

PROJECT

```
In [53]: import pandas as pd
import numpy as np
```

1. Load world alcohol consumption data set

```
In [54]: df = pd.read_csv('G:/AVD/Python/datasets/world_alcohol_comsumption.csv')
df
```

Out[54]:

	Year	WHO region	Country	Beverage Types	Display Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
1	1986	Americas	Uruguay	Other	0.50
2	1985	Africa	Cte d'Ivoire	Wine	1.62
3	1986	Americas	Colombia	Beer	4.27
4	1987	Americas	Saint Kitts and Nevis	Beer	1.98
...	...	...	...	...	...
95	1984	Africa	Niger	Other	0.00
96	1985	Europe	Luxembourg	Wine	7.38
97	1984	South-East Asia	Indonesia	Wine	0.00
98	1984	Africa	Equatorial Guinea	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

100 rows × 5 columns

2. Write a Python program to find out the alcohol consumption details in the year '1987' or '1989' from the dataset.

```
In [11]: df[(df.Year==1987) | (df.Year==1989)]
df
```

Out[11]:

	Year	WHO region	Country	Beverage Types	Display Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
1	1986	Americas	Uruguay	Other	0.50
2	1985	Africa	Cte d'Ivoire	Wine	1.62
3	1986	Americas	Colombia	Beer	4.27
4	1987	Americas	Saint Kitts and Nevis	Beer	1.98
...	...	...	...	...	...
95	1984	Africa	Niger	Other	0.00
96	1985	Europe	Luxembourg	Wine	7.38
97	1984	South-East Asia	Indonesia	Wine	0.00
98	1984	Africa	Equatorial Guinea	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

100 rows × 5 columns

3. Find out and display horizontal bar chart of the alcohol consumption details in the year '1987' where WHO region is 'Western Pacific' and country is 'Vietnam'

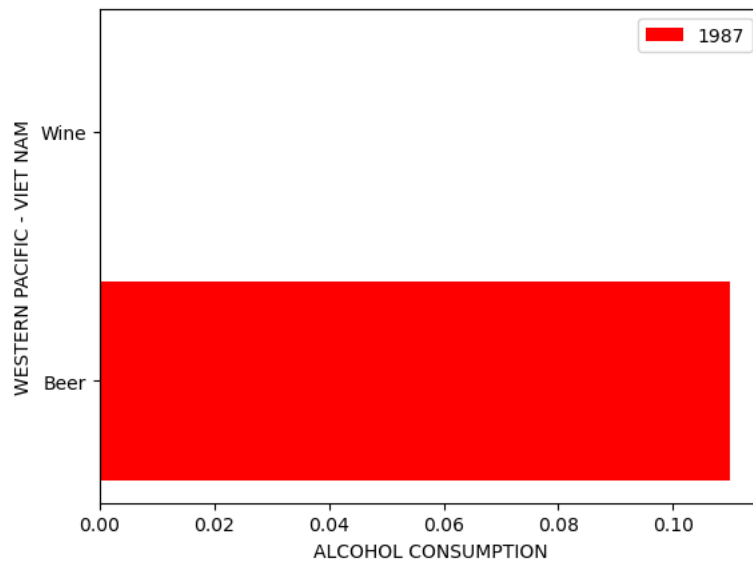
```
In [18]: res= df[df['Year']==1987].where( (df['WHO region']=='Western Pacific') & (df['Country']=='Viet Nam'))
res1=res.dropna()
res1
```

Out[18]:

	Year	WHO region	Country	Beverage Types	Display Value
28	1987.0	Western Pacific	Viet Nam	Beer	0.11
56	1987.0	Western Pacific	Viet Nam	Wine	0.00

#### 4. Display horizontal bar chart for the year 1987

```
In [32]: import matplotlib.pyplot as plt
plt.barh('Beverage Types', 'Display Value', data=res1, label="1987", color='red')
plt.xlabel("ALCOHOL CONSUMPTION")
plt.ylabel("WESTERN PACIFIC - VIET NAM")
plt.legend()
plt.show()
```



**5. Write a Pandas program to find and display bar chart to out the alcohol consumption details in the year '1986' or '1989' where WHO region is 'Americas' or 'Europe' from the world alcohol consumption dataset. Use Different colors for each bar.**

```
In [33]: # the alcohol consumption in '1986' or '1989' where WHO region is 'Americas' or 'Europe'
result = df[(df['Year']==1986) | (df['Year']==1989)].where((df['WHO region']=='Americas')
| (df['WHO region']=='Europe'))
result
```

Out[33]:

	Year	WHO region	Country	Beverage Types	Display Value
0	NaN	NaN	NaN	NaN	NaN
1	1986.0	Americas	Uruguay	Other	0.50
3	1986.0	Americas	Colombia	Beer	4.27
8	1986.0	Americas	Antigua and Barbuda	Spirits	1.55
11	1989.0	Americas	Guatemala	Beer	0.62
17	NaN	NaN	NaN	NaN	NaN
20	NaN	NaN	NaN	NaN	NaN
21	1989.0	Americas	Costa Rica	Spirits	4.51
29	1986.0	Europe	Italy	Other	NaN
30	NaN	NaN	NaN	NaN	NaN
31	NaN	NaN	NaN	NaN	NaN
32	NaN	NaN	NaN	NaN	NaN
34	1986.0	Europe	Russian Federation	Wine	0.80
37	1986.0	Europe	Sweden	Beer	3.04
41	1986.0	Europe	Czech Republic	Beer	6.82
45	NaN	NaN	NaN	NaN	NaN
47	1986.0	Americas	Mexico	Other	0.04
49	1986.0	Europe	Malta	Wine	1.49
52	NaN	NaN	NaN	NaN	NaN
55	1989.0	Americas	Suriname	Wine	0.04
57	1989.0	Europe	Croatia	Wine	5.10
59	NaN	NaN	NaN	NaN	NaN
64	1989.0	Americas	Bolivia (Plurinational State of)	Beer	1.26
65	NaN	NaN	NaN	NaN	NaN
67	NaN	NaN	NaN	NaN	NaN
68	NaN	NaN	NaN	NaN	NaN
69	NaN	NaN	NaN	NaN	NaN
70	NaN	NaN	NaN	NaN	NaN
73	NaN	NaN	NaN	NaN	NaN
74	1986.0	Americas	Bolivia (Plurinational State of)	Spirits	2.06
75	NaN	NaN	NaN	NaN	NaN
78	1989.0	Americas	Jamaica	Other	0.00
79	1989.0	Europe	Finland	Other	2.09
83	1986.0	Europe	Ukraine	Other	NaN
84	NaN	NaN	NaN	NaN	NaN
86	1986.0	Americas	Bahamas	Wine	1.83
87	NaN	NaN	NaN	NaN	NaN
89	NaN	NaN	NaN	NaN	NaN
90	NaN	NaN	NaN	NaN	NaN
91	1989.0	Europe	Bulgaria	Beer	4.43
92	NaN	NaN	NaN	NaN	NaN

```
In [34]: # eliminate the rows with NaN values
result = result.dropna()
result
```

Out[34]:

	Year	WHO region	Country	Beverage Types	Display Value
1	1986.0	Americas	Uruguay	Other	0.50
3	1986.0	Americas	Colombia	Beer	4.27
8	1986.0	Americas	Antigua and Barbuda	Spirits	1.55
11	1989.0	Americas	Guatemala	Beer	0.62
21	1989.0	Americas	Costa Rica	Spirits	4.51
34	1986.0	Europe	Russian Federation	Wine	0.80
37	1986.0	Europe	Sweden	Beer	3.04
41	1986.0	Europe	Czech Republic	Beer	6.82
47	1986.0	Americas	Mexico	Other	0.04
49	1986.0	Europe	Malta	Wine	1.49
55	1989.0	Americas	Suriname	Wine	0.04
57	1989.0	Europe	Croatia	Wine	5.10
64	1989.0	Americas	Bolivia (Plurinational State of)	Beer	1.26
74	1986.0	Americas	Bolivia (Plurinational State of)	Spirits	2.06
78	1989.0	Americas	Jamaica	Other	0.00
79	1989.0	Europe	Finland	Other	2.09
86	1986.0	Americas	Bahamas	Wine	1.83
91	1989.0	Europe	Bulgaria	Beer	4.43

```
In [35]: # select data for the year 1986
result1 = result[result['Year']== 1986]
result1
```

Out[35]:

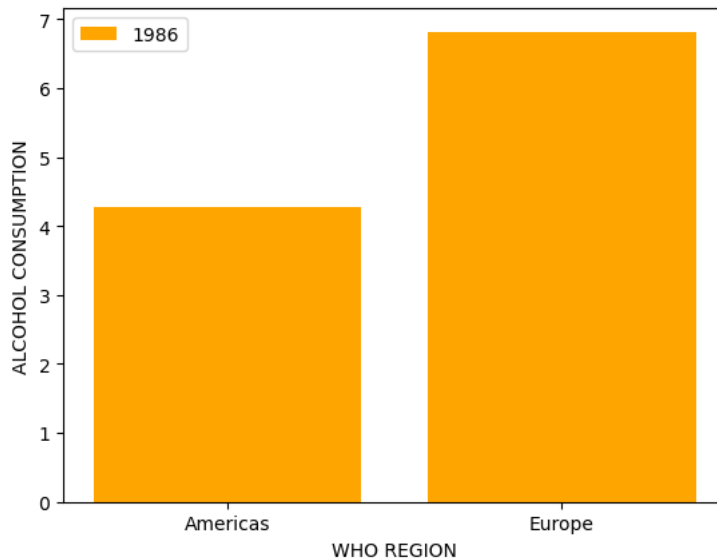
	Year	WHO region	Country	Beverage Types	Display Value
1	1986.0	Americas	Uruguay	Other	0.50
3	1986.0	Americas	Colombia	Beer	4.27
8	1986.0	Americas	Antigua and Barbuda	Spirits	1.55
34	1986.0	Europe	Russian Federation	Wine	0.80
37	1986.0	Europe	Sweden	Beer	3.04
41	1986.0	Europe	Czech Republic	Beer	6.82
47	1986.0	Americas	Mexico	Other	0.04
49	1986.0	Europe	Malta	Wine	1.49
74	1986.0	Americas	Bolivia (Plurinational State of)	Spirits	2.06
86	1986.0	Americas	Bahamas	Wine	1.83

```
In [37]: # select data for the year 1989
result2 = result[result['Year']== 1989]
result2
```

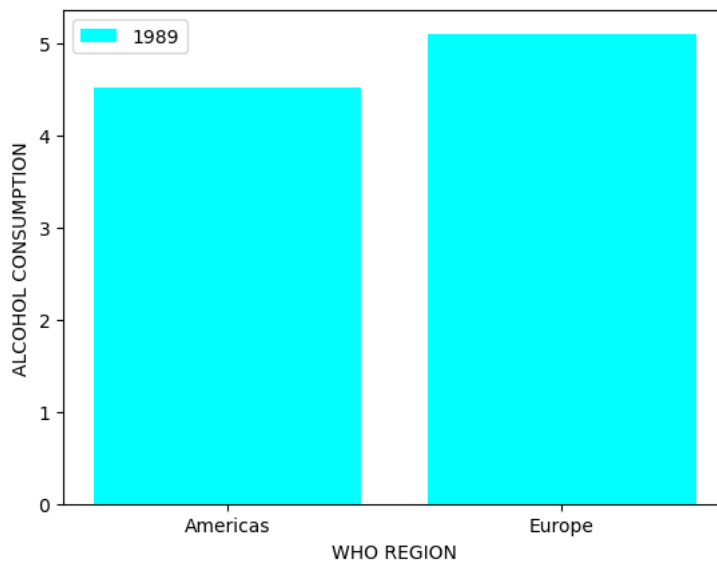
Out[37]:

	Year	WHO region	Country	Beverage Types	Display Value
11	1989.0	Americas	Guatemala	Beer	0.62
21	1989.0	Americas	Costa Rica	Spirits	4.51
55	1989.0	Americas	Suriname	Wine	0.04
57	1989.0	Europe	Croatia	Wine	5.10
64	1989.0	Americas	Bolivia (Plurinational State of)	Beer	1.26
78	1989.0	Americas	Jamaica	Other	0.00
79	1989.0	Europe	Finland	Other	2.09
91	1989.0	Europe	Bulgaria	Beer	4.43

```
In [38]: # display bar charts for the years 1986 and 1989
import matplotlib.pyplot as plt
plt.bar('WHO region', 'Display Value', data=result1, label="1986", color='orange')
plt.xlabel("WHO REGION")
plt.ylabel("ALCOHOL CONSUMPTION")
plt.legend()
plt.show()
```



```
In [39]: plt.bar('WHO region', 'Display Value', data=result2, label="1989", color='cyan')
plt.xlabel("WHO REGION")
plt.ylabel("ALCOHOL CONSUMPTION")
plt.legend()
plt.show()
```



## 6. Write a Pandas program to find out the 'WHO region', 'Country', 'Beverage Types' in the year '1986' or '1989' where WHO region is 'Americas' or 'Europe' from the world alcohol consumption dataset

```
In [43]: result = df[(df['Year']==1986) | (df['Year']==1989)].where((df['WHO region']=='Americas')
| (df['WHO region']=='Europe'))[['WHO region', 'Country', 'Beverage Types']]
result
```

Out[43]:

	WHO region	Country	Beverage Types
0	NaN	NaN	NaN
1	Americas	Uruguay	Other
3	Americas	Colombia	Beer
8	Americas	Antigua and Barbuda	Spirits
11	Americas	Guatemala	Beer
17	NaN	NaN	NaN
20	NaN	NaN	NaN
21	Americas	Costa Rica	Spirits
29	Europe	Italy	Other
30	NaN	NaN	NaN
31	NaN	NaN	NaN
32	NaN	NaN	NaN
34	Europe	Russian Federation	Wine
37	Europe	Sweden	Beer
41	Europe	Czech Republic	Beer
45	NaN	NaN	NaN
47	Americas	Mexico	Other
49	Europe	Malta	Wine
52	NaN	NaN	NaN
55	Americas	Suriname	Wine
57	Europe	Croatia	Wine
59	NaN	NaN	NaN
64	Americas	Bolivia (Plurinational State of)	Beer
65	NaN	NaN	NaN
67	NaN	NaN	NaN
68	NaN	NaN	NaN
69	NaN	NaN	NaN
70	NaN	NaN	NaN
73	NaN	NaN	NaN
74	Americas	Bolivia (Plurinational State of)	Spirits
75	NaN	NaN	NaN
78	Americas	Jamaica	Other
79	Europe	Finland	Other
83	Europe	Ukraine	Other
84	NaN	NaN	NaN
86	Americas	Bahamas	Wine
87	NaN	NaN	NaN
89	NaN	NaN	NaN
90	NaN	NaN	NaN
91	Europe	Bulgaria	Beer
92	NaN	NaN	NaN

7. Write a Pandas program to find out the records where consumption of beverages per person average >=5 and Beverage Types is Beer from world alcohol consumption dataset.

```
In [44]: result = df[(df['Display Value']>=5) & (df['Beverage Types']=='Beer')]
result
```

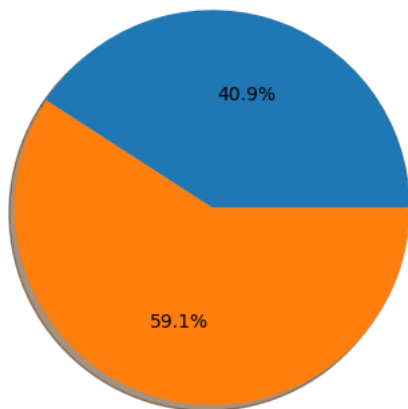
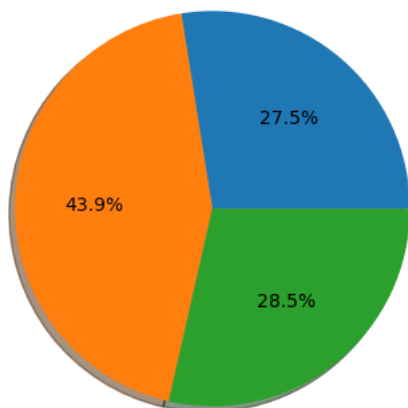
Out[44]:

	Year	WHO region	Country	Beverage Types	Display Value
41	1986	Europe	Czech Republic	Beer	6.82

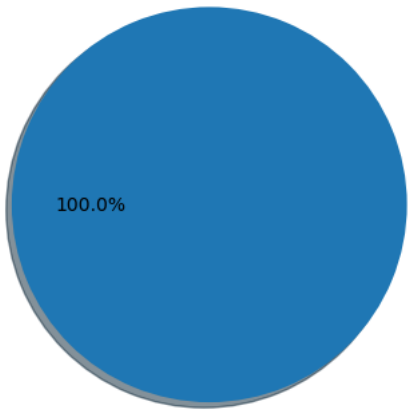
**8. Write a Pandas program to find out and display Pie chart of the records where consumption of beverages per person average  $\geq 4$  and Beverage Types is Beer, Wine, Spirits from world alcohol consumption dataset.**

```
In [46]: result1 = df[(df['Display Value']>=4) & (df['Beverage Types']=='Beer')]['Display Value']
result2 = df[(df['Display Value']>=4) & (df['Beverage Types']=='Wine')]['Display Value']
result3 = df[(df['Display Value']>=4) & (df['Beverage Types']=='Spirits')]['Display Value']
#print(result1,result2,result3)

#draw pie charts
plt.pie(result1, shadow=True, autopct='%0.1f%%')
plt.show()
plt.pie(result2, shadow=True, autopct='%0.1f%%')
plt.show()
plt.pie(result3, shadow=True, autopct='%0.1f%%')
plt.show()
```







9. Write a Pandas program to filter the WHO region and Beverage Types columns and records by range from 0 to 15 from dataset

```
In [47]: result = df.loc[:15, ['WHO region', 'Beverage Types']]
result
```

Out[47]:

	WHO region	Beverage Types
0	Western Pacific	Wine
1	Americas	Other
2	Africa	Wine
3	Americas	Beer
4	Americas	Beer
5	Americas	Other
6	Africa	Wine
7	Africa	Spirits
8	Americas	Spirits
9	Africa	Other
10	Africa	Wine
11	Americas	Beer
12	Western Pacific	Beer
13	Eastern Mediterranean	Other
14	Western Pacific	Spirits
15	Africa	Wine

10. Write a Pandas program to filter those records where WHO region contains "Ea" substring from dataset and show count of it

```
In [55]: result = df['WHO region']
result = df[result.str.contains('Ea')]
result
```

Out[55]:

	Year	WHO region	Country	Beverage Types	Display Value
13	1984	Eastern Mediterranean	Afghanistan	Other	0.00
20	1986	South-East Asia	Myanmar	Wine	0.00
25	1984	Eastern Mediterranean	Tunisia	Other	0.00
27	1984	Eastern Mediterranean	Bahrain	Beer	2.22
36	1987	Eastern Mediterranean	Egypt	Beer	0.07
38	1987	Eastern Mediterranean	Qatar	Other	0.00
52	1986	Eastern Mediterranean	Saudi Arabia	Wine	0.00
53	1984	Eastern Mediterranean	Kuwait	Beer	0.00
58	1984	Eastern Mediterranean	Somalia	Spirits	0.00
59	1989	Eastern Mediterranean	Syrian Arab Republic	Other	0.00
60	1987	Eastern Mediterranean	Iran (Islamic Republic of)	Other	0.00
63	1985	Eastern Mediterranean	Libya	Other	0.00
65	1989	Eastern Mediterranean	Somalia	Beer	0.00
66	1987	Eastern Mediterranean	Iraq	Wine	0.01
73	1986	Eastern Mediterranean	Pakistan	Other	0.01
75	1989	Eastern Mediterranean	Afghanistan	Other	0.00
84	1986	South-East Asia	Sri Lanka	Other	0.00
87	1989	Eastern Mediterranean	Iraq	Wine	0.01
88	1987	Eastern Mediterranean	Lebanon	Beer	0.42
89	1986	Eastern Mediterranean	Lebanon	Wine	0.70
97	1984	South-East Asia	Indonesia	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

```
In [59]: n = len(result)
n # count the no. of such records -> 22
```

Out[59]: 22

11. Write a Pandas program to filter those records where WHO region matches with multiple values (Africa, Eastern Mediterranean, Europe) from dataset

```
In [60]: # first replace the WHO region column name as WHO_region
df1 = df.rename(columns={'WHO region': 'WHO_region'})
df1
```

Out[60]:

	Year	WHO_region	Country	Beverage Types	Display Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
1	1986	Americas	Uruguay	Other	0.50
2	1985	Africa	Cte d'Ivoire	Wine	1.62
3	1986	Americas	Colombia	Beer	4.27
4	1987	Americas	Saint Kitts and Nevis	Beer	1.98
...	...	...	...	...	...
95	1984	Africa	Niger	Other	0.00
96	1985	Europe	Luxembourg	Wine	7.38
97	1984	South-East Asia	Indonesia	Wine	0.00
98	1984	Africa	Equatorial Guinea	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

100 rows × 5 columns

```
In [61]: # now apply query() method
result = df1.query("WHO_region in ['Africa', 'Eastern Mediterranean', 'Europe']")
result
```

Out[61]:

	Year	WHO_region	Country	Beverage Types	Display Value
2	1985	Africa	Cte d'Ivoire	Wine	1.62
6	1987	Africa	Mauritius	Wine	0.13
7	1985	Africa	Angola	Spirits	0.39
9	1984	Africa	Nigeria	Other	6.10
10	1987	Africa	Botswana	Wine	0.20
...	...	...	...	...	...
93	1987	Africa	Madagascar	Other	NaN
94	1985	Europe	Ukraine	Spirits	3.06
95	1984	Africa	Niger	Other	0.00
96	1985	Europe	Luxembourg	Wine	7.38
98	1984	Africa	Equatorial Guinea	Wine	0.00

69 rows × 5 columns

## 12. Write a Pandas program to filter those records which not appears in a given list from dataset.

who\_region = ["Africa", "Eastern Mediterranean", "Europe"]

```
In [62]: result = df1.query("WHO_region not in ['Africa', 'Eastern Mediterranean', 'Europe']")
result
```

Out[62]:

	Year	WHO_region	Country	Beverage Types	Display Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
1	1986	Americas	Uruguay	Other	0.50
3	1986	Americas	Colombia	Beer	4.27
4	1987	Americas	Saint Kitts and Nevis	Beer	1.98
5	1987	Americas	Guatemala	Other	0.00
8	1986	Americas	Antigua and Barbuda	Spirits	1.55
11	1989	Americas	Guatemala	Beer	0.62
12	1985	Western Pacific	Lao People's Democratic Republic	Beer	0.00
14	1985	Western Pacific	Viet Nam	Spirits	0.05
16	1984	Americas	Costa Rica	Wine	0.06
20	1986	South-East Asia	Myanmar	Wine	0.00
21	1989	Americas	Costa Rica	Spirits	4.51
28	1987	Western Pacific	Viet Nam	Beer	0.11
31	1986	Western Pacific	Micronesia (Federated States of)	Wine	0.00
35	1985	Americas	Saint Kitts and Nevis	Spirits	2.24
43	1984	Western Pacific	China	Wine	0.03
46	1987	Americas	Trinidad and Tobago	Spirits	2.26
47	1986	Americas	Mexico	Other	0.04
48	1987	Americas	Nicaragua	Beer	0.70
54	1984	Americas	El Salvador	Spirits	1.81
55	1989	Americas	Suriname	Wine	0.04
56	1987	Western Pacific	Viet Nam	Wine	0.00
61	1984	Western Pacific	Papua New Guinea	Spirits	0.08
62	1987	Americas	Suriname	Other	0.00
64	1989	Americas	Bolivia (Plurinational State of)	Beer	1.26
74	1986	Americas	Bolivia (Plurinational State of)	Spirits	2.06
78	1989	Americas	Jamaica	Other	0.00
84	1986	South-East Asia	Sri Lanka	Other	0.00
86	1986	Americas	Bahamas	Wine	1.83
97	1984	South-East Asia	Indonesia	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

### 13. Write a Pandas program to find average consumption of wine per person greater than 2 in world alcohol consumption dataset.

```
In [63]: result = df[df["Beverage Types"] == 'Wine'][df['Display Value']>2]
result
```

C:\Users\RATNESH\AppData\Local\Temp\ipykernel\_5912\4147393221.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.

```
result = df[df["Beverage Types"] == 'Wine'][df['Display Value']>2]
```

Out[63]:

	Year	WHO region	Country	Beverage Types	Display Value
57	1989	Europe	Croatia	Wine	5.10
81	1985	Europe	Netherlands	Wine	2.54
96	1985	Europe	Luxembourg	Wine	7.38

```
In [64]: #Another solution:
result = df[(df['Beverage Types'] == 'Wine') & (df['Display Value'] > 2)]
result
```

Out[64]:

	Year	WHO region	Country	Beverage Types	Display Value
57	1989	Europe	Croatia	Wine	5.10
81	1985	Europe	Netherlands	Wine	2.54
96	1985	Europe	Luxembourg	Wine	7.38

### 14. Write a Pandas program to filter rows, based on row numbers ended with 0, like 0, 10, 20, 30 from dataset.

```
In [65]: # first create a list of row numbers
lst = list(range(0, 100, 10))
# then retrieve only those rows using iloc[]
rows = df.iloc[lst, :]
rows
```

Out[65]:

	Year	WHO region	Country	Beverage Types	Display Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
10	1987	Africa	Botswana	Wine	0.20
20	1986	South-East Asia	Myanmar	Wine	0.00
30	1986	Africa	Sierra Leone	Other	4.48
40	1987	Europe	Austria	Spirits	1.90
50	1985	Europe	Switzerland	Other	0.30
60	1987	Eastern Mediterranean	Iran (Islamic Republic of)	Other	0.00
70	1986	Africa	Madagascar	Spirits	1.02
80	1985	Africa	Malawi	Other	0.84
90	1989	Africa	Malawi	Wine	0.01

**15. Write a Pandas program to also select rows with Index label 0 to 9 with some columns from dataset.**

```
In [66]: # first create a list of row numbers
lst = list(range(0, 10))
# then retrieve only those rows using iloc[] and from some columns
rows = df.loc[lst, ['Year', 'Country']] # same as: df.iloc[lst, [0,2]]
rows
```

Out[66]:

	Year	Country
0	1986	Viet Nam
1	1986	Uruguay
2	1985	Cte d'Ivoire
3	1986	Colombia
4	1987	Saint Kitts and Nevis
5	1987	Guatemala
6	1987	Mauritius
7	1985	Angola
8	1986	Antigua and Barbuda
9	1984	Nigeria

**16. Write a Pandas program to filter all columns where all entries present, check which rows and columns has a NaN and finally drop rows with any NaNs from world alcohol consumption dataset.**

```
In [67]: # find out total no. of NaN values in each column.
df.isnull().sum()
df.dropna(inplace=True) # drop the rows with NaN values
df
```

Out[67]:

	Year	WHO region	Country	Beverage Types	Display Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
1	1986	Americas	Uruguay	Other	0.50
2	1985	Africa	Cte d'Ivoire	Wine	1.62
3	1986	Americas	Colombia	Beer	4.27
4	1987	Americas	Saint Kitts and Nevis	Beer	1.98
...	...	...	...	...	...
95	1984	Africa	Niger	Other	0.00
96	1985	Europe	Luxembourg	Wine	7.38
97	1984	South-East Asia	Indonesia	Wine	0.00
98	1984	Africa	Equatorial Guinea	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

95 rows × 5 columns

### 17. Write a Pandas program to filter all records starting from the 'Year' column, access every other column from world alcohol consumption dataset.

```
In [68]: # first know the total no. of columns as len(df.columns).
# create range object with alternate column numbers 0, 2, 4 till the total no. of columns.
obj = range(0, len(df.columns), 2)
lst = list(obj) # convert range object into a List
df.iloc[:, lst]
```

Out[68]:

	Year	Country	Display Value
0	1986	Viet Nam	0.00
1	1986	Uruguay	0.50
2	1985	Cte d'Ivoire	1.62
3	1986	Colombia	4.27
4	1987	Saint Kitts and Nevis	1.98
...	...	...	...
95	1984	Niger	0.00
96	1985	Luxembourg	7.38
97	1984	Indonesia	0.00
98	1984	Equatorial Guinea	0.00
99	1985	Democratic People's Republic of Korea	0.00

95 rows × 3 columns

### 18. Write a Pandas program to filter all records starting from the 2nd row, access every 5th row from dataset

```
In [69]: # first know the total no. of rows as len(df).
# create range object with alternate row numbers 2, 7, 12,... till the total no. of rows.
obj = range(2, len(df), 5)
lst = list(obj) # convert range object into a List
df.iloc[lst, :]
```

Out[69]:

	Year	WHO region	Country	Beverage Types	Display Value
2	1985	Africa	Cte d'Ivoire	Wine	1.62
7	1985	Africa	Angola	Spirits	0.39
12	1985	Western Pacific	Lao People's Democratic Republic	Beer	0.00
17	1989	Africa	Seychelles	Beer	2.23
22	1984	Europe	Romania	Spirits	2.67
28	1987	Western Pacific	Viet Nam	Beer	0.11
34	1986	Europe	Russian Federation	Wine	0.80
39	1987	Africa	Burkina Faso	Spirits	0.01
45	1989	Africa	Zimbabwe	Beer	0.19
50	1985	Europe	Switzerland	Other	0.30
55	1989	Americas	Suriname	Wine	0.04
60	1987	Eastern Mediterranean	Iran (Islamic Republic of)	Other	0.00
65	1989	Eastern Mediterranean	Somalia	Beer	0.00
70	1986	Africa	Madagascar	Spirits	1.02
75	1989	Eastern Mediterranean	Afghanistan	Other	0.00
80	1985	Africa	Malawi	Other	0.84
86	1986	Americas	Bahamas	Wine	1.83
91	1989	Europe	Bulgaria	Beer	4.43
97	1984	South-East Asia	Indonesia	Wine	0.00

19. Write a Pandas program to rename all and only some of the column names from dataset by adding \_ in column names.

```
In [70]: df1 = df.rename(columns={'Year': '_Year', 'WHO region': '_WHO_region',
'Country': '_Country', 'Beverage Types': '_Beverage_Types', 'Display Value': '_Display_Value'})
df1
```

Out[70]:

	_Year	_WHO_region	_Country	_Beverage_Types	_Display_Value
0	1986	Western Pacific	Viet Nam	Wine	0.00
1	1986	Americas	Uruguay	Other	0.50
2	1985	Africa	Cte d'Ivoire	Wine	1.62
3	1986	Americas	Colombia	Beer	4.27
4	1987	Americas	Saint Kitts and Nevis	Beer	1.98
...	...	...	...	...	...
95	1984	Africa	Niger	Other	0.00
96	1985	Europe	Luxembourg	Wine	7.38
97	1984	South-East Asia	Indonesia	Wine	0.00
98	1984	Africa	Equatorial Guinea	Wine	0.00
99	1985	South-East Asia	Democratic People's Republic of Korea	Wine	0.00

95 rows × 5 columns

```
In [ ]:
```