In [54]:
```
from platform import python_version
print(python_version())
```

```
3.7.10
```

In [71]:
```
import pickle
import pandas as pd
import numpy as np
import numpy as np
from sklearn.metrics import accuracy_score
from sklearn.metrics import precision_score
from sklearn.metrics import recall_score
from sklearn.metrics import f1_score
```

In [66]:
```
test=pd.read_csv('test_data.csv')
indexing=pd.read_csv('indexing.csv')
```

In [67]:
```
def function_1(data):
    cus_loc_ven=' X '.join([str(i) for i in data])

    ven_predict=indexing.index[indexing['CID X LOC_NUM X VENDOR'] == cus_loc_ven

    X_test=pd.DataFrame(np.array(test.iloc[ven_predict, : ].tolist()).reshape(1,5

    X_test=X_test.drop(X_test.iloc[:, 48],axis = 1)

    xgboost=pickle.load(open('model.pkl', 'rb'))

    prediction=xgboost.predict(X_test)[0]

    return prediction
```

In [72]:
```
def function_2(data,true):
    xgboost=pickle.load(open('model.pkl', 'rb'))

    predict=xgboost.predict(data)

    prec =precision_score(true, predict)
    rec=recall_score(true, predict)

    f1_score=(2*prec*rec)/(rec+prec+0.000000000000001)

    return f1_score
```