Shape of dataset: (7043, 21)

Column names:

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

Data types:

customerID object

gender object

SeniorCitizen int64

Partner object

Dependents object

tenure int64

PhoneService object

MultipleLines object

InternetService object

OnlineSecurity object

OnlineBackup object

DeviceProtection object

TechSupport object

StreamingTV object

StreamingMovies object

Contract object

PaperlessBilling object

PaymentMethod object

MonthlyCharges float64

...

3 Bank transfer (automatic) 42.30 1840.75 No

4 Electronic check 70.70 151.65 Yes

print(churn['TotalCharges'].loc[churn['TotalCharges'] == ' '].value\_counts())

TotalCharges

11

Name: count, dtype: int64  
  
SeniorCitizen tenure MonthlyCharges TotalCharges

count 7032.000000 7032.000000 7032.000000 7032.000000

mean 0.162400 32.421786 64.798208 2283.300441

std 0.368844 24.545260 30.085974 2266.771362

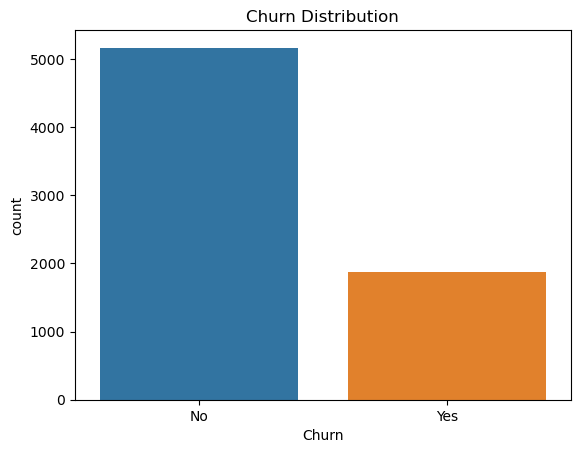
min 0.000000 1.000000 18.250000 18.800000

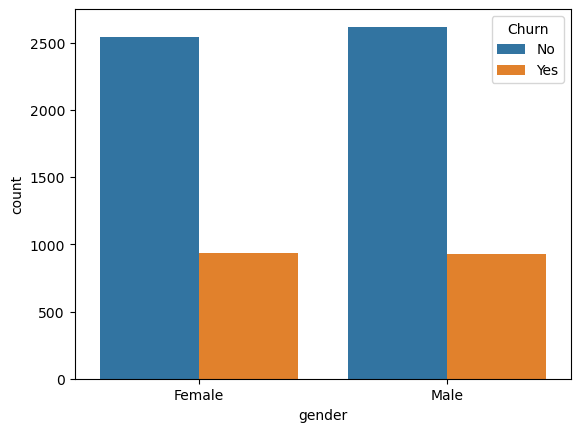
25% 0.000000 9.000000 35.587500 401.450000

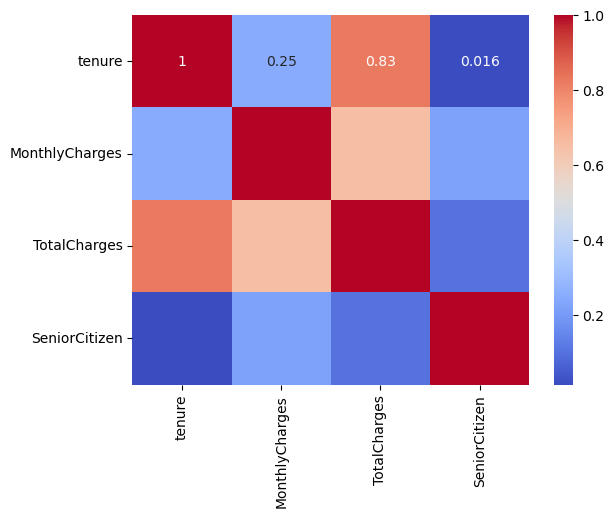
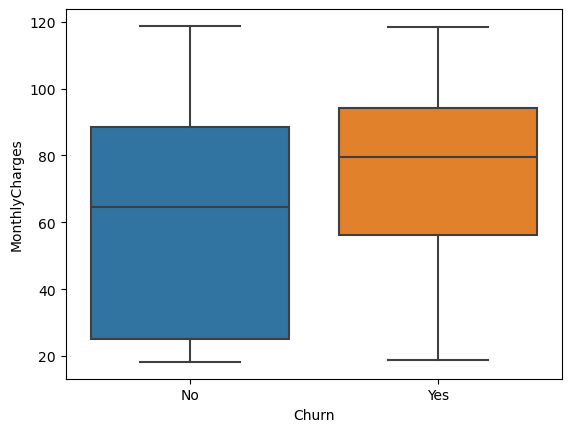
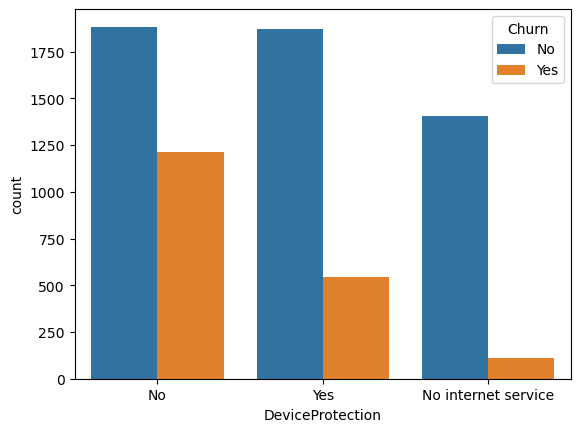
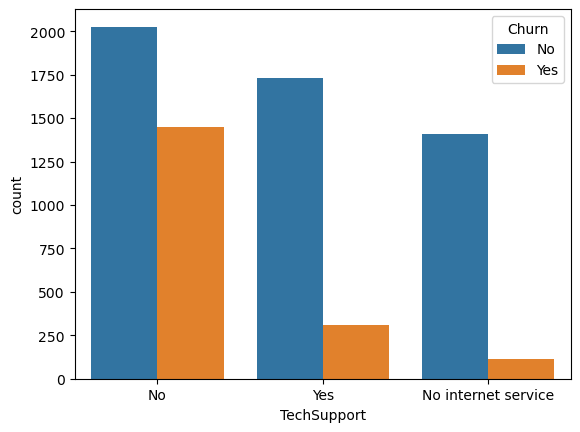
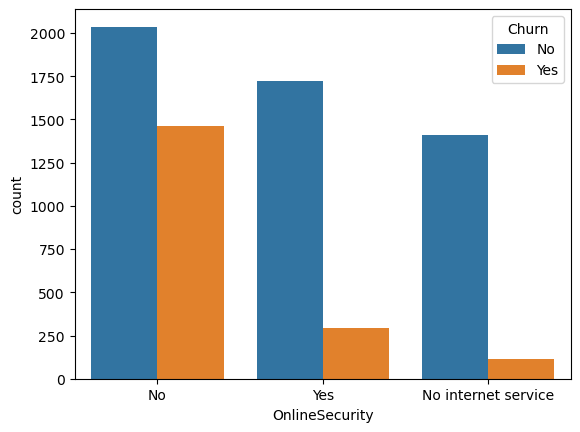
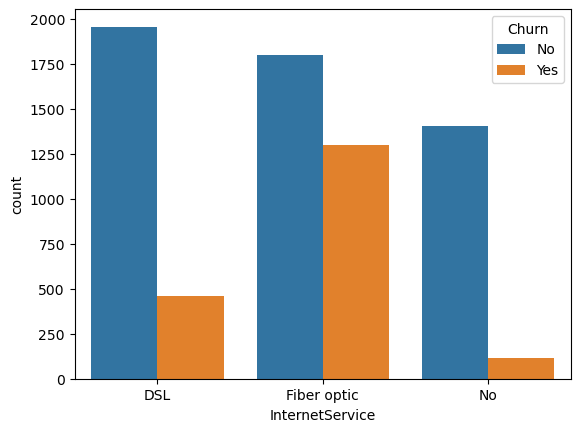
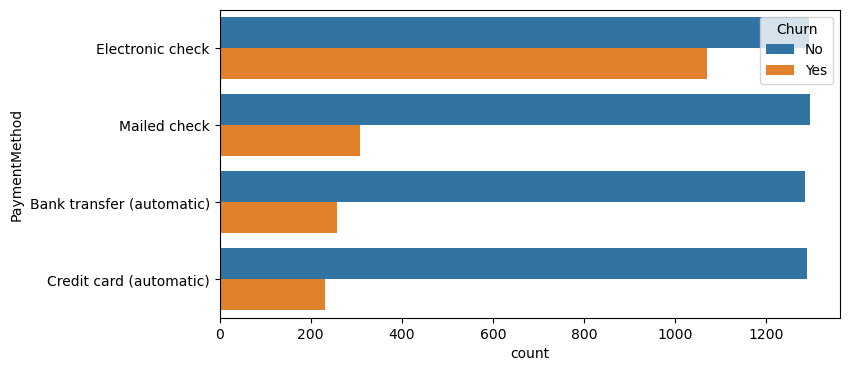
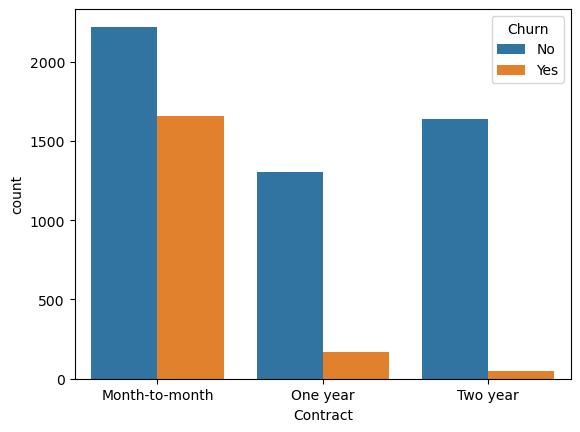
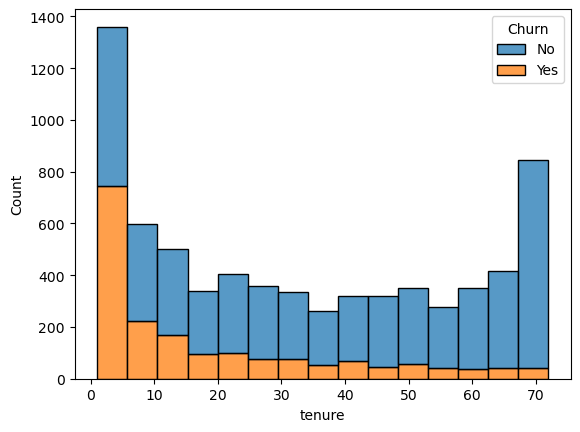
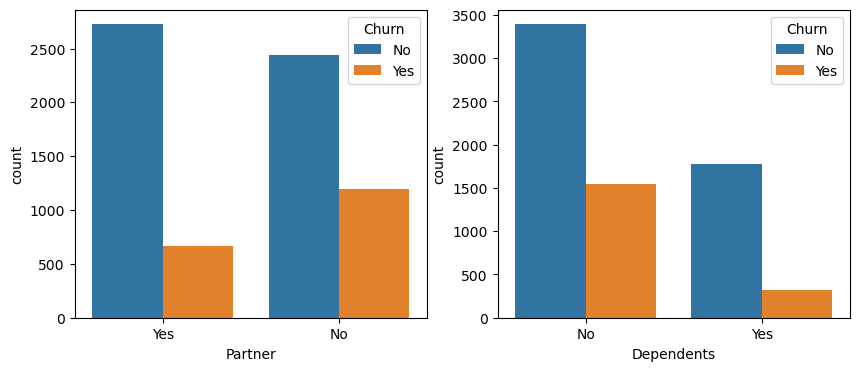
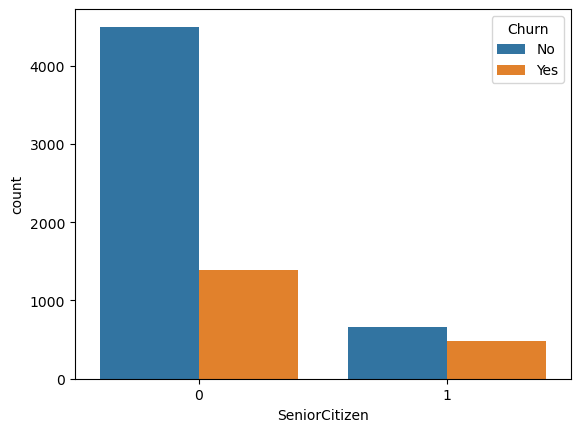
50% 0.000000 29.000000 70.350000 1397.475000

75% 0.000000 55.000000 89.862500 3794.737500

max 1.000000 72.000000 118.750000 8684.800000





Churn\_flag 1.000000

InternetService\_Fiber optic 0.307463

PaymentMethod\_Electronic check 0.301455

MonthlyCharges 0.192858

PaperlessBilling\_Yes 0.191454

SeniorCitizen 0.150541

StreamingTV\_Yes 0.063254

StreamingMovies\_Yes 0.060860

MultipleLines\_Yes 0.040033

PhoneService\_Yes 0.011691

gender\_Male -0.008545

MultipleLines\_No phone service -0.011691

DeviceProtection\_Yes -0.066193

OnlineBackup\_Yes -0.082307

PaymentMethod\_Mailed check -0.090773

PaymentMethod\_Credit card (automatic) -0.134687

Partner\_Yes -0.149982

Dependents\_Yes -0.163128

TechSupport\_Yes -0.164716

OnlineSecurity\_Yes -0.171270

Contract\_One year -0.178225

TotalCharges -0.199484

DeviceProtection\_No internet service -0.227578

OnlineSecurity\_No internet service -0.227578

TechSupport\_No internet service -0.227578

...

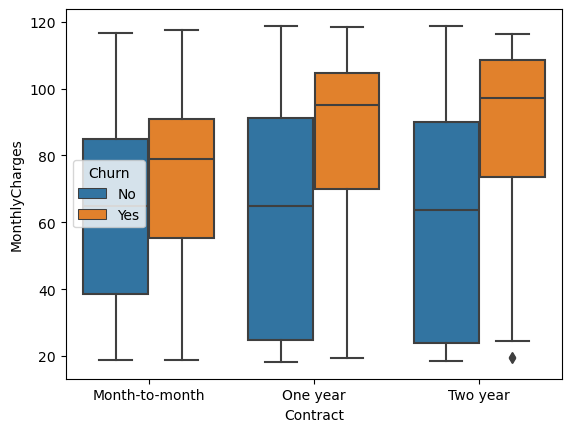
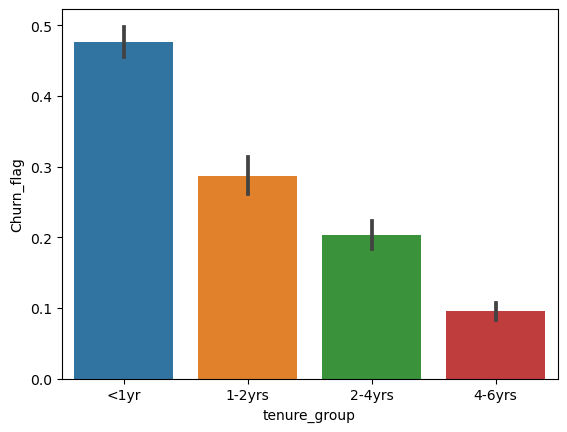
InternetService\_No -0.227578

StreamingMovies\_No internet service -0.227578

OnlineBackup\_No internet service -0.227578

Contract\_Two year -0.301552

Name: Churn\_flag, dtype: float64

InternetService:

InternetService

Fiber optic 0.418928

DSL 0.189983

No 0.074342

Name: Churn\_flag, dtype: float64

OnlineSecurity:

OnlineSecurity

No 0.417787

Yes 0.146402

No internet service 0.074342

Name: Churn\_flag, dtype: float64

OnlineBackup:

OnlineBackup

No 0.399417

Yes 0.215670

No internet service 0.074342

Name: Churn\_flag, dtype: float64

TechSupport:

TechSupport

No 0.416475

Yes 0.151961

No internet service 0.074342

Name: Churn\_flag, dtype: float64aymentMethod

Electronic check 0.452854

Mailed check 0.192020

Bank transfer (automatic) 0.167315

Credit card (automatic) 0.152531

Name: Churn\_flag, dtype: float64

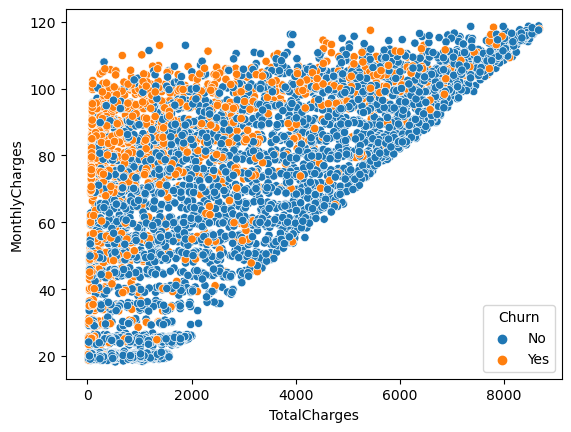
Partner Dependents

No No 0.342378

Yes 0.214485

Yes No 0.254083

Yes 0.143103

Name: Churn\_flag, dtype: float64

| **Contract** | **Month-to-month** | **One year** | **Two year** |
| --- | --- | --- | --- |
| **InternetService** |  |  |  |
| DSL | 0.506209 | 0.235927 | 0.257864 |
| Fiber optic | 0.687339 | 0.174096 | 0.138566 |
| No | 0.344737 | 0.238816 | 0.416447 |
| All | 0.551052 | 0.209329 | 0.239619 |

TotalCharges 0.185866

tenure 0.175922

MonthlyCharges 0.173959

InternetService\_Fiber optic 0.040179

PaymentMethod\_Electronic check 0.034098

Contract\_Two year 0.029941

gender\_Male 0.027262

OnlineSecurity\_Yes 0.026201

PaperlessBilling\_Yes 0.025882

TechSupport\_Yes 0.025109

dtype: float64