Program 1. Find-S algoritm (✿◠‿◠)

In [1]:
```
import csv
a = []
```

In [2]:
```
print("The Given Training Data Set: ")
with open('ws.csv','r') as csvFile:
    reader = csv.reader(csvFile)
    for x in reader:
        print(x)
        a.append(x)
```

```
The Given Training Data Set:
['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 [3]:
```
num_attrib = len(a[0]) - 1
print("The initial value of hypothesis: ")
hyp = ["0"] * num_attrib
print(hyp)
```

```
The initial value of hypothesis:
['0', '0', '0', '0', '0', '0']
```

In [4]:
```
#Comparing with First Training Example
hyp = a[0][:-1]
print(hyp)
```

```
['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']
```

In [5]:
```
#Comparing with Remaining dataset
print("Find S: Finding a maximally specific hypotesis\n")

for i,row in enumerate(a):
    if row[-1] == 'Yes':
        for j,attrib in enumerate(row[:-1]):
            if attrib !=  hyp[j]:
                hyp[j]='?'
    print("Hypothesis for training example {0} is \n{1}".format(i+1,hyp))
```

```
Find S: Finding a maximally specific hypotesis

Hypothesis for training example 1 is
['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']
Hypothesis for training example 2 is
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
Hypothesis for training example 3 is
['Sunny', 'Warm', '?', 'Strong', 'Warm', 'Same']
Hypothesis for training example 4 is
['Sunny', 'Warm', '?', 'Strong', '?', '?']
```

In [6]:
```
print("The Maximally specific hypothesis for a given Training examples is:")
print(hyp)
```

```
The Maximally specific hypothesis for a given Training examples is:
['Sunny', 'Warm', '?', 'Strong', '?', '?']
```