EDA ON NETFLIX USERBASE

Introduction

The dataset provides a snapshot of a sample Netflix userbase, showcasing various aspects of user subscriptions, revenue, account details, and activity.

Objective

To identify key patterns and behaviors associated with the Netflix users. I used techniques such as demographic analysis, device usage analysis, and subscription habit analysis to uncover complex relationships and significant determinants within the database.

Importing required libraries

```
import pandas as pd
import matplotlib.pyplot as plt
```

Loading the CSV file

```
netflix=pd.read_csv(r"C:\Users\LENOVO\Downloads\Netflix Userbase.csv")
netflix
```

```
      User ID Subscription Type  Monthly Revenue Join Date Last
Payment Date  \
0           1              Basic               10  15-01-22
10-06-23
1           2            Premium               15  05-09-21
22-06-23
2           3           Standard               12  28-02-23
27-06-23
3           4           Standard               12  10-07-22
26-06-23
4           5              Basic               10  01-05-23
28-06-23
...       ...                ...              ...       ...
...
2495     2496            Premium               14  25-07-22
12-07-23
2496     2497              Basic               15  04-08-22
14-07-23
2497     2498           Standard               12  09-08-22
15-07-23
2498     2499           Standard               13  12-08-22
12-07-23
2499     2500              Basic               15  13-08-22
12-07-23
```

```
             Country  Age  Gender      Device Plan Duration
0      United States   28    Male  Smartphone       1 Month
1             Canada   35  Female      Tablet       1 Month
2     United Kingdom   42    Male    Smart TV       1 Month
3          Australia   51  Female      Laptop       1 Month
4            Germany   33    Male  Smartphone       1 Month
...              ...  ...     ...         ...           ...
2495           Spain   28  Female    Smart TV       1 Month
2496           Spain   33  Female    Smart TV       1 Month
2497   United States   38    Male      Laptop       1 Month
2498          Canada   48  Female      Tablet       1 Month
2499   United States   35  Female    Smart TV       1 Month

[2500 rows x 10 columns]
```

Getting all the information of dataframe

```
netflix.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2500 entries, 0 to 2499
Data columns (total 10 columns):
 #   Column             Non-Null Count  Dtype 
---  ------             --------------  ----- 
 0   User ID            2500 non-null   int64 
 1   Subscription Type  2500 non-null   object
 2   Monthly Revenue    2500 non-null   int64 
 3   Join Date          2500 non-null   object
 4   Last Payment Date  2500 non-null   object
 5   Country            2500 non-null   object
 6   Age                2500 non-null   int64 
 7   Gender             2500 non-null   object
 8   Device             2500 non-null   object
 9   Plan Duration      2500 non-null   object
dtypes: int64(3), object(7)
memory usage: 195.4+ KB
```

Checking the null values

```
netflix.isna().sum()
```

```
User ID              0
Subscription Type    0
Monthly Revenue      0
Join Date            0
Last Payment Date    0
Country              0
Age                  0
Gender               0
```

```
Device                0
Plan Duration         0
dtype: int64
```

Removing duplicates

```
netflix.drop_duplicates(inplace=True)
netflix.head()
```

```
   User ID Subscription Type  Monthly Revenue Join Date Last Payment
Date  \
0        1             Basic               10  15-01-22          10-
06-23
1        2           Premium               15  05-09-21          22-
06-23
2        3          Standard               12  28-02-23          27-
06-23
3        4          Standard               12  10-07-22          26-
06-23
4        5             Basic               10  01-05-23          28-
06-23

          Country  Age  Gender      Device Plan Duration
0   United States   28    Male  Smartphone       1 Month
1          Canada   35  Female      Tablet       1 Month
2  United Kingdom   42    Male    Smart TV       1 Month
3       Australia   51  Female      Laptop       1 Month
4         Germany   33    Male  Smartphone       1 Month
```

Finding the statistical functions such as mean,count etc.

```
netflix.describe()
```

```
          User ID  Monthly Revenue          Age
count  2500.00000      2500.000000  2500.000000
mean   1250.50000        12.508400    38.795600
std     721.83216         1.686851     7.171778
min       1.00000        10.000000    26.000000
25%     625.75000        11.000000    32.000000
50%    1250.50000        12.000000    39.000000
75%    1875.25000        14.000000    45.000000
max    2500.00000        15.000000    51.000000
```

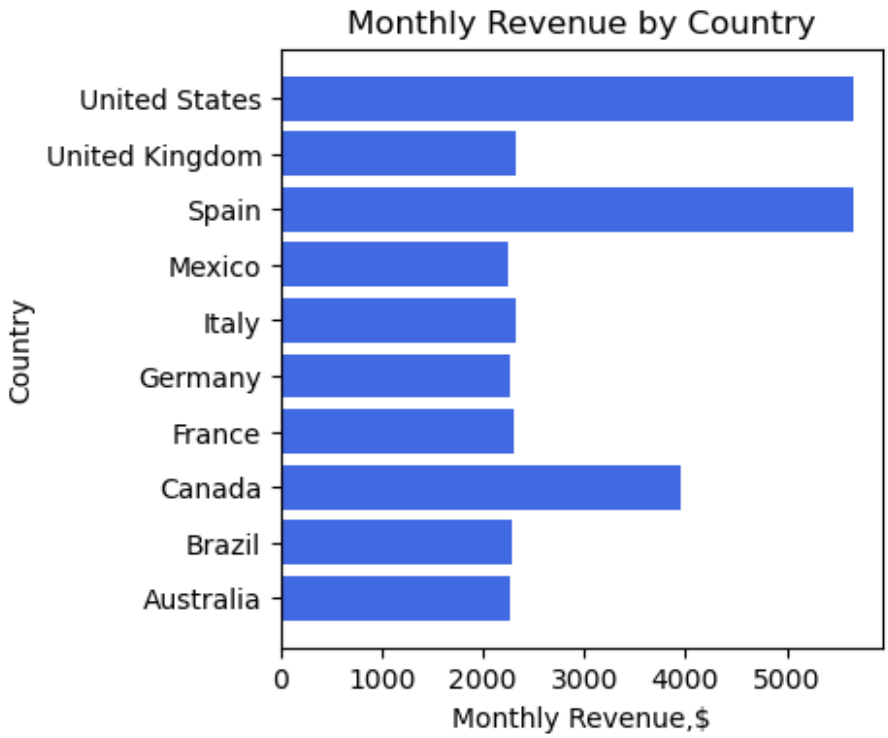
Countrywise Total users and Monthly revenue

```
country_data=netflix.groupby('Country').agg({'User
ID':'count','Monthly Revenue':'sum'}).reset_index()
country_data
```

```
          Country  User ID  Monthly Revenue
0       Australia      183             2271
1          Brazil      183             2285
2          Canada      317             3950
3          France      183             2307
4         Germany      183             2260
5           Italy      183             2317
6          Mexico      183             2237
7           Spain      451             5662
8  United Kingdom      183             2318
9   United States      451             5664
```

Countrywise monthly revenue

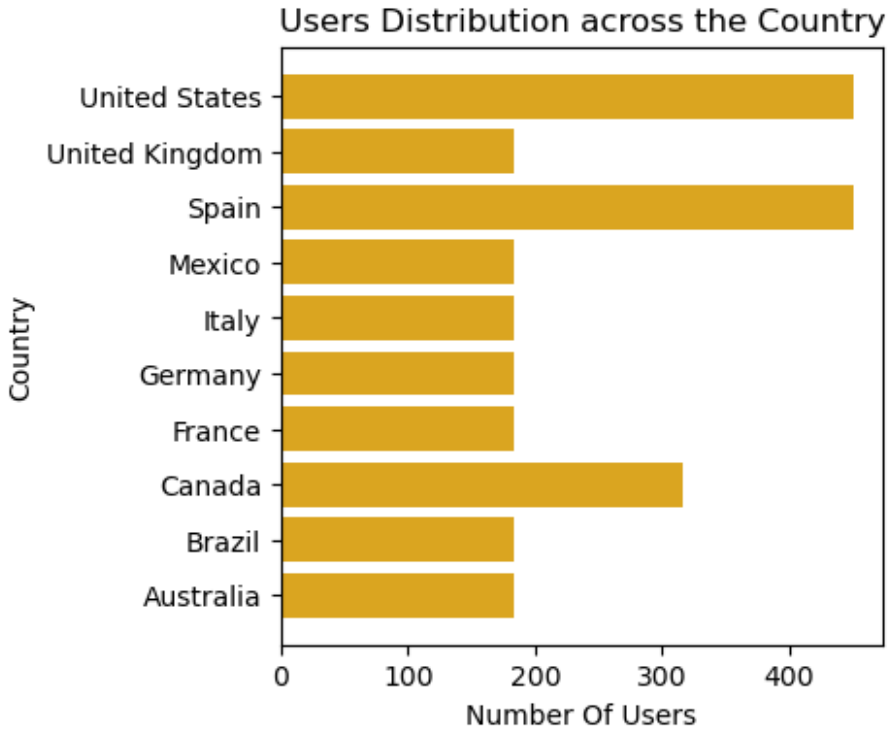
```
# Plotting Horizontal bar chart
plt.figure(figsize=(4,4))
plt.barh(country_data['Country'],country_data['Monthly
Revenue'],color='royalblue')
plt.xlabel("Monthly Revenue,$")
plt.ylabel("Country")
plt.title("Monthly Revenue by Country")
plt.show()
```



Netflix generating highest revenue from United States,followed by Spain and Canada

Countrywise total users

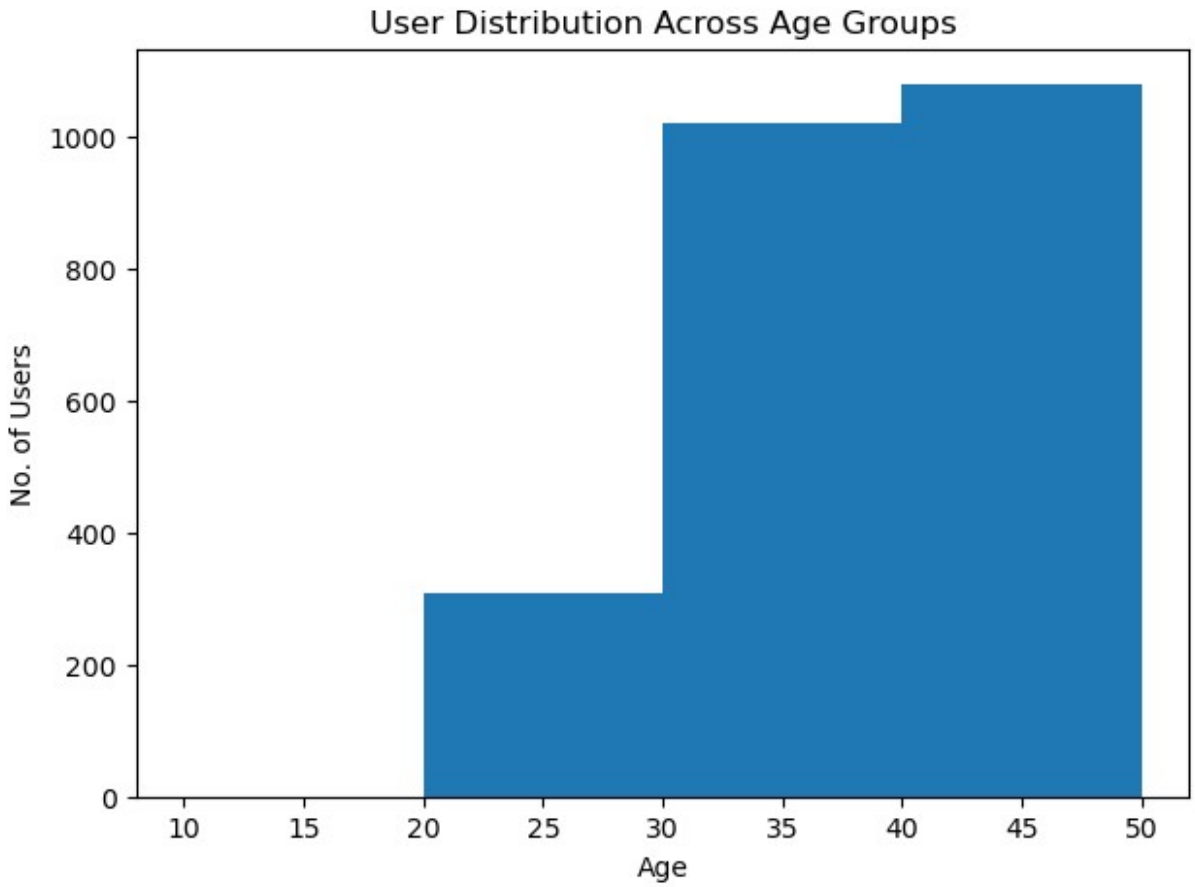
```
# Plotting Horizontal bar chart
plt.figure(figsize=(4,4))
plt.barh(country_data['Country'],country_data['User
ID'],color='goldenrod')
plt.xlabel('Number Of Users')
plt.ylabel('Country')
plt.title("Users Distribution across the Country")
plt.show()
```



Netflix's users are spread across several countries. The countries with the most users are the United States ,Spain, Canada among others. Netflix's wide geographic reach is a testament to its global appeal.

Age distribution

```
# plotting Histogram chart
plt.figure(figsize=(7,5))
Age_group=[10,20,30,40,50]
plt.hist(netflix['Age'],Age_group)
plt.title('User Distribution Across Age Groups')
plt.xlabel('Age')
plt.ylabel("No. of Users")
plt.show()
```



The age distribution of Netflix users is relatively broad, with significant representation across different age groups. The most common age group of Netflix users is around 40-50 years , but there's also a considerable number of users in the 30-40 and 20-30 age brackets. This tells us that Netflix's content appeals to a wide age range, which is a positive sign for the company's ability to maintain a diverse user base

Users Distrbution by device type

```
dev=netflix.groupby('Device')['User ID'].count()
dev
```

```
Device
Laptop        636
Smart TV      610
Smartphone    621
Tablet        633
Name: User ID, dtype: int64
```

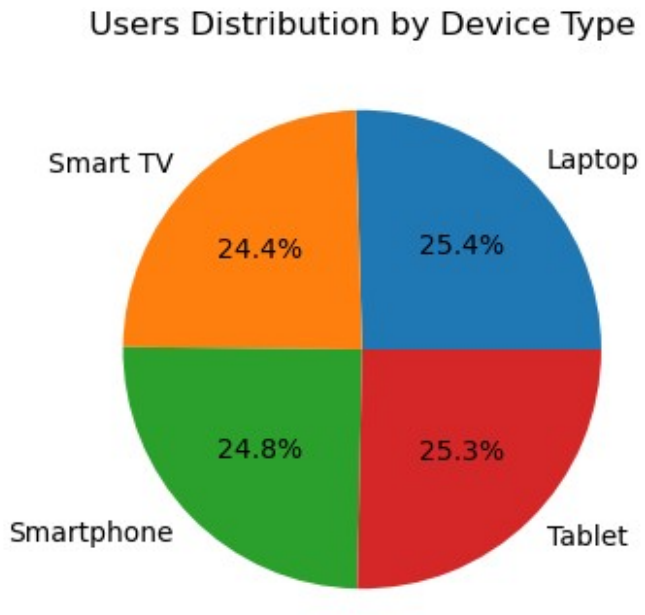
```
# Plotting the Pie
Users = [636, 610, 621, 633]
devices = ['Laptop', 'Smart TV', 'Smartphone', 'Tablet']

plt.figure(figsize=(4,4))
```

```
plt.pie(Users, labels=devices,autopct='%1.1f%%')

# Adding a title
plt.title("Users Distribution by Device Type")


# Display the piechart
plt.show()
```



The most popular device for consuming Netflix content is the laptop 💻,followed by tablet and Smartphone . This could be due to the flexibility and convenience offered by these devices

Users Distribution by Subscription Type

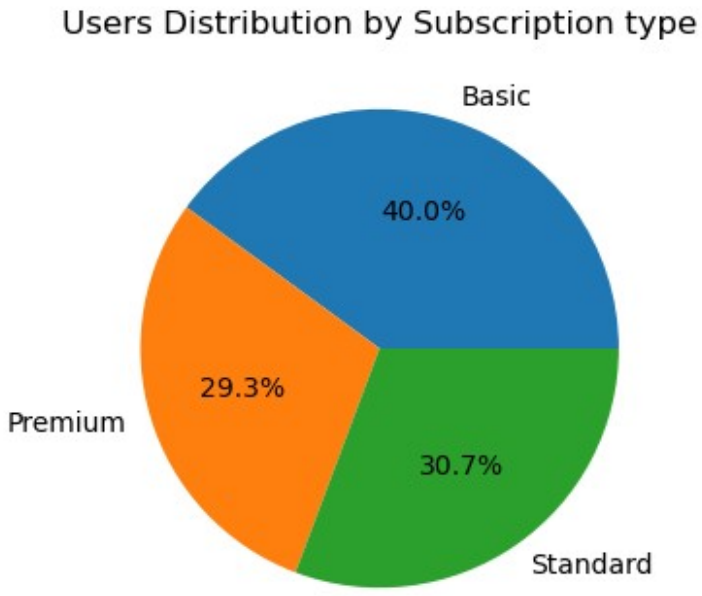
```
sub=netflix.groupby('Subscription Type')['User ID'].count()
sub
```

```
Subscription Type
Basic       999
Premium     733
Standard    768
Name: User ID, dtype: int64
```

```
#Plotting the Pie chart

plt.figure(figsize=(4,4))
sub_type=['Basic','Premium','Standard']
values=[999,733,768]
plt.pie(values,labels=sub_type,autopct='%1.1f%%')
```

```
plt.title("Users Distribution by Subscription type")
plt.show()
```



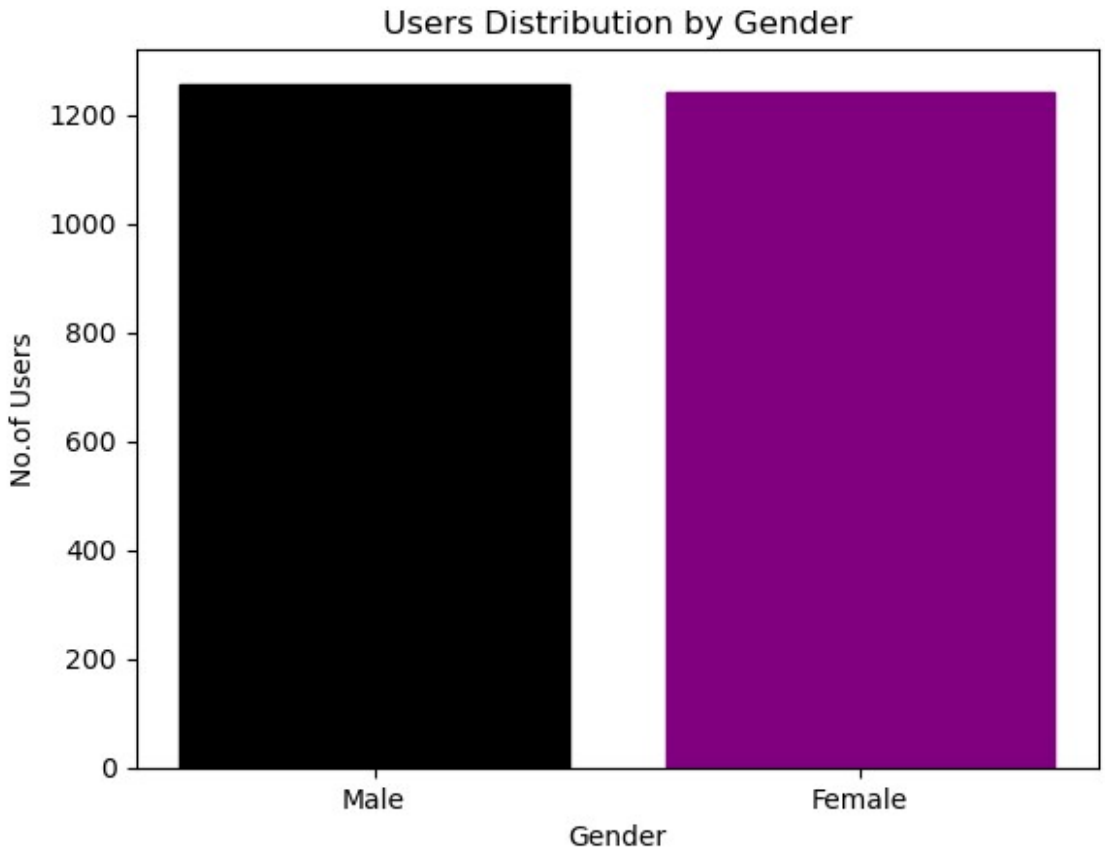
The distribution of subscription types among Netflix users shows a preference for the basic subscription, followed by the standard and then the Premium subscription. This suggests that most users prefer basic plan due its low cost

Gender distribution

```
gen=netflix.groupby('Gender')['User ID'].count()
gen
```

```
Gender
Female    1257
Male      1243
Name: User ID, dtype: int64
```

```
count=[1257,1243]
Gender=['Male','Female']
bars=plt.bar(Gender,count)
bars[0].set_color('black')
bars[1].set_color('Purple')
plt.title("Users Distribution by Gender")
plt.xlabel("Gender")
plt.ylabel("No.of Users")
plt.show()
```



In terms of gender distribution, Netflix seems to have a fairly even split between male and female users. This balanced distribution indicates that the platform's content appeals to both genders equally

Calculate Churn rate

```
from datetime import datetime

# Convert the 'Join Date' and 'Last Payment Date' columns to datetime
objects
netflix['Join Date'] = pd.to_datetime(netflix['Join Date'],
format='%d-%m-%y')
netflix['Last Payment Date'] = pd.to_datetime(netflix['Last Payment
Date'], format='%d-%m-%y')

# Calculate the number of days between the join date and the last
payment date
netflix['Days Active'] = (netflix['Last Payment Date'] - netflix['Join
Date']).dt.days

# Calculate the churn rate
churn_rate = (netflix['Days Active'] < 30).mean()
churn_rate
```

```
0.0016
```

In my analysis, I considered a user as "churned" if they were active for less than 30 days. Based on this definition, the churn rate in our dataset is approximately 0.16%. This low churn rate indicates that most users continue to use Netflix beyond their first month of subscription, suggesting a high level of user retention and satisfaction with the service

```

```