

```
In [126... import pandas as pd

In [127... df = pd.read_csv('Covid Analysis - Phase 1.csv')

In [134... df.head() #Dataset with top 5 samples

Out[134]:
```

	Country/Region	Confirmed	Deaths	Recovered	Active	New cases	New deaths	New recovered	Deaths / 100 Cases	Recovered / 100 Cases	Deaths / 100 Recovered	Confirmed last week	1 week change	1 week % increase	WHO Region
0	Afghanistan	36263	1269	25198	9796	106	10	18	3.50	69.49	5.04	35526	737	2.07	Eastern Mediterranean
1	Albania	4880	144	2745	1991	117	6	63	2.95	56.25	5.25	4171	709	17.00	Europe
2	Algeria	27973	1163	18837	7973	616	8	749	4.16	67.34	6.17	23691	4282	18.07	Africa
3	Andorra	907	52	803	52	10	0	0	5.73	88.53	6.48	884	23	2.60	Europe
4	Angola	950	41	242	667	18	1	0	4.32	25.47	16.94	749	201	26.84	Africa

Task 1 - Find the Number of Unique Countries

```
In [135... total_country = len(df['Country/Region'].unique())
print(f"There are {total_country} Unique Country's")

There are 187 Unique Country's
```

Task 2 - Check the Null values in the Dataset

```
In [146... Null_values = df.isnull().sum().values[0]
print(f"This dataset have {Null_values} NULL values. ")

This dataset have 0 NULL values.
```

Task 3 - Which Country has the maximum number of confirmed cases

```
In [137... maximum_confirmed_case = df.sort_values(by = 'Confirmed' , ascending=False).head(1).values[0]

In [138... list = maximum_confirmed_case[ : 2]
print(f'{list[0]} has the highest number of confirmed cases with {list[1]} cases.')
```

US has the highest number of confirmed cases with 4290259 cases.

Task 4 - Which Country has the maximum number of Deaths cases

```
In [147... maximum_deaths = df.sort_values(by = 'Deaths',ascending=False).head(1).values[0]

In [148... lst = maximum_deaths[0:3:2]
print(f'{lst[0]} has the highest number of deaths with {lst[1]} deaths.')
```

US has the highest number of deaths with 148011 deaths.

Task 5 - What is the average number of cases across all countries

```
In [156... print(f"The average number of confirmed cases across all countries is {round(df['Confirmed'].mean())}")

The average number of confirmed cases across all countries is 88131
```

Task 6 - What is the total number of deaths as per the dataset

```
In [160... print(f"The dataset records a total of {df['Deaths'].sum()} deaths.")

The dataset records a total of 654036 deaths.
```

Task 7 - What is the total number of confirmed cases

```
In [163... print(f"The dataset records a total of {df['Confirmed'].sum()} confirmed cases.")

The dataset records a total of 16480485 confirmed cases.
```

Task 8 - Which country has the highest death percentage

```
In [184... death_percentage = df.sort_values(by="Deaths / 100 Cases", ascending=False).head(1)
print(f"{death_percentage['Country/Region'].values[0]} has highest death percentage that is {death_percentage['Deaths / 100 Cases'].values[0]} %.")

Yemen has highest death percentage that is 28.56 %.
```

Task 9 - Which country has the highest recovery percentage

```
In [190... recovery_percentage = df.sort_values(by="Recovered / 100 Cases", ascending=False).head(1)
print(f"{recovery_percentage['Country/Region'].values[0]} has highest recovery percentage that is {recovery_percentage['Recovered / 100 Cases'].values[0]} %.")

Holy See has highest recovery percentage that is 100.0 %.
```

Task 10 - Create a New Column - New Cases to Active Cases Ratio

```
In [193... active_case = df['Active']
new_case = df['New cases']

In [194... ratio = []
for i in range(len(new_case)):
    if int(active_case[i])==0:
        ratio.append(0)
    else:
        r=(int(new_case[i])/int(active_case[i]))
        ratio.append(round(r,3))

In [197... df["new cases/active cases"] = ratio
df

Out[197]:
```

	Country/Region	Confirmed	Deaths	Recovered	Active	New cases	New deaths	New recovered	Deaths / 100 Cases	Recovered / 100 Cases	Deaths / 100 Recovered	Confirmed last week	1 week change	1 week % increase	WHO Region	new cases/active cases
0	Afghanistan	36263	1269	25198	9796	106	10	18	3.50	69.49	5.04	35526	737	2.07	Eastern Mediterranean	0.011
1	Albania	4880	144	2745	1991	117	6	63	2.95	56.25	5.25	4171	709	17.00	Europe	0.059
2	Algeria	27973	1163	18837	7973	616	8	749	4.16	67.34	6.17	23691	4282	18.07	Africa	0.077
3	Andorra	907	52	803	52	10	0	0	5.73	88.53	6.48	884	23	2.60	Europe	0.192
4	Angola	950	41	242	667	18	1	0	4.32	25.47	16.94	749	201	26.84	Africa	0.027
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
182	West Bank and Gaza	10621	78	3752	6791	152	2	0	0.73	35.33	2.08	8916	1705	19.12	Eastern Mediterranean	0.022
183	Western Sahara	10	1	8	1	0	0	0	10.00	80.00	12.50	10	0	0.00	Africa	0.000
184	Yemen	1691	483	833	375	10	4	36	28.56	49.26	57.98	1619	72	4.45	Eastern Mediterranean	0.027
185	Zambia	4552	140	2815	1597	71	1	465	3.08	61.84	4.97	3326	1226	36.86	Africa	0.044
186	Zimbabwe	2704	36	542	2126	192	2	24	1.33	20.04	6.64	1713	991	57.85	Africa	0.090

187 rows × 16 columns

Task 11 - Create a New DataFrame for the Africa WHO Region

```
In [214... africa_df = df[df['WHO Region'] == 'Africa']
africa_df.to_csv('Africa.csv',index = False)

In [215... who_africa_region = pd.read_csv("Africa.csv")
who_africa_region

Out[215]:
```

	Country/Region	Confirmed	Deaths	Recovered	Active	New cases	New deaths	New recovered	Deaths / 100 Cases	Recovered / 100 Cases	Deaths / 100 Recovered	Confirmed last week	1 week change	1 week % increase	WHO Region	new cases/active cases
0	Algeria	27973	1163	18837	7973	616	8	749	4.16	67.34	6.17	23691	4282	18.07	Africa	0.077
1	Angola	950	41	242	667	18	1	0	4.32	25.47	16.94	749	201	26.84	Africa	0.027
2	Benin	1770	35	1036	699	0	0	0	1.98	58.53	3.38	1602	168	10.49	Africa	0.000
3	Botswana	739	2	63	674	53	1	11	0.27	8.53	3.17	522	217	41.57	Africa	0.079
4	Burkina Faso	1100	53	926	121	14	0	6	4.82	84.18	5.72	1065	35	3.29	Africa	0.116
5	Burundi	378	1	301	76	17	0	22	0.26	79.63	0.33	322	56	17.39	Africa	0.224
6	Cabo Verde	2328	22	1550	756	21	0	103	0.95	66.58	1.42	2071	257	12.41	Africa	0.028
7	Cameroon	17110	391	14539	2180	402	6	0	2.29	84.97	2.69	16157	953	5.90	Africa	0.184
8	Central African Republic	4599	59	1546	2994	0	0	0	1.28	33.62	3.82	4548	51	1.12	Africa	0.000
9	Chad	922	75	810	37	7	0	0	8.13	87.85	9.26	889	33	3.71	Africa	0.189
10	Comoros	354	7	328	19	0	0	0	1.98	92.66	2.13	334	20	5.99	Africa	0.000
11	Congo (Brazzaville)	3200	54	829	2317	162	3	73	1.69	25.91	6.51	2851	349	12.24	Africa	0.070
12	Congo (Kinshasa)	8844	208	5700	2936	13	4	190	2.35	64.45	3.65	8443	401	4.75	Africa	0.004
13	Cote d'Ivoire	15655	96	10361	5198	59	0	183	0.61	66.18	0.93	14312	1343	9.38	Africa	0.011
14	Equatorial Guinea	3071	51	842	2178	0	0	0	1.66	27.42	6.06	3071	0	0.00	Africa	0.000
15	Eritrea	265	0	191	74	2	0	2	0.00	72.08	0.00	251	14	5.58	Africa	0.027
16	Eswatini	2316	34	1025	1257	109	2	39	1.47	44.26	3.32	1826	490	26.83	Africa	0.087
17	Ethiopia	14547	228	6386	7933	579	5	170	1.57	43.90	3.57	10207	4340	42.52	Africa	0.073
18	Gabon	7189	49	4682	2458	205	0	219	0.68	65.13	1.05	6433	756	11.75	Africa	0.083
19	Gambia	326	8	66	252	49	2	6	2.45	20.25	12.12	112	214	191.07	Africa	0.194
20	Ghana	33624	168	29801	3655	655	0	307	0.50	88.63	0.56	28430	5194	18.27	Africa	0.179
21	Guinea	7055	45	6257	753	47	2	105	0.64	88.69	0.72	6590	465	7.06	Africa	0.062
22	Guinea-Bissau	1954	26	803	1125	0	0	0	1.33	41.10	3.24	1949	5	0.26	Africa	0.000
23	Kenya	17975	285	7833	9857	372	5	90	1.59	43.58	3.64	13771	4204	30.53	Africa	0.038
24	Lesotho	505	12	128	365	0	0	0	2.38	25.35	9.38	359	146	40.67	Africa	0.000
25	Liberia	1167	72	646	449	5	0	5	6.17	55.36	11.15	1107	60	5.42	Africa	0.011
26	Madagascar	9690	91	6260	3339	395	6	681	0.94	64.60	1.45	7153	2537	35.47	Africa	0.118
27	Malawi	3664	99	1645	1920	24	0	6	2.70	44.90	6.02	2992	672	22.46	Africa	0.013
28	Mali	2513	124	1913	476	3	1	2	4.93	76.12	6.48	2475	38	1.54	Africa	0.006
29	Mauritania	6208	156	4653	1399	37	0	223	2.51	74.95	3.35	5923	285	4.81	Africa	0.026
30	Mauritius	344	10	332	2	0	0	0	2.91	96.51	3.01	343	1	0.29	Africa	0.000
31	Mozambique	1701	11	0	1690	32	0	0	0.65	0.00	inf	1507	194	12.87	Africa	0.019
32	Namibia	1843	8	101	1734	68	0	26	0.43	5.48	7.92	1344	499	37.13	Africa	0.039
33	Niger	1132	69	1027	36	0	0	0	6.10	90.72	6.72	1105	27	2.44	Africa	0.000
34	Nigeria	41180	860	18203	22117	648	2	829	2.09	44.20	4.72	37225	3955	10.62	Africa	0.029
35	Rwanda	1879	5	975	899	58	0	57	0.27	51.89	0.51	1629	250	15.35	Africa	0.065
36	Sao Tome and Principe	865	14	734	117	2	0	38	1.62	84.86	1.91	746	119	15.95	Africa	0.017
37	Senegal	9764	194	6477	3093	83	3	68	1.99	66.34	3.00	8948	816	9.12	Africa	0.027
38	Seychelles	114	0	39	75	0	0	0	0.00	34.21	0.00	108	6	5.56	Africa	0.000
39	Sierra Leone	1783	66	1317	400	0	0	4	3.70	73.86	5.01	1711	72	4.21	Africa	0.000
40	South Africa	452529	7067	274925	170537	7096	298	9848	1.56	60.75	2.57	373628	78901	21.12	Africa	0.042
41	South Sudan	2305	46	1175	1084	43	1	0	2.00	50.98	3.91	2211	94	4.25	Africa	0.040
42	Tanzania	509	21	183	305	0	0	0	4.13	35.95	11.48	509	0	0.00	Africa	0.000
43	Togo	874	18	607	249	6	0	8	2.06	69.45	2.97	783	91	11.62	Africa	0.024
44	Uganda	1128	2	986	140	13	0	4	0.18	87.41	0.20	1069	59	5.52	Africa	0.093
45	Western Sahara	10	1	8	1	0	0	0	10.00	80.00	12.50	10	0	0.00	Africa	0.000
46	Zambia	4552	140	2815	1597	71	1	465	3.08	61.84	4.97	3326	1226	36.86	Africa	0.044
47	Zimbabwe	2704	36	542	2126	192	2	24	1.33	20.04	6.64	1713	991	57.85	Africa	0.090

In [ ]: