

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

```
import random
```

```
import csv
```

```
attributes = [['sunny', 'rain', '], ['warm', 'cold', '], ['normal',  
'high'], ['strong', 'weak'], ['warm', 'cool'], ['same',  
'change']]
```

```
print(attributes)
```

```
num_attributes = len(attributes)
```

```
print(num_attributes)
```

```
print("\n the most general hypothesis: ['?', '?', '?',  
'?', '?', '?']\n")
```

```
print("\n the most specific hypothesis: ['0', '0', '0',  
'0', '0', '0']\n")
```

```
q = []
```

```
print("\n the given training dataset")
```

```
with open('c:\Users\Adarsh\Desktop\Algo\data.csv',  
r) as csvfile:
```

```
reader = csv.reader(csvfile)
```

```
for row in reader:
```

```
q.append(row)
```

```
print(row)
```

```
print("\n the initial value of hypothesis:")
```

```
h = ['0'] * num_attributes
```

```
print(h)
```

```
for j in range(0, num_attributes):
```

```
a[i] = a[i][i]
```

```
for i is range(1, len(a));
```

```
    if (a[i][sum-attributes] == 'yes');
```

```
        for j is range(sum-attributes):
```

```
            if (b[j] == '0' or b[j] == a[i][j]):
```

```
                b[j] = a[i][j]
```

```
            else:
```

```
                b[j] = '1'
```

```
Print ("10 for training examples: {0} the  
hypothesis") format (i+1, b)
```

Dataset:

Sl. No	sky	Air temp	Humidity	wind	water	forecast	Enjoy Sport
1	Sunny	warm	normal	strong	warm	same	Yes
2	Sunny	warm	high	strong	warm	same	Yes
3	Rainy	cold	high	strong	warm	change	No
4	Sunny	warm	high	strong	cool	change	Yes

output:-

['Sunny', 'Rainy'], ['warm', 'cold'], ['normal', 'high'],
 ['strong', 'weak'], ['warm', 'cool'], ['same', 'change']

b.

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

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

The given training dataset

['sky', 'Air temp', 'Humidity', 'wind', 'water', 'forecast',
 'Enjoy sport']

['Sunny', 'warm', 'normal', 'strong', 'warm', 'same', 'Yes']

['Sunny', 'warm', 'high', 'strong', 'warm', 'same', 'Yes']

['Rainy', 'cold', 'high', 'strong', 'warm', 'change', 'Yes']

The initial hypothesis is:

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

for training example: $\{0\}$ the hypotheses \mathcal{H}
 $['sunni', 'wani', 'q', 'strong', '?', '?']$