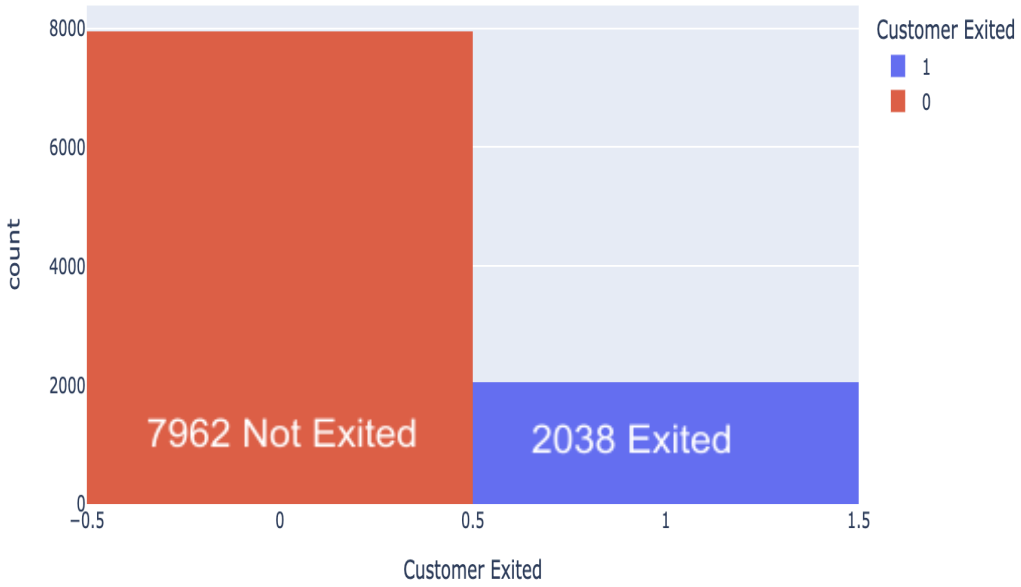
Customer Acquisition:

```
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
from sklearn.preprocessing import OneHotEncoder
from sklearn.compose import ColumnTransformer
from sklearn.pipeline import Pipeline
from sklearn.impute import SimpleImputer
from sklearn.metrics import accuracy_score, classification_report
import plotly.express as px
# Load data from CSV file
data = pd.read_csv('data.csv')
# Support Vector Machines (SVM) for Customer Acquisition
target_variable_acquisition = 'Exited'
features_acquisition = data.drop(columns=['RowNumber', 'CustomerId',
'Surname', targe
X_train, X_test, y_train, y_test = train_test_split(features_acquisition,
data[target_
# Identify categorical features
categorical_features = ['Geography', 'Gender', 'Card Type']
# Create pipeline for preprocessing categorical features
categorical_transformer = Pipeline(steps=[
('imputer', SimpleImputer(strategy='constant', fill_value='missing')),
('onehot', OneHotEncoder(handle_unknown='ignore'))
])
# Preprocess features with categorical data
preprocessor = ColumnTransformer(
transformers=[
('cat', categorical_transformer, categorical_features)
])
# Create an SVM classifier with preprocessing pipeline
svm_classifier = Pipeline(steps=[('preprocessor', preprocessor),
('classifier', SVC(random_state=42))])
# Fit the model and make predictions
svm_classifier.fit(X_train, y_train)
predictions_acquisition = svm_classifier.predict(X_test)
accuracy_acquisition = accuracy_score(y_test, predictions_acquisition)
# Visualize results using plotly
fig = px.histogram(data, x='Exited', color='Exited', title='Customer
Acquisition Pred
labels={'Exited': 'Customer Exited'})
fig.show()
# Print results
print("Customer Acquisition Prediction (SVM):")
print(f"Accuracy: {accuracy_acquisition:.2%}")
print("Classification Report:")
print(classification_report(y_test, predictions_acquisition, zero_division=1))
```




```
Customer Acquisition Prediction:
Accuracy: 80.35%
Classification Report:
              precision    recall  f1-score   support

           0       0.80      1.00      0.89      1607
           1       1.00      0.00      0.00       393

    accuracy                           0.80      2000
   macro avg       0.90      0.50      0.45      2000
weighted avg       0.84      0.80      0.72      2000
```