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import libraries

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

Read file

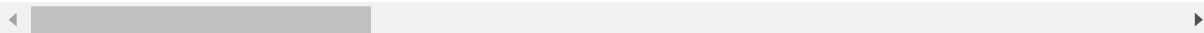
```
In [3]: df=pd.read_csv(r"E:\154\8_BreastCancerPrediction - 8_BreastCancerPrediction.csv")
```

Display File

```
In [4]: display(df)
```

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_
0	842302	M	17.99	10.38	122.80	1001.0	0.
1	842517	M	20.57	17.77	132.90	1326.0	0.
2	84300903	M	19.69	21.25	130.00	1203.0	0.
3	84348301	M	11.42	20.38	77.58	386.1	0.
4	84358402	M	20.29	14.34	135.10	1297.0	0.
...
564	926424	M	21.56	22.39	142.00	1479.0	0.
565	926682	M	20.13	28.25	131.20	1261.0	0.
566	926954	M	16.60	28.08	108.30	858.1	0.
567	927241	M	20.60	29.33	140.10	1265.0	0.
568	92751	B	7.76	24.54	47.92	181.0	0.

569 rows × 32 columns



MEAN

```
In [5]: df.mean()
```

```
Out[5]: id                3.037183e+07  
radius_mean            1.412729e+01  
texture_mean           1.928965e+01  
perimeter_mean         9.196903e+01  
area_mean              6.548891e+02  
smoothness_mean        9.636028e-02  
compactness_mean       1.043410e-01  
concavity_mean          8.879932e-02  
concave points_mean     4.891915e-02  
symmetry_mean          1.811619e-01  
fractal_dimension_mean  6.279761e-02  
radius_se              4.051721e-01  
texture_se             1.216853e+00  
perimeter_se           2.866059e+00  
area_se                4.033708e+01  
smoothness_se          7.040979e-03  
compactness_se         2.547814e-02  
concavity_se           3.189372e-02  
concave points_se      1.179614e-02  
symmetry_se            2.054230e-02  
fractal_dimension_se   3.794904e-03  
radius_worst           1.626919e+01  
texture_worst          2.567722e+01  
perimeter_worst        1.072612e+02  
area_worst             8.805831e+02  
smoothness_worst       1.323686e-01  
compactness_worst      2.542650e-01  
concavity_worst        2.721885e-01  
concave points_worst   1.146062e-01  
symmetry_worst         2.900756e-01  
fractal_dimension_worst 8.394582e-02  
dtype: float64
```

Median

```
In [6]: df.median()
```

```
Out[6]: id                906024.000000
radius_mean             13.370000
texture_mean            18.840000
perimeter_mean          86.240000
area_mean               551.100000
smoothness_mean         0.095870
compactness_mean        0.092630
concavity_mean          0.061540
concave points_mean     0.033500
symmetry_mean           0.179200
fractal_dimension_mean  0.061540
radius_se               0.324200
texture_se              1.108000
perimeter_se            2.287000
area_se                 24.530000
smoothness_se           0.006380
compactness_se          0.020450
concavity_se            0.025890
concave points_se       0.010930
symmetry_se             0.018730
fractal_dimension_se    0.003187
radius_worst            14.970000
texture_worst           25.410000
perimeter_worst         97.660000
area_worst              686.500000
smoothness_worst        0.131300
compactness_worst       0.211900
concavity_worst         0.226700
concave points_worst    0.099930
symmetry_worst          0.282200
fractal_dimension_worst 0.080040
dtype: float64
```

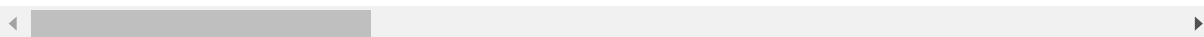
Mode

In [7]: `df.mode()`

Out[7]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness
0	8670	B	12.34	14.93	82.61	512.2	
1	8913	NaN	NaN	15.70	87.76	NaN	
2	8915	NaN	NaN	16.84	134.70	NaN	
3	9047	NaN	NaN	16.85	NaN	NaN	
4	85715	NaN	NaN	17.46	NaN	NaN	
...
564	911157302	NaN	NaN	NaN	NaN	NaN	
565	911296201	NaN	NaN	NaN	NaN	NaN	
566	911296202	NaN	NaN	NaN	NaN	NaN	
567	911320501	NaN	NaN	NaN	NaN	NaN	
568	911320502	NaN	NaN	NaN	NaN	NaN	

569 rows × 32 columns



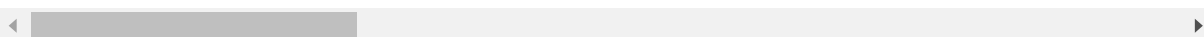
Describe

In [8]: `df.describe()`

Out[8]:

	id	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean
count	5.690000e+02	569.000000	569.000000	569.000000	569.000000	569.000000
mean	3.037183e+07	14.127292	19.289649	91.969033	654.889104	0.096366
std	1.250206e+08	3.524049	4.301036	24.298981	351.914129	0.014066
min	8.670000e+03	6.981000	9.710000	43.790000	143.500000	0.052632
25%	8.692180e+05	11.700000	16.170000	75.170000	420.300000	0.086371
50%	9.060240e+05	13.370000	18.840000	86.240000	551.100000	0.095871
75%	8.813129e+06	15.780000	21.800000	104.100000	782.700000	0.105300
max	9.113205e+08	28.110000	39.280000	188.500000	2501.000000	0.163400

8 rows × 31 columns



Sum

In [9]: `df.sum()`

```
Out[9]: id 17281572085
diagnosis MBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB...
radius_mean 8038.429
texture_mean 10975.81
perimeter_mean 52330.38
area_mean 372631.9
smoothness_mean 54.829
compactness_mean 59.37002
concavity_mean 50.526811
concave points_mean 27.834994
symmetry_mean 103.0811
fractal_dimension_mean 35.73184
radius_se 230.5429
texture_se 692.3896
perimeter_se 1630.7877
area_se 22951.798
smoothness_se 4.006317
compactness_se 14.497061
concavity_se 18.147525
concave points_se 6.712002
symmetry_se 11.688568
fractal_dimension_se 2.1593
radius_worst 9257.169
texture_worst 14610.34
perimeter_worst 61031.63
area_worst 501051.8
smoothness_worst 75.31773
compactness_worst 144.67681
concavity_worst 154.875247
concave points_worst 65.210941
symmetry_worst 165.053
fractal_dimension_worst 47.76517
dtype: object
```

Cumulative Sum

```
In [10]: df.cumsum()
```

Out[10]:

	id	diagnosis
0	842302	M
1	1684819	MM
2	85985722	MMM
3	170334023	MMMM
4	254692425	MMMMM
...
564	17278698457	MMMMMMMMMMMMMMMMMMMMBBBBMMMMMMMMMMMMMMMMBMMMMMMMMMM...
565	17279625139	MMMMMMMMMMMMMMMMMMMMBBBBMMMMMMMMMMMMMMMMBMMMMMMMMMM...
566	17280552093	MMMMMMMMMMMMMMMMMMMMBBBBMMMMMMMMMMMMMMMMBMMMMMMMMMM...
567	17281479334	MMMMMMMMMMMMMMMMMMMMBBBBMMMMMMMMMMMMMMMMBMMMMMMMMMM...

Minimum Values

```
In [11]: df.min()
```

```
Out[11]: id                8670  
diagnosis                B  
radius_mean             6.981  
texture_mean            9.71  
perimeter_mean          43.79  
area_mean               143.5  
smoothness_mean         0.05263  
compactness_mean        0.01938  
concavity_mean           0.0  
concave points_mean      0.0  
symmetry_mean            0.106  
fractal_dimension_mean   0.04996  
radius_se                0.1115  
texture_se               0.3602  
perimeter_se             0.757  
area_se                  6.802  
smoothness_se            0.001713  
compactness_se           0.002252  
concavity_se             0.0  
concave points_se        0.0  
symmetry_se              0.007882  
fractal_dimension_se     0.000895  
radius_worst              7.93  
texture_worst            12.02  
perimeter_worst          50.41  
area_worst               185.2  
smoothness_worst         0.07117  
compactness_worst        0.02729  
concavity_worst          0.0  
concave points_worst     0.0  
symmetry_worst           0.1565  
fractal_dimension_worst  0.05504  
dtype: object
```

Maximum Values

```
In [12]: df.max()
```

```
Out[12]: id                911320502
diagnosis                M
radius_mean             28.11
texture_mean            39.28
perimeter_mean          188.5
area_mean              2501.0
smoothness_mean         0.1634
compactness_mean        0.3454
concavity_mean          0.4268
concave points_mean     0.2012
symmetry_mean           0.304
fractal_dimension_mean  0.09744
radius_se               2.873
texture_se              4.885
perimeter_se            21.98
area_se                 542.2
smoothness_se           0.03113
compactness_se          0.1354
concavity_se            0.396
concave points_se       0.05279
symmetry_se             0.07895
fractal_dimension_se    0.02984
radius_worst            36.04
texture_worst           49.54
perimeter_worst         251.2
area_worst              4254.0
smoothness_worst        0.2226
compactness_worst       1.058
concavity_worst         1.252
concave points_worst    0.291
symmetry_worst          0.6638
fractal_dimension_worst 0.2075
dtype: object
```

Correlation

```
In [13]: from scipy.stats import spearmanr
print(spearmanr(df['texture_mean'], df['perimeter_mean']))
```

```
SpearmanrResult(correlation=0.34814189073942986, pvalue=1.1756333023599274e-17)
```


Co variance

```
In [14]: from scipy.stats import pearsonr  
print(pearsonr(df['texture_mean'],df['perimeter_mean']))  
  
(0.3295330586865702, 7.0419612377641145e-16)
```

```
In [ ]:
```