

2. 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.

```

import csv
with open('C:/Users/hp/Desktop/4MT17CS044-JOVITA/lab2.csv') as f:
    csv_file = csv.reader(f)
    data = list(csv_file)
print(data)
s = data[1][:-1]
print(s)
g = [['?' for i in range(len(s)) for j in range(len(s))]]
for i in data:
    if i[-1] == "Yes":
        for j in range(len(s)):
            if i[j] != s[j]:
                s[j] = '?'
                g[j][j] = '?'
    elif i[-1] == "no":
        for j in range(len(s)):
            if i[j] != s[j]:
                g[i][j] = s[j]
    else:
        g[j][j] = '?'
print("Steps of candidate elimination algorithm", data.index(i)+1)
print(s)
print(g)
gh = []

```

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```
for i in g:
```

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    for j in i:
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        if j != '?':
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            gh.append(i)
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        break
```

```
print("\n Final specific hypothesis \n", s)
```

```
print("\n Final general hypothesis \n", gh)
```

## Output

[['sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'yes'],  
 ['sunny', 'warm', 'high', 'strong', 'warm', 'same', 'yes'],  
 ['raining', 'cold', 'high', 'strong', 'warm', 'change', 'no'],  
 ['sunny', 'warm', 'high', 'strong', 'cool', 'change', 'yes']]

['sunny', 'warm', 'high', 'strong', 'warm', 'same']

Steps of candidate elimination algorithm 1:

['sunny', 'warm', '?', 'strong', 'warm', 'same']

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

Steps of candidate elimination algorithm 2:

['sunny', 'warm', '?', 'strong', 'warm', 'same']

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

Steps of candidate elimination algorithm 3:

['sunny', 'warm', '?', 'strong', 'warm', 'same']

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

Steps of candidate elimination algorithm 4:

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

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

Final specific hypothesis:

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

Final general hypothesis

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