In [1]:
```
import pandas as pd
import numpy as np
import csv
```

In [2]:
```
data=pd.read_csv('Candidate_Algo_DS.csv')
```

In [3]:
```
data
```

Out[3]:

	Sunny	Warm	Normal	Strong	Warm.1	Same	Yes
0	Sunny	Warm	High	Strong	Warm	Same	Yes
1	Rainy	Cold	High	Strong	Warm	Change	No
2	Sunny	Warm	High	Strong	Cool	Change	Yes

In [4]:
```
# Open the csv file "Candidate_Algo_DS.csv"
with open("Candidate_Algo_DS.csv") as f:
 # Read the contents of the file using the csv reader
 csv_file = csv.reader(f)
 # Convert the contents to a list of lists
 data = list(csv_file)
```

In [5]:
```
data
```

Out[5]:
```
[['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']]
```

In [6]:
```
# Initialize the specific hypothesis with the first row of the data, excluding the las
specific = data[0][:-1]
# Initialize the general hypothesis with a list of "?" of the same length as the spec
general = [['?' for i in range(len(specific))] for j in range(len(specific))]
```

In [7]:
```
specific
```

Out[7]:
```
['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']
```

In [8]:
```
general
```

Out[8]:
```
[['?', '?', '?', '?', '?', '?'],
 ['?', '?', '?', '?', '?', '?'],
 ['?', '?', '?', '?', '?', '?'],
 ['?', '?', '?', '?', '?', '?'],
 ['?', '?', '?', '?', '?', '?'],
 ['?', '?', '?', '?', '?', '?']]
```

In [14]:
```
# Iterate over each row in the data
for i in data:
     # If the last column of the current row is "Yes"
    if i[-1] == "Yes":
        # Iterate over each column in the current row
         for j in range(len(specific)):
             # If the current column value is not equal to the corresponding value in
             if i[j] != specific[j]:
                 # Update the corresponding value in the specific hypothesis to "?"
```

```
                specific[j] = "?"
                # Update the corresponding value in the general hypothesis to "?"
                general[j][j] = "?"


     # If the last column of the current row is "No"
    elif i[-1] == "No":
         # Iterate over each column in the current row
        for j in range(len(specific)):
         # If the current column value is not equal to the corresponding value in the
            if i[j] != specific[j]:
            # Update the corresponding value in the general hypothesis to the corresp
                general[j][j] = specific[j]
            else:
             # If the current column value is equal to the corresponding value in the
                general[j][j] = "?"


  # Print the current step of the algorithm and the values of the specific and general
    print("\nStep " + str(data.index(i)+1) + " of Candidate Elimination Algorithm")
    print(specific)
    print(general)
```

```
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', '?', '?', '?', '?'], ['?', '?', '?',
'?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?', '?', '?', '?', '?', '?'], ['?',
'?', '?', '?', '?', 'Same']]

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

In [15]:

```
# Initialize the final general hypothesis list
gh = []
# Iterate over each list in the general hypothesis
for i in general:
    # Iterate over each value in the current list
     for j in i:
         # If the current value is not "?"
        if j != '?':
         # Add the current list to the final general hypothesis list
             gh.append(i)
             break

# Print the final specific and general hypotheses
print("\nFinal Specific hypothesis:\n", specific)
print("\nFinal General hypothesis:\n", gh)
```

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

Final General hypothesis:
```