

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

Lab1data.csv

```
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,no
sunny,warm,high,strong,cool,change,yes
```

program2.csv

```
import csv

file = open('Lab1data.csv') # Read CSV data
data = list(csv.reader(file)) # Convert into list format
length = len(data[0]) - 1 # -1 because we don't need the target variable
h = ['0'] * length # Initial hypothesis
print("Initial Hypothesis:", h)
print('Data:')
for i in data:
    print(i)

col = data.pop(0) # Removing the column names

for i in range(len(data)):
    if data[i][length] == 'yes': # Considering only the positive examples
        for j in range(len(data[i]) - 1): # Not considering the target variable
            if h[j] == '0':
                h[j] = data[i][j] # If 0 then copy the data
            if h[j] != data[i][j]: # If not equal to the previous hypothesis,
then put '?'
                h[j] = '?'

print("Final Hypothesis (Most Specific):", h)
```

OUTPUT

Initial Hypothesis: ['0', '0', '0', '0', '0', '0']

Data:

['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', 'no']

['sunny', 'warm', 'high', 'strong', 'cool', 'change', 'yes']

Final Hypothesis (Most Specific): ['sunny', 'warm', '?', 'strong', '?', '?']