**ASSIGNMENT -2**

**Python Programming**

# Question-1 :

1 . Importing Required Package Solution :

import pandas as pd import seaborn as sns import numpy as np

from matplotlib import pyplot as plt

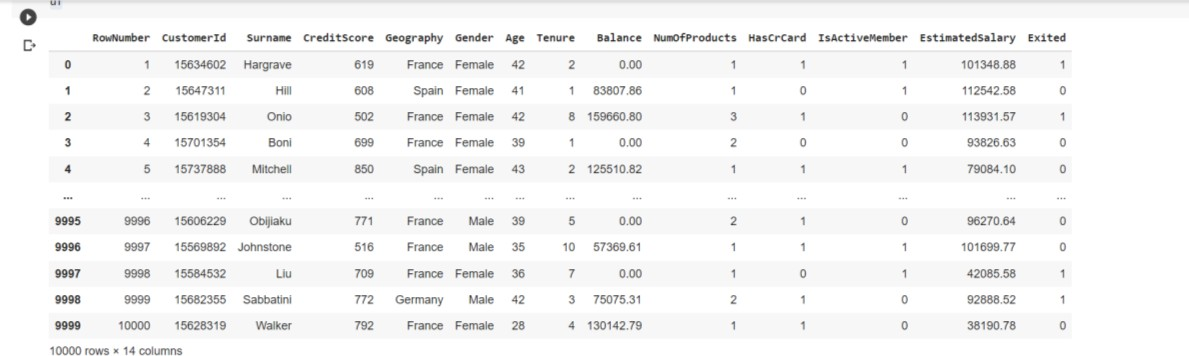
%matplotlib inline

Question-2 :

1. Loading the Dataset Solution :

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

Output:



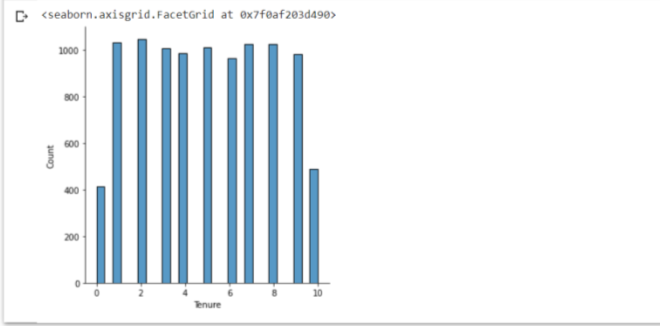
1. Visualizations

# Question-3 :

* 1. Univariate Analysis Solution:

sns.displot(df.Tenure)

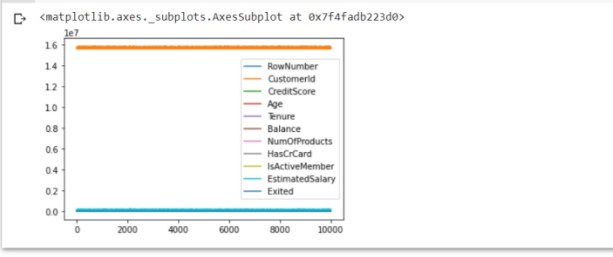
Output:



* 1. Bi-Variate Analysis Solution:

df.plot.line()

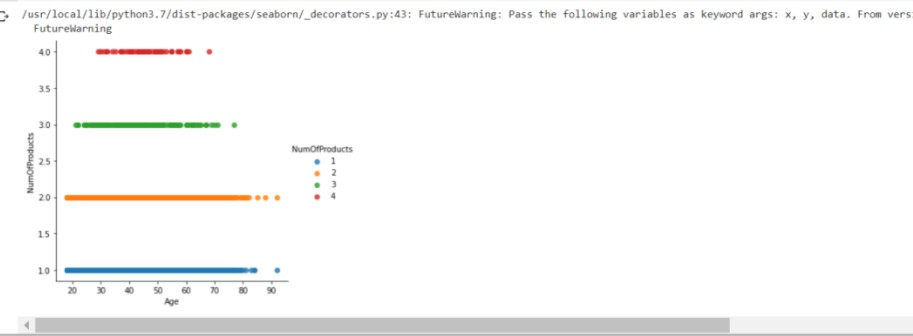
Output:



* 1. Multi - Variate Analysis Solution:

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

Output:



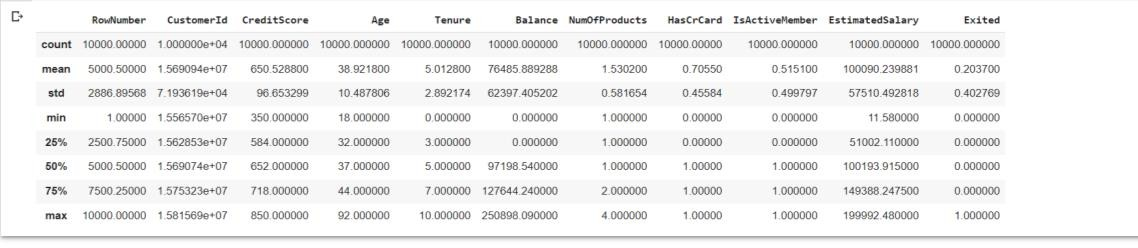
1. Perform descriptive statistics on the dataset.

# Question-4 :

Solution:

df.describe()

Output:



1. Handle the Missing values.

# Question-5 :

Solution:

data = pd.read\_csv("Churn\_Modelling.csv") pd.isnull(data["Gender"])

Output:



# Question-6:

1. Find the outliers and replace the outliers. Solution:

df["Tenure"] = np.where(df["Tenure"] >10, np.median,df["Tenure"]) df["Tenure"]

Output:



# Question-7 :

1. Check for Categorical columns and perform encoding. Solution:

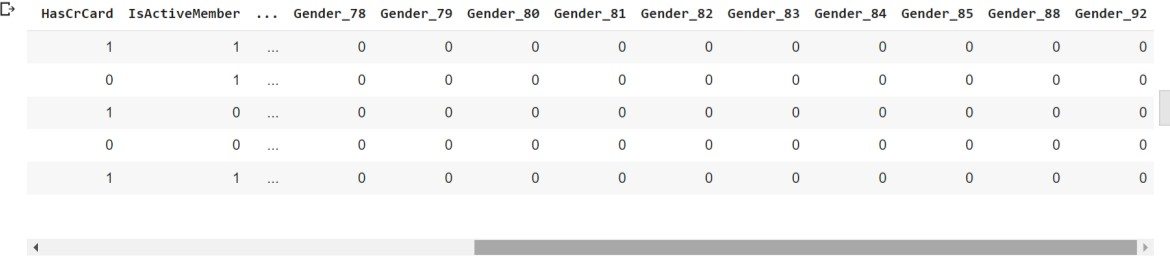
pd.get\_dummies(df, columns=["Gender", "Age"], prefix=["Age", "Gender"]

).head()

Output:



Output:



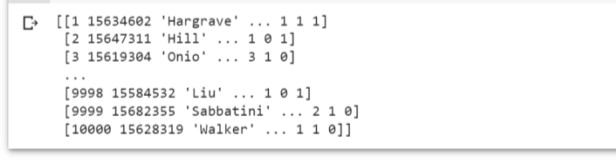
# Question-8:

1. Split the data into dependent and independent variables

* 1. Split the data into Independent variables. Solution:

X = df.iloc[:, :-2].values print(X)

Output:



* 1. Split the data into Dependent variables. Solution:

Y = df.iloc[:, -1].values print(Y)

Output:



# Question-9 :

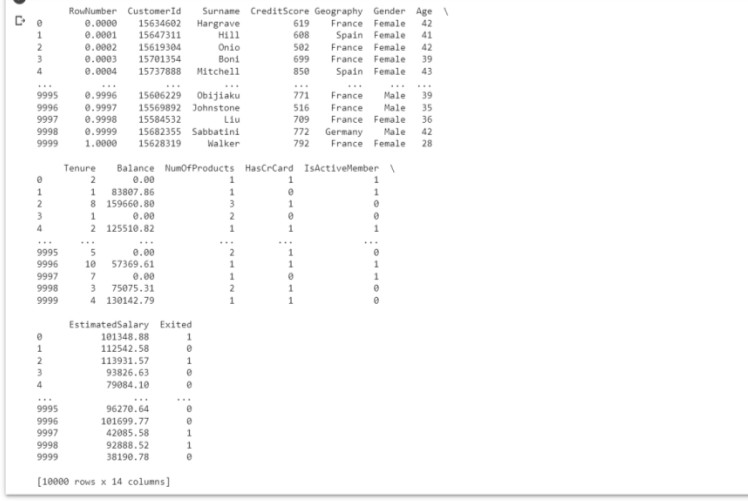
1. Scale the independent variables Solution:

import pandas as pd

from sklearn.preprocessing import MinMaxScaler scaler = MinMaxScaler()

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

Output:



# Question-10 :

1. Split the data into training and testing 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)

Output:



**TEAM LEADER** : Sneha .V

**TEAM MEMBERS:**

* Jalcy .J
* Christina Vasanthra .A
* Vishalini .K

**TEAM ID :** PNT2022TMID37986

**TEAM SIZE :** 4

**TEAM MENTOR :** Miss . Mahima