Importing libraries and printing full data

```
import numpy as np
import pandas as pd
df=pd.read_csv('owid-covid-data.csv')
print(df)
```

```
        iso_code continent     location        date  total_cases  new_cases  \
0            AFG      Asia  Afghanistan  2020-02-24          5.0        5.0
1            AFG      Asia  Afghanistan  2020-02-25          5.0        0.0
2            AFG      Asia  Afghanistan  2020-02-26          5.0        0.0
3            AFG      Asia  Afghanistan  2020-02-27          5.0        0.0
4            AFG      Asia  Afghanistan  2020-02-28          5.0        0.0
...          ...       ...          ...         ...          ...        ...
257755       ZWE    Africa     Zimbabwe  2023-02-11     263083.0        0.0
257756       ZWE    Africa     Zimbabwe  2023-02-12     263083.0        0.0
257757       ZWE    Africa     Zimbabwe  2023-02-13     263083.0        0.0
257758       ZWE    Africa     Zimbabwe  2023-02-14     263083.0        0.0
257759       ZWE    Africa     Zimbabwe  2023-02-15     263642.0      559.0

        new_cases_smoothed  total_deaths  new_deaths  new_deaths_smoothed  \
0                      NaN           NaN         NaN                  NaN
1                      NaN           NaN         NaN                  NaN
2                      NaN           NaN         NaN                  NaN
3                      NaN           NaN         NaN                  NaN
4                      NaN           NaN         NaN                  NaN
...                    ...           ...         ...                  ...
257755             108.429        5659.0         0.0                0.143
257756             108.429        5659.0         0.0                0.143
257757             108.429        5659.0         0.0                0.143
257758             108.429        5659.0         0.0                0.143
257759              79.857        5662.0         3.0                0.429

        ...  male_smokers  handwashing_facilities  hospital_beds_per_thousand  \
0       ...           NaN                  37.746                         0.5
1       ...           NaN                  37.746                         0.5
2       ...           NaN                  37.746                         0.5
3       ...           NaN                  37.746                         0.5
4       ...           NaN                  37.746                         0.5
...     ...           ...                     ...                         ...
257755  ...          30.7                  36.791                         1.7
257756  ...          30.7                  36.791                         1.7
257757  ...          30.7                  36.791                         1.7
257758  ...          30.7                  36.791                         1.7
257759  ...          30.7                  36.791                         1.7

        life_expectancy  human_development_index  population  \
0                 64.83                    0.511  41128772.0
1                 64.83                    0.511  41128772.0
2                 64.83                    0.511  41128772.0
3                 64.83                    0.511  41128772.0
```

```
4                    64.83                  0.511  41128772.0
...                    ...                    ...         ...
257755               61.49                  0.571  16320539.0
257756               61.49                  0.571  16320539.0
257757               61.49                  0.571  16320539.0
257758               61.49                  0.571  16320539.0
257759               61.49                  0.571  16320539.0

        excess_mortality_cumulative_absolute  excess_mortality_cumulative  \
0                                        NaN                          NaN
1                                        NaN                          NaN
2                                        NaN                          NaN
3                                        NaN                          NaN
4                                        NaN                          NaN
```
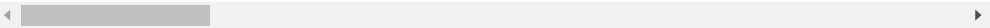
COLUMNS AND ROWS

```
df.shape
```

```
(257760, 67)
```

HEAD FUNCTION (for printing first 5 rows)

```
df.head()
```

	Continent	Country	Date	total_cases	new_cases	total_deaths	new_deaths
0	Asia	Afghanistan	2020-02-24	5.0	5.0	NaN	NaN
1	Asia	Afghanistan	2020-02-25	5.0	0.0	NaN	NaN
2	Asia	Afghanistan	2020-02-26	5.0	0.0	NaN	NaN
3	Asia	Afghanistan	2020-02-27	5.0	0.0	NaN	NaN
4	Asia	Afghanistan	2020-02-28	5.0	0.0	NaN	NaN

5 rows × 62 columns

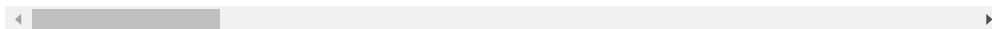## TAIL FUNCTION (for printing last 5 rows)

```
df.tail()
```

	Continent	Country	Date	total_cases	new_cases	total_deaths	new_deat
257755	Africa	Zimbabwe	2023-02-11	263083.0	0.0	5659.0	(
257756	Africa	Zimbabwe	2023-02-12	263083.0	0.0	5659.0	(
257757	Africa	Zimbabwe	2023-02-13	263083.0	0.0	5659.0	(
257758	Africa	Zimbabwe	2023-02-14	263083.0	0.0	5659.0	(
257759	Africa	Zimbabwe	2023-02-15	263642.0	559.0	5662.0	(

5 rows × 62 columns

DESCRIBE (For datas such as count,max,min,std etc)

```
df.describe()
```

	total_cases	new_cases	new_cases_smoothed	total_deaths	new_deaths
count	2.432550e+05	2.429780e+05	2.417740e+05	2.235980e+05	223504.000000
mean	5.270466e+06	1.181596e+04	1.186337e+04	7.972820e+04	127.491714
std	3.242532e+07	8.218311e+04	7.989575e+04	4.062823e+05	738.481966
min	1.000000e+00	0.000000e+00	0.000000e+00	1.000000e+00	0.000000
25%	5.708500e+03	0.000000e+00	4.571000e+00	1.240000e+02	0.000000
50%	6.189000e+04	3.800000e+01	7.785700e+01	1.358000e+03	0.000000
75%	6.402300e+05	8.260000e+02	1.006821e+03	1.097200e+04	11.000000
max	6.733644e+08	4.082891e+06	3.436562e+06	6.858124e+06	60900.000000

8 rows × 62 columns

RENAMING OF COLUMNS

```
df1=df.rename(columns={'date':'Date','location':'Country','continent':'Continent'})
print(df1)
```

```
         Continent    Country        Date  total_cases  new_cases  \
0             Asia  Afghanistan  2020-02-24          5.0        5.0
1             Asia  Afghanistan  2020-02-25          5.0        0.0
2             Asia  Afghanistan  2020-02-26          5.0        0.0
3             Asia  Afghanistan  2020-02-27          5.0        0.0
4             Asia  Afghanistan  2020-02-28          5.0        0.0
...            ...          ...         ...          ...        ...
257755      Africa     Zimbabwe  2023-02-11     263083.0        0.0
257756      Africa     Zimbabwe  2023-02-12     263083.0        0.0
257757      Africa     Zimbabwe  2023-02-13     263083.0        0.0
257758      Africa     Zimbabwe  2023-02-14     263083.0        0.0
257759      Africa     Zimbabwe  2023-02-15     263642.0      559.0

         total_deaths  new_deaths  new_cases_smoothed_per_million  \
0                 NaN         NaN                             NaN
1                 NaN         NaN                             NaN
2                 NaN         NaN                             NaN
3                 NaN         NaN                             NaN
4                 NaN         NaN                             NaN
...               ...         ...                             ...
257755         5659.0         0.0                           6.644
257756         5659.0         0.0                           6.644
257757         5659.0         0.0                           6.644
257758         5659.0         0.0                           6.644
257759         5662.0         3.0                           4.893

         total_deaths_per_million  new_deaths_per_million  ...  male_smokers  \
0                             NaN                     NaN  ...           NaN
1                             NaN                     NaN  ...           NaN
2                             NaN                     NaN  ...           NaN
3                             NaN                     NaN  ...           NaN
4                             NaN                     NaN  ...           NaN
...                           ...                     ...  ...           ...
257755                    346.741                   0.000  ...          30.7
257756                    346.741                   0.000  ...          30.7
257757                    346.741                   0.000  ...          30.7
257758                    346.741                   0.000  ...          30.7
257759                    346.925                   0.184  ...          30.7

         handwashing_facilities  hospital_beds_per_thousand  life_expectancy  \
0                        37.746                         0.5            64.83
1                        37.746                         0.5            64.83
2                        37.746                         0.5            64.83
3                        37.746                         0.5            64.83
4                        37.746                         0.5            64.83
...                         ...                         ...              ...
257755                   36.791                         1.7            61.49
257756                   36.791                         1.7            61.49
257757                   36.791                         1.7            61.49
257758                   36.791                         1.7            61.49
```

```
257759                   36.791                            1.7            61.49

           human_development_index  population  \
0                            0.511  41128772.0
1                            0.511  41128772.0
2                            0.511  41128772.0
3                            0.511  41128772.0
```

CONTINENT LIST

```
list(df.Continent.unique())
```

```
['Asia', nan, 'Europe', 'Africa', 'North America', 'South America', 'Oceania']
```

FILLING THE MISSING VALUES

```
df1=df.fillna(0)
print(df1)
```

```
        Continent      Country        Date  total_cases  new_cases  \
0            Asia  Afghanistan  2020-02-24          5.0        5.0
1            Asia  Afghanistan  2020-02-25          5.0        0.0
2            Asia  Afghanistan  2020-02-26          5.0        0.0
3            Asia  Afghanistan  2020-02-27          5.0        0.0
4            Asia  Afghanistan  2020-02-28          5.0        0.0
...           ...          ...         ...          ...        ...
257755     Africa     Zimbabwe  2023-02-11     263083.0        0.0
257756     Africa     Zimbabwe  2023-02-12     263083.0        0.0
257757     Africa     Zimbabwe  2023-02-13     263083.0        0.0
257758     Africa     Zimbabwe  2023-02-14     263083.0        0.0
257759     Africa     Zimbabwe  2023-02-15     263642.0      559.0

        total_deaths  new_deaths  new_cases_smoothed_per_million  \
0                0.0         0.0                           0.000
1                0.0         0.0                           0.000
2                0.0         0.0                           0.000
3                0.0         0.0                           0.000
4                0.0         0.0                           0.000
...              ...         ...                             ...
257755        5659.0         0.0                           6.644
257756        5659.0         0.0                           6.644
257757        5659.0         0.0                           6.644
257758        5659.0         0.0                           6.644
257759        5662.0         3.0                           4.893

        total_deaths_per_million  new_deaths_per_million  ...  male_smokers  \
0                          0.000                   0.000  ...           0.0
1                          0.000                   0.000  ...           0.0
2                          0.000                   0.000  ...           0.0
3                          0.000                   0.000  ...           0.0
```

```
4                        0.000              0.000  ...          0.0
...                        ...                ...  ...          ...
257755                 346.741              0.000  ...         30.7
257756                 346.741              0.000  ...         30.7
257757                 346.741              0.000  ...         30.7
257758                 346.741              0.000  ...         30.7
257759                 346.925              0.184  ...         30.7

        handwashing_facilities  hospital_beds_per_thousand  life_expectancy  \
0                       37.746                         0.5            64.83
1                       37.746                         0.5            64.83
2                       37.746                         0.5            64.83
3                       37.746                         0.5            64.83
4                       37.746                         0.5            64.83
...                        ...                         ...              ...
257755                  36.791                         1.7            61.49
257756                  36.791                         1.7            61.49
257757                  36.791                         1.7            61.49
257758                  36.791                         1.7            61.49
257759                  36.791                         1.7            61.49

        human_development_index  population  \
0                         0.511  41128772.0
1                         0.511  41128772.0
2                         0.511  41128772.0
3                         0.511  41128772.0
4                         0.511  41128772.0
```

TOTAL NUMBER OF COUNTRIES

```
len('Country')
```

```
7
```

0s   completed at 7:19 PM