### Prog – 3 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.

Lab Program 3 AIML

import csv

with open("trainingexamples.csv") as f:

csv\_file = csv.reader(f)

data = list(csv\_file)

specific = data[1][:-1]

general = [['?' for i in range(len(specific))] for j in range(len(specific))]

for i in data:

if i[-1] == "Yes":

for j in range(len(specific)):

if i[j] != specific[j]:

specific[j] = "?"

general[j][j] = "?"

elif i[-1] == "No":

for j in range(len(specific)):

if i[j] != specific[j]:

general[j][j] = specific[j]

else:

general[j][j] = "?"

print("\nStep " + str(data.index(i)+1) + " of Candidate Elimination Algorithm")

print(specific)

print(general)

gh = [] # gh = general Hypothesis

for i in general:

for j in i:

if j != '?':

gh.append(i)

break

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

print("\nFinal General hypothesis:\n", gh)

**Output**

Step 1 of Candidate Elimination Algorithm

['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']

[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]

Step 2 of Candidate Elimination Algorithm

['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']

[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]

Step 3 of Candidate Elimination Algorithm

['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']

[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]

Step 4 of Candidate Elimination Algorithm

['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']

[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', 'Same']]

Step 5 of Candidate Elimination Algorithm

['Sunny', 'Warm', '?', 'Strong', '?', '?']

[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?']]

Final Specific hypothesis:

['Sunny', 'Warm', '?', 'Strong', '?', '?']

Final General hypothesis:

[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?']]