```
In [1]:   # import libraries
          import pandas as pd
          import numpy as numpy
          import matplotlib.pyplot as plt
          import seaborn as sns
```

```
In [25]:  temp = pd.read_csv('temp_FAo.csv')
          temp.head(5)
```

Out[25]:

	Domain Code	Domain	Area Code (FAO)	Area	Element Code	Element	Months Code	Months	Year Code	Year	Unit	Value	Flag
0	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1961	1961	C	0.746	F
1	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1962	1962	C	0.009	F
2	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1963	1963	C	2.695	F
3	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1964	1964	C	-5.277	F
4	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1965	1965	C	1.827	F

```
In [26]:  # basic statistics or summary
          temp.describe()
```

Out[26]:

	Area Code (FAO)	Element Code	Months Code	Year Code	Year	Value
count	4320.000000	4320.0	4320.000000	4320.000000	4320.000000	4320.000000
mean	92.666667	7271.0	7006.500000	1990.500000	1990.500000	0.399972
std	57.387437	0.0	3.452452	17.320107	17.320107	1.018098
min	2.000000	7271.0	7001.000000	1961.000000	1961.000000	-7.724000
25%	38.000000	7271.0	7003.750000	1975.750000	1975.750000	-0.155500
50%	101.000000	7271.0	7006.500000	1990.500000	1990.500000	0.377000
75%	149.000000	7271.0	7009.250000	2005.250000	2005.250000	0.964250
max	165.000000	7271.0	7012.000000	2020.000000	2020.000000	4.803000

```
In [27]:  temp.head(5)
```

Out[27]:

	Domain Code	Domain	Area Code (FAO)	Area	Element Code	Element	Months Code	Months	Year Code	Year	Unit	Value	Flag
0	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1961	1961	C	0.746	F

	Domain Code	Domain	Area Code (FAO)	Area	Element Code	Element	Months Code	Months	Year Code	Year	Unit	Value	Flag
1	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1962	1962	C	0.009	F
2	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1963	1963	C	2.695	F
3	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1964	1964	C	-5.277	F
4	ET	Temperature change	2	Afghanistan	7271	Temperature change	7001	January	1965	1965	C	1.827	F

```
In [28]:  temp.tail()
```

Out[28]:

	Domain Code	Domain	Area Code (FAO)	Area	Element Code	Element	Months Code	Months	Year Code	Year	Unit	Value	Flag
4315	ET	Temperature change	38	Sri Lanka	7271	Temperature change	7012	December	2016	2016	C	1.094	Fc
4316	ET	Temperature change	38	Sri Lanka	7271	Temperature change	7012	December	2017	2017	C	1.113	Fc
4317	ET	Temperature change	38	Sri Lanka	7271	Temperature change	7012	December	2018	2018	C	1.330	Fc
4318	ET	Temperature change	38	Sri Lanka	7271	Temperature change	7012	December	2019	2019	C	1.686	Fc
4319	ET	Temperature change	38	Sri Lanka	7271	Temperature change	7012	December	2020	2020	C	0.863	Fc

```
In [29]:  temp.shape
```

Out[29]: (4320, 14)

```
In [30]:  new_temp = temp.drop(['Domain Code', 'Element Code', 'Year Code', 'Months Code','Flag Description'
          new_temp.head()
```

Out[30]:

	Domain	Area Code (FAO)	Area	Element	Months	Year	Unit	Value	Flag
0	Temperature change	2	Afghanistan	Temperature change	January	1961	C	0.746	Fc
1	Temperature change	2	Afghanistan	Temperature change	January	1962	C	0.009	Fc
2	Temperature change	2	Afghanistan	Temperature change	January	1963	C	2.695	Fc
3	Temperature change	2	Afghanistan	Temperature change	January	1964	C	-5.277	Fc
4	Temperature change	2	Afghanistan	Temperature change	January	1965	C	1.827	Fc

```
In [31]:
```

```
new_temp.mean()
```

Out[31]:
```
Area Code (FAO)      92.666667
Year               1990.500000
Value                 0.399972
dtype: float64
```

In [32]:
```
new_temp.value_counts('Value')
```

Out[32]:
```
Value
 0.599    9
 0.050    8
 0.361    7
 0.023    7
 0.043    7
          ..
-0.064    1
-0.065    1
-0.066    1
-0.067    1
 4.803    1
Length: 2443, dtype: int64
```

In [33]:
```
new_temp.value_counts('Months')
```

Out[33]:
```
Months
April        360
August       360
December     360
February     360
January      360
July         360
June         360
March        360
May          360
November     360
October      360
September    360
dtype: int64
```

In [34]:
```
#using grooup by
new_temp.groupby(["Area"]).mean()
```

Out[34]:

	Area Code (FAO)	Year	Value
Area			
Afghanistan	2.0	1990.5	0.477028
India	100.0	1990.5	0.275061
Iran (Islamic Republic of)	102.0	1990.5	0.636314
Nepal	149.0	1990.5	0.255029
Pakistan	165.0	1990.5	0.272197

	Area Code (FAO)	Year	Value
Area			
Sri Lanka	38.0	1990.5	0.484204

In [35]:
```python
area_or_month_base_grouping = new_temp.groupby(["Area", "Months"]).mean()
```

In [36]:
```python
area_or_month_base_grouping
```

Out[36]:

		Area Code (FAO)	Year	Value
Area	**Months**			
Afghanistan	**April**	2.0	1990.5	0.503683
	August	2.0	1990.5	0.486200
	December	2.0	1990.5	0.219500
	February	2.0	1990.5	0.165800
	January	2.0	1990.5	0.479600
...	**...**	...	...	...
Sri Lanka	**March**	38.0	1990.5	0.637150
	May	38.0	1990.5	0.522767
	November	38.0	1990.5	0.394667
	October	38.0	1990.5	0.407650
	September	38.0	1990.5	0.410467

72 rows × 3 columns

In [37]:
```python
new_temp[new_temp ['Months'] == 'January'].mean()
```

```
C:\Users\eAgLe\AppData\Local\Temp/ipykernel_476/2318103847.py:1: FutureWarning: Dropping of nuisan
ce columns in DataFrame reductions (with 'numeric_only=None') is deprecated; in a future version t
his will raise TypeError.  Select only valid columns before calling the reduction.
  new_temp[new_temp ['Months'] == 'January'].mean()
```

Out[37]:
```
Area Code (FAO)      92.666667
Year               1990.500000
Value                 0.366144
dtype: float64
```

In [39]:
```python
new_temp[new_temp ['Months'] == 'January'].groupby(["Area", "Months"]).mean()
```

Out[39]:

		Area Code (FAO)	Year	Value
Area	**Months**			
Afghanistan	**January**	2.0	1990.5	0.479600
India	**January**	100.0	1990.5	0.242783
Iran (Islamic Republic of)	**January**	102.0	1990.5	0.569883

		Area Code (FAO)	Year	Value
Area	**Months**			
Nepal	**January**	149.0	1990.5	0.153333
Pakistan	**January**	165.0	1990.5	0.306117
Sri Lanka	**January**	38.0	1990.5	0.445150

In [42]:
```python
new_temp[new_temp ['Months'] == 'January'].groupby(["Area", "Months"]).sum()
```

Out[42]:

		Area Code (FAO)	Year	Value
Area	**Months**			
Afghanistan	**January**	120	119430	28.776
India	**January**	6000	119430	14.567
Iran (Islamic Republic of)	**January**	6120	119430	34.193
Nepal	**January**	8940	119430	9.200
Pakistan	**January**	9900	119430	18.367
Sri Lanka	**January**	2280	119430	26.709

In [ ]: