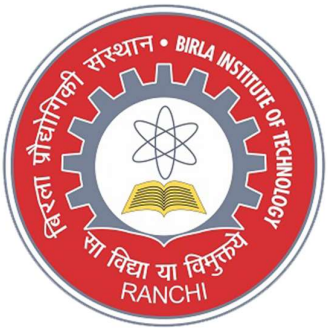
Birla Institute of Technology,Mesra,

Patna Campus



ML-Assignment

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Sec-CSE 6th

Assignment-1

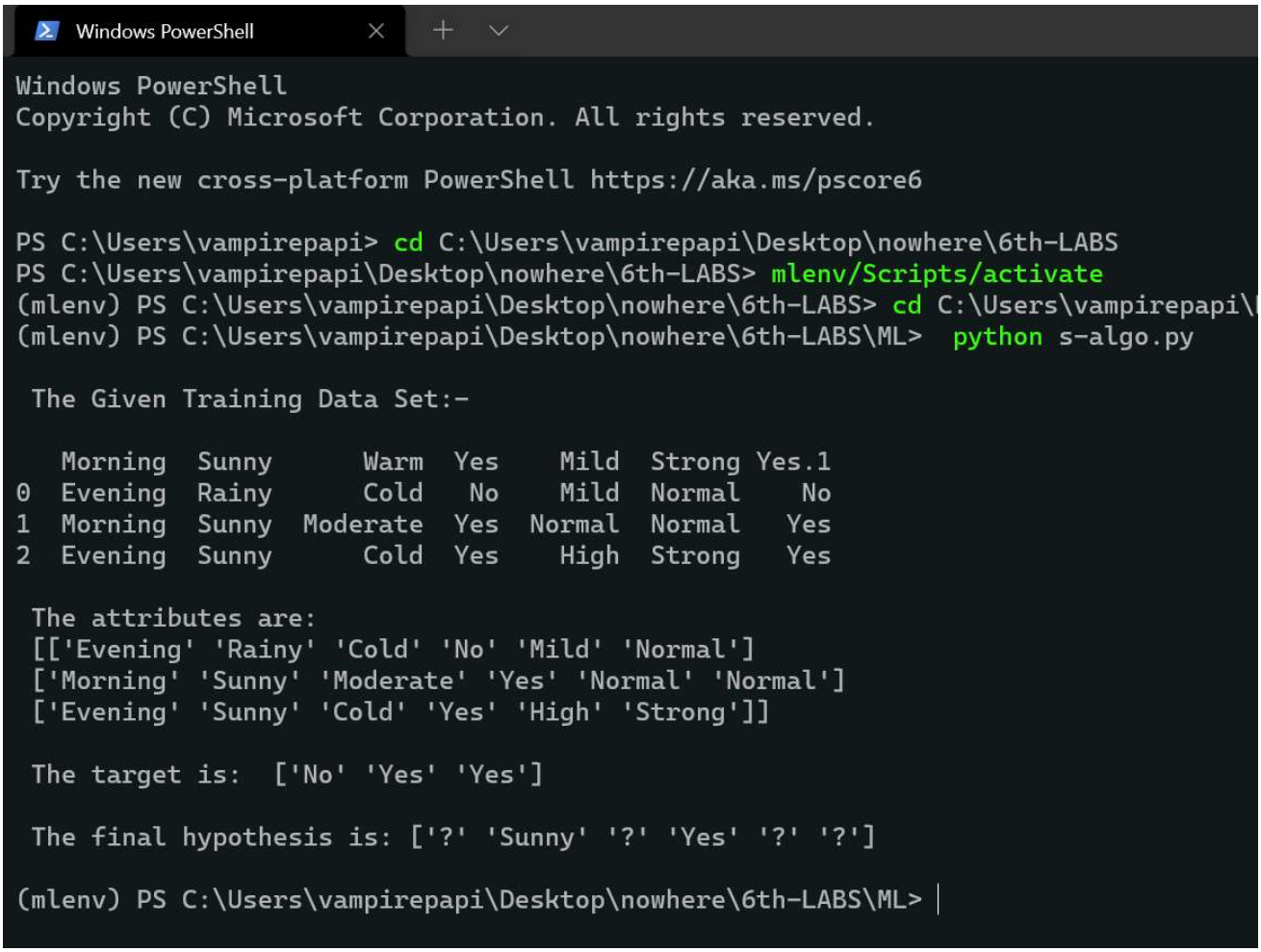
Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on a given set of training data samples. Read the training data from a .CSV file.

Code:-

s-algo.py

```python
import pandas as pd
import numpy as np

#to read the data in the csv file
data = pd.read_csv("C:/Users/vampirepapi/Desktop/nowhere/6th-LABS/ML/data.csv")

print("\n The Given Training Data Set:- \n",)
print(data)

#making an array of all the attributes
d = np.array(data)[:,:-1]
print("\n The attributes are: \n",d)

#segragating the target that has positive and negative examples
target = np.array(data)[:,-1]
print("\n The target is: ",target)

#training function to implement find-s algorithm
def train(c,t):
    for i, val in enumerate(t):
        if val == "Yes":
            specific_hypothesis = c[i].copy()
            break

    for i, val in enumerate(c):
        if t[i] == "Yes":
            for x in range(len(specific_hypothesis)):
                if val[x] != specific_hypothesis[x]:
                    specific_hypothesis[x] = '?'
                else:
                    pass

    return specific_hypothesis

#obtaining the final hypothesis
print("\n The final hypothesis is:",train(d,target),"\n")
```

Output:-


Windows PowerShell
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6
PS C:\Users\vampirepapi> cd C:\Users\vampirepapi\Desktop\nowhere\6th-LABS
PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS> mlenv/Scripts/activate
(mlenv) PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS> cd C:\Users\vampirepapi\
(mlenv) PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS\ML> python s-algo.py
The Given Training Data Set:-
Morning Sunny Warm Yes Mild Strong Yes.1
0 Evening Rainy Cold No Mild Normal No
1 Morning Sunny Moderate Yes Normal Normal Yes
2 Evening Sunny Cold Yes High Strong Yes
The attributes are:
[['Evening' 'Rainy' 'Cold' 'No' 'Mild' 'Normal']
['Morning' 'Sunny' 'Moderate' 'Yes' 'Normal' 'Normal']
['Evening' 'Sunny' 'Cold' 'Yes' 'High' 'Strong']]
The target is: ['No' 'Yes' 'Yes']
The final hypothesis is: ['?' 'Sunny' '?' 'Yes' '?' '?']
(mlenv) PS C:\Users\vampirepapi\Desktop\nowhere\6th-LABS\ML>