# Dataframe in python and how to import the dataset

# pandas are very good package for dataframe & its perfect for dataset& very powerfull pacakges

```
import pandas as pd
 In [6]:
 In [8]: df = pd.read_csv(r'C:\Users\samik\Downloads\data.csv')
In [10]:
Out[10]:
                     CountryName
                                   CountryCode
                                                  BirthRate InternetUsers
                                                                                  IncomeGroup
             0
                                            ABW
                             Aruba
                                                      10.244
                                                                       78.9
                                                                                    High income
                                                                                    Low income
                       Afghanistan
                                             AFG
                                                      35.253
                                                                        5.9
                                                                                   Upper middle
             2
                            Angola
                                            AGO
                                                      45.985
                                                                       19.1
                                                                                        income
                                                                                   Upper middle
             3
                           Albania
                                             ALB
                                                      12.877
                                                                       57.2
                                                                                        income
                       United Arab
                                             ARE
                                                                       88.0
                                                                                   High income
             4
                                                      11.044
                           Emirates
                                                                                   Lower middle
           190
                       Yemen, Rep.
                                                      32.947
                                                                       20.0
                                             YEM
                                                                                        income
                                                                                   Upper middle
           191
                       South Africa
                                             ZAF
                                                      20.850
                                                                       46.5
                                                                                        income
           192
                  Congo, Dem. Rep.
                                             COD
                                                      42.394
                                                                        2.2
                                                                                    Low income
                                                                                   Lower middle
           193
                           Zambia
                                            ZMB
                                                      40.471
                                                                       15.4
                                                                                        income
           194
                         Zimbabwe
                                             ZWE
                                                      35.715
                                                                       18.5
                                                                                    Low income
          195 rows × 5 columns
In [12]:
          len(df)
Out[12]: 195
In [14]:
          df.shape
Out[14]:
           (195, 5)
```

```
In [16]:
          df.columns
          Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
Out[16]:
                  'IncomeGroup'],
                 dtype='object')
In [18]:
          type(df)
Out[18]:
          pandas.core.frame.DataFrame
In [20]:
Out[20]:
                    CountryName CountryCode
                                                BirthRate InternetUsers
                                                                               IncomeGroup
            0
                            Aruba
                                           ABW
                                                    10.244
                                                                    78.9
                                                                                 High income
             1
                                           AFG
                                                    35.253
                                                                     5.9
                                                                                 Low income
                      Afghanistan
                                                                                Upper middle
            2
                                                    45.985
                           Angola
                                           AGO
                                                                    19.1
                                                                                     income
                                                                                Upper middle
            3
                          Albania
                                            ALB
                                                    12.877
                                                                    57.2
                                                                                     income
                      United Arab
            4
                                            ARE
                                                                    88.0
                                                    11.044
                                                                                 High income
                          Emirates
                                                                                Lower middle
          190
                                                                    20.0
                      Yemen, Rep.
                                           YEM
                                                    32.947
                                                                                     income
                                                                                Upper middle
          191
                      South Africa
                                            ZAF
                                                    20.850
                                                                    46.5
                                                                                     income
          192
                 Congo, Dem. Rep.
                                           COD
                                                    42.394
                                                                     2.2
                                                                                 Low income
                                                                                Lower middle
          193
                          Zambia
                                           ZMB
                                                    40.471
                                                                    15.4
                                                                                     income
          194
                        Zimbabwe
                                           ZWE
                                                    35.715
                                                                                 Low income
                                                                    18.5
         195 rows × 5 columns
In [22]: df.info()
         <class 'pandas.core.frame.DataFrame'>
        RangeIndex: 195 entries, 0 to 194
        Data columns (total 5 columns):
         #
              Column
                              Non-Null Count Dtype
         0
             CountryName
                              195 non-null
                                               object
              CountryCode
                              195 non-null
                                               object
         1
              BirthRate
                              195 non-null
                                               float64
         2
              InternetUsers
                             195 non-null
                                               float64
              IncomeGroup
                              195 non-null
                                               object
        dtypes: float64(2), object(3)
        memory usage: 7.7+ KB
In [24]:
          df.columns
```

```
Out[24]: Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
                  'IncomeGroup'],
                 dtype='object')
In [26]:
          len(df.columns)
Out[26]:
In [28]:
          df.shape
          (195, 5)
Out[28]:
In [30]:
          df.head()
Out[30]:
                   CountryName CountryCode
                                                                               IncomeGroup
                                               BirthRate InternetUsers
          0
                          Aruba
                                         ABW
                                                   10.244
                                                                   78.9
                                                                                High income
          1
                     Afghanistan
                                          AFG
                                                   35.253
                                                                    5.9
                                                                                 Low income
                                                                         Upper middle income
          2
                         Angola
                                          AGO
                                                   45.985
                                                                   19.1
          3
                                                   12.877
                                                                         Upper middle income
                         Albania
                                          ALB
                                                                   57.2
             United Arab Emirates
                                          ARE
                                                   11.044
                                                                   0.88
                                                                                High income
In [32]: df.head(2)
Out[32]:
             CountryName CountryCode BirthRate InternetUsers IncomeGroup
          0
                     Aruba
                                    ABW
                                             10.244
                                                              78.9
                                                                     High income
                Afghanistan
                                     AFG
                                             35.253
                                                               5.9
                                                                     Low income
          df.tail()
In [34]:
Out[34]:
                                 CountryCode BirthRate InternetUsers
                                                                              IncomeGroup
                  CountryName
          190
                                                                        Lower middle income
                     Yemen, Rep.
                                         YEM
                                                  32.947
                                                                   20.0
          191
                    South Africa
                                          ZAF
                                                  20.850
                                                                        Upper middle income
               Congo, Dem. Rep.
                                         COD
                                                  42.394
                                                                    2.2
                                                                                Low income
                                                                        Lower middle income
          193
                         Zambia
                                         ZMB
                                                  40.471
          194
                      Zimbabwe
                                         ZWE
                                                  35.715
                                                                   18.5
                                                                                Low income
In [36]:
          df.tail(1)
Out[36]:
               CountryName
                              CountryCode
                                           BirthRate InternetUsers IncomeGroup
          194
                   Zimbabwe
                                      ZWE
                                                35.715
                                                                18.5
                                                                        Low income
In [38]:
          df.tail(3)
```

```
Out[38]:
                  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 [40]:
          df.columns
Out[40]:
          Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
                  'IncomeGroup'],
                 dtype='object')
In [42]:
          df.head(2)
Out[42]:
             CountryName CountryCode
                                          BirthRate InternetUsers IncomeGroup
          0
                     Aruba
                                    ABW
                                             10.244
                                                             78.9
                                                                    High income
                Afghanistan
                                     AFG
                                             35.253
                                                              5.9
                                                                     Low income
          df.describe()
In [46]:
Out[46]:
                   BirthRate InternetUsers
                 195.000000
                                195.000000
          count
                  21.469928
                                 42.076471
          mean
                  10.605467
                                 29.030788
             std
                   7.900000
                                  0.900000
            min
           25%
                  12.120500
                                 14.520000
           50%
                  19.680000
                                 41.000000
           75%
                  29.759500
                                 66.225000
                  49.661000
                                 96.546800
           max
In [48]:
          df.describe().transpose()
Out[48]:
                                                std
                                                     min
                                                             25%
                                                                    50%
                                                                             75%
                        count
                                   mean
                                                                                     max
                         195.0
                                                                          29.7595
              BirthRate
                               21.469928
                                          10.605467
                                                      7.9
                                                           12.1205
                                                                   19.68
                                                                                  49.6610
          InternetUsers
                         195.0 42.076471
                                          29.030788
                                                      0.9
                                                           14.5200
                                                                   41.00
                                                                          66.2250
                                                                                  96.5468
          df.head()
In [50]:
```

Out[50]:		CountryName	Countr	yCode	BirthR	late	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]:	df.	columns						
Out[52]:	Ind	ex(['CountryName', 'IncomeGroup'] dtype='object')	,	tryCode	e', 'Bi	rthR	ate', 'Interno	etUsers',
In [54]:		columns = ['a','b' nead()	,'c','a	l','e']				
Out[54]:		a	b	c	d		е	
	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	Uppe	r middle income	
	3	Albania	ALB	12.877	57.2	Uppe	r middle income	
	4 (	United Arab Emirates	ARE	11.044	88.0		High income	
In [56]:	df							
Out[56]:			a b	)	c d			е
	0	Arub	a ABW	10.24	4 78.9		High incon	ne
	1	Afghanista	n AFG	35.25	3 5.9		Low incon	ne
	2	Angol	la AGO	45.98	5 19.1	Up	per middle incon	ne
	3	Albani	ia ALB	12.87	7 57.2	Up	per middle incon	ne
	4	United Arab Emirate	es ARE	11.04	4 88.0		High incon	ne
	•••							
	190	Yemen, Rep	o. YEM	32.94	7 20.0	Lo	wer middle incon	ne
	191	South Afric	a ZAF	20.85	0 46.5	Up	per middle incon	ne
	192	Congo, Dem. Rep	o. COD	42.39	4 2.2		Low incor	ne
	193	Zambi	ia ZMB	40.47	1 15.4	Lo	wer middle incon	ne
	194	Zimbabw	re ZWE	35.71	5 18.5		Low incon	ne

195 rows × 5 columns

df.columns = ['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers','Income In [58]: df.head() In [60]: Out[60]: CountryName CountryCode **BirthRate InternetUsers** IncomeGroup 0 Aruba **ABW** 10.244 78.9 High income Afghanistan 1 **AFG** 35.253 5.9 Low income 2 Upper middle income Angola **AGO** 45.985 19.1 Upper middle income 3 Albania ALB 12.877 57.2 **United Arab Emirates** ARE 11.044 88.0 High income In [62]: df[:] Out[62]: CountryName CountryCode **BirthRate** InternetUsers IncomeGroup 0 **ABW** Aruba 10.244 78.9 High income Low income Afghanistan AFG 35.253 5.9 Upper middle 2 Angola AGO 45.985 19.1 income Upper middle Albania 3 ALB 12.877 57.2 income **United Arab** 4 **ARE** 11.044 88.0 High income **Emirates** Lower middle 190 Yemen, Rep. YEM 32.947 20.0 income Upper middle 191 South Africa ZAF 20.850 46.5 income Congo, Dem. Rep. 42.394 2.2 Low income 192 COD Lower middle 193 Zambia ZMB 40.471 15.4 income

**ZWE** 

35.715

18.5

Low income

195 rows × 5 columns

Zimbabwe

In [64]: df[:10]

194

Out[64]:		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 [66]: df.head(10)

Out[66]:

	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 [68]: df[ ::-1]

Out[68]:

	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 [70]: **df** 

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	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 [72]: df[: : 20]

Out[72]:

	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 [74]: df.columns
```

In [76]:	df	head()				
Out[76]:		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
[n [80]:	df	['CountryName'].hea	d()			
Out[80]:	<pre>0 Aruba 1 Afghanistan 2 Angola 3 Albania 4 United Arab Emirates Name: CountryName, dtype: object</pre>					
In [86]:	['	CountryName','Birth	Rate']			
Out[86]:	['	CountryName', 'Birt	thRate']			
In [88]:	df	[['CountryName','Bi	rthRate']].he	ad()		
Out[88]:		CountryName	BirthRate			
	0	Aruba	10.244			
	1	Afghanistan	35.253			
	2	Angola	45.985			
	3	Albania	12.877			
	4	United Arab Emirates	11.044			
[n [90]:	df	.head()				
Out[90]:		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 [92]:	df	['BirthRate']				
_ 4		-				

```
Out[92]: 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
          df[4:8][['CountryName','BirthRate']]
In [94]:
Out[94]:
                   CountryName BirthRate
              United Arab Emirates
                                     11.044
           4
           5
                        Argentina
                                     17.716
           6
                         Armenia
                                     13.308
           7 Antigua and Barbuda
                                     16.447
In [98]:
          df [['CountryName','BirthRate']][4:8]
Out[98]:
                   CountryName BirthRate
              United Arab Emirates
                                     11.044
           5
                        Argentina
                                     17.716
           6
                         Armenia
                                     13.308
           7 Antigua and Barbuda
                                     16.447
           df1 = df[['CountryName','BirthRate']]
In [100...
           df1
In [102...
```

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	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 [104...

df2 = df[4:8]

In [106...

df2

Out[106...

	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 [108...

df.head()

Out[108...

	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 [110...

df[['CountryCode','BirthRate','InternetUsers']][4:8] #subet dataframe

	Coi	untryCode I	BirthRate	Intern	etUsers					
	4	ARE	11.044		88.0					
	5	ARG	17.716		59.9					
	6	ARM	13.308		41.9					
	7	ATG	16.447		63.4					
[112	df.hea	nd()								
t[112		CountryN	ame Cou	ıntryCo	de Birthl	Rate	InternetUs	ers	Inco	meGroup
	0	A	ruba	AB	3W 10	.244	7	78.9	Hig	gh income
	1	Afghani	stan	Al	FG 35	.253		5.9	Lo	w income
	2	An	gola	AC	GO 45	.985	1	9.1 l	Jpper midd	le income
	3	Alb	ania	А	LB 12	.877	5	57.2 l	Jpper midd	le income
	<b>4</b> Uni	ted Arab Emir	rates	А	.RE 11	.044	8	88.0	Hig	gh income
[114	df.Bir	rthRate * df	.Interne	tUsers						
:[114	0 1 2 3 4	808.2516 207.9927 878.3135 736.5644 971.8720								
	190 191 192 193 194 Length	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp	pe: float	:64						
[120	191 192 193 194 Length	658.9400 969.5250 93.2668 623.2534 660.7275			f.Interne	etUser	<b>`</b> S			
	191 192 193 194 Length	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp			f.Interne	etUser	`S			
[122	191 192 193 194 Length df['my	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp	<sup>F</sup> .BirthRa	te * d <sup>.</sup>				Inco	omeGroup	myCalc
[122	191 192 193 194 Length df['my	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp (Calc'] = df	F.BirthRa  Country	te * d <sup>.</sup>					<b>omeGroup</b> gh income	myCalc 808.2516
[122	191 192 193 194 Length df['my	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp (Calc'] = df	F.BirthRa  Country	te * d·	BirthRate		rnetUsers	Hi		808.2516
[122	191 192 193 194 Length df['my df.hea	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp (Calc'] = df	F.BirthRa  Country	Code	BirthRate 10.244		rnetUsers 78.9	Hi <sub>e</sub> Lo	gh income	808.2516
[120 [122 [122	191 192 193 194 Length df['my df.hea	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp (Calc'] = df	F.BirthRa  Country	Code I ABW AFG	<b>BirthRate</b> 10.244 35.253		78.9 5.9	Hig Lo Upp	gh income ow income oer middle	207.9927
[122	191 192 193 194 Length df['my df.hea 0 1	658.9400 969.5250 93.2668 623.2534 660.7275 n: 195, dtyp (Calc'] = df ad()  DuntryName  Aruba  Afghanistan  Angola	F.BirthRa  Country	Code   ABW AFG AGO	BirthRate 10.244 35.253 45.985		78.9 5.9 19.1	Hiq Lo Upp Upp	gh income ow income oer middle income oer middle	808.2516 207.9927 878.3135 736.5644

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	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 [126... df = df.drop('myCalc',axis = 1)

In [128... df.head()

Out[128...

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	Aruba	ABW	10.244	78.9	High income
1	Afghanistan	AFG	35.253	5.9	Low income
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 [130... df.columns[2]

Out[130... 'BirthRate'

In [132... df.InternetUsers<2</pre>

```
Out[132... 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 [134...
           Filter = df.InternetUsers<2</pre>
In [136...
           Filter
Out[136...
           0
                   False
           1
                   False
           2
                   False
           3
                   False
                   False
           190
                  False
           191
                  False
                  False
           192
           193
                   False
           194
                   False
           Name: InternetUsers, Length: 195, dtype: bool
In [138...
           df[3:7]
Out[138...
                    CountryName CountryCode BirthRate InternetUsers
                                                                                 IncomeGroup
           3
                                            ALB
                                                                          Upper middle income
                          Albania
                                                    12.877
                                                                     57.2
              United Arab Emirates
                                           ARE
                                                    11.044
                                                                     88.0
                                                                                  High income
           5
                                           ARG
                                                                     59.9
                                                                                  High income
                        Argentina
                                                    17.716
                                                                           Lower middle income
           6
                          Armenia
                                           ARM
                                                    13.308
                                                                     41.9
```

In [140... df[30:40]

24, 20:13	country gdp analysis								
Out[140		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 [142	44[	ilter]							
-	uili		C	P'all Paris	Laterratiles	1			
Out[142					InternetUsers				
	11	Burundi	BDI	44.151	1.3	Low income			
	52	Eritrea	ERI	34.800	0.9				
	55	Ethiopia	ETH	32.925	1.9				
	64	Guinea	GIN	37.337					
	117	Myanmar	MMR		1.6				
	127	Niger	NER		1.7				
	154	Sierra Leone	SLE						
	156	Somalia	SOM		1.5				
	172	Timor-Leste	TLS	35.755	1.1	Lower middle income			
In [144	df.B	irthRate>40							
Out[144	0 1 2 3 4 190 191 192 193 194	False False False False False False True True False							

Filter2 = df.BirthRate>40

In [146...

Name: BirthRate, Length: 195, dtype: bool

30/08/2024, 20:13

```
Filter2
In [148...
Out[148...
           0
                   False
           1
                   False
           2
                    True
           3
                   False
           4
                   False
                   . . .
           190
                   False
           191
                   False
                    True
           192
           193
                    True
           194
                   False
           Name: BirthRate, Length: 195, dtype: bool
In [152...
           df[Filter2]
Out[152...
                                   CountryCode BirthRate InternetUsers
                                                                                  IncomeGroup
                    CountryName
              2
                                                                           Upper middle income
                          Angola
                                           AGO
                                                     45.985
                                                                      19.1
             11
                          Burundi
                                            BDI
                                                     44.151
                                                                       1.3
                                                                                    Low income
             14
                      Burkina Faso
                                            BFA
                                                                       9.1
                                                                                    Low income
                                                     40.551
             65
                      Gambia, The
                                           GMB
                                                     42.525
                                                                      14.0
                                                                                    Low income
                                            MLI
                                                                                    Low income
           115
                             Mali
                                                     44.138
                                                                       3.5
           127
                            Niger
                                            NER
                                                     49.661
                                                                       1.7
                                                                                    Low income
                                                                           Lower middle income
           128
                          Nigeria
                                           NGA
                                                     40.045
                                                                      38.0
                          Somalia
                                           SOM
                                                                       1.5
                                                                                    Low income
           156
                                                     43.891
           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 [154...
           Filter & Filter2
Out[154...
           0
                   False
                   False
           1
           2
                   False
           3
                   False
           4
                   False
           190
                   False
           191
                   False
           192
                   False
           193
                   False
           194
                   False
           Length: 195, dtype: bool
```

In [156...

df[Filter & Filter2]

Out[156	Cour	ntryName Co	ountryCode	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 [162	df[(df.Bi	rthRate > 40	0) & (df.Int	ernetUser	s < 2)]		
Out[162	Cour	ntryName Co	ountryCode	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 [164	df.head()						
Out[164	С	ountryName	CountryCod	le BirthRa	te InternetUs	ers Inco	meGroup
	0	Aruba	AB	W 10.2	44 7	'8.9 Hi	gh income
	1	Afghanistan	AF	G 35.2	53	5.9 Lo	ow income
	2	Angola	AG	O 45.9	85 1	9.1 Upper midd	dle income
	3	Albania	AL	_B 12.8	77 5	7.2 Upper midd	dle income
	4 United	Arab Emirates	AF	RE 11.0	44 8	88.0 Hi	gh income

In [166... df[df.IncomeGroup == 'Low income']

Out[166...

	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	СОМ	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 [170...

# Introduction to seaborn # seaborn is very powerfull visualizatio(STATISTIC VIS

import matplotlib.pyplot as plt # visulaiztion

import seaborn as sns # distribution visualtion
# seaborn are used for advance visualization e.x --> distribution plot, line plo

%matplotlib inline
plt.rcParams['figure.figsize'] = 6,2

import warnings
warnings.filterwarnings('ignore') # os error

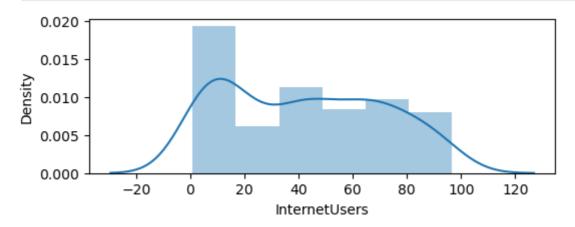
In [171... df.head()

Out[171...

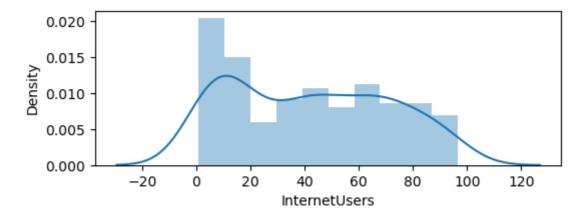
	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	Aruba	ABW	10.244	78.9	High income
1	Afghanistan	AFG	35.253	5.9	Low income
2	Angola	AGO	45.985	19.1	Upper middle income
3	Albania	ALB	12.877	57.2	Upper middle income
4	United Arab Emirates	ARE	11.044	88.0	High income

In [62]: df.columns = ['CountryName','CountryCode','BirthRate','InternetUsers','IncomeGro

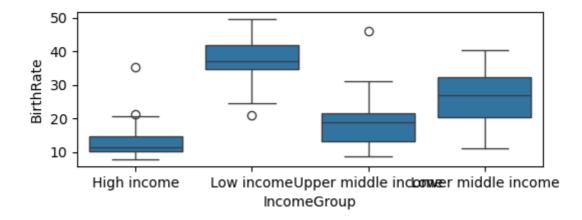
In [176... vis1 = sns.distplot(df["InternetUsers"])



In [180... vis1 = sns.distplot(df["InternetUsers"],bins=10)

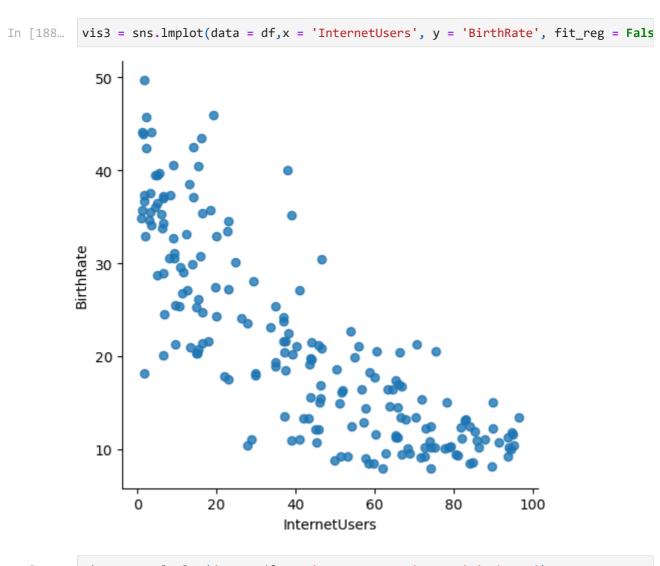


In [184... vis2 = sns.boxplot(data = df, x="IncomeGroup",y='BirthRate')

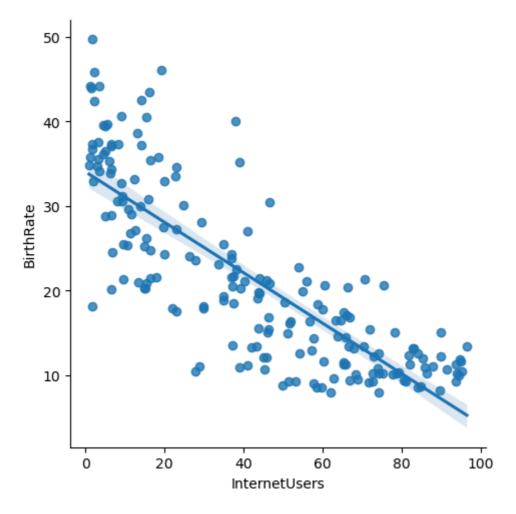


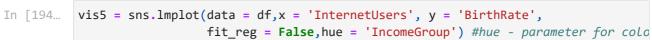
#### refer to seaborn gallary

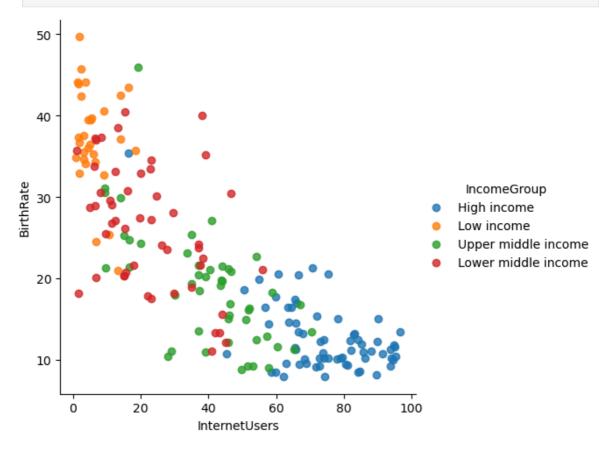
### visualizing with seaborn



In [192... vis4 = sns.lmplot(data = df,x = 'InternetUsers', y = 'BirthRate')







- In this section we learned
- 1> importing data into python

InternetUsers

- 2> Dataframe via panda
- 3> exploring datasets:
  head()tail()info()describe()
- 4> Renaming columns
- 5> subsetting dataframes
- 6> Basic operations with dataframe

## 8> filtering data frames

#### 9> seaborn introduction

In Γ 1: