```
24/07/23mk
```

In [38]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as pp
```

In [39]:
```
x=pd.read_csv(r"C:\Users\user\Downloads\8_BreastCancerPrediction (1).csv")
x
```

Out[39]:

	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	0.1
3	84348301	M	11.42	20.38	77.58	386.1	0.1
4	84358402	M	20.29	14.34	135.10	1297.0	0.1
...	...	...	...	...	...	...	
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 × 33 columns

In [40]:
```
x=x.head(500)
x
```

Out[40]:

	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	0.1
3	84348301	M	11.42	20.38	77.58	386.1	0.1
4	84358402	M	20.29	14.34	135.10	1297.0	0.1
...	...	...	...	...	...	...	
495	914333	B	14.87	20.21	96.12	680.9	0.(
496	914366	B	12.65	18.17	82.69	485.6	0.1
497	914580	B	12.47	17.31	80.45	480.1	0.(
498	914769	M	18.49	17.52	121.30	1068.0	0.1
499	91485	M	20.59	21.24	137.80	1320.0	0.1

500 rows × 33 columns

In [41]:
```
x. dtypes
```

Out[41]:
```
id                         int64
diagnosis                 object
radius_mean              float64
texture_mean             float64
perimeter_mean           float64
area_mean                float64
smoothness_mean          float64
compactness_mean         float64
concavity_mean           float64
concave points_mean      float64
symmetry_mean            float64
fractal_dimension_mean   float64
radius_se                float64
texture_se               float64
perimeter_se             float64
area_se                  float64
smoothness_se            float64
compactness_se           float64
concavity_se             float64
concave points_se        float64
symmetry_se              float64
fractal_dimension_se     float64
radius_worst             float64
texture_worst            float64
perimeter_worst          float64
area_worst               float64
smoothness_worst         float64
compactness_worst        float64
concavity_worst          float64
concave points_worst     float64
symmetry_worst           float64
fractal_dimension_worst  float64
Unnamed: 32              float64
dtype: object
```

In [42]:
```
x. dtypes
```

Out[42]:
```
id                         int64
diagnosis                 object
radius_mean              float64
texture_mean             float64
perimeter_mean           float64
area_mean                float64
smoothness_mean          float64
compactness_mean         float64
concavity_mean           float64
concave points_mean      float64
symmetry_mean            float64
fractal_dimension_mean   float64
radius_se                float64
texture_se               float64
perimeter_se             float64
area_se                  float64
smoothness_se            float64
compactness_se           float64
concavity_se             float64
concave points_se        float64
symmetry_se              float64
fractal_dimension_se     float64
radius_worst             float64
texture_worst            float64
perimeter_worst          float64
area_worst               float64
smoothness_worst         float64
compactness_worst        float64
concavity_worst          float64
concave points_worst     float64
symmetry_worst           float64
fractal_dimension_worst  float64
Unnamed: 32              float64
dtype: object
```

In [43]:
```
x.tail()
```

Out[43]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_me
495	914333	B	14.87	20.21	96.12	680.9	0.095
496	914366	B	12.65	18.17	82.69	485.6	0.107
497	914580	B	12.47	17.31	80.45	480.1	0.089
498	914769	M	18.49	17.52	121.30	1068.0	0.101
499	91485	M	20.59	21.24	137.80	1320.0	0.108

5 rows × 33 columns

In [44]:
```
x.columns
```

Out[44]:
```
Index(['id', 'diagnosis', 'radius_mean', 'texture_mean', 'perimeter_mean',
       'area_mean', 'smoothness_mean', 'compactness_mean', 'concavity_mean',
       'concave points_mean', 'symmetry_mean', 'fractal_dimension_mean',
       'radius_se', 'texture_se', 'perimeter_se', 'area_se', 'smoothness_se',
       'compactness_se', 'concavity_se', 'concave points_se', 'symmetry_se',
       'fractal_dimension_se', 'radius_worst', 'texture_worst',
       'perimeter_worst', 'area_worst', 'smoothness_worst',
       'compactness_worst', 'concavity_worst', 'concave points_worst',
       'symmetry_worst', 'fractal_dimension_worst', 'Unnamed: 32'],
      dtype='object')
```

In [45]:
```
x. index
```

Out[45]:
```
RangeIndex(start=0, stop=500, step=1)
```

In [46]:
```
x.describe()
```

Out[46]:

	id	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mea
count	5.000000e+02	500.000000	500.000000	500.000000	500.000000	500.00000
mean	3.263049e+07	14.224206	19.086320	92.606620	662.844800	0.09597
std	1.326933e+08	3.476809	4.164842	23.983476	349.357241	0.01366
min	8.670000e+03	6.981000	9.710000	43.790000	143.500000	0.06251
25%	8.667040e+05	11.807500	16.070000	75.995000	430.550000	0.08599
50%	9.014320e+05	13.435000	18.680000	86.735000	556.150000	0.09582
75%	8.910808e+06	16.115000	21.562500	106.225000	800.775000	0.10510
max	9.113205e+08	28.110000	39.280000	188.500000	2501.000000	0.14470

8 rows × 32 columns

In [47]:
```
x["id"]
```

Out[47]:
```
0        842302
1        842517
2      84300903
3      84348301
4      84358402
         ...
495      914333
496      914366
497      914580
498      914769
499       91485
Name: id, Length: 500, dtype: int64
```

In [48]:
```
x.iloc[0:2]
```

Out[48]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean
0	842302	M	17.99	10.38	122.8	1001.0	0.1184
1	842517	M	20.57	17.77	132.9	1326.0	0.0847

2 rows × 33 columns

In [49]:
```
x.loc[0:3]
```

Out[49]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_me
0	842302	M	17.99	10.38	122.80	1001.0	0.11
1	842517	M	20.57	17.77	132.90	1326.0	0.08
2	84300903	M	19.69	21.25	130.00	1203.0	0.10
3	84348301	M	11.42	20.38	77.58	386.1	0.14

4 rows × 33 columns

In [50]:
```
x.loc["perimeter_mean":"area_mean"]
```

Out[50]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	con

0 rows × 33 columns

In [51]:
```
x[x["area_mean"]<=2]
```

Out[51]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	con

0 rows × 33 columns

In [52]:
```
x.fillna(value=5)
```

Out[52]:

	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	0.1
3	84348301	M	11.42	20.38	77.58	386.1	0.1
4	84358402	M	20.29	14.34	135.10	1297.0	0.1
...	...	...	...	...	...	...	
495	914333	B	14.87	20.21	96.12	680.9	0.(
496	914366	B	12.65	18.17	82.69	485.6	0.1
497	914580	B	12.47	17.31	80.45	480.1	0.(
498	914769	M	18.49	17.52	121.30	1068.0	0.1
499	91485	M	20.59	21.24	137.80	1320.0	0.1

500 rows × 33 columns

In [53]:
```
x.dropna()
```

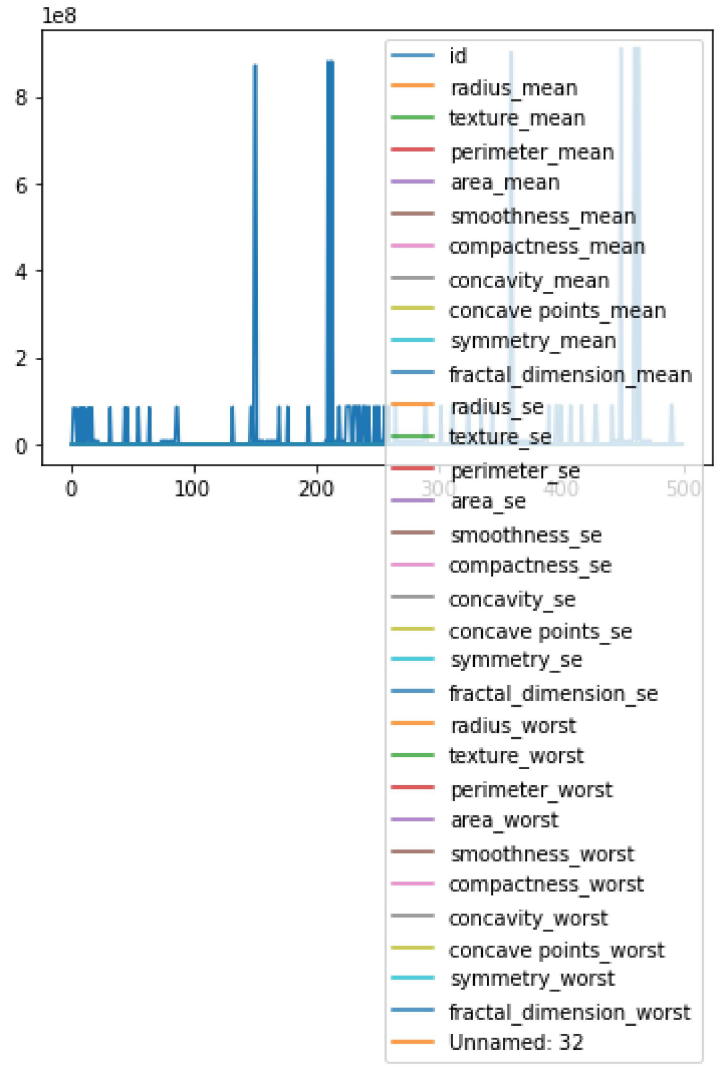
Out[53]:

id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	con

0 rows × 33 columns

In [54]:
```
x.plot.line()
```

Out[54]: <AxesSubplot:>



In [*]:
```
x.plot.bar()
```

Out[55]: <AxesSubplot:>

In [*]:
```
x.plot.hist()
```

In [*]:
```
x.plot.pie(y='concavity_mean')
```

In [*]:
```
x.plot.box()
```

In [*]:
```
x.plot.scatter(x="smoothness_mean",y='area_mean')
```