ACCEPTANCE TEST

Now that we've tried out multiple regression algorithms, it is necessary to determine out that which regression technique was best in predicting the Air Quality Index i.e. Relative Humidity(RH). For the Linear algorithm, we got impressive results with less root mean square error, but this was adverse in Logistic Regression. Later we got best results in Decision Tree Regression and Random Forest Regression. At last, Support Vector also showed a fine relation between relative humidity and other variables with less root mean square error.

```
print("We got following RMSE by applying different regression:\n\n")
print("Linear Regression=",rs,"\n")
print("Logistic Regression=",rs1,"\n")
print("Decision Tree Regression=",rs2,"\n")
print("Random Forest Regression=",rs3,"\n")
print("Support Vector Machine Regression=",rs4,"\n")
```

```
We got following RMSE by applying different regression:


Linear Regression= 6.97162298562

Logistic Regression= 335.83370027

Decision Tree Regression= 1.41782760078

Random Forest Regression= 0.839849356109

Support Vector Machine Regression= 24.56392719
```

We used Python3 Dictionary (key-value pair) to find out the regression having minimum Root Mean Square Error.

```
print("So we acheive best results from:")
dict={"Linear Regression": rs,"Logistic Regression": rs1,"Decision Tree Regression": rs2,"Random Forest Regression": rs3, "Suppo
rt Vector Machine Regression":rs4   }
res =  [key for key in dict if
        all(dict[temp] >= dict[key]
        for temp in dict)]
min_ = {k: dict[k] for k in dict.keys() & set(res)}
print(min_)
```

```
So we acheive best results from:
{'Random Forest Regression': 0.83984935610885114}
```

At last we got that Random Forest Regression has got the minimum Root Mean Square Error i.e. 0.83984935610885114. Hence Random Forest was a best regression algorithm for my project.