

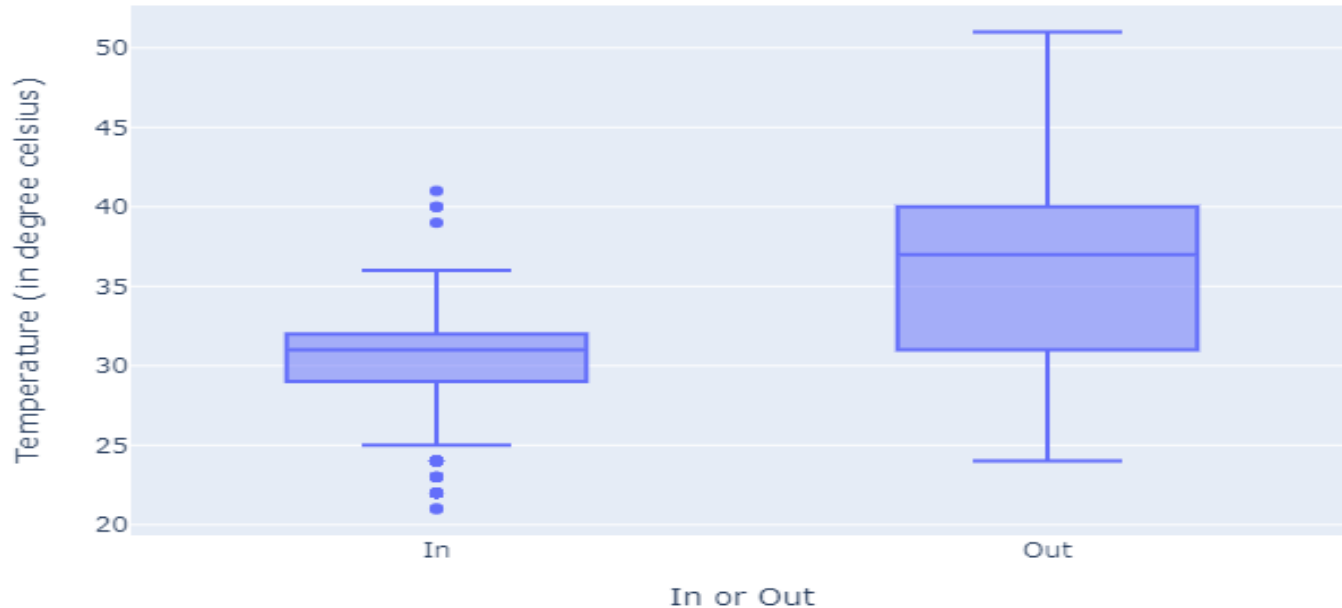
# INTERNET OF THINGS

## TEMPERATURE READINGS – DATA ANALYSIS


### REPORT

# Temperature Inside and Outside Room

Overall Temp. Variation Inside-Outside Room



# Summary of Inside/Outside Boxplot:

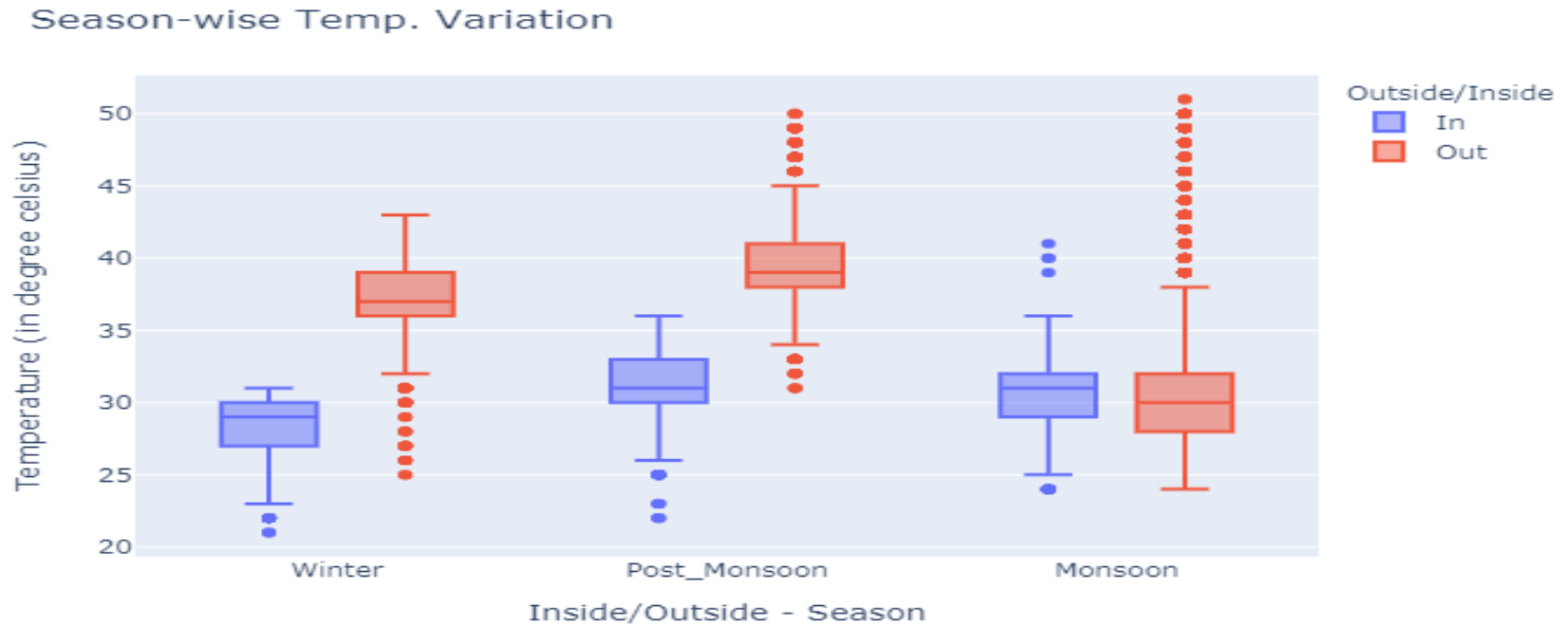


❑ Overall Temp. Variation Inside-Outside Room In or Out Temperature (in degree Celsius) Observations: (assuming there are no outliers)

Temperature recorded inside room : Min. temperature :  $21^{\circ}\text{C}$ . Max. temperature :  $41^{\circ}\text{C}$ . Temperature recorded outside room : Min. temperature :  $24^{\circ}\text{C}$ . Max. temperature :  $51^{\circ}\text{C}$ . Average temperature recorded inside the room < Average temperature recorded outside the room. This is an obvious thing to observe. Temperature has varied a lot outside room when compared to inside. Outside room : Magnitude of temperature variation before and after  $37^{\circ}\text{C}$  is almost same. However, temperature has varied a lot after reaching  $40^{\circ}\text{C}$  in comparison to temperature variation upto  $31^{\circ}\text{C}$ . How temperature varies across seasons?

In [35]:

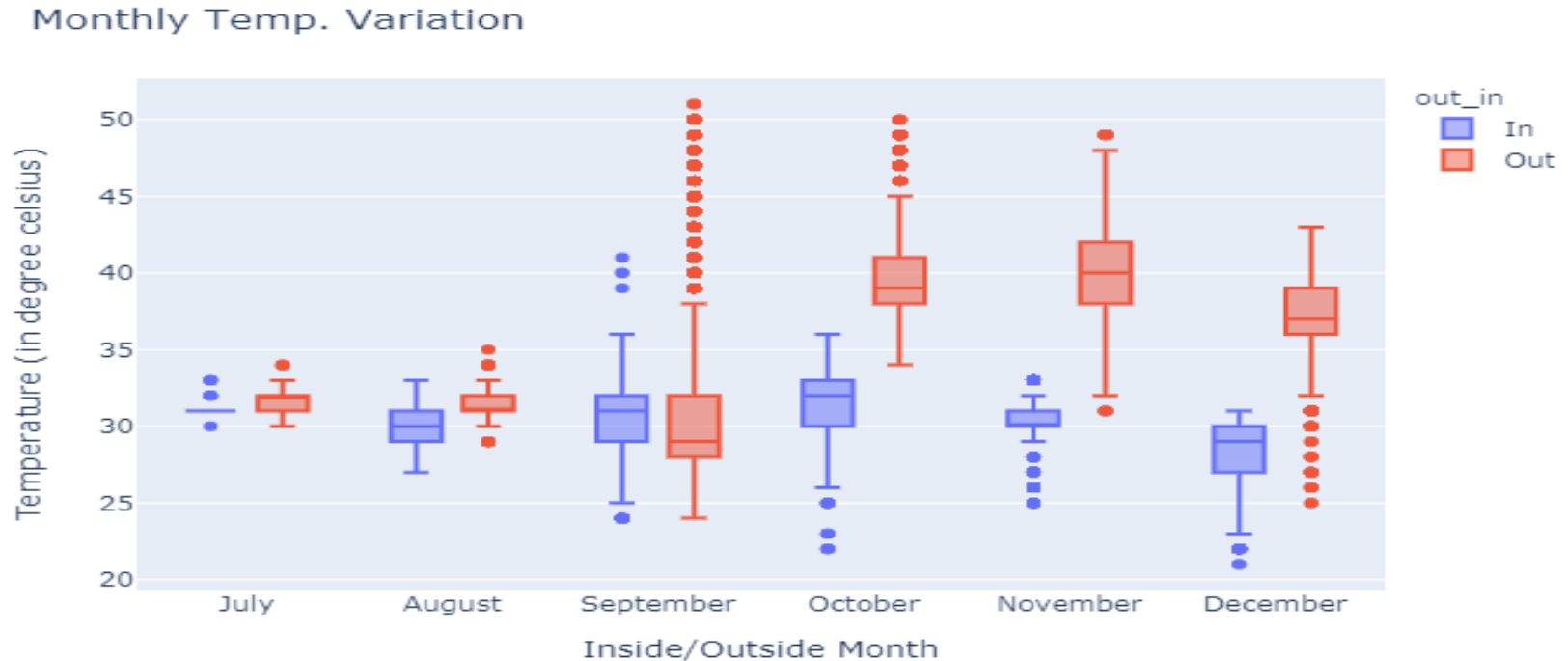
# Season wise Temperature-Variation



# Summary of Season-Wise Chart

- ❑ Season-wise Temp. Variation Inside/Outside - Season Temperature (in degree celsius) Observations: (assuming there are no outliers)
- ❑ Max. temperature of  $51^{\circ}\text{C}$  has been recorded in Monsoon season which is quite surprising and not expected in rainy season. Note: We have to yet see when was this temperature was recorded; Is it at the start of monsoon season or at the end of the season? As usual the lowest temperature of  $21^{\circ}\text{C}$  has been recorded in Winter season. Magnitude of temperature variation is observed inside room in Monsoon season is higher compared to Winter and Post Monsoon season. Similarly, maximum temperature variation outside room is observed in Monsoon season. In comparison to average (median) tem

# Month-Wise Temperature Variation

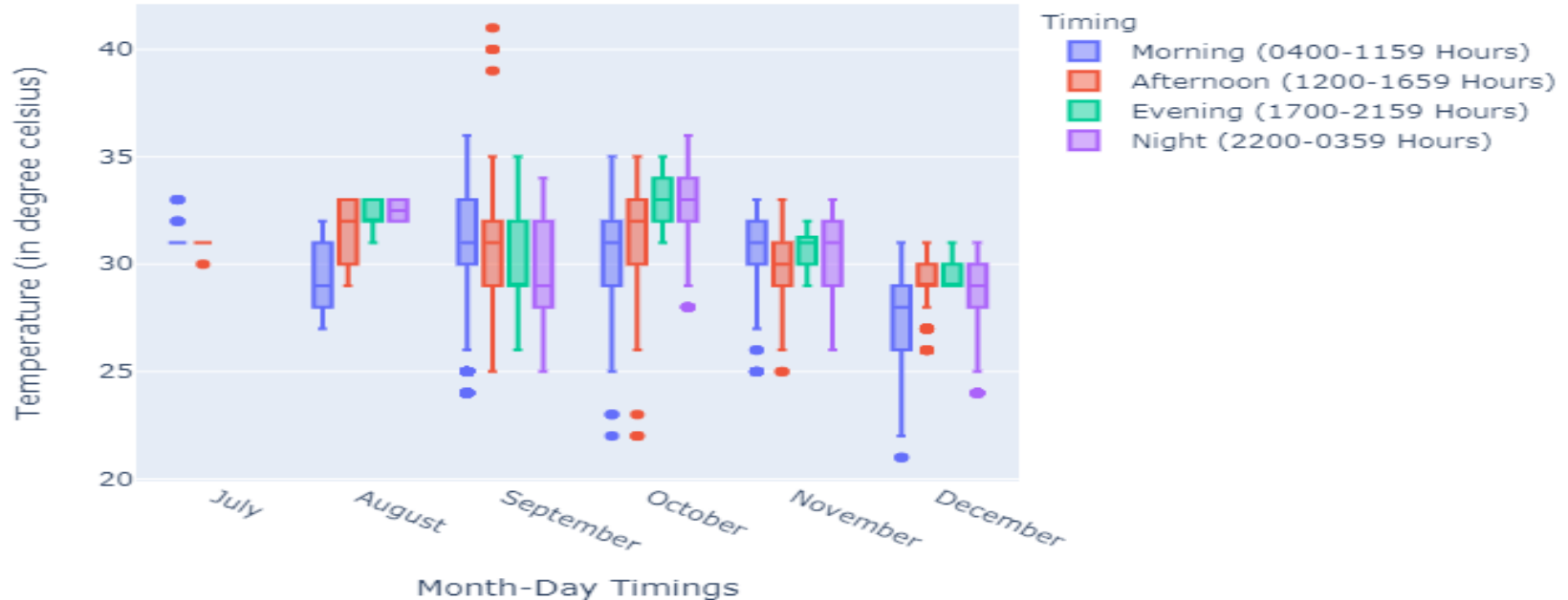


# Summary of Month Wise Chart

- ❑ Volume of data we have for July and August months is very very low compared to other months. Maximum temperature variations are observed in September month both inside and outside the room. Highest average temperature (median) of  $39^{\circ}\text{C}$  is observed in November months. Lowest temperature of  $21^{\circ}\text{C}$  is recorded in December month. Despite of Point No. 1, Minimum temperature variation is observed in July and August months. How temperature varies for different timings for all seasons?

# Temperature Variation in a Day

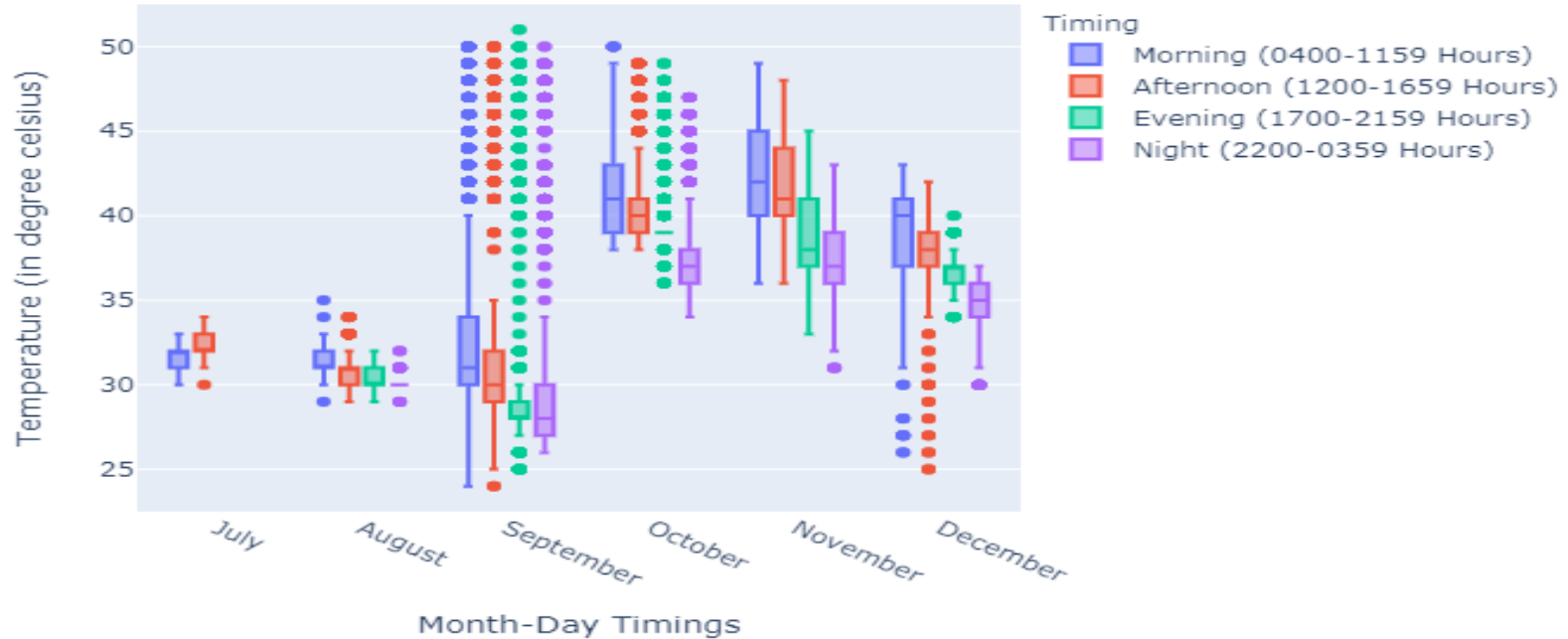
Temperature Variation in a Day (In)





# Day Chart Outside Room

Temperature Variation in a Day (Out)



# Summary of Variation in Day Chart

- ❑ Temperature Variation in a Day (Out) Month-Day Timings Temperature (in degree celsius)  
Observations: (assuming there are no outliers) (A) Inside room:
- ❑ September month : Maximum temperature variation is observed in morning & evening.  
October month : Highest average (median) temperature of  $33^{\circ}\text{C}$  has been recorded during evening & night. Lowest temperature of  $21^{\circ}\text{C}$  is recorded in December month in the morning. Highest temperature of  $41^{\circ}\text{C}$  is recorded in September month in the afternoon between 1400-1500 hours. (B) Outside room:
- ❑ September month : Maximum temperature variation is observed during afternoon.  
November month : Highest average (median) temperature of  $42^{\circ}\text{C}$  has been recorded in morning. Lowest temperature of  $24^{\circ}\text{C}$  is recorded in September month in the afternoon. Highest temperature of  $51^{\circ}\text{C}$  is recorded in September month in the evening between 1700-1800 hours.

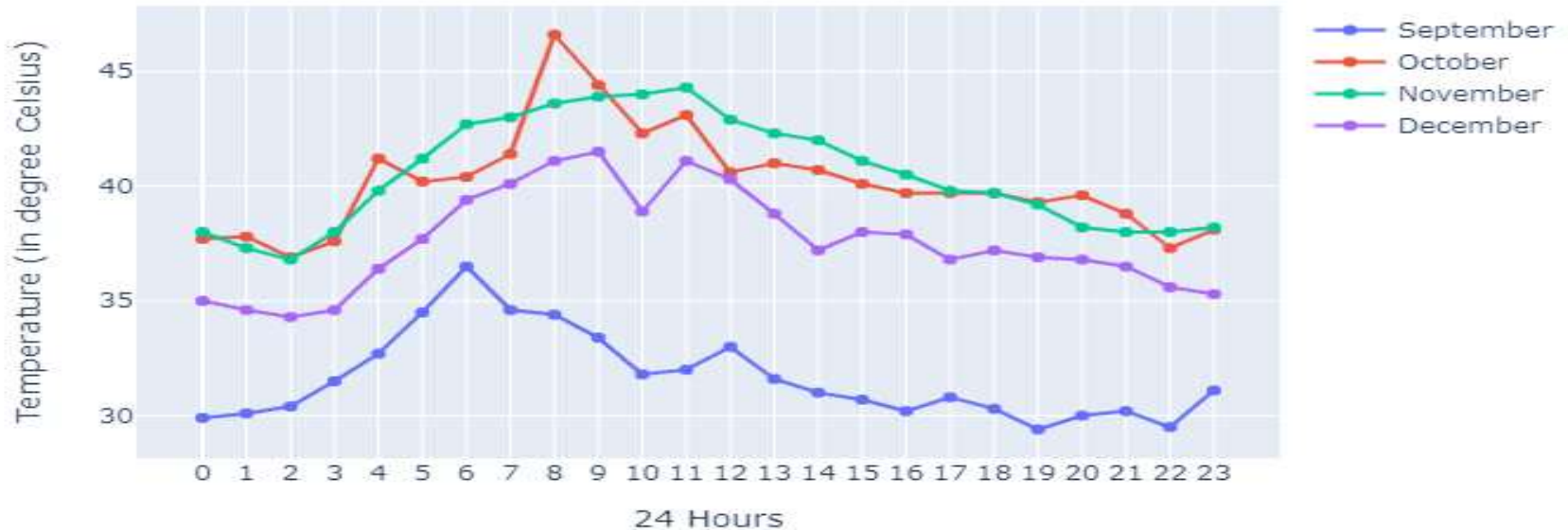
# Hour Wise Temperature Chart (In)

Hourly Avg. Temperature for each month (In)



# Hour Wise Temperature Chart (Out)

Hourly Avg. Temperature for each month (Out)



# Summary of Hour Wise Chart

- ❑ Temperature (in degree Celsius) Observations: (A) Inside room:
- ❑ October month : Saw Highest Average (Median) temperature of  $33.6^{\circ}\text{C}$  between 2000:2059 hours. December month : Saw Lowest Average (Median) temperature of  $26.9^{\circ}\text{C}$  between 0400:0459 hours. (B) Outside room:
- ❑ October month : Saw the Highest Average (Median) temperature of  $46.6^{\circ}\text{C}$  between 0800:0859 hours. December month : Saw the Lowest Average (Median) temperature of  $29.4^{\circ}\text{C}$  between 1900:1959 hours. Compared to September, October & November months, December month's average temperature per hour has always been on lower side.

# Day-Wise Average Temperature Each Month (In)

Day-wise Avg. Temperature for each month (In)



# Day-Wise Average Temperature Each Month (out)

Day-wise Avg. Temperature for each month (Out)



## Summary of Report :

- ❑ Based on Data we can find the temperature of IOT Devices and control electricity Measures
- ❑ We used the plotly to plot different Graphs analysis



# Thank You

**Github Link :**

[https://github.com/sukilsiva/Machine-Learning-Deep-Learning-Code/blob/master/Data%20Visualisations/Notebooks/IOT\\_Data\\_Vizualisation.py](https://github.com/sukilsiva/Machine-Learning-Deep-Learning-Code/blob/master/Data%20Visualisations/Notebooks/IOT_Data_Vizualisation.py)