

Ex : Power Data Analysis and Visualization for Project in Home Power in Raspberry Pi

Using the Kaggle Dataset named “Household Electric Power Consumption” present in the link [“https://www.kaggle.com/datasets/uciml/electric-power-consumption-data-set”](https://www.kaggle.com/datasets/uciml/electric-power-consumption-data-set), extract date, year and month from the data. Plot the power usage across a duration and visualize it. Perform time series forecasting on the data by analyzing it and plot the obtained forecast. Use the table, dplyr, lubridate, plotly and forecast packages to perform the tasks.

1. Import all the above mentioned packages
2. Import the data and print a short summary of it using the head(), glimpse() and summary() functions.
3. Check for the missing values in the dataset and remove if there are any.
4. Convert the date and time to a standard format.
5. Extract the Year, Week and Day from the dataset.
6. Visualize the granularity of the submetering using the plot() function
7. Filter the data for any particular year and visualize the submetering for that particular year.
8. Use the plotly package to plot the submetering across a day of usage.
9. Reduce the number of observations for that day and again plot the graph using plotly.
10. For the time series analysis extract the weekly time series data for all the submeters and plot them.
11. Fit the time series data into a time series linear regression model.
12. View the summary of the model.
13. Plot the forecast for all 3 submeters.