

Indexing

In [1]: `import pandas as pd`

In [22]: `df = pd.read_csv(r"D:\COURSES\YOUTUBE\ALEX THE ANALYST\PYTHON\world_population.
df`

Out[22]:

	Rank	CCA3	Country	Capital	Continent	2022 Population	2020 Population	2015 Population	2010 Population
0	36	AFG	Afghanistan	Kabul	Asia	41128771.0	38972230.0	33753499.0	28189672.
1	138	ALB	Albania	Tirana	Europe	2842321.0	2866849.0	2882481.0	2913399.
2	34	DZA	Algeria	Algiers	Africa	44903225.0	43451666.0	39543154.0	35856344.
3	213	ASM	American Samoa	Pago Pago	Oceania	44273.0	46189.0	51368.0	54849.
4	203	AND	Andorra	Andorra la Vella	Europe	79824.0	77700.0	71746.0	71519.
...
229	226	WLF	Wallis and Futuna	Mata-Utu	Oceania	11572.0	11655.0	12182.0	13142.
230	172	ESH	Western Sahara	El Aaiún	Africa	575986.0	556048.0	491824.0	413296.
231	46	YEM	Yemen	Sanaa	Asia	33696614.0	32284046.0	28516545.0	24743946.
232	63	ZMB	Zambia	Lusaka	Africa	20017675.0	18927715.0	NaN	13792086.
233	74	ZWE	Zimbabwe	Harare	Africa	16320537.0	15669666.0	14154937.0	12839771.

234 rows × 17 columns

```
In [24]: df = pd.read_csv(r"D:\COURSES\YOUTUBE\ALEX THE ANALYST\PYTHON\world_population.csv")
df
```

Out[24]:

	Rank	CCA3	Capital	Continent	2022 Population	2020 Population	2015 Population	2010 Population	P
Country									
Afghanistan	36	AFG	Kabul	Asia	41128771.0	38972230.0	33753499.0	28189672.0	1
Albania	138	ALB	Tirana	Europe	2842321.0	2866849.0	2882481.0	2913399.0	:
Algeria	34	DZA	Algiers	Africa	44903225.0	43451666.0	39543154.0	35856344.0	3
American Samoa	213	ASM	Pago Pago	Oceania	44273.0	46189.0	51368.0	54849.0	
Andorra	203	AND	Andorra la Vella	Europe	79824.0	77700.0	71746.0	71519.0	
...	
Wallis and Futuna	226	WLF	Mata-Utu	Oceania	11572.0	11655.0	12182.0	13142.0	
Western Sahara	172	ESH	El Aaiún	Africa	575986.0	556048.0	491824.0	413296.0	
Yemen	46	YEM	Sanaa	Asia	33696614.0	32284046.0	28516545.0	24743946.0	1
Zambia	63	ZMB	Lusaka	Africa	20017675.0	18927715.0	NaN	13792086.0	
Zimbabwe	74	ZWE	Harare	Africa	16320537.0	15669666.0	14154937.0	12839771.0	1

234 rows × 16 columns

```
In [25]: df.reset_index(inplace=True)
df
```

Out[25]:

	Country	Rank	CCA3	Capital	Continent	2022 Population	2020 Population	2015 Population	2010 Population
0	Afghanistan	36	AFG	Kabul	Asia	41128771.0	38972230.0	33753499.0	28189672.
1	Albania	138	ALB	Tirana	Europe	2842321.0	2866849.0	2882481.0	2913399.
2	Algeria	34	DZA	Algiers	Africa	44903225.0	43451666.0	39543154.0	35856344.
3	American Samoa	213	ASM	Pago Pago	Oceania	44273.0	46189.0	51368.0	54849.
4	Andorra	203	AND	Andorra la Vella	Europe	79824.0	77700.0	71746.0	71519.
...
229	Wallis and Futuna	226	WLF	Mata-Utu	Oceania	11572.0	11655.0	12182.0	13142.
230	Western Sahara	172	ESH	El Aaiún	Africa	575986.0	556048.0	491824.0	413296.
231	Yemen	46	YEM	Sanaa	Asia	33696614.0	32284046.0	28516545.0	24743946.
232	Zambia	63	ZMB	Lusaka	Africa	20017675.0	18927715.0	NaN	13792086.
233	Zimbabwe	74	ZWE	Harare	Africa	16320537.0	15669666.0	14154937.0	12839771.

234 rows × 17 columns



```
In [26]: df.set_index('Country', inplace=True)
df
```

Out[26]:

	Rank	CCA3	Capital	Continent	2022 Population	2020 Population	2015 Population	2010 Population	P
Country									
Afghanistan	36	AFG	Kabul	Asia	41128771.0	38972230.0	33753499.0	28189672.0	1
Albania	138	ALB	Tirana	Europe	2842321.0	2866849.0	2882481.0	2913399.0	:
Algeria	34	DZA	Algiers	Africa	44903225.0	43451666.0	39543154.0	35856344.0	3
American Samoa	213	ASM	Pago Pago	Oceania	44273.0	46189.0	51368.0	54849.0	
Andorra	203	AND	Andorra la Vella	Europe	79824.0	77700.0	71746.0	71519.0	
...	
Wallis and Futuna	226	WLF	Mata-Utu	Oceania	11572.0	11655.0	12182.0	13142.0	
Western Sahara	172	ESH	El Aaiún	Africa	575986.0	556048.0	491824.0	413296.0	
Yemen	46	YEM	Sanaa	Asia	33696614.0	32284046.0	28516545.0	24743946.0	1
Zambia	63	ZMB	Lusaka	Africa	20017675.0	18927715.0	NaN	13792086.0	
Zimbabwe	74	ZWE	Harare	Africa	16320537.0	15669666.0	14154937.0	12839771.0	1

234 rows × 16 columns

```
In [11]: df.loc['Albania']
```

```
Out[11]: Rank                138
CCA3                ALB
Capital            Tirana
Continent          Europe
2022 Population    2842321.0
2020 Population    2866849.0
2015 Population    2882481.0
2010 Population    2913399.0
2000 Population    3182021.0
1990 Population    3295066.0
1980 Population    2941651.0
1970 Population    2324731.0
Area (km²)         28748.0
Density (per km²)  98.8702
Growth Rate        0.9957
World Population Percentage  0.04
Name: Albania, dtype: object
```

In [12]: `df.iloc[1]`

```
Out[12]: Rank                138
CCA3                ALB
Capital            Tirana
Continent          Europe
2022 Population    2842321.0
2020 Population    2866849.0
2015 Population    2882481.0
2010 Population    2913399.0
2000 Population    3182021.0
1990 Population    3295066.0
1980 Population    2941651.0
1970 Population    2324731.0
Area (km²)          28748.0
Density (per km²)   98.8702
Growth Rate         0.9957
World Population Percentage  0.04
Name: Albania, dtype: object
```

In [27]: `df.reset_index(inplace=True)`
`df`

Out[27]:

	Country	Rank	CCA3	Capital	Continent	2022 Population	2020 Population	2015 Population	201 Population
0	Afghanistan	36	AFG	Kabul	Asia	41128771.0	38972230.0	33753499.0	28189672.0
1	Albania	138	ALB	Tirana	Europe	2842321.0	2866849.0	2882481.0	2913399.0
2	Algeria	34	DZA	Algiers	Africa	44903225.0	43451666.0	39543154.0	35856344.0
3	American Samoa	213	ASM	Pago Pago	Oceania	44273.0	46189.0	51368.0	54849.0
4	Andorra	203	AND	Andorra la Vella	Europe	79824.0	77700.0	71746.0	71519.0
...
229	Wallis and Futuna	226	WLF	Mata-Utu	Oceania	11572.0	11655.0	12182.0	13142.0
230	Western Sahara	172	ESH	El Aaiún	Africa	575986.0	556048.0	491824.0	413296.0
231	Yemen	46	YEM	Sanaa	Asia	33696614.0	32284046.0	28516545.0	24743946.0
232	Zambia	63	ZMB	Lusaka	Africa	20017675.0	18927715.0	NaN	13792086.0
233	Zimbabwe	74	ZWE	Harare	Africa	16320537.0	15669666.0	14154937.0	12839771.0

234 rows × 10 columns



```
In [28]: df.set_index(['Continent', 'Country'], inplace=True)
```

```
In [36]: df.sort_index()
```

Chile	65	CHL	Santiago	1.960373e+07	1.930032e+07	1.787012e+0	▲
Colombia	28	COL	Bogota	5.187402e+07	5.093066e+07	4.711973e+0	
Ecuador	67	ECU	Quito	1.800100e+07	1.758860e+07	1.619590e+0	
Falkland Islands	231	FLK	Stanley	3.780000e+03	3.747000e+03	3.408000e+0	
French Guiana	184	GUF	Cayenne	3.045570e+05	2.909690e+05	2.570260e+0	
Guyana	164	GUY	Georgetown	8.087260e+05	7.972020e+05	7.550310e+0	
Paraguay	109	PRY	Asunción	6.780744e+06	6.618695e+06	6.177950e+0	
Peru	44	PER	Lima	3.404959e+07	3.330476e+07	3.071186e+0	
Suriname	170	SUR	Paramaribo	6.180400e+05	6.070650e+05	5.754750e+0	
Uruguay	133	URY	Montevideo	3.422794e+06	3.429086e+06	3.402818e+0	
Venezuela	51	VEN	Caracas	2.830170e+07	2.849045e+07	3.052972e+0	▼

```
In [37]: pd.set_option('display.max.columns', 235)
```

```
In [38]: df.sort_index()
```

Out[38]:

		Rank	CCA3	Capital	2022 Population	2020 Population	201 Population
Continent	Country						
Africa	Algeria	34	DZA	Algiers	4.490322e+07	4.345167e+07	3.954315e+0
	Angola	42	AGO	Luanda	3.558899e+07	3.342848e+07	2.812772e+0
	Benin	77	BEN	Porto-Novo	1.335286e+07	1.264312e+07	1.093278e+0
	Botswana	144	BWA	Gaborone	2.630296e+06	2.546402e+06	2.305171e+0
	Burkina Faso	58	BFA	Ouagadougou	2.267376e+07	2.152263e+07	1.871802e+0
	Burundi	78	BDI	Bujumbura	1.288958e+07	1.222023e+07	1.072715e+0
	Cameroon	53	CMR	Yaounde	2.791454e+07	2.649109e+07	2.301265e+0
	Cape Verde	171	CPV	Praia	5.931490e+05	5.826400e+05	5.521660e+0
	Central						

```
In [40]: df.loc['Africa', 'Angola']
```

```
Out[40]: Rank                42
CCA3                AGO
Capital            Luanda
2022 Population    35588987.0
2020 Population    33428485.0
2015 Population    28127721.0
2010 Population    23364185.0
2000 Population    16394062.0
1990 Population    11828638.0
1980 Population     8330047.0
1970 Population    6029700.0
Area (km²)         1246700.0
Density (per km²)   28.5466
Growth Rate         1.0315
World Population Percentage  0.45
Name: (Africa, Angola), dtype: object
```

```
In [ ]: #Won't work on multi indexing. it works as per intial indexing
#df.iloc[1]
```