

In [1]: `!pip install pandas`

Requirement already satisfied: pandas in c:\users\dell\anaconda3\lib\site-packages (2.2.2)
 Requirement already satisfied: numpy>=1.26.0 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (1.26.4)
 Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2.9.0.post0)
 Requirement already satisfied: pytz>=2020.1 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2024.1)
 Requirement already satisfied: tzdata>=2022.7 in c:\users\dell\anaconda3\lib\site-packages (from pandas) (2023.3)
 Requirement already satisfied: six>=1.5 in c:\users\dell\anaconda3\lib\site-packages (from python-dateutil>=2.8.2->pandas) (1.16.0)

In [1]: `import pandas as pd`

In [2]: `print(pd.__version__)`

2.2.2

In [7]: `items = pd.read_csv(r"C:\Users\DELL\Downloads\data.csv")`
`items`

Out[7]:

	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 [9]: `items.columns`

Out[9]: Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers',
 'IncomeGroup'],
 dtype='object')

```
In [15]: len(items)
```

Out[15]: 195

```
In [17]: items.isnull()
```

Out[17]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	False	False	False	False	False
1	False	False	False	False	False
2	False	False	False	False	False
3	False	False	False	False	False
4	False	False	False	False	False
...
190	False	False	False	False	False
191	False	False	False	False	False
192	False	False	False	False	False
193	False	False	False	False	False
194	False	False	False	False	False

195 rows × 5 columns

```
In [23]: items.isna()
```

Out[23]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	False	False	False	False	False
1	False	False	False	False	False
2	False	False	False	False	False
3	False	False	False	False	False
4	False	False	False	False	False
...
190	False	False	False	False	False
191	False	False	False	False	False
192	False	False	False	False	False
193	False	False	False	False	False
194	False	False	False	False	False

195 rows × 5 columns

In [25]:

items.head() # it return a specified number of rows, string from the top.

Out[25]:

	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 [27]:

items.tail() # it return Last n rows of a datafrmae

Out[27]:

	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 [37]:

items.tail(2)

Out[37]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
193	Zambia	ZMB	40.471	15.4	Lower middle income
194	Zimbabwe	ZWE	35.715	18.5	Low income

In [41]: `items.tail(1)`

Out[41]:

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

In [29]: `items.describe()`

Out[29]:

	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 [33]: `items.columns`

Out[33]: Index(['CountryName', 'CountryCode', 'BirthRate', 'InternetUsers', 'IncomeGroup'], dtype='object')

In [35]: `items[['CountryName', 'CountryCode']]`

Out[35]:

	CountryName	CountryCode
0	Aruba	ABW
1	Afghanistan	AFG
2	Angola	AGO
3	Albania	ALB
4	United Arab Emirates	ARE
...
190	Yemen, Rep.	YEM
191	South Africa	ZAF
192	Congo, Dem. Rep.	COD
193	Zambia	ZMB
194	Zimbabwe	ZWE

195 rows × 2 columns

```
In [43]: items.info()
```

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

```
In [47]: items.transpose() # it reverses or permutes the axes of an ndarray
```

Out[47]:

	0	1	2	3	4	5	6	7
CountryName	Aruba	Afghanistan	Angola	Albania	United Arab Emirates	Argentina	Armenia	Antigua and Barbuda
CountryCode	ABW	AFG	AGO	ALB	ARE	ARG	ARM	ATG
BirthRate	10.244	35.253	45.985	12.877	11.044	17.716	13.308	16.447
InternetUsers	78.9	5.9	19.1	57.2	88.0	59.9	41.9	63.4
IncomeGroup	High income	Low income	Upper middle income	Upper middle income	High income	High income	Lower middle income	High income

5 rows × 195 columns

In [49]:

items.describe().transpose()

Out[49]:

	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 [51]:

items.columns

Out[51]:

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

Sorting

In [53]:

items[:]

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 [55]: items[::]

Out[55]:

	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 [59]: items[::-1] # Descending order

Out[59]:

	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 [61]: items[2::3]

Out[61]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
2	Angola	AGO	45.985	19.1	Upper middle income
5	Argentina	ARG	17.716	59.9	High income
8	Australia	AUS	13.200	83.0	High income
11	Burundi	BDI	44.151	1.3	Low income
14	Burkina Faso	BFA	40.551	9.1	Low income
...
182	Uzbekistan	UZB	22.500	38.2	Lower middle income
185	Virgin Islands (U.S.)	VIR	10.700	45.3	High income
188	West Bank and Gaza	PSE	30.394	46.6	Lower middle income
191	South Africa	ZAF	20.850	46.5	Upper middle income
194	Zimbabwe	ZWE	35.715	18.5	Low income

65 rows × 5 columns

In [69]: items[:3] # show 1st 3 records

Out[69]:

	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

In [71]:

```
items[::3] #show every 3rd row records
```

Out[71]:

	CountryName	CountryCode	BirthRate	InternetUsers	IncomeGroup
0	Aruba	ABW	10.244	78.9000	High income
3	Albania	ALB	12.877	57.2000	Upper middle income
6	Armenia	ARM	13.308	41.9000	Lower middle income
9	Austria	AUT	9.400	80.6188	High income
12	Belgium	BEL	11.200	82.1702	High income
...
180	Uruguay	URY	14.374	57.6900	High income
183	St. Vincent and the Grenadines	VCT	16.306	52.0000	Upper middle income
186	Vietnam	VNM	15.537	43.9000	Lower middle income
189	Samoa	WSM	26.172	15.3000	Lower middle income
192	Congo, Dem. Rep.	COD	42.394	2.2000	Low income

65 rows × 5 columns

In [75]:

```
items.columns
```

Out[75]:

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

In [77]:

```
items['CountryName'].head
```

```
Out[77]: <bound method NDFrame.head of 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 [79]: items['CountryName'][::-1]
```

```
Out[79]: 194     Zimbabwe
193     Zambia
192     Congo, Dem. Rep.
191     South Africa
190     Yemen, Rep.
...
4      United Arab Emirates
3      Albania
2      Angola
1      Afghanistan
0      Aruba
Name: CountryName, Length: 195, dtype: object
```

```
In [81]: items['CountryName'][2::3]
```

```
Out[81]: 2      Angola
5      Argentina
8      Australia
11     Burundi
14     Burkina Faso
...
182     Uzbekistan
185     Virgin Islands (U.S.)
188     West Bank and Gaza
191     South Africa
194     Zimbabwe
Name: CountryName, Length: 65, dtype: object
```

```
In [85]: items['CountryName'][2:8:4]
```

```
Out[85]: 2      Angola
6      Armenia
Name: CountryName, dtype: object
```

```
In [ ]:
```

```
In [ ]:
```