22/07/23 tony2

In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as pp
```

In [24]:
```
x=pd.read_csv(r"C:\Users\user\Downloads\4_drug200.csv")
x
```

Out[24]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX
4	61	F	LOW	HIGH	18.043	drugY
...	...	...	...	...	...	...
195	56	F	LOW	HIGH	11.567	drugC
196	16	M	LOW	HIGH	12.006	drugC
197	52	M	NORMAL	HIGH	9.894	drugX
198	23	M	NORMAL	NORMAL	14.020	drugX
199	40	F	LOW	NORMAL	11.349	drugX

200 rows × 6 columns

In [25]:
```
x. dtypes
```

Out[25]:
```
Age              int64
Sex             object
BP              object
Cholesterol     object
Na_to_K        float64
Drug            object
dtype: object
```

In [26]:
```
x. dtypes
```

Out[26]:
```
Age              int64
Sex             object
BP              object
Cholesterol     object
Na_to_K        float64
Drug            object
dtype: object
```

In [27]:
```
x.tail()
```

Out[27]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
195	56	F	LOW	HIGH	11.567	drugC
196	16	M	LOW	HIGH	12.006	drugC
197	52	M	NORMAL	HIGH	9.894	drugX
198	23	M	NORMAL	NORMAL	14.020	drugX
199	40	F	LOW	NORMAL	11.349	drugX

In [28]:
```
x.columns
```

Out[28]:
```
Index(['Age', 'Sex', 'BP', 'Cholesterol', 'Na_to_K', 'Drug'], dtype='object')
```

In [29]:
```
x. index
```

Out[29]:
```
RangeIndex(start=0, stop=200, step=1)
```

In [30]:
```
x.describe()
```

Out[30]:

	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

In [32]:
```
x["Age"]
```

Out[32]:
```
0      23
1      47
2      47
3      28
4      61
      ..
195    56
196    16
197    52
198    23
199    40
Name: Age, Length: 200, dtype: int64
```

In [33]:
```
x.iloc[0:2]
```

Out[33]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC

In [34]:
```
x.loc[0:3]
```

Out[34]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX

In [35]:
```
x.loc["Age":"NA_to_K"]
```

Out[35]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug

In [38]:
```
x[x["Age"]<=20]
```

Out[38]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
15	16	F	HIGH	NORMAL	15.516	drugY
30	18	F	NORMAL	NORMAL	8.750	drugX
39	15	M	NORMAL	HIGH	9.084	drugX
67	17	M	NORMAL	NORMAL	10.832	drugX
69	18	F	HIGH	NORMAL	24.276	drugY
78	19	F	HIGH	HIGH	13.313	drugA
98	20	M	HIGH	NORMAL	35.639	drugY
99	15	F	HIGH	NORMAL	16.725	drugY
114	20	F	NORMAL	NORMAL	9.281	drugX
121	15	M	HIGH	NORMAL	17.206	drugY
125	19	F	HIGH	NORMAL	25.969	drugY
164	16	M	HIGH	NORMAL	19.007	drugY
169	20	F	HIGH	HIGH	11.262	drugA
182	20	F	LOW	NORMAL	11.686	drugX
184	18	F	HIGH	HIGH	37.188	drugY
196	16	M	LOW	HIGH	12.006	drugC

In [39]:
```
x.fillna(value=5)
```

Out[39]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX
4	61	F	LOW	HIGH	18.043	drugY
...	...	...	...	...	...	...
195	56	F	LOW	HIGH	11.567	drugC
196	16	M	LOW	HIGH	12.006	drugC
197	52	M	NORMAL	HIGH	9.894	drugX
198	23	M	NORMAL	NORMAL	14.020	drugX
199	40	F	LOW	NORMAL	11.349	drugX

200 rows × 6 columns

In [40]:
```
x.dropna()
```

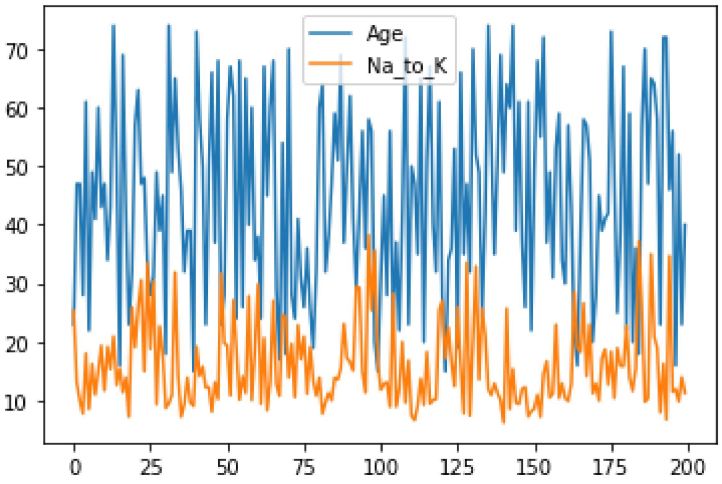
Out[40]:

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	F	HIGH	HIGH	25.355	drugY
1	47	M	LOW	HIGH	13.093	drugC
2	47	M	LOW	HIGH	10.114	drugC
3	28	F	NORMAL	HIGH	7.798	drugX
4	61	F	LOW	HIGH	18.043	drugY
...	...	...	...	...	...	...
195	56	F	LOW	HIGH	11.567	drugC
196	16	M	LOW	HIGH	12.006	drugC
197	52	M	NORMAL	HIGH	9.894	drugX
198	23	M	NORMAL	NORMAL	14.020	drugX
199	40	F	LOW	NORMAL	11.349	drugX

200 rows × 6 columns

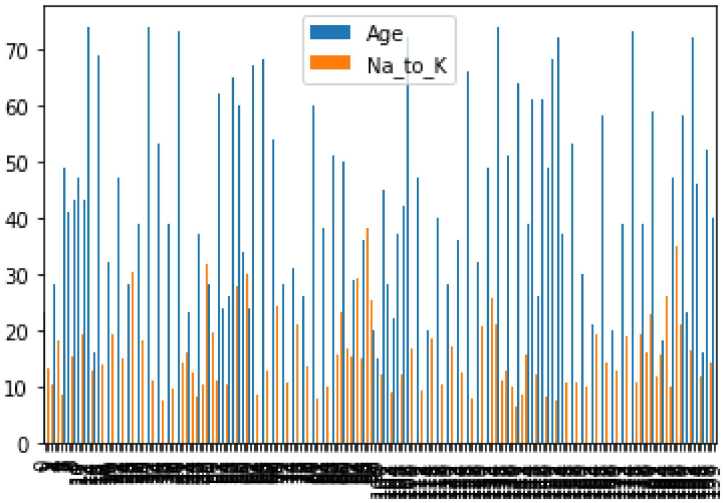
In [41]:
```
x.plot.line()
```

Out[41]: <AxesSubplot:>



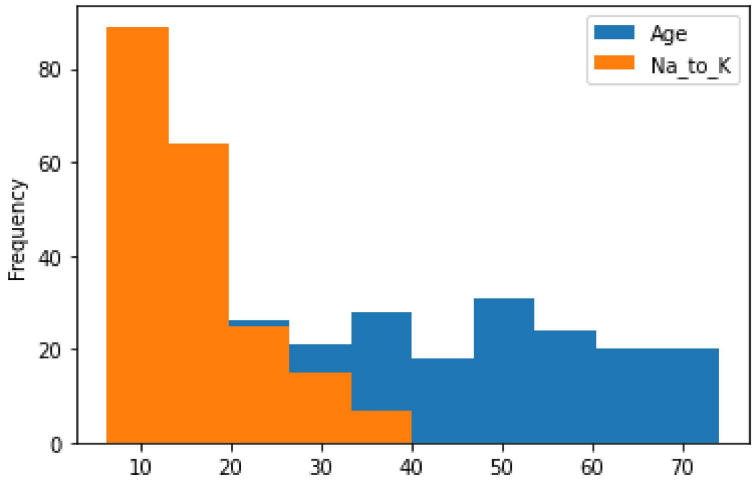
In [42]:
```
x.plot.bar()
```

Out[42]: <AxesSubplot:>



In [43]:
```
x.plot.hist()
```

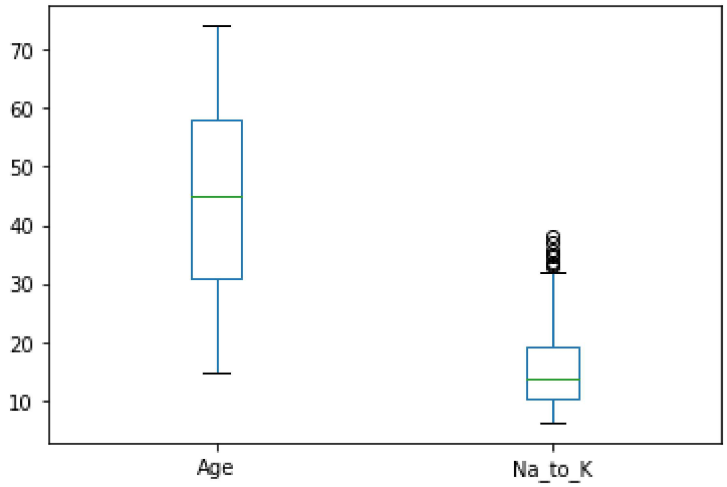
Out[43]: <AxesSubplot:ylabel='Frequency'>



In [45]:
```
x.plot.pie(y='Age')
```

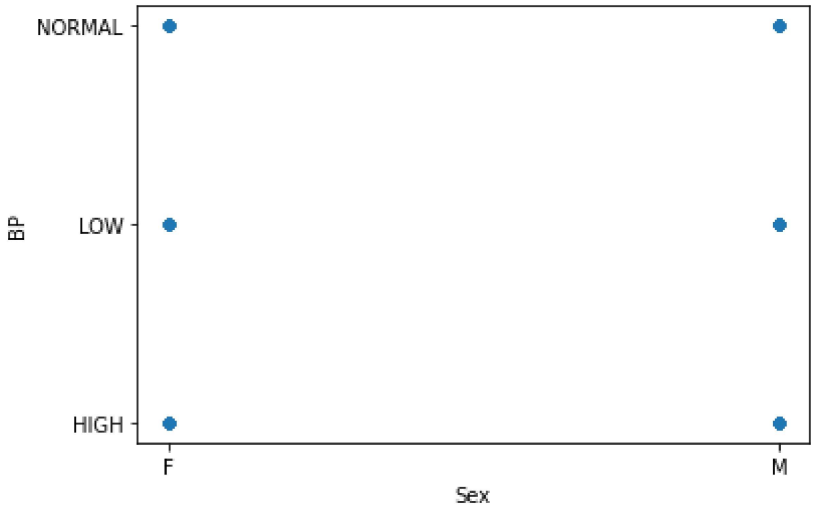
In [46]:
```
x.plot.box()
```

Out[46]: <AxesSubplot:>



In [47]:
```
x.plot.scatter(x='Sex',y='BP')
```

Out[47]: <AxesSubplot:xlabel='Sex', ylabel='BP'>



In [ ]:

In [ ]: