

trainXY:

```
[[ (175, 69, 28) 'W']  
 [ (160, 50, 31) 'W']  
 [ (171, 65, 28) 'W']  
 [ (182, 80, 30) 'M']  
 [ (170, 57, 32) 'W']  
 [ (165, 60, 27) 'W']  
 [ (185, 90, 32) 'M']  
 [ (178, 80, 27) 'M']  
 [ (190, 95, 28) 'M']  
 [ (168, 65, 29) 'M']  
 [ (170, 72, 30) 'M']  
 [ (175, 78, 26) 'M']  
 [ (150, 45, 35) 'W']  
 [ (155, 48, 31) 'W']]
```

testX:

```
[[175 70 30]  
 [180 85 29]  
 [168 75 32]  
 [162 53 28]]
```

print separated classes:

label: M

```
(182, 80, 30)  
(185, 90, 32)  
(178, 80, 27)  
(190, 95, 28)  
(168, 65, 29)  
(170, 72, 30)  
(175, 78, 26)
```

label: W

```
(175, 69, 28)  
(160, 50, 31)  
(171, 65, 28)  
(170, 57, 32)  
(165, 60, 27)  
(150, 45, 35)  
(155, 48, 31)
```

get all class probabilities:

summaries[M]: [(178.2857, 54.4898, 7.3817, 7), (80.0, 88.2857, 9.396, 7), (28.8571, 3.551, 1.8844, 7)]

summaries[W]: [(163.7143, 71.3469, 8.4467, 7), (56.2857, 69.6327, 8.3446, 7), (30.2857, 6.7755, 2.603, 7)]

----->test datum: [175 70 30]

-----> label: W

X[ 0 ]: height  
xi: 175 |mean: 163.7143 |sd: 8.4467 |p: 0.0193  
P( height | W ): 0.0193

X[ 1 ]: weight  
xi: 70 |mean: 56.2857 |sd: 8.3446 |p: 0.0124  
P( weight | W ): 0.0124

X[ 2 ]: age  
xi: 30 |mean: 30.2857 |sd: 2.603 |p: 0.1523  
P( age | W ): 0.1523

-----> label: M  
X[ 0 ]: height  
xi: 175 |mean: 178.2857 |sd: 7.3817 |p: 0.0489  
P( height | M ): 0.0489

X[ 1 ]: weight  
xi: 70 |mean: 80.0 |sd: 9.396 |p: 0.0241  
P( weight | M ): 0.0241

X[ 2 ]: age  
xi: 30 |mean: 28.8571 |sd: 1.8844 |p: 0.1761  
P( age | M ): 0.1761

test datum[ 0 ]: [175 70 30]  
probabilities: {'W': 1.8224218e-05, 'M': 0.0001037660445}  
prediction: M

----->test datum: [180 85 29]  
-----> label: W  
X[ 0 ]: height  
xi: 180 |mean: 163.7143 |sd: 8.4467 |p: 0.0074  
P( height | W ): 0.0074

X[ 1 ]: weight  
xi: 85 |mean: 56.2857 |sd: 8.3446 |p: 0.0001  
P( weight | W ): 0.0001

X[ 2 ]: age  
xi: 29 |mean: 30.2857 |sd: 2.603 |p: 0.1357  
P( age | W ): 0.1357

-----> label: M  
X[ 0 ]: height  
xi: 180 |mean: 178.2857 |sd: 7.3817 |p: 0.0526  
P( height | M ): 0.0526

X[ 1 ]: weight

xi: 85 |mean: 80.0 |sd: 9.396 |p: 0.0369  
P( weight | M ): 0.0369

X[ 2 ]: age  
xi: 29 |mean: 28.8571 |sd: 1.8844 |p: 0.2111  
P( age | M ): 0.2111

test datum[ 1 ]: [180 85 29]  
probabilities: {'W': 5.0209e-08, 'M': 0.00020486621700000003}  
prediction: M

----->test datum: [168 75 32]  
-----> label: W  
X[ 0 ]: height  
xi: 168 |mean: 163.7143 |sd: 8.4467 |p: 0.0415  
P( height | W ): 0.0415

X[ 1 ]: weight  
xi: 75 |mean: 56.2857 |sd: 8.3446 |p: 0.0039  
P( weight | W ): 0.0039

X[ 2 ]: age  
xi: 32 |mean: 30.2857 |sd: 2.603 |p: 0.1234  
P( age | W ): 0.1234

-----> label: M  
X[ 0 ]: height  
xi: 168 |mean: 178.2857 |sd: 7.3817 |p: 0.0205  
P( height | M ): 0.0205

X[ 1 ]: weight  
xi: 75 |mean: 80.0 |sd: 9.396 |p: 0.0369  
P( weight | M ): 0.0369

X[ 2 ]: age  
xi: 32 |mean: 28.8571 |sd: 1.8844 |p: 0.0527  
P( age | M ): 0.0527

test datum[ 2 ]: [168 75 32]  
probabilities: {'W': 9.986145e-06, 'M': 1.99324575e-05}  
prediction: M

----->test datum: [162 53 28]  
-----> label: W  
X[ 0 ]: height  
xi: 162 |mean: 163.7143 |sd: 8.4467 |p: 0.0463  
P( height | W ): 0.0463

X[ 1 ]: weight  
xi: 53 |mean: 56.2857 |sd: 8.3446 |p: 0.0442  
P( weight | W ): 0.0442

X[ 2 ]: age  
xi: 28 |mean: 30.2857 |sd: 2.603 |p: 0.1042  
P( age | W ): 0.1042

-----> label: M  
X[ 0 ]: height  
xi: 162 |mean: 178.2857 |sd: 7.3817 |p: 0.0047  
P( height | M ): 0.0047

X[ 1 ]: weight  
xi: 53 |mean: 80.0 |sd: 9.396 |p: 0.0007  
P( weight | M ): 0.0007

X[ 2 ]: age  
xi: 28 |mean: 28.8571 |sd: 1.8844 |p: 0.1909  
P( age | M ): 0.1909

test datum[ 3 ]: [162 53 28]  
probabilities: {'W': 0.00010662056600000002, 'M': 3.1403050000000003e-07}  
prediction: W

test set: [[175 70 30]  
[180 85 29]  
[168 75 32]  
[162 53 28]]

predictions for test set: ['M', 'M', 'M', 'W']

trainXY:  
[[ (190, 95) 'M']  
[ (150, 45) 'W']  
[ (168, 65) 'M']  
[ (170, 72) 'M']  
[ (178, 80) 'M']  
[ (171, 65) 'W']  
[ (175, 69) 'W']  
[ (185, 90) 'M']  
[ (160, 50) 'W']  
[ (175, 78) 'M']  
[ (165, 60) 'W']  
[ (155, 48) 'W']  
[ (170, 57) 'W']  
[ (182, 80) 'M']

testX:

```
[[180 85]
 [168 75]
 [175 70]
 [162 53]]
```

print separated classes:

label: M

(190, 95)

(168, 65)

(170, 72)

(178, 80)

(185, 90)

(175, 78)

(182, 80)

label: W

(150, 45)

(171, 65)

(175, 69)

(160, 50)

(165, 60)

(155, 48)

(170, 57)

get all class probabilities:

summaries[M]: [(178.2857, 54.4898, 7.3817, 7), (80.0, 88.2857, 9.396, 7)]

summaries[W]: [(163.7143, 71.3469, 8.4467, 7), (56.2857, 69.6327, 8.3446, 7)]

----->test datum: [180 85]

-----> label: M

X[ 0 ]: height

xi: 180 |mean: 178.2857 |sd: 7.3817 |p: 0.0526

P( height | M ): 0.0526

X[ 1 ]: weight

xi: 85 |mean: 80.0 |sd: 9.396 |p: 0.0369

P( weight | M ): 0.0369

-----> label: W

X[ 0 ]: height

xi: 180 |mean: 163.7143 |sd: 8.4467 |p: 0.0074

P( height | W ): 0.0074

X[ 1 ]: weight

xi: 85 |mean: 56.2857 |sd: 8.3446 |p: 0.0001

P( weight | W ): 0.0001

test datum[ 0 ]: [180 85]

probabilities: {'M': 0.0009704700000000001, 'W': 3.7000000000000006e-07}  
prediction: M

----->test datum: [168 75]

-----> label: M

X[ 0 ]: height

xi: 168 |mean: 178.2857 |sd: 7.3817 |p: 0.0205

P( height | M ): 0.0205

X[ 1 ]: weight

xi: 75 |mean: 80.0 |sd: 9.396 |p: 0.0369

P( weight | M ): 0.0369

-----> label: W

X[ 0 ]: height

xi: 168 |mean: 163.7143 |sd: 8.4467 |p: 0.0415

P( height | W ): 0.0415

X[ 1 ]: weight

xi: 75 |mean: 56.2857 |sd: 8.3446 |p: 0.0039

P( weight | W ): 0.0039

test datum[ 1 ]: [168 75]

probabilities: {'M': 0.00037822500000000005, 'W': 8.0925e-05}

prediction: M

----->test datum: [175 70]

-----> label: M

X[ 0 ]: height

xi: 175 |mean: 178.2857 |sd: 7.3817 |p: 0.0489

P( height | M ): 0.0489

X[ 1 ]: weight

xi: 70 |mean: 80.0 |sd: 9.396 |p: 0.0241

P( weight | M ): 0.0241

-----> label: W

X[ 0 ]: height

xi: 175 |mean: 163.7143 |sd: 8.4467 |p: 0.0193

P( height | W ): 0.0193

X[ 1 ]: weight

xi: 70 |mean: 56.2857 |sd: 8.3446 |p: 0.0124

P( weight | W ): 0.0124

test datum[ 2 ]: [175 70]

probabilities: {'M': 0.000589245, 'W': 0.00011966}  
prediction: M

----->test datum: [162 53]

-----> label: M

X[ 0 ]: height

xi: 162 |mean: 178.2857 |sd: 7.3817 |p: 0.0047

P( height | M ): 0.0047

X[ 1 ]: weight

xi: 53 |mean: 80.0 |sd: 9.396 |p: 0.0007

P( weight | M ): 0.0007

-----> label: W

X[ 0 ]: height

xi: 162 |mean: 163.7143 |sd: 8.4467 |p: 0.0463

P( height | W ): 0.0463

X[ 1 ]: weight

xi: 53 |mean: 56.2857 |sd: 8.3446 |p: 0.0442

P( weight | W ): 0.0442

test datum[ 3 ]: [162 53]

probabilities: {'M': 1.6450000000000001e-06, 'W': 0.0010232300000000002}

prediction: W

test set: [[180 85]

[168 75]

[175 70]

[162 53]]

predictions for test set: ['M', 'M', 'M', 'W']