Dataframe IBM CLASS

In [4]:

```
!pip install pandas

```

```
Requirement already satisfied: pandas in ./anaconda3/lib/python3.10/si
te-packages (1.5.3)
Requirement already satisfied: python-dateutil>=2.8.1 in ./anaconda3/l
ib/python3.10/site-packages (from pandas) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in ./anaconda3/lib/python
3.10/site-packages (from pandas) (2022.7)
Requirement already satisfied: numpy>=1.21.0 in ./anaconda3/lib/python
3.10/site-packages (from pandas) (1.23.5)
Requirement already satisfied: six>=1.5 in ./anaconda3/lib/python3.10/
site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
```

In [9]:

```
import pandas as pd
```

In [54]:

```
df=pd.read_csv("/Users/myyntiimac/Desktop/P4-Demographic-Data (1).csv")
df.head()
```

Out[54]:

	Country Name	Country Code	Birth rate	Internet users	Income Group
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 [12]:

```
df.shape
```

Out[12]:

```
(195, 5)
```

In [13]:

```
#other method
import os

```

In [14]:

```
print(os.getcwd())
```

```
/Users/myyntiimac
```

In [ ]:

```
# mention where your file is located
#os,chdir(/Users/myyntiimac/Desktop)
#then any file of csv in  dsktop , u can acces
#df=pd.read_csv("Demographic data")
```

In [ ]:

```
# Exploring the data
```

In [15]:

```
len(df)
```

Out[15]:

```
195
```

In [16]:

```
df.columns
```

Out[16]:

```
Index(['Country Name', 'Country Code', 'Birth rate', 'Internet users',
       'Income Group'],
      dtype='object')
```

In [17]:

```
len(df.columns)
```

Out[17]:

```
5
```

In [18]:

```
df.head(15)
```

Out[18]:

	Country Name	Country Code	Birth rate	Internet users	Income Group
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
10	Azerbaijan	AZE	18.300	58.7000	Upper middle income
11	Burundi	BDI	44.151	1.3000	Low income
12	Belgium	BEL	11.200	82.1702	High income
13	Benin	BEN	36.440	4.9000	Low income
14	Burkina Faso	BFA	40.551	9.1000	Low income

In [20]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 195 entries, 0 to 194
Data columns (total 5 columns):
 #   Column          Non-Null Count  Dtype  
---  ------          --------------  -----  
 0   Country Name    195 non-null    object 
 1   Country Code    195 non-null    object 
 2   Birth rate      195 non-null    float64
 3   Internet users  195 non-null    float64
 4   Income Group    195 non-null    object 
dtypes: float64(2), object(3)
memory usage: 7.7+ KB
```

In [21]:

```
df.describe()
```

Out[21]:

	Birth rate	Internet users
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 [22]:

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

Out[22]:

	count	mean	std	min	25%	50%	75%	max
Birth rate	195.0	21.469928	10.605467	7.9	12.1205	19.68	29.7595	49.6610
Internet users	195.0	42.076471	29.030788	0.9	14.5200	41.00	66.2250	96.5468

In [57]:

```
df.columns=['CountryName', 'CountryCode', 'Birthrate', 'Internetusers',
       'IncomeGroup']
df.head()
```

Out[57]:

	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 [ ]:

```
# subsetting
#subsetting by rows
#subsetting by columns
#Combining two
```

In [58]:

```
df[15:30]
```

Out[58]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
15	Bangladesh	BGD	20.142	6.63000	Lower middle income
16	Bulgaria	BGR	9.200	53.06150	Upper middle income
17	Bahrain	BHR	15.040	90.00004	High income
18	Bahamas, The	BHS	15.339	72.00000	High income
19	Bosnia and Herzegovina	BIH	9.062	57.79000	Upper middle income
20	Belarus	BLR	12.500	54.17000	Upper middle income
21	Belize	BLZ	23.092	33.60000	Upper middle income
22	Bermuda	BMU	10.400	95.30000	High income
23	Bolivia	BOL	24.236	36.94000	Lower middle income
24	Brazil	BRA	14.931	51.04000	Upper middle income
25	Barbados	BRB	12.188	73.00000	High income
26	Brunei Darussalam	BRN	16.405	64.50000	High income
27	Bhutan	BTN	18.134	29.90000	Lower middle income
28	Botswana	BWA	25.267	15.00000	Upper middle income
29	Central African Republic	CAF	34.076	3.50000	Low income

In [59]:

```
df[130:]
```

Out[59]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
130	Netherlands	NLD	10.200	93.9564	High income
131	Norway	NOR	11.600	95.0534	High income
132	Nepal	NPL	20.923	13.3000	Low income
133	New Zealand	NZL	13.120	82.7800	High income
134	Oman	OMN	20.419	66.4500	High 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

65 rows × 5 columns

In [32]:

```
1 df[:50]
```

Out[32]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
0	Aruba	ABW	10.244	78.90000	High income
1	Afghanistan	AFG	35.253	5.90000	Low income
2	Angola	AGO	45.985	19.10000	Upper middle income
3	Albania	ALB	12.877	57.20000	Upper middle income
4	United Arab Emirates	ARE	11.044	88.00000	High income
5	Argentina	ARG	17.716	59.90000	High income
6	Armenia	ARM	13.308	41.90000	Lower middle income
7	Antigua and Barbuda	ATG	16.447	63.40000	High income
8	Australia	AUS	13.200	83.00000	High income
9	Austria	AUT	9.400	80.61880	High income
10	Azerbaijan	AZE	18.300	58.70000	Upper middle income
11	Burundi	BDI	44.151	1.30000	Low income
12	Belgium	BEL	11.200	82.17020	High income
13	Benin	BEN	36.440	4.90000	Low income
14	Burkina Faso	BFA	40.551	9.10000	Low income
15	Bangladesh	BGD	20.142	6.63000	Lower middle income
16	Bulgaria	BGR	9.200	53.06150	Upper middle income
17	Bahrain	BHR	15.040	90.00004	High income
18	Bahamas, The	BHS	15.339	72.00000	High income
19	Bosnia and Herzegovina	BIH	9.062	57.79000	Upper middle income
20	Belarus	BLR	12.500	54.17000	Upper middle income
21	Belize	BLZ	23.092	33.60000	Upper middle income
22	Bermuda	BMU	10.400	95.30000	High income
23	Bolivia	BOL	24.236	36.94000	Lower middle income
24	Brazil	BRA	14.931	51.04000	Upper middle income
25	Barbados	BRB	12.188	73.00000	High income
26	Brunei Darussalam	BRN	16.405	64.50000	High income
27	Bhutan	BTN	18.134	29.90000	Lower middle income
28	Botswana	BWA	25.267	15.00000	Upper middle income
29	Central African Republic	CAF	34.076	3.50000	Low income
30	Canada	CAN	10.900	85.80000	High income
31	Switzerland	CHE	10.200	86.34000	High income
32	Chile	CHL	13.385	66.50000	High income
33	China	CHN	12.100	45.80000	Upper middle income
34	Cote d'Ivoire	CIV	37.320	8.40000	Lower middle income
35	Cameroon	CMR	37.236	6.40000	Lower middle income

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
36	Congo, Rep.	COG	37.011	6.60000	Lower middle income
37	Colombia	COL	16.076	51.70000	Upper middle income
38	Comoros	COM	34.326	6.50000	Low income
39	Cabo Verde	CPV	21.625	37.50000	Lower middle income
40	Costa Rica	CRI	15.022	45.96000	Upper middle income
41	Cuba	CUB	10.400	27.93000	Upper middle income
42	Cayman Islands	CYM	12.500	74.10000	High income
43	Cyprus	CYP	11.436	65.45480	High income
44	Czech Republic	CZE	10.200	74.11040	High income
45	Germany	DEU	8.500	84.17000	High income
46	Djibouti	DJI	25.486	9.50000	Lower middle income
47	Denmark	DNK	10.000	94.62970	High income
48	Dominican Republic	DOM	21.198	45.90000	Upper middle income
49	Algeria	DZA	24.738	16.50000	Upper middle income

In [60]:

```
#Reverse the df
df[::-1]
```

Out[60]:

	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 [36]:

```
#If you want to change this df
t=df[::-1]
t.head()
```

Out[36]:

	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

In [37]:

```
df[10:100:20]
```

Out[37]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
10	Azerbaijan	AZE	18.30	58.700000	Upper middle income
30	Canada	CAN	10.90	85.800000	High income
50	Ecuador	ECU	21.07	40.353684	Upper middle income
70	Greenland	GRL	14.50	65.800000	High income
90	Kazakhstan	KAZ	22.73	54.000000	Upper middle income

In [38]:

```
df[::20]
```

Out[38]:

	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 [41]:

```
#columns
df[["IncomeGroup","Birthrate"]]
```

Out[41]:

	IncomeGroup	Birthrate
0	High income	10.244
1	Low income	35.253
2	Upper middle income	45.985
3	Upper middle income	12.877
4	High income	11.044
...	...	...
190	Lower middle income	32.947
191	Upper middle income	20.850
192	Low income	42.394
193	Lower middle income	40.471
194	Low income	35.715

195 rows × 2 columns

In [42]:

```
#two column
df["IncomeGroup"]
```

Out[42]:

```
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
Name: IncomeGroup, Length: 195, dtype: object
```

In [43]:

```
df.CountryName
```

Out[43]:

```
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 [44]:

```
# creating a dataframe by specifying rows and column
df[4:9][["IncomeGroup","Birthrate"]]
```

Out[44]:

	IncomeGroup	Birthrate
4	High income	11.044
5	High income	17.716
6	Lower middle income	13.308
7	High income	16.447
8	High income	13.200

In [45]:

```
#Basic operation in python
#Mathmatical operations
result=df.Internetusers*100
result

```

Out[45]:

```
0      7890.0
1       590.0
2      1910.0
3      5720.0
4      8800.0
        ...
190    2000.0
191    4650.0
192     220.0
193    1540.0
194    1850.0
Name: Internetusers, Length: 195, dtype: float64
```

In [46]:

```
result1=df.Internetusers*df.Birthrate
result1
```

Out[46]:

```
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 [47]:

```
#Inserting new column in df
df["inger"]=df.Internetusers*df.Birthrate
df.head()
```

Out[47]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup	inger
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 [53]:

```
#Removing the column
df.drop("inger",axis=1)

```

Out[53]:

	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 [ ]:

```
#Filtering a dataframe
```

In [61]:

```
df.head()
```

Out[61]:

	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 [63]:

```
df.Internetusers>2
```

Out[63]:

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

In [64]:

```
df.Internetusers<2#which rows of column this condition met?
```

Out[64]:

```
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 [65]:

```
t=df.Internetusers<2
t
```

Out[65]:

```
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 [66]:

```
1 df[5:9]
```

Out[66]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
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
8	Australia	AUS	13.200	83.0	High income

In [67]:

```
1 df[30:80]
```

Out[67]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
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
51	Egypt, Arab Rep.	EGY	28.032	29.400000	Lower middle income
52	Eritrea	ERI	34.800	0.900000	Low income
53	Spain	ESP	9.100	71.635000	High income
54	Estonia	EST	10.300	79.400000	High income
55	Ethiopia	ETH	32.925	1.900000	Low income
56	Finland	FIN	10.700	91.514400	High income
57	Fiji	FJI	20.463	37.100000	Upper middle income
58	France	FRA	12.300	81.919800	High income
59	Micronesia, Fed. Sts.	FSM	23.511	27.800000	Lower middle income
60	Gabon	GAB	30.555	9.200000	Upper middle income
61	United Kingdom	GBR	12.200	89.844100	High income
62	Georgia	GEO	13.332	43.300000	Lower middle income
63	Ghana	GHA	33.131	12.300000	Lower middle income
64	Guinea	GIN	37.337	1.600000	Low income
65	Gambia, The	GMB	42.525	14.000000	Low income

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
66	Guinea-Bissau	GNB	37.503	3.100000	Low income
67	Equatorial Guinea	GNQ	35.362	16.400000	High income
68	Greece	GRC	8.500	59.866300	High income
69	Grenada	GRD	19.334	35.000000	Upper middle income
70	Greenland	GRL	14.500	65.800000	High income
71	Guatemala	GTM	27.465	19.700000	Lower middle income
72	Guam	GUM	17.389	65.400000	High income
73	Guyana	GUY	18.885	35.000000	Lower middle income
74	Hong Kong SAR, China	HKG	7.900	74.200000	High income
75	Honduras	HND	21.593	17.800000	Lower middle income
76	Croatia	HRV	9.400	66.747600	High income
77	Haiti	HTI	25.345	10.600000	Low income
78	Hungary	HUN	9.200	72.643900	High income
79	Indonesia	IDN	20.297	14.940000	Lower middle income

In [68]:

```
1 df[t]# its showing the internet user less than 2
```

Out[68]:

	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 [69]:

```
1 df.Birthrate>30
```

Out[69]:

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

In [70]:

```
1 y=df.Birthrate>30
2 y
```

Out[70]:

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

In [71]:

```
1 df[y]
```

Out[71]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
1	Afghanistan	AFG	35.253	5.90	Low income
2	Angola	AGO	45.985	19.10	Upper middle 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
34	Cote d'Ivoire	CIV	37.320	8.40	Lower middle income
35	Cameroon	CMR	37.236	6.40	Lower middle income
36	Congo, Rep.	COG	37.011	6.60	Lower middle 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
60	Gabon	GAB	30.555	9.20	Upper middle income
63	Ghana	GHA	33.131	12.30	Lower middle 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
67	Equatorial Guinea	GNQ	35.362	16.40	High income
83	Iraq	IRQ	31.093	9.20	Upper middle income
91	Kenya	KEN	35.194	39.00	Lower middle 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
121	Mauritania	MRT	33.801	6.20	Lower middle income
123	Malawi	MWI	39.459	5.05	Low income
127	Niger	NER	49.661	1.70	Low income
128	Nigeria	NGA	40.045	38.00	Lower middle income
148	Rwanda	RWA	32.689	9.00	Low income
150	Sudan	SDN	33.477	22.70	Lower middle income
151	Senegal	SEN	38.533	13.10	Lower middle income
153	Solomon Islands	SLB	30.578	8.00	Lower middle 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
159	Sao Tome and Principe	STP	34.537	23.00	Lower middle income

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
164	Swaziland	SWZ	30.093	24.70	Lower middle income
167	Chad	TCD	45.745	2.30	Low income
168	Togo	TGO	36.080	4.50	Low income
170	Tajikistan	TJK	30.792	16.00	Lower middle income
172	Timor-Leste	TLS	35.755	1.10	Lower middle income
177	Tanzania	TZA	39.518	4.40	Low income
178	Uganda	UGA	43.474	16.20	Low income
188	West Bank and Gaza	PSE	30.394	46.60	Lower middle income
190	Yemen, Rep.	YEM	32.947	20.00	Lower middle income
192	Congo, Dem. Rep.	COD	42.394	2.20	Low income
193	Zambia	ZMB	40.471	15.40	Lower middle income
194	Zimbabwe	ZWE	35.715	18.50	Low income

In [72]:

```
1 df[df.Birthrate>30]
```

Out[72]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
1	Afghanistan	AFG	35.253	5.90	Low income
2	Angola	AGO	45.985	19.10	Upper middle 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
34	Cote d'Ivoire	CIV	37.320	8.40	Lower middle income
35	Cameroon	CMR	37.236	6.40	Lower middle income
36	Congo, Rep.	COG	37.011	6.60	Lower middle 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
60	Gabon	GAB	30.555	9.20	Upper middle income
63	Ghana	GHA	33.131	12.30	Lower middle 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
67	Equatorial Guinea	GNQ	35.362	16.40	High income
83	Iraq	IRQ	31.093	9.20	Upper middle income
91	Kenya	KEN	35.194	39.00	Lower middle 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
121	Mauritania	MRT	33.801	6.20	Lower middle income
123	Malawi	MWI	39.459	5.05	Low income
127	Niger	NER	49.661	1.70	Low income
128	Nigeria	NGA	40.045	38.00	Lower middle income
148	Rwanda	RWA	32.689	9.00	Low income
150	Sudan	SDN	33.477	22.70	Lower middle income
151	Senegal	SEN	38.533	13.10	Lower middle income
153	Solomon Islands	SLB	30.578	8.00	Lower middle 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
159	Sao Tome and Principe	STP	34.537	23.00	Lower middle income

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
164	Swaziland	SWZ	30.093	24.70	Lower middle income
167	Chad	TCD	45.745	2.30	Low income
168	Togo	TGO	36.080	4.50	Low income
170	Tajikistan	TJK	30.792	16.00	Lower middle income
172	Timor-Leste	TLS	35.755	1.10	Lower middle income
177	Tanzania	TZA	39.518	4.40	Low income
178	Uganda	UGA	43.474	16.20	Low income
188	West Bank and Gaza	PSE	30.394	46.60	Lower middle income
190	Yemen, Rep.	YEM	32.947	20.00	Lower middle income
192	Congo, Dem. Rep.	COD	42.394	2.20	Low income
193	Zambia	ZMB	40.471	15.40	Lower middle income
194	Zimbabwe	ZWE	35.715	18.50	Low income

In [73]:

```
1 df[t&y]
```

Out[73]:

	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
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 [74]:

```
1 df[(df.Internetusers<2)&y]
```

Out[74]:

	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
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 [76]:

```
df[df["IncomeGroup"] == "Low income"]
```

Out[76]:

	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

In [80]:

```
#finding unique catagories
df.IncomeGroup.unique()
```

Out[80]:

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

In [82]:

```
df.IncomeGroup.value_counts()
```

Out[82]:

```
High income            67
Lower middle income    50
Upper middle income    48
Low income             30
Name: IncomeGroup, dtype: int64
```

In [84]:

```
# finding everything about malta
df[df["CountryName"] == "Niger"]
```

Out[84]:

	CountryName	CountryCode	Birthrate	Internetusers	IncomeGroup
127	Niger	NER	49.661	1.7	Low income

In [85]:

```
#Accesing individual elements
#.at
#iat#acces by index
df.iat[3,4]
```

Out[85]:

```
'Upper middle income'
```

In [88]:

```
df.at[89,"Birthrate"]
```

Out[88]:

```
8.2
```

In [90]:

```
tina=df[::10]
tina
```

Out[90]:

	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 [95]:

```
tina.iat[10,4]
```

Out[95]:

```
'Upper middle income'
```

In [ ]:

```
#Seaborn
```

In [96]:

```
import seaborn as sns
```

In [100]:

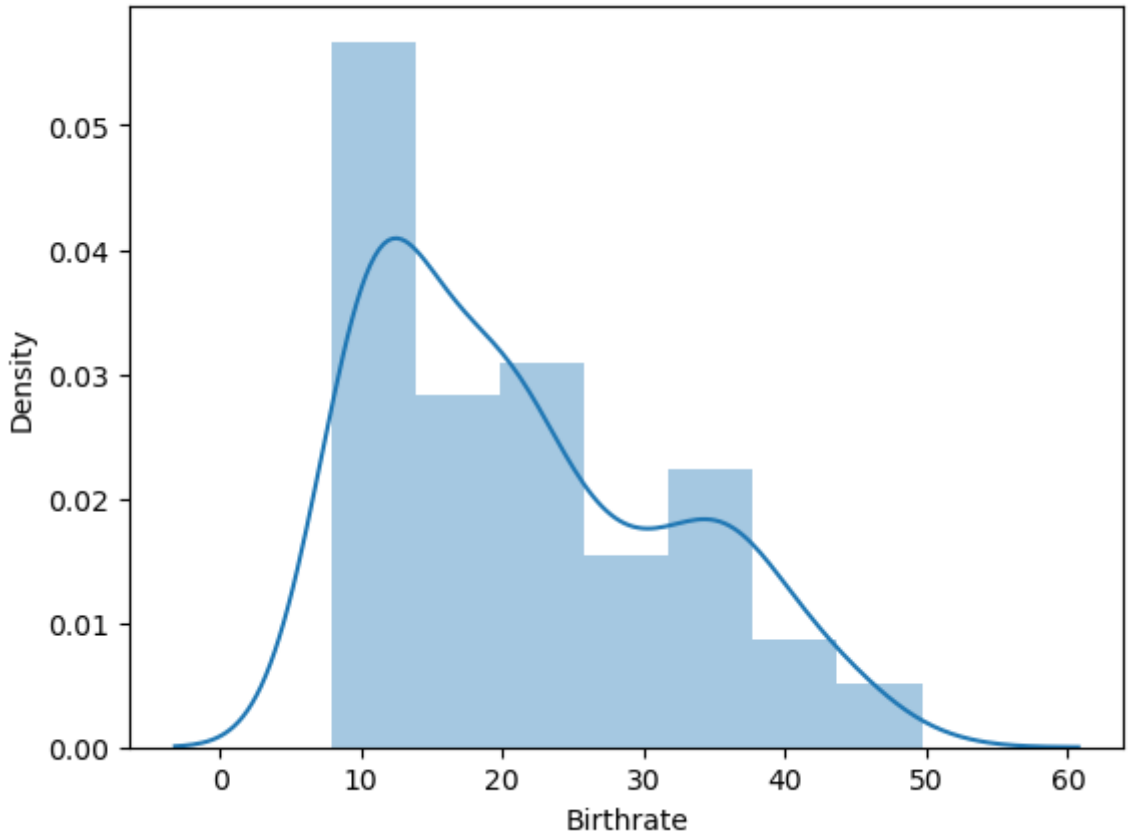
```
import matplotlib.pyplot as plt
%matplotlib inline
import warnings
warnings.filterwarnings("ignore")
```

In [101]:

```
sns.distplot(df["Birthrate"])
```

Out[101]:

```
<Axes: xlabel='Birthrate', ylabel='Density'>
```

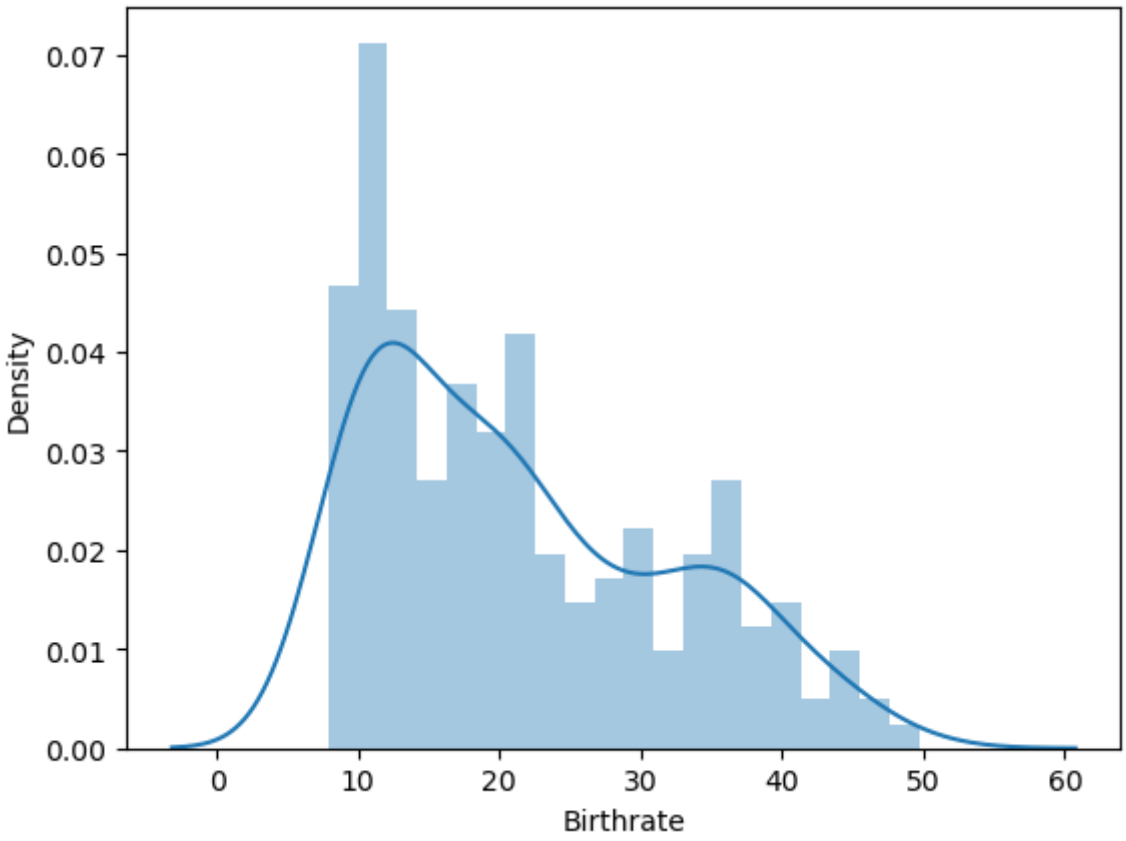


In [102]:

```
1 sns.distplot(df["Birthrate"],bins=20)
```

Out[102]:

```
<Axes: xlabel='Birthrate', ylabel='Density'>
```

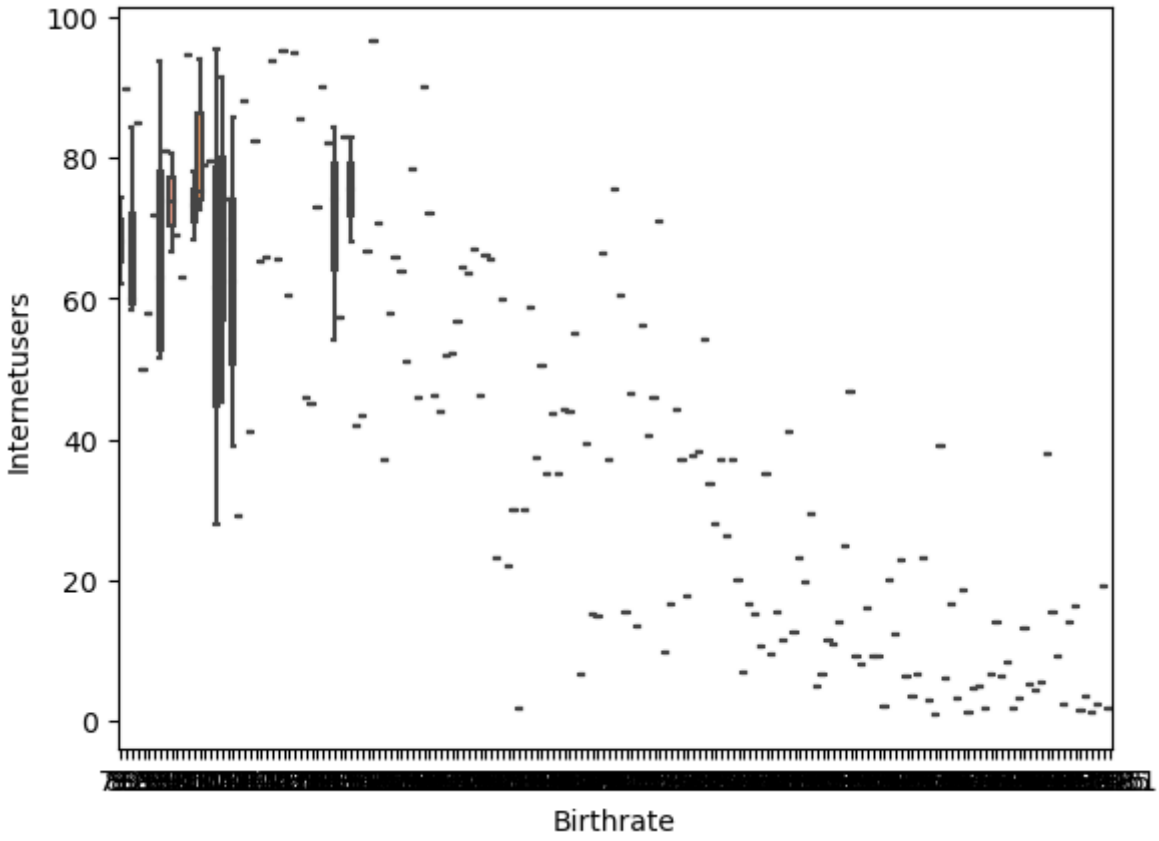


In [104]:

```
vis1=sns.boxplot(data=df,x="Birthrate",y="Internetusers")
vis1
```

Out[104]:

```
<Axes: xlabel='Birthrate', ylabel='Internetusers'>
```

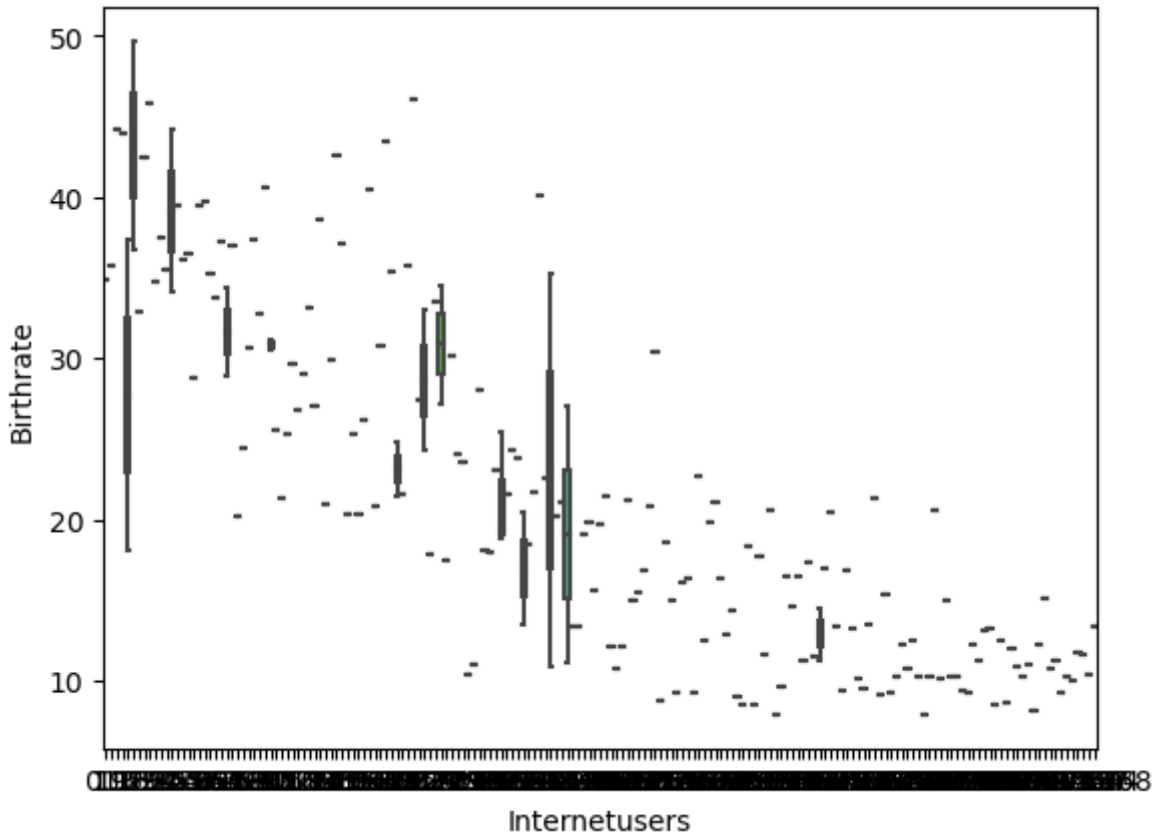


In [107]:

```
vis1=sns.boxplot(data=df,x="Internetusers",y="Birthrate")
vis1
```

Out[107]:

```
<Axes: xlabel='Internetusers', ylabel='Birthrate'>
```

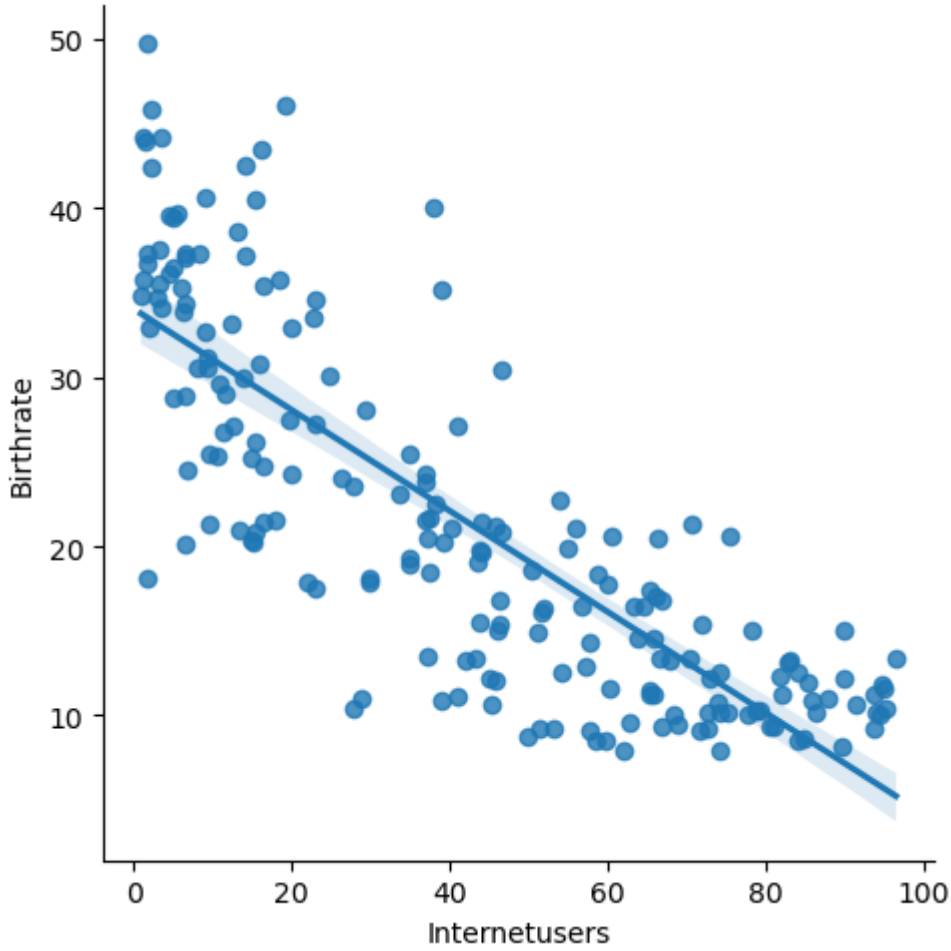


In [110]:

```
1 vis2=sns.lmplot(data=df,x="Internetusers",y="Birthrate")
2 vis2
```

Out[110]:

```
<seaborn.axisgrid.FacetGrid at 0x7faee71765c0>
```

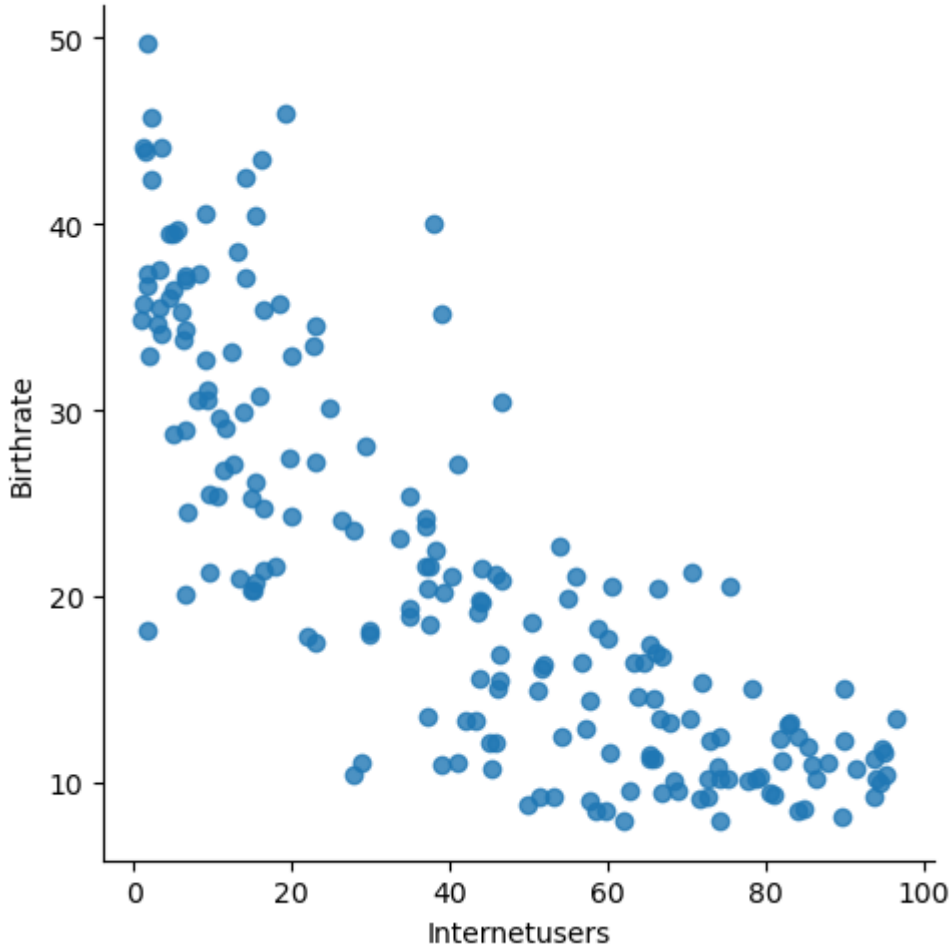


In [114]:

```
1 vis2=sns.lmplot(data=df,x="Internetusers",y="Birthrate",fit_reg=False)
2 vis2
```

Out[114]:

```
<seaborn.axisgrid.FacetGrid at 0x7faee1dbfa30>
```

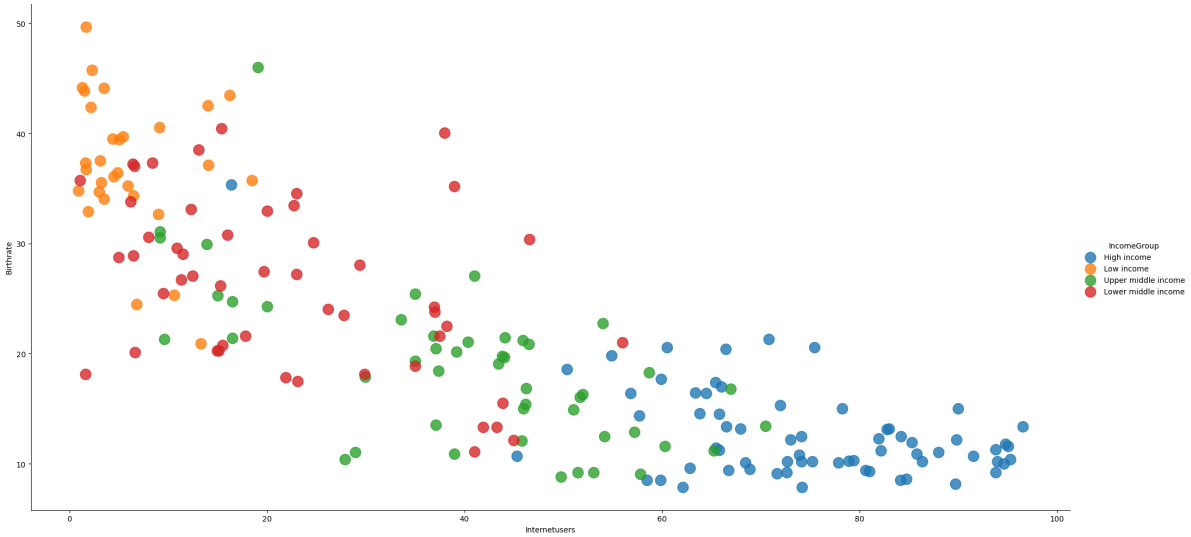


In [126]:

```
1
2 plt.rcParams["figure.figsize"]==10,12
3 vis4 = sns.lmplot(data=df, x="Internetusers", y="Birthrate", fit_reg=False, hue=
4
5
6 vis4
```

Out[126]:

```
<seaborn.axisgrid.FacetGrid at 0x7faee82e0af0>
```



In [ ]:

```
1 #Keyword argument in python
```