Model Development Phase Template

Date	12 JULY 2024
Team ID	739850
Project Title	Air Quality Index Analyzer Using ML
Maximum Marks	4 Marks

Model	Classification Report	Accuracy

Random forest classifier	`from sklearn.ensemble import RandomForestRegressor`
	`rf_regressor = RandomForestRegressor(random_state=42,n_estimators=20)`
	`rf_regressor.fit(X_train, y_train)`
	`RandomForestRegressor`
	`RandomForestRegressor(n_estimators=20, random_state=42)`
	`print("R2 Score :{}".format(rf_regressor.score(X_test,y_test)))`
	`R2 Score :0.894994541209092`
		----------Random Forest Regressor
		R2 Score is : 0.888464414152618

Decision Tree classifier	**Model Building**
	`from sklearn.tree import DecisionTreeRegressor`
	`dt=DecisionTreeRegressor(random_state=42)`
	`dt.fit(X_train,y_train)`
	`DecisionTreeRegressor`
	`DecisionTreeRegressor(random_state=42)`
	`print("R2 Score :{}".format(dt.score(X_test,y_test)))`
	`R2 Score :0.8070208658711717`
		----------Decision Tree Regressor--
		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=
```

Model Validation and Evaluation Report:

Extra Tree classifier	`from sklearn.ensemble import ExtraTreesRegressor`
	
	`et_regressor = ExtraTreesRegressor(n_estimators=100, max_depth=10, random_state=23)`
	
	`et_regressor.fit(X_train, y_train)`
	
	ExtraTreesRegressor
	`ExtraTreesRegressor(max_depth=10, random_state=23)`
	
	`print("R2 Score :{}".format(et_regressor.score(X_test,y_test)))`
	
	`R2 Score :0.898921313456616 4`
		----------Extra Trees Regressc
		R2 Score is : 0.893733681153357