LinearRegression

In [452...

```
# fit the Linear regression model

regressor= LinearRegression()
regressor.fit(x_train, y_train)
y_pred= regressor.predict(x_test)
# x_pred= regressor.predict(x_train)
```

In [453...

```
ypred_pd=pd.DataFrame({'WQ':y_test.values,'WQ_Pred':y_pred})
ypred_pd['predicted']=ypred_pd['WQ_Pred'].map(lambda x:1 if x>0.5 else 0)
ypred_pd['WQ']=ypred_pd['WQ'].map(lambda x:1 if x>0.7 else 0)
ypred_pd.head()
```

Out[453...

	WQ	WQ_Pred	predicted
0	1	0.795986	1
1	1	0.845279	1
2	1	0.789093	1
3	1	0.802417	1
4	1	0.861372	1

In [454…

```
confusion=confusion_matrix(ypred_pd['WQ'],ypred_pd['predicted'])
print(confusion)
```

```
[[  0   8]
 [  0 114]]
```

In [455…

```
print(accuracy_score(ypred_pd['WQ'],ypred_pd['predicted']))
```

```
0.9344262295081968
```

In [ ]:

Decision Tree

In [456…

```
# Fit the desiontree regression

clf_gini = DecisionTreeRegressor(random_state = 0)

clf_gini.fit(x_train, y_train)
```

```
y_pred = clf_gini.predict(x_test)
```

In [457…

```
ypred_pd=pd.DataFrame({'WQ':y_test.values,'WQ_Pred':y_pred})
ypred_pd['predicted']=ypred_pd['WQ_Pred'].map(lambda x:1 if x>0.7 else 0)
ypred_pd['WQ']=ypred_pd['WQ'].map(lambda x:1 if x>0.7 else 0)
ypred_pd.head()
```

Out[457…

	WQ	WQ_Pred	predicted
0	1	0.947368	1
1	1	0.947368	1
2	1	0.736842	1
3	1	0.789474	1
4	1	0.719298	1

In [458…

```
print('Model accuracy score with criterion gini index: {0:0.4f}'. format(accuracy_score(ypred_pd['WQ
```

```
Model accuracy score with criterion gini index: 0.9180
```


In [ ]:

Random Forest

In [459...

```
# Fit the random forest regression

forest_model = RandomForestRegressor(random_state=1)
forest_model.fit(x_train, y_train)
melb_preds = forest_model.predict(x_test)

# print(mean_absolute_error(val_y, melb_preds))
```

In [460...

```
ypred_pd=pd.DataFrame({'WQ':y_test.values,'WQ_Pred':y_pred})
ypred_pd['predicted']=ypred_pd['WQ_Pred'].map(lambda x:1 if x>0.7 else 0)
ypred_pd['WQ']=ypred_pd['WQ'].map(lambda x:1 if x>0.7 else 0)
ypred_pd.head()
```

Out[460...

	WQ	WQ_Pred	predicted
0	1	0.947368	1
1	1	0.947368	1
2	1	0.736842	1

2	1	0.736842	1
3	1	0.789474	1
4	1	0.719298	1

In [461…

```
print(accuracy_score(ypred_pd['WQ'],ypred_pd['predicted']))
```

```
0.9180327868852459
```

In [ ]:

```

```

Linear regression has the highest accuracy score = 0.93