

Question. The data contains power for multiple ACs at some hotel in Gurgaon.

1. Identify patterns/trends in the data?
2. Which AC was used the most/least?
3. Relate this power data with the outside temperature of Gurgaon. (Feel free to use temperature data from any website online. How will you fetch that data in your analysis?
4. Using the power data, predict/forecast the power consumption?

This problem is open-ended for exploration analysis. Feel free to provide any insights from the data by loading the data using Python Pandas library. The more insights you get, the better.

Solution.

We have got the data of power consumption by 18 AC in a hotel over two months. Data was recorded for every minute and now we have to provide our analysis on the same.

Total Power Consumption in Hotel over two months

Month	Total Power Consumption
Aug	1227038.29187
Sep	1187005.96869
Total power consumption two month	2414044.26056

This table shows the total power consumed by ACs in the hotel over two month and also the added value of power consumed by ACs in two months.

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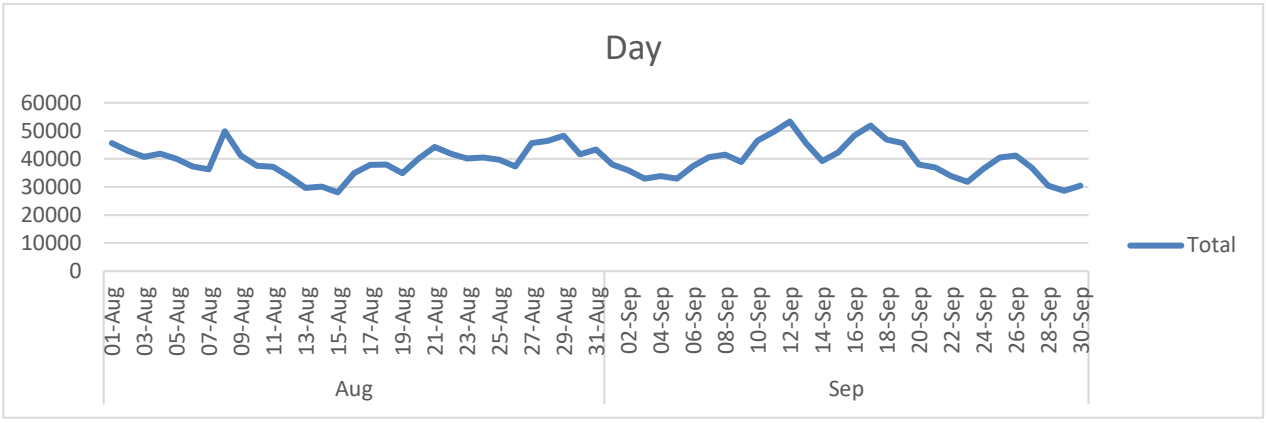
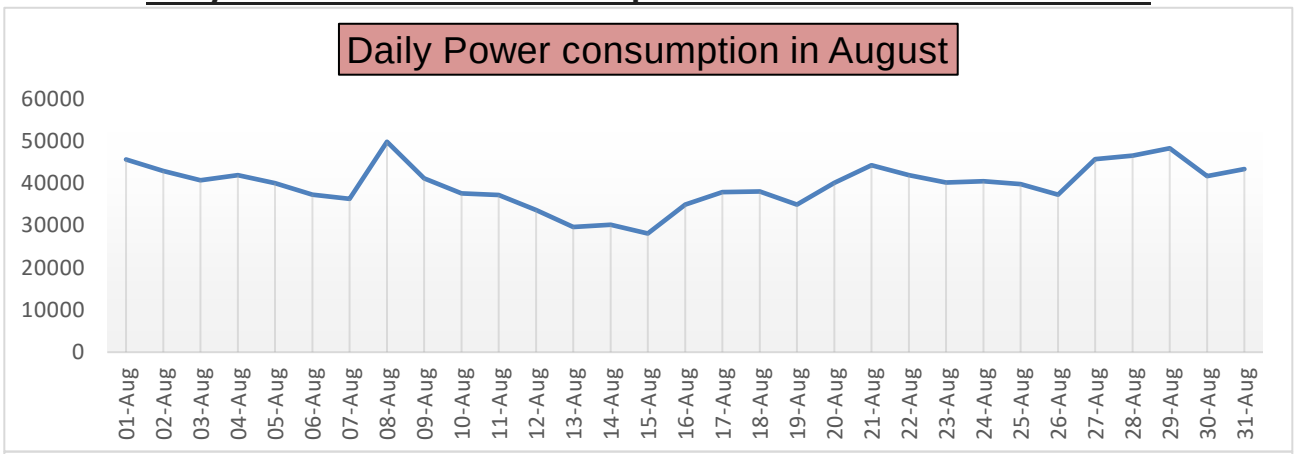
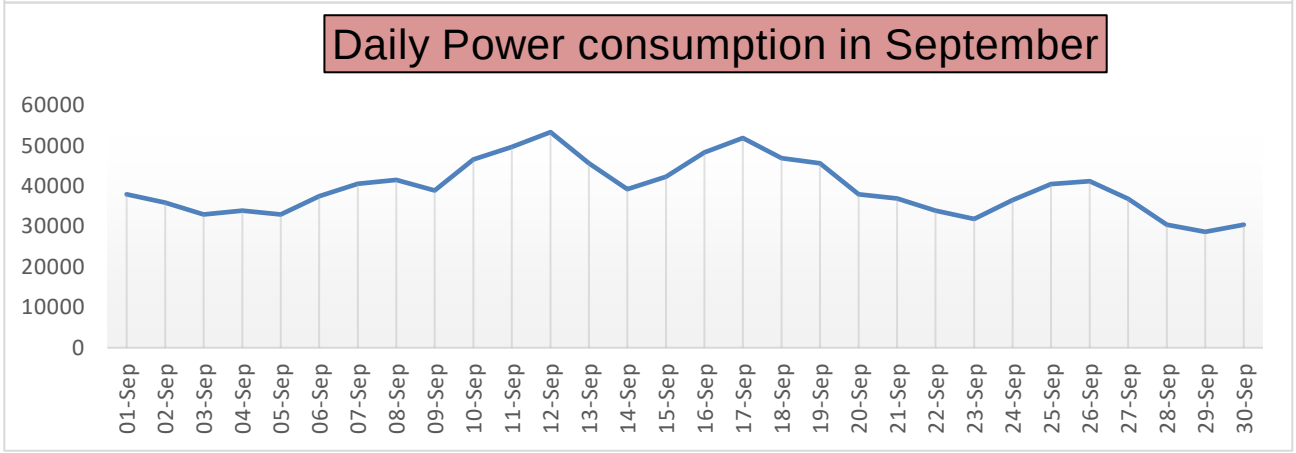
1) Identify patterns/trends in the data?

Now we will take a look at trend of daily power consumption in the hotel for two months.

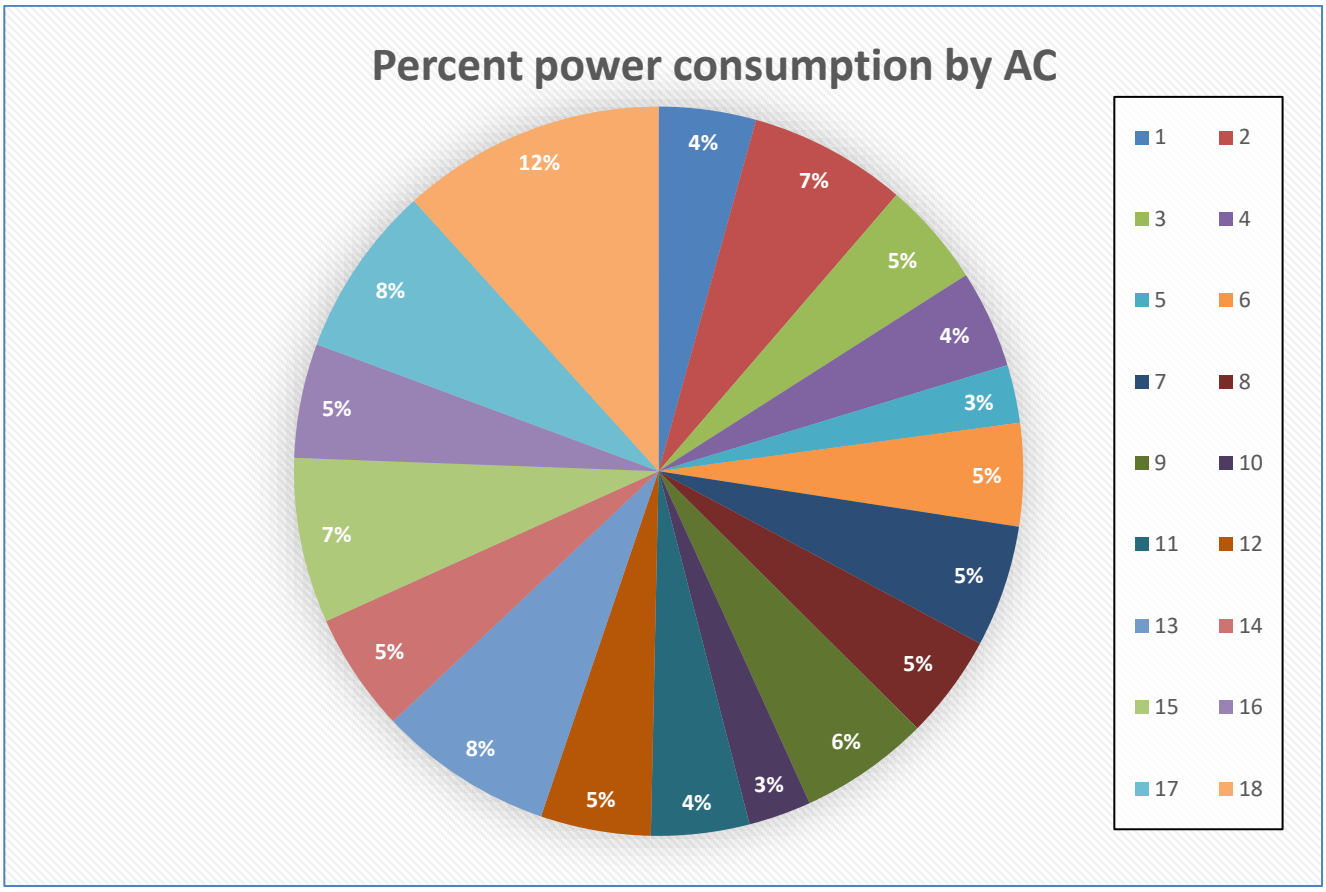


Daily Pattern of Power Consumption in the hotel for two months



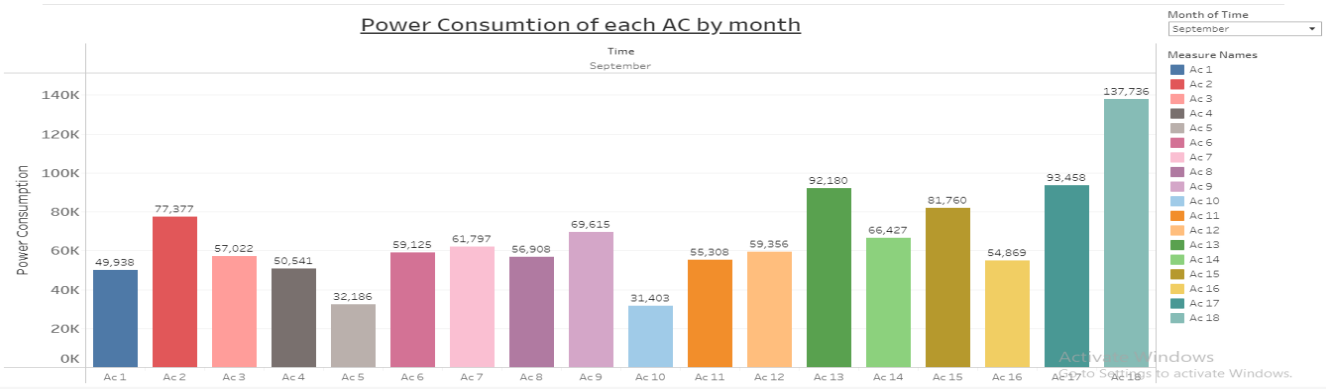


Now we will look at percentage power consumed by each AC in the two months.



This diagram shows the percent of power consumed by each AC over the combine period of two months. Here we can observe that power consumed by AC18 is 12% of total power consumed, which a matter of concern. in September whereas AC5 and AC10 are consuming least power in month of September.

Now we will look at power usage by ACs in each month individually.



Monthly Power consumption by each AC

Here we can observe the power usage of each AC in month of September. We can see that AC18 is consuming highest power in September whereas AC5 and AC10 are consuming least power in month of September.

Note: We can see the power consumption of each month using filter selection.

Please find this viz on my Tableau Public profile:

https://public.tableau.com/app/profile/utkarsh.kumar.srivastava/viz/powerconsumtionbyeachACbymonth/PowerConsumtionofeachACbymonth?publish=yes

Here we will look at daily power consumption trend by each AC in a month and also, we will take a deeper look at hourly power consumption pattern on each day.

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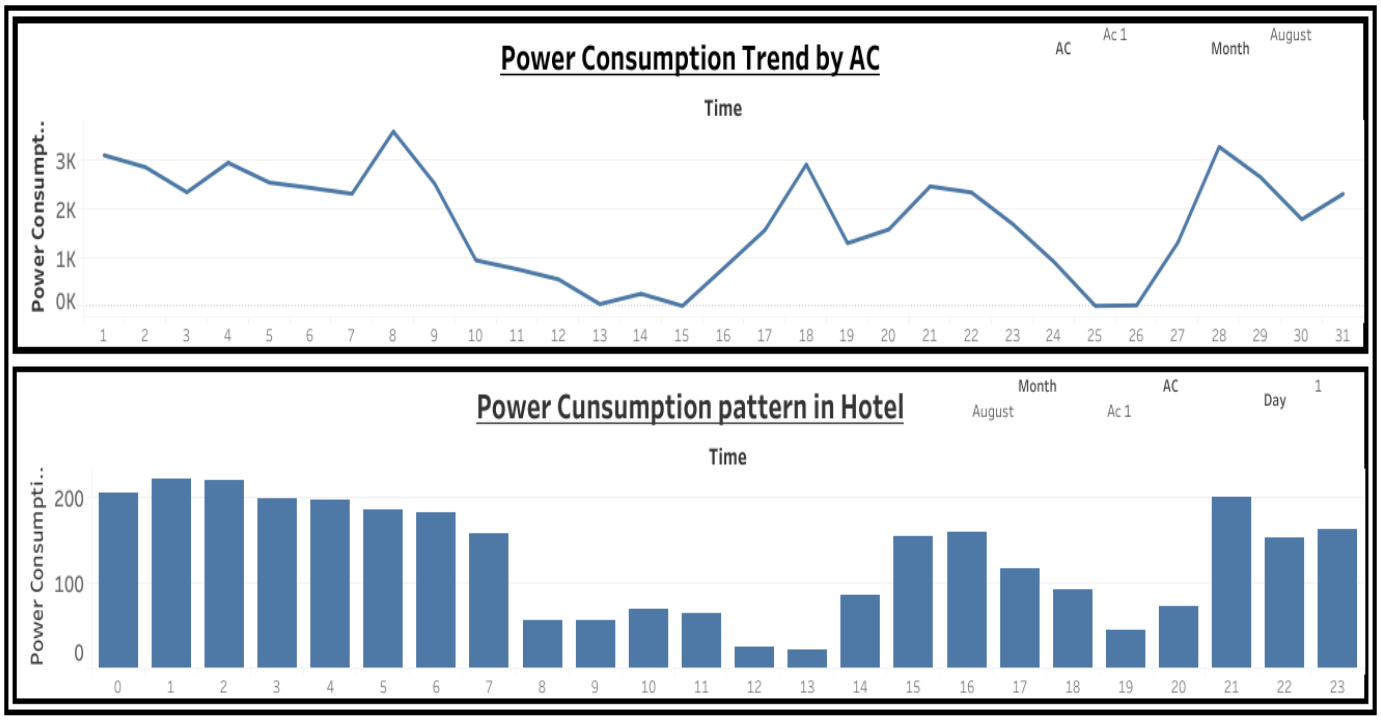

Daily and Hourly Power Consumption in Hotel

Here we can see daily trend of power usage by each AC in a month.

Note: Using the filter above get the daily power consumption trend for different ACs.

We can also get the hourly power consumption by different ACs on different days.

Note: Using the above filters get the hourly power usage of different ACs of different days.

Please find this viz on my Tableau Public profile:

https://public.tableau.com/app/profile/utkarsh.kumar.srivastava/viz/PowerConsumptionDashboard_n/Dashboard1

2 Which AC was used the most/least?

By analyzing data using pandas we found that, AC18 has consumed most power and AC5 has consumed least power in combined month August and September.

In month of August most power was consumed by AC18 (144831.86) and least power was consumed by AC 5 (29964.796).

And, in month of September most power was consumed by AC18 (137735.703) and least power was consumed by AC 10 (31402.63).

3. Relate this power data with the outside temperature of Gurgaon. (Feel free to use temperature data from any website online. How will you fetch that data in your analysis?

We found the precious year weather data of Gurgaon from 1-Aug-2019 to 30-Sept-2019 from this website:

https://www.visualcrossing.com/weather/weather-data-services

Using pandas, we correlated the outside temperature of Gurgaon with the daily AC pow er consumption and we found the correlation of 0.5006155564787949, which is weak correlation.

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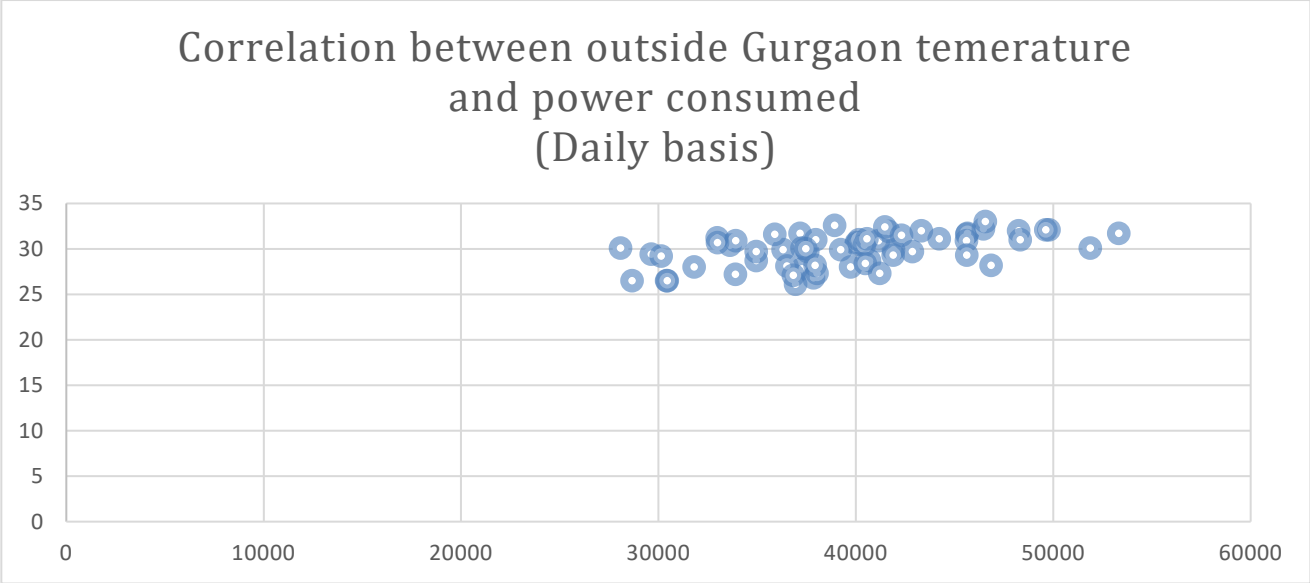
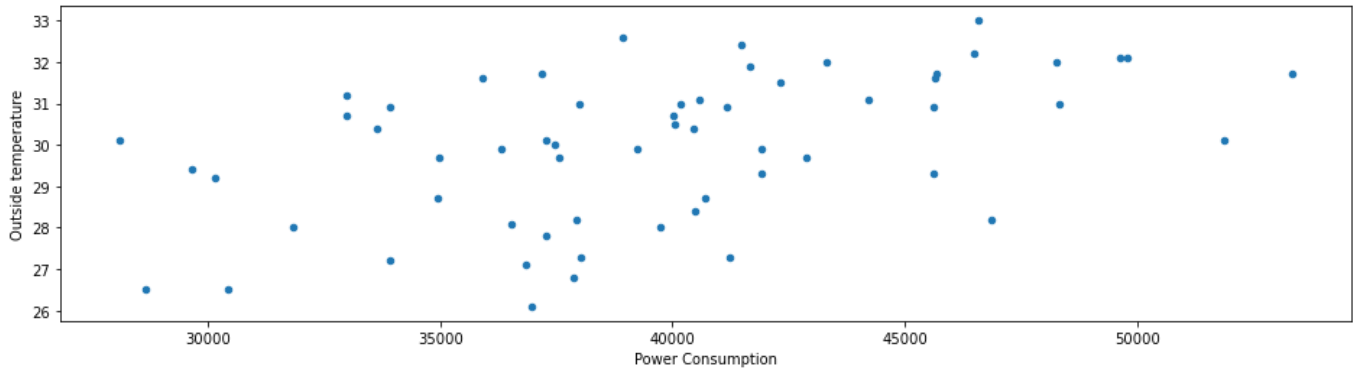


Scatter plot between the power consumed to the outside temperature

Here we can see clearer picture of correlation between AC power consumption and Gurgaon outside temperature.



This does not show a very strong correlation between these two variables.