

Ex 3 : Real-time environmental monitoring and weather prediction using Multiple Linear Regression, SVM and Naïve Bayes classification

Using the Kaggle dataset <https://www.kaggle.com/datasets/jsphyg/weather-dataset-rattle-package> titled “Rain in Australia” , perform Real-time environmental monitoring and weather prediction using Multiple Linear Regression, SVM and Naïve Bayes classification. Along with this, perform the time series analysis using simple moving average, Arima and exponential smoothing. Use TTR, caret, outliers, caTools and ROCR package to perform the following :

1. Import all the above mentioned packages
2. Load and read the dataset
3. Pre-process the data and view its summary
4. Use the Simple Moving Average forecasting model and visualize the output
5. Use the Arima forecasting model and view the output
6. Use the Exponential smoothing forecasting model and view the output
7. Perform Exploratory Data Analysis using box plot and histograms
8. Extract the features of the dataset
9. Get the correlation between the numeric variables
10. Get the numeric and categorical variables
11. Remove the outliers
12. Cleanse and normalize the data
13. Convert the class to predict into numeric data
14. Split the dataset into training and testing in the ratio of 75:25.
15. Perform Multiple linear regression and view the results in confusion matrix
16. Construct the ROCR curve
17. Perform SVM and view the results in confusion matrix
18. Perform Naïve Bayes and view the results in confusion matrix