```python
import pandas as pd
import numpy as np

df = pd.read_csv("Telco-Customer-Churn.csv")
df.head()
```

```
   customerID  gender  SeniorCitizen Partner Dependents  tenure
PhoneService  \
0  7590-VHVEG  Female              0     Yes         No       1
No
1  5575-GNVDE    Male              0      No         No      34
Yes
2  3668-QPYBK    Male              0      No         No       2
Yes
3  7795-CFOCW    Male              0      No         No      45
No
4  9237-HQITU  Female              0      No         No       2
Yes

      MultipleLines InternetService OnlineSecurity  ...
DeviceProtection  \
0  No phone service             DSL             No  ...
No
1                No             DSL            Yes  ...
Yes
2                No             DSL            Yes  ...
No
3  No phone service             DSL            Yes  ...
Yes
4                No     Fiber optic             No  ...
No

  TechSupport StreamingTV StreamingMovies        Contract
PaperlessBilling  \
0          No          No              No  Month-to-month
Yes
1          No          No              No        One year
No
2          No          No              No  Month-to-month
Yes
3         Yes          No              No        One year
No
4          No          No              No  Month-to-month
Yes

               PaymentMethod MonthlyCharges  TotalCharges Churn
0           Electronic check          29.85         29.85    No
1               Mailed check          56.95        1889.5    No
2               Mailed check          53.85        108.15   Yes
3  Bank transfer (automatic)          42.30       1840.75    No
```

```
4           Electronic check          70.70        151.65   Yes

[5 rows x 21 columns]
```

```
df.info()
df.describe()
df.isnull().sum()
df['Churn'].value_counts()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7043 entries, 0 to 7042
Data columns (total 21 columns):
 #   Column            Non-Null Count  Dtype
---  ------            --------------  -----
 0   customerID        7043 non-null   object
 1   gender            7043 non-null   object
 2   SeniorCitizen     7043 non-null   int64
 3   Partner           7043 non-null   object
 4   Dependents        7043 non-null   object
 5   tenure            7043 non-null   int64
 6   PhoneService      7043 non-null   object
 7   MultipleLines     7043 non-null   object
 8   InternetService   7043 non-null   object
 9   OnlineSecurity    7043 non-null   object
 10  OnlineBackup      7043 non-null   object
 11  DeviceProtection  7043 non-null   object
 12  TechSupport       7043 non-null   object
 13  StreamingTV       7043 non-null   object
 14  StreamingMovies   7043 non-null   object
 15  Contract          7043 non-null   object
 16  PaperlessBilling  7043 non-null   object
 17  PaymentMethod     7043 non-null   object
 18  MonthlyCharges    7043 non-null   float64
 19  TotalCharges      7043 non-null   object
 20  Churn             7043 non-null   object
dtypes: float64(1), int64(2), object(18)
memory usage: 1.1+ MB

Churn
No     5174
Yes    1869
Name: count, dtype: int64
```

```
df.describe(include='all')
```

```
        customerID gender  SeniorCitizen Partner Dependents
tenure  \
count         7043   7043    7043.000000    7043       7043
7043.000000
unique        7043      2            NaN       2          2
```

```
NaN
top     3186-AJIEK   Male            NaN      No          No
NaN
freq             1   3555            NaN    3641        4933
NaN
mean           NaN    NaN       0.162147     NaN         NaN
32.371149
std            NaN    NaN       0.368612     NaN         NaN
24.559481
min            NaN    NaN       0.000000     NaN         NaN
0.000000
25%            NaN    NaN       0.000000     NaN         NaN
9.000000
50%            NaN    NaN       0.000000     NaN         NaN
29.000000
75%            NaN    NaN       0.000000     NaN         NaN
55.000000
max            NaN    NaN       1.000000     NaN         NaN
72.000000

       PhoneService MultipleLines InternetService OnlineSecurity  ...
\
count          7043          7043            7043           7043  ...

unique            2             3               3              3  ...

top             Yes            No     Fiber optic             No  ...

freq           6361          3390            3096           3498  ...

mean            NaN           NaN             NaN            NaN  ...

std             NaN           NaN             NaN            NaN  ...

min             NaN           NaN             NaN            NaN  ...

25%             NaN           NaN             NaN            NaN  ...

50%             NaN           NaN             NaN            NaN  ...

75%             NaN           NaN             NaN            NaN  ...

max             NaN           NaN             NaN            NaN  ...


       DeviceProtection TechSupport StreamingTV StreamingMovies  \
count              7043        7043        7043            7043
unique                3           3           3               3
top                  No          No          No              No
freq               3095        3473        2810            2785
```

```
mean                NaN         NaN         NaN             NaN
std                 NaN         NaN         NaN             NaN
min                 NaN         NaN         NaN             NaN
25%                 NaN         NaN         NaN             NaN
50%                 NaN         NaN         NaN             NaN
75%                 NaN         NaN         NaN             NaN
max                 NaN         NaN         NaN             NaN

              Contract PaperlessBilling     PaymentMethod
MonthlyCharges  \
count             7043             7043              7043
7043.000000
unique               3                2                 4
NaN
top     Month-to-month              Yes  Electronic check
NaN
freq              3875             4171              2365
NaN
mean               NaN              NaN               NaN
64.761692
std                NaN              NaN               NaN
30.090047
min                NaN              NaN               NaN
18.250000
25%                NaN              NaN               NaN
35.500000
50%                NaN              NaN               NaN
70.350000
75%                NaN              NaN               NaN
89.850000
max                NaN              NaN               NaN
118.750000

        TotalCharges Churn
count           7043  7043
unique          6531     2
top             20.2    No
freq              11  5174
mean             NaN   NaN
std              NaN   NaN
min              NaN   NaN
25%              NaN   NaN
50%              NaN   NaN
75%              NaN   NaN
max              NaN   NaN

[11 rows x 21 columns]
```

```
df.isnull().sum()
```

```
customerID          0
gender              0
SeniorCitizen       0
Partner             0
Dependents          0
tenure              0
PhoneService        0
MultipleLines       0
InternetService     0
OnlineSecurity      0
OnlineBackup        0
DeviceProtection    0
TechSupport         0
StreamingTV         0
StreamingMovies     0
Contract            0
PaperlessBilling    0
PaymentMethod       0
MonthlyCharges      0
TotalCharges        0
Churn               0
dtype: int64
```

```
print(df.columns.tolist())
```

```
['customerID', 'gender', 'SeniorCitizen', 'Partner', 'Dependents',
'tenure', 'PhoneService', 'MultipleLines', 'InternetService',
'OnlineSecurity', 'OnlineBackup', 'DeviceProtection', 'TechSupport',
'StreamingTV', 'StreamingMovies', 'Contract', 'PaperlessBilling',
'PaymentMethod', 'MonthlyCharges', 'TotalCharges', 'Churn']
```

```
df['Churn'].value_counts()
```

```
Churn
No     5174
Yes    1869
Name: count, dtype: int64
```

```
df.head()
```

```
   customerID  gender  SeniorCitizen Partner Dependents  tenure
PhoneService  \
0  7590-VHVEG  Female              0     Yes         No       1
No
1  5575-GNVDE    Male              0      No         No      34
Yes
2  3668-QPYBK    Male              0      No         No       2
Yes
3  7795-CFOCW    Male              0      No         No      45
No
4  9237-HQITU  Female              0      No         No       2
```

```
Yes

      MultipleLines InternetService OnlineSecurity  ...
DeviceProtection  \
0  No phone service             DSL             No  ...
No
1                No             DSL            Yes  ...
Yes
2                No             DSL            Yes  ...
No
3  No phone service             DSL            Yes  ...
Yes
4                No     Fiber optic             No  ...
No

  TechSupport StreamingTV StreamingMovies        Contract
PaperlessBilling  \
0          No          No              No  Month-to-month
Yes
1          No          No              No        One year
No
2          No          No              No  Month-to-month
Yes
3         Yes          No              No        One year
No
4          No          No              No  Month-to-month
Yes

               PaymentMethod MonthlyCharges  TotalCharges Churn
0           Electronic check          29.85         29.85    No
1               Mailed check          56.95        1889.5    No
2               Mailed check          53.85        108.15   Yes
3  Bank transfer (automatic)          42.30       1840.75    No
4           Electronic check          70.70        151.65   Yes

[5 rows x 21 columns]
```

```
import matplotlib.pyplot as plt
import seaborn as sns

df.info()
df.describe()
df.head()
df.tail()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7043 entries, 0 to 7042
Data columns (total 21 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
```

```
 0   customerID        7043 non-null   object
 1   gender            7043 non-null   object
 2   SeniorCitizen     7043 non-null   int64
 3   Partner           7043 non-null   object
 4   Dependents        7043 non-null   object
 5   tenure            7043 non-null   int64
 6   PhoneService      7043 non-null   object
 7   MultipleLines     7043 non-null   object
 8   InternetService   7043 non-null   object
 9   OnlineSecurity    7043 non-null   object
 10  OnlineBackup      7043 non-null   object
 11  DeviceProtection  7043 non-null   object
 12  TechSupport       7043 non-null   object
 13  StreamingTV       7043 non-null   object
 14  StreamingMovies   7043 non-null   object
 15  Contract          7043 non-null   object
 16  PaperlessBilling  7043 non-null   object
 17  PaymentMethod     7043 non-null   object
 18  MonthlyCharges    7043 non-null   float64
 19  TotalCharges      7043 non-null   object
 20  Churn             7043 non-null   object
dtypes: float64(1), int64(2), object(18)
memory usage: 1.1+ MB

      customerID  gender  SeniorCitizen Partner Dependents  tenure  \
7038  6840-RESVB    Male              0     Yes        Yes      24
7039  2234-XADUH  Female              0     Yes        Yes      72
7040  4801-JZAZL  Female              0     Yes        Yes      11
7041  8361-LTMKD    Male              1     Yes         No       4
7042  3186-AJIEK    Male              0      No         No      66

     PhoneService     MultipleLines InternetService
OnlineSecurity  ...  \
7038          Yes               Yes             DSL
Yes  ...
7039          Yes               Yes     Fiber optic
No  ...
7040           No  No phone service             DSL
Yes  ...
7041          Yes               Yes     Fiber optic
No  ...
7042          Yes                No     Fiber optic
Yes  ...

     DeviceProtection TechSupport StreamingTV StreamingMovies
Contract  \
7038              Yes         Yes         Yes             Yes
One year
7039              Yes          No         Yes             Yes
One year
```

```
7040               No          No          No              No  Month-
to-month
7041               No          No          No              No  Month-
to-month
7042              Yes         Yes         Yes             Yes
Two year

     PaperlessBilling              PaymentMethod MonthlyCharges
TotalCharges  \
7038              Yes               Mailed check          84.80
1990.5
7039              Yes    Credit card (automatic)         103.20
7362.9
7040              Yes           Electronic check          29.60
346.45
7041              Yes               Mailed check          74.40
306.6
7042              Yes  Bank transfer (automatic)         105.65
6844.5

     Churn
7038    No
7039    No
7040    No
7041   Yes
7042    No

[5 rows x 21 columns]
```

```
df.isnull().sum()
```

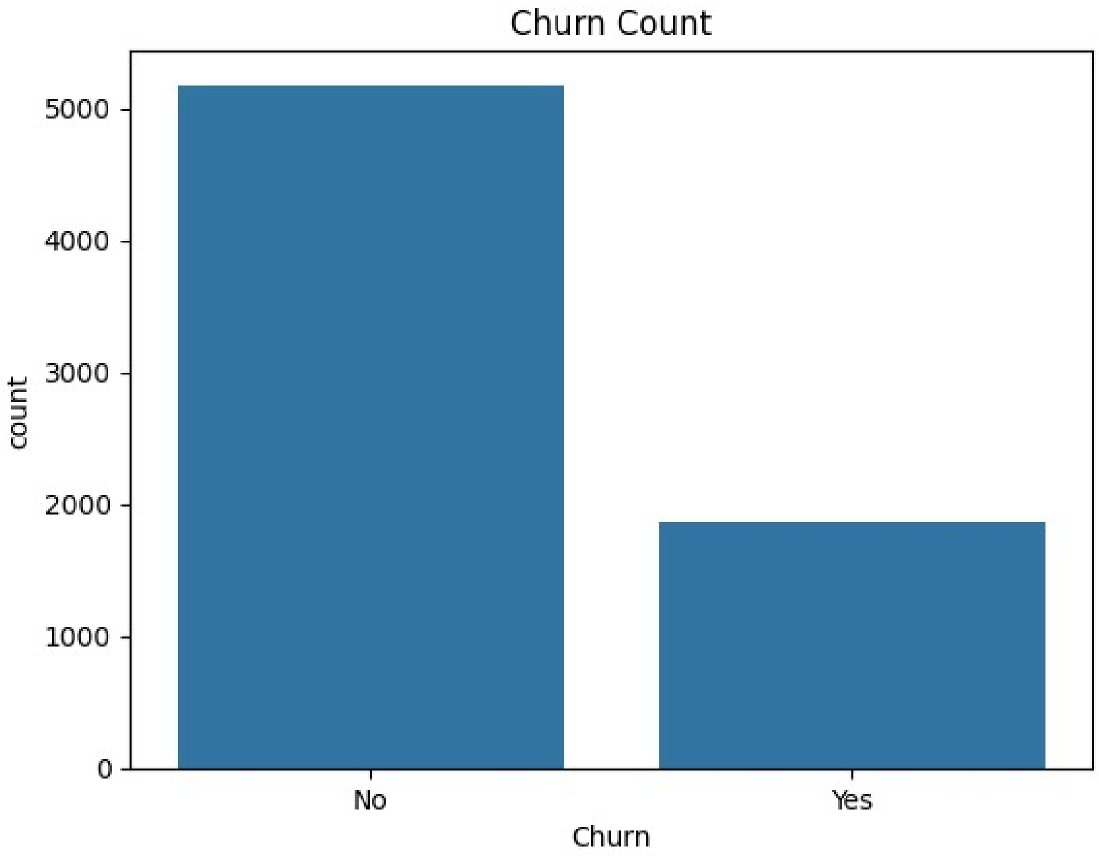
```
customerID          0
gender              0
SeniorCitizen       0
Partner             0
Dependents          0
tenure              0
PhoneService        0
MultipleLines       0
InternetService     0
OnlineSecurity      0
OnlineBackup        0
DeviceProtection    0
TechSupport         0
StreamingTV         0
StreamingMovies     0
Contract            0
PaperlessBilling    0
PaymentMethod       0
MonthlyCharges      0
```

```
TotalCharges        0
Churn               0
dtype: int64
```

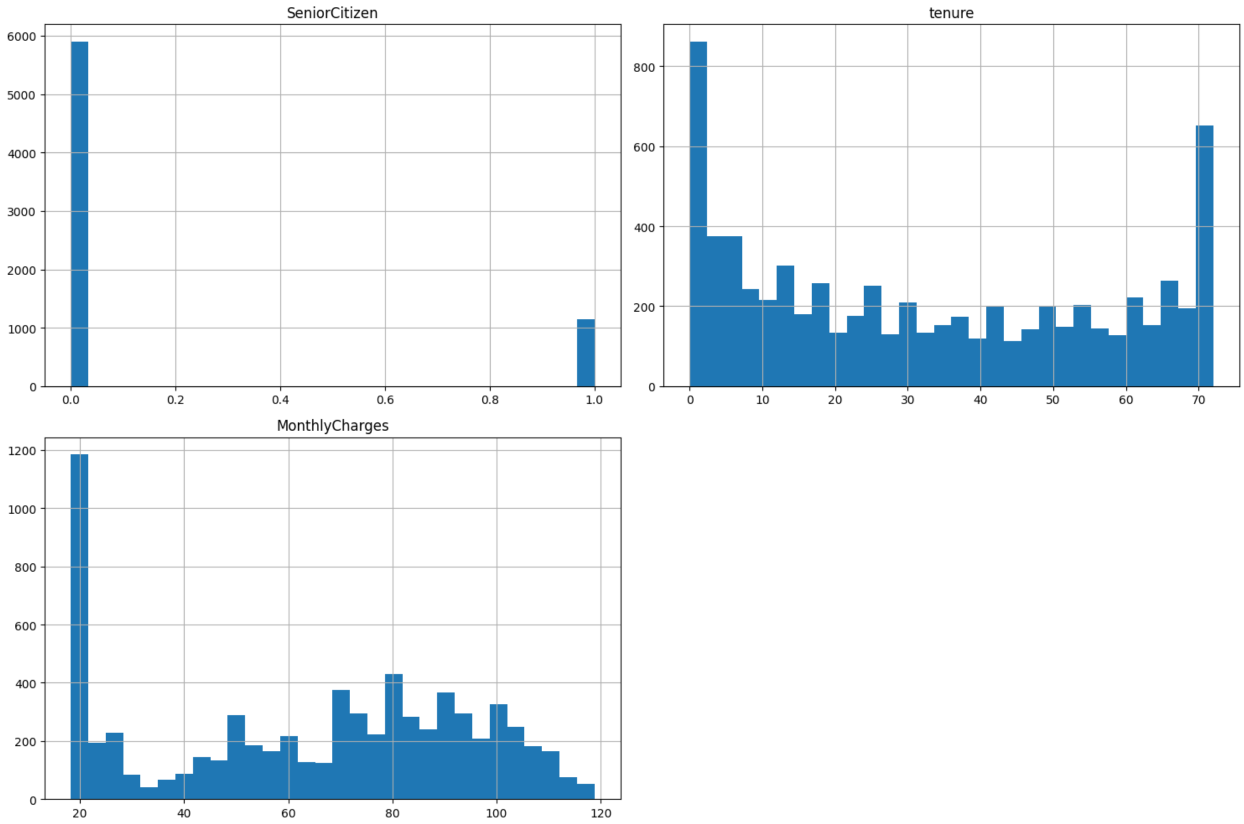
```
(df =='').sum()
```

```
customerID          0
gender              0
SeniorCitizen       0
Partner             0
Dependents          0
tenure              0
PhoneService        0
MultipleLines       0
InternetService     0
OnlineSecurity      0
OnlineBackup        0
DeviceProtection    0
TechSupport         0
StreamingTV         0
StreamingMovies     0
Contract            0
PaperlessBilling    0
PaymentMethod       0
MonthlyCharges      0
TotalCharges        0
Churn               0
dtype: int64
```

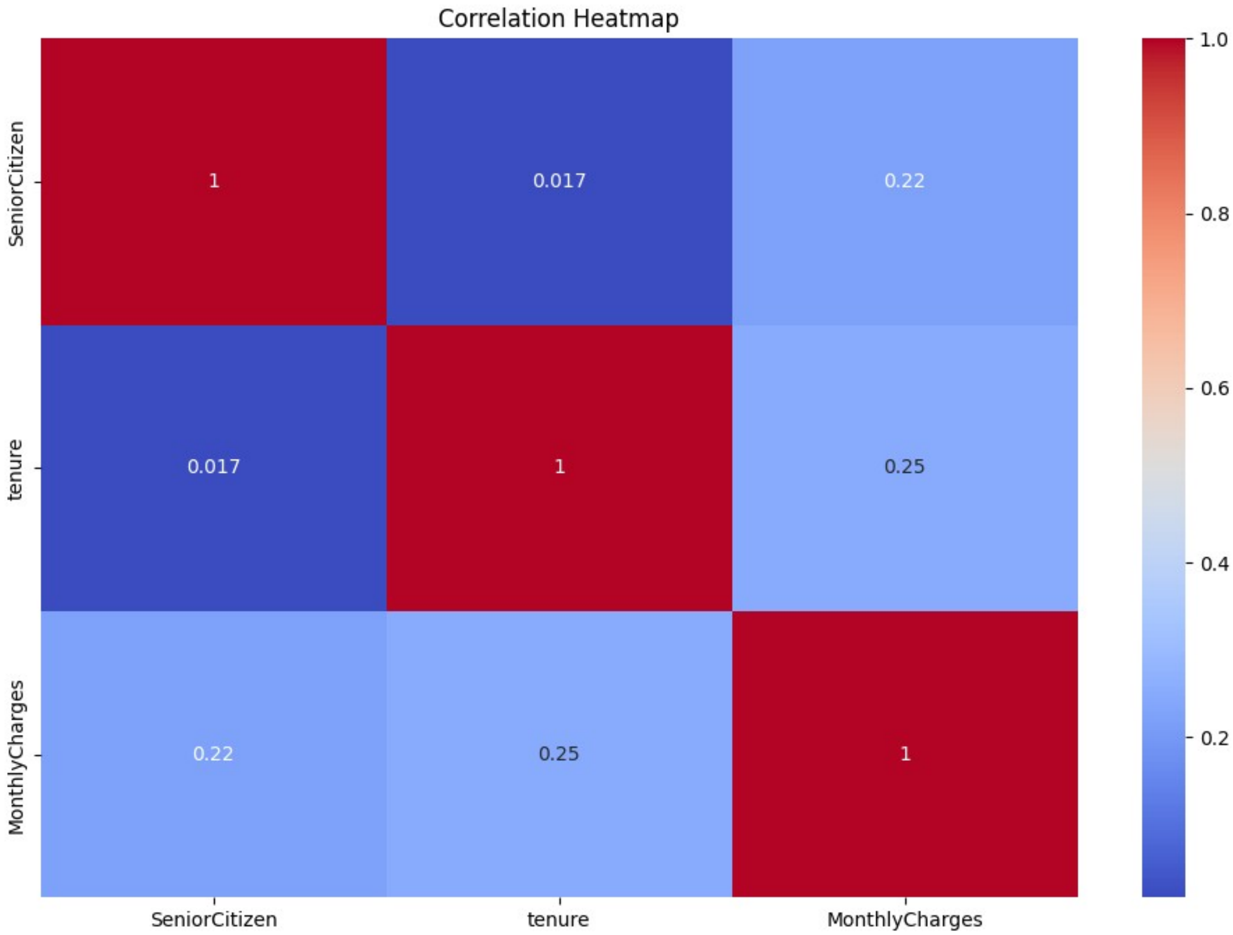
```
df['Churn'].value_counts()
sns.countplot(data=df, x='Churn')
plt.title('Churn Count')
plt.show()
```



```
df.hist(bins=30, figsize=(15,10))
plt.tight_layout()
plt.show()
```



```
plt.figure(figsize=(12,8))
sns.heatmap(df.corr(numeric_only=True), annot=True, cmap='coolwarm')
plt.title("Correlation Heatmap")
plt.show()
```



```
df['TotalCharges'] = df['TotalCharges'].replace(' ', np.nan)
df['TotalCharges'] = df['TotalCharges'].astype(float)
df['TotalCharges'].isnull().sum()  # check again
```

```
np.int64(11)
```

```
df = df.dropna()
```

```
from sklearn.preprocessing import LabelEncoder
```

```
le = LabelEncoder()
binary_cols = ['gender', 'Partner', 'Dependents', 'PhoneService',
'PaperlessBilling', 'Churn']

for col in binary_cols:
    df[col] = le.fit_transform(df[col])

df = pd.get_dummies(df, columns=['InternetService', 'OnlineSecurity',
'OnlineBackup',
                                  'DeviceProtection', 'TechSupport',
'StreamingTV',
                                 'StreamingMovies', 'Contract',
'PaymentMethod'], drop_first=True)

def tenure_group(tenure):
    if tenure <= 12:
        return '0–1 year'
    elif tenure <= 24:
        return '1–2 years'
    elif tenure <= 48:
        return '2–4 years'
    elif tenure <= 60:
        return '4–5 years'
    else:
        return '5+ years'

df['tenure_group'] = df['tenure'].apply(tenure_group)
df = pd.get_dummies(df, columns=['tenure_group'], drop_first=True)

df.info()
df.head()
```

```
<class 'pandas.core.frame.DataFrame'>
Index: 7032 entries, 0 to 7042
Data columns (total 35 columns):
 #   Column                                  Non-Null Count  Dtype
---  ------                                  --------------  -----
 0   customerID                              7032 non-null   object
 1   gender                                  7032 non-null   int64
 2   SeniorCitizen                           7032 non-null   int64
 3   Partner                                 7032 non-null   int64
 4   Dependents                              7032 non-null   int64
 5   tenure                                  7032 non-null   int64
 6   PhoneService                            7032 non-null   int64
 7   MultipleLines                           7032 non-null   object
 8   PaperlessBilling                        7032 non-null   int64
 9   MonthlyCharges                          7032 non-null   float64
 10  TotalCharges                            7032 non-null   float64
 11  Churn                                   7032 non-null   int64
 12  InternetService_Fiber optic             7032 non-null   bool
 13  InternetService_No                      7032 non-null   bool
 14  OnlineSecurity_No internet service      7032 non-null   bool
 15  OnlineSecurity_Yes                      7032 non-null   bool
 16  OnlineBackup_No internet service        7032 non-null   bool
 17  OnlineBackup_Yes                        7032 non-null   bool
 18  DeviceProtection_No internet service    7032 non-null   bool
 19  DeviceProtection_Yes                    7032 non-null   bool
 20  TechSupport_No internet service         7032 non-null   bool
 21  TechSupport_Yes                         7032 non-null   bool
 22  StreamingTV_No internet service         7032 non-null   bool
 23  StreamingTV_Yes                         7032 non-null   bool
 24  StreamingMovies_No internet service    7032 non-null   bool
 25  StreamingMovies_Yes                    7032 non-null   bool
 26  Contract_One year                      7032 non-null   bool
 27  Contract_Two year                      7032 non-null   bool
 28  PaymentMethod_Credit card (automatic)  7032 non-null   bool
 29  PaymentMethod_Electronic check         7032 non-null   bool
 30  PaymentMethod_Mailed check             7032 non-null   bool
 31  tenure_group_1–2 years                 7032 non-null   bool
 32  tenure_group_2–4 years                 7032 non-null   bool
 33  tenure_group_4–5 years                 7032 non-null   bool
 34  tenure_group_5+ years                  7032 non-null   bool
dtypes: bool(23), float64(2), int64(8), object(2)
memory usage: 872.1+ KB

   customerID  gender  SeniorCitizen  Partner  Dependents  tenure  \
0  7590-VHVEG       0              0        1           0       1
1  5575-GNVDE       1              0        0           0      34
2  3668-QPYBK       1              0        0           0       2
3  7795-CFOCW       1              0        0           0      45
4  9237-HQITU       0              0        0           0       2

   PhoneService     MultipleLines  PaperlessBilling
MonthlyCharges  ...  \
0             0  No phone service                 1
29.85  ...
1             1                No                 0
56.95  ...
2             1                No                 1
53.85  ...
3             0  No phone service                 0
42.30  ...
4             1                No                 1
70.70  ...

   StreamingMovies_Yes  Contract_One year  Contract_Two year  \
0                False              False              False
1                False               True              False
2                False              False              False
3                False               True              False
4                False              False              False

   PaymentMethod_Credit card (automatic)  PaymentMethod_Electronic
check  \
0                                  False
True
1                                  False
False
2                                  False
False
3                                  False
```

```
False
4                                  False
True

   PaymentMethod_Mailed check  tenure_group_1–2 years  tenure_group_2–
4 years  \
0                       False                   False
False
1                        True                   False
True
2                        True                   False
False
3                       False                   False
True
4                       False                   False
False

   tenure_group_4–5 years  tenure_group_5+ years
0                   False                  False
1                   False                  False
2                   False                  False
3                   False                  False
4                   False                  False

[5 rows x 35 columns]
```

```
X = df.drop(['customerID', 'Churn'], axis=1)  # Features
y = df['Churn']  # Target

from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)


df_encoded = pd.get_dummies(df, drop_first=True)

# 1. Imports
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestClassifier
from sklearn.metrics import classification_report, confusion_matrix

# 2. Data (assumes df is already loaded and cleaned)
# Convert categorical variables (one-hot encode)
df_encoded = pd.get_dummies(df, drop_first=True)

# 3. Feature and Target Separation
X = df_encoded.drop('Churn', axis=1)
y = df_encoded['Churn']
```

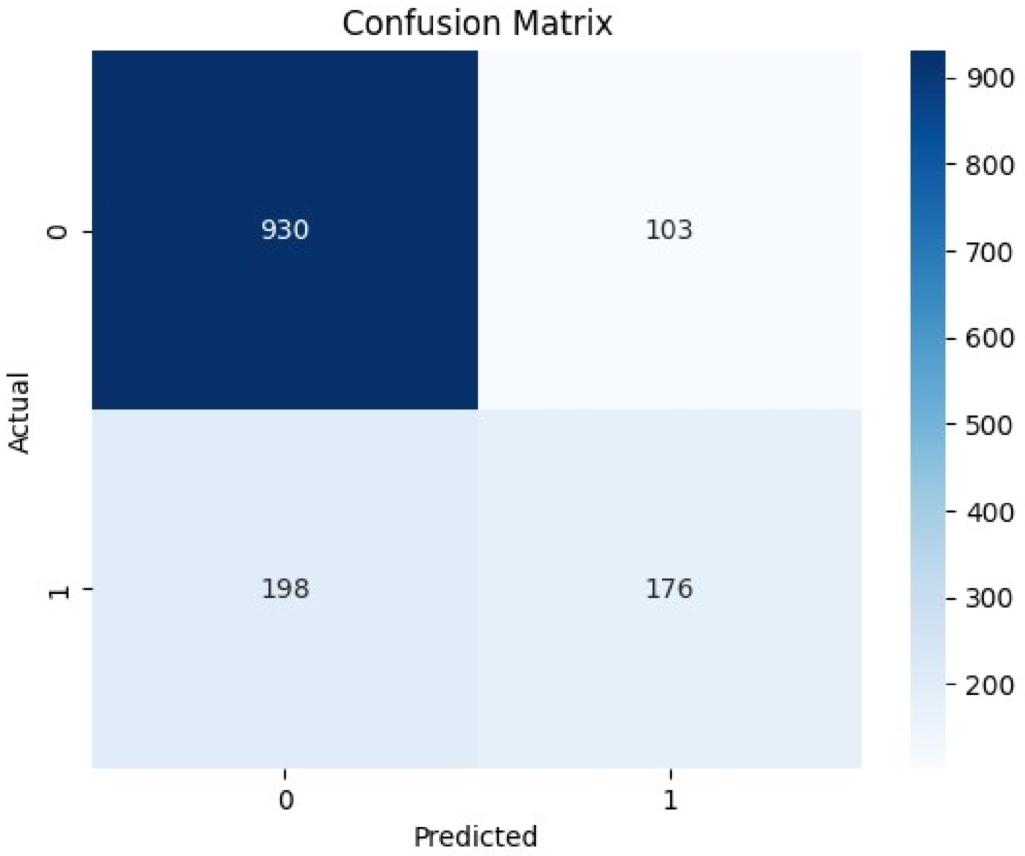
```
# 4. Train-test Split
X_train, X_test, y_train, y_test = train_test_split(X, y,
test_size=0.2, random_state=42)

# 5. Model Training
model = RandomForestClassifier(random_state=42)
model.fit(X_train, y_train)

# 6. Predictions
y_pred = model.predict(X_test)

# 7. Evaluation
print("Confusion Matrix:\n", confusion_matrix(y_test, y_pred))
print("\nClassification Report:\n", classification_report(y_test,
y_pred))
```

```
Confusion Matrix:
 [[930 103]
 [198 176]]

Classification Report:
               precision    recall  f1-score   support

           0       0.82      0.90      0.86      1033
           1       0.63      0.47      0.54       374

    accuracy                           0.79      1407
   macro avg       0.73      0.69      0.70      1407
weighted avg       0.77      0.79      0.78      1407
```

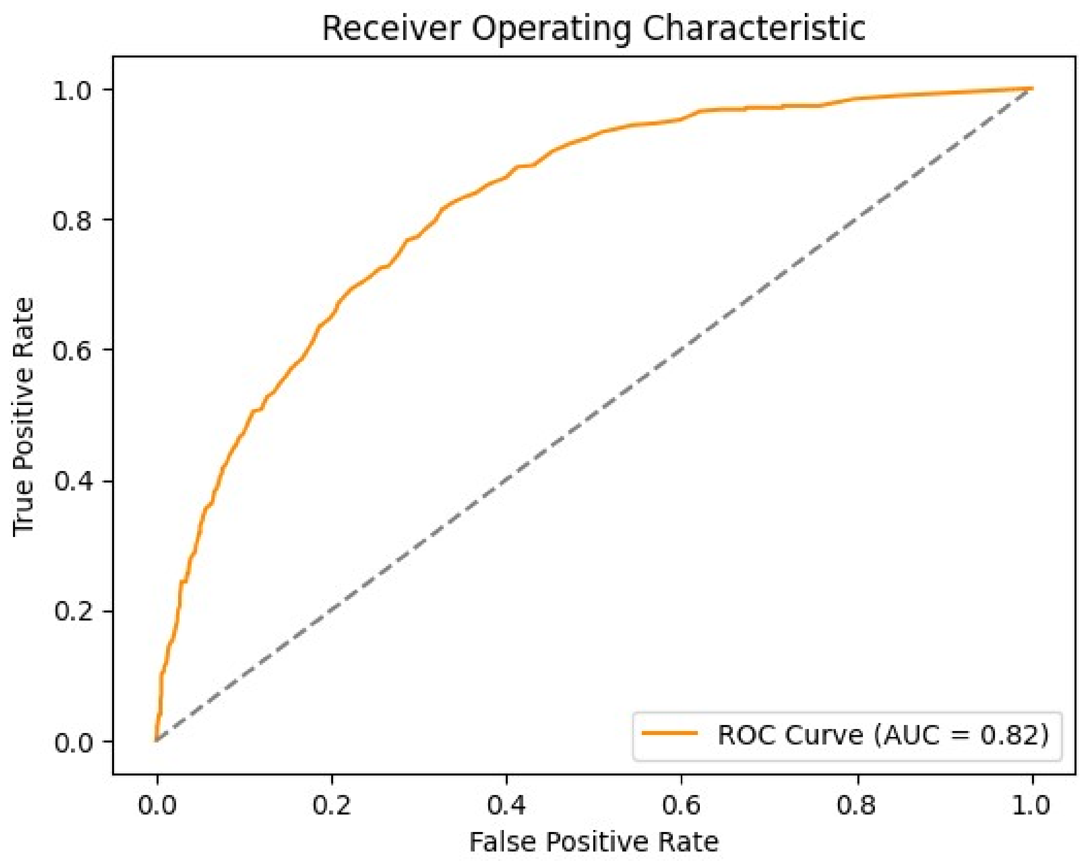
```
from sklearn.ensemble import RandomForestClassifier

rf = RandomForestClassifier()
rf.fit(X_train, y_train)
```

```
RandomForestClassifier()
```

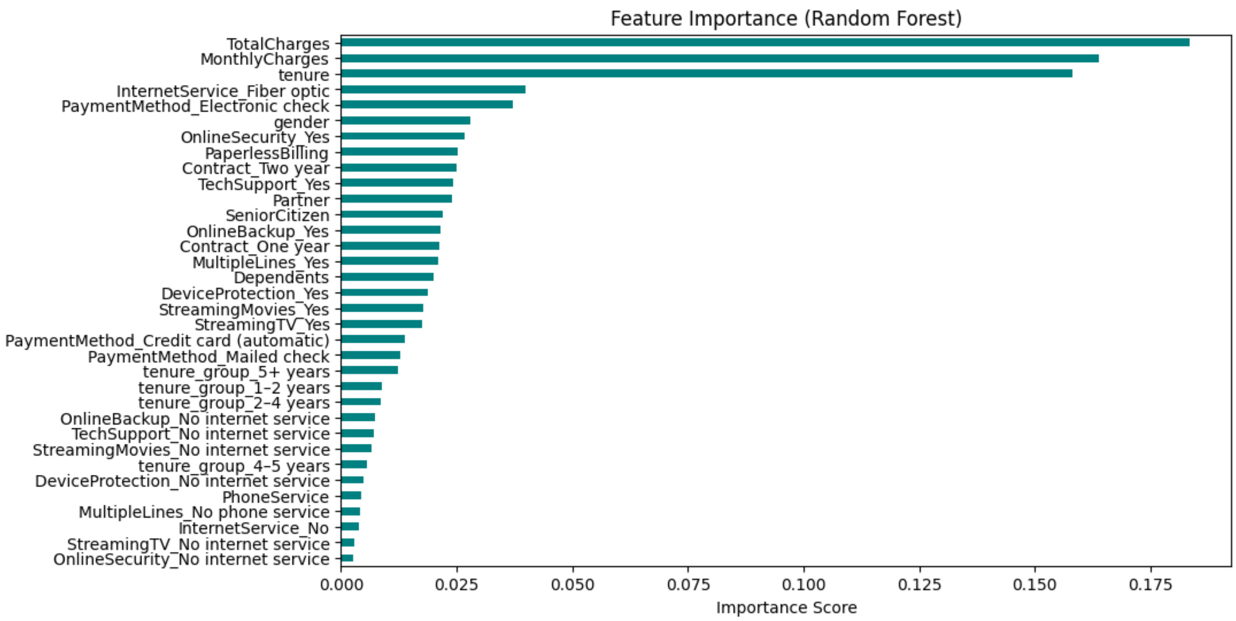
```
from sklearn.metrics import confusion_matrix, ConfusionMatrixDisplay
import seaborn as sns
import matplotlib.pyplot as plt

# Get confusion matrix
cm = confusion_matrix(y_test, y_pred)

# Plot using seaborn
sns.heatmap(cm, annot=True, fmt="d", cmap="Blues")
plt.title("Confusion Matrix")
plt.xlabel("Predicted")
plt.ylabel("Actual")
plt.show()
```



```
from sklearn.metrics import roc_curve, auc

# Probabilities for ROC
y_prob = model.predict_proba(X_test)[:, 1]

# ROC values
fpr, tpr, thresholds = roc_curve(y_test, y_prob)
roc_auc = auc(fpr, tpr)

# Plot ROC
plt.figure()
plt.plot(fpr, tpr, color='darkorange', label=f'ROC Curve (AUC =
{roc_auc:.2f})')
plt.plot([0, 1], [0, 1], linestyle='--', color='gray')
plt.xlabel('False Positive Rate')
plt.ylabel('True Positive Rate')
plt.title('Receiver Operating Characteristic')
plt.legend(loc="lower right")
plt.show()
```



```
import pandas as pd
import matplotlib.pyplot as plt

# Feature importance from RandomForest
importances = model.feature_importances_

# Create a Series with feature names and importance values
feat_imp = pd.Series(importances, index=X.columns)

# Plot
feat_imp.sort_values().plot(kind='barh', figsize=(10,6), color='teal')
plt.title("Feature Importance (Random Forest)")
plt.xlabel("Importance Score")
plt.show()
```



```
df.head(15)

    gender  SeniorCitizen  Partner  Dependents  tenure
PhoneService  \
0        0              0        1           0       1             0

1        1              0        0           0      34             1

2        1              0        0           0       2             1

3        1              0        0           0      45             0

4        0              0        0           0       2             1

5        0              0        0           0       8             1

6        1              0        0           1      22             1

7        0              0        0           0      10             0

8        0              0        1           0      28             1

9        1              0        0           1      62             1

10       1              0        1           1      13             1

11       1              0        0           0      16             1

12       1              0        1           0      58             1

13       1              0        0           0      49             1
```

```
14       1              0        0           0      25             1


       MultipleLines  PaperlessBilling  MonthlyCharges  
TotalCharges  ...  \
0   No phone service                 1           29.85  
29.85  ...
1                  No                 0           56.95  
1889.50  ...
2                  No                 1           53.85  
108.15  ...
3   No phone service                 0           42.30  
1840.75  ...
4                  No                 1           70.70  
151.65  ...
5                 Yes                 1           99.65  
820.50  ...
6                 Yes                 1           89.10  
1949.40  ...
7   No phone service                 0           29.75  
301.90  ...
8                 Yes                 1          104.80  
3046.05  ...
9                  No                 0           56.15  
3487.95  ...
10                 No                 1           49.95  
587.45  ...
11                 No                 0           18.95  
326.80  ...
12                Yes                 0          100.35  
5681.10  ...
13                Yes                 1          103.70  
5036.30  ...
14                 No                 1          105.50  
2686.05  ...

    StreamingMovies_Yes  Contract_One year  Contract_Two year  \
0                 False              False              False  
1                 False               True              False  
2                 False              False              False  
3                 False               True              False  
4                 False              False              False  
5                  True              False              False  
6                 False              False              False  
7                 False              False              False  
8                  True              False              False  
9                 False               True              False  
10                False              False              False  
11                False              False               True  
12                 True               True              False  
```

```
13                 True              False              False
14                 True              False              False

    PaymentMethod_Credit card (automatic)  PaymentMethod_Electronic
check  \
0                                   False
True
1                                   False
False
2                                   False
False
3                                   False
False
4                                   False
True
5                                   False
True
6                                    True
False
7                                   False
False
8                                   False
True
9                                   False
False
10                                  False
False
11                                   True
False
12                                   True
False
13                                  False
False
14                                  False
True

    PaymentMethod_Mailed check  tenure_group_1–2 years  \
0                        False                   False
1                         True                   False
2                         True                   False
3                        False                   False
4                        False                   False
5                        False                   False
6                        False                    True
7                         True                   False
8                        False                   False
9                        False                   False
10                        True                    True
11                       False                    True
```

```
12                       False                   False
13                       False                   False
14                       False                   False

    tenure_group_2–4 years  tenure_group_4–5 years  tenure_group_5+
years
0                    False                   False
False
1                     True                   False
False
2                    False                   False
False
3                     True                   False
False
4                    False                   False
False
5                    False                   False
False
6                    False                   False
False
7                    False                   False
False
8                     True                   False
False
9                    False                   False
True
10                   False                   False
False
11                   False                   False
False
12                   False                    True
False
13                   False                    True
False
14                    True                   False
False

[15 rows x 34 columns]
```

Customer Churn Analysis - Final Report (Week 4)

Model Performance:

The Random Forest model achieved approximately **79% accuracy**.
Confusion Matrix Results:
- Precision (Churn=1): ~63%
- Recall (Churn=1): ~47%

Key Drivers of Churn:

- Month-to-month contracts increase churn likelihood.
- Lack of Tech Support / Online Security strongly correlates with churn.
- Customers using Electronic Check payments churn more often.
- Customers with tenure less than 1 year are at highest risk.
- High monthly charges without additional value increase churn.

Business Recommendations:

- Promote long-term contracts (annual/two-year plans).
- Bundle security & tech support services at reduced prices.
- Encourage customers to switch from electronic check to auto-pay methods.
- Focus retention programs on new customers (first-year tenure).
- Offer loyalty rewards or discounts for high-charge customers.

Conclusion:

By implementing these strategies, the telecom company can significantly reduce churn and improve customer lifetime value.