ML excerise 1

Find as algorithm:

Program:

import csv

num\_attributes = 5

a = []

print("\n The Given Training Data Set \n")

with open(r'C:\Users\21ad058\Downloads\tennis.csv', 'r') as csvfile:

reader = csv.reader(csvfile)

for row in reader:

a.append (row)

print(row)

print("\n General hypothesis: ")

hypothesis = ['0'] \* num\_attributes

print(hypothesis)

for j in range(0,num\_attributes):

hypothesis[j] = a[1][j]

print("\n specific hypothesis: ")

print(hypothesis)

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 :

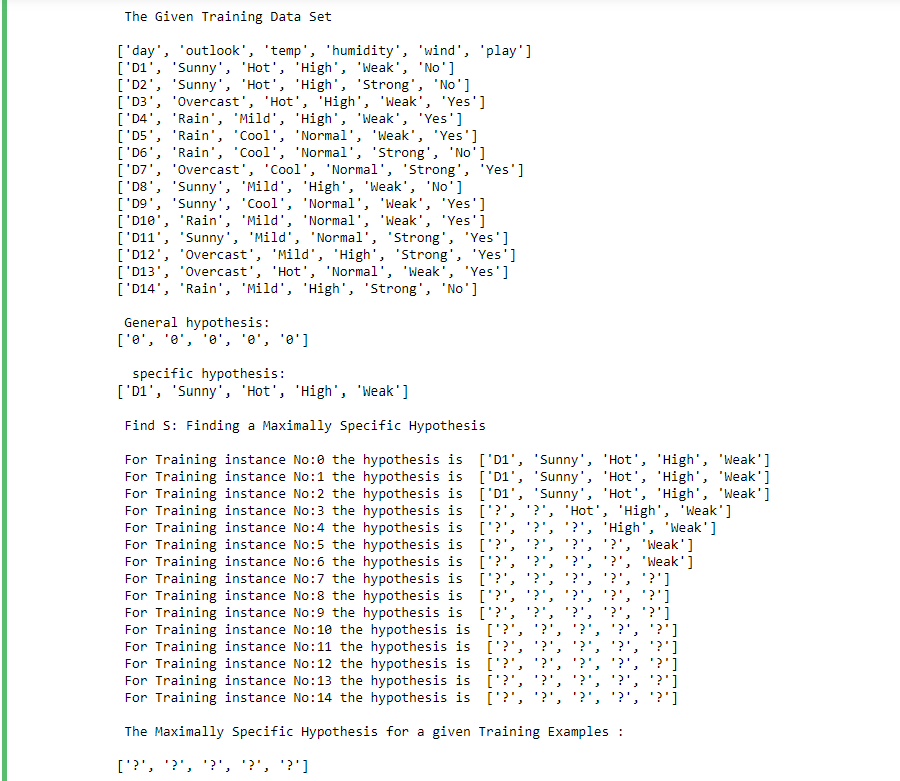
hypothesis[j]= a[i][j]

print(" For Training instance No:{} the hypothesis is ".format(i), hypothesis)

print("\n The Maximally Specific Hypothesis for a given Training Examples :\n")

print(hypothesis)

Output:



Candidate elimination algorithm

Program:

import csv

num\_attributes = 5

a = []

print("\n The Given Training Data Set \n")

with open(r'C:\Users\21ad058\Downloads\tennis.csv

', 'r') as csvfile):

reader = csv.reader(csvfile)

for row in reader:

a.append(row)

print(row)

# Initial hypothesis

specific\_hypothesis = ['0'] \* num\_attributes

general\_hypothesis = ['?', '?', '?', '?', '?']

print("\n Initial specific hypothesis: ", specific\_hypothesis)

print(" Initial general hypothesis: ", general\_hypothesis)

# Candidate Elimination Algorithm

for i in range(0, len(a)):

if a[i][num\_attributes] == 'Yes':

for j in range(0, num\_attributes):

if specific\_hypothesis[j] == '0':

specific\_hypothesis[j] = a[i][j]

elif specific\_hypothesis[j] != a[i][j]:

specific\_hypothesis[j] = '?'

general\_hypothesis[j] = '?'

else:

for j in range(0, num\_attributes):

if specific\_hypothesis[j] == a[i][j]:

specific\_hypothesis[j] = '?'

# Update general hypothesis

for j in range(0, num\_attributes):

if specific\_hypothesis[j] != '?':

general\_hypothesis[j] = specific\_hypothesis[j]

print("\n For Training instance No:{} the specific hypothesis is: ".format(i), specific\_hypothesis)

print(" For Training instance No:{} the general hypothesis is: ".format(i), general\_hypothesis)

print("\n Final specific hypothesis: ", specific\_hypothesis)

print(" Final general hypothesis: ", general\_hypothesis)

output:

