

```
In [15]: import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
df = pd.read_csv(r'C:\Users\Shyam Adsul\Desktop\User_device.csv')
df1 = pd.read_csv(r'C:\Users\Shyam Adsul\Desktop\user_usage.csv')
df2 = pd.concat([df, df1])
```

```
In [18]: df2['monthly_mb'] = df2['monthly_mb'].fillna(df2['monthly_mb'].mean())

df2['outgoing_sms_per_month'] = df2['outgoing_sms_per_month'].fillna(df2['outgoing_sms_per_month'].mean())

df2['outgoing_mins_per_month'] = df2['outgoing_mins_per_month'].fillna(df2['outgoing_mins_per_month'].mean())

df2['platform'] = df2['platform'].fillna(df2['platform'].mode()[0])
df2['use_type_id'] = df2['use_type_id'].fillna(df2['use_type_id'].mode()[0])
df2['platform_version'] = df2['platform_version'].fillna(df2['platform_version'].mode()[0])
df2['device'] = df2['device'].fillna(df2['device'].mode()[0])
```

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In [19]: df2.isna().sum()
```

Out[19]: use_id 0
user_id 240
platform 0
platform_version 0
device 0
use_type_id 0
outgoing_mins_per_month 0
outgoing_sms_per_month 0
monthly_mb 0
dtype: int64

Q2 A)

```
In [20]: conditions = [
(df2['monthly_mb'] <= 50),
(df2['monthly_mb'] > 51) & (df2['monthly_mb'] <= 1000),
(df2['monthly_mb'] > 1001) & (df2['monthly_mb'] <= 15000),
(df2['monthly_mb'] > 15001) & (df2['monthly_mb'] <= 30000),
]

values = ['10% extra on monthly MB usage', '4% extra on monthly MB usage', '3% extra on monthly MB usage', '2% extra on monthly MB usage']

df2['Basket'] = np.select(conditions, values)

df2.head()
```

Out[20]:

| | use_id | user_id | platform | platform_version | device | use_type_id | outgoing_mins_per_month | outgoing_sms_per_month | monthly_mb | Basket |
|---|--------|---------|----------|------------------|-----------|-------------|-------------------------|------------------------|-------------|------------------------------|
| 0 | 22782 | 26980.0 | ios | 10.2 | iPhone7,2 | 2.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 1 | 22783 | 29628.0 | android | 6.0 | Nexus 5 | 3.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 2 | 22784 | 28473.0 | android | 5.1 | SM-G903F | 1.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 3 | 22785 | 15200.0 | ios | 10.2 | iPhone7,2 | 3.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 4 | 22786 | 28239.0 | android | 6.0 | ONE E1003 | 1.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |

In []: Q 2 B)

```
In [30]: conditions = [
        (df2['monthly_mb'] > 0 ),
        ]

values = ['You will get 55 MB data to use for the next month']

df2['Message'] = np.select(conditions, values)

df2.head()
```

Out[30]:

| | use_id | user_id | platform | platform_version | device | use_type_id | outgoing_mins_per_month | outgoing_sms_per_month | monthly_mb | Basket | Message |
|---|--------|---------|----------|------------------|-----------|-------------|-------------------------|------------------------|-------------|------------------------------|---|
| 0 | 22782 | 26980.0 | ios | 10.2 | iPhone7,2 | 2.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage | You will get 55 MB data to use for the next month |
| 1 | 22783 | 29628.0 | android | 6.0 | Nexus 5 | 3.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage | You will get 55 MB data to use for the next month |
| 2 | 22784 | 28473.0 | android | 5.1 | SM-G903F | 1.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage | You will get 55 MB data to use for the next month |
| 3 | 22785 | 15200.0 | ios | 10.2 | iPhone7,2 | 3.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage | You will get 55 MB data to use for the next month |
| 4 | 22786 | 28239.0 | android | 6.0 | ONE E1003 | 1.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage | You will get 55 MB data to use for the next month |

Q2 C)

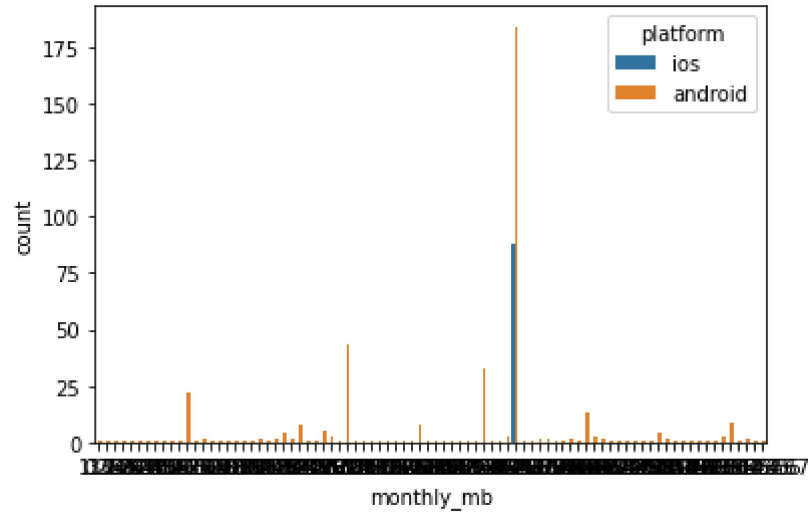
In [22]: df2.head()

Out[22]:

| | use_id | user_id | platform | platform_version | device | use_type_id | outgoing_mins_per_month | outgoing_sms_per_month | monthly_mb | Basket |
|---|--------|---------|----------|------------------|-----------|-------------|-------------------------|------------------------|-------------|------------------------------|
| 0 | 22782 | 26980.0 | ios | 10.2 | iPhone7,2 | 2.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 1 | 22783 | 29628.0 | android | 6.0 | Nexus 5 | 3.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 2 | 22784 | 28473.0 | android | 5.1 | SM-G903F | 1.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 3 | 22785 | 15200.0 | ios | 10.2 | iPhone7,2 | 3.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |
| 4 | 22786 | 28239.0 | android | 6.0 | ONE E1003 | 1.0 | 274.559167 | 98.968292 | 3628.602042 | 3% extra on monthly MB usage |

In [25]: sns.countplot(x='monthly_mb',hue='platform',data=df2)

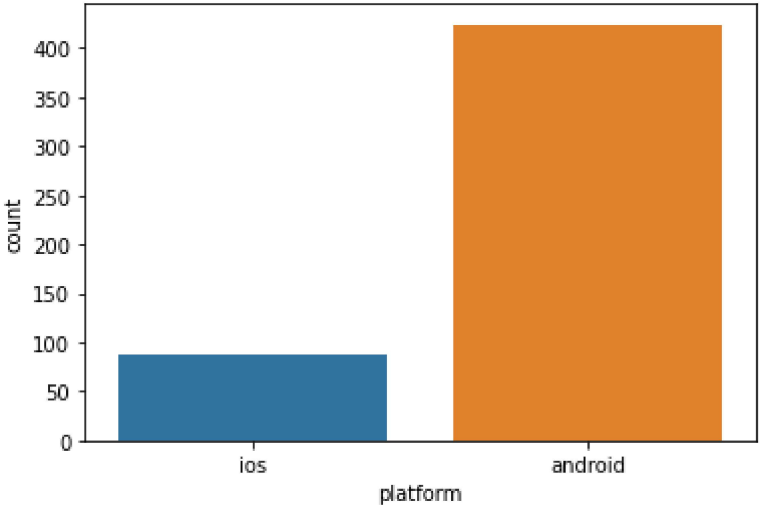
Out[25]: <AxesSubplot:xlabel='monthly_mb', ylabel='count'>



1)Finding Android User are using highest monthly_mb used

```
In [29]: sns.countplot(x='platform',data=df2)
df2['platform'].value_counts()
```

Out[29]: android 424
ios 88
Name: platform, dtype: int64



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In [ ]: Findings
2)Least Used Device Is ISO
3)count of IOS user is 88
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In [ ]:
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