```
import pandas as pd
```

```
df=pd.read_csv('https://github.com/YBI-Foundation/Dataset/raw/main/Gapminder.csv')
```

```
type(df)
```

```
pandas.core.frame.DataFrame
```

```
df.shape
```

```
(1704, 6)
```

```
df.describe()
```

	Year	Population	Life_Expectancy	GDP_per_Capita
count	1704.00000	1.704000e+03	1704.000000	1704.000000
mean	1979.50000	2.960121e+07	59.474439	7215.327081
std	17.26533	1.061579e+08	12.917107	9857.454543
min	1952.00000	6.001100e+04	23.599000	241.165876
25%	1965.75000	2.793664e+06	48.198000	1202.060309
50%	1979.50000	7.023596e+06	60.712500	3531.846988
75%	1993.25000	1.958522e+07	70.845500	9325.462346
max	2007.00000	1.318683e+09	82.603000	113523.132900

```
df.columns
```

```
Index(['Year', 'Continent', 'Country', 'Population', 'Life_Expectancy',
       'GDP_per_Capita'],
      dtype='object')
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1704 entries, 0 to 1703
Data columns (total 6 columns):
 #   Column           Non-Null Count  Dtype 
---  ------           --------------  ----- 
 0   Year             1704 non-null   int64 
 1   Continent        1704 non-null   object
 2   Country          1704 non-null   object
 3   Population       1704 non-null   int64 
```

```
 4   Life_Expectancy  1704 non-null   float64
 5   GDP_per_Capita   1704 non-null   float64
dtypes: float64(2), int64(2), object(2)
memory usage: 80.0+ KB
```

```
df.count()
```

```
Year               1704
Continent          1704
Country            1704
Population         1704
Life_Expectancy    1704
GDP_per_Capita     1704
dtype: int64
```

```
df.sum()
```

```
Year                                                         3373068
Continent          AsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAs...
Country            AfghanistanAfghanistanAfghanistanAfghanistanAf...
Population                                              50440465801
Life_Expectancy                                        101344.44468
GDP_per_Capita                                    12294917.346386
dtype: object
```

```
df.median()
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning:
  """Entry point for launching an IPython kernel.
Year               1.979500e+03
Population         7.023596e+06
Life_Expectancy    6.071250e+01
GDP_per_Capita     3.531847e+03
dtype: float64
```

```
df.quantile([0.25,0.75,1])
```

	Year	Population	Life_Expectancy	GDP_per_Capita
0.25	1965.75	2.793664e+06	48.1980	1202.060309
0.75	1993.25	1.958522e+07	70.8455	9325.462346
1.00	2007.00	1.318683e+09	82.6030	113523.132900

```
df.min()
```

```
Year                    1952
Continent             Africa
Country           Afghanistan
Population              60011
```

```
Life_Expectancy         23.599
GDP_per_Capita      241.165876
dtype: object
```

```
df.max()
```

```
Year                     2007
Continent              Oceania
Country               Zimbabwe
Population          1318683096
Life_Expectancy         82.603
GDP_per_Capita     113523.1329
dtype: object
```

```
df.var()
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning:
  """Entry point for launching an IPython kernel.
Year                2.980916e+02
Population          1.126950e+16
Life_Expectancy     1.668517e+02
GDP_per_Capita      9.716941e+07
dtype: float64
```

```
df.mean()
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning:
  """Entry point for launching an IPython kernel.
Year                1.979500e+03
Population          2.960121e+07
Life_Expectancy     5.947444e+01
GDP_per_Capita      7.215327e+03
dtype: float64
```

```
df.std()
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning:
  """Entry point for launching an IPython kernel.
Year                1.726533e+01
Population          1.061579e+08
Life_Expectancy     1.291711e+01
GDP_per_Capita      9.857455e+03
dtype: float64
```

```
df.nunique()
```

```
Year                  12
Continent              5
Country              142
Population          1704
Life_Expectancy     1626
GDP_per_Capita      1704
dtype: int64
```

```
df['Population'].unique()
```

```
array([ 8425333,  9240934, 10267083, ..., 11404948, 11926563, 12311143])
```

```
df['Population'].value_counts()
```

```
8425333     1
3933004     1
3638919     1
3491938     1
3327728     1
           ..
71019069    1
69145952    1
1688359     1
1457766     1
12311143    1
Name: Population, Length: 1704, dtype: int64
```

```
df.rolling(10)
```

```
Rolling [window=10,center=False,axis=0,method=single]
```

```
df.expanding()
```

```
Expanding [min_periods=1,center=False,axis=0,method=single]
```

```
df.max(axis=1)
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning:
  """Entry point for launching an IPython kernel.
0        8425333.0
1        9240934.0
2       10267083.0
3       11537966.0
4       13079460.0
           ...
1699     9216418.0
1700    10704340.0
1701    11404948.0
1702    11926563.0
1703    12311143.0
Length: 1704, dtype: float64
```

```
df.min(axis=1)
```

```
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:1: FutureWarning:
  """Entry point for launching an IPython kernel.
0       28.801
1       30.332
2       31.997
```

```
3       34.020
4       36.088
         ...
1699    62.351
1700    60.377
1701    46.809
1702    39.989
1703    43.487
Length: 1704, dtype: float64
```

```
df.rank()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	71.5	1122.5	6.5	943.0	2.0	227.0
1	213.5	1122.5	6.5	999.0	6.0	255.0
2	355.5	1122.5	6.5	1067.0	11.0	274.0
3	497.5	1122.5	6.5	1129.0	25.0	262.0
4	639.5	1122.5	6.5	1169.0	45.0	202.0
...	...	...	...	...	...	...
1699	1065.5	312.5	1698.5	995.0	903.0	181.0
1700	1207.5	312.5	1698.5	1097.0	843.0	174.0
1701	1349.5	312.5	1698.5	1122.0	375.0	236.0
1702	1491.5	312.5	1698.5	1139.0	124.0	153.0
1703	1633.5	312.5	1698.5	1146.0	243.0	52.0

1704 rows × 6 columns

```
df.shift(-1)
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1957.0	Asia	Afghanistan	9240934.0	30.332	820.853030
1	1962.0	Asia	Afghanistan	10267083.0	31.997	853.100710
2	1967.0	Asia	Afghanistan	11537966.0	34.020	836.197138

```
df.cumsum()
```

	Year	Continent	
0	1952	Asia	
1	3909	AsiaAsia	Afg
2	5871	AsiaAsiaAsia	AfghanistanAfg
3	7838	AsiaAsiaAsiaAsia	AfghanistanAfghanistanAfg
4	9810	AsiaAsiaAsiaAsiaAsia	AfghanistanAfghanistanAfghan
...	...	...	
1699	3365070	AsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAs...	AfghanistanAfghanistanAfghan
1700	3367062	AsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAs...	AfghanistanAfghanistanAfghan
1701	3369059	AsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAs...	AfghanistanAfghanistanAfghan
1702	3371061	AsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAs...	AfghanistanAfghanistanAfghan
1703	3373068	AsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAsiaAs...	AfghanistanAfghanistanAfghan

1704 rows × 6 columns

```
df.cummax()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030

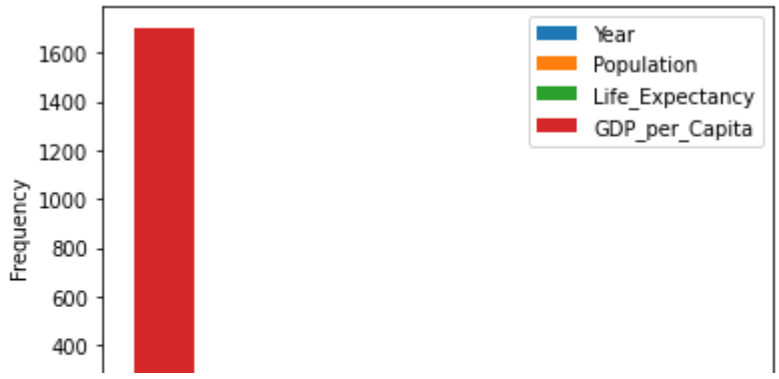
```
df.cummin()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1952	Asia	Afghanistan	8425333	28.801	779.445314
2	1952	Asia	Afghanistan	8425333	28.801	779.445314
3	1952	Asia	Afghanistan	8425333	28.801	779.445314
4	1952	Asia	Afghanistan	8425333	28.801	739.981106
...	...	...	...	...	...	...
1699	1952	Africa	Afghanistan	60011	23.599	241.165876
1700	1952	Africa	Afghanistan	60011	23.599	241.165876
1701	1952	Africa	Afghanistan	60011	23.599	241.165876
1702	1952	Africa	Afghanistan	60011	23.599	241.165876
1703	1952	Africa	Afghanistan	60011	23.599	241.165876

1704 rows × 6 columns

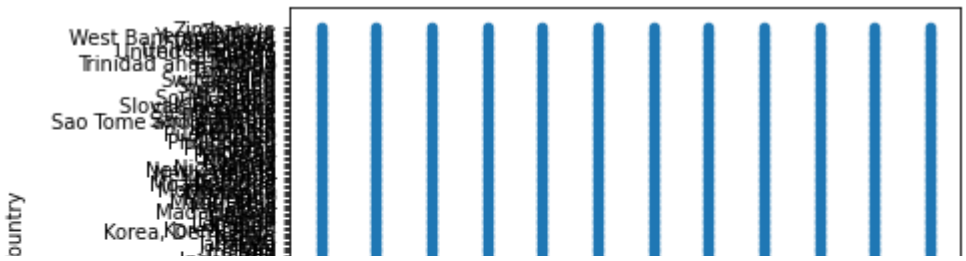
```
df.plot.hist()
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fc8a578cc90>
```




```
df.plot.scatter(x='Year',y='Country')
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fc8a42e5d90>
```




```
df.sort_values('Year')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
528	1952	Europe	France	42459667	67.410	7029.809327
540	1952	Africa	Gabon	420702	37.003	4293.476475
1656	1952	Asia	West Bank and Gaza	1030585	43.160	1515.592329
552	1952	Africa	Gambia	284320	30.000	485.230659
...	...	...	...	...	...	...
1127	2007	Africa	Niger	12894865	56.867	619.676892
1139	2007	Africa	Nigeria	135031164	46.859	2013.977305
1151	2007	Europe	Norway	4627926	80.196	49357.190170
1175	2007	Asia	Pakistan	169270617	65.483	2605.947580
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

1704 rows × 6 columns

```
df.sort_values('Year',ascending=False)
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298
491	2007	Africa	Equatorial Guinea	551201	51.579	12154.089750
515	2007	Africa	Ethiopia	76511887	52.947	690.805576
527	2007	Europe	Finland	5238460	79.313	33207.084400
539	2007	Europe	France	61083916	80.657	30470.016700
...	...	...	...	...	...	...

```
df.sort_index()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106
...	...	...	...	...	...	...
1699	1987	Africa	Zimbabwe	9216418	62.351	706.157306
1700	1992	Africa	Zimbabwe	10704340	60.377	693.420786
1701	1997	Africa	Zimbabwe	11404948	46.809	792.449960
1702	2002	Africa	Zimbabwe	11926563	39.989	672.038623
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

1704 rows × 6 columns

```
df.reset_index()
```

	index	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Ca
0	0	1952	Asia	Afghanistan	8425333	28.801	779.44
1	1	1957	Asia	Afghanistan	9240934	30.332	820.85
2	2	1962	Asia	Afghanistan	10267083	31.997	853.10
3	3	1967	Asia	Afghanistan	11537966	34.020	836.19
4	4	1972	Asia	Afghanistan	13079460	36.088	739.98

```
df.drop(columns=['Continent'])
```

	Year	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Afghanistan	8425333	28.801	779.445314
1	1957	Afghanistan	9240934	30.332	820.853030
2	1962	Afghanistan	10267083	31.997	853.100710
3	1967	Afghanistan	11537966	34.020	836.197138
4	1972	Afghanistan	13079460	36.088	739.981106
...	...	...	...	...	...
1699	1987	Zimbabwe	9216418	62.351	706.157306
1700	1992	Zimbabwe	10704340	60.377	693.420786
1701	1997	Zimbabwe	11404948	46.809	792.449960
1702	2002	Zimbabwe	11926563	39.989	672.038623
1703	2007	Zimbabwe	12311143	43.487	469.709298

1704 rows × 5 columns

```
pd.melt(df)
```

	variable	value
0	Year	1952
1	Year	1957
2	Year	1962
3	Year	1967

```
df.rename(columns={'Year':'Y'})
```

	Y	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106
...	...	...	...	...	...	...
1699	1987	Africa	Zimbabwe	9216418	62.351	706.157306
1700	1992	Africa	Zimbabwe	10704340	60.377	693.420786
1701	1997	Africa	Zimbabwe	11404948	46.809	792.449960
1702	2002	Africa	Zimbabwe	11926563	39.989	672.038623
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

1704 rows × 6 columns

```
df.rename(columns={'Y':'Year'})
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710

```
df.drop_duplicates()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106
...	...	...	...	...	...	...
1699	1987	Africa	Zimbabwe	9216418	62.351	706.157306
1700	1992	Africa	Zimbabwe	10704340	60.377	693.420786
1701	1997	Africa	Zimbabwe	11404948	46.809	792.449960
1702	2002	Africa	Zimbabwe	11926563	39.989	672.038623
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

1704 rows × 6 columns

```
df.sample(10)
```

```
            Year  Continent      Country  Population  Life_Expectancy  GDP_per_Capita
df.head()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106

```
df.tail()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
1699	1987	Africa	Zimbabwe	9216418	62.351	706.157306
1700	1992	Africa	Zimbabwe	10704340	60.377	693.420786
1701	1997	Africa	Zimbabwe	11404948	46.809	792.449960
1702	2002	Africa	Zimbabwe	11926563	39.989	672.038623
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

```
df.nlargest(10,'Year')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
11	2007	Asia	Afghanistan	31889923	43.828	974.580338
23	2007	Europe	Albania	3600523	76.423	5937.029526
35	2007	Africa	Algeria	33333216	72.301	6223.367465
47	2007	Africa	Angola	12420476	42.731	4797.231267
59	2007	Americas	Argentina	40301927	75.320	12779.379640
71	2007	Oceania	Australia	20434176	81.235	34435.367440
83	2007	Europe	Austria	8199783	79.829	36126.492700
95	2007	Asia	Bahrain	708573	75.635	29796.048340
107	2007	Asia	Bangladesh	150448339	64.062	1391.253792
119	2007	Europe	Belgium	10392226	79.441	33692.605080

```
df.nsmallest(20,'Year')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
12	1952	Europe	Albania	1282697	55.230	1601.056136
24	1952	Africa	Algeria	9279525	43.077	2449.008185
36	1952	Africa	Angola	4232095	30.015	3520.610273
48	1952	Americas	Argentina	17876956	62.485	5911.315053
60	1952	Oceania	Australia	8691212	69.120	10039.595640
72	1952	Europe	Austria	6927772	66.800	6137.076492
84	1952	Asia	Bahrain	120447	50.939	9867.084765
96	1952	Asia	Bangladesh	46886859	37.484	684.244172
108	1952	Europe	Belgium	8730405	68.000	8343.105127
120	1952	Africa	Benin	1738315	38.223	1062.752200
132	1952	Americas	Bolivia	2883315	40.414	2677.326347
144	1952	Europe	Bosnia and Herzegovina	2791000	53.820	973.533195
156	1952	Africa	Botswana	442308	47.622	851.241141
168	1952	Americas	Brazil	56602560	50.917	2108.944355
180	1952	Europe	Bulgaria	7274900	59.600	2444.286648
192	1952	Africa	Burkina Faso	4469979	31.975	543.255241
204	1952	Africa	Burundi	2445618	39.031	339.296459
216	1952	Asia	Cambodia	4693836	39.417	368.469286
228	1952	Africa	Cameroon	5009067	38.523	1172.667655

```
df.sample(frac=0.5)
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
820	1972	Africa	Kenya	12044785	53.559	1222.359968
1468	1972	Europe	Sweden	8122293	74.720	17832.024640
1554	1982	Americas	Trinidad and Tobago	1116479	68.832	9119.528607
411	1967	Europe	Denmark	4838800	72.960	15937.211230

```
df.query('Year>=1000')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106
...	...	...	...	...	...	...
1699	1987	Africa	Zimbabwe	9216418	62.351	706.157306
1700	1992	Africa	Zimbabwe	10704340	60.377	693.420786
1701	1997	Africa	Zimbabwe	11404948	46.809	792.449960
1702	2002	Africa	Zimbabwe	11926563	39.989	672.038623
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

1704 rows × 6 columns

```
df.query('Year>10 and Population>=100000')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710

```
df.rank(method='dense')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1.0	3.0	1.0	943.0	2.0	227.0
1	2.0	3.0	1.0	999.0	6.0	255.0
2	3.0	3.0	1.0	1067.0	11.0	274.0
3	4.0	3.0	1.0	1129.0	25.0	262.0
4	5.0	3.0	1.0	1169.0	45.0	202.0
...	...	...	...	...	...	...
1699	8.0	1.0	142.0	995.0	890.0	181.0
1700	9.0	1.0	142.0	1097.0	831.0	174.0
1701	10.0	1.0	142.0	1122.0	371.0	236.0
1702	11.0	1.0	142.0	1139.0	123.0	153.0
1703	12.0	1.0	142.0	1146.0	242.0	52.0

1704 rows × 6 columns

```
df.rank(method='max')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	142.0	1320.0	12.0	943.0	2.0	227.0
1	284.0	1320.0	12.0	999.0	6.0	255.0

```
df.rank(method='min')
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1.0	925.0	1.0	943.0	2.0	227.0
1	143.0	925.0	1.0	999.0	6.0	255.0
2	285.0	925.0	1.0	1067.0	11.0	274.0
3	427.0	925.0	1.0	1129.0	25.0	262.0
4	569.0	925.0	1.0	1169.0	45.0	202.0
...	...	...	...	...	...	...
1699	995.0	1.0	1693.0	995.0	903.0	181.0
1700	1137.0	1.0	1693.0	1097.0	843.0	174.0
1701	1279.0	1.0	1693.0	1122.0	375.0	236.0
1702	1421.0	1.0	1693.0	1139.0	124.0	153.0
1703	1563.0	1.0	1693.0	1146.0	243.0	52.0

1704 rows × 6 columns

```
df.rank(pct=False)
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	71.5	1122.5	6.5	943.0	2.0	227.0

```
df.rank(pct=True)
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	0.041960	0.658744	0.003815	0.553404	0.001174	0.133216
1	0.125293	0.658744	0.003815	0.586268	0.003521	0.149648
2	0.208627	0.658744	0.003815	0.626174	0.006455	0.160798
3	0.291960	0.658744	0.003815	0.662559	0.014671	0.153756
4	0.375293	0.658744	0.003815	0.686033	0.026408	0.118545
...	...	...	...	...	...	...
1699	0.625293	0.183392	0.996772	0.583920	0.529930	0.106221
1700	0.708627	0.183392	0.996772	0.643779	0.494718	0.102113
1701	0.791960	0.183392	0.996772	0.658451	0.220070	0.138498
1702	0.875293	0.183392	0.996772	0.668427	0.072770	0.089789
1703	0.958627	0.183392	0.996772	0.672535	0.142606	0.030516

1704 rows × 6 columns

```
df.filter(regex='regex')
```

0
1
2
3
4
...
1699
1700
1701
1702
1703

1704 rows × 0 columns

```
df.iloc[100:500]
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
100	1972	Asia	Bangladesh	70759295	45.252	630.233627
101	1977	Asia	Bangladesh	80428306	46.923	659.877232
102	1982	Asia	Bangladesh	93074406	50.009	676.981866
103	1987	Asia	Bangladesh	103764241	52.819	751.979403
104	1992	Asia	Bangladesh	113704579	56.018	837.810164
...	...	...	...	...	...	...
495	1967	Africa	Eritrea	1820319	42.189	468.794970
496	1972	Africa	Eritrea	2260187	44.142	514.324208
497	1977	Africa	Eritrea	2512642	44.535	505.753808
498	1982	Africa	Eritrea	2637297	43.890	524.875849
499	1987	Africa	Eritrea	2915959	46.453	521.134133

400 rows × 6 columns

```
df.loc['Year':]
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita

```
df.iloc[:,[1,2,3]]
```

	Continent	Country	Population
0	Asia	Afghanistan	8425333

```
df.loc[:,'Year':'Population']
```

	Year	Continent	Country	Population
0	1952	Asia	Afghanistan	8425333
1	1957	Asia	Afghanistan	9240934
2	1962	Asia	Afghanistan	10267083
3	1967	Asia	Afghanistan	11537966
4	1972	Asia	Afghanistan	13079460
...	...	...	...	...
1699	1987	Africa	Zimbabwe	9216418
1700	1992	Africa	Zimbabwe	10704340
1701	1997	Africa	Zimbabwe	11404948
1702	2002	Africa	Zimbabwe	11926563
1703	2007	Africa	Zimbabwe	12311143

1704 rows × 4 columns

```
df.iat[1,3]
```

```
9240934
```

```
df.loc[6,'Year']
```

```
1982
```

```
df.fillna(10)
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106

```
df.isna()
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	False	False	False	False	False	False
1	False	False	False	False	False	False
2	False	False	False	False	False	False
3	False	False	False	False	False	False
4	False	False	False	False	False	False
...	...	...	...	...	...	...
1699	False	False	False	False	False	False
1700	False	False	False	False	False	False
1701	False	False	False	False	False	False
1702	False	False	False	False	False	False
1703	False	False	False	False	False	False

1704 rows × 6 columns

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1704 entries, 0 to 1703
Data columns (total 6 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   Year             1704 non-null   object 
 1   Continent        1704 non-null   object 
 2   Country          1704 non-null   object 
 3   Population       1704 non-null   int64  
 4   Life_Expectancy  1704 non-null   float64
 5   GDP_per_Capita   1704 non-null   float64
dtypes: float64(2), int64(1), object(3)
memory usage: 80.0+ KB
```

```
df['Year']=df['Year'].astype('object')
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1704 entries, 0 to 1703
Data columns (total 6 columns):
 #   Column           Non-Null Count  Dtype  
---  ------           --------------  -----  
 0   Year             1704 non-null   object 
 1   Continent        1704 non-null   object 
 2   Country          1704 non-null   object 
 3   Population       1704 non-null   int64  
 4   Life_Expectancy  1704 non-null   float64
 5   GDP_per_Capita   1704 non-null   float64
dtypes: float64(2), int64(1), object(3)
memory usage: 80.0+ KB
```

```
data=df.copy()
```

```
data
```

	Year	Continent	Country	Population	Life_Expectancy	GDP_per_Capita
0	1952	Asia	Afghanistan	8425333	28.801	779.445314
1	1957	Asia	Afghanistan	9240934	30.332	820.853030
2	1962	Asia	Afghanistan	10267083	31.997	853.100710
3	1967	Asia	Afghanistan	11537966	34.020	836.197138
4	1972	Asia	Afghanistan	13079460	36.088	739.981106
...	...	...	...	...	...	...
1699	1987	Africa	Zimbabwe	9216418	62.351	706.157306
1700	1992	Africa	Zimbabwe	10704340	60.377	693.420786
1701	1997	Africa	Zimbabwe	11404948	46.809	792.449960
1702	2002	Africa	Zimbabwe	11926563	39.989	672.038623
1703	2007	Africa	Zimbabwe	12311143	43.487	469.709298

1704 rows × 6 columns

```
pd.options.display.max_rows=1000
```

```
df.T
```

	0	1	2	3	
Year	1952	1957	1962	1967	
Continent	Asia	Asia	Asia	Asia	
Country	Afghanistan	Afghanistan	Afghanistan	Afghanistan	Afgha
Population	8425333	9240934	10267083	11537966	130
Life_Expectancy	28.801	30.332	31.997	34.02	