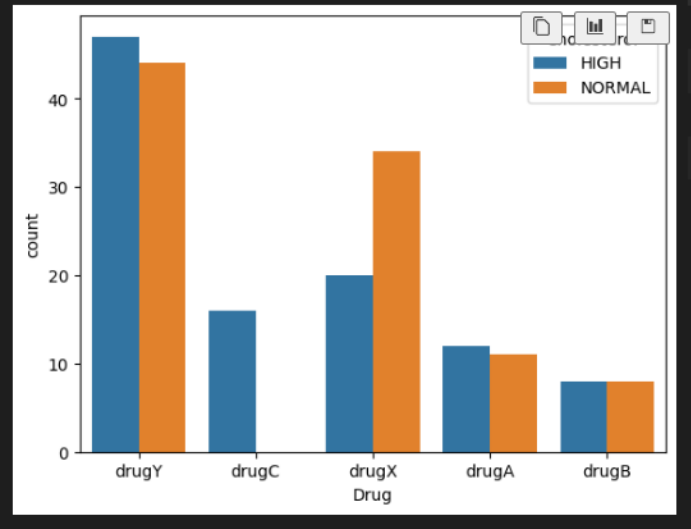


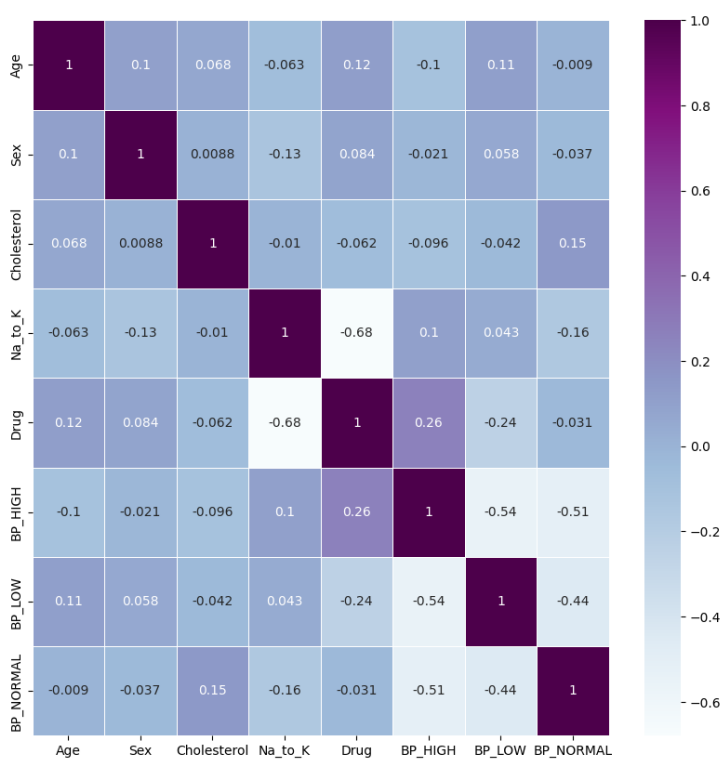
<Axes: xlabel='Drug', ylabel='count'>



	Age	Sex	Cholesterol	Na_to_K	Drug	BP_HIGH	BP_LOW	BP_NORMAL
0	23	0	1	25.355	1	1	0	0
1	47	1	1	13.093	2	0	1	0
2	47	1	1	10.114	2	0	1	0
3	28	0	1	7.798	3	0	0	1
4	61	0	1	18.043	1	0	1	0

```
[[15  0  0  0  0]
 [ 0  3  0  0  0]
 [ 0  0 12  0  0]
 [ 0  0  0  5  1]
 [ 1  0  0  0  3]]
```

	precision	recall	f1-score	support
1	0.94	1.00	0.97	15
2	1.00	1.00	1.00	3
3	1.00	1.00	1.00	12
4	1.00	0.83	0.91	6
5	0.75	0.75	0.75	4
accuracy			0.95	40
macro avg	0.94	0.92	0.93	40
weighted avg	0.95	0.95	0.95	40

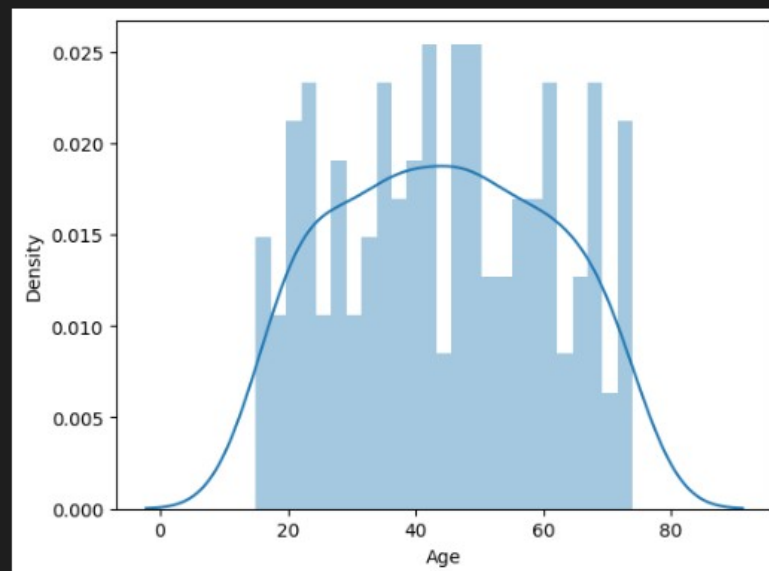


```
Requirement already satisfied: seaborn in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (0.12.2)
Requirement already satisfied: numpy<1.24.0,>=1.17 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from seaborn) (1.23.4)
Requirement already satisfied: matplotlib<3.6.1,>=3.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from seaborn) (3.7.0)
Requirement already satisfied: pandas<0.25 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from seaborn) (1.5.0)
Requirement already satisfied: cycler<0.10 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (0.11.0)
Requirement already satisfied: python-dateutil<2.7 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (2.8.2)
Requirement already satisfied: pillow<6.2.0 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (9.2.0)
Requirement already satisfied: kiwisolver<1.0.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (1.4.4)
Requirement already satisfied: packaging<=20.0 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (21.3)
Requirement already satisfied: fonttools<=4.22.0 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (4.37.4)
Requirement already satisfied: contourpy<=1.0.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (1.0.5)
Requirement already satisfied: pyparsing<=2.3.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib<3.6.1,>=3.1->seaborn) (3.0.9)
Requirement already satisfied: pytz<=2020.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from pandas<0.25->seaborn) (2022.4)
Requirement already satisfied: six>=1.5 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from python-dateutil<2.7->matplotlib<3.6.1,>=3.1->seaborn) (1.16.0)

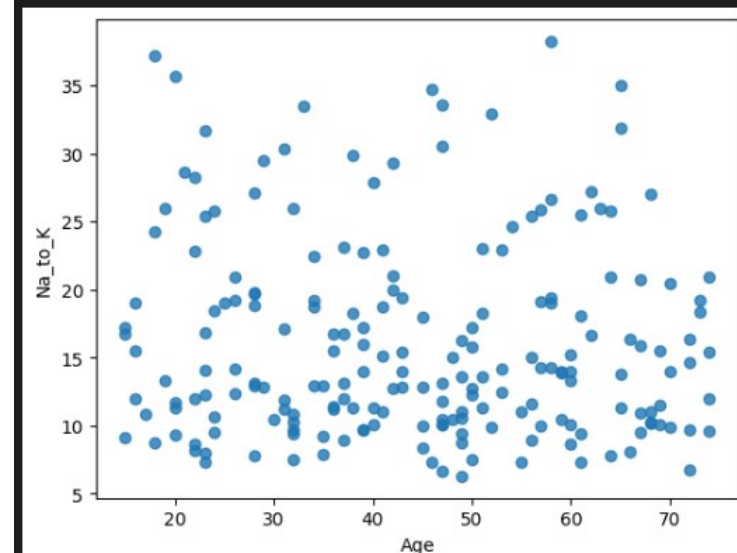
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError(<pip._vendor.urllib3.connection.HTTPSConnecti
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError(<pip._vendor.urllib3.connection.HTTPSConnecti
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError(<pip._vendor.urllib3.connection.HTTPSConnecti
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError(<pip._vendor.urllib3.connection.HTTPSConnecti
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError(<pip._vendor.urllib3.connection.HTTPSConnecti
```

	Drug	BP	count
0	drugA	HIGH	23
1	drugB	HIGH	16
2	drugC	LOW	16
3	drugX	LOW	18
4	drugX	NORMAL	36
5	drugY	HIGH	38
6	drugY	LOW	30
7	drugY	NORMAL	23

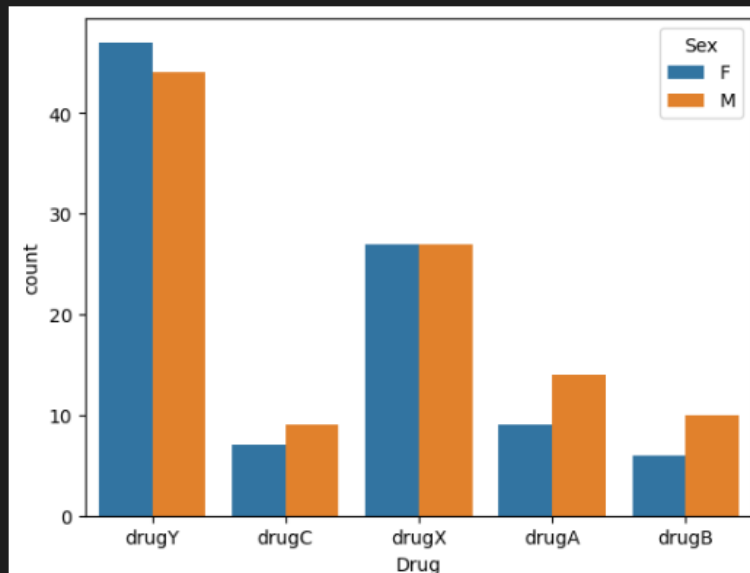
<Axes: xlabel='Age', ylabel='Density'>



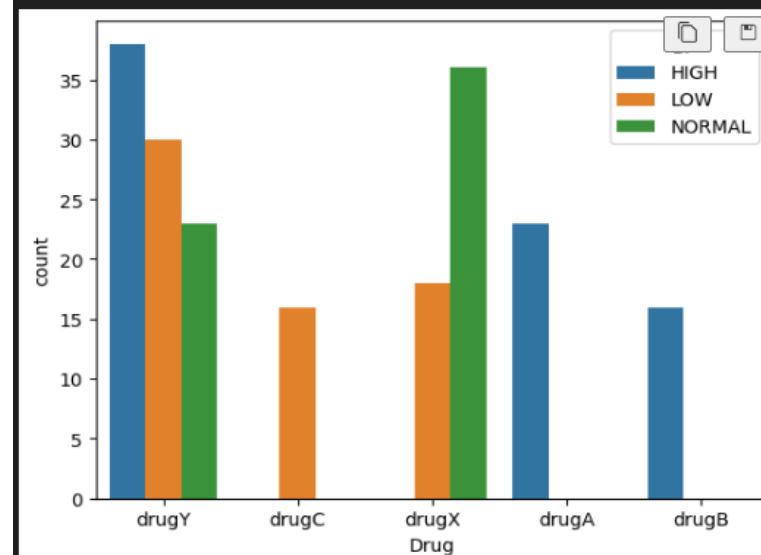
<Axes: xlabel='Age', ylabel='Na_to_K'>



<Axes: xlabel='Drug', ylabel='count'>



<Axes: xlabel='Drug', ylabel='count'>



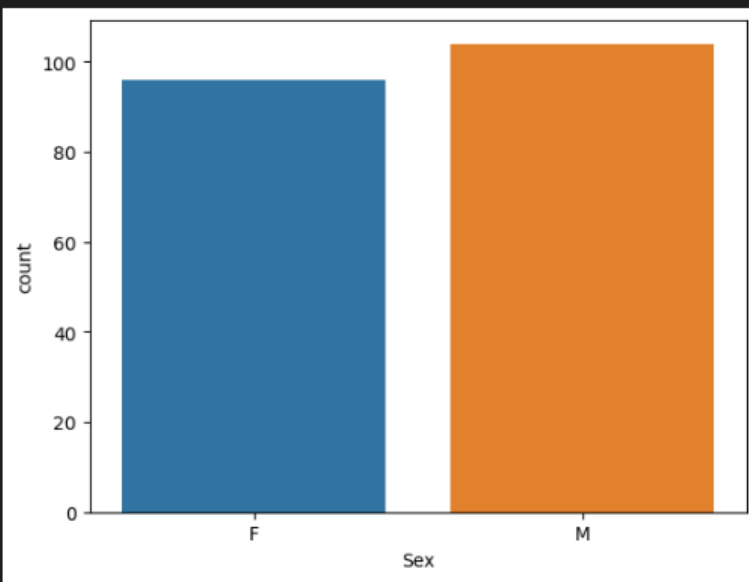
	Drug	Cholesterol	count
0	drugA	HIGH	12
1	drugA	NORMAL	11
2	drugB	HIGH	8
3	drugB	NORMAL	8
4	drugC	HIGH	16
5	drugX	HIGH	20
6	drugX	NORMAL	34
7	drugY	HIGH	47
8	drugY	NORMAL	44

	Age	Sex	BP	Cholesterol	Na_to_K	Drug
0	23	0	HIGH	1	25.355	1
1	47	1	LOW	1	13.093	2
2	47	1	LOW	1	10.114	2
3	28	0	NORMAL	1	7.798	3
4	61	0	LOW	1	18.043	1

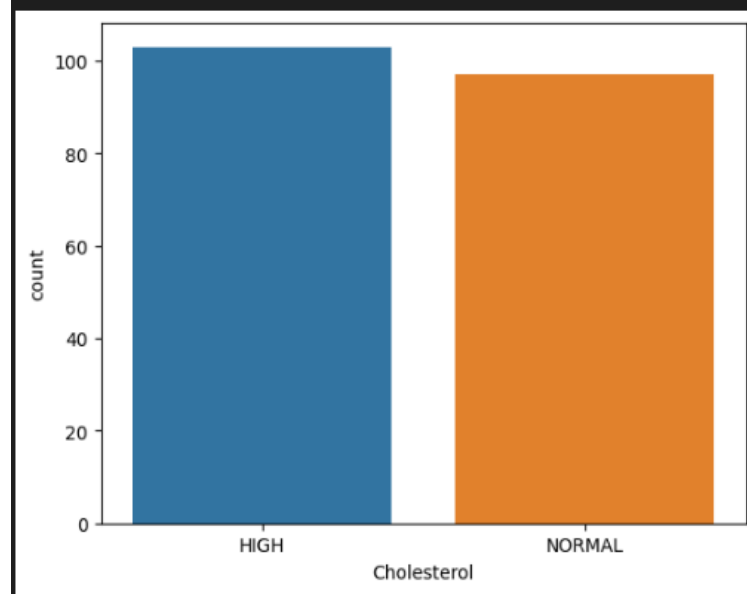
(200, 6)

(200, 8)

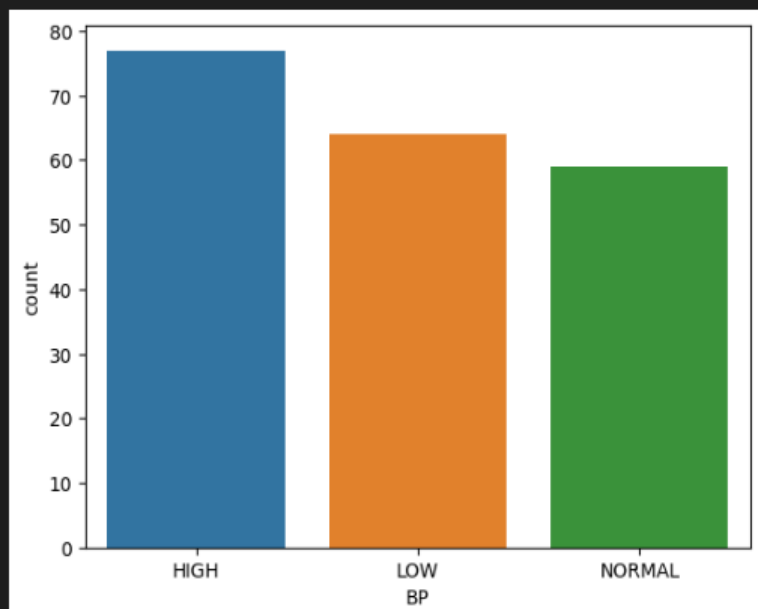
<Axes: xlabel='Sex', ylabel='count'>



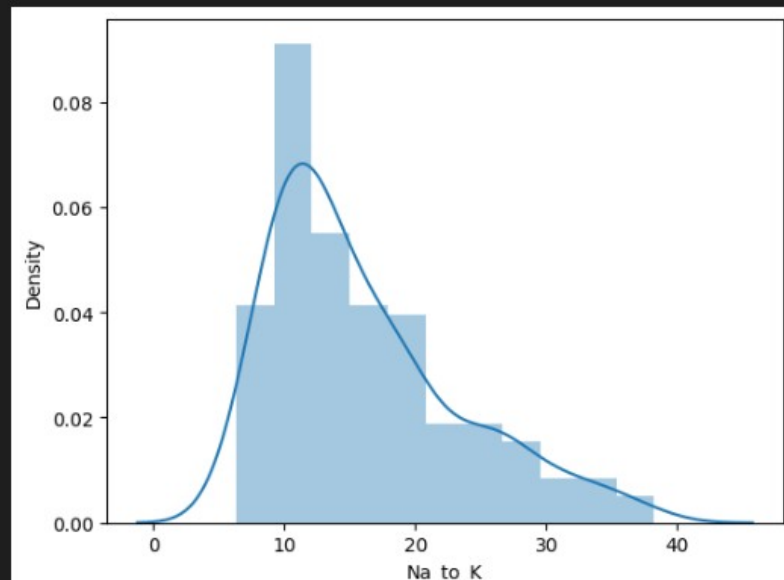
<Axes: xlabel='Cholesterol', ylabel='count'>



<Axes: xlabel='BP', ylabel='count'>



<Axes: xlabel='Na_to_K', ylabel='Density'>



```
count      200.000000
mean       16.084485
std        7.223956
min        6.269000
25%       10.445500
50%       13.936500
75%       19.380000
max       38.247000
Name: Na_to_K, dtype: float64
```

```
0 drugA  F  9
1 drugA  M 14
2 drugB  F  6
3 drugB  M 10
4 drugC  F  7
5 drugC  M  9
6 drugX  F 27
7 drugX  M 27
8 drugY  F 47
9 drugY  M 44
```

```
x train shape (160, 7)
x test shape (40, 7)
y train shape (160, 1)
y test shape (40, 1)
```

```
98.125
95.0
```

```
Requirement already satisfied: seaborn in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (0.12.2)
Requirement already satisfied: numpy!=1.24.0,>=1.17 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from seaborn) (1.23.4)
Requirement already satisfied: pandas>=0.25 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from seaborn) (1.5.0)
Requirement already satisfied: matplotlib!=3.6.1,>=3.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from seaborn) (3.7.0)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (4.37.4)
Requirement already satisfied: cycler>=0.10 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (0.11.0)
Requirement already satisfied: contourpy>=1.0.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (1.0.5)
Requirement already satisfied: packaging>=20.0 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (21.3)
Requirement already satisfied: pillow>=6.2.0 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (9.2.0)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (1.4.4)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (2.8.2)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from matplotlib!=3.6.1,>=3.1->seaborn) (3.0.9)
Requirement already satisfied: pytz>=2020.1 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from pandas>=0.25->seaborn) (2022.4)
Requirement already satisfied: six>=1.5 in c:\users\samya\appdata\local\programs\python\python310\lib\site-packages (from python-dateutil>=2.7->matplotlib!=3.6.1,>=3.1->seaborn) (1.16.0)

WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection <
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection <
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection <
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection <
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection <
```

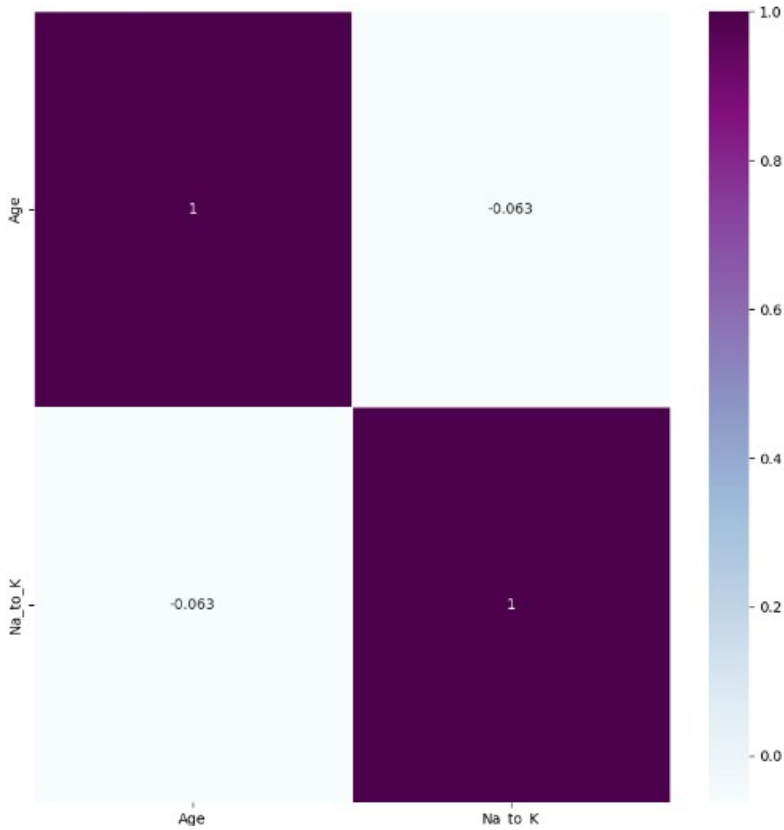
```
Age      0
Sex      0
BP       0
Cholesterol  0
Na_to_K  0
Drug     0
dtype: int64
```

	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

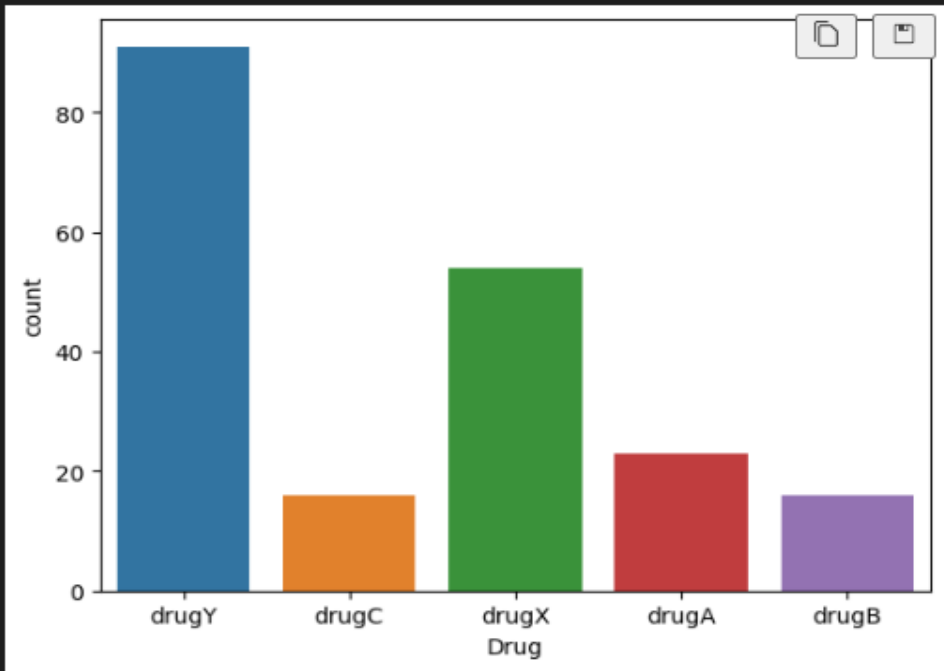
```
M      104
F      96
Name: Sex, dtype: int64
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 200 entries, 0 to 199
Data columns (total 6 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Age         200 non-null    int64
1   Sex         200 non-null    object
2   BP          200 non-null    object
3   Cholesterol  200 non-null    object
4   Na_to_K     200 non-null    float64
5   Drug        200 non-null    object
dtypes: float64(1), int64(1), object(4)
memory usage: 9.5+ KB
```

```
drugY    91
drugX    54
drugA    23
drugC    16
drugB    16
Name: Drug, dtype: int64
```



<Axes: xlabel='Drug', ylabel='count'>



```
M      104
F      96
Name: Sex, dtype: int64
```

```
HIGH    77
LOW      64
NORMAL   59
Name: BP, dtype: int64
```

```
HIGH    103
NORMAL   97
Name: Cholesterol, dtype: int64
```