

ASSIGNMENT -3

Date : 11 October 2022

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Project Name : A NOVEL METHOD FOR HANDWRITTEN
DIGIT RECOGNITION SYSTEM

Maximum Marks : 2 Marks

```
#!/usr/bin/env python
```

```
# coding: utf-8
```

```
# In[88]:
```

```
import pandas as pd
```

```
import numpy as np
```

```
import matplotlib.pyplot as plt
```

```
import seaborn as sns
```

```
import scipy
```

```
from scipy import stats
```

```
from sklearn.preprocessing import OneHotEncoder
```

```
# In[11]:
```

```
dataset = pd.read_csv('C:\\Users\\Devi\\Downloads\\Churn_Modelling (1) (1).csv')
```

```
# In[12]:
```

```
dataset
```

```
# In[13]:
```

```
dataset.head()
```

```
# In[14]:
```

```
dataset.tail()
```

```
# # Univariate Analysis
```

```
# In[6]:
```

```
df_1=dataset.loc[dataset['NumOfProducts']==1]
df_2=dataset.loc[dataset['NumOfProducts']==2]
df_3=dataset.loc[dataset['NumOfProducts']==3]
```

```
# In[7]:
```

```
plt.plot(df_1['Age'],np.zeros_like(df_1['Age']))
plt.plot(df_2['Age'],np.zeros_like(df_2['Age']))
plt.plot(df_3['Age'],np.zeros_like(df_3['Age']))
plt.xlabel('Age')
plt.show()
```

```
# # Bivariate Analysis
```

```
# In[8]:
```

```
sns.FacetGrid(dataset,hue="NumOfProducts",size=5).map(plt.scatter,"Age","Geography").add_legend();
```

```
# # Multivariate Analysis
```

```
# In[9]:
```

```
sns.pairplot(dataset,hue="NumOfProducts",size=5)
```

```
# # Descriptive Statistics
```

```
# In[16]:
```

```
dataset.sum()
```

```
# In[17]:
```

```
dataset.sum(axis=1)
```

```
# In[18]:
```

```
dataset.median()
```

```
# In[19]:
```

```
dataset.mean()
```

```
# In[20]:
```

```
dataset.max()
```

```
# In[21]:
```

```
dataset.std()
```

```
# In[22]:
```

```
dataset.var()
```

```
# In[24]:
```

```
Age=dataset.Age  
Age.value_counts()
```

```
# In[25]:
```

```
dataset.describe()
```

```
# # Handle Null Values
```

```
# In[27]:
```

```
dataset.shape
```

```
# In[28]:
```

```
dataset.isnull()
```

```
# In[31]:
```

```
dataset.isnull().sum()
```

```
# In[32]:
```

```
dataset.isnull().sum().sum()
```

```
# # Outlier
```

```
# In[58]:
```

```
sns.displot(dataset['Gender'])
```

```
# In[59]:
```

```
sns.boxplot(x='Gender',y='Age',data=dataset)
```

```
# In[60]:
```

```
sns.boxplot(y='Age',data=dataset)
```

```
# In[61]:
```

```
dataset['Age'].mean()
```

```
# In[67]:
```

```
data1=dataset[dataset['Age']<40]
```

```
# In[68]:
```

```
sns.boxplot(y='Age',data=data1)
```

```
# # categorial Encoding
```

```
# In[70]:
```

```
data_tips=pd.get_dummies(dataset)
```

```
data_tips
```

```
# In[75]:
```

```
one_encde=OneHotEncoder(sparse=False)
```

```
encoded_arr=one_encde.fit_transform(dataset[['CustomerId','CreditScore','Age','Tenure']])
```

```
encoded_arr
```

```
# # split the data into dependent and independent
```

```
# In[85]:
```

```
x=dataset.iloc[:,1:4]
```

```
y=dataset.iloc[:,4]
```

```
x
```

```
y
```

```
# In[ ]:
```


In[]:

In[]: