Dataframe in python and how to import the dataset

pandas are very good package for dataframes &its perfect for dataset& very powerfull packages

In [1]:
```
import pandas as pd #USE FOR DATAFRAMES
```

In [2]:
```
stats = pd.read_csv(r"D:\NIT\20NOV\17th,18th\DataFrame_ Pandas\data.csv")
```

In [3]:
```
stats
```

Out[3]:

	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 [95]:
```
print(stats.to_string())
```

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	Aruba	ABW	10.244	78.900000	High income
1	Afghanistan	AFG	35.253	5.900000	Low income
2	Angola	AGO	45.985	19.100000	Upper middle income
3	Albania	ALB	12.877	57.200000	Upper middle income
4	United Arab Emirates	ARE	11.044	88.000000	High income
5	Argentina	ARG	17.716	59.900000	High income
6	Armenia	ARM	13.308	41.900000	Lower middle income
7	Antigua and Barbuda	ATG	16.447	63.400000	High income
8	Australia	AUS	13.200	83.000000	High income
9	Austria	AUT	9.400	80.618800	High income
10	Azerbaijan	AZE	18.300	58.700000	Upper middle income
11	Burundi	BDI	44.151	1.300000	Low income
12	Belgium	BEL	11.200	82.170200	High income
13	Benin	BEN	36.440	4.900000	Low income
14	Burkina Faso	BFA	40.551	9.100000	Low income
15	Bangladesh	BGD	20.142	6.630000	Lower middle income
16	Bulgaria	BGR	9.200	53.061500	Upper middle income
17	Bahrain	BHR	15.040	90.000040	High income
18	Bahamas, The	BHS	15.339	72.000000	High income
19	Bosnia and Herzegovina	BIH	9.062	57.790000	Upper middle income
20	Belarus	BLR	12.500	54.170000	Upper middle income
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
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
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
80	India	IND	20.291	15.100000	Lower middle income
81	Ireland	IRL	15.000	78.247700	High income
82	Iran, Islamic Rep.	IRN	17.900	29.950000	Upper middle income
83	Iraq	IRQ	31.093	9.200000	Upper middle income
84	Iceland	ISL	13.400	96.546800	High income
85	Israel	ISR	21.300	70.800000	High income
86	Italy	ITA	8.500	58.459300	High income
87	Jamaica	JAM	13.540	37.100000	Upper middle income
88	Jordan	JOR	27.046	41.000000	Upper middle income

89	Japan	JPN	8.200	89.710000	High income
90	Kazakhstan	KAZ	22.730	54.000000	Upper middle income
91	Kenya	KEN	35.194	39.000000	Lower middle income
92	Kyrgyz Republic	KGZ	27.200	23.000000	Lower middle income
93	Cambodia	KHM	24.462	6.800000	Low income
94	Kiribati	KIR	29.044	11.500000	Lower middle income
95	Korea, Rep.	KOR	8.600	84.770000	High income
96	Kuwait	KWT	20.575	75.460000	High income
97	Lao PDR	LAO	27.051	12.500000	Lower middle income
98	Lebanon	LBN	13.426	70.500000	Upper middle income
99	Liberia	LBR	35.521	3.200000	Low income
100	Libya	LBY	21.425	16.500000	Upper middle income
101	St. Lucia	LCA	15.430	46.200000	Upper middle income
102	Liechtenstein	LIE	9.200	93.800000	High income
103	Sri Lanka	LKA	17.863	21.900000	Lower middle income
104	Lesotho	LSO	28.738	5.000000	Lower middle income
105	Lithuania	LTU	10.100	68.452900	High income
106	Luxembourg	LUX	11.300	93.776500	High income
107	Latvia	LVA	10.200	75.234400	High income
108	Macao SAR, China	MAC	11.256	65.800000	High income
109	Morocco	MAR	21.023	56.000000	Lower middle income
110	Moldova	MDA	12.141	45.000000	Lower middle income
111	Madagascar	MDG	34.686	3.000000	Low income
112	Maldives	MDV	21.447	44.100000	Upper middle income
113	Mexico	MEX	19.104	43.460000	Upper middle income
114	Macedonia, FYR	MKD	11.222	65.240000	Upper middle income
115	Mali	MLI	44.138	3.500000	Low income
116	Malta	MLT	9.500	68.913800	High income
117	Myanmar	MMR	18.119	1.600000	Lower middle income
118	Montenegro	MNE	11.616	60.310000	Upper middle income

119	Mongolia	MNG	24.275	20.000000	Upper middle income
120	Mozambique	MOZ	39.705	5.400000	Low income
121	Mauritania	MRT	33.801	6.200000	Lower middle income
122	Mauritius	MUS	10.900	39.000000	Upper middle income
123	Malawi	MWI	39.459	5.050000	Low income
124	Malaysia	MYS	16.805	66.970000	Upper middle income
125	Namibia	NAM	29.937	13.900000	Upper middle income
126	New Caledonia	NCL	17.000	66.000000	High income
127	Niger	NER	49.661	1.700000	Low income
128	Nigeria	NGA	40.045	38.000000	Lower middle income
129	Nicaragua	NIC	20.788	15.500000	Lower middle income
130	Netherlands	NLD	10.200	93.956400	High income
131	Norway	NOR	11.600	95.053400	High income
132	Nepal	NPL	20.923	13.300000	Low income
133	New Zealand	NZL	13.120	82.780000	High income
134	Oman	OMN	20.419	66.450000	High income
135	Pakistan	PAK	29.582	10.900000	Lower middle income
136	Panama	PAN	19.680	44.030000	Upper middle income
137	Peru	PER	20.198	39.200000	Upper middle income
138	Philippines	PHL	23.790	37.000000	Lower middle income
139	Papua New Guinea	PNG	28.899	6.500000	Lower middle income
140	Poland	POL	9.600	62.849200	High income
141	Puerto Rico	PRI	10.800	73.900000	High income
142	Portugal	PRT	7.900	62.095600	High income
143	Paraguay	PRY	21.588	36.900000	Upper middle income
144	French Polynesia	PYF	16.393	56.800000	High income
145	Qatar	QAT	11.940	85.300000	High income
146	Romania	ROU	8.800	49.764500	Upper middle income
147	Russian Federation	RUS	13.200	67.970000	High income
148	Rwanda	RWA	32.689	9.000000	Low income

149	Saudi Arabia	SAU	20.576	60.500000	High income
150	Sudan	SDN	33.477	22.700000	Lower middle income
151	Senegal	SEN	38.533	13.100000	Lower middle income
152	Singapore	SGP	9.300	81.000000	High income
153	Solomon Islands	SLB	30.578	8.000000	Lower middle income
154	Sierra Leone	SLE	36.729	1.700000	Low income
155	El Salvador	SLV	17.476	23.109300	Lower middle income
156	Somalia	SOM	43.891	1.500000	Low income
157	Serbia	SRB	9.200	51.500000	Upper middle income
158	South Sudan	SSD	37.126	14.100000	Low income
159	Sao Tome and Principe	STP	34.537	23.000000	Lower middle income
160	Suriname	SUR	18.455	37.400000	Upper middle income
161	Slovak Republic	SVK	10.100	77.882600	High income
162	Slovenia	SVN	10.200	72.675600	High income
163	Sweden	SWE	11.800	94.783600	High income
164	Swaziland	SWZ	30.093	24.700000	Lower middle income
165	Seychelles	SYC	18.600	50.400000	High income
166	Syrian Arab Republic	SYR	24.043	26.200000	Lower middle income
167	Chad	TCD	45.745	2.300000	Low income
168	Togo	TGO	36.080	4.500000	Low income
169	Thailand	THA	11.041	28.940000	Upper middle income
170	Tajikistan	TJK	30.792	16.000000	Lower middle income
171	Turkmenistan	TKM	21.322	9.600000	Upper middle income
172	Timor-Leste	TLS	35.755	1.100000	Lower middle income
173	Tonga	TON	25.409	35.000000	Upper middle income
174	Trinidad and Tobago	TTO	14.590	63.800000	High income
175	Tunisia	TUN	19.800	43.800000	Upper middle income
176	Turkey	TUR	16.836	46.250000	Upper middle income
177	Tanzania	TZA	39.518	4.400000	Low income
178	Uganda	UGA	43.474	16.200000	Low income

```
179                          Ukraine         UKR     11.100      41.000000  Lower
middle income
180                          Uruguay         URY     14.374      57.690000
High income
181                    United States         USA     12.500      84.200000
High income
182                       Uzbekistan         UZB     22.500      38.200000  Lower
middle income
183  St. Vincent and the Grenadines         VCT     16.306      52.000000  Upper
middle income
184                    Venezuela, RB         VEN     19.842      54.900000
High income
185           Virgin Islands (U.S.)         VIR     10.700      45.300000
High income
186                          Vietnam         VNM     15.537      43.900000  Lower
middle income
187                          Vanuatu         VUT     26.739      11.300000  Lower
middle income
188              West Bank and Gaza         PSE     30.394      46.600000  Lower
middle income
189                            Samoa         WSM     26.172      15.300000  Lower
middle income
190                      Yemen, Rep.         YEM     32.947      20.000000  Lower
middle income
191                     South Africa         ZAF     20.850      46.500000  Upper
middle income
192                Congo, Dem. Rep.         COD     42.394       2.200000
Low income
193                           Zambia         ZMB     40.471      15.400000  Lower
middle income
194                         Zimbabwe         ZWE     35.715      18.500000
Low income
```

In [5]:
```
# Explore data in python
#1. Full dataframe
#2. How many rows & columns. you have to chk the row becuase the no. of raw shou

len(stats) #195 rows imported (this is for tracking later part )
```

Out[5]:
```
195
```

In [6]:
```
#3. see columns
stats.columns
```

Out[6]:
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

In [7]:
```
#4. Number of columns

len(stats.columns)
```

Out[7]:
```
5
```

In [8]:
```
#5. top rows

stats.head() # it will print top 5 rows
```

Out[8]:

	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 [9]:
```
stats.head(2)
```

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

In [10]:
```
#6. Bottom rows
stats.tail() #last 5 rows
```

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 [11]:
```
stats.tail(3)
```

Out[11]:

	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 [12]:
```
#7. information of the column

stats.info()  #strings are called as object
```

```
<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 [13]:
```
#8. get stats on the columns

stats.describe() #it will work like a statistic fun
```

Out[13]:

	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 [14]:
```
stats.describe().transpose() #transpose convert column into rows
```

Out[14]:

	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 [15]:
```
# Renaming columns of a dataframe

stats.head()
```

Out[15]:

	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 [16]:
```
stats.columns
```

Out[16]:
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

In [19]:
```
stats.columns = ['a','b','c','d','e']
stats.head()
```

Out[19]:

	a	b	c	d	e
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 [20]:
```
stats.columns = ['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers','Inc
```

In [21]:
```
stats.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 [22]:
```
# Rows:

stats[21:26] #how python know that only this is rows based on index
```

Out[22]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
21	Belize	BLZ	23.092	33.60	Upper middle income
22	Bermuda	BMU	10.400	95.30	High income
23	Bolivia	BOL	24.236	36.94	Lower middle income
24	Brazil	BRA	14.931	51.04	Upper middle income
25	Barbados	BRB	12.188	73.00	High income

In [23]:
```
stats[:]
```

Out[23]:

	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 [24]:
```
stats[:10]
```

Out[24]:

	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 [25]:
```
stats.head(10)
```

Out[25]:

	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 [34]:
```
# How to reverse the dataframe

stats[ ::-1]
```

Out[34]:

	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 [31]:
```
stats
```

Out[31]:

	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 [32]:
```
# get only every 20th row

stats[: : 20]
```

Out[32]:

	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 [35]:
```
# COLUMNS:

stats.columns
```

Out[35]:
```
Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
       'IncomeGroup'],
      dtype='object')
```

In [36]:
```
stats.head()
```

Out[36]:

	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 [37]:
```
stats['CountryName'].head()
```

Out[37]:
```
0                  Aruba
1            Afghanistan
2                 Angola
3                Albania
4    United Arab Emirates
Name: CountryName, dtype: object
```

In [38]:
```
['CountryName','BirthRate']
```

Out[38]:
```
['CountryName', 'BirthRate']
```

In [39]:
```
stats[['CountryName','BirthRate']].head()
```

Out[39]:

	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 [40]:
```
stats.head()
```

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

In [88]:
```
stats.CountryName.unique()
```

Out[88]:
```
array(['Aruba', 'Afghanistan', 'Angola', 'Albania',
       'United Arab Emirates', 'Argentina', 'Armenia',
       'Antigua and Barbuda', 'Australia', 'Austria', 'Azerbaijan',
       'Burundi', 'Belgium', 'Benin', 'Burkina Faso', 'Bangladesh',
       'Bulgaria', 'Bahrain', 'Bahamas, The', 'Bosnia and Herzegovina',
       'Belarus', 'Belize', 'Bermuda', 'Bolivia', 'Brazil', 'Barbados',
       'Brunei Darussalam', 'Bhutan', 'Botswana',
       'Central African Republic', 'Canada', 'Switzerland', 'Chile',
       'China', "Cote d'Ivoire", 'Cameroon', 'Congo, Rep.', 'Colombia',
       'Comoros', 'Cabo Verde', 'Costa Rica', 'Cuba', 'Cayman Islands',
       'Cyprus', 'Czech Republic', 'Germany', 'Djibouti', 'Denmark',
       'Dominican Republic', 'Algeria', 'Ecuador', 'Egypt, Arab Rep.',
       'Eritrea', 'Spain', 'Estonia', 'Ethiopia', 'Finland', 'Fiji',
       'France', 'Micronesia, Fed. Sts.', 'Gabon', 'United Kingdom',
       'Georgia', 'Ghana', 'Guinea', 'Gambia, The', 'Guinea-Bissau',
       'Equatorial Guinea', 'Greece', 'Grenada', 'Greenland', 'Guatemala',
       'Guam', 'Guyana', 'Hong Kong SAR, China', 'Honduras', 'Croatia',
       'Haiti', 'Hungary', 'Indonesia', 'India', 'Ireland',
       'Iran, Islamic Rep.', 'Iraq', 'Iceland', 'Israel', 'Italy',
       'Jamaica', 'Jordan', 'Japan', 'Kazakhstan', 'Kenya',
       'Kyrgyz Republic', 'Cambodia', 'Kiribati', 'Korea, Rep.', 'Kuwait',
       'Lao PDR', 'Lebanon', 'Liberia', 'Libya', 'St. Lucia',
       'Liechtenstein', 'Sri Lanka', 'Lesotho', 'Lithuania', 'Luxembourg',
       'Latvia', 'Macao SAR, China', 'Morocco', 'Moldova', 'Madagascar',
       'Maldives', 'Mexico', 'Macedonia, FYR', 'Mali', 'Malta', 'Myanmar',
       'Montenegro', 'Mongolia', 'Mozambique', 'Mauritania', 'Mauritius',
       'Malawi', 'Malaysia', 'Namibia', 'New Caledonia', 'Niger',
       'Nigeria', 'Nicaragua', 'Netherlands', 'Norway', 'Nepal',
       'New Zealand', 'Oman', 'Pakistan', 'Panama', 'Peru', 'Philippines',
       'Papua New Guinea', 'Poland', 'Puerto Rico', 'Portugal',
       'Paraguay', 'French Polynesia', 'Qatar', 'Romania',
       'Russian Federation', 'Rwanda', 'Saudi Arabia', 'Sudan', 'Senegal',
       'Singapore', 'Solomon Islands', 'Sierra Leone', 'El Salvador',
       'Somalia', 'Serbia', 'South Sudan', 'Sao Tome and Principe',
       'Suriname', 'Slovak Republic', 'Slovenia', 'Sweden', 'Swaziland',
       'Seychelles', 'Syrian Arab Republic', 'Chad', 'Togo', 'Thailand',
       'Tajikistan', 'Turkmenistan', 'Timor-Leste', 'Tonga',
       'Trinidad and Tobago', 'Tunisia', 'Turkey', 'Tanzania', 'Uganda',
       'Ukraine', 'Uruguay', 'United States', 'Uzbekistan',
       'St. Vincent and the Grenadines', 'Venezuela, RB',
       'Virgin Islands (U.S.)', 'Vietnam', 'Vanuatu',
       'West Bank and Gaza', 'Samoa', 'Yemen, Rep.', 'South Africa',
       'Congo, Dem. Rep.', 'Zambia', 'Zimbabwe'], dtype=object)
```

In [89]:
```
stats.CountryName.nunique()
```

Out[89]:
```
195
```

In [41]:
```
stats['BirthRate']
```

Out[41]:
```
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 [42]:
```
# combine the two

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

Out[42]:

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

In [43]:
```
stats [['CountryName','BirthRate']][4:8]
```

Out[43]:

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

In [44]:
```
df1 = stats [['CountryName','BirthRate']]
```

In [45]:
```
df1
```

Out[45]:

	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 [47]:
```
df2 = stats[4:8]
```

In [48]:
```
df2
```

Out[48]:

	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 [49]:
```
# Basic operatioin of dataframe
stats.head()
```

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

In [50]:
```
stats[['CountryCode','BirthRate','InternetUsers']][4:8] #subet dataframe
```

Out[50]:

	CountryCode	BirthRate	InternetUsers
4	ARE	11.044	88.0
5	ARG	17.716	59.9
6	ARM	13.308	41.9
7	ATG	16.447	63.4

In [51]:
```
stats.head()
```

Out[51]:

	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 [52]:
```
#Mathmetical operation =
stats.BirthRate * stats.InternetUsers
```

Out[52]:
```
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 [63]:
```
# Add a column

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

In [64]:
```
stats.head()
```

Out[64]:

	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 [65]:
```
#Remove a column

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

Out[65]:

	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 [66]:
```
stats = stats.drop('myCalc',axis = 1)
```

In [67]:
```
stats.head()
```

Out[67]:

	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 [85]:
```
# How to get the unique categories

stats.CountryCode.unique()
```

Out[85]:
```
array(['ABW', 'AFG', 'AGO', 'ALB', 'ARE', 'ARG', 'ARM', 'ATG', 'AUS',
       'AUT', 'AZE', 'BDI', 'BEL', 'BEN', 'BFA', 'BGD', 'BGR', 'BHR',
       'BHS', 'BIH', 'BLR', 'BLZ', 'BMU', 'BOL', 'BRA', 'BRB', 'BRN',
       'BTN', 'BWA', 'CAF', 'CAN', 'CHE', 'CHL', 'CHN', 'CIV', 'CMR',
       'COG', 'COL', 'COM', 'CPV', 'CRI', 'CUB', 'CYM', 'CYP', 'CZE',
       'DEU', 'DJI', 'DNK', 'DOM', 'DZA', 'ECU', 'EGY', 'ERI', 'ESP',
       'EST', 'ETH', 'FIN', 'FJI', 'FRA', 'FSM', 'GAB', 'GBR', 'GEO',
       'GHA', 'GIN', 'GMB', 'GNB', 'GNQ', 'GRC', 'GRD', 'GRL', 'GTM',
       'GUM', 'GUY', 'HKG', 'HND', 'HRV', 'HTI', 'HUN', 'IDN', 'IND',
       'IRL', 'IRN', 'IRQ', 'ISL', 'ISR', 'ITA', 'JAM', 'JOR', 'JPN',
       'KAZ', 'KEN', 'KGZ', 'KHM', 'KIR', 'KOR', 'KWT', 'LAO', 'LBN',
       'LBR', 'LBY', 'LCA', 'LIE', 'LKA', 'LSO', 'LTU', 'LUX', 'LVA',
       'MAC', 'MAR', 'MDA', 'MDG', 'MDV', 'MEX', 'MKD', 'MLI', 'MLT',
       'MMR', 'MNE', 'MNG', 'MOZ', 'MRT', 'MUS', 'MWI', 'MYS', 'NAM',
       'NCL', 'NER', 'NGA', 'NIC', 'NLD', 'NOR', 'NPL', 'NZL', 'OMN',
       'PAK', 'PAN', 'PER', 'PHL', 'PNG', 'POL', 'PRI', 'PRT', 'PRY',
       'PYF', 'QAT', 'ROU', 'RUS', 'RWA', 'SAU', 'SDN', 'SEN', 'SGP',
       'SLB', 'SLE', 'SLV', 'SOM', 'SRB', 'SSD', 'STP', 'SUR', 'SVK',
       'SVN', 'SWE', 'SWZ', 'SYC', 'SYR', 'TCD', 'TGO', 'THA', 'TJK',
       'TKM', 'TLS', 'TON', 'TTO', 'TUN', 'TUR', 'TZA', 'UGA', 'UKR',
       'URY', 'USA', 'UZB', 'VCT', 'VEN', 'VIR', 'VNM', 'VUT', 'PSE',
       'WSM', 'YEM', 'ZAF', 'COD', 'ZMB', 'ZWE'], dtype=object)
```

In [87]:
```
stats.CountryCode.nunique()
```

Out[87]:
```
195
```

In [68]:
```
stats.columns[2]
```

Out[68]:
```
'BirthRate'
```

In [69]:
```
stats.InternetUsers<2 #we are checking given condition if its correct true or fa
```

Out[69]:
```
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 [70]:
```
Filter = stats.InternetUsers < 2
```

In [71]:
```
Filter
```

Out[71]:
```
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 [72]:
```
stats[3:7]
```

Out[72]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
3	Albania	ALB	12.877	57.2	Upper middle income
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

In [73]:
```
stats[30:40]
```

Out[73]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
30	Canada	CAN	10.900	85.80	High income
31	Switzerland	CHE	10.200	86.34	High income
32	Chile	CHL	13.385	66.50	High income
33	China	CHN	12.100	45.80	Upper middle 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
37	Colombia	COL	16.076	51.70	Upper middle income
38	Comoros	COM	34.326	6.50	Low income
39	Cabo Verde	CPV	21.625	37.50	Lower middle income

In [74]:
```
stats[Filter] # IT WILL take that row which are false
```

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
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 [75]:
```
stats.BirthRate>40
```

Out[75]:
```
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 [76]:
```
Filter2 = stats.BirthRate>40
```

In [77]:
```
Filter2
```

Out[77]:
```
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 [78]:
```
stats[Filter2]
```

Out[78]:

	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 [79]:
```
#Filter and Filter2
Filter & Filter2
```

Out[79]:
```
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 [80]:
```
stats[Filter & Filter2]
```

Out[80]:

	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 [81]:
```
stats[(stats.BirthRate > 40) & (stats.InternetUsers < 2)]
```

Out[81]:

	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 [82]:
```
stats.head()
```

Out[82]:

	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 [83]:
```
stats[stats.IncomeGroup == 'Low income']
```

Out[83]:

	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 [84]:
```
# How to get the unique categories

stats.IncomeGroup.unique()
```

Out[84]:
```
array(['High income', 'Low income', 'Upper middle income',
       'Lower middle income'], dtype=object)
```

In [90]:
```
stats.IncomeGroup.nunique()
```

Out[90]:
```
4
```

In [ ]:
```

```