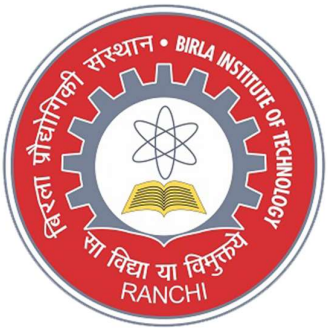
Birla Institute of Technology,Mesra,

Patna Campus



Ml-Assignment

Name-Shubham Sourabh

Roll-Btech/15044/18

Sec-CSE 6th

Assignment-2

For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples.

Code:-

```
import pandas as pd
import numpy as np
import csv


with open("C:/Users/vampirepapi/Desktop/nowhere/6th-LABS/ML/data2.csv")
as f:


    csv_file=csv.reader(f)
    data=list(csv_file)
    s=data[1][:-1]
    g=[['?' for i in range(len(s))] for j in range(len(s))]


    for i in data:
        if i[-1]=="Yes":
            for j in range(len(s)):
                if i[j]!=s[j]:
                    s[j]='?'
                    g[j][j]='?'
```

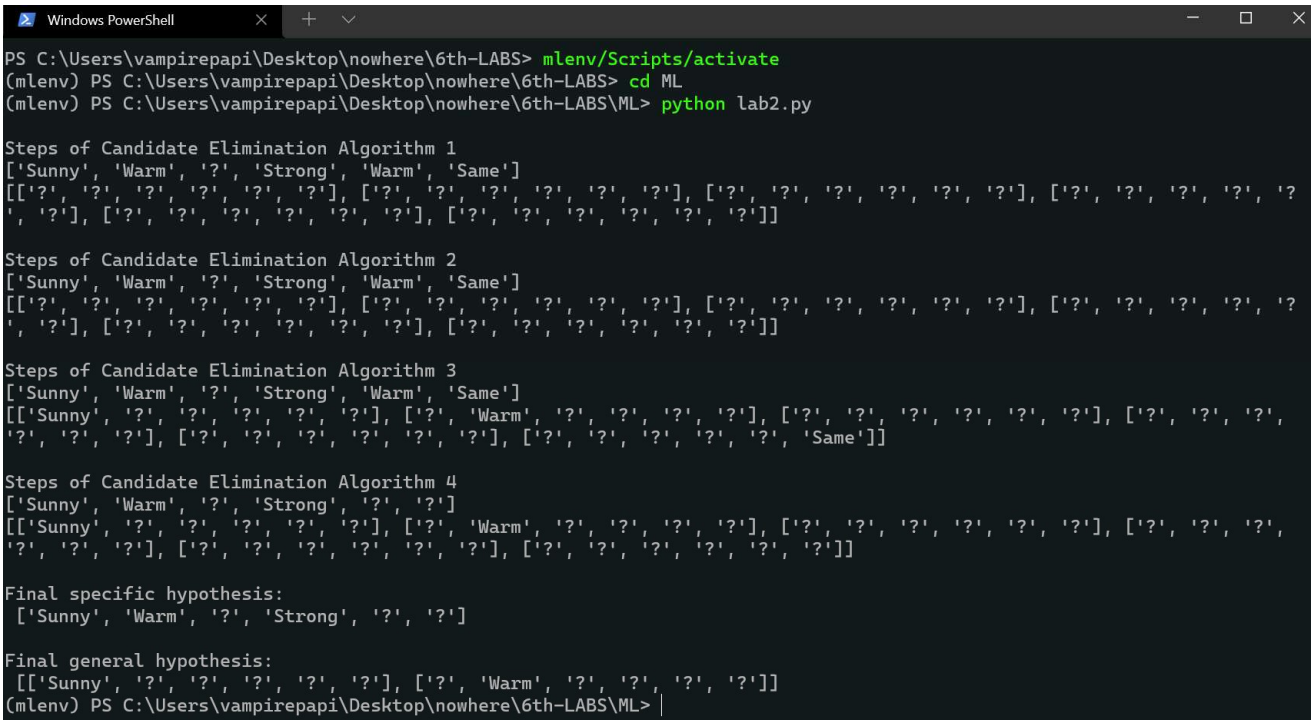
```
    elif i[-1]=="No":
        for j in range(len(s)):
            if i[j]!=s[j]:
                g[j][j]=s[j]
            else:
                g[j][j]="?"
    print("\nSteps of Candidate Elimination Algorithm",data.index(i)+1)
    print(s)
    print(g)
gh=[]
for i in g:
    for j in i:
        if j!='?':
            gh.append(i)
            break



print("\nFinal specific hypothesis:\n",s)


print("\nFinal general hypothesis:\n",gh)
```

Output:-


Windows PowerShell
PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS> mlenv/Scripts/activate
(mlenv) PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS> cd ML
(mlenv) PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS\ML> python lab2.py
Steps of Candidate Elimination Algorithm 1
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]
Steps of Candidate Elimination Algorithm 2
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]
Steps of Candidate Elimination Algorithm 3
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', 'Same']]
Steps of Candidate Elimination Algorithm 4
['Sunny', 'Warm', '?', 'Strong', '?', '?']
[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]
Final specific hypothesis:
['Sunny', 'Warm', '?', 'Strong', '?', '?']
Final general hypothesis:
[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?']]
(mlenv) PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS\ML>