Project Report

Hughes Communications India Limited

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The code along with all the observations can be viewed on:

https://mehulrekhi.github.io/HughesMLProject/

The GitHub repository to my project is available on:

https://github.com/mehulrekhi/HughesMLProject

with all the required resources and Code.

Tools used:

- Scikit Learn
- Jupytr Notebook
- Python
- Matplotlib
- Pandas
- NumPy

Information about Dataset:

The dataset used was provided to us by Neerav Sir.

The dataset contained information like Humidity, Clouds, Temperature, Wind Speed, Time Stamp, SQF (Signal Quality Factor), etc.

By working on the project and analysing the parameters, it was found that the SQF majorly was dependant upon the Clouds, and including other parameters was not required.

After studying and testing various techniques, it was found that Linear Regression was best suited for our requirements.

Linear regression attempts to model the relationship between two variables by fitting a linear equation to observed data. One variable is considered to be an explanatory variable, and the other is considered to be a dependent variable.

Following is a depiction of the accuracy achieved:
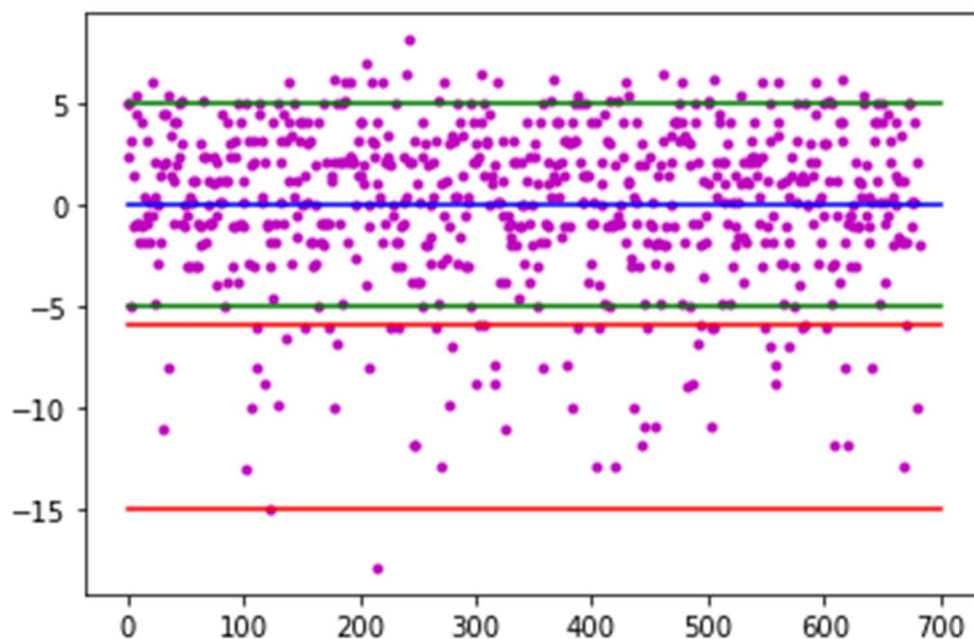
The above graph represents the Error for each predicted value.
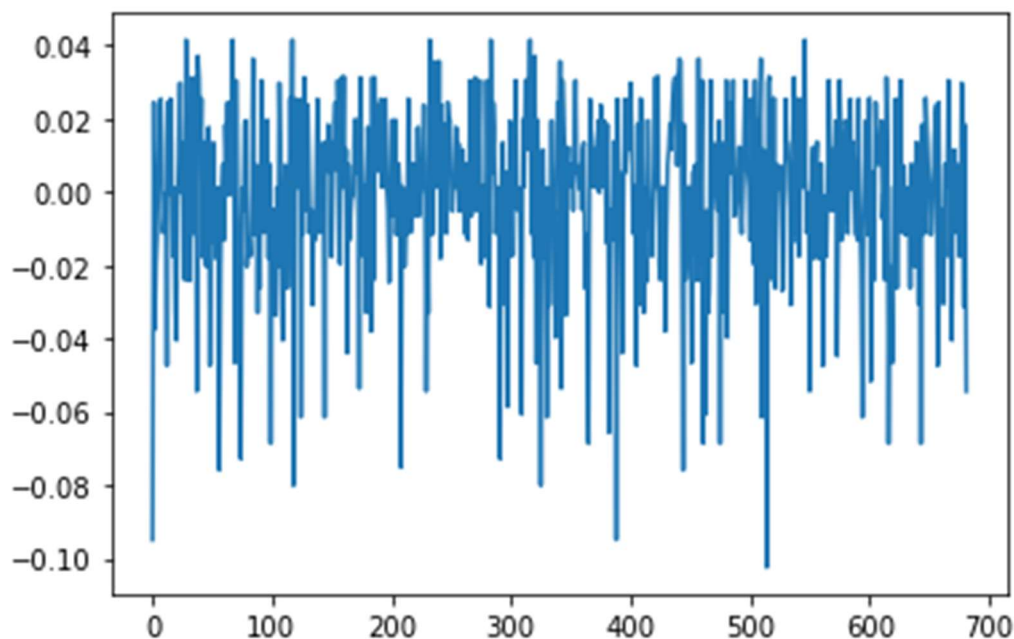
As it can be seen, most of the predictions were made with a margin of ± 5

```
In [16]: print("Average Error %")
         X = abs(TestingOutput-PredictedOutput)/TestingOutput
         print(X['SQF'].mean())

         Average Error %
         0.01923495083985526
```

The average error was found to be less than 0.2% when the predicted values were compared to the actual recorded values of the site.

The following Graph shows the Percentage Error for various predictions:

As it can be seen, the predictions were quite reliable as the MAX Error recorded was only 0.10% and most of the values were predicted within the margin of 0.2%.