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classmate
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02. For a given set of training data examples stored in .CSV file, implement and demonstrate the candidate Elimination algorithm to output a description of the set of all hypothesis consistent with the training examples:

```
import numpy as np
import pandas as pd

data = pd.DataFrame(data=pd.read_csv('enjoysport.csv'))
concepts = np.array(data.iloc[:,0:-1])
print(concepts)
target = np.array(data.iloc[:,-1])
print(target)

def learn(concepts, target):
    specific_h = concepts[0].copy()
    print("initialization of specific_h & general_h")
    print(specific_h)
    general_h = [["?" for i in range(len(specific_h))]
    for i in range(len(specific_h))]
    print(general_h)

    for i,h in enumerate(concepts):
        if target[i] == "yes":
            for x in range(len(specific_h)):
                if h[x] != specific_h[x]:
                    specific_h[x] = '?'
                print general_h[x][x] = '?'
                print(specific_h)
    print(specific_h)
```

```
    if (target[i] == "no"):
        for x in range(len(specific_h)):
            if h[x] != specific_h[x]:
                general_h[x][x] = specific_h[x]
            else:
                general_h[x][x] = '?'
    print("Steps of Candidate Elimination Algorithm", i+1)
    print(specific_h)
    print(general_h)
indices = [i for i, val in enumerate(general_h)
if val == ['?', '?', '?', '?', '?', '?']

for i in indices:
    general_h.remove(['?', '?', '?', '?', '?', '?'])
return specific_h, general_h

s_final, g_final = learn(concepts, target)
print("Final Specific Hypothesis:", s_final,
      sep = "\n")
print("Final General Hypothesis:", g_final,
      sep = "\n")
```

Output:

Final Specific Hypothesis:

['Sunny', 'warm', '?', 'Strong', '?', '?']

Final General Hypothesis:

[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?']]