# Development Phase
# Model Building

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| Date | 12 November 2022 |
| Team ID | PNT2022TMID21553 |
| Project Name | Project – Car Resale Value Prediction |

**Choose the appropriate model and check the metrics of the models:**

***Random forest regressor***

```
+ Code  + Text

CHOOSE THE APPROPRIATE MODEL AND CHECK THE METRICS OF THE MODELS

[23]  from sklearn.ensemble import RandomForestRegressor
      from sklearn.metrics import r2_score

[24]  regressor = RandomForestRegressor(n_estimators=1000, max_depth=10, random_state=34)

      regressor.fit(X_train, np.ravel(Y_train, order='C'))

      RandomForestRegressor(max_depth=10, n_estimators=1000, random_state=34)

[25]  pred_1 = regressor.predict(X_test)

      print(r2_score(Y_test, pred_1))

      0.834527626497731
```

***Decision Tree classifier***

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+ Code  + Text

[29]  from sklearn.tree import DecisionTreeClassifier

[41]  ds = DecisionTreeClassifier(max_depth=5000, max_features=0.9, max_leaf_nodes=5000, random_state=2, splitter='best')

      ds.fit(X_train,  np.ravel(Y_train, order='C'))

      DecisionTreeClassifier(max_depth=5000, max_features=0.9, max_leaf_nodes=5000,
                             random_state=2)

[42]  pred_3 =ds.predict(X_test)

      print(r2_score(Y_test, pred_3))

      0.6708257751174928
```

The random forest regressor fits the model better than the decision tree classifier.

So, we save the random forest regressor model.

**Save the model:**