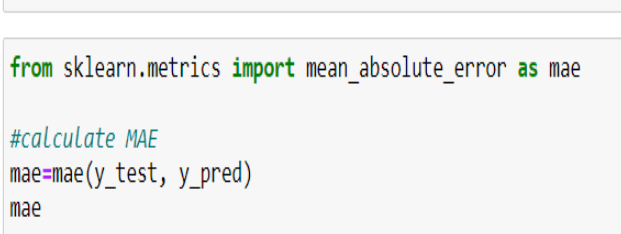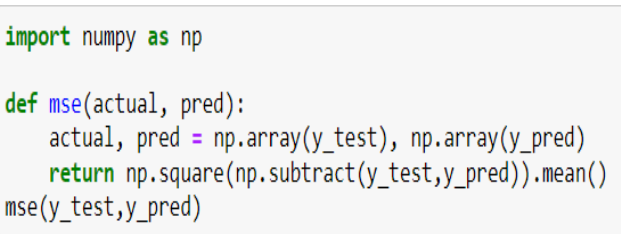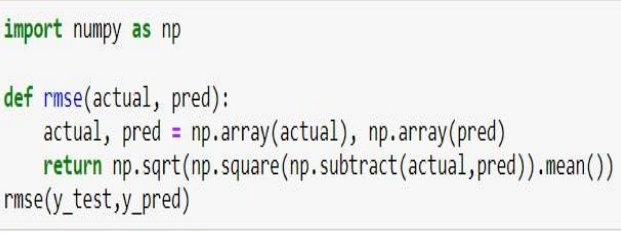# Project Development Phase
Model Performance Test

Team ID	PNT2022TMID19874
Project Name	Predicting the energy output of wind turbine based on weather condition

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
| 1. | Metrics | **Regression Model:**<br>x<br>MAE : 2.4285714285714284<br><br>MSE : 17.0<br><br>RMSE : 4.123105625617661<br><br>R2 score: 0.911978369754824 | <br><br>```python
from sklearn.metrics import mean_absolute_error as mae

#calculate MAE
mae=mae(y_test, y_pred)
mae
```<br>1]: 2.4285714285714284<br><br>```python
import numpy as np

def mse(actual, pred):
    actual, pred = np.array(y_test), np.array(y_pred)
    return np.square(np.subtract(y_test,y_pred)).mean()
mse(y_test,y_pred)
```<br>2]: 17.0<br><br>```python
import numpy as np

def rmse(actual, pred):
    actual, pred = np.array(actual), np.array(pred)
    return np.sqrt(np.square(np.subtract(actual,pred)).mean())
rmse(y_test,y_pred)
```<br>3]: 4.123105625617661 |

| | | | ```
In [88]: #FInding accuracy

from sklearn.metrics import r2_score

acc=r2_score(y_test,y_pred)

acc

Out[88]: 0.911978369754824
``` |
| 2. | Tune the Model | Hyperparameter Tuning - n_estimators = 750, max_depth = 4, max_leaf_nodes = 500, random_state = 1 Validation Method – Cross Validation | ```
from sklearn.ensemble import RandomForestRegressor

RFR= RandomForestRegressor(n_estimators = 750, max_depth = 4, max_leaf_nodes = 500, random_state = 1)

RFR.fit(x_train,y_train)

8]: RandomForestRegressor(max_depth=4, max_leaf_nodes=500, n_estimators=750,
                          random_state=1)
``` |