Date

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Program 1

Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on the given set of training data examples. Read the training data from a .csv file.

```
import random
import csv

attributes =[ ['sunny','rainy'] , ['warm', 'cool'], ['normal',
              'high'], ['strong', 'weak'], ['warm', 'cool'],
              ['same', 'change']]
print(attributes)
num_attributes =len(attributes)
print ("\n The total number of attributes in data set:",
                                        num_attributes)
print("\n The most general hypothesis: ['?', '?', '?', '?', '?',
                                        '?'] \n")
print("\n The most specific hypothesis: ['0', '0', '0', '0', '0',
                                        '0'] \n")

a =[]
print("\n The given training data set \n")
with open('enjoysport.csv', 'r') as csvfile:
        reader = csv.reader(csvfile)
        for row in reader:
            a.append(row)
            print(row)
```

Teacher's Signature

```
print("\n The initial value of hypothesis:")
h = ['0'] * num_attributes
print(h)

for i in range(0, len(a)):
    if a[i][num_attributes] == 'yes':
        for j in range(num_attributes):
            if h[j] == '0' or h[j] == a[i][j]:
                h[j] = a[i][j]
            else:
                h[j] = '?'
print("\n for training example :{0} the hypothesis \n".
                                    format(i+1), h)
```

Data Set

SL No	Sky	AirTemp	Humidity	Wind	Water	Forecast
1	Sunny	Warm	normal	Strong	warm	same
2	Sunny	Warm	high	Strong	warm	same
3	Rainy	cold	high	Strong	warm	change
4	Sunny	Warm	high	strong	cool	change

output

[['sunny', 'rainy'], ['warm', 'cool'], ['normal', 'high'],
['strong', 'weak'], ['warm', 'cool'], ['same', 'change']]

The no. of attributes : 6

The most general hypothesis : ['?', '?', '?', '?', '?', '?']

The most specific hypothesis: ['0', '0', '0', '0', '0', '0']

The given training data set

['sky', 'airtemp', 'humidity', 'wind', 'water', 'forecast', 'enjoysport']
['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', 'cold', 'change', 'no']

The initial value of hypothesis :

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

For training examples: ✱ the hypothesis

['sunny', 'warm', '?', 'strong', '?', '?']