```
In [115… import pandas as pd
```

```
In [116… df=pd.read_csv(r'C:\Users\dell\Downloads\New folder\data.csv')
         df
```

Out[116…

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| 2 | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| 3 | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income |
| ... | ... | ... | ... | ... | ... |
| 190 | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income |
| 191 | South Africa | ZAF | 20.850 | 46.5 | Upper middle income |
| 192 | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income |
| 193 | Zambia | ZMB | 40.471 | 15.4 | Lower middle income |
| 194 | Zimbabwe | ZWE | 35.715 | 18.5 | Low income |

195 rows × 5 columns

```
In [117… df.head(2)
```

Out[117…

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |

```
In [118… df.shape
```

Out[118…  (195, 5)

```
In [119… df.isnull().sum()
```

Out[119…
```
CountryName      0
CountryCode      0
BirthRate        0
InternetUsers    0
IncomeGroup      0
dtype: int64
```

```
In [120... df.columns
```

Out[120... 
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

```
In [121... df.describe()
```

Out[121...

| | BirthRate | InternetUsers |
|---|---|---|
| count | 195.000000 | 195.000000 |
| mean | 21.469928 | 42.076471 |
| std | 10.605467 | 29.030788 |
| min | 7.900000 | 0.900000 |
| 25% | 12.120500 | 14.520000 |
| 50% | 19.680000 | 41.000000 |
| 75% | 29.759500 | 66.225000 |
| max | 49.661000 | 96.546800 |

```
In [122... df.describe().transpose()
```

Out[122...

| | count | mean | std | min | 25% | 50% | 75% | max |
|---|---|---|---|---|---|---|---|---|
| BirthRate | 195.0 | 21.469928 | 10.605467 | 7.9 | 12.1205 | 19.68 | 29.7595 | 49.6610 |
| InternetUsers | 195.0 | 42.076471 | 29.030788 | 0.9 | 14.5200 | 41.00 | 66.2250 | 96.5468 |

```
In [123... df.head()
```

Out[123...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| 2 | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| 3 | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income |

```
In [124... df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 195 entries, 0 to 194
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   CountryName   195 non-null    object
 1   CountryCode   195 non-null    object
 2   BirthRate     195 non-null    float64
 3   InternetUsers 195 non-null    float64
 4   IncomeGroup   195 non-null    object
dtypes: float64(2), object(3)
memory usage: 7.7+ KB
```

In [125...  `df.columns`

Out[125...  
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

In [126...  `len(df.columns)`

Out[126...  5

In [127...  `df.tail(1)`

Out[127...

|     | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
| --- | --- | --- | --- | --- | --- |
| 194 | Zimbabwe | ZWE | 35.715 | 18.5 | Low income |

In [128...  `df.head(2)`

Out[128...

|     | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
| --- | --- | --- | --- | --- | --- |
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |

In [129...  `df[::-1]`

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **194** | Zimbabwe | ZWE | 35.715 | 18.5 | Low income |
| **193** | Zambia | ZMB | 40.471 | 15.4 | Lower middle income |
| **192** | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income |
| **191** | South Africa | ZAF | 20.850 | 46.5 | Upper middle income |
| **190** | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income |
| **...** | ... | ... | ... | ... | ... |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0 | High income |
| **3** | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| **1** | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| **0** | Aruba | ABW | 10.244 | 78.9 | High income |

195 rows × 5 columns

```
df[:5]
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9 | High income |
| **1** | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| **3** | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0 | High income |

```
df[6:]
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **6** | Armenia | ARM | 13.308 | 41.9000 | Lower middle income |
| **7** | Antigua and Barbuda | ATG | 16.447 | 63.4000 | High income |
| **8** | Australia | AUS | 13.200 | 83.0000 | High income |
| **9** | Austria | AUT | 9.400 | 80.6188 | High income |
| **10** | Azerbaijan | AZE | 18.300 | 58.7000 | Upper middle income |
| **...** | ... | ... | ... | ... | ... |
| **190** | Yemen, Rep. | YEM | 32.947 | 20.0000 | Lower middle income |
| **191** | South Africa | ZAF | 20.850 | 46.5000 | Upper middle income |
| **192** | Congo, Dem. Rep. | COD | 42.394 | 2.2000 | Low income |
| **193** | Zambia | ZMB | 40.471 | 15.4000 | Lower middle income |
| **194** | Zimbabwe | ZWE | 35.715 | 18.5000 | Low income |

189 rows × 5 columns

```
df[0:200:10]
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.900000 | High income |
| 10 | Azerbaijan | AZE | 18.300 | 58.700000 | Upper middle income |
| 20 | Belarus | BLR | 12.500 | 54.170000 | Upper middle income |
| 30 | Canada | CAN | 10.900 | 85.800000 | High income |
| 40 | Costa Rica | CRI | 15.022 | 45.960000 | Upper middle income |
| 50 | Ecuador | ECU | 21.070 | 40.353684 | Upper middle income |
| 60 | Gabon | GAB | 30.555 | 9.200000 | Upper middle income |
| 70 | Greenland | GRL | 14.500 | 65.800000 | High income |
| 80 | India | IND | 20.291 | 15.100000 | Lower middle income |
| 90 | Kazakhstan | KAZ | 22.730 | 54.000000 | Upper middle income |
| 100 | Libya | LBY | 21.425 | 16.500000 | Upper middle income |
| 110 | Moldova | MDA | 12.141 | 45.000000 | Lower middle income |
| 120 | Mozambique | MOZ | 39.705 | 5.400000 | Low income |
| 130 | Netherlands | NLD | 10.200 | 93.956400 | High income |
| 140 | Poland | POL | 9.600 | 62.849200 | High income |
| 150 | Sudan | SDN | 33.477 | 22.700000 | Lower middle income |
| 160 | Suriname | SUR | 18.455 | 37.400000 | Upper middle income |
| 170 | Tajikistan | TJK | 30.792 | 16.000000 | Lower middle income |
| 180 | Uruguay | URY | 14.374 | 57.690000 | High income |
| 190 | Yemen, Rep. | YEM | 32.947 | 20.000000 | Lower middle income |

```
df
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9 | High income |
| **1** | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| **3** | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0 | High income |
| **...** | ... | ... | ... | ... | ... |
| **190** | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income |
| **191** | South Africa | ZAF | 20.850 | 46.5 | Upper middle income |
| **192** | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income |
| **193** | Zambia | ZMB | 40.471 | 15.4 | Lower middle income |
| **194** | Zimbabwe | ZWE | 35.715 | 18.5 | Low income |

195 rows × 5 columns

```python
df.describe()
```

| | BirthRate | InternetUsers |
|---|---|---|
| **count** | 195.000000 | 195.000000 |
| **mean** | 21.469928 | 42.076471 |
| **std** | 10.605467 | 29.030788 |
| **min** | 7.900000 | 0.900000 |
| **25%** | 12.120500 | 14.520000 |
| **50%** | 19.680000 | 41.000000 |
| **75%** | 29.759500 | 66.225000 |
| **max** | 49.661000 | 96.546800 |

```python
df.describe().transpose()
```

| | count | mean | std | min | 25% | 50% | 75% | max |
|---|---|---|---|---|---|---|---|---|
| **BirthRate** | 195.0 | 21.469928 | 10.605467 | 7.9 | 12.1205 | 19.68 | 29.7595 | 49.6610 |
| **InternetUsers** | 195.0 | 42.076471 | 29.030788 | 0.9 | 14.5200 | 41.00 | 66.2250 | 96.5468 |

```
In [136...  df.columns=['a','b','c','d','e']
```

```
In [137...  df.head(1)
```

Out[137...

|   | a | b | c | d | e |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |

```
In [138...  df.columns=['CountryName','CountryCode','BirthRate','InternetUsers','IncomeGroup
```

```
In [139...  df.columns
```

Out[139...

```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

```
In [140...  df[:]
```

Out[140...

|  | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| 2 | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| 3 | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income |
| ... | ... | ... | ... | ... | ... |
| 190 | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income |
| 191 | South Africa | ZAF | 20.850 | 46.5 | Upper middle income |
| 192 | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income |
| 193 | Zambia | ZMB | 40.471 | 15.4 | Lower middle income |
| 194 | Zimbabwe | ZWE | 35.715 | 18.5 | Low income |

195 rows × 5 columns

```
In [141...  df[0:5]
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9 | High income |
| **1** | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| **3** | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0 | High income |

```python
df[0:10]
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9000 | High income |
| **1** | Afghanistan | AFG | 35.253 | 5.9000 | Low income |
| **2** | Angola | AGO | 45.985 | 19.1000 | Upper middle income |
| **3** | Albania | ALB | 12.877 | 57.2000 | Upper middle income |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0000 | High income |
| **5** | Argentina | ARG | 17.716 | 59.9000 | High income |
| **6** | Armenia | ARM | 13.308 | 41.9000 | Lower middle income |
| **7** | Antigua and Barbuda | ATG | 16.447 | 63.4000 | High income |
| **8** | Australia | AUS | 13.200 | 83.0000 | High income |
| **9** | Austria | AUT | 9.400 | 80.6188 | High income |

```python
df.head(10)
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9000 | High income |
| **1** | Afghanistan | AFG | 35.253 | 5.9000 | Low income |
| **2** | Angola | AGO | 45.985 | 19.1000 | Upper middle income |
| **3** | Albania | ALB | 12.877 | 57.2000 | Upper middle income |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0000 | High income |
| **5** | Argentina | ARG | 17.716 | 59.9000 | High income |
| **6** | Armenia | ARM | 13.308 | 41.9000 | Lower middle income |
| **7** | Antigua and Barbuda | ATG | 16.447 | 63.4000 | High income |
| **8** | Australia | AUS | 13.200 | 83.0000 | High income |
| **9** | Austria | AUT | 9.400 | 80.6188 | High income |

```python
df[: : 10]
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.900000 | High income |
| **10** | Azerbaijan | AZE | 18.300 | 58.700000 | Upper middle income |
| **20** | Belarus | BLR | 12.500 | 54.170000 | Upper middle income |
| **30** | Canada | CAN | 10.900 | 85.800000 | High income |
| **40** | Costa Rica | CRI | 15.022 | 45.960000 | Upper middle income |
| **50** | Ecuador | ECU | 21.070 | 40.353684 | Upper middle income |
| **60** | Gabon | GAB | 30.555 | 9.200000 | Upper middle income |
| **70** | Greenland | GRL | 14.500 | 65.800000 | High income |
| **80** | India | IND | 20.291 | 15.100000 | Lower middle income |
| **90** | Kazakhstan | KAZ | 22.730 | 54.000000 | Upper middle income |
| **100** | Libya | LBY | 21.425 | 16.500000 | Upper middle income |
| **110** | Moldova | MDA | 12.141 | 45.000000 | Lower middle income |
| **120** | Mozambique | MOZ | 39.705 | 5.400000 | Low income |
| **130** | Netherlands | NLD | 10.200 | 93.956400 | High income |
| **140** | Poland | POL | 9.600 | 62.849200 | High income |
| **150** | Sudan | SDN | 33.477 | 22.700000 | Lower middle income |
| **160** | Suriname | SUR | 18.455 | 37.400000 | Upper middle income |
| **170** | Tajikistan | TJK | 30.792 | 16.000000 | Lower middle income |
| **180** | Uruguay | URY | 14.374 | 57.690000 | High income |
| **190** | Yemen, Rep. | YEM | 32.947 | 20.000000 | Lower middle income |

In [145…
```python
df.columns
```

Out[145…
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

In [146…
```python
df.dtypes
```

Out[146…
```
CountryName       object
CountryCode       object
BirthRate        float64
InternetUsers    float64
IncomeGroup       object
dtype: object
```

In [147…
```python
df_categorical=df[['CountryName','CountryCode','IncomeGroup']]
```

In [148…
```python
df_categorical.columns
```

Out[148…
```
Index(['CountryName', 'CountryCode', 'IncomeGroup'], dtype='object')
```

```
In [149… df_categorical.head()
```

Out[149…

|   | CountryName | CountryCode | IncomeGroup |
|---|---|---|---|
| **0** | Aruba | ABW | High income |
| **1** | Afghanistan | AFG | Low income |
| **2** | Angola | AGO | Upper middle income |
| **3** | Albania | ALB | Upper middle income |
| **4** | United Arab Emirates | ARE | High income |

```
In [150… df_num=df[['BirthRate','InternetUsers']]
```

```
In [151… df.columns
```

Out[151…
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

```
In [152… df[['CountryName','BirthRate']]
```

Out[152…

|   | CountryName | BirthRate |
|---|---|---|
| **0** | Aruba | 10.244 |
| **1** | Afghanistan | 35.253 |
| **2** | Angola | 45.985 |
| **3** | Albania | 12.877 |
| **4** | United Arab Emirates | 11.044 |
| **...** | ... | ... |
| **190** | Yemen, Rep. | 32.947 |
| **191** | South Africa | 20.850 |
| **192** | Congo, Dem. Rep. | 42.394 |
| **193** | Zambia | 40.471 |
| **194** | Zimbabwe | 35.715 |

195 rows × 2 columns

```
In [153… df.head()
```

Out[153...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9 | High income |
| **1** | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| **3** | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0 | High income |

In [154...
```python
num=df[['BirthRate','InternetUsers']]
```

In [155...
```python
num
```

Out[155...

| | BirthRate | InternetUsers |
|---|---|---|
| **0** | 10.244 | 78.9 |
| **1** | 35.253 | 5.9 |
| **2** | 45.985 | 19.1 |
| **3** | 12.877 | 57.2 |
| **4** | 11.044 | 88.0 |
| **...** | ... | ... |
| **190** | 32.947 | 20.0 |
| **191** | 20.850 | 46.5 |
| **192** | 42.394 | 2.2 |
| **193** | 40.471 | 15.4 |
| **194** | 35.715 | 18.5 |

195 rows × 2 columns

In [ ]:

In [156...
```python
df1=df[['CountryName','BirthRate']]
```

In [157...
```python
df1.columns
```

Out[157...
```
Index(['CountryName', 'BirthRate'], dtype='object')
```

In [158...
```python
df2=df[4:8]
df2
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income |
| 5 | Argentina | ARG | 17.716 | 59.9 | High income |
| 6 | Armenia | ARM | 13.308 | 41.9 | Lower middle income |
| 7 | Antigua and Barbuda | ATG | 16.447 | 63.4 | High income |

In [159...
```
df.head()
```

Out[159...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| 2 | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| 3 | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income |

In [160...
```
df[['CountryCode','BirthRate','InternetUsers']][4:8]
df
```

Out[160...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income |
| 2 | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| 3 | Albania | ALB | 12.877 | 57.2 | Upper middle income |
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income |
| ... | ... | ... | ... | ... | ... |
| 190 | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income |
| 191 | South Africa | ZAF | 20.850 | 46.5 | Upper middle income |
| 192 | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income |
| 193 | Zambia | ZMB | 40.471 | 15.4 | Lower middle income |
| 194 | Zimbabwe | ZWE | 35.715 | 18.5 | Low income |

195 rows × 5 columns

In [161...
```
df['myCalc']=df.BirthRate*df.InternetUsers
```

```
df
```

Out[161...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup | myCalc |
|---|---|---|---|---|---|---|
| 0 | Aruba | ABW | 10.244 | 78.9 | High income | 808.2516 |
| 1 | Afghanistan | AFG | 35.253 | 5.9 | Low income | 207.9927 |
| 2 | Angola | AGO | 45.985 | 19.1 | Upper middle income | 878.3135 |
| 3 | Albania | ALB | 12.877 | 57.2 | Upper middle income | 736.5644 |
| 4 | United Arab Emirates | ARE | 11.044 | 88.0 | High income | 971.8720 |
| ... | ... | ... | ... | ... | ... | ... |
| 190 | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income | 658.9400 |
| 191 | South Africa | ZAF | 20.850 | 46.5 | Upper middle income | 969.5250 |
| 192 | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income | 93.2668 |
| 193 | Zambia | ZMB | 40.471 | 15.4 | Lower middle income | 623.2534 |
| 194 | Zimbabwe | ZWE | 35.715 | 18.5 | Low income | 660.7275 |

195 rows × 6 columns

In [162...
```
df.columns
```

Out[162...
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup', 'myCalc'],
      dtype='object')
```

In [163...
```
len(df.columns)
```

Out[163...
```
6
```

In [164...
```
df
```

Out[164...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup | myCalc |
|---|---|---|---|---|---|---|
| **0** | Aruba | ABW | 10.244 | 78.9 | High income | 808.2516 |
| **1** | Afghanistan | AFG | 35.253 | 5.9 | Low income | 207.9927 |
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income | 878.3135 |
| **3** | Albania | ALB | 12.877 | 57.2 | Upper middle income | 736.5644 |
| **4** | United Arab Emirates | ARE | 11.044 | 88.0 | High income | 971.8720 |
| **...** | ... | ... | ... | ... | ... | ... |
| **190** | Yemen, Rep. | YEM | 32.947 | 20.0 | Lower middle income | 658.9400 |
| **191** | South Africa | ZAF | 20.850 | 46.5 | Upper middle income | 969.5250 |
| **192** | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income | 93.2668 |
| **193** | Zambia | ZMB | 40.471 | 15.4 | Lower middle income | 623.2534 |
| **194** | Zimbabwe | ZWE | 35.715 | 18.5 | Low income | 660.7275 |

195 rows × 6 columns

In [165...
```python
df=df.drop('myCalc',axis=1)
```

In [166...
```python
df['InternetUsers']
```

Out[166...
```
0      78.9
1       5.9
2      19.1
3      57.2
4      88.0
       ... 
190    20.0
191    46.5
192     2.2
193    15.4
194    18.5
Name: InternetUsers, Length: 195, dtype: float64
```

In [167...
```python
df.InternetUsers<2
```

```
Out[167…    0       False
            1       False
            2       False
            3       False
            4       False
                     ...
            190     False
            191     False
            192     False
            193     False
            194     False
            Name: InternetUsers, Length: 195, dtype: bool
```

```
In [168…    Filter=df.InternetUsers<2
            df[Filter]
```

Out[168…

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **11** | Burundi | BDI | 44.151 | 1.3 | Low income |
| **52** | Eritrea | ERI | 34.800 | 0.9 | Low income |
| **55** | Ethiopia | ETH | 32.925 | 1.9 | Low income |
| **64** | Guinea | GIN | 37.337 | 1.6 | Low income |
| **117** | Myanmar | MMR | 18.119 | 1.6 | Lower middle income |
| **127** | Niger | NER | 49.661 | 1.7 | Low income |
| **154** | Sierra Leone | SLE | 36.729 | 1.7 | Low income |
| **156** | Somalia | SOM | 43.891 | 1.5 | Low income |
| **172** | Timor-Leste | TLS | 35.755 | 1.1 | Lower middle income |

```
In [169…    len(df[Filter])
```

Out[169…    9

```
In [170…    Filter2=df.BirthRate>40
```

```
In [171…    df[Filter2]
```

Out[171...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **2** | Angola | AGO | 45.985 | 19.1 | Upper middle income |
| **11** | Burundi | BDI | 44.151 | 1.3 | Low income |
| **14** | Burkina Faso | BFA | 40.551 | 9.1 | Low income |
| **65** | Gambia, The | GMB | 42.525 | 14.0 | Low income |
| **115** | Mali | MLI | 44.138 | 3.5 | Low income |
| **127** | Niger | NER | 49.661 | 1.7 | Low income |
| **128** | Nigeria | NGA | 40.045 | 38.0 | Lower middle income |
| **156** | Somalia | SOM | 43.891 | 1.5 | Low income |
| **167** | Chad | TCD | 45.745 | 2.3 | Low income |
| **178** | Uganda | UGA | 43.474 | 16.2 | Low income |
| **192** | Congo, Dem. Rep. | COD | 42.394 | 2.2 | Low income |
| **193** | Zambia | ZMB | 40.471 | 15.4 | Lower middle income |

In [172...
```python
len(df[Filter2])
```

Out[172...
```
12
```

In [173...
```python
df[Filter & Filter2]
```

Out[173...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **11** | Burundi | BDI | 44.151 | 1.3 | Low income |
| **127** | Niger | NER | 49.661 | 1.7 | Low income |
| **156** | Somalia | SOM | 43.891 | 1.5 | Low income |

In [174...
```python
df[(df.BirthRate > 40) & (df.InternetUsers < 2)]
```

Out[174...

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **11** | Burundi | BDI | 44.151 | 1.3 | Low income |
| **127** | Niger | NER | 49.661 | 1.7 | Low income |
| **156** | Somalia | SOM | 43.891 | 1.5 | Low income |

In [175...
```python
df[df.IncomeGroup == 'Low income']
```

| | CountryName | CountryCode | BirthRate | InternetUsers | IncomeGroup |
|---|---|---|---|---|---|
| **1** | Afghanistan | AFG | 35.253 | 5.90 | Low income |
| **11** | Burundi | BDI | 44.151 | 1.30 | Low income |
| **13** | Benin | BEN | 36.440 | 4.90 | Low income |
| **14** | Burkina Faso | BFA | 40.551 | 9.10 | Low income |
| **29** | Central African Republic | CAF | 34.076 | 3.50 | Low income |
| **38** | Comoros | COM | 34.326 | 6.50 | Low income |
| **52** | Eritrea | ERI | 34.800 | 0.90 | Low income |
| **55** | Ethiopia | ETH | 32.925 | 1.90 | Low income |
| **64** | Guinea | GIN | 37.337 | 1.60 | Low income |
| **65** | Gambia, The | GMB | 42.525 | 14.00 | Low income |
| **66** | Guinea-Bissau | GNB | 37.503 | 3.10 | Low income |
| **77** | Haiti | HTI | 25.345 | 10.60 | Low income |
| **93** | Cambodia | KHM | 24.462 | 6.80 | Low income |
| **99** | Liberia | LBR | 35.521 | 3.20 | Low income |
| **111** | Madagascar | MDG | 34.686 | 3.00 | Low income |
| **115** | Mali | MLI | 44.138 | 3.50 | Low income |
| **120** | Mozambique | MOZ | 39.705 | 5.40 | Low income |
| **123** | Malawi | MWI | 39.459 | 5.05 | Low income |
| **127** | Niger | NER | 49.661 | 1.70 | Low income |
| **132** | Nepal | NPL | 20.923 | 13.30 | Low income |
| **148** | Rwanda | RWA | 32.689 | 9.00 | Low income |
| **154** | Sierra Leone | SLE | 36.729 | 1.70 | Low income |
| **156** | Somalia | SOM | 43.891 | 1.50 | Low income |
| **158** | South Sudan | SSD | 37.126 | 14.10 | Low income |
| **167** | Chad | TCD | 45.745 | 2.30 | Low income |
| **168** | Togo | TGO | 36.080 | 4.50 | Low income |
| **177** | Tanzania | TZA | 39.518 | 4.40 | Low income |
| **178** | Uganda | UGA | 43.474 | 16.20 | Low income |
| **192** | Congo, Dem. Rep. | COD | 42.394 | 2.20 | Low income |
| **194** | Zimbabwe | ZWE | 35.715 | 18.50 | Low income |

```
df.IncomeGroup.unique()
```

Out[176... array(['High income', 'Low income', 'Upper middle income',
       'Lower middle income'], dtype=object)

In [177... df.IncomeGroup.nunique()

Out[177... 4

In [178...
```python
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
plt.rcParams['figure.figsize']=6,2
import warnings
warnings.filterwarnings('ignore')
```
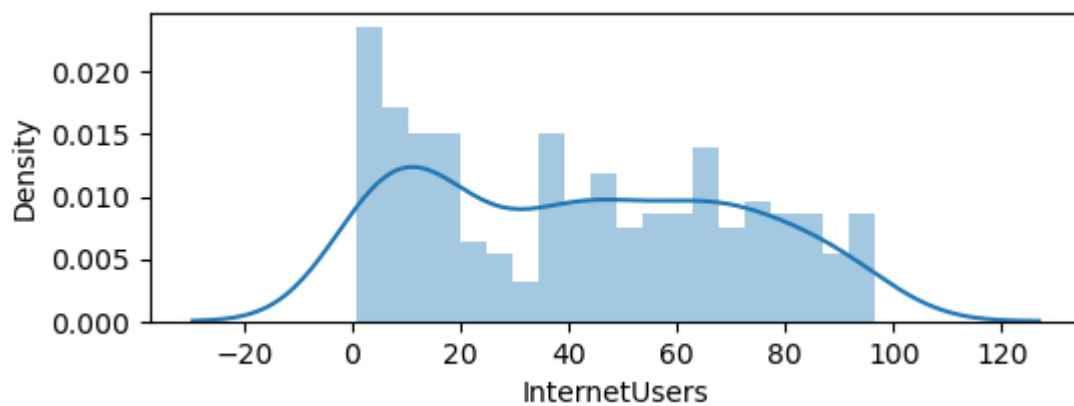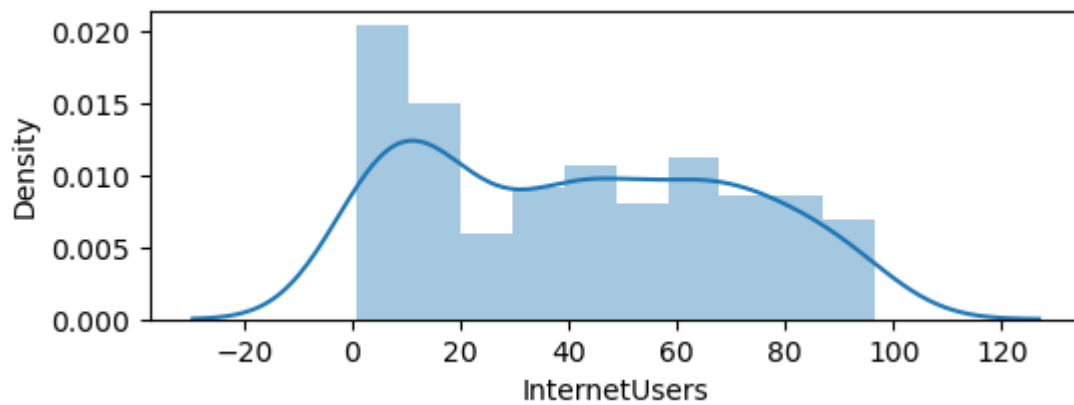
In [179... vis1=sns.distplot(df["InternetUsers"])
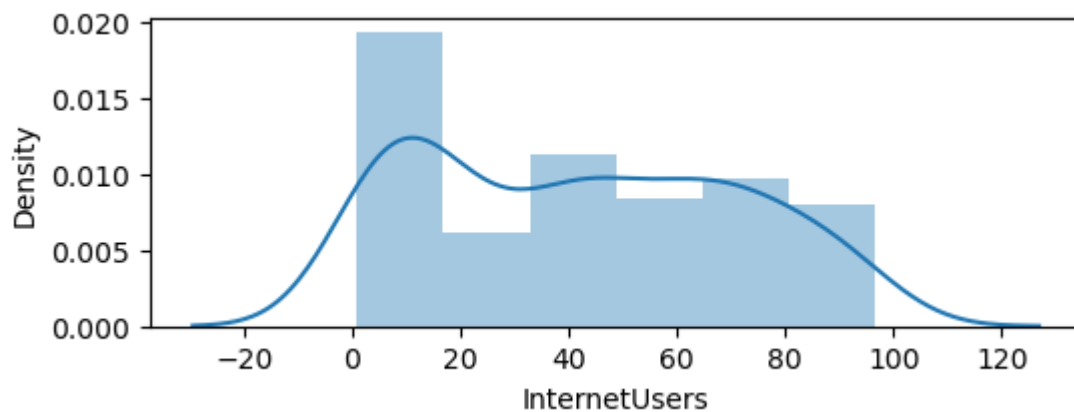


In [ ]:

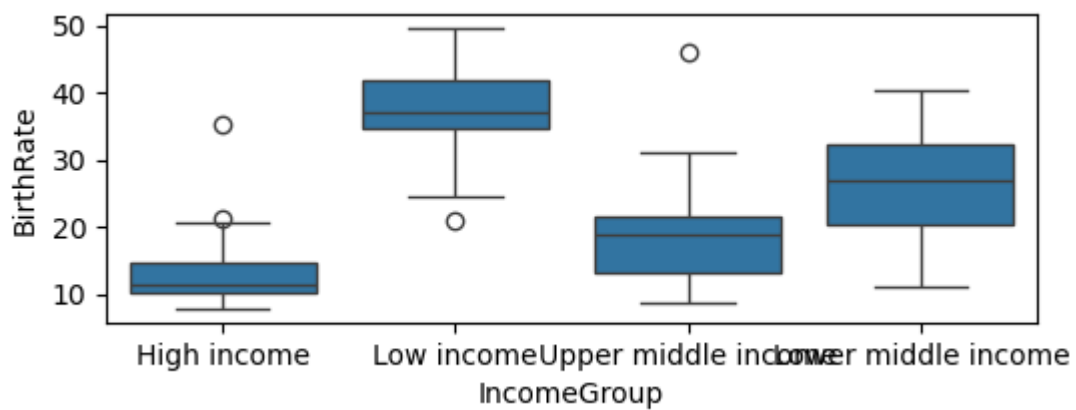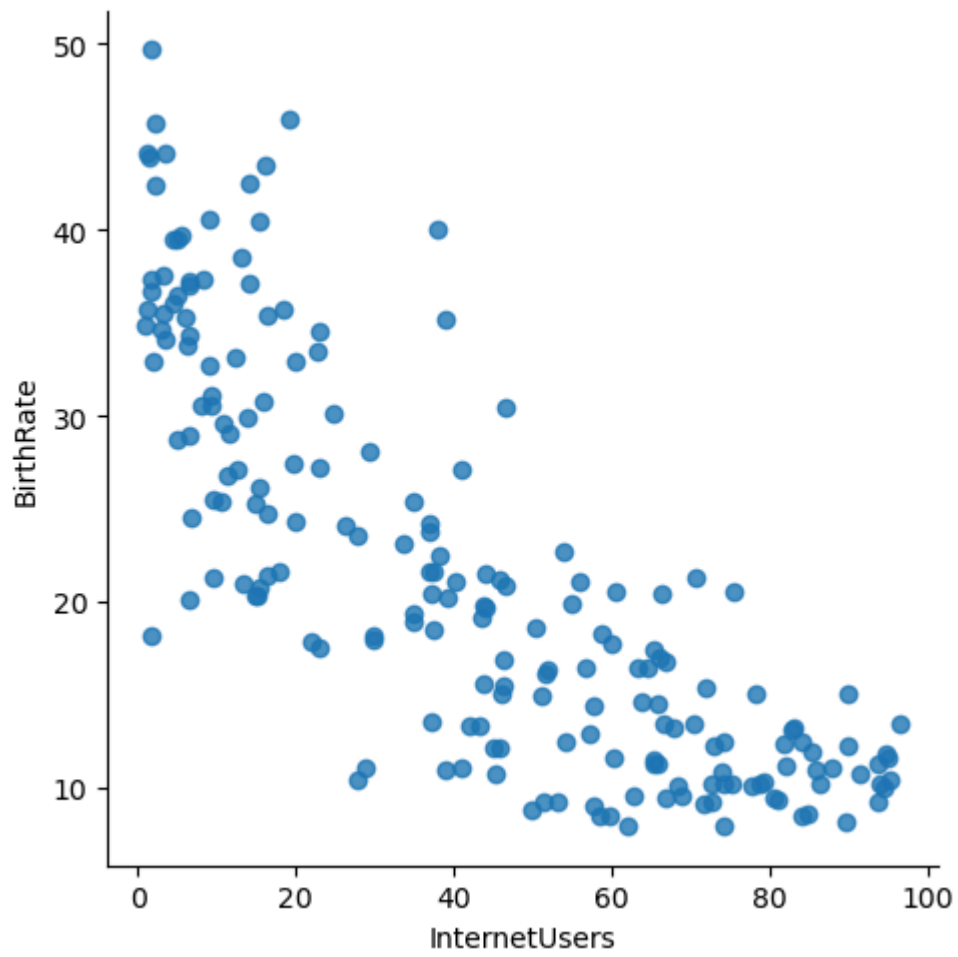In [180... vis2=sns.distplot(df["InternetUsers"], bins=20)



In [ ]:

In [181... vis2=sns.distplot(df["InternetUsers"], bins=10)

```
In [182... vis4=sns.boxplot(data=df, x="IncomeGroup", y="BirthRate")
```



```
In [183... vis5=sns.lmplot(data=df,x='InternetUsers',y='BirthRate',fit_reg=False)
```
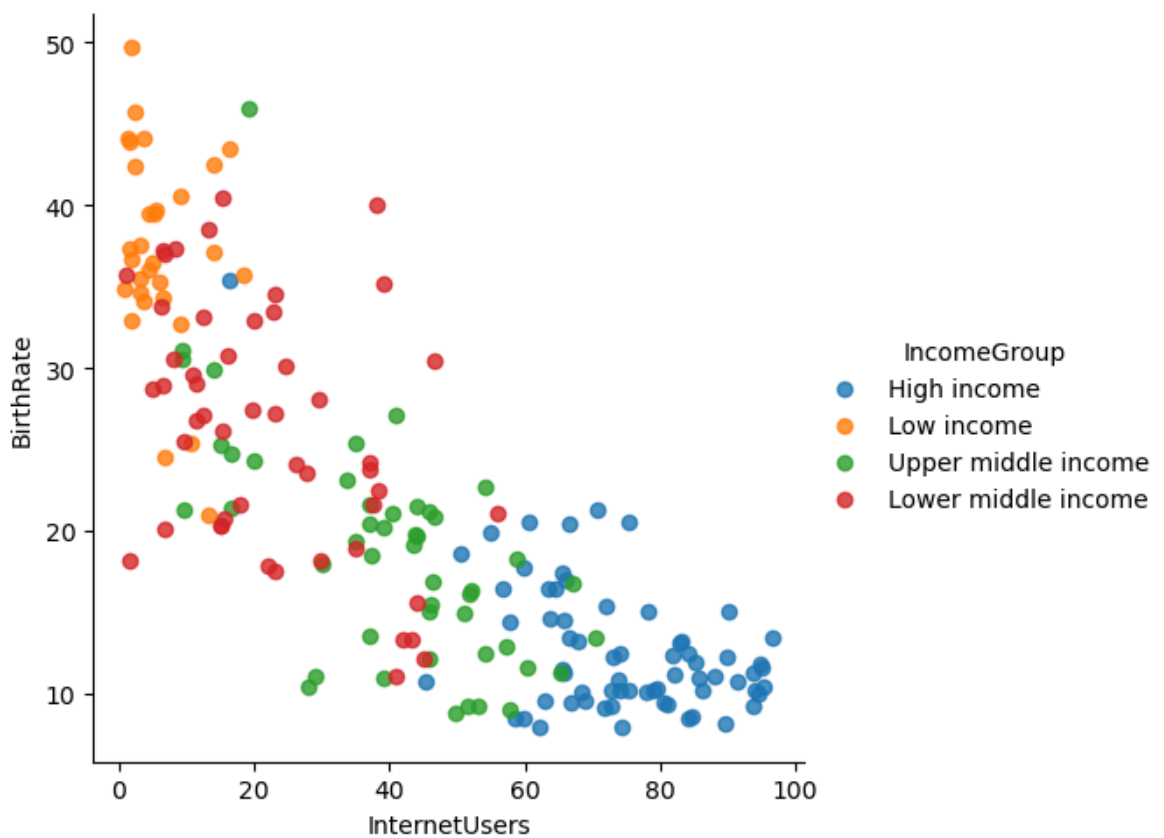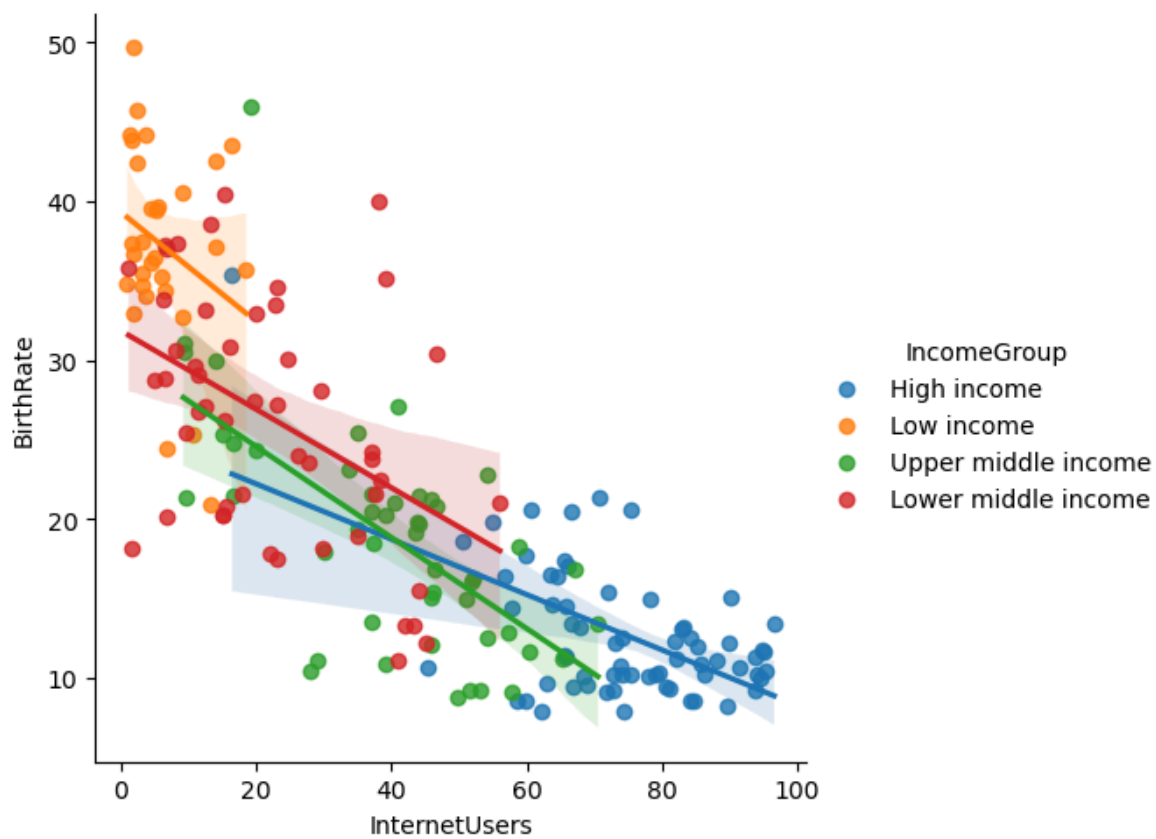
```
In [184…  vis6=sns.lmplot(data=df,x='InternetUsers',y='BirthRate')
```
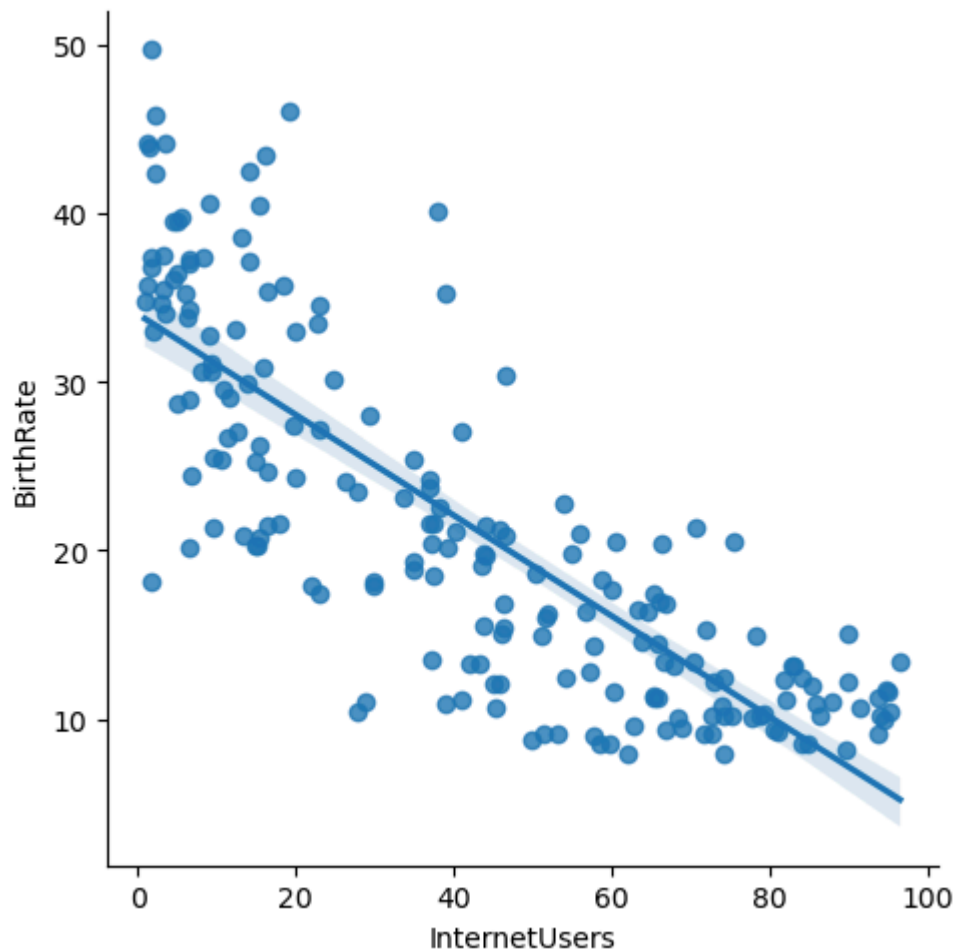
`vis7=sns.lmplot(data=df,x='InternetUsers',y='BirthRate',fit_reg=False,hue="Incom`



`vis8=sns.lmplot(data=df,x='InternetUsers',y='BirthRate',hue='IncomeGroup')`