Importing libraries

In [1]:
```
import numpy as np
import pandas as pd
```

In [2]:
```
df=pd.read_csv(r'C:\Users\user\Desktop\4_drug200.csv')
```

Find mean, median, mode and describe

In [3]:
```
print(df.mean())
```

```
Age        44.315000
Na_to_K    16.084485
dtype: float64
```

In [4]:
```
print(df.median())
```

```
Age        45.0000
Na_to_K    13.9365
dtype: float64
```

In [5]:
```
print(df.mode())
```

```
    Age  Sex    BP Cholesterol  Na_to_K   Drug
0  47.0    M  HIGH        HIGH   12.006  drugY
1   NaN  NaN   NaN         NaN   18.295    NaN
```

In [6]:
```
print(df.describe())
```

```
              Age     Na_to_K
count  200.000000  200.000000
mean    44.315000   16.084485
std     16.544315    7.223956
min     15.000000    6.269000
25%     31.000000   10.445500
50%     45.000000   13.936500
75%     58.000000   19.380000
max     74.000000   38.247000
```

b) Find sum(), cumsum(), count, min and max values

In [7]:
```
print(df.sum())
```

```
Age                                                          8863
Sex            FMMFFFFMMMFFMFFFMMMFMMMFFFMFFMFMMFMMMMFMFFMMFF...
BP             HIGHLOWLOWNORMALLOWNORMALNORMALLOWNORMALLOWLOW...
Cholesterol    HIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHNORMALHIGH...
Na_to_K                                                  3216.897
Drug           drugYdrugCdrugCdrugXdrugYdrugXdrugYdrugCdrugYd...
dtype: object
```

In [8]:
```
print(df.cumsum())
```

```
      Age                                                  Sex  \
0      23                                                    F
1      70                                                   FM
2     117                                                  FMM
3     145                                                 FMMF
4     206                                                FMMFF
..    ...                                                  ...
195  8732  FMMFFFFMMMFFMFFFMMMFMMMFFFMFFMFMMFMMMMFMFFMMFF...
196  8748  FMMFFFFMMMFFMFFFMMMFMMMFFFMFFMFMMFMMMMFMFFMMFF...
197  8800  FMMFFFFMMMFFMFFFMMMFMMMFFFMFFMFMMFMMMMFMFFMMFF...
198  8823  FMMFFFFMMMFFMFFFMMMFMMMFFFMFFMFMMFMMMMFMFFMMFF...
199  8863  FMMFFFFMMMFFMFFFMMMFMMMFFFMFFMFMMFMMMMFMFFMMFF...

                                                    BP  \
0                                                 HIGH
1                                               HIGHLOW
2                                             HIGHLOWLOW
3                                       HIGHLOWLOWNORMAL
4                                    HIGHLOWLOWNORMALLOW
..                                                   ...
195  HIGHLOWLOWNORMALLOWNORMALNORMALLOWNORMALLOWLOW...
196  HIGHLOWLOWNORMALLOWNORMALNORMALLOWNORMALLOWLOW...
197  HIGHLOWLOWNORMALLOWNORMALNORMALLOWNORMALLOWLOW...
198  HIGHLOWLOWNORMALLOWNORMALNORMALLOWNORMALLOWLOW...
199  HIGHLOWLOWNORMALLOWNORMALNORMALLOWNORMALLOWLOW...

                                           Cholesterol   Na_to_K  \
0                                                 HIGH    25.355
1                                              HIGHHIGH    38.448
2                                          HIGHHIGHHIGH    48.562
3                                      HIGHHIGHHIGHHIGH    56.360
4                                   HIGHHIGHHIGHHIGHHIGH    74.403
..                                                   ...       ...
195  HIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHNORMALHIGH...  3169.628
196  HIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHNORMALHIGH...  3181.634
197  HIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHNORMALHIGH...  3191.528
198  HIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHNORMALHIGH...  3205.548
199  HIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHHIGHNORMALHIGH...  3216.897

                                                  Drug
0                                                drugY
1                                            drugYdrugC
2                                        drugYdrugCdrugC
3                                    drugYdrugCdrugCdrugX
4                                drugYdrugCdrugCdrugXdrugY
..                                                   ...
195  drugYdrugCdrugCdrugXdrugYdrugXdrugYdrugCdrugYd...
196  drugYdrugCdrugCdrugXdrugYdrugXdrugYdrugCdrugYd...
197  drugYdrugCdrugCdrugXdrugYdrugXdrugYdrugCdrugYd...
198  drugYdrugCdrugCdrugXdrugYdrugXdrugYdrugCdrugYd...
199  drugYdrugCdrugCdrugXdrugYdrugXdrugYdrugCdrugYd...

[200 rows x 6 columns]
```

In [9]:
```
print(df.count())
```

```
Age            200
Sex            200
BP             200
Cholesterol    200
Na_to_K        200
Drug           200
dtype: int64
```

In [10]:
```
print(df.min())
```

```
Age              15
Sex               F
BP             HIGH
Cholesterol    HIGH
Na_to_K       6.269
Drug          drugA
dtype: object
```

In [11]:
```
print(df.max())
```

```
Age              74
Sex               M
BP           NORMAL
Cholesterol  NORMAL
Na_to_K      38.247
Drug          drugY
dtype: object
```

c) Find covariance and correlation (spearman and pearsons)

In [12]:
```
from numpy import cov
```

In [14]:
```
cov(df['Age'],df['Na_to_K'])
```

Out[14]:
```
array([[273.71434673,  -7.54375153],
       [ -7.54375153,  52.18553348]])
```

In [15]:
```
from scipy.stats import pearsonr
from scipy.stats import spearmanr
```

In [16]:
```
spearmanr(df['Age'],df['Na_to_K'])
```

Out[16]:
```
SpearmanrResult(correlation=-0.047273882688479915, pvalue=0.5062200581387418)
```

In [ ]:

In [ ]: