

Experiment 8

Program:-

```
dataset = [  
    [0, 0, 1, 0, 0],  
    [0, 0, 1, 1, 0],  
    [1, 0, 0, 1, 1],  
    [1, 0, 1, 0, 1],  
    [2, 2, 0, 0, 1],  
    [2, 2, 0, 1, 0],  
    [2, 1, 0, 1, 1],  
    [0, 2, 1, 0, 0],  
    [0, 2, 1, 1, 1],  
    [2, 2, 1, 0, 1],  
    [0, 0, 0, 0, 0],  
    [0, 1, 0, 0, 1],  
    [1, 0, 0, 0, 1],  
    [1, 0, 0, 1, 0],  
    [2, 1, 1, 1, 0]  
]  
  
mp = dict()  
  
for i in range(len(dataset)):  
    row = dataset[i]  
    y = row[-1]  
    if y not in mp:  
        mp[y] = list()  
    mp[y].append(row)  
  
for label in mp:  
    print(label)  
    for row in mp[label]:  
        print(row)  
  
test = [2, 1, 0, 1]  
probYes = 1  
countYes = 0  
totalYes = 0  
  
for row in dataset:  
    if row[-1] == 1:  
        countYes += 1  
        totalYes += 1  
  
print("Total yes: {}/{}".format(countYes, totalYes))  
probYes *= countYes / totalYes  
  
for i in range(len(test)):  
    countYes = 0  
    totalYes = 0
```

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for row in mp[1]:
    if test[i] == row[i]:
        countYes += 1
    totalYes += 1
print("for feature {}: {}/{}".format(i + 1, countYes, totalYes))
probYes *= countYes / totalYes

probNo = 1
countNo = 0
totalNo = 0

for row in dataset:
    if row[-1] == 0:
        countNo += 1
    totalNo += 1

print("Total no: {}/{}".format(countNo, totalNo))
probNo *= countNo / totalNo

for i in range(len(test)):
    countNo = 0
    totalNo = 0
    for row in mp[0]:
        if test[i] == row[i]:
            countNo += 1
        totalNo += 1
    print("for feature {}: {}/{}".format(i + 1, countNo, totalNo))
    probNo *= countNo / totalNo

print("Probability of playing golf: {:.2f}%".format(probYes / (probYes + probNo) * 100))

```

Output:-

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computer@computer-ThinkCentre:~/kshitij$ source /home/computer/anaconda3/bin/activate base
(base) computer@computer-ThinkCentre:~/kshitij$ /home/computer/anaconda3/bin/python /home/computer/kshitij/exp8.py
0
[0, 0, 1, 0, 0]
[0, 0, 1, 1, 0]
[2, 2, 0, 1, 0]
[0, 2, 1, 0, 0]
[0, 0, 0, 0, 0]
[1, 0, 0, 1, 0]
[2, 1, 1, 1, 0]
1
[1, 0, 0, 1, 1]
[1, 0, 1, 0, 1]
[2, 2, 0, 0, 1]
[2, 1, 0, 1, 1]
[0, 2, 1, 1, 1]
[2, 2, 1, 0, 1]
[0, 1, 0, 0, 1]
[1, 0, 0, 0, 1]
Total yes: 8/8
for feature 1: 3/8
for feature 2: 2/8
for feature 3: 5/8
for feature 4: 3/8
Total no: 7/7
for feature 1: 2/7
for feature 2: 1/7
for feature 3: 3/7
for feature 4: 4/7
Probability of playing golf: 68.73%
computer@computer-ThinkCentre:~/kshitij$

```