def prediction():

param={'n\_estimators':[7,100],'max\_depth':[30,20],'max\_features':[12,8]}

forest=RandomForestRegressor().fit(X\_train,y\_train)

grid\_search=GridSearchCV(forest,param,cv=5,scoring='roc\_auc')

grid\_search.fit(X\_train,y\_train)

best\_param=grid\_search.best\_params\_

best\_score=grid\_search.best\_score\_

print(best\_param)

print(best\_score)

return pd.DataFrame(grid\_search.predict(X\_test),index=X\_test.index,columns=['Compliance'])

prediction()

2)RANDOM FOREST REGRESSOR():

def prediction():

for depth,features in zip([20,50,10],[4,12,4]):

forest=RandomForestRegressor(n\_estimators=100,max\_features=features,max\_depth=depth,randm\_state=4).fit(X\_train,y\_train)

y\_pred=forest.predict(X\_test)

print(roc\_auc\_score(y\_test,y\_pred))

print("depth:{:.1f},features:{:.1f}".format(depth,features))

return pd.DataFrame(grid\_search.predict(X\_test),index=X\_test.index,columns=['Compliance'])

# print(roc\_auc\_score(y\_test,y\_pred))

prediction()