```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import r2_score,
mean_absolute_error,mean_squared_error
from sklearn.linear_model import LinearRegression
from sklearn.linear_model import Lasso
from sklearn.ensemble import RandomForestRegressor
from sklearn.svm import SVR

dataset=pd.read_csv("dataset.csv")

dataset.describe()
```

```
       SeniorCitizen       tenure  MonthlyCharges
count    7043.000000  7043.000000     7043.000000
mean        0.162147    32.371149       64.761692
std         0.368612    24.559481       30.090047
min         0.000000     0.000000       18.250000
25%         0.000000     9.000000       35.500000
50%         0.000000    29.000000       70.350000
75%         0.000000    55.000000       89.850000
max         1.000000    72.000000      118.750000
```

```
dataset.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
```

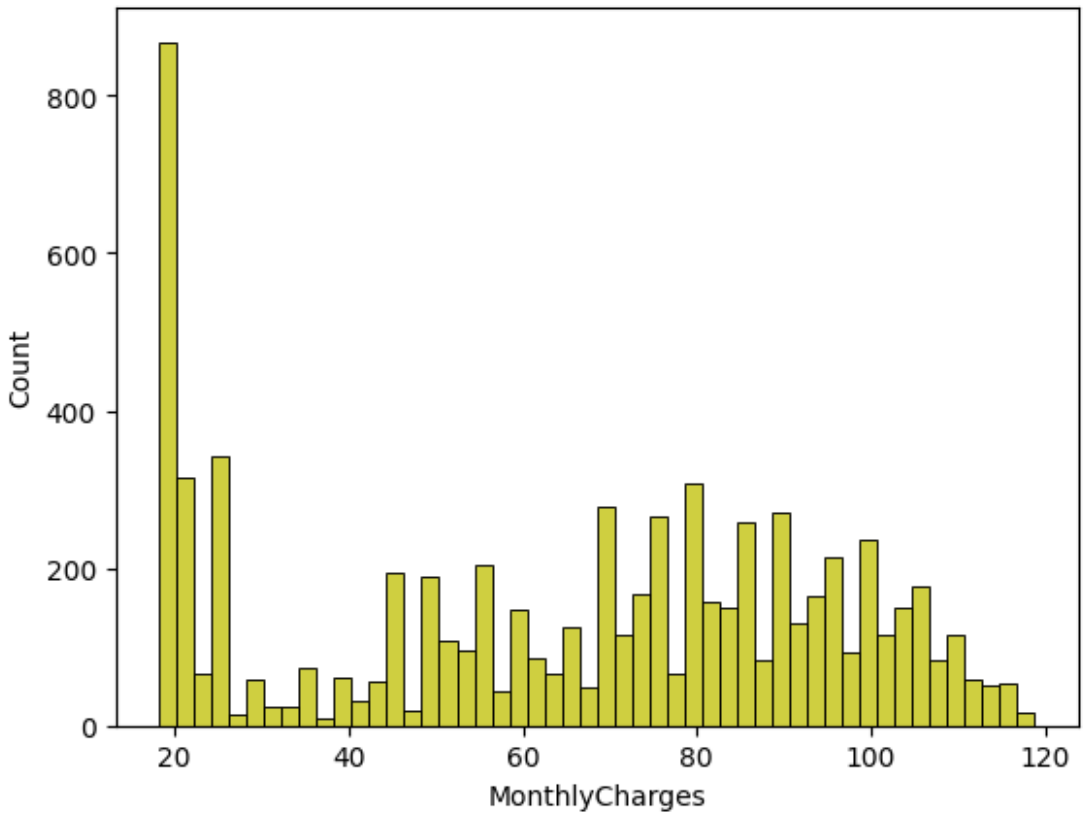
```
 16  PaperlessBilling  7043 non-null   object
 17  PaymentMethod     7043 non-null   object
 18  MonthlyCharges    7043 non-null   float64
 19  TotalCharges      7043 non-null   object
 20  Churn             7043 non-null   object
dtypes: float64(1), int64(2), object(18)
memory usage: 1.1+ MB
```

```
dataset.columns
```

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

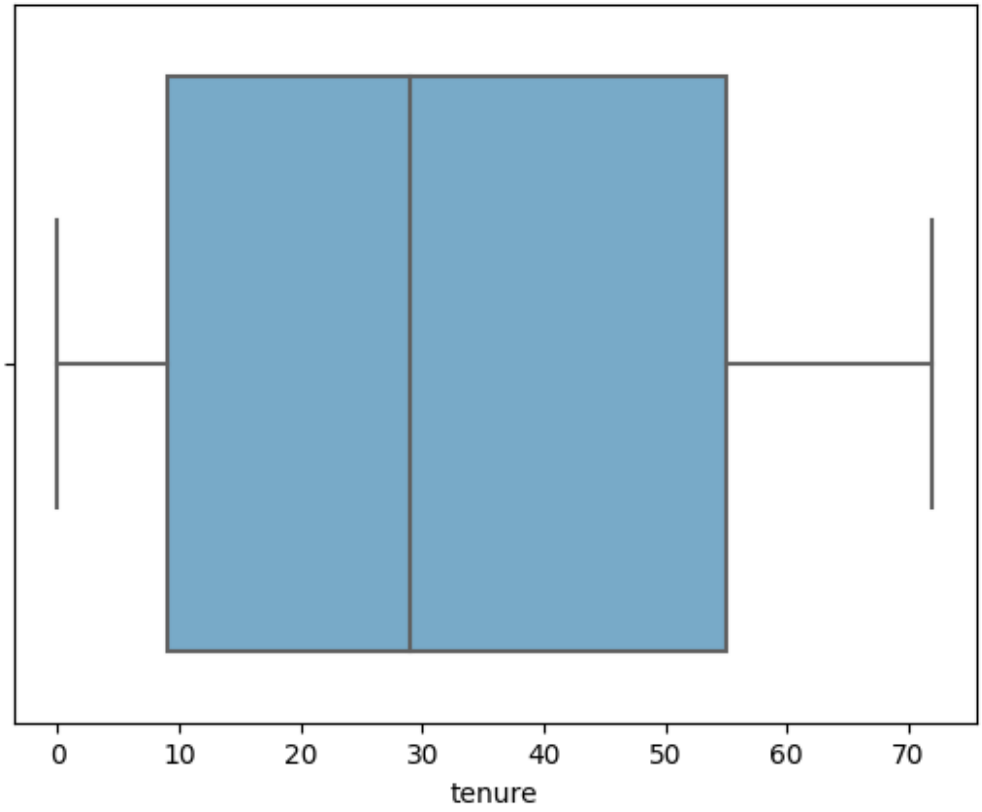
```
sns.histplot(dataset, x='MonthlyCharges', bins=50, color='y')
```

```
<Axes: xlabel='MonthlyCharges', ylabel='Count'>
```



```
sns.boxplot(dataset, x='tenure',  palette='Blues')
```

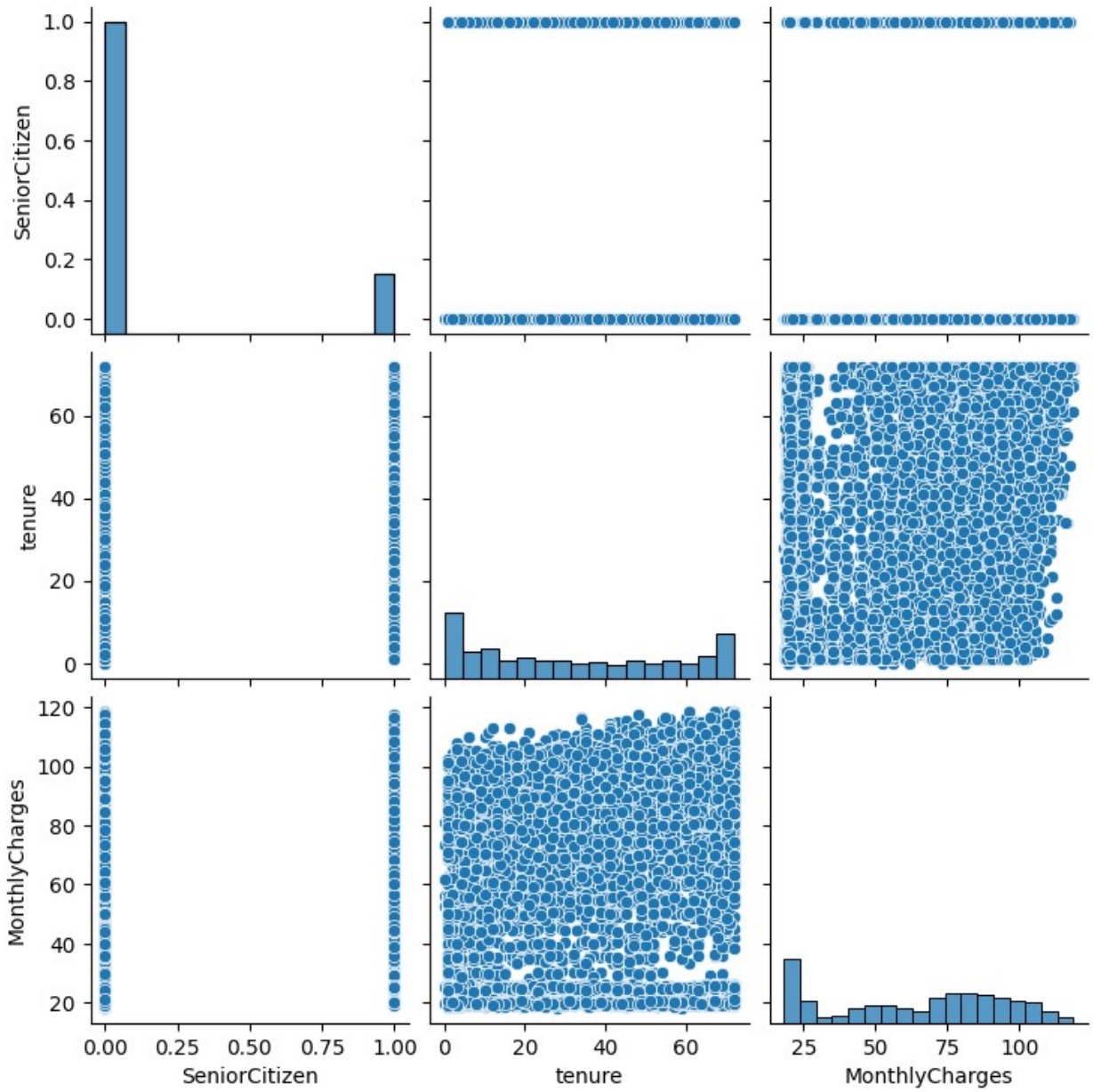
```
<Axes: xlabel='tenure'>
```




```
plt.figure(figsize=(12,8))
sns.pairplot(dataset)
```

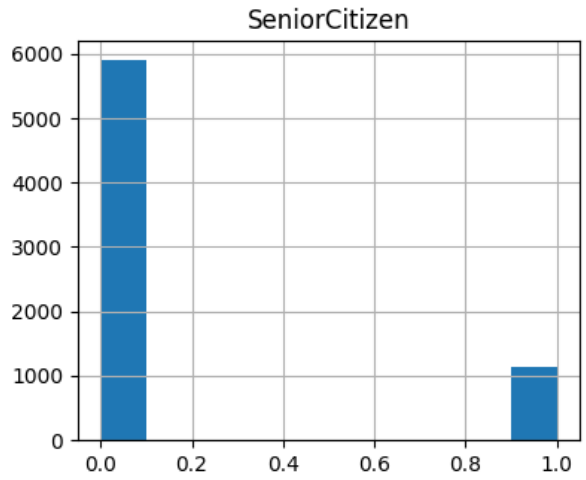
```
<seaborn.axisgrid.PairGrid at 0x7b79f11759c0>
```

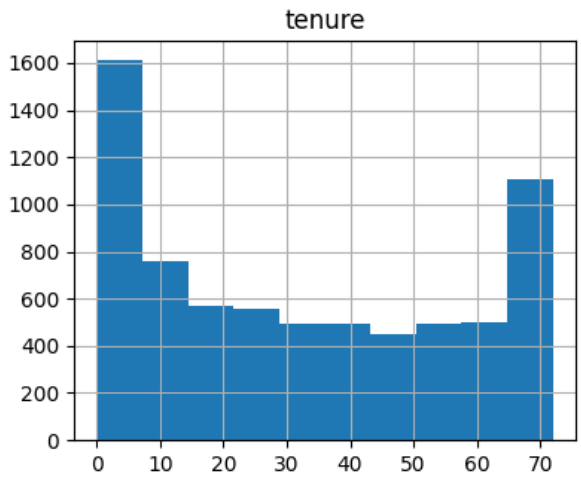
```
<Figure size 1200x800 with 0 Axes>
```

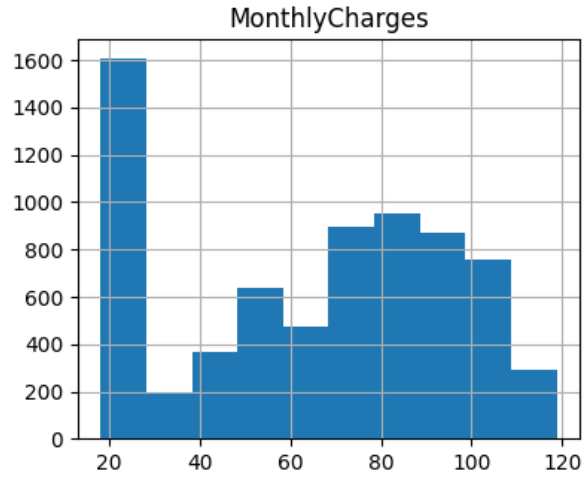



```
dataset.hist(figsize=(10,8))
```

```
array([[<Axes: title={'center': 'SeniorCitizen'}>,
        <Axes: title={'center': 'tenure'}>],
       [<Axes: title={'center': 'MonthlyCharges'}>, <Axes: >]],
      dtype=object)
```








```
dataset.corr()
```

```
<ipython-input-18-c187c74d1e71>:1: FutureWarning: The default value of
numeric_only in DataFrame.corr is deprecated. In a future version, it
will default to False. Select only valid columns or specify the value
of numeric_only to silence this warning.
  dataset.corr()
```

	SeniorCitizen	tenure	MonthlyCharges
SeniorCitizen	1.000000	0.016567	0.220173
tenure	0.016567	1.000000	0.247900
MonthlyCharges	0.220173	0.247900	1.000000

```
plt.figure(figsize=(10,5))
sns.heatmap(dataset.corr(), annot=True)
```

```
<ipython-input-19-1afac6b5cf53>:2: FutureWarning: The default value of
numeric_only in DataFrame.corr is deprecated. In a future version, it
will default to False. Select only valid columns or specify the value
```

```
of numeric_only to silence this warning.
  sns.heatmap(dataset.corr(), annot=True)

<Axes: >
```