**Assignment -2**

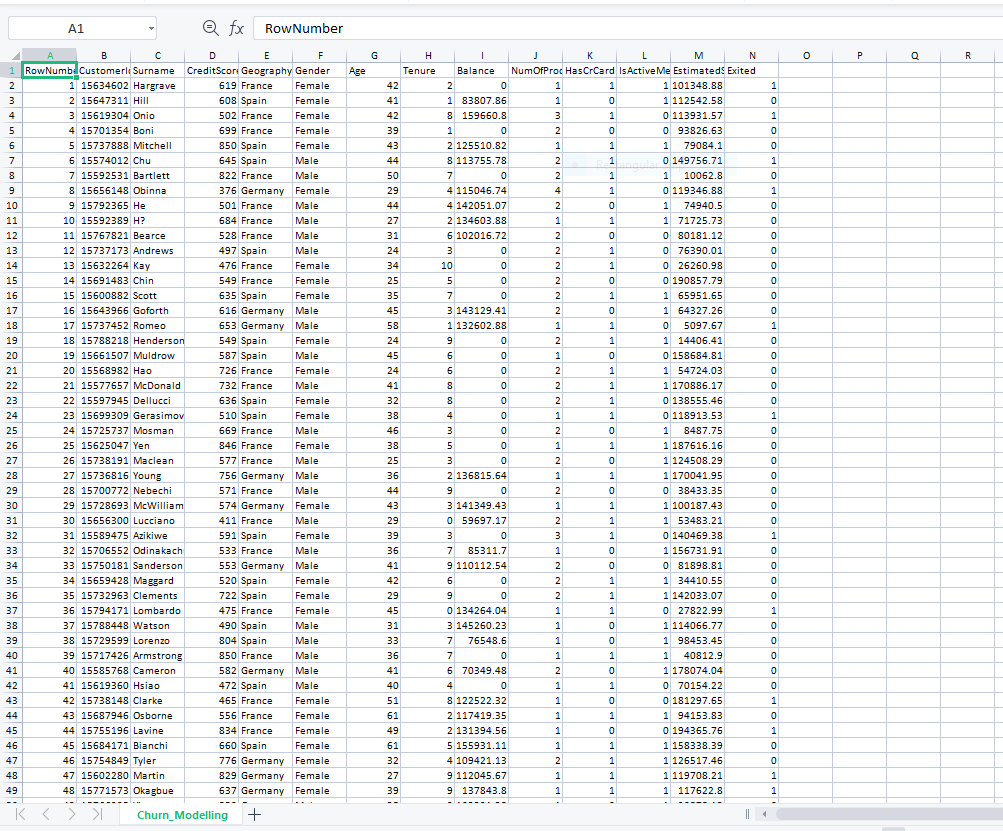
DATA VISUALISATION AND PRE-PROCESSING

|  |  |
| --- | --- |
| Assignment Date | 27 September 2022 |
| Student Name | MAHALINGAM B |
| Student Roll Number | 813119104007 |
| Maximum Marks | 2 Marks |

**Question-1:**

Download the Dataset

**SOLUTION:**



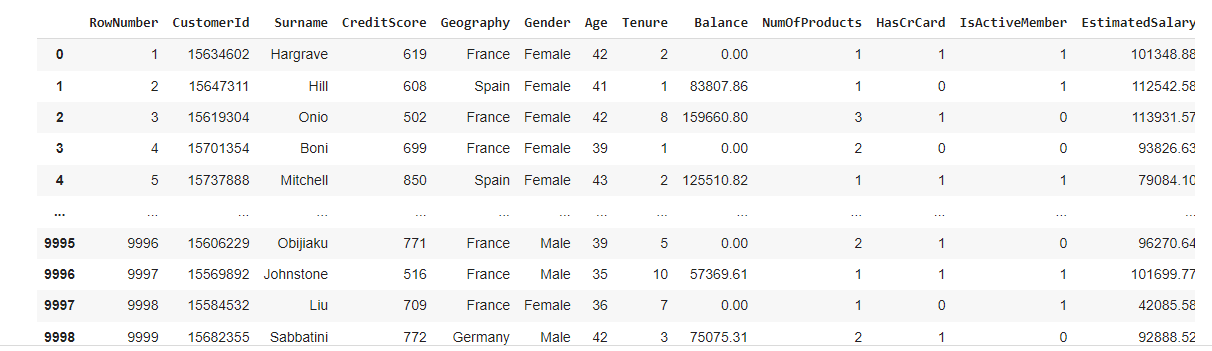
**Question-2:**

Loading dataset

**SOLUTION:**

df = pd.read\_csv("Churn\_Modelling.csv")

df



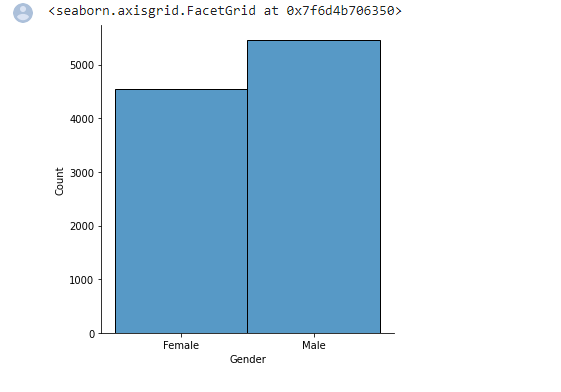
**Question-3:**

1.Visualizations

a) Univariate Analysis

**SOLUTION:**

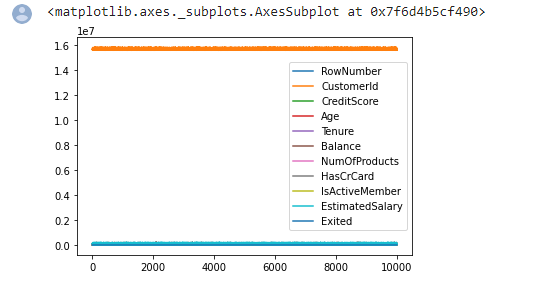
sns.displot(df.Gender)

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b) Bi-Variate Analysis

**SOLUTION:**

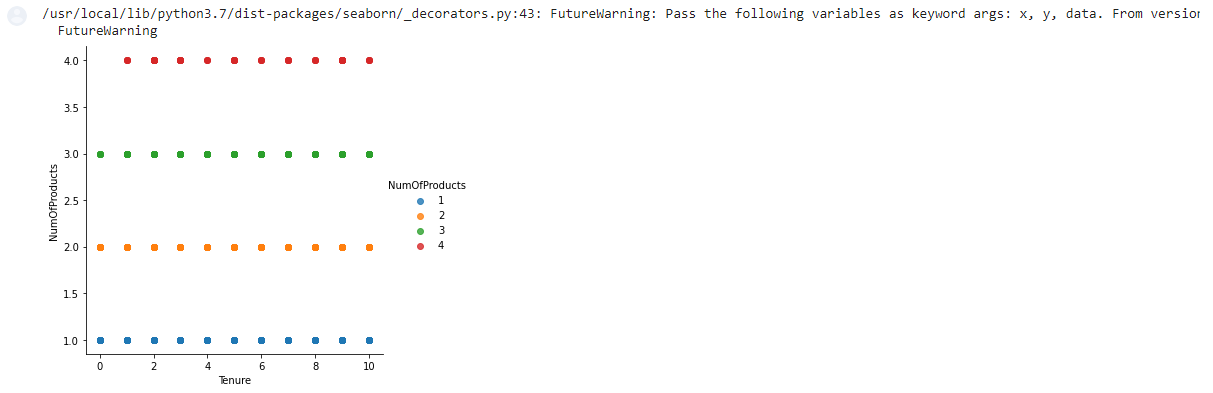
df.plot.line()



c) Multi - Variate Analysis

**SOLUTION:**

sns.lmplot("Tenure","NumOfProducts",df,hue="NumOfProducts", fit\_reg=False);

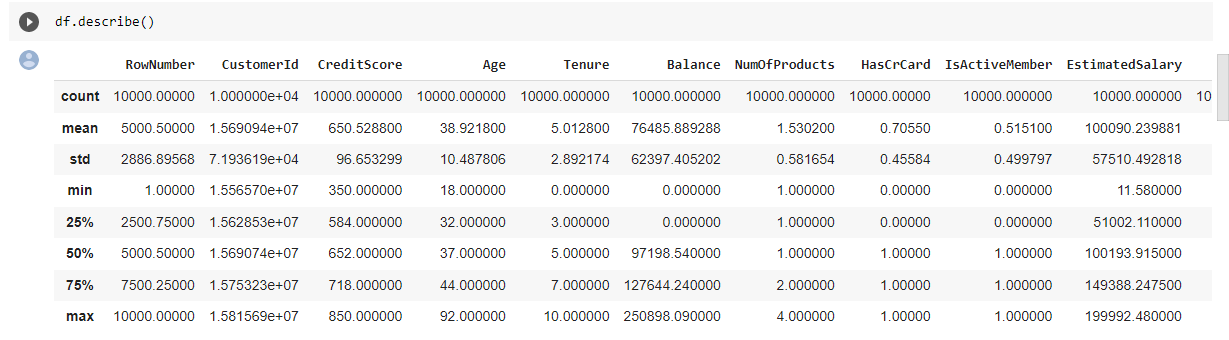


**Question-4:**

Perform descriptive statistics on the dataset.

**SOLUTION:**

df.describe()



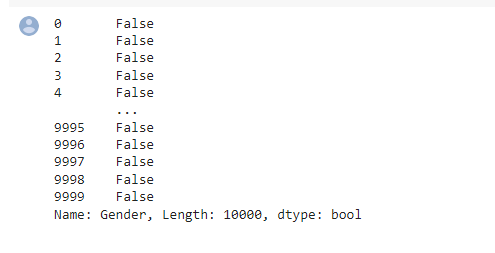
**Question-5:**

Handle the Missing values.

**SOLUTION:**

data = pd.read\_csv("Churn\_Modelling.csv")

pd.isnull(data["Gender"])

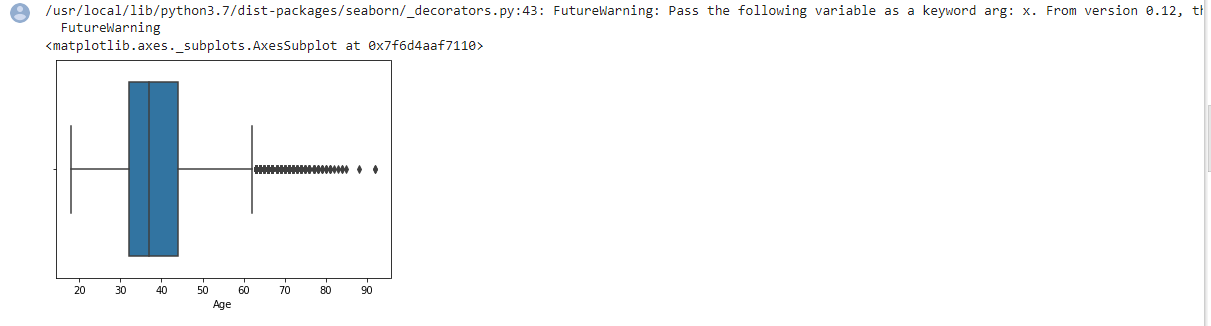


**Question-6:**

Find the outliers and replace the outliers.

**SOLUTION:**

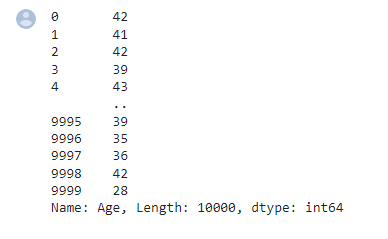
sns.boxplot(df['Age'])



**SOLUTION:**

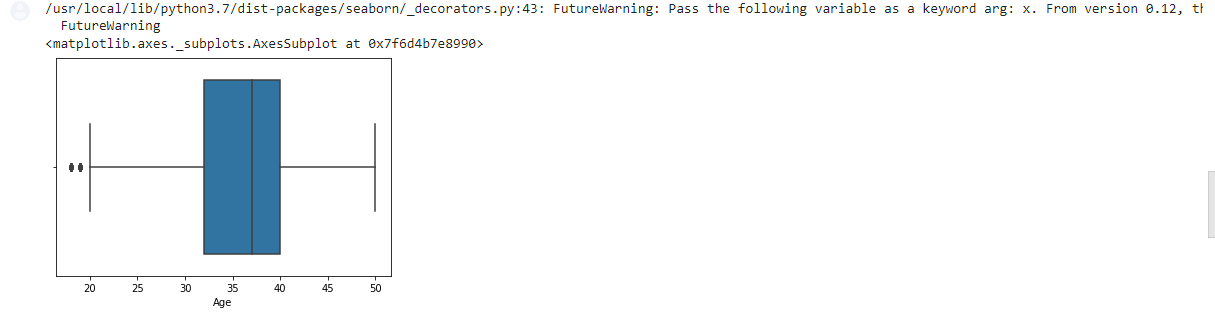
df['Age']=np.where(df['Age']>50,40,df['Age'])

df['Age']

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**SOLUTION:**

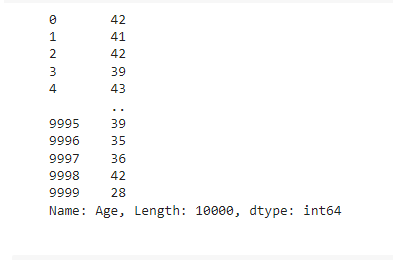
sns.boxplot(df['Age'])



**SOLUTION:**

df['Age']=np.where(df['Age']<20,35,df['Age'])

df['Age']

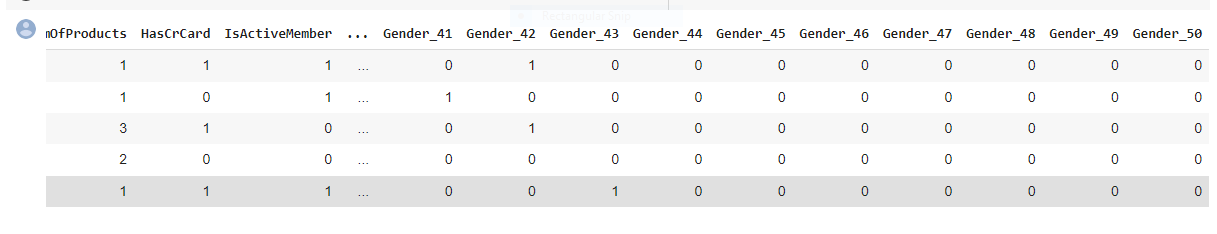


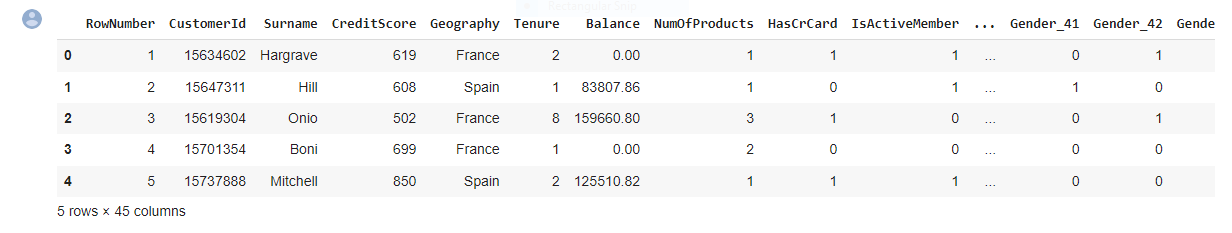
**Question-7:**

Check for Categorical columns and perform encoding.

**SOLUTION:**

pd.get\_dummies(df, columns=["Gender", "Age"], prefix=["Age", "Gender"]).hea





**Question-8:**

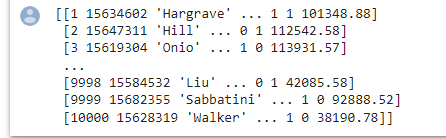
. Split the data into dependent and independent variables.

1. Split the data into Independent variables.

**SOLUTION:**

X = df.iloc[:, :-1].values

print(X)



1. Split the data into Dependent variables

**SOLUTION:**

Y = df.iloc[:, -1].values

print(Y)

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**Question-9:**

Scale the independent variables

**SOLUTION:**

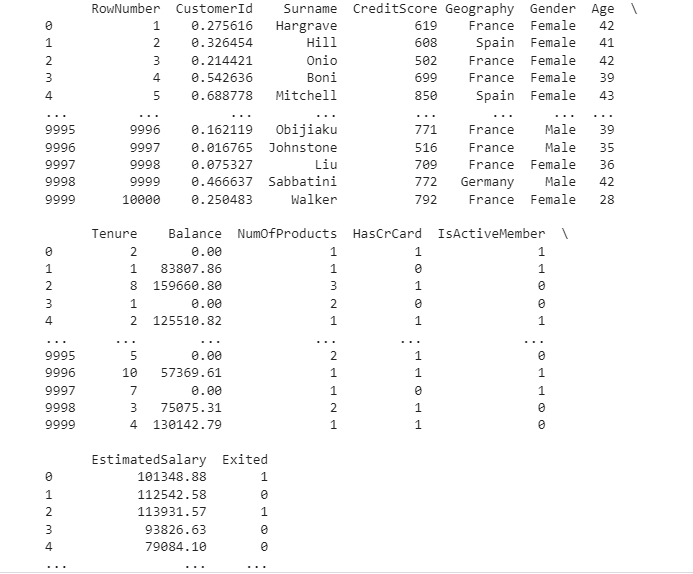
import pandas as pd

from sklearn.preprocessing import MinMaxScaler

scaler = MinMaxScaler()

df[["CustomerId"]] = scaler.fit\_transform(df[["CustomerId"]])

print(df)



**Question-10:**

Split the data into training and testing

1. List item

**SOLUTION:**

from sklearn.model\_selection import train\_test\_split

train\_size=0.8

X = df.drop(columns = ['Tenure']).copy()

y = df['Tenure']

X\_train, X\_rem, y\_train, y\_rem = train\_test\_split(X,y, train\_size=0.8)

test\_size = 0.5

X\_valid, X\_test, y\_valid, y\_test = train\_test\_split(X\_rem,y\_rem, test\_size=0.5)

print(X\_train.shape), print(y\_train.shape)

print(X\_valid.shape), print(y\_valid.shape)

print(X\_test.shape), print(y\_test.shape)

