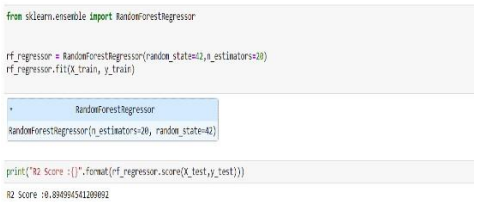
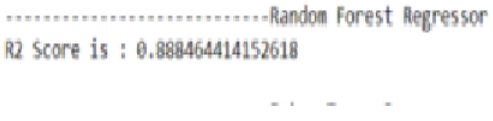
# Model Development Phase Template

| | |
|---|---|
| Date | 12 JULY 2024 |
| Team ID | 739752 |
| Project Title | Air Quality Index Analyzer Using ML |
| Maximum Marks | 4 Marks |

| Model | Classification Report | Accuracy |
|---|---|---|
| Random forest classifier |  |  |

| | | |
|---|---|---|
| Decision Tree classifier | **Model Building**<br>`from sklearn.tree import DecisionTreeRegressor`<br>`dt=DecisionTreeRegressor(random_state=42)`<br>`dt.fit(X_train,y_train)`<br>`DecisionTreeRegressor(random_state=42)`<br>`print("R2 Score :{}".format(dt.score(X_test,y_test)))`<br>`R2 Score :0.807020865871717` | ----------Decision Tree Regressor--<br>R2 Score is : 0.7944373542615825 |

**Initial Model Training Code, Model Validation and Evaluation Report**

The initial model training code will be showcased in the future through a screenshot. The model validation and evaluation report will include classification reports, accuracy, and confusion matrices for multiple models, presented through respective screenshots.

**Initial Model Training Code:**

```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2,random_state=0)
```

**Model Validation and Evaluation Report:**

| | | |
|---|---|---|
| Extra Tree classifier | `from sklearn.ensemble import ExtraTreesRegressor`<br>`et_regressor = ExtraTreesRegressor(n_estimators=100, max_depth=10, random_state=23)`<br>`et_regressor.fit(X_train, y_train)`<br>`ExtraTreesRegressor(max_depth=10, random_state=23)`<br>`print("R2 Score :{}".format(et_regressor.score(X_test,y_test)))`<br>`R2 Score :0.8989213124566164` | ----------Extra Trees Regressc<br>R2 Score is : 0.8937335681153357 |