



# Power Consumption

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Get Started





# Members



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**Dechatorn**



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**Chansinee**

# About Dataset:

“

**This dataset is related to the power consumption of three different distribution networks of Tetouan city which is located in north Morocco.**

”

# Attribute Information:

	DateTime	Temperature	Humidity	Wind Speed	general diffuse flows	diffuse flows	Zone 1 Power Consumption	Zone 2 Power Consumption	Zone 3 Power Consumption
0	2017-01-01 00:00:00	6.559	73.8	0.083	0.051	0.119	34055.69620	16128.87538	20240.96386
1	2017-01-01 00:10:00	6.414	74.5	0.083	0.070	0.085	29814.68354	19375.07599	20131.08434
2	2017-01-01 00:20:00	6.313	74.5	0.080	0.062	0.100	29128.10127	19006.68693	19668.43373
3	2017-01-01 00:30:00	6.121	75.0	0.083	0.091	0.096	28228.86076	18361.09422	18899.27711
4	2017-01-01 00:40:00	5.921	75.7	0.081	0.048	0.085	27335.69620	17872.34043	18442.40964
...	...	...	...	...	...	...	...	...	...
52411	2017-12-30 23:10:00	7.010	72.4	0.080	0.040	0.096	31160.45627	26857.31820	14780.31212
52412	2017-12-30 23:20:00	6.947	72.6	0.082	0.051	0.093	30430.41825	26124.57809	14428.81152
52413	2017-12-30 23:30:00	6.900	72.8	0.086	0.084	0.074	29590.87452	25277.69254	13806.48259
52414	2017-12-30 23:40:00	6.758	73.0	0.080	0.066	0.089	28958.17490	24692.23688	13512.60504
52415	2017-12-30 23:50:00	6.580	74.1	0.081	0.062	0.111	28349.80989	24055.23167	13345.49820

52416 rows × 9 columns

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52416 rows x 9 columns

**data is stored every 10 minutes  
in 1 year (2017-01-01: 00:00:00  
to 2017-12- 31: 23:50:00.)**



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power consumption per 10 every 10 minutes

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**other factors affecting the power consumption**

Fig1. power consumption for the year of 2017 at each hour for 3 zones

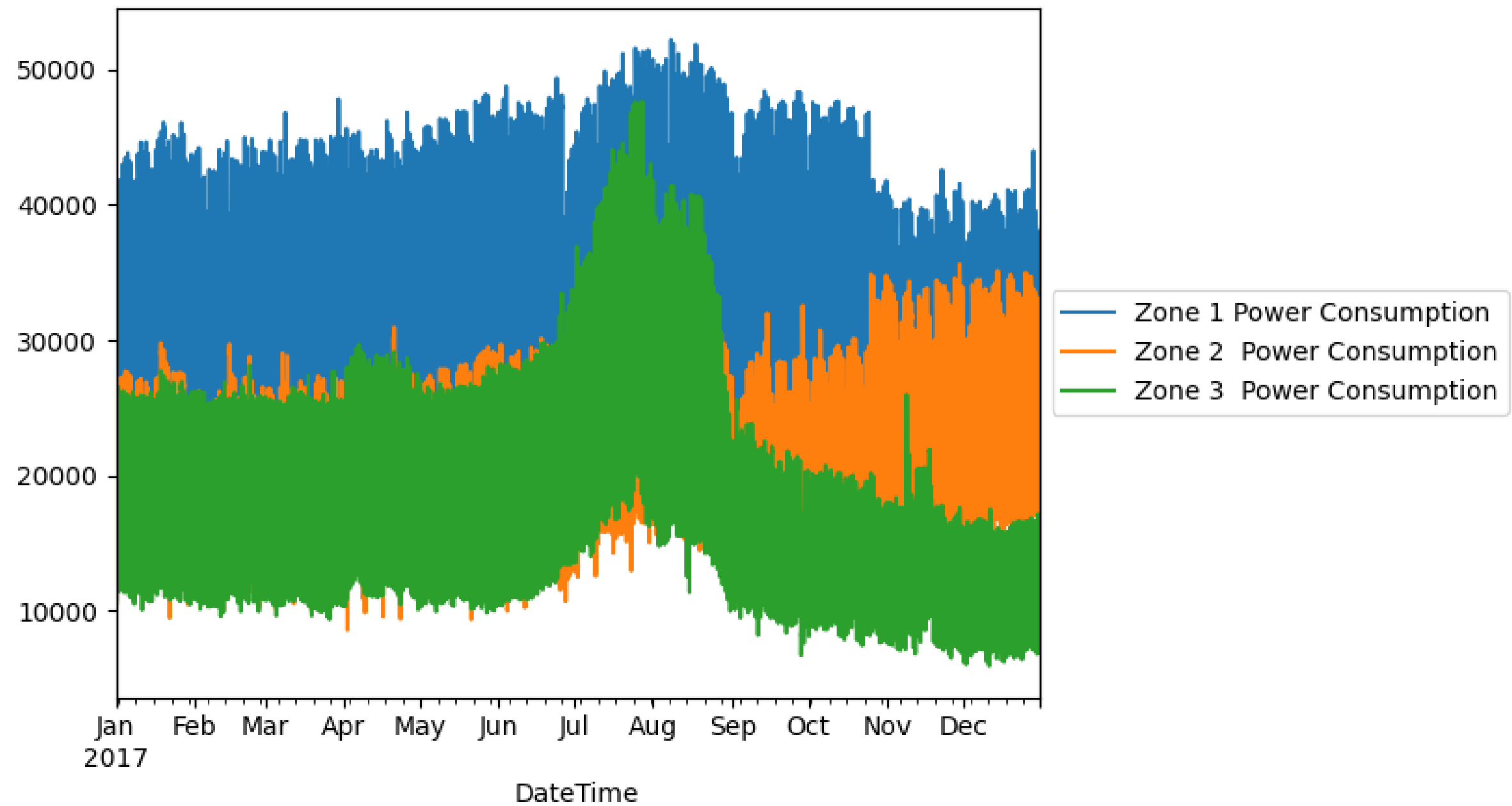




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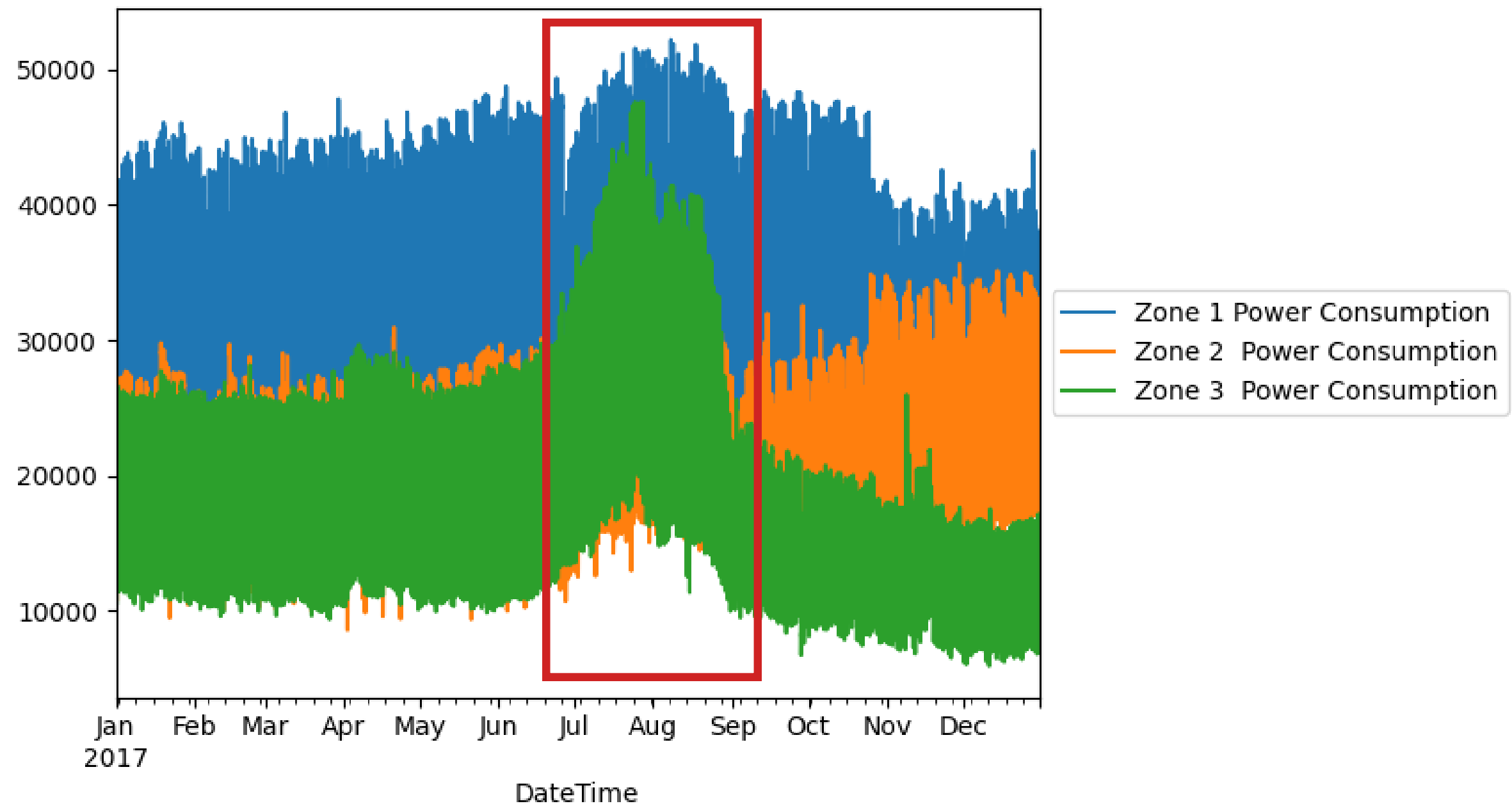


Fig2. average daily power consumption at each hour for 3 zones

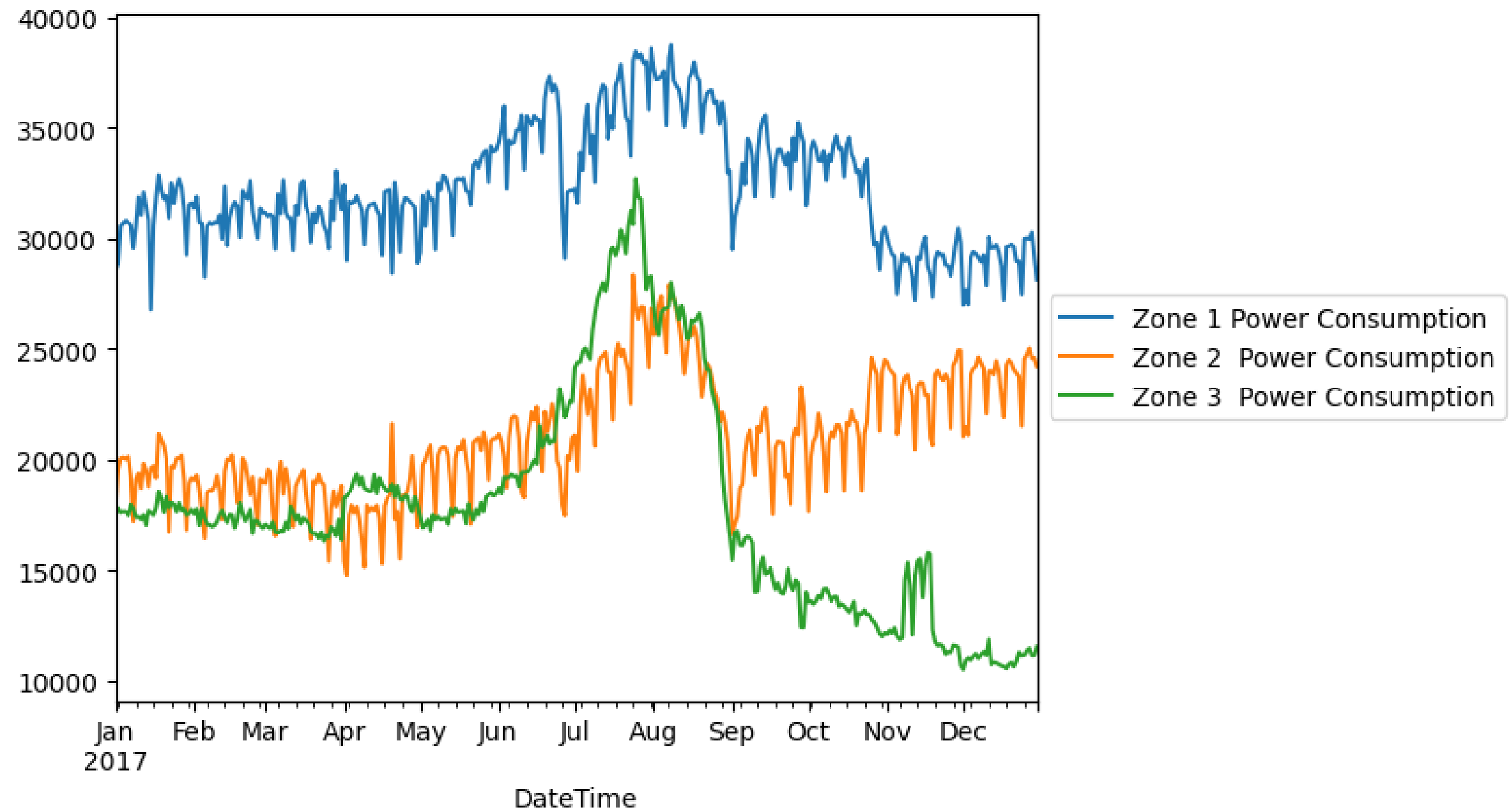
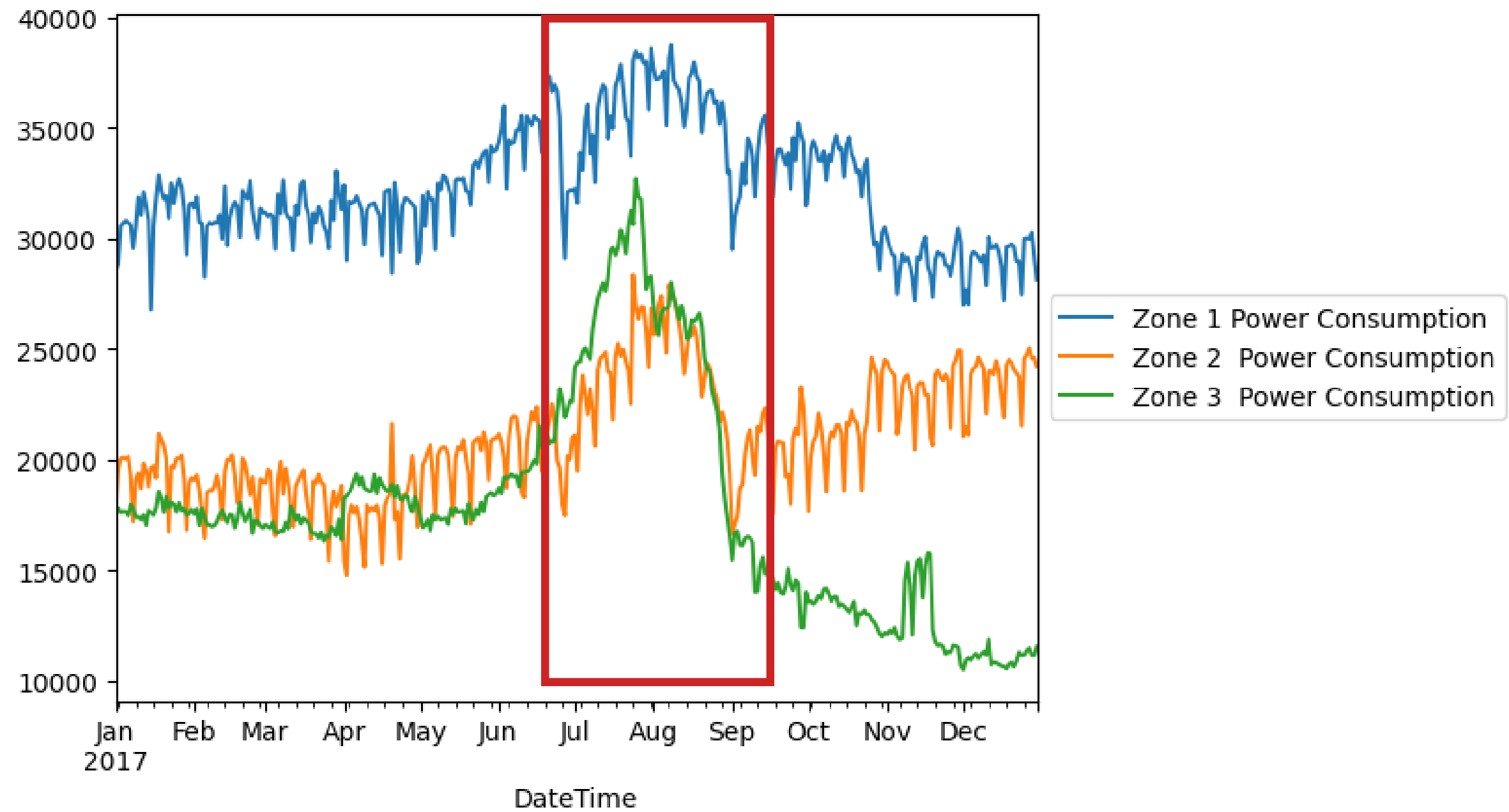


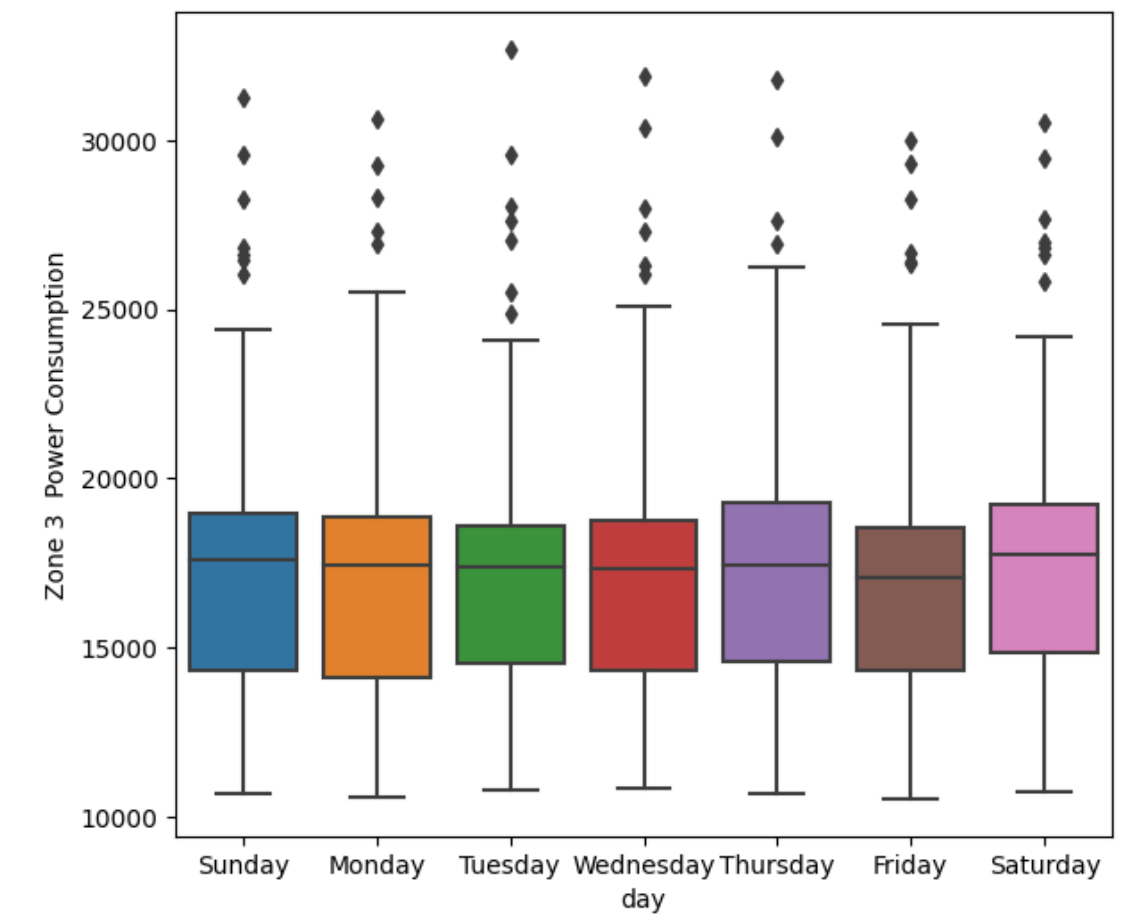
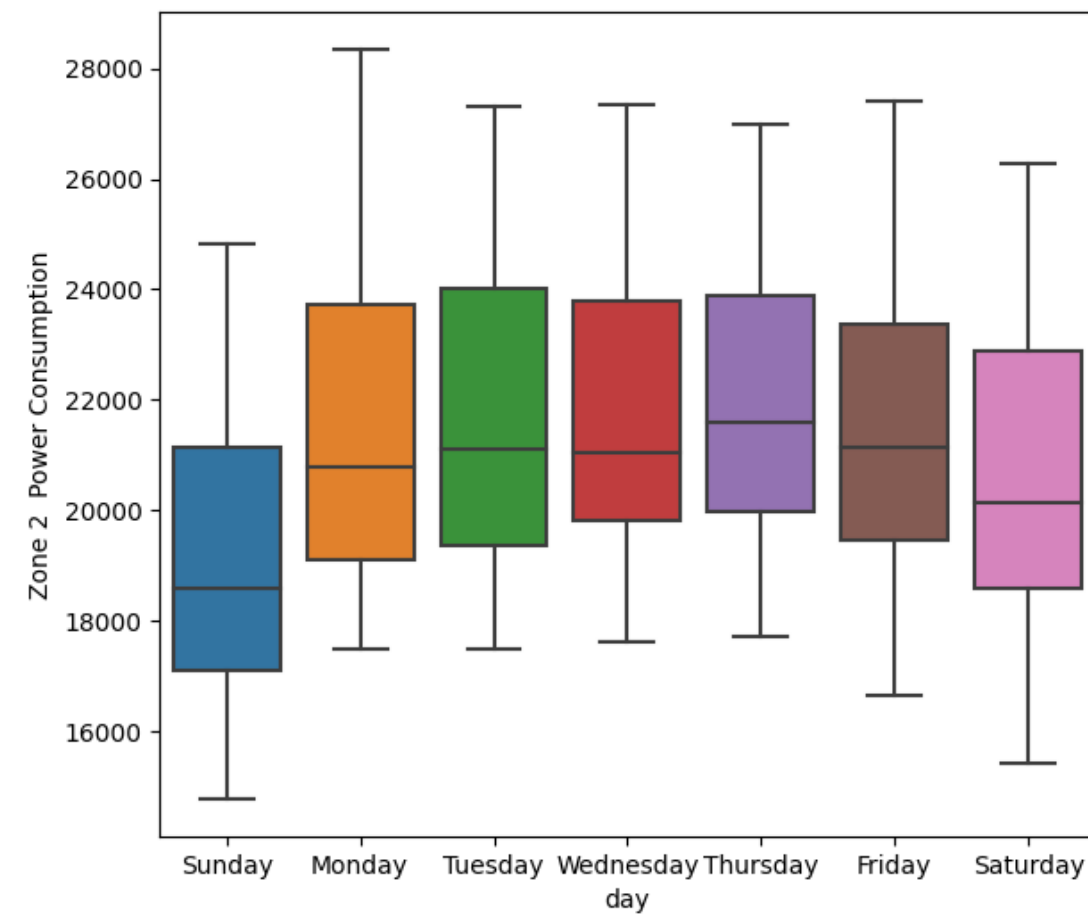
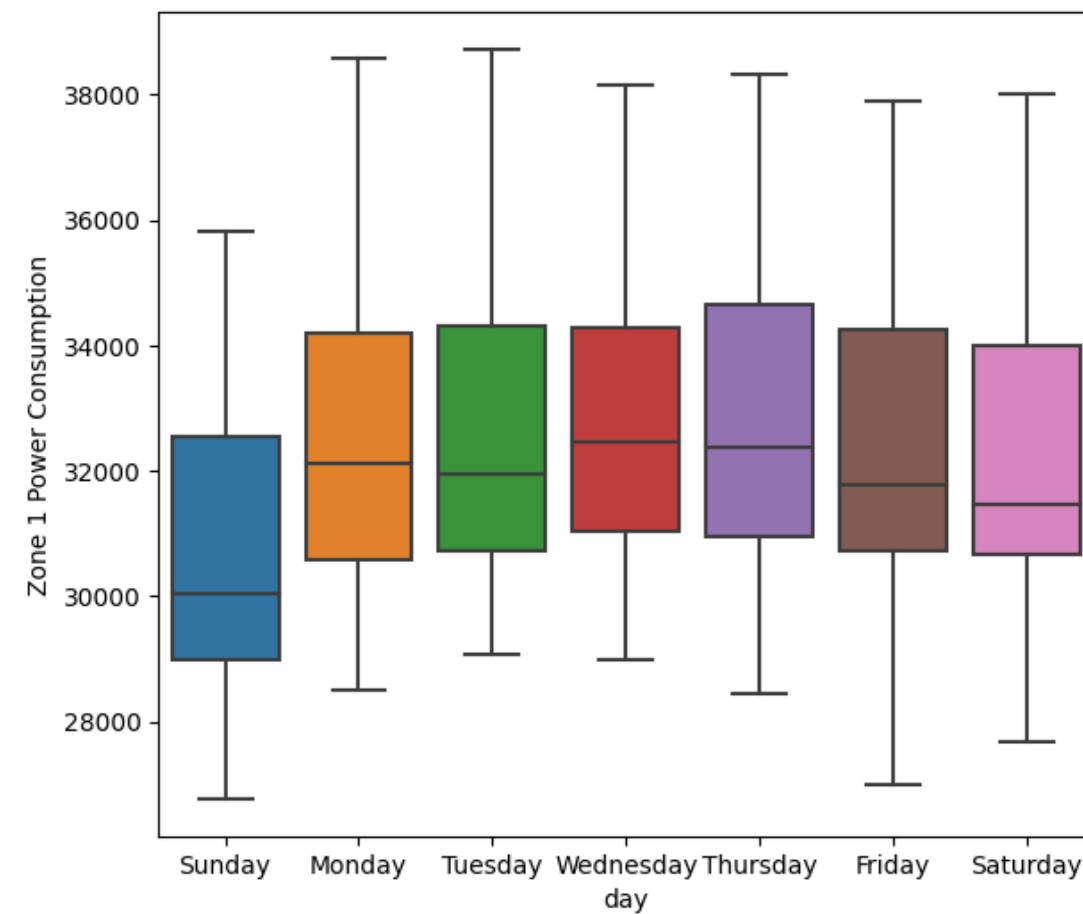
Fig2. average daily power consumption at each hour for 3 zones





# EDA

Fig3. average power consumption per week in 1 year at each hour for 3 zones



# EDA

Fig3. average power consumption per week in 1 year at each hour for 3 zones

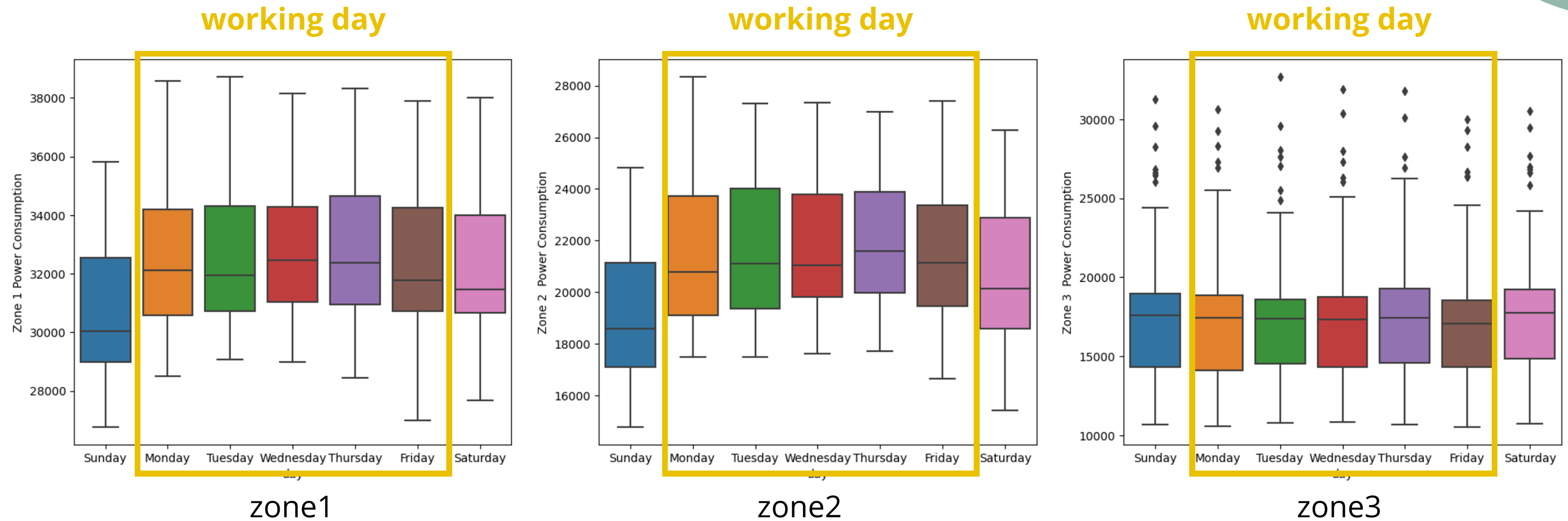
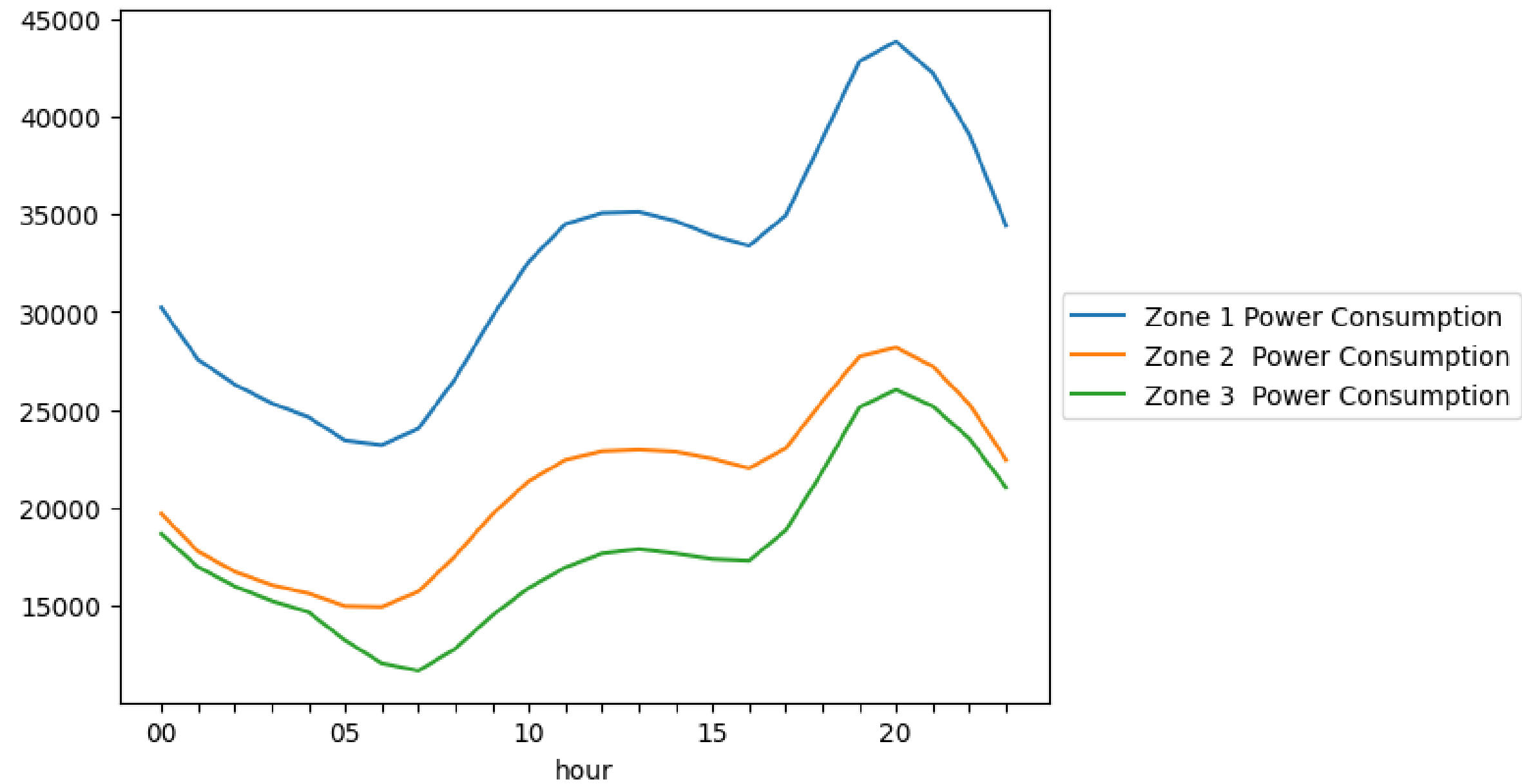


Fig4. average hourly power consumption per day in 1 year at each hour for 3 zones





# EDA

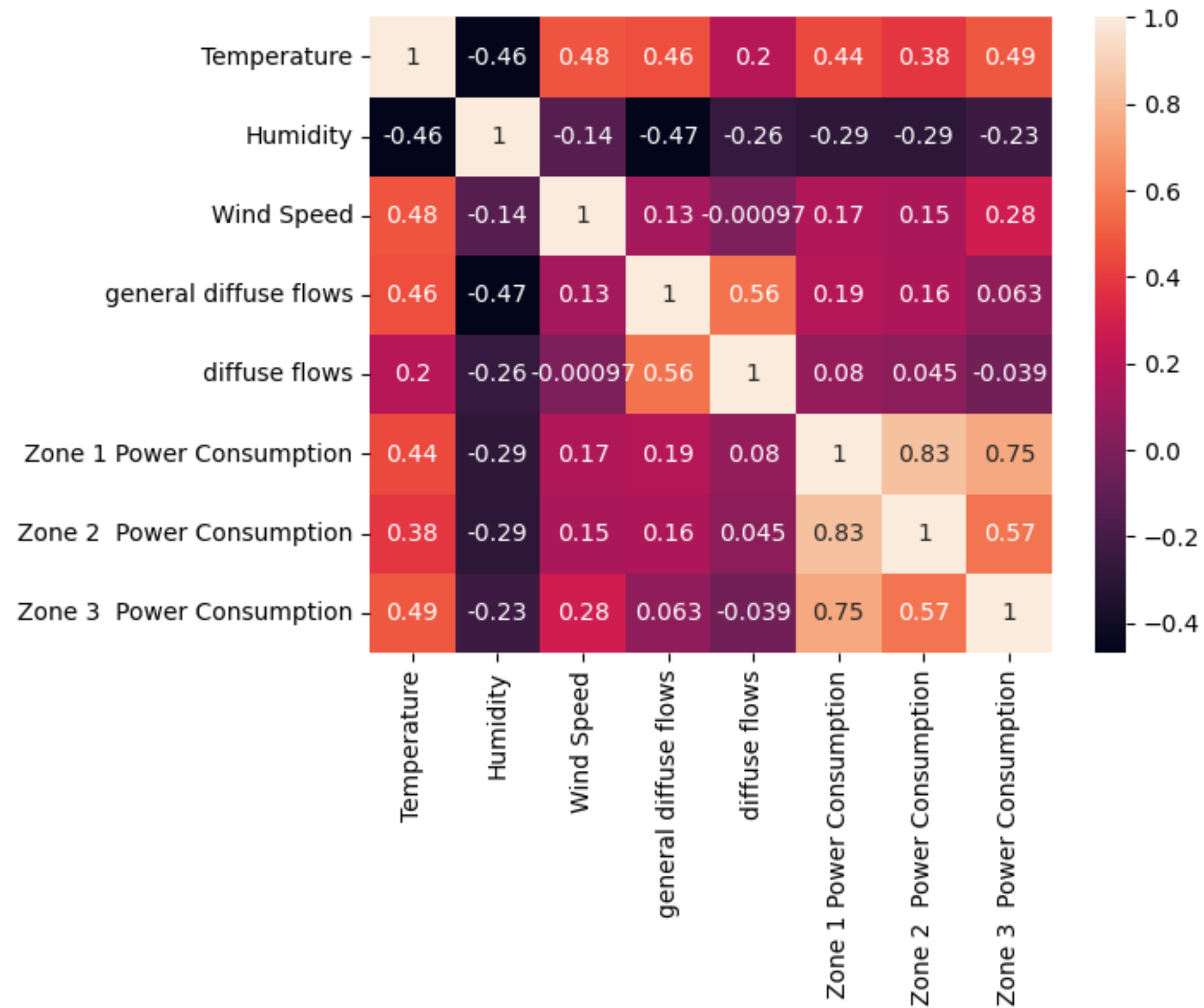


Fig5. the correlation of attributes in dataset

# EDA

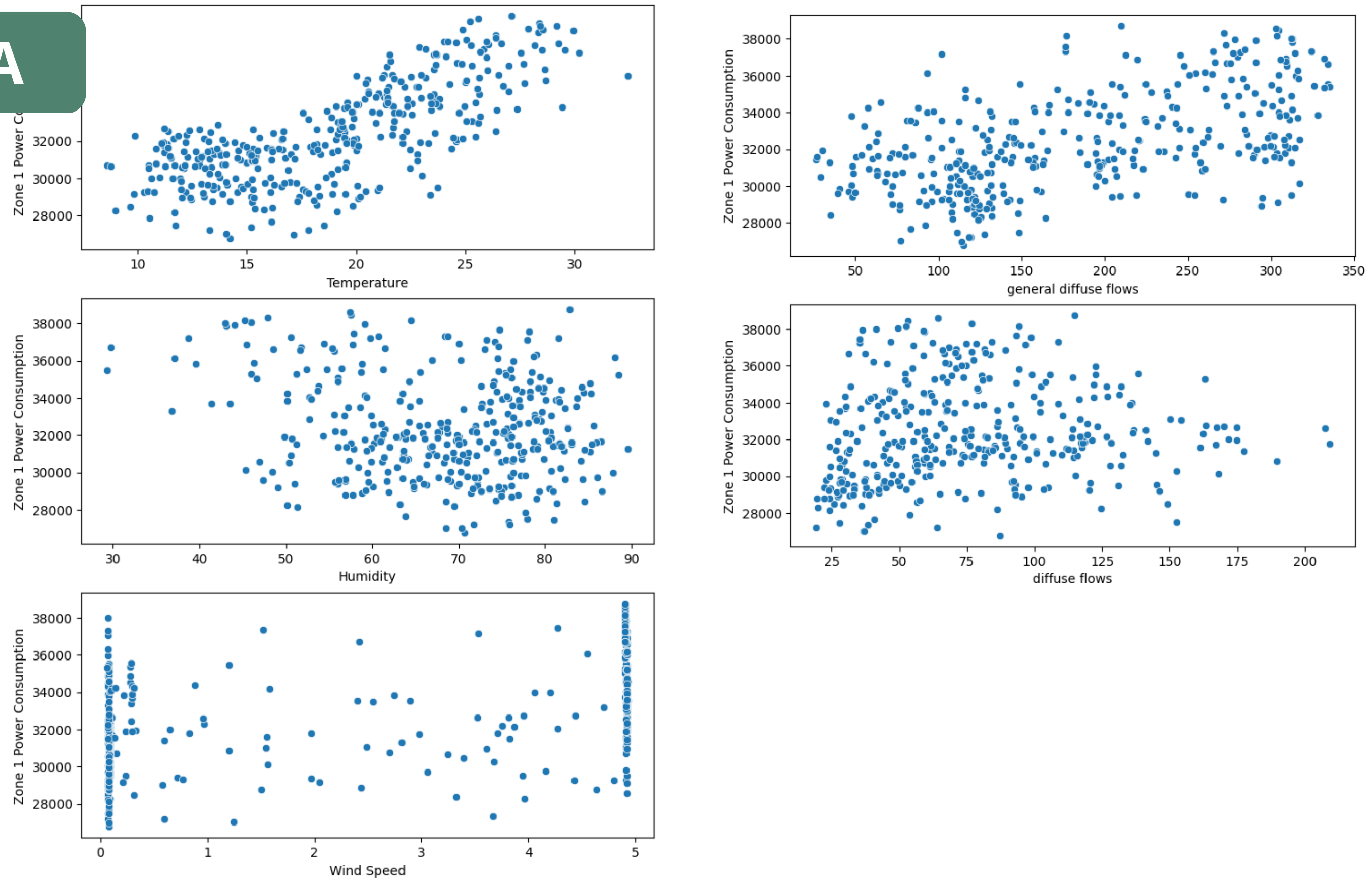
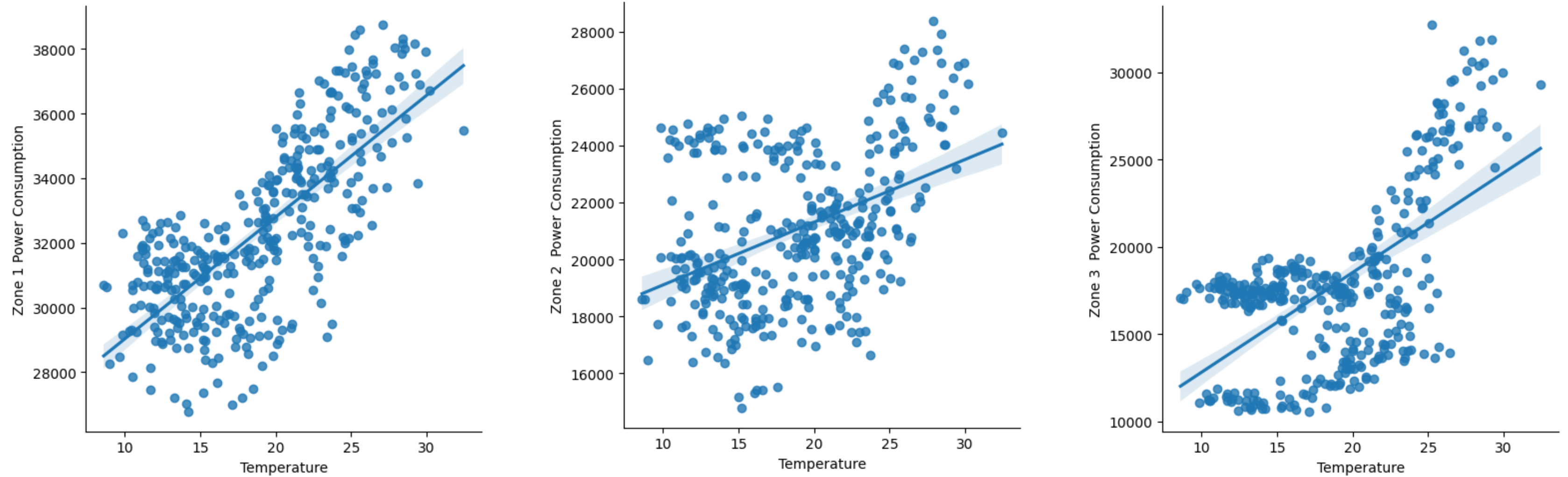


Fig6. the correlation of weather attributes and power consumption

# EDA

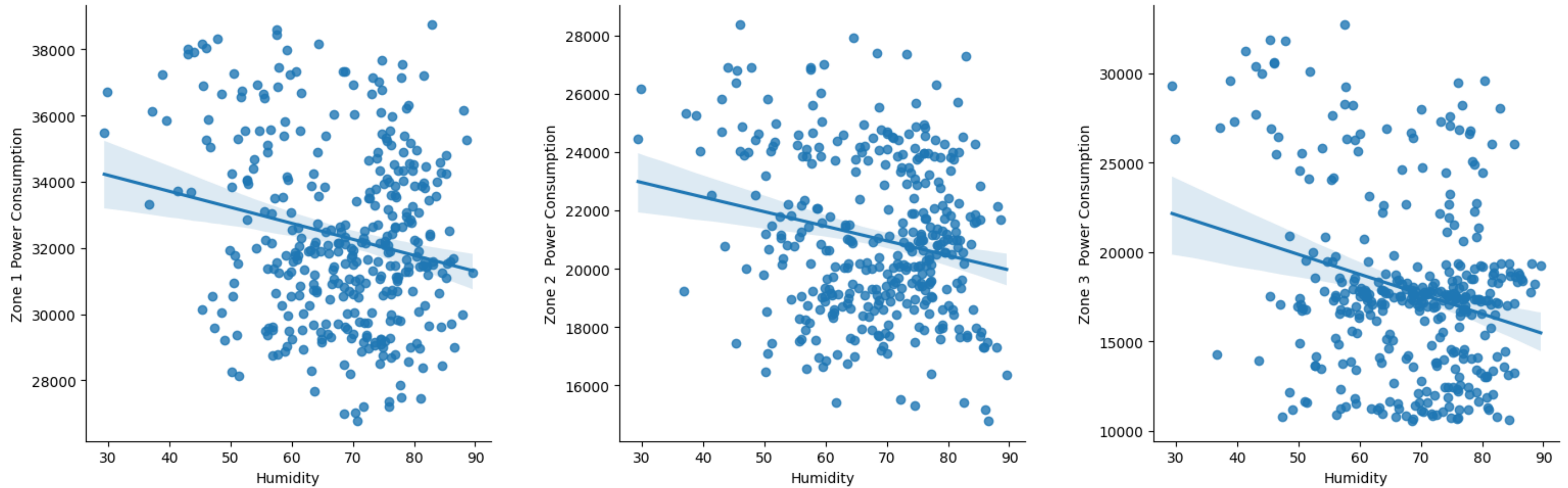
Fig6. Temperature correlation with Power consumption in each zone





# EDA

Fig7. Humidity correlation with Power consumption in each zone



# IMPORTANCE PREDICTION VARIABLE

## **Calender & Time**

- **Hour**
- **day of weeks**

## **Weather Attributes**

- **Temperature**

# MACHINE LEARNING MODEL

- Linear / Non-linear Regression
- Support Vector Machine for Regression
- Decision Tree
- Random Forest

## Required:

- Able to handle complex data.
- Able to predict in case of multiple parameters.
- Have high performance than the decision tree model.
- Reduce the risk of overfitting by using a subset of features to build each decision tree.



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