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 hypothesis consistent with the training examples.

```
import csv
with open ('C:/Users/hp/Desktop/4MT17CS005_Abigail/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[j][j] = s[j]
            else:
                g[j][j] = "?"
print ("Steps of candidate elimination algorithm", data.index(i)+1)
print(s)
print (g)
gh = []
```

Teacher's Signature : _____

```
for i in g:
    for j in i:
        if j != '?':
            gh.append(i)
            break
print("\n Final specific hypothesis: \n", s)
print("\n Final general hypothesis: \n", gh)
```

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Output:

[['Sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'yes'],
['Sunny', 'warm', 'high', 'strong', 'warm', 'same', 'yes'],
['rainy', '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','?','?','?','?']]