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

In [2]:
```
x=pd.read_csv(r"C:\Users\user\Downloads\8_BreastCancerPrediction - 8_BreastCancerPrediction.csv
print(x)
```

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

     smoothness_mean  compactness_mean  concavity_mean  concave points_mean  \
0            0.11840           0.27760         0.30010              0.14710
1            0.08474           0.07864         0.08690              0.07017
2            0.10960           0.15990         0.19740              0.12790
3            0.14250           0.28390         0.24140              0.10520
4            0.10030           0.13280         0.19800              0.10430
..               ...               ...             ...                  ...
564          0.11100           0.11590         0.24390              0.13890
565          0.09780           0.10340         0.14400              0.09791
566          0.08455           0.10230         0.09251              0.05302
567          0.11780           0.27700         0.35140              0.15200
568          0.05263           0.04362         0.00000              0.00000

     ...  radius_worst  texture_worst  perimeter_worst  area_worst  \
0    ...        25.380          17.33           184.60      2019.0
1    ...        24.990          23.41           158.80      1956.0
2    ...        23.570          25.53           152.50      1709.0
3    ...        14.910          26.50            98.87       567.7
4    ...        22.540          16.67           152.20      1575.0
..   ...           ...            ...              ...         ...
564  ...        25.450          26.40           166.10      2027.0
565  ...        23.690          38.25           155.00      1731.0
566  ...        18.980          34.12           126.70      1124.0
567  ...        25.740          39.42           184.60      1821.0
568  ...         9.456          30.37            59.16       268.6

     smoothness_worst  compactness_worst  concavity_worst  \
0             0.16220            0.66560           0.7119
1             0.12380            0.18660           0.2416
2             0.14440            0.42450           0.4504
3             0.20980            0.86630           0.6869
4             0.13740            0.20500           0.4000
..                ...                ...              ...
564           0.14100            0.21130           0.4107
565           0.11660            0.19220           0.3215
566           0.11390            0.30940           0.3403
567           0.16500            0.86810           0.9387
568           0.08996            0.06444           0.0000

     concave points_worst  symmetry_worst  fractal_dimension_worst
0                  0.2654          0.4601                  0.11890
1                  0.1860          0.2750                  0.08902
2                  0.2430          0.3613                  0.08758
3                  0.2575          0.6638                  0.17300
4                  0.1625          0.2364                  0.07678
..                    ...             ...                      ...
564                0.2216          0.2060                  0.07115
565                0.1628          0.2572                  0.06637
566                0.1418          0.2218                  0.07820
567                0.2650          0.4087                  0.12400
568                0.0000          0.2871                  0.07039
```

```
[569 rows x 32 columns]
```

In [3]:
```
x=x.head(300)
x
```

Out[3]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness
0	842302	M	17.99	10.38	122.80	1001.0	0.11840	0
1	842517	M	20.57	17.77	132.90	1326.0	0.08474	0
2	84300903	M	19.69	21.25	130.00	1203.0	0.10960	0
3	84348301	M	11.42	20.38	77.58	386.1	0.14250	0
4	84358402	M	20.29	14.34	135.10	1297.0	0.10030	0
...	...	...	...	...	...	...	...	
295	891923	B	13.77	13.27	88.06	582.7	0.09198	0
296	891936	B	10.91	12.35	69.14	363.7	0.08518	0
297	892189	M	11.76	18.14	75.00	431.1	0.09968	0
298	892214	B	14.26	18.17	91.22	633.1	0.06576	0
299	892399	B	10.51	23.09	66.85	334.2	0.10150	0

300 rows × 32 columns

In [4]:
```
x.tail(5)
```

Out[4]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness_m
295	891923	B	13.77	13.27	88.06	582.7	0.09198	0.06
296	891936	B	10.91	12.35	69.14	363.7	0.08518	0.04
297	892189	M	11.76	18.14	75.00	431.1	0.09968	0.05
298	892214	B	14.26	18.17	91.22	633.1	0.06576	0.05
299	892399	B	10.51	23.09	66.85	334.2	0.10150	0.06

5 rows × 32 columns

In [5]:
```
x.dtypes
```

Out[5]:
```
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
dtype: object
```

In [6]:
```
x.index
```

Out[6]:
```
RangeIndex(start=0, stop=300, step=1)
```

In [7]:
```
x.describe()
```

Out[7]:

	id	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness_mea
count	3.000000e+02	300.000000	300.000000	300.000000	300.000000	300.000000	300.0000
mean	2.622979e+07	14.442953	19.319867	94.250900	683.729333	0.097980	0.1108
std	1.032307e+08	3.549801	4.284983	24.485847	354.620855	0.013842	0.0565
min	8.670000e+03	6.981000	9.710000	43.790000	143.500000	0.062510	0.0193
25%	8.615978e+05	11.880000	16.300000	76.762500	432.775000	0.088625	0.0682
50%	8.765485e+05	13.680000	19.060000	88.260000	578.100000	0.097460	0.1016
75%	8.811587e+06	16.750000	21.847500	109.775000	881.725000	0.106525	0.1416
max	8.810948e+08	28.110000	39.280000	188.500000	2499.000000	0.144700	0.3454

8 rows × 31 columns

In [8]:
```
x["id"]
```

Out[8]:
```
0        842302
1        842517
2      84300903
3      84348301
4      84358402
         ...
295      891923
296      891936
297      892189
298      892214
299      892399
Name: id, Length: 300, dtype: int64
```

In [9]:
```
x.loc[1:7]
```

Out[9]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness_m
1	842517	M	20.57	17.77	132.90	1326.0	0.08474	0.07
2	84300903	M	19.69	21.25	130.00	1203.0	0.10960	0.15
3	84348301	M	11.42	20.38	77.58	386.1	0.14250	0.28
4	84358402	M	20.29	14.34	135.10	1297.0	0.10030	0.13
5	843786	M	12.45	15.70	82.57	477.1	0.12780	0.17
6	844359	M	18.25	19.98	119.60	1040.0	0.09463	0.10
7	84458202	M	13.71	20.83	90.20	577.9	0.11890	0.16

7 rows × 32 columns

In [10]:
```
x.fillna(value=100)
```

Out[10]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness_
0	842302	M	17.99	10.38	122.80	1001.0	0.11840	0
1	842517	M	20.57	17.77	132.90	1326.0	0.08474	0
2	84300903	M	19.69	21.25	130.00	1203.0	0.10960	0
3	84348301	M	11.42	20.38	77.58	386.1	0.14250	0
4	84358402	M	20.29	14.34	135.10	1297.0	0.10030	0
...	...	...	...	...	...	...	...	
295	891923	B	13.77	13.27	88.06	582.7	0.09198	0
296	891936	B	10.91	12.35	69.14	363.7	0.08518	0
297	892189	M	11.76	18.14	75.00	431.1	0.09968	0
298	892214	B	14.26	18.17	91.22	633.1	0.06576	0
299	892399	B	10.51	23.09	66.85	334.2	0.10150	0

300 rows × 32 columns

In [11]:
```
x.dropna()
```

Out[11]:

	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness
0	842302	M	17.99	10.38	122.80	1001.0	0.11840	0
1	842517	M	20.57	17.77	132.90	1326.0	0.08474	0
2	84300903	M	19.69	21.25	130.00	1203.0	0.10960	0
3	84348301	M	11.42	20.38	77.58	386.1	0.14250	0
4	84358402	M	20.29	14.34	135.10	1297.0	0.10030	0
...	...	...	...	...	...	...	...	
295	891923	B	13.77	13.27	88.06	582.7	0.09198	0
296	891936	B	10.91	12.35	69.14	363.7	0.08518	0
297	892189	M	11.76	18.14	75.00	431.1	0.09968	0
298	892214	B	14.26	18.17	91.22	633.1	0.06576	0
299	892399	B	10.51	23.09	66.85	334.2	0.10150	0

300 rows × 32 columns

In [12]:
```
x.columns
```

Out[12]:
```
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'],
      dtype='object')
```

In [13]:
```
x.dropna(axis=1,how="any")
```

Out[13]:

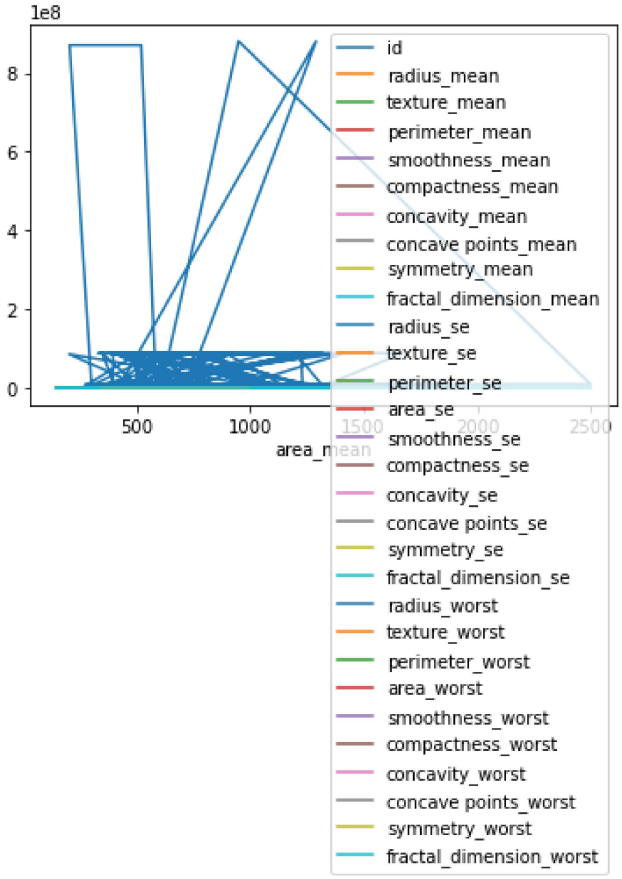
	id	diagnosis	radius_mean	texture_mean	perimeter_mean	area_mean	smoothness_mean	compactness
0	842302	M	17.99	10.38	122.80	1001.0	0.11840	0
1	842517	M	20.57	17.77	132.90	1326.0	0.08474	0
2	84300903	M	19.69	21.25	130.00	1203.0	0.10960	0
3	84348301	M	11.42	20.38	77.58	386.1	0.14250	0
4	84358402	M	20.29	14.34	135.10	1297.0	0.10030	0
...	...	...	...	...	...	...	...	
295	891923	B	13.77	13.27	88.06	582.7	0.09198	0
296	891936	B	10.91	12.35	69.14	363.7	0.08518	0
297	892189	M	11.76	18.14	75.00	431.1	0.09968	0
298	892214	B	14.26	18.17	91.22	633.1	0.06576	0
299	892399	B	10.51	23.09	66.85	334.2	0.10150	0

300 rows × 32 columns

In [14]:
```
import matplotlib.pyplot as pp
```

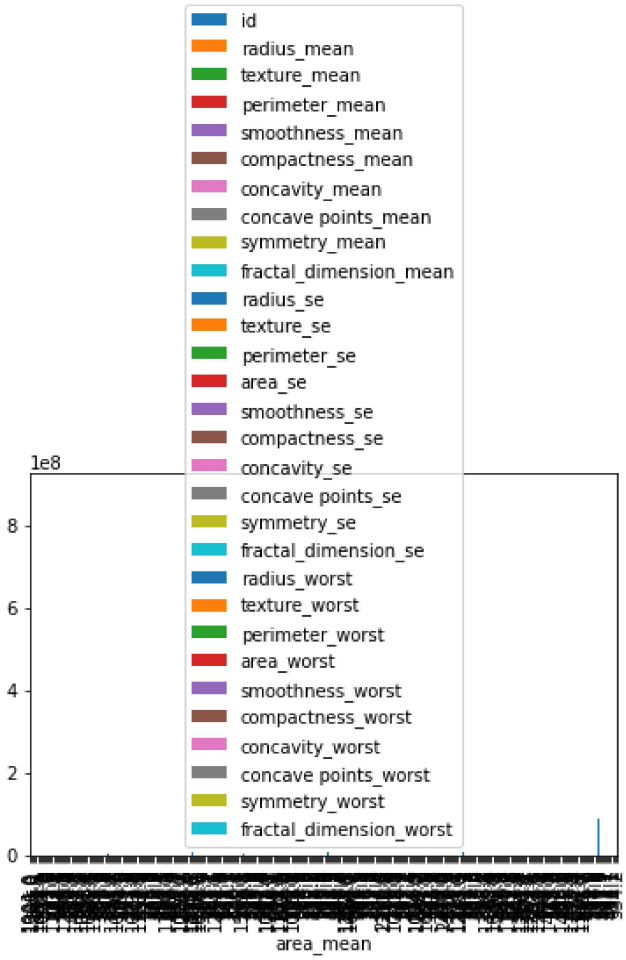
In [15]:
```
x.plot.line("area_mean")
```

Out[15]:
```
<AxesSubplot:xlabel='area_mean'>
```



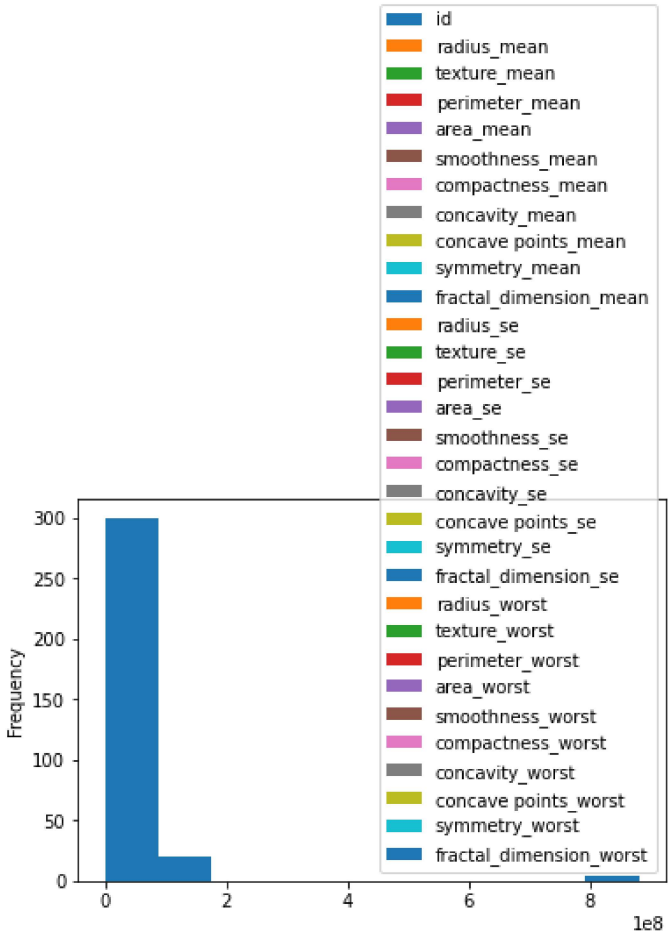
In [16]:
```
x.plot.bar()
```

Out[16]: <AxesSubplot:xlabel='area_mean'>



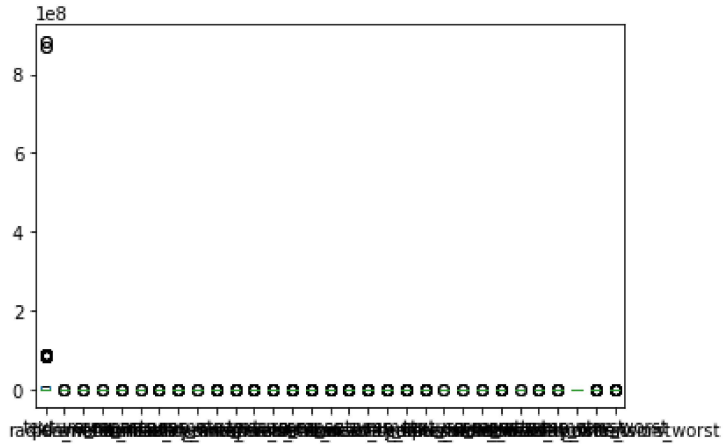
In [17]:
```
x.plot.hist()
```

Out[17]: <AxesSubplot:ylabel='Frequency'>



In [19]:
```
x.plot.box()
```

Out[19]: <AxesSubplot:>



In [23]:
```
x.plot.pie()
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-23-40ddd5d79f96> in <module>
----> 1 x.plot.pie("radius_mean")

TypeError: pie() takes 1 positional argument but 2 were given
```

In [ ]:
```

```