```
import csv

with open("trainingexamples.csv") as f:
    csv_file = csv.reader(f)
    data = list(csv_file)          # 2D-Array

    attributes = data[0][:-1]
    specific = data[0][:-1]
    general = [['?' for i in range(len(specific))] for j in range(len(specific))

    for i in data:
        if i[-1] == "Yes":        # last column i[-1]           # "Yes": make ch
            for j in range(len(specific)):          # length: 6  columns
                if i[j] != specific[j]:
                    specific[j] = "?"
                    general[j][j] = "?"

        elif i[-1] == "No":                                     # "No": make cha
            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 Algo
        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)
```

```
Step 1 of Candidate Elimination Algorithm
['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '

Step 2 of Candidate Elimination Algorithm
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
[['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '

Step 3 of Candidate Elimination Algorithm
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'],

Step 4 of Candidate Elimination Algorithm
['Sunny', 'Warm', '?', 'Strong', '?', '?']
[['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'],

Final Specific hypothesis:
 ['Sunny', 'Warm', '?', 'Strong', '?', '?']

Final General hypothesis:
 [['Sunny', '?', '?', '?', '?', '?'], ['?', 'Warm', '?', '?', '?', '?']]
```

```
final_hypothesis = []
final_hypothesis.append(specific)
for h in gh:
 final_hypothesis.append(h)
 new_h = h.copy();
 for i in range(len(specific)):
  if new_h[i] != specific[i]:
    new_h[i] = specific[i]
  if new_h not in final_hypothesis:
    final_hypothesis.append(new_h.copy())
  new_h[i] = '?'
```

```
12
13 final_hypothesis
```

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

```
1 test_data = []
2 for i in range(len(specific)):
3  print("Enter value for",attributes[i],end=" : ")
4  value = input()
5  test_data.append(value)
6 print("Test data is", test_data)
```

```
Enter value for Sunny : rainy
Enter value for Warm : warm
Enter value for Normal : hot
Enter value for Strong : strong
Enter value for Warm : cold
Enter value for Same : same
Test data is ['rainy', 'warm', 'hot', 'strong', 'cold', 'same']
```

```
1 positive_count = 0
2 negative_count = 0
3
4 for hypothesis in final_hypothesis:
5   isPositive = True
6   for i in range(len(hypothesis)):
7       if hypothesis[i] == test_data[i] or hypothesis[i] == '?':
8         continue
9       isPositive = False
10      break
11
12  if isPositive:
13    positive_count += 1
14  else:
15    negative_count += 1
16
17 print("positive =",positive_count)
18 print("negative =",negative_count)
19 if positive_count >= negative_count:
20  print("Yes, enjoys swimming")
21 else:
22  print("No, does not enjoys swimming")
```

```
positive = 1
negative = 6
No, does not enjoys swimming
```