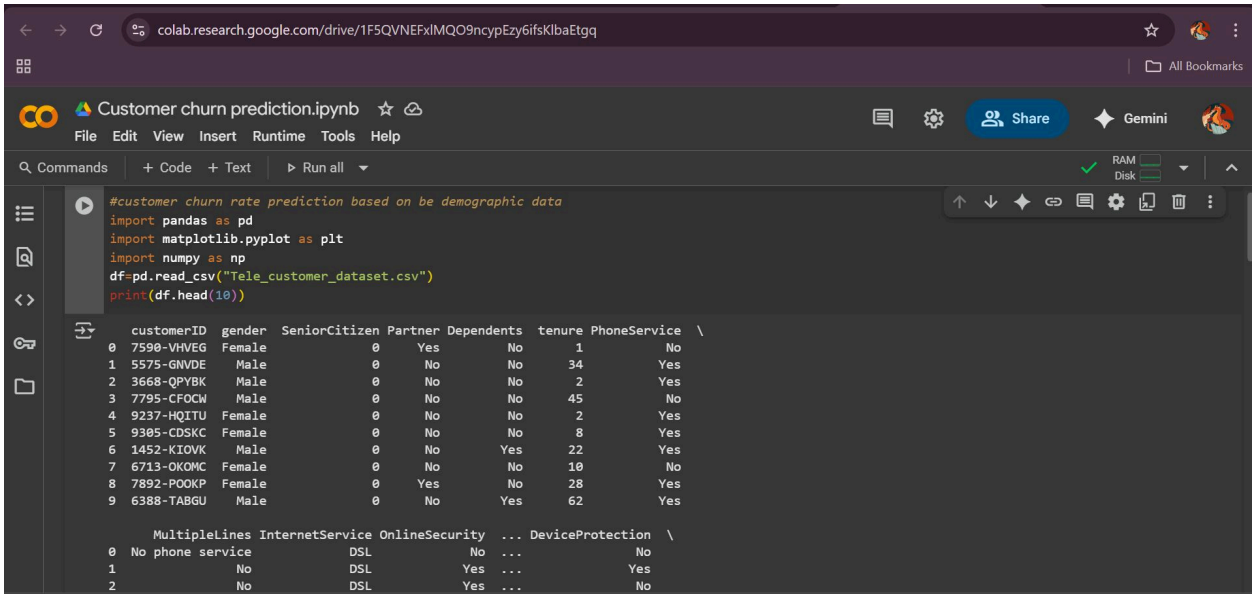
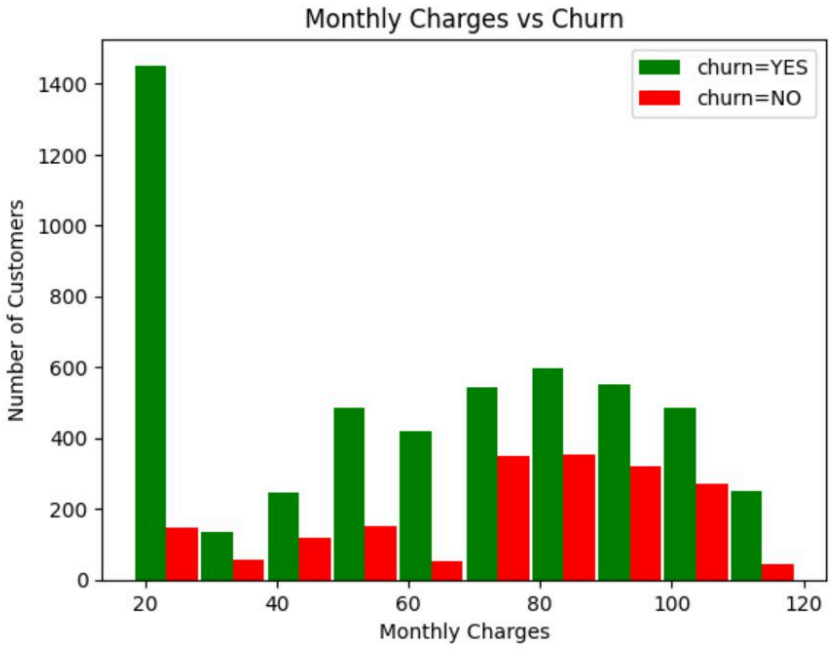


MONTHLY CHARGES V/S CHURN RATE BARPLOT

```
plt.show()
```



In [28]:
```
#data cleaning as ml dont understand variables in data set so we gonna change in 0s and 1s
```

CLASSIFICATION REPORT

```
  else:
    y_pred.append(0)

y_pred[:10]
```

```
44/44 ━━━━━━━━━━━━━━━━━━━━ 0s 935us/step
```

Out[49]: `[0, 1, 0, 1, 0, 1, 0, 0, 0, 0]`

In [50]:

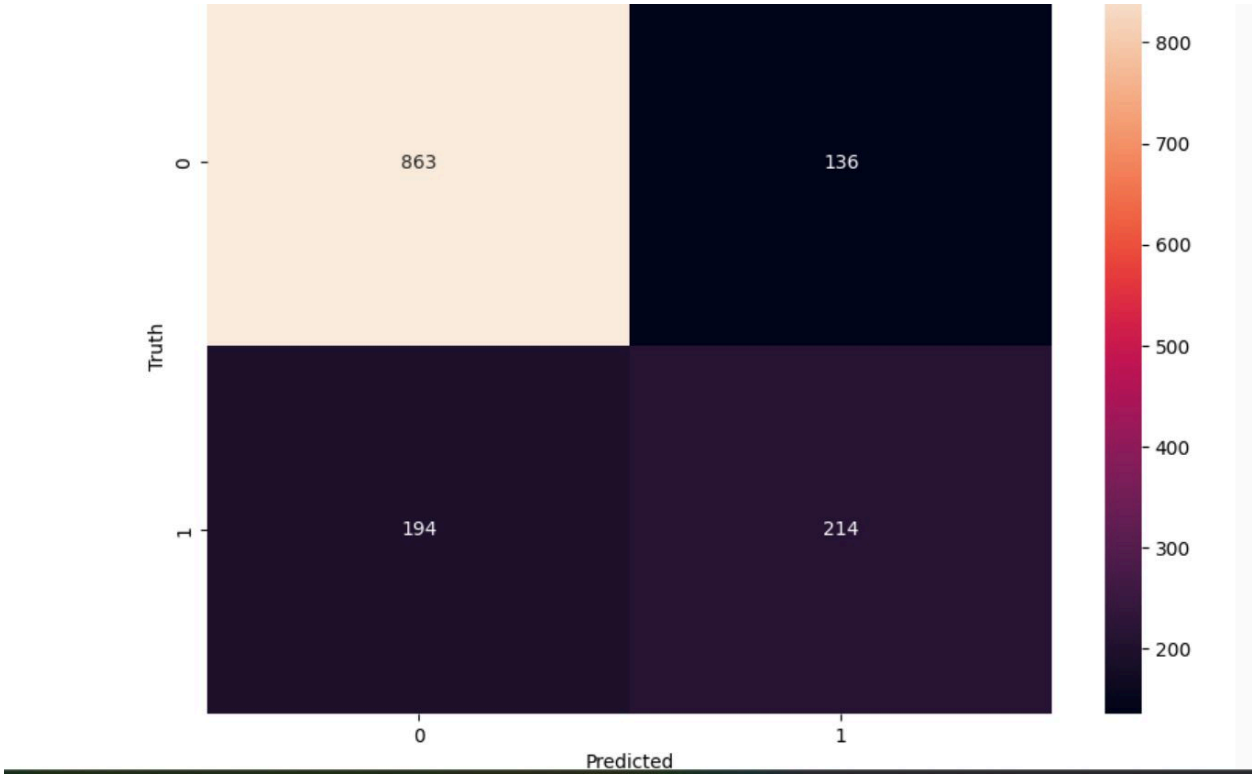
```
from sklearn.metrics import confusion_matrix,classification_report
print(classification_report(y_test,y_pred))
```

```
              precision    recall  f1-score   support

           0       0.82      0.86      0.84       999
           1       0.61      0.52      0.56       408

    accuracy                           0.77      1407
   macro avg       0.71      0.69      0.70      1407
weighted avg       0.76      0.77      0.76      1407
```

In [51]:

```
#confusion matrix
import seaborn as sn
cm=tf.math.confusion_matrix(labels=y_test,predictions=y_pred)
plt.figure(figsize=(10,7))
sn.heatmap(cm,annot=True,fmt="d")
plt.xlabel("Predicted")
plt.ylabel("Truth")
```

CONFUSION MATRIX


863
136
194
214
0
1
Truth
0
1
Predicted
800
700
600
500
400
300
200