```python
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

df = pd.read_csv('Customer Churn.csv')
df
```

```
      customerID  gender  SeniorCitizen Partner Dependents  tenure  \
0     7590-VHVEG  Female              0     Yes         No       1
1     5575-GNVDE    Male              0      No         No      34
2     3668-QPYBK    Male              0      No         No       2
3     7795-CFOCW    Male              0      No         No      45
4     9237-HQITU  Female              0      No         No       2
...          ...     ...            ...     ...        ...     ...
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  ...  \
0              No  No phone service             DSL             No  ...
1             Yes                No             DSL            Yes  ...
2             Yes                No             DSL            Yes  ...
3              No  No phone service             DSL            Yes  ...
4             Yes                No     Fiber optic             No  ...
...           ...               ...             ...            ... ...
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  \
0                  No          No          No              No  Month-to-month
1                 Yes          No          No              No
```

```
One year
2                      No              No              No              No  Month-
to-month
3                     Yes             Yes              No              No
One year
4                      No              No              No              No  Month-
to-month
...                   ...             ...             ...             ...
...
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  \
0                Yes           Electronic check          29.85
29.85
1                 No              Mailed check          56.95
1889.5
2                Yes              Mailed check          53.85
108.15
3                 No  Bank transfer (automatic)          42.30
1840.75
4                Yes           Electronic check          70.70
151.65
...              ...                        ...            ...
...
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
0       No
1       No
2      Yes
```

```
3        No
4       Yes
...      ...
7038     No
7039     No
7040     No
7041    Yes
7042     No

[7043 rows x 21 columns]
```

```python
df.head() #First five rows
```

```
    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.tail() *#Last five rows*

```
      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.info()

<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
```

```
df["TotalCharges"] = df["TotalCharges"].replace(" ","0")
df["TotalCharges"] = df["TotalCharges"].astype("float")
```

Changes TotalCharges data type as float.

```
df.info()

<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   float64
 20  Churn             7043 non-null   object
dtypes: float64(2), int64(2), object(17)
memory usage: 1.1+ MB

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.describe()
```

	SeniorCitizen	tenure	MonthlyCharges	TotalCharges
count	7043.000000	7043.000000	7043.000000	7043.000000
mean	0.162147	32.371149	64.761692	2279.734304
std	0.368612	24.559481	30.090047	2266.794470
min	0.000000	0.000000	18.250000	0.000000
25%	0.000000	9.000000	35.500000	398.550000
50%	0.000000	29.000000	70.350000	1394.550000
75%	0.000000	55.000000	89.850000	3786.600000
max	1.000000	72.000000	118.750000	8684.800000

```
df.duplicated().sum()

0

df["customerID"].duplicated().sum()

0
```

converted 0 and 1 values of senior citizen to yes/no to make it easier to understand

```python
def conv(value):
    if value == 1:
        return "Yes"
    else:
        return "No"

df['SeniorCitizen'] = df['SeniorCitizen'].apply(conv)

df.head(50)

    customerID  gender SeniorCitizen Partner Dependents  tenure
PhoneService  \
```

0	7590-VHVEG	Female	No	Yes	No	1	No
1	5575-GNVDE	Male	No	No	No	34	Yes
2	3668-QPYBK	Male	No	No	No	2	Yes
3	7795-CFOCW	Male	No	No	No	45	No
4	9237-HQITU	Female	No	No	No	2	Yes
5	9305-CDSKC	Female	No	No	No	8	Yes
6	1452-KIOVK	Male	No	No	Yes	22	Yes
7	6713-OKOMC	Female	No	No	No	10	No
8	7892-POOKP	Female	No	Yes	No	28	Yes
9	6388-TABGU	Male	No	No	Yes	62	Yes
10	9763-GRSKD	Male	No	Yes	Yes	13	Yes
11	7469-LKBCI	Male	No	No	No	16	Yes
12	8091-TTVAX	Male	No	Yes	No	58	Yes
13	0280-XJGEX	Male	No	No	No	49	Yes
14	5129-JLPIS	Male	No	No	No	25	Yes
15	3655-SNQYZ	Female	No	Yes	Yes	69	Yes
16	8191-XWSZG	Female	No	No	No	52	Yes
17	9959-WOFKT	Male	No	No	Yes	71	Yes
18	4190-MFLUW	Female	No	Yes	Yes	10	Yes
19	4183-MYFRB	Female	No	No	No	21	Yes
20	8779-QRDMV	Male	Yes	No	No	1	No
21	1680-VDCWW	Male	No	Yes	No	12	Yes
22	1066-JKSGK	Male	No	No	No	1	Yes
23	3638-WEABW	Female	No	Yes	No	58	Yes
24	6322-HRPFA	Male	No	Yes	Yes	49	

Yes

25	6865-JZNK0	Female	No	No	No	30	Yes
26	6467-CHFZW	Male	No	Yes	Yes	47	Yes
27	8665-UTDHZ	Male	No	Yes	Yes	1	No
28	5248-YGIJN	Male	No	Yes	No	72	Yes
29	8773-HHUOZ	Female	No	No	Yes	17	Yes
30	3841-NFECX	Female	Yes	Yes	No	71	Yes
31	4929-XIHVW	Male	Yes	Yes	No	2	Yes
32	6827-IEAUQ	Female	No	Yes	Yes	27	Yes
33	7310-EGVHZ	Male	No	No	No	1	Yes
34	3413-BMNZE	Male	Yes	No	No	1	Yes
35	6234-RAAPL	Female	No	Yes	Yes	72	Yes
36	6047-YHPVI	Male	No	No	No	5	Yes
37	6572-ADKRS	Female	No	No	No	46	Yes
38	5380-WJKOV	Male	No	No	No	34	Yes
39	8168-UQWWF	Female	No	No	No	11	Yes
40	8865-TNMNX	Male	No	Yes	Yes	10	Yes
41	9489-DEDVP	Female	No	Yes	Yes	70	Yes
42	9867-JCZSP	Female	No	Yes	Yes	17	Yes
43	4671-VJLCL	Female	No	No	No	63	Yes
44	4080-IIARD	Female	No	Yes	No	13	Yes
45	3714-NTNFO	Female	No	No	No	49	Yes
46	5948-UJZLF	Male	No	No	No	2	Yes
47	7760-OYPDY	Female	No	No	No	2	Yes
48	7639-LIAYI	Male	No	No	No	52	Yes

```
49  2954-PIBKO  Female           No      Yes       Yes       69
Yes


        MultipleLines InternetService      OnlineSecurity  ...  \
0   No phone service             DSL                   No  ...
1                 No             DSL                  Yes  ...
2                 No             DSL                  Yes  ...
3   No phone service             DSL                  Yes  ...
4                 No     Fiber optic                   No  ...
5                Yes     Fiber optic                   No  ...
6                Yes     Fiber optic                   No  ...
7   No phone service             DSL                  Yes  ...
8                Yes     Fiber optic                   No  ...
9                 No             DSL                  Yes  ...
10                No             DSL                  Yes  ...
11                No              No  No internet service  ...
12               Yes     Fiber optic                   No  ...
13               Yes     Fiber optic                   No  ...
14                No     Fiber optic                  Yes  ...
15               Yes     Fiber optic                  Yes  ...
16                No              No  No internet service  ...
17               Yes     Fiber optic                  Yes  ...
18                No             DSL                   No  ...
19                No     Fiber optic                   No  ...
20  No phone service             DSL                   No  ...
21                No              No  No internet service  ...
22                No              No  No internet service  ...
23               Yes             DSL                   No  ...
24                No             DSL                  Yes  ...
25                No             DSL                  Yes  ...
26               Yes     Fiber optic                   No  ...
27  No phone service             DSL                   No  ...
28               Yes             DSL                  Yes  ...
29                No             DSL                   No  ...
30               Yes     Fiber optic                  Yes  ...
31                No     Fiber optic                   No  ...
32                No             DSL                  Yes  ...
33                No              No  No internet service  ...
34                No             DSL                   No  ...
35               Yes     Fiber optic                  Yes  ...
36                No     Fiber optic                   No  ...
37                No     Fiber optic                   No  ...
38               Yes     Fiber optic                   No  ...
39               Yes     Fiber optic                   No  ...
40                No             DSL                   No  ...
41               Yes             DSL                  Yes  ...
42                No              No  No internet service  ...
43               Yes             DSL                  Yes  ...
44               Yes             DSL                  Yes  ...
```

```
45               Yes  Fiber optic                    No  ...
46                No          DSL                    No  ...
47                No  Fiber optic                    No  ...
48               Yes          DSL                   Yes  ...
49               Yes          DSL                   Yes  ...

       DeviceProtection          TechSupport          StreamingTV  \
0                    No                   No                   No
1                   Yes                   No                   No
2                    No                   No                   No
3                   Yes                  Yes                   No
4                    No                   No                   No
5                   Yes                   No                  Yes
6                    No                   No                  Yes
7                    No                   No                   No
8                   Yes                  Yes                  Yes
9                    No                   No                   No
10                   No                   No                   No
11   No internet service  No internet service  No internet service
12                  Yes                   No                  Yes
13                  Yes                   No                  Yes
14                  Yes                  Yes                  Yes
15                  Yes                  Yes                  Yes
16   No internet service  No internet service  No internet service
17                  Yes                   No                  Yes
18                  Yes                  Yes                   No
19                  Yes                   No                   No
20                  Yes                   No                   No
21   No internet service  No internet service  No internet service
22   No internet service  No internet service  No internet service
23                   No                  Yes                   No
24                   No                  Yes                   No
25                   No                   No                   No
26                   No                   No                  Yes
27                   No                   No                   No
28                  Yes                  Yes                  Yes
29                   No                   No                  Yes
30                  Yes                  Yes                   No
31                  Yes                   No                  Yes
32                  Yes                  Yes                   No
33   No internet service  No internet service  No internet service
34                   No                   No                   No
35                   No                  Yes                  Yes
36                   No                   No                   No
37                  Yes                   No                   No
38                  Yes                   No                  Yes
39                  Yes                   No                  Yes
40                   No                   No                   No
41                   No                   No                  Yes
```

42	No internet service	No internet service	No internet service
43	Yes	Yes	Yes
44	No	Yes	Yes
45	No	No	No
46	No	No	No
47	No	No	Yes
48	No	Yes	Yes
49	Yes	Yes	No

	StreamingMovies	Contract	PaperlessBilling \
0	No	Month-to-month	Yes
1	No	One year	No
2	No	Month-to-month	Yes
3	No	One year	No
4	No	Month-to-month	Yes
5	Yes	Month-to-month	Yes
6	No	Month-to-month	Yes
7	No	Month-to-month	No
8	Yes	Month-to-month	Yes
9	No	One year	No
10	No	Month-to-month	Yes
11	No internet service	Two year	No
12	Yes	One year	No
13	Yes	Month-to-month	Yes
14	Yes	Month-to-month	Yes
15	Yes	Two year	No
16	No internet service	One year	No
17	Yes	Two year	No
18	No	Month-to-month	No
19	Yes	Month-to-month	Yes
20	Yes	Month-to-month	Yes
21	No internet service	One year	No
22	No internet service	Month-to-month	No
23	No	Two year	Yes
24	No	Month-to-month	No
25	No	Month-to-month	Yes
26	Yes	Month-to-month	Yes
27	No	Month-to-month	No
28	Yes	Two year	Yes
29	Yes	Month-to-month	Yes
30	No	Two year	Yes
31	Yes	Month-to-month	Yes
32	No	One year	No
33	No internet service	Month-to-month	No
34	No	Month-to-month	No
35	No	Two year	No
36	No	Month-to-month	Yes
37	No	Month-to-month	Yes
38	Yes	Month-to-month	Yes

```
39              Yes  Month-to-month              Yes
40               No        One year               No
41               No        Two year              Yes
42  No internet service    One year               No
43               No        Two year              Yes
44               No  Month-to-month              Yes
45              Yes  Month-to-month              Yes
46               No  Month-to-month               No
47               No  Month-to-month              Yes
48              Yes        Two year              Yes
49               No        Two year              Yes

              PaymentMethod  MonthlyCharges  TotalCharges  Churn
0           Electronic check           29.85         29.85     No
1              Mailed check           56.95       1889.50     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           Electronic check           99.65        820.50    Yes
6     Credit card (automatic)          89.10       1949.40     No
7              Mailed check           29.75        301.90     No
8           Electronic check          104.80       3046.05    Yes
9   Bank transfer (automatic)         56.15       3487.95     No
10             Mailed check           49.95        587.45     No
11    Credit card (automatic)          18.95        326.80     No
12    Credit card (automatic)         100.35       5681.10     No
13  Bank transfer (automatic)        103.70       5036.30    Yes
14          Electronic check          105.50       2686.05     No
15    Credit card (automatic)         113.25       7895.15     No
16             Mailed check           20.65       1022.95     No
17  Bank transfer (automatic)        106.70       7382.25     No
18    Credit card (automatic)          55.20        528.35    Yes
19          Electronic check           90.05       1862.90     No
20          Electronic check           39.65         39.65    Yes
21  Bank transfer (automatic)          19.80        202.25     No
22             Mailed check           20.15         20.15    Yes
23    Credit card (automatic)          59.90       3505.10     No
24    Credit card (automatic)          59.60       2970.30     No
25  Bank transfer (automatic)          55.30       1530.60     No
26          Electronic check           99.35       4749.15    Yes
27          Electronic check           30.20         30.20    Yes
28    Credit card (automatic)          90.25       6369.45     No
29             Mailed check           64.70       1093.10    Yes
30    Credit card (automatic)          96.35       6766.95     No
31    Credit card (automatic)          95.50        181.65     No
32             Mailed check           66.15       1874.45     No
33  Bank transfer (automatic)          20.20         20.20     No
34  Bank transfer (automatic)          45.25         45.25     No
35  Bank transfer (automatic)          99.90       7251.70     No
```

```
36           Electronic check              69.70      316.90    Yes
37     Credit card (automatic)             74.80     3548.30     No
38           Electronic check             106.35     3549.25    Yes
39  Bank transfer (automatic)              97.85     1105.40    Yes
40             Mailed check                49.55      475.70     No
41     Credit card (automatic)             69.20     4872.35     No
42             Mailed check                20.75      418.25     No
43     Credit card (automatic)             79.85     4861.45     No
44           Electronic check              76.20      981.45     No
45           Electronic check              84.50     3906.70     No
46             Mailed check                49.25       97.00     No
47           Electronic check              80.65      144.15    Yes
48     Credit card (automatic)             79.75     4217.80     No
49     Credit card (automatic)             64.15     4254.10     No

[50 rows x 21 columns]

ax = sns.countplot(x = "Churn", data = df)
ax.bar_label(ax.containers[0])
plt.title("Count of Customers By Churn")
plt.show()
```
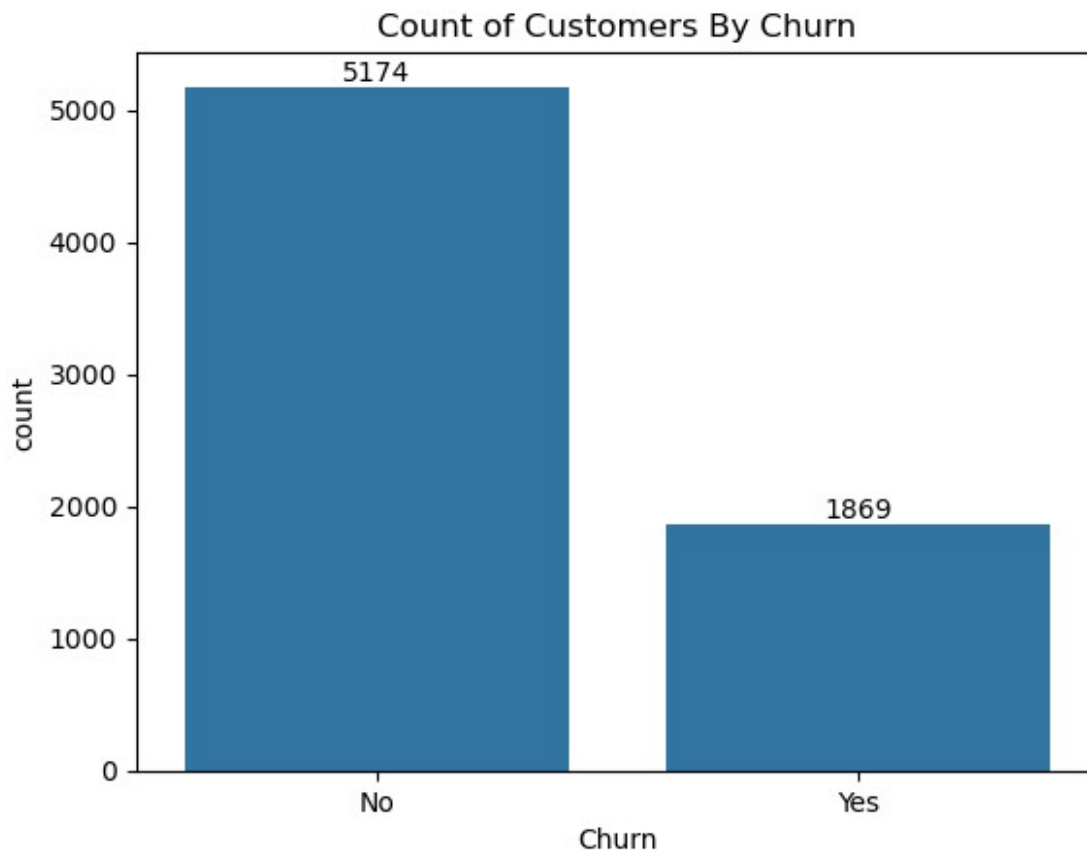
```
plt.figure(figsize = (3,4))
gb = df.groupby("Churn").agg({'Churn':"count"})
plt.pie(gb['Churn'], labels = gb.index, autopct = "%1.2f%%")
plt.title("Percentage of Churned Customeres", fontsize = 10)
plt.show()
```


Percentage of Churned Customeres
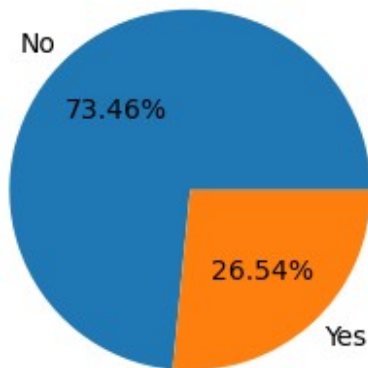
from the given pie chart we can conclude that 26.54% of our customers have not using our services

```
plt.figure(figsize = (5,4))
sns.countplot(x = "gender", data = df, hue = "Churn")
plt.title("Churn By Gender")
plt.show()
```

Churn By Gender
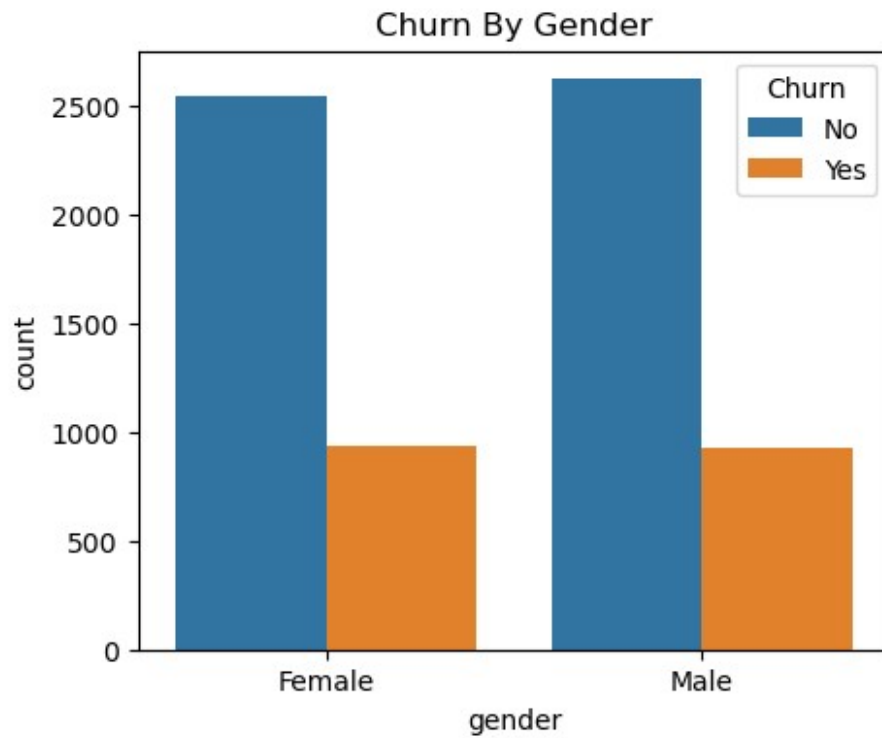
```
plt.figure(figsize = (3,4))
ax = sns.countplot(x = "SeniorCitizen", data = df)
ax.bar_label(ax.containers[0])
plt.title("Count of Customers by Senior Citizen", fontsize = 10)
plt.show()
```

Count of Customers by Senior Citizen
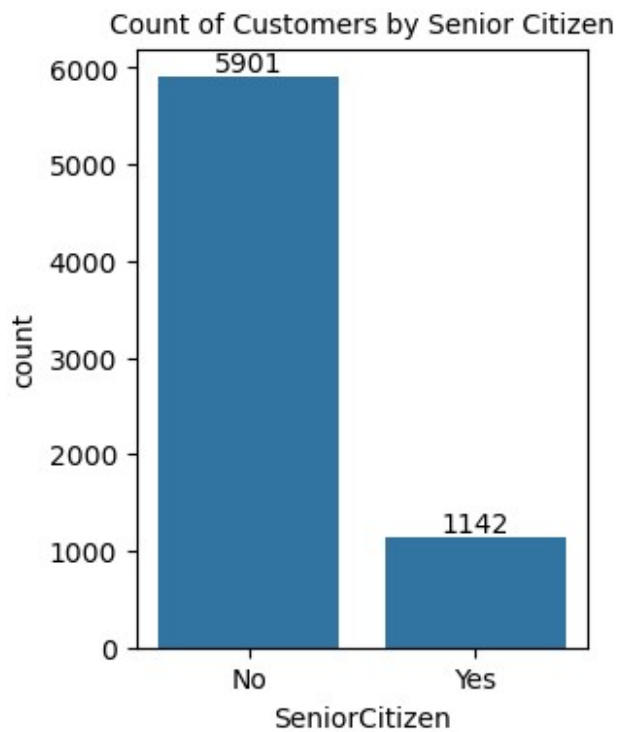
```
plt.figure(figsize = (9,4))
sns.histplot(x = "tenure", data = df, bins = 70, hue = "Churn")
plt.show()
```
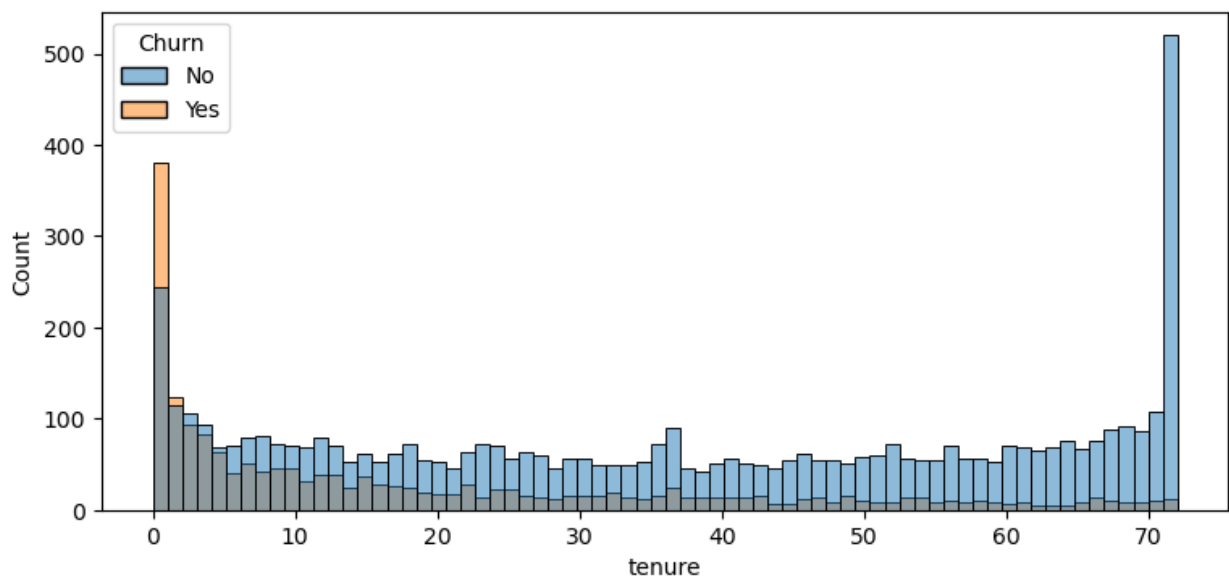
people who have used our services for a long time have stayed and people who have used our sevices

1 or 2 months have churned

```python
plt.figure(figsize = (4,4))
ax = sns.countplot(x = "Contract", data = df, hue = "Churn")
ax.bar_label(ax.containers[0])
plt.title("Count of Customers by Contract")
plt.show()
```


Count of Customers by Contract
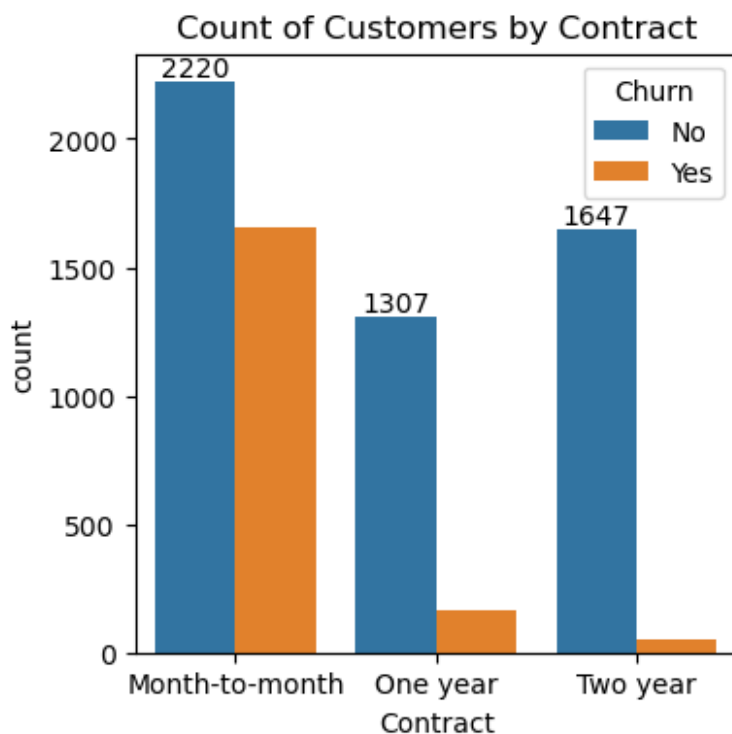
```python
columns = ['PhoneService', 'MultipleLines', 'InternetService', 'OnlineSecurity',
           'OnlineBackup', 'DeviceProtection', 'TechSupport', 'StreamingTV', 'StreamingMovies']

# Number of columns for the subplot grid (you can change this)
n_cols = 3
n_rows = (len(columns) + n_cols - 1) // n_cols  # Calculate number of rows needed
```

```python
# Create subplots
fig, axes = plt.subplots(n_rows, n_cols, figsize=(15, n_rows * 4))  #
Adjust figsize as needed

# Flatten the axes array for easy iteration (handles both 1D and 2D
arrays)
axes = axes.flatten()

# Iterate over columns and plot count plots
for i, col in enumerate(columns):
    sns.countplot(x=col, data=df, ax=axes[i], hue = df["Churn"])
    axes[i].set_title(f'Count Plot of {col}')
    axes[i].set_xlabel(col)
    axes[i].set_ylabel('Count')

# Remove empty subplots
for j in range(i + 1, len(axes)):
    fig.delaxes(axes[j])

plt.tight_layout()
plt.show()
```
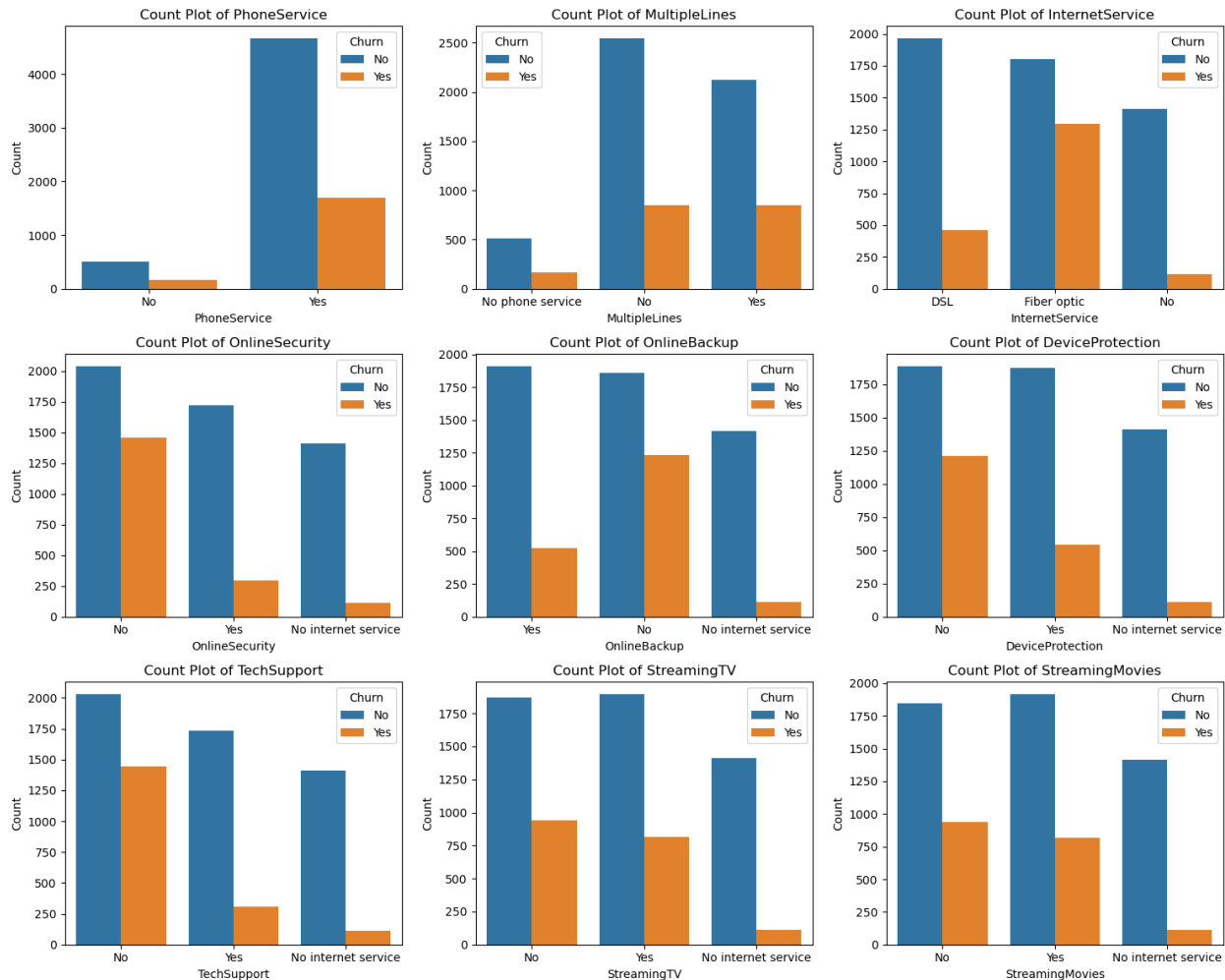
The majority of customers who do not churn tend to have services like PhoneService, InternetService (particularly DSL), and OnlineSecurity enabled. For services like OnlineBackup, TechSupport, and StreamingTV, churn rates are noticeably higher when these services are not used or are unavailable.

```python
plt.figure(figsize = (6,4))
ax = sns.countplot(x = "PaymentMethod", data = df, hue = "Churn")
ax.bar_label(ax.containers[0])
ax.bar_label(ax.containers[1])
```

```
plt.title("Churned Customers by Payment Method")
plt.xticks(rotation = 45)
plt.show()
```


Churned Customers by Payment Method
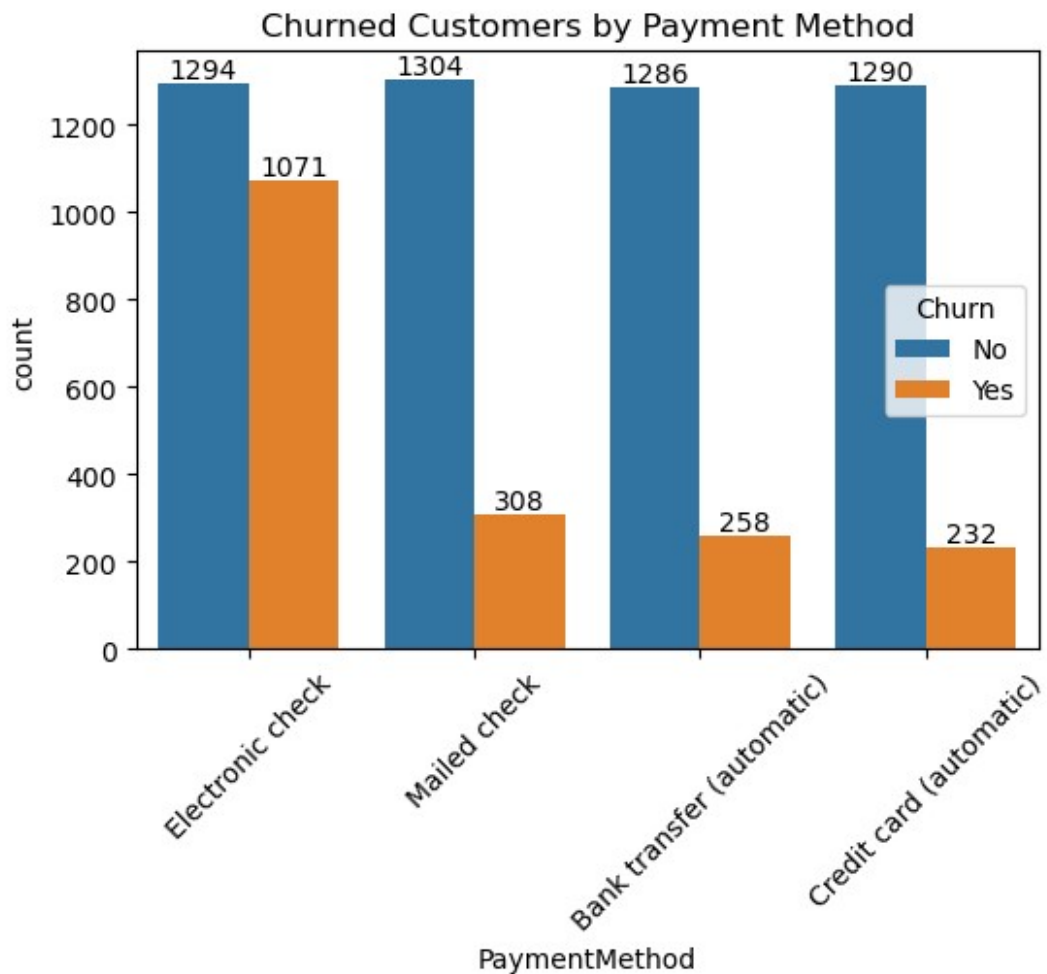
customer is likely to churn when he/she is using electronic check as a payment method.