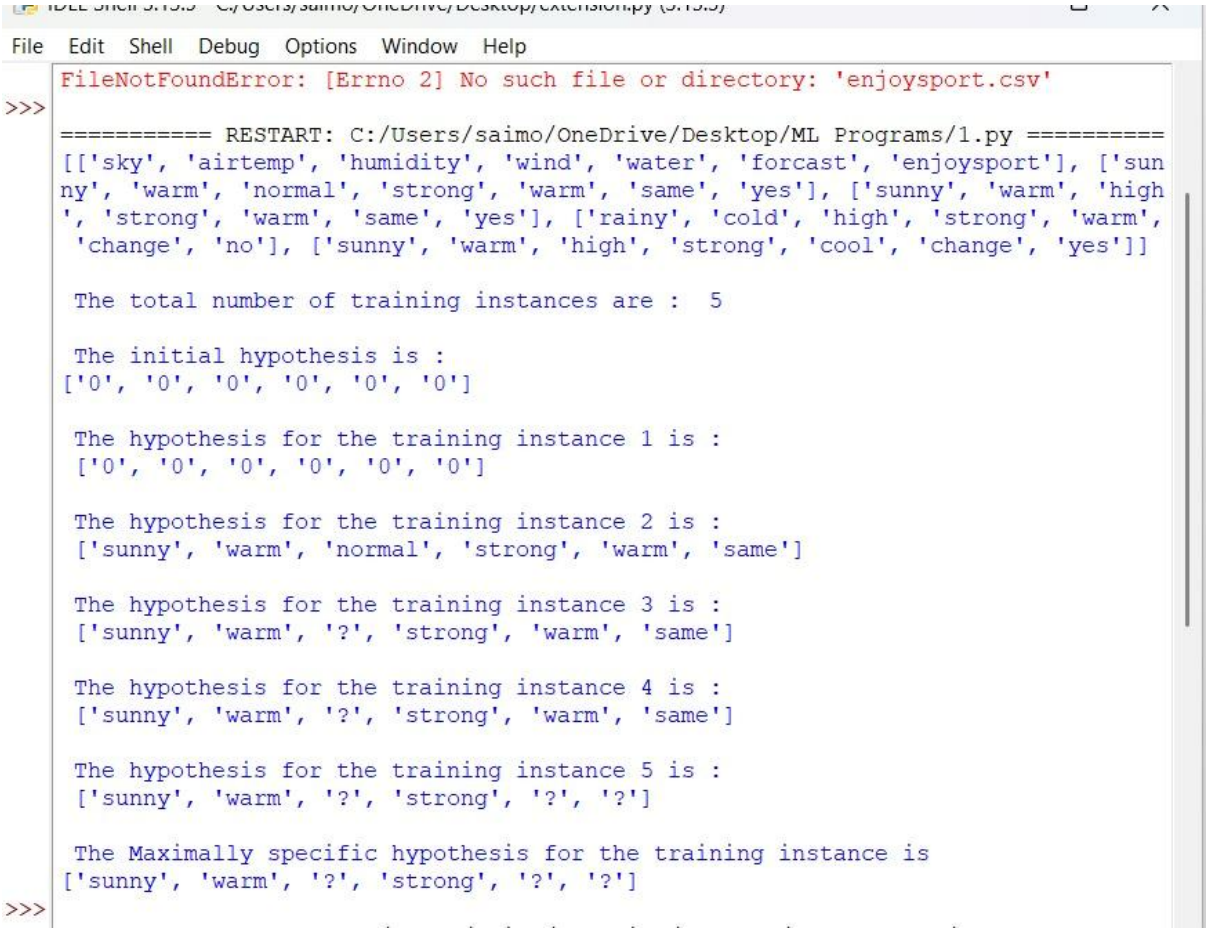
1. Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on a given set of training data samples**.**

Program:

```
import csv
a = []
with open('enjoysport.csv', 'r') as csvfile:
    for row in csv.reader(csvfile):
        a.append(row)
    print(a)
print("\n The total number of training instances are : ",len(a))
num_attribute = len(a[0])-1
print("\n The initial hypothesis is : ")
hypothesis = ['0']*num_attribute
print(hypothesis)
for i in range(0, len(a)):
 if a[i][num_attribute] == 'yes':
  for j in range(0, num_attribute):
      if hypothesis[j] == '0' or hypothesis[j] == a[i][j]:
          hypothesis[j] = a[i][j]
      else:
          hypothesis[j] = '?'
 print("\n The hypothesis for the training instance {} is :\n" .format(i+1),hypothesis)
print("\n The Maximally specific hypothesis for the training instance is ")
print(hypothesis)
```

Output:


File Edit Shell Debug Options Window Help
FileNotFoundError: [Errno 2] No such file or directory: 'enjoysport.csv'
>>>
========== RESTART: C:/Users/saimo/OneDrive/Desktop/ML Programs/1.py ==========
[['sky', 'airtemp', 'humidity', 'wind', 'water', 'forcast', 'enjoysport'], ['sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'yes'], ['sunny', 'warm', 'high', 'strong', 'warm', 'same', 'yes'], ['rainy', 'cold', 'high', 'strong', 'warm', 'change', 'no'], ['sunny', 'warm', 'high', 'strong', 'cool', 'change', 'yes']]
The total number of training instances are : 5
The initial hypothesis is :
['0', '0', '0', '0', '0', '0']
The hypothesis for the training instance 1 is :
['0', '0', '0', '0', '0', '0']
The hypothesis for the training instance 2 is :
['sunny', 'warm', 'normal', 'strong', 'warm', 'same']
The hypothesis for the training instance 3 is :
['sunny', 'warm', '?', 'strong', 'warm', 'same']
The hypothesis for the training instance 4 is :
['sunny', 'warm', '?', 'strong', 'warm', 'same']
The hypothesis for the training instance 5 is :
['sunny', 'warm', '?', 'strong', '?', '?']
The Maximally specific hypothesis for the training instance is
['sunny', 'warm', '?', 'strong', '?', '?']
>>>