**Find S Algorithm**

**#implementation of Find S algorithm**

**import** csv  
a = []  
**with** open(**'enjoysport.csv'**, **'r'**) **as** csvfile:  
 next(csvfile)  
 **for** row **in** csv.reader(csvfile):  
 a.append(row)  
 print(a)  
  
print(**"\nThe total number of training instances are : "**,len(a))  
  
num\_attribute = len(a[0])-1  
  
print(**"\nThe initial hypothesis is : "**)  
hypothesis = [**'0'**]\*num\_attribute  
print(hypothesis)  
  
**for** i **in** range(0, len(a)):  
 **if** a[i][num\_attribute] == **'yes'**:  
 print (**"\nInstance "**, i+1, **"is"**, a[i], **" and is Positive Instance"**)  
 **for** j **in** range(0, num\_attribute):  
 **if** hypothesis[j] == **'0' or** hypothesis[j] == a[i][j]:  
 hypothesis[j] = a[i][j]  
 **else**:  
 hypothesis[j] = **'?'** print(**"The hypothesis for the training instance"**, i+1, **" is: "** , hypothesis, **"\n"**)  
  
 **if** a[i][num\_attribute] == **'no'**:  
 print (**"\nInstance "**, i+1, **"is"**, a[i], **" and is Negative Instance Hence Ignored"**)  
 print(**"The hypothesis for the training instance"**, i+1, **" is: "** , hypothesis, **"\n"**)  
  
print(**"\nThe Maximally specific hypothesis for the training instance is "**, hypothesis)

**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']]

The total number of training instances are : 4

The initial hypothesis is :

['0', '0', '0', '0', '0', '0']

Instance 1 is ['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same', 'yes'] and is Positive Instance

The hypothesis for the training instance 1 is: ['Sunny', 'Warm', 'Normal', 'Strong', 'Warm', 'Same']