In [13]:

```
import random
import csv

attributes = [['Sunny','Rainy'],['Warm','Cold'],['Normal','High'],['Strong','Weak'],['W
arm','Cool'],['Same','Change']]

num_attributes = len(attributes)

print("\n the most general hypothesis : ['?','?','?','?','?','?']\n")
print("\n the most specific hypothesis : ['0','0','0','0','0','0']\n")

a=[]

print("\n the given Training data set \n")

with open('E:\\ML LAB\\findsss.csv','r') as csvFile:
    reader=csv.reader(csvFile)
    for row in reader:
        a.append(row)
        print(row)

print("\n the initial value of hypothesis:")
hypothesis=['0']*num_attributes
print(hypothesis)

for j in range(0,num_attributes):
    hypothesis[j]=a[0][j]

print("\n Find S : Finding a maximally specific hypothesis \n")
for i in range(0,len(a)):
    if a[i][num_attributes]=='Yes':
        for j in range(0,num_attributes):
            if a[i][j]!=hypothesis[j]:
                hypothesis[j] = '?'
            else:
                hypothesis[j] = a[i][j]
    print("for Training example No: {0} the hypothesis is".format(i),hypothesis)
print("\n the maximally specific hypothesis for a given training examples: \n")
print(hypothesis)
```

```
 the most general hypothesis : ['?','?','?','?','?','?']


 the most specific hypothesis : ['0','0','0','0','0','0']


 the given Training data set

['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same', 'Yes']
['Sunny', 'Warm', 'High', 'Strong', 'Warm', 'Same', 'Yes']
['Cloudy', 'Cold', 'High', 'Strong', 'Warm', 'Same', 'No']
['Sunny', 'Cold', 'High', 'Strong', 'Cold', 'Change', 'Yes']

 the initial value of hypothesis:
['0', '0', '0', '0', '0', '0']

 Find S : Finding a maximally specific hypothesis

for Training example No: 0 the hypothesis is ['Sunny', 'Warm', 'Normal',
'Strong', 'Warm', 'Same']
for Training example No: 1 the hypothesis is ['Sunny', 'Warm', '?', 'Stron
g', 'Warm', 'Same']
for Training example No: 2 the hypothesis is ['Sunny', 'Warm', '?', 'Stron
g', 'Warm', 'Same']
for Training example No: 3 the hypothesis is ['Sunny', '?', '?', 'Strong',
'?', '?']

 the maximally specific hypothesis for a given training examples:

['Sunny', '?', '?', 'Strong', '?', '?']
```

In [8]:

```
import random
import csv

attributes = [['Sunny','Rainy'],['Warm','Cold'],['Normal','High'],['Strong','Weak'],['W
arm','Cool'],['Same','Change']]

num_attributes = len(attributes)

print("\n the most general hypothesis : ['?','?','?','?','?','?']\n")
print("\n the most specific hypothesis : ['0','0','0','0','0','0']\n")

a=[]

print("\n the given Training data set \n")

with open('E:\\ML LAB\\findss.csv','r') as csvFile:
    reader=csv.reader(csvFile)
    for row in reader:
        a.append(row)
        print(row)

print("\n the initial value of hypothesis:")
hypothesis=['0']*num_attributes
print(hypothesis)

for j in range(0,num_attributes):
    hypothesis[j]=a[0][j]

print("\n Find S : Finding a maximally specific hypothesis \n")
for i in range(0,len(a)):
    if a[i][num_attributes]=='Yes':
        for j in range(0,num_attributes):
            if a[i][j]!=hypothesis[j]:
                hypothesis[j] = '?'
            else:
                hypothesis[j] = a[i][j]
    print("for Training example No: {0} the hypothesis is".format(i),hypothesis)
print("\n the maximally specific hypothesis for a given training examples: \n")
print(hypothesis)
```

```
 the most general hypothesis : ['?','?','?','?','?','?']


 the most specific hypothesis : ['0','0','0','0','0','0']


 the given Training data set

['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same', 'Yes']
['Sunny', 'Warm', 'High', 'Strong', 'Warm', 'Same', 'Yes']
['Cloudy', 'Cold', 'High', 'Strong', 'Warm', 'Same', 'No']
['Sunny', 'Warm', 'High', 'Strong', 'Cold', 'Change', 'Yes']
['Rainy', 'Cold', 'High', 'Strong', 'Cold', 'Change', 'No']
['Sunny', 'Cold', 'Normal', 'Weak', 'Warm', 'Same', 'Yes']
['Sunny', 'Warm', 'Normal', 'Weak', 'Warm', 'Same', 'Yes']
['Rainy', 'Cold', 'High', 'Strong', 'Cold', 'Change', 'No']

 the initial value of hypothesis:
['0', '0', '0', '0', '0', '0']

 Find S : Finding a maximally specific hypothesis

for Training example No: 0 the hypothesis is ['Sunny', 'Warm', 'Normal',
'Strong', 'Warm', 'Same']
for Training example No: 1 the hypothesis is ['Sunny', 'Warm', '?', 'Stron
g', 'Warm', 'Same']
for Training example No: 2 the hypothesis is ['Sunny', 'Warm', '?', 'Stron
g', 'Warm', 'Same']
for Training example No: 3 the hypothesis is ['Sunny', 'Warm', '?', 'Stron
g', '?', '?']
for Training example No: 4 the hypothesis is ['Sunny', 'Warm', '?', 'Stron
g', '?', '?']
for Training example No: 5 the hypothesis is ['Sunny', '?', '?', '?', '?',
'?']
for Training example No: 6 the hypothesis is ['Sunny', '?', '?', '?', '?',
'?']
for Training example No: 7 the hypothesis is ['Sunny', '?', '?', '?', '?',
'?']

 the maximally specific hypothesis for a given training examples:

['Sunny', '?', '?', '?', '?', '?']
```