GLOBAL ECONOMY

In [ ]:

```

```

In [ ]:

```
Dataframe in python and how to import the dataset
```

In [2]:

```
import pandas as pd
```

In [12]:

```
ds = pd.read_csv (r"C:\Users\LENOVO\Desktop\AMXWAM- AI WITH CHA\JULY\26th July\data.csv"
```

In [13]:

```
ds
```

Out[13]:

	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 [15]:

```
len(ds)
```

Out[15]:

```
195
```

In [19]:

```
ds.columns
```

Out[19]:

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

In [20]:

```
len(ds.columns)
```

Out[20]:

```
5
```

In [21]:

```
ds.head()
```

Out[21]:

	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 [23]:

```
ds.tail()
```

Out[23]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
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

In [24]:

```
ds.head(2)
```

Out[24]:

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

In [25]:

```
ds.tail(3)
```

Out[25]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
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

In [26]:

```
ds.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 [27]:

```
ds.describe()
```

Out[27]:

	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 [28]:

```
ds.describe().transpose()
```

Out[28]:

	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 [29]:

```
ds.columns
```

Out[29]:

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

In [30]:

```
ds.head()
```

Out[30]:

	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 [31]:

```
ds.tail()
```

Out[31]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
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

In [33]:

```
ds[21:51]
```

Out[33]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
21	Belize	BLZ	23.092	33.600000	Upper middle income
22	Bermuda	BMU	10.400	95.300000	High income
23	Bolivia	BOL	24.236	36.940000	Lower middle income
24	Brazil	BRA	14.931	51.040000	Upper middle income
25	Barbados	BRB	12.188	73.000000	High income
26	Brunei Darussalam	BRN	16.405	64.500000	High income
27	Bhutan	BTN	18.134	29.900000	Lower middle income
28	Botswana	BWA	25.267	15.000000	Upper middle income
29	Central African Republic	CAF	34.076	3.500000	Low income
30	Canada	CAN	10.900	85.800000	High income
31	Switzerland	CHE	10.200	86.340000	High income
32	Chile	CHL	13.385	66.500000	High income
33	China	CHN	12.100	45.800000	Upper middle income
34	Cote d'Ivoire	CIV	37.320	8.400000	Lower middle income
35	Cameroon	CMR	37.236	6.400000	Lower middle income
36	Congo, Rep.	COG	37.011	6.600000	Lower middle income
37	Colombia	COL	16.076	51.700000	Upper middle income
38	Comoros	COM	34.326	6.500000	Low income
39	Cabo Verde	CPV	21.625	37.500000	Lower middle income
40	Costa Rica	CRI	15.022	45.960000	Upper middle income
41	Cuba	CUB	10.400	27.930000	Upper middle income
42	Cayman Islands	CYM	12.500	74.100000	High income
43	Cyprus	CYP	11.436	65.454800	High income
44	Czech Republic	CZE	10.200	74.110400	High income
45	Germany	DEU	8.500	84.170000	High income
46	Djibouti	DJI	25.486	9.500000	Lower middle income
47	Denmark	DNK	10.000	94.629700	High income
48	Dominican Republic	DOM	21.198	45.900000	Upper middle income
49	Algeria	DZA	24.738	16.500000	Upper middle income
50	Ecuador	ECU	21.070	40.353684	Upper middle income

In [34]:

```
ds[:]
```

Out[34]:

```
              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 [35]:

```
ds[:10]
```

Out[35]:

```
            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
```

In [38]:

```
ds.head(10)
```

Out[38]:

```
          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
```

In [39]:

```
ds[: : -1]
```

Out[39]:

```
              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
```

In [40]:

```
ds
```

Out[40]:

	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 [41]:

```
ds[: : 20]
```

Out[41]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	Aruba	ABW	10.244	78.9000	High income
20	Belarus	BLR	12.500	54.1700	Upper middle income
40	Costa Rica	CRI	15.022	45.9600	Upper middle income
60	Gabon	GAB	30.555	9.2000	Upper middle income
80	India	IND	20.291	15.1000	Lower middle income
100	Libya	LBY	21.425	16.5000	Upper middle income
120	Mozambique	MOZ	39.705	5.4000	Low income
140	Poland	POL	9.600	62.8492	High income
160	Suriname	SUR	18.455	37.4000	Upper middle income
180	Uruguay	URY	14.374	57.6900	High income

In [42]:

```
ds[: :30]
```

Out[42]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	Aruba	ABW	10.244	78.90	High income
30	Canada	CAN	10.900	85.80	High income
60	Gabon	GAB	30.555	9.20	Upper middle income
90	Kazakhstan	KAZ	22.730	54.00	Upper middle income
120	Mozambique	MOZ	39.705	5.40	Low income
150	Sudan	SDN	33.477	22.70	Lower middle income
180	Uruguay	URY	14.374	57.69	High income

In [44]:

```
ds.columns
```

Out[44]:

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

In [46]:

```
ds.head()
```

Out[46]:

	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 [49]:

```
ds['CountryName'].head()
```

Out[49]:

```
0                   Aruba
1             Afghanistan
2                  Angola
3                 Albania
4    United Arab Emirates
Name: CountryName, dtype: object
```

In [50]:

```
ds['CountryName']
```

Out[50]:

```
0                       Aruba
1                 Afghanistan
2                      Angola
3                     Albania
4        United Arab Emirates
                ...          
190               Yemen, Rep.
191              South Africa
192          Congo, Dem. Rep.
193                    Zambia
194                  Zimbabwe
Name: CountryName, Length: 195, dtype: object
```

In [52]:

```
['CountryName','BirthRate']
```

Out[52]:

```
['CountryName', 'BirthRate']
```

In [55]:

```
ds[['CountryName','BirthRate']] (.head)
```

```
  Cell In[55], line 1
    ds[['CountryName','BirthRate']] (.head)
                                     ^
SyntaxError: invalid syntax
```

In [56]:

```
ds[['CountryName','BirthRate']].head()
```

Out[56]:

	CountryName	BirthRate
0	Aruba	10.244
1	Afghanistan	35.253
2	Angola	45.985
3	Albania	12.877
4	United Arab Emirates	11.044

In [57]:

```
ds['BirthRate']
```

Out[57]:

```
0      10.244
1      35.253
2      45.985
3      12.877
4      11.044
        ...
190    32.947
191    20.850
192    42.394
193    40.471
194    35.715
Name: BirthRate, Length: 195, dtype: float64
```

In [58]:

```
ds[4:8][['CountryName','BirthRate']]
```

Out[58]:

	CountryName	BirthRate
4	United Arab Emirates	11.044
5	Argentina	17.716
6	Armenia	13.308
7	Antigua and Barbuda	16.447

In [2]:

```
ds[6:8][['CountryName','BirthRate']]
```

```
--------------------------------------------------------------------------
--
NameError                                 Traceback (most recent call las
t)
Cell In[2], line 1
----> 1 ds[6:8][['CountryName','BirthRate']]

NameError: name 'ds' is not defined
```

In [3]:

```
import pandas as pd
```

In [4]:

```
ds = pd.read_csv (r"C:\Users\LENOVO\Desktop\AMXWAM- AI WITH CHA\JULY\26th July\data.csv"
```

In [5]:

```
ds
```

Out[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
...	...	...	...	...	...
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 [6]:

```
ds[6:8][['CountryName','BirthRate']]
```

Out[6]:

	CountryName	BirthRate
6	Armenia	13.308
7	Antigua and Barbuda	16.447

In [8]:

```
ds.head
```

Out[8]:

```
<bound method NDFrame.head of                   CountryName CountryCode  Birt
hRate  InternetUsers  \
0                   Aruba         ABW     10.244           78.9
1             Afghanistan         AFG     35.253            5.9
2                  Angola         AGO     45.985           19.1
3                 Albania         ALB     12.877           57.2
4    United Arab Emirates         ARE     11.044           88.0
..                    ...         ...        ...            ...
190           Yemen, Rep.         YEM     32.947           20.0
191          South Africa         ZAF     20.850           46.5
192      Congo, Dem. Rep.         COD     42.394            2.2
193                Zambia         ZMB     40.471           15.4
194              Zimbabwe         ZWE     35.715           18.5

             IncomeGroup
0            High income
1             Low income
2    Upper middle income
3    Upper middle income
4            High income
..                   ...
190  Lower middle income
191  Upper middle income
192           Low income
193  Lower middle income
194           Low income

[195 rows x 5 columns]>
```

In [9]:

```
ds.head()
```

Out[9]:

	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 [10]:

```
ds.tail()
```

Out[10]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
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

In [12]:

```
ds.BirthRate*ds.InternetUsers
```

Out[12]:

```
0      808.2516
1      207.9927
2      878.3135
3      736.5644
4      971.8720
         ...
190    658.9400
191    969.5250
192     93.2668
193    623.2534
194    660.7275
Length: 195, dtype: float64
```

In [13]:

```
ds.BirthRate+ds.InternetUsers
```

Out[13]:

```
0      89.144
1      41.153
2      65.085
3      70.077
4      99.044
        ...
190    52.947
191    67.350
192    44.594
193    55.871
194    54.215
Length: 195, dtype: float64
```

In [14]:

```
ds.BirthRate-ds.InternetUsers
```

Out[14]:

```
0      -68.656
1       29.353
2       26.885
3      -44.323
4      -76.956
         ...
190     12.947
191    -25.650
192     40.194
193     25.071
194     17.215
Length: 195, dtype: float64
```

In [16]:

```
ds['myCalc'] = ds.BirthRate * ds.InternetUsers
```

In [17]:

```
ds. head()
```

Out[17]:

	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

In [18]:

```
ds['avarage'] = ds.BirthRate * ds.InternetUsers
```

In [19]:

```
ds.head()
```

Out[19]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	myCalc	avarage
0	Aruba	ABW	10.244	78.9	High income	808.2516	808.2516
1	Afghanistan	AFG	35.253	5.9	Low income	207.9927	207.9927
2	Angola	AGO	45.985	19.1	Upper middle income	878.3135	878.3135
3	Albania	ALB	12.877	57.2	Upper middle income	736.5644	736.5644
4	United Arab Emirates	ARE	11.044	88.0	High income	971.8720	971.8720

In [46]:

```
ds.drop('myCalc',axis = 1)
```

```
-------------------------------------------------------------------------
--
KeyError                                  Traceback (most recent call las
t)
Cell In[46], line 1
----> 1 ds.drop('myCalc',axis = 1)

File ~\anaconda3\lib\site-packages\pandas\util\_decorators.py:331, in dep
recate_nonkeyword_arguments.<locals>.decorate.<locals>.wrapper(*args, **k
wargs)
    325 if len(args) > num_allow_args:
    326     warnings.warn(
    327         msg.format(arguments=_format_argument_list(allow_args)),
    328         FutureWarning,
    329         stacklevel=find_stack_level(),
    330     )
--> 331 return func(*args, **kwargs)

File ~\anaconda3\lib\site-packages\pandas\core\frame.py:5399, in DataFram
e.drop(self, labels, axis, index, columns, level, inplace, errors)
   5251 @deprecate_nonkeyword_arguments(version=None, allowed_args=["sel
f", "labels"])
   5252 def drop(  # type: ignore[override]
   5253     self,
   (...)
   5260     errors: IgnoreRaise = "raise",
   5261 ) -> DataFrame | None:
   5262     """
   5263     Drop specified labels from rows or columns.
   5264
   (...)
   5397             weight  1.0     0.8
   5398     """
-> 5399     return super().drop(
   5400         labels=labels,
   5401         axis=axis,
   5402         index=index,
   5403         columns=columns,
   5404         level=level,
   5405         inplace=inplace,
   5406         errors=errors,
   5407     )

File ~\anaconda3\lib\site-packages\pandas\util\_decorators.py:331, in dep
recate_nonkeyword_arguments.<locals>.decorate.<locals>.wrapper(*args, **k
wargs)
    325 if len(args) > num_allow_args:
    326     warnings.warn(
    327         msg.format(arguments=_format_argument_list(allow_args)),
    328         FutureWarning,
    329         stacklevel=find_stack_level(),
    330     )
--> 331 return func(*args, **kwargs)

File ~\anaconda3\lib\site-packages\pandas\core\generic.py:4505, in NDFram
e.drop(self, labels, axis, index, columns, level, inplace, errors)
   4503 for axis, labels in axes.items():
   4504     if labels is not None:
-> 4505         obj = obj._drop_axis(labels, axis, level=level, errors=er
rors)
   4507 if inplace:
```

```
   4508     self._update_inplace(obj)

File ~\anaconda3\lib\site-packages\pandas\core\generic.py:4546, in NDFrame._drop_axis(self, labels, axis, level, errors, only_slice)
   4544         new_axis = axis.drop(labels, level=level, errors=errors)
   4545     else:
-> 4546         new_axis = axis.drop(labels, errors=errors)
   4547     indexer = axis.get_indexer(new_axis)
   4549 # Case for non-unique axis
   4550 else:

File ~\anaconda3\lib\site-packages\pandas\core\indexes\base.py:6934, in Index.drop(self, labels, errors)
   6932 if mask.any():
   6933     if errors != "ignore":
-> 6934         raise KeyError(f"{list(labels[mask])} not found in axis")
   6935     indexer = indexer[~mask]
   6936 return self.delete(indexer)

KeyError: "['myCalc'] not found in axis"
```

In [24]:

```
ds.drop('myCalc',axis = 2)
```

```
---------------------------------------------------------------------------
--
KeyError                                  Traceback (most recent call las
t)
File ~\anaconda3\lib\site-packages\pandas\core\generic.py:554, in NDFram
e._get_axis_number(cls, axis)
    553 try:
--> 554     return cls._AXIS_TO_AXIS_NUMBER[axis]
    555 except KeyError:

KeyError: 2

During handling of the above exception, another exception occurred:

ValueError                                Traceback (most recent call las
t)
Cell In[24], line 1
----> 1 ds.drop('myCalc',axis = 2)

File ~\anaconda3\lib\site-packages\pandas\util\_decorators.py:331, in dep
recate_nonkeyword_arguments.<locals>.decorate.<locals>.wrapper(*args, **k
wargs)
    325 if len(args) > num_allow_args:
    326     warnings.warn(
    327         msg.format(arguments=_format_argument_list(allow_args)),
    328         FutureWarning,
    329         stacklevel=find_stack_level(),
    330     )
--> 331 return func(*args, **kwargs)

File ~\anaconda3\lib\site-packages\pandas\core\frame.py:5399, in DataFram
e.drop(self, labels, axis, index, columns, level, inplace, errors)
   5251 @deprecate_nonkeyword_arguments(version=None, allowed_args=["sel
f", "labels"])
   5252 def drop(  # type: ignore[override]
   5253     self,
   (...)
   5260     errors: IgnoreRaise = "raise",
   5261 ) -> DataFrame | None:
   5262     """
   5263     Drop specified labels from rows or columns.
   5264
   (...)
   5397             weight  1.0     0.8
   5398     """
-> 5399     return super().drop(
   5400         labels=labels,
   5401         axis=axis,
   5402         index=index,
   5403         columns=columns,
   5404         level=level,
   5405         inplace=inplace,
   5406         errors=errors,
   5407     )

File ~\anaconda3\lib\site-packages\pandas\util\_decorators.py:331, in dep
recate_nonkeyword_arguments.<locals>.decorate.<locals>.wrapper(*args, **k
wargs)
    325 if len(args) > num_allow_args:
    326     warnings.warn(
    327         msg.format(arguments=_format_argument_list(allow_args)),
    328         FutureWarning,
    329         stacklevel=find_stack_level(),
    330     )
--> 331 return func(*args, **kwargs)

File ~\anaconda3\lib\site-packages\pandas\core\generic.py:4492, in NDFram
e.drop(self, labels, axis, index, columns, level, inplace, errors)
   4490     if index is not None or columns is not None:
   4491         raise ValueError("Cannot specify both 'labels' and 'inde
x'/'columns'")
-> 4492     axis_name = self._get_axis_name(axis)
   4493     axes = {axis_name: labels}
   4494 elif index is not None or columns is not None:

File ~\anaconda3\lib\site-packages\pandas\core\generic.py:561, in NDFram
e._get_axis_name(cls, axis)
    558 @final
    559 @classmethod
    560 def _get_axis_name(cls, axis: Axis) -> str:
--> 561     axis_number = cls._get_axis_number(axis)
    562     return cls._AXIS_ORDERS[axis_number]

File ~\anaconda3\lib\site-packages\pandas\core\generic.py:556, in NDFram
e._get_axis_number(cls, axis)
    554     return cls._AXIS_TO_AXIS_NUMBER[axis]
    555 except KeyError:
--> 556     raise ValueError(f"No axis named {axis} for object type {cls.
__name__}")

ValueError: No axis named 2 for object type DataFrame
```

In [26]:

```
ds = ds.drop('myCalc',axis = 1)
```

In [27]:

```
ds
```

Out[27]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
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 [30]:

```
ds.columns[2]
```

Out[30]:

```
'BirthRate'
```

In [31]:

```
ds.columns[3]
```

Out[31]:

```
'InternetUsers'
```

In [34]:

```
ds.columns[4]
```

Out[34]:

```
'IncomeGroup'
```

In [35]:

```
ds.InternetUsers<2
```

Out[35]:

```
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 [36]:

```
Filter = ds.InternetUsers < 2
```

In [37]:

```
Filter
```

Out[37]:

```
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 [38]:

```
type (ds.InternetUsers < 2)
```

Out[38]:

```
pandas.core.series.Series
```

In [39]:

```
ds[3:8]
```

Out[39]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
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
5	Argentina	ARG	17.716	59.9	High income	1061.1884
6	Armenia	ARM	13.308	41.9	Lower middle income	557.6052
7	Antigua and Barbuda	ATG	16.447	63.4	High income	1042.7398

In [40]:

```
ds[30:40]
```

Out[40]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
30	Canada	CAN	10.900	85.80	High income	935.2200
31	Switzerland	CHE	10.200	86.34	High income	880.6680
32	Chile	CHL	13.385	66.50	High income	890.1025
33	China	CHN	12.100	45.80	Upper middle income	554.1800
34	Cote d'Ivoire	CIV	37.320	8.40	Lower middle income	313.4880
35	Cameroon	CMR	37.236	6.40	Lower middle income	238.3104
36	Congo, Rep.	COG	37.011	6.60	Lower middle income	244.2726
37	Colombia	COL	16.076	51.70	Upper middle income	831.1292
38	Comoros	COM	34.326	6.50	Low income	223.1190
39	Cabo Verde	CPV	21.625	37.50	Lower middle income	810.9375

In [41]:

```
ds[10:10]
```

Out[41]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage

In [42]:

```
ds[0:10]
```

Out[42]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
0	Aruba	ABW	10.244	78.9000	High income	808.25160
1	Afghanistan	AFG	35.253	5.9000	Low income	207.99270
2	Angola	AGO	45.985	19.1000	Upper middle income	878.31350
3	Albania	ALB	12.877	57.2000	Upper middle income	736.56440
4	United Arab Emirates	ARE	11.044	88.0000	High income	971.87200
5	Argentina	ARG	17.716	59.9000	High income	1061.18840
6	Armenia	ARM	13.308	41.9000	Lower middle income	557.60520
7	Antigua and Barbuda	ATG	16.447	63.4000	High income	1042.73980
8	Australia	AUS	13.200	83.0000	High income	1095.60000
9	Austria	AUT	9.400	80.6188	High income	757.81672

In [44]:

```
ds[Filter]
```

Out[44]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
11	Burundi	BDI	44.151	1.3	Low income	57.3963
52	Eritrea	ERI	34.800	0.9	Low income	31.3200
55	Ethiopia	ETH	32.925	1.9	Low income	62.5575
64	Guinea	GIN	37.337	1.6	Low income	59.7392
117	Myanmar	MMR	18.119	1.6	Lower middle income	28.9904
127	Niger	NER	49.661	1.7	Low income	84.4237
154	Sierra Leone	SLE	36.729	1.7	Low income	62.4393
156	Somalia	SOM	43.891	1.5	Low income	65.8365
172	Timor-Leste	TLS	35.755	1.1	Lower middle income	39.3305

In [49]:

```
ds.drop('avarage',axis = 1)
```

Out[49]:

	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 [50]:

```
ds.BirthRate>40
```

Out[50]:

```
0      False
1      False
2       True
3      False
4      False
       ...
190    False
191    False
192     True
193     True
194    False
Name: BirthRate, Length: 195, dtype: bool
```

In [51]:

```
Filter2 = ds.BirthRate>40
```

In [52]:

```
Filter2
```

Out[52]:

```
0      False
1      False
2       True
3      False
4      False
       ...  
190    False
191    False
192     True
193     True
194    False
Name: BirthRate, Length: 195, dtype: bool
```

In [53]:

```
ds[Filter2]
```

Out[53]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
2	Angola	AGO	45.985	19.1	Upper middle income	878.3135
11	Burundi	BDI	44.151	1.3	Low income	57.3963
14	Burkina Faso	BFA	40.551	9.1	Low income	369.0141
65	Gambia, The	GMB	42.525	14.0	Low income	595.3500
115	Mali	MLI	44.138	3.5	Low income	154.4830
127	Niger	NER	49.661	1.7	Low income	84.4237
128	Nigeria	NGA	40.045	38.0	Lower middle income	1521.7100
156	Somalia	SOM	43.891	1.5	Low income	65.8365
167	Chad	TCD	45.745	2.3	Low income	105.2135
178	Uganda	UGA	43.474	16.2	Low income	704.2788
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

In [54]:

```
ds.drop('avarage',axis = 1)
```

Out[54]:

	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 [55]:

```
Filter & Filter2
```

Out[55]:

```
0      False
1      False
2      False
3      False
4      False
       ...
190    False
191    False
192    False
193    False
194    False
Length: 195, dtype: bool
```

In [56]:

```
ds[Filter & Filter2]
```

Out[56]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
11	Burundi	BDI	44.151	1.3	Low income	57.3963
127	Niger	NER	49.661	1.7	Low income	84.4237
156	Somalia	SOM	43.891	1.5	Low income	65.8365

In [57]:

```
ds[(ds.BirthRate > 40) & (ds.InternetUsers < 2)]
```

Out[57]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
11	Burundi	BDI	44.151	1.3	Low income	57.3963
127	Niger	NER	49.661	1.7	Low income	84.4237
156	Somalia	SOM	43.891	1.5	Low income	65.8365

In [58]:

```
ds.head()
```

Out[58]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
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

In [63]:

```
ds.head()
```

Out[63]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
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

In [64]:

```
ds.head
```

Out[64]:

```
<bound method NDFrame.head of                 CountryName CountryCode  Birt
hRate  InternetUsers  \
0                     Aruba         ABW     10.244           78.9
1               Afghanistan         AFG     35.253            5.9
2                    Angola         AGO     45.985           19.1
3                   Albania         ALB     12.877           57.2
4      United Arab Emirates         ARE     11.044           88.0
..                      ...         ...        ...            ...
190             Yemen, Rep.         YEM     32.947           20.0
191            South Africa         ZAF     20.850           46.5
192        Congo, Dem. Rep.         COD     42.394            2.2
193                  Zambia         ZMB     40.471           15.4
194                Zimbabwe         ZWE     35.715           18.5

             IncomeGroup   avarage
0            High income  808.2516
1             Low income  207.9927
2    Upper middle income  878.3135
3    Upper middle income  736.5644
4            High income  971.8720
..                   ...       ...
190  Lower middle income  658.9400
191  Upper middle income  969.5250
192           Low income   93.2668
193  Lower middle income  623.2534
194           Low income  660.7275

[195 rows x 6 columns]>
```

In [68]:

```
ds[(ds.BirthRate > 40) & (ds.InternetUsers < 2)]
```

Out[68]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
11	Burundi	BDI	44.151	1.3	Low income	57.3963
127	Niger	NER	49.661	1.7	Low income	84.4237
156	Somalia	SOM	43.891	1.5	Low income	65.8365

In [69]:

```
ds.head()
```

Out[69]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
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

In [71]:

```
ds[ds.IncomeGroup == 'Low income']
```

Out[71]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
1	Afghanistan	AFG	35.253	5.90	Low income	207.99270
11	Burundi	BDI	44.151	1.30	Low income	57.39630
13	Benin	BEN	36.440	4.90	Low income	178.55600
14	Burkina Faso	BFA	40.551	9.10	Low income	369.01410
29	Central African Republic	CAF	34.076	3.50	Low income	119.26600
38	Comoros	COM	34.326	6.50	Low income	223.11900
52	Eritrea	ERI	34.800	0.90	Low income	31.32000
55	Ethiopia	ETH	32.925	1.90	Low income	62.55750
64	Guinea	GIN	37.337	1.60	Low income	59.73920
65	Gambia, The	GMB	42.525	14.00	Low income	595.35000
66	Guinea-Bissau	GNB	37.503	3.10	Low income	116.25930
77	Haiti	HTI	25.345	10.60	Low income	268.65700
93	Cambodia	KHM	24.462	6.80	Low income	166.34160
99	Liberia	LBR	35.521	3.20	Low income	113.66720
111	Madagascar	MDG	34.686	3.00	Low income	104.05800
115	Mali	MLI	44.138	3.50	Low income	154.48300
120	Mozambique	MOZ	39.705	5.40	Low income	214.40700
123	Malawi	MWI	39.459	5.05	Low income	199.26795
127	Niger	NER	49.661	1.70	Low income	84.42370
132	Nepal	NPL	20.923	13.30	Low income	278.27590
148	Rwanda	RWA	32.689	9.00	Low income	294.20100
154	Sierra Leone	SLE	36.729	1.70	Low income	62.43930
156	Somalia	SOM	43.891	1.50	Low income	65.83650
158	South Sudan	SSD	37.126	14.10	Low income	523.47660
167	Chad	TCD	45.745	2.30	Low income	105.21350
168	Togo	TGO	36.080	4.50	Low income	162.36000
177	Tanzania	TZA	39.518	4.40	Low income	173.87920
178	Uganda	UGA	43.474	16.20	Low income	704.27880
192	Congo, Dem. Rep.	COD	42.394	2.20	Low income	93.26680
194	Zimbabwe	ZWE	35.715	18.50	Low income	660.72750

In [72]:

```
ds.IncomeGroup.unique()
```

Out[72]:

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

In [76]:

```
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
plt.rcParams['figure.figsize'] = 8,4
```

In [73]:

```
ds.head()
```

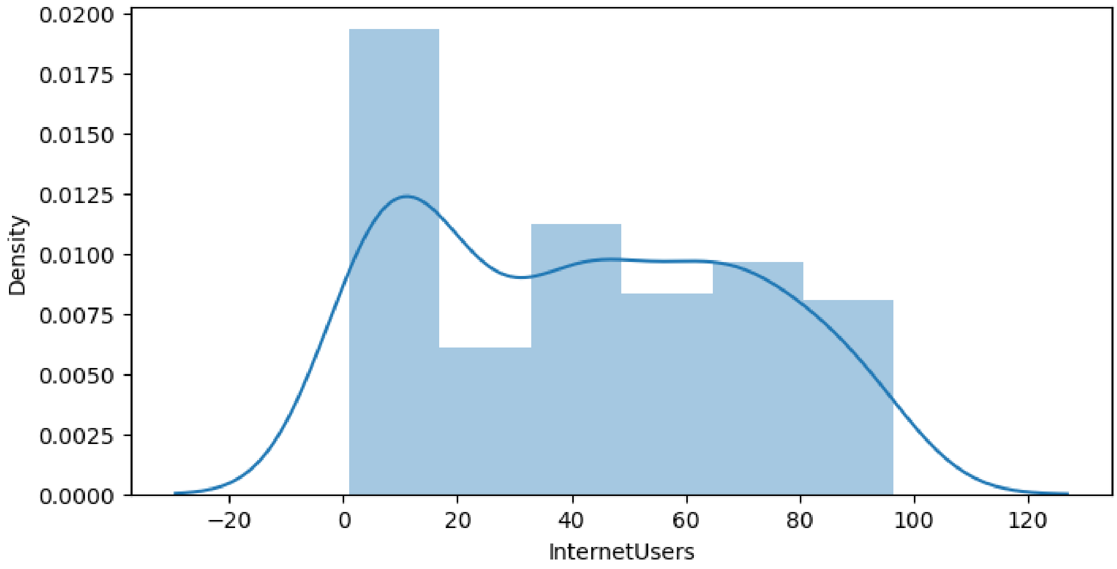
Out[73]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup	avarage
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

In [77]:

```
vis1 = sns.distplot(ds["InternetUsers"])
```

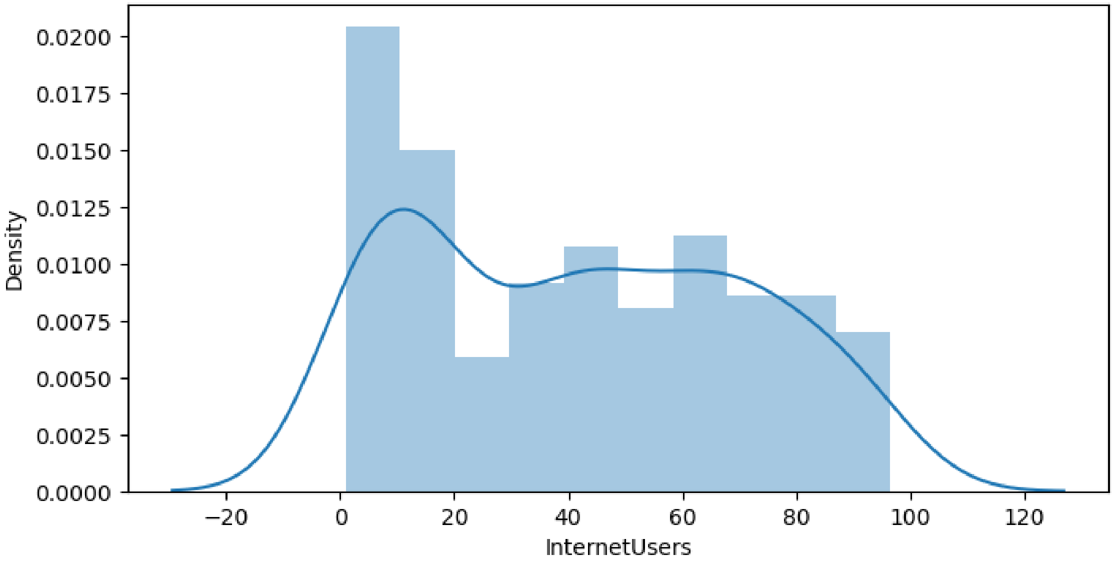
```
C:\Users\LENOVO\AppData\Local\Temp\ipykernel_22984\2341173261.py:1: UserW
arning:

`distplot` is a deprecated function and will be removed in seaborn v0.14.
0.

Please adapt your code to use either `displot` (a figure-level function w
ith
similar flexibility) or `histplot` (an axes-level function for histogram
s).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751 (http
s://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751)

  vis1 = sns.distplot(ds["InternetUsers"])
```



In [78]:

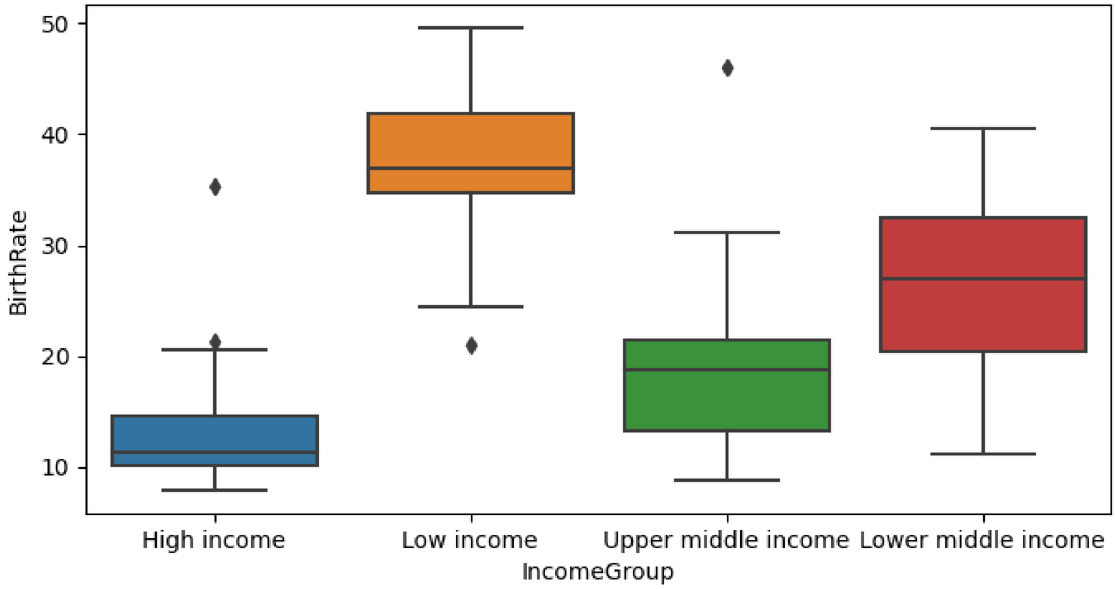
```
vis1 = sns.distplot(ds["InternetUsers"], bins=10)
```

```
C:\Users\LENOVO\AppData\Local\Temp\ipykernel_22984\3397279143.py:1: UserW
arning:

`distplot` is a deprecated function and will be removed in seaborn v0.14.
0.

Please adapt your code to use either `displot` (a figure-level function w
ith
similar flexibility) or `histplot` (an axes-level function for histogram
s).

For a guide to updating your code to use the new functions, please see
https://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751 (http
s://gist.github.com/mwaskom/de44147ed2974457ad6372750bbe5751)

  vis1 = sns.distplot(ds["InternetUsers"], bins=10)
```



In [79]:

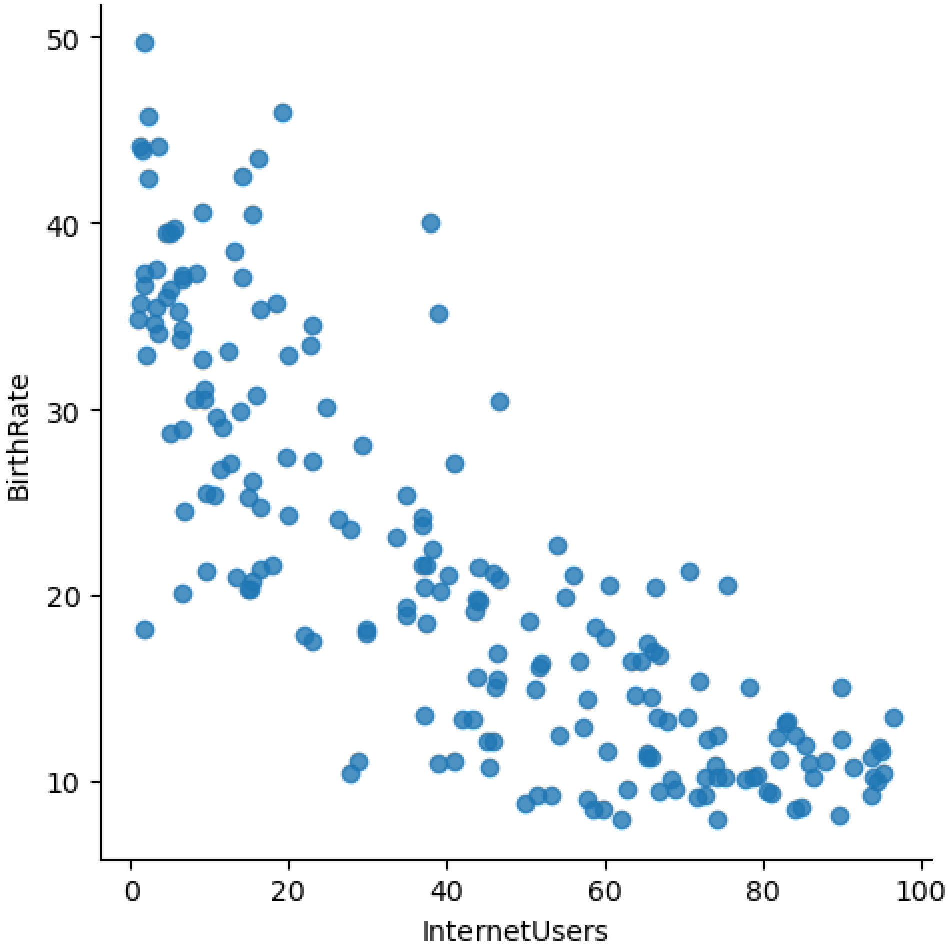
```
vis2 = sns.boxplot(data = ds, x="IncomeGroup", y='BirthRate')
```



visualizing with seaborn

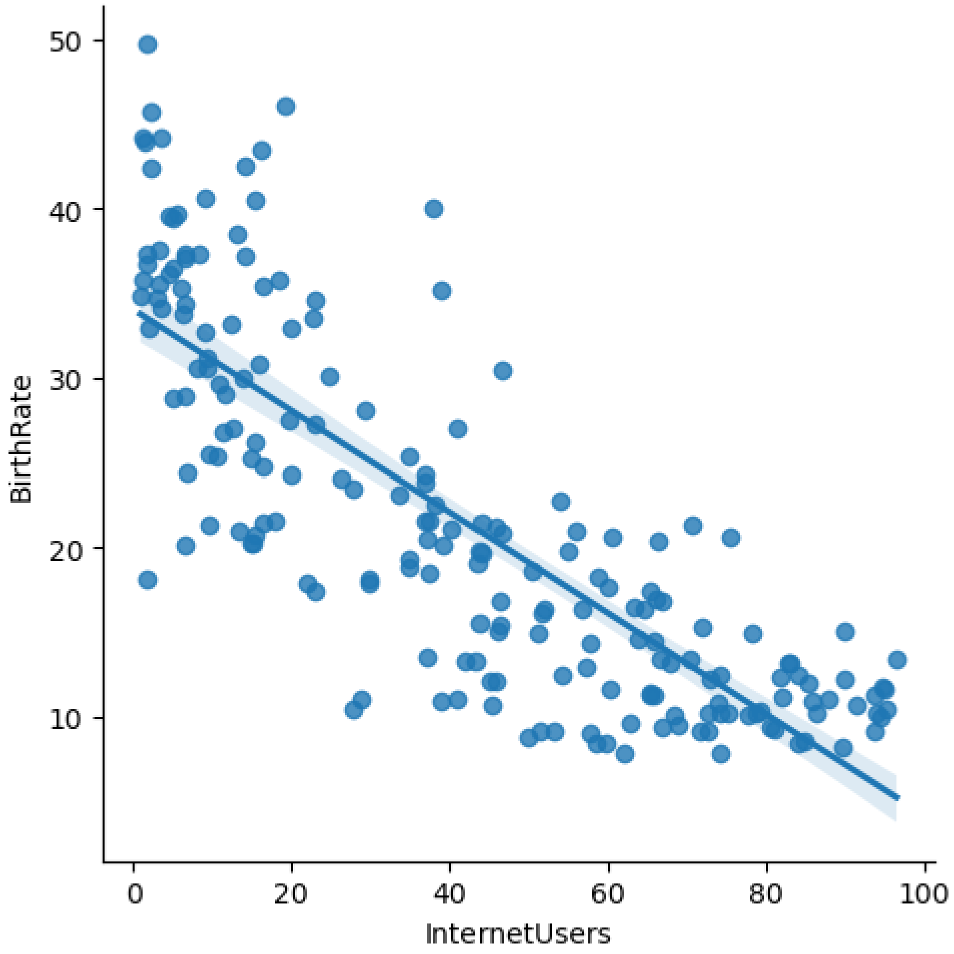
In [80]:

```
vis3 = sns.lmplot(data = ds,x = 'InternetUsers', y = 'BirthRate', fit_reg = False)
```



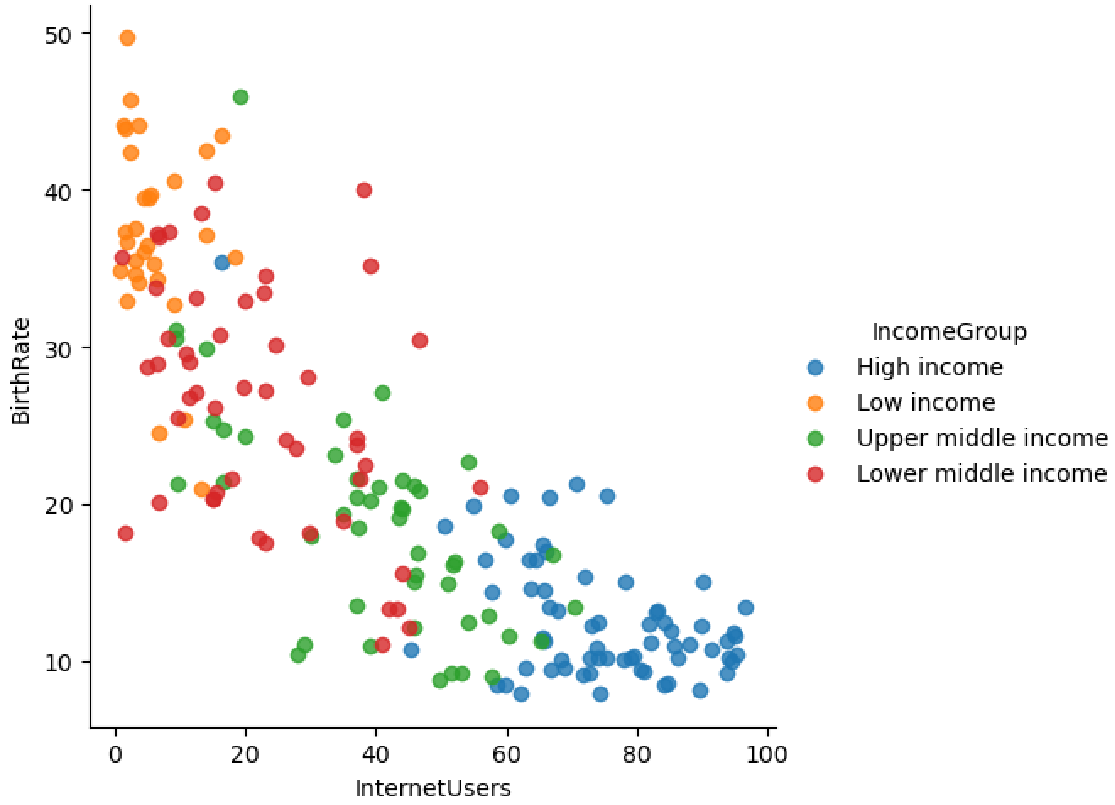
In [81]:

```
vis4 = sns.lmplot(data = ds,x = 'InternetUsers', y = 'BirthRate')
```



In [82]:

```
vis5 = sns.lmplot(data = ds,x = 'InternetUsers', y = 'BirthRate',
                  fit_reg = False,hue = 'IncomeGroup')
```



In [86]:

```
  Cell In[86], line 1
    vis5 = sns.xkcd_rgb lmplot(data = ds,x = 'InternetUsers', y = 'BirthR
ate',
                        ^
SyntaxError: invalid syntax
```

In [ ]: