

Assignment 2

Artificial Intelligence

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|-----------------|-------------------|
| Assignment Date | 20-09-2022 |
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| Register Number | 921319104180 |
| Maximum Marks | 2 marks |

```
from google.colab import drive
drive.mount('/content/drive')

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

data=pd.read_csv("/content/Churn_Modelling Dataset2.csv")
df=data.head(10)
```

1. Univariate Analysis

```
import matplotlib.pyplot as plt

plt.bar (df['Age'],4)

Bivariate Analysis

plt.scatter(df['Age'],df['CreditScore'])

Multivariate analysis

plt.scatter(df['Age'],df['CreditScore'],df['Tenure'])

Descriptive statistics on the dataset

data.describe()
```

2. Handling Missing values

```
data.isnull().sum()
```

3. Find the outliers and replace the outliers

Finding Outliners

```
sns.boxplot(data['Age'])
```

Replacing outliners

```
q=data.quantile(q=[0.75,0.5])
```

```

iqr=q.iloc[0]-q.iloc[1]
iqr
l=q.iloc[1]-(1.5*iqr)
l['Age']
u=q.iloc[1]+(1.5*iqr)
u['Age']
data['Age']=np.where(data['Age']>u['Age'],u['Age'],np.where(data['Age']<l['Age'],l['Age'],data['Age']))
sns.boxplot(data['Age'])

```

4. Check for Categorical columns and perform encoding.

```

df.info()

from sklearn.preprocessing import LabelEncoder
from collections import Counter as count
le=LabelEncoder()
data['Surname']=le.fit_transform(data['Surname'])
data
data['Geography']=le.fit_transform(data['Geography'])
data['Gender']=data['Gender'].replace(['Male','Female'],[0,1])
data

```

5. Split the data into dependent and independent variables.

```

Independent Variables
x=data.iloc[:,0:13]
x
Dependent Variables
y=data['Exited']
y
Scale the independent variables
from sklearn.preprocessing import scale
scale(x)
Split the data into training and testing
from sklearn.model_selection import train_test_split

```

```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2)
```

```
x_train
```

```
x_train.shape
```

```
y_train
```

```
y_train.shape
```

```
x_test
```

```
x_test.shape
```

```
y_test
```

```
y_test.shape
```