

In [52]:

```
import pandas as pd
```

In [53]:

```
#1.Reading "ML_HW_Data_FisherIris.csv" files
Iris = pd.read_csv('ML_HW_Data_FisherIris.csv', header = None)
```

In [54]:

```
Iris.head()
```

Out[54]:

	0	1	2	3	4
0	2	14	33	50	0
1	24	56	31	67	1
2	23	51	31	69	1
3	2	10	36	46	0
4	20	52	30	65	1

In [55]:

```
#2.Display total number of rows and total number of columns of the matrix "Iris".
rows = Iris.shape[0]
cols = Iris.shape[1]
print("Total number of rows:" + str(rows))
print("Total number of columns:" + str(cols))
```

```
Total number of rows:150
Total number of columns:5
```

In [56]:

```
#3.Display all the row numbers (i.e. record numbers) that have the 5th column less than 0.
Iris.loc[Iris[4] < 0]
```

Out[56]:

	0	1	2	3	4
10	2	16	31	48	-10
23	15	45	29	60	-12
58	2	13	35	55	-10
89	12	47	28	61	-12
108	13	52	30	67	-11
136	18	63	29	73	-11

In [57]:

```
#4.Remove the rows with the 5th column less than 0 from the "Iris" matrix.  
Iris = Iris.loc[Iris[4] >= 0]  
Iris.head(10)
```

Out[57]:

	0	1	2	3	4
0	2	14	33	50	0
1	24	56	31	67	1
2	23	51	31	69	1
3	2	10	36	46	0
4	20	52	30	65	1
5	19	51	27	58	1
6	13	45	28	57	2
7	16	47	33	63	2
8	17	45	25	49	1
9	14	47	32	70	2

In [58]:

```
#5.Display total number of rows and total number of columns of the "Iris" matrix again.  
rows = Iris.shape[0]  
cols = Iris.shape[1]  
print("Total number of rows:" + str(rows))  
print("Total number of columns:" + str(cols))
```

```
Total number of rows:144  
Total number of columns:5
```

In [59]:

```
#6.Copy the first 4 columns in the new "Iris" matrix into a new matrix "X".  
selected_columns = Iris[[0, 1, 2, 3]]  
X = selected_columns.copy()  
X.head()
```

Out[59]:

	0	1	2	3
0	2	14	33	50
1	24	56	31	67
2	23	51	31	69
3	2	10	36	46
4	20	52	30	65

In [60]:

```
#7.Copy the 5th columns in the new "Iris" matrix into a new variable (or matrix) "Y".
select = Iris[[4]]
Y = select.copy()
Y.head()
```

Out[60]:

```
   4
0  0
1  1
2  1
3  0
4  1
```

In [61]:

```
#8.Display the maximum value and the minimum value of EACH column in "X".
col0 = X[[0]]
col0_max_value = col0.max()
col0_min_value = col0.min()
print('Max value of column' + str(col0_max_value))
print('Min value of column' + str(col0_min_value))
```

```
Max value of column0    25
dtype: int64
Min value of column0    1
dtype: int64
```

In [62]:

```
col1 = X[[1]]
col1_max_value = col1.max()
col1_min_value = col1.min()
print('Max value of column' + str(col1_max_value))
print('Min value of column' + str(col1_min_value))
```

```
Max value of column1    69
dtype: int64
Min value of column1    10
dtype: int64
```

In [63]:

```
col2 = X[[2]]
col2_max_value = col2.max()
col2_min_value = col2.min()
print('Max value of column' + str(col2_max_value))
print('Min value of column' + str(col2_min_value))
```

```
Max value of column2    44
dtype: int64
Min value of column2    20
dtype: int64
```

In [64]:



```
col3 = X[[3]]
col3_max_value = col3.max()
col3_min_value = col3.min()
print('Max value of column' + str(col3_max_value))
print('Min value of column' + str(col3_min_value))
```

```
Max value of column3    79
dtype: int64
Min value of column3    43
dtype: int64
```

In [65]:



```
#9.Display total number of elements (i.e. items) in the third column of the matrix "X" that
column2 = X[2]
count = 0
for i in column2 :
    if i > 36 :
        count = count + 1
print ("Total number of elements in third column greater than 36 : " + str(count))
```

```
Total number of elements in third column greater than 36 : 15
```

In []:

