Model Development Phase Template

Date	10 July 2024
Team ID	739842
Project Title	Trip-Based Modelling of Fuel Consumption in Modern Fleet Vehicles Using Machine Learning
Maximum Marks	4 Marks

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:

Paste the screenshot of the model training code

```
[18] from sklearn.model_selection import train_test_split
     from sklearn.linear_model import LinearRegression
```

```
#Splitting Data Into Train And Test
```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.3,random_state=42)
```

Linear regression

```
[25] #Linear Regression
```

```
linReg = LinearRegression()
linReg.fit(x_train,y_train)
```

```
LinearRegression
LinearRegression()
```

Lasso Regression

```
[39] #Lasso Regression model
```

```
lassoReg = linear_model.Lasso(alpha = 0.1)
lassoReg.fit(x,y)
```

```
Lasso
Lasso(alpha=0.1)
```

Decision Tree

```
[47] #Decision Tree Model:
```

```
dt = DecisionTreeRegressor(random_state = 0)
dt.fit(x,y)
```

```
DecisionTreeRegressor
DecisionTreeRegressor(random_state=0)
```

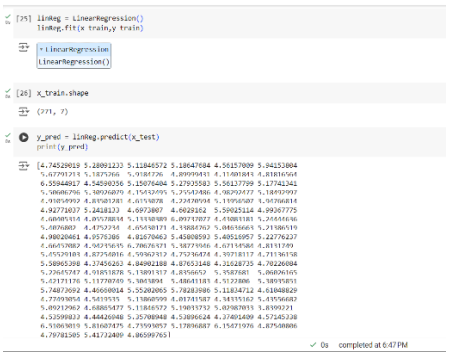
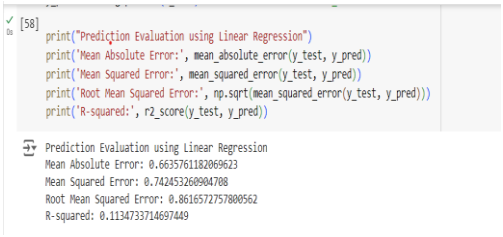
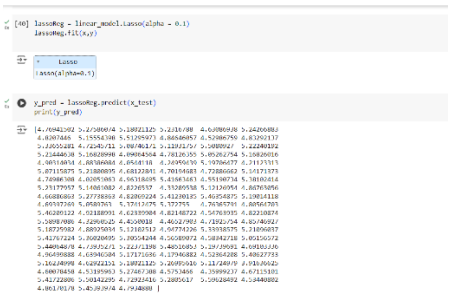
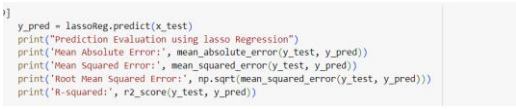
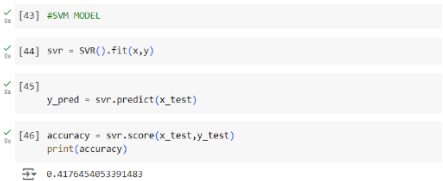
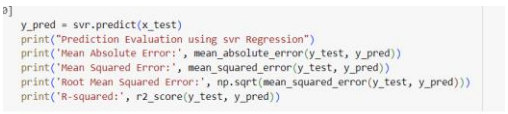
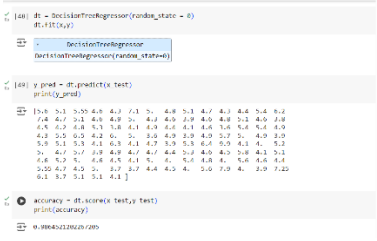
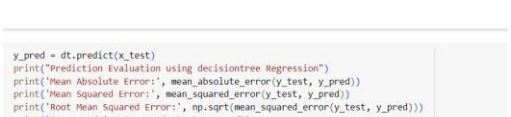
Random Forest

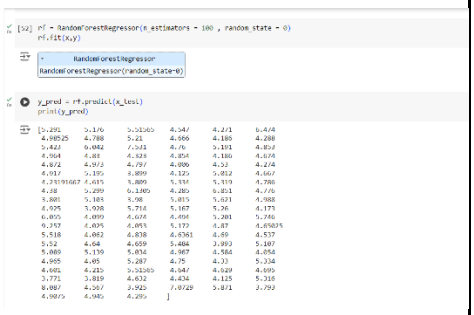
```
[51] #Random Forest Model:
```

```
[52] rf = RandomForestRegressor(n_estimators = 100 , random_state = 0)
     rf.fit(x,y)
```

```
RandomForestRegressor
RandomForestRegressor(random_state=0)
```

Model Validation and Evaluation Report:

Model	Training Report	Accuracy	Metrix
Linear Regression		0.11	
Lasso Regression		0.14	
SVM		0.41	
Decision Tree		0.98	

Random forest		0.93