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1  """AI & ML
2  Lab-3:
3      For a given set of training data examples stored in a .CSV file,
4      implement and demonstrate the candidate elimination algorithm
5      output a description of the set of all hypothesis consistent
6      with the training example"""
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8  import csv
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10 a = []
11 csvfile = open('lab3.csv', 'r')
12 reader = csv.reader(csvfile)
13 for row in reader:
14     a.append(row)
15     print(row)
16 num_attributes = len(a[0]) - 1
17 print("Initial hypothesis is ")
18 s = ['0'] * num_attributes
19 g = ['?'] * num_attributes
20 print("The most specific: ", s)
21 print("The most general: ", g)
22
23 for j in range(0, num_attributes):
24     s[j] = a[0][j]
25 print("The candidate algorithm \n")
26
27 temp = []
28
29 for i in range(0, len(a)):
30     if (a[i][num_attributes] == 'yes'):
31         for j in range(0, num_attributes):
32             if (a[i][j] != s[j]):
33                 s[j] = '?'

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34     for j in range(0, num_attributes):
35         for k in range(1, len(temp)):
36             if temp[k][j] != '?' and temp[k][j] != s[j]:
37                 del temp[k]
38     print("for instance {0} the space hypothesis is s{0}\n".format(i + 1), s)
39     if (len(temp) == 0):
40         print("for instance {0} the hypothesis is G{0}\n".format(i + 1), g)
41     else:
42         print("for instance {0} the hypothesis is G{0}\n".format(i + 1), temp)
43
44 if (a[i][num_attributes] == 'no'):
45     for j in range(0, num_attributes):
46         if (s[j] != a[i][j] and s[j] != '?'):
47             g[j] = s[j]
48             temp.append(g)
49             g = ['?'] * num_attributes
50     print("For instance{0} the hypothesis is s{0}\n".format(i + 1), s)
51     print("For instance{0} the hypothesis is g{0}\n".format(i + 1), temp)
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68 #output:
69 """
70 ['sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'yes']
71 ['sunny', 'warm', 'high', 'strong', 'warm', 'same', 'yes']
72 ['rainy', 'cool', 'high', 'strong', 'warm', 'change', 'no']
73 ['sunny', 'warm', 'high', 'strong', 'cool', 'change', 'yes']
74 Initial hypothesis is
75 The most specific: ['0', '0', '0', '0', '0', '0']
76 The most general: ['?', '?', '?', '?', '?', '?']
77 The candidate algorithm
78
79 for instance 1 the space hypothesis is s1
80 ['sunny', 'warm', 'normal', 'strong', 'warm', 'same']
81 for instance 1 the hypothesis is G1
82 ['?', '?', '?', '?', '?', '?']
83 for instance 2 the space hypothesis is s2
84 ['sunny', 'warm', '?', 'strong', 'warm', 'same']
85 for instance 2 the hypothesis is G2
86 ['?', '?', '?', '?', '?', '?']
87 For instance3 the hypothesis is s3
88 ['sunny', 'warm', '?', 'strong', 'warm', 'same']
89 For instance3 the hypothesis is g3
90 [['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', 'same
    ']]
91 for instance 4 the space hypothesis is s4
92 ['sunny', 'warm', '?', 'strong', '?', '?']
93 for instance 4 the hypothesis is G4
94 [['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?']]
95 """

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