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

```
from pandas import DataFrame
data = DataFrame.from_csv('labl.csv')
columnLength = data.shape[1]
print(data)
h = ['0'] * (columnLength-1)
hp = [ ]
hn = [ ]
for trainingExample in data.values:
    if trainingExample[-1] != 'no':
        hp.append(list(trainingExample))
    else
        hn.append(list(trainingExample))
for i in range(len(hp)):
    for j in range(columnLength-1):
        if(h[j] == "0"):
            h[j] = hp[i][j]
        if(h[j] != hp[i][j]):
            h[j] = '?'
        else:
            h[j] = hp[i][j]
print("\nThe positive hypothesis are: ", hp)
print("\nThe negative hypothesis are: ", hn)
print("\nThe maximally specific hypothesis is: ", h)
```

ARUNS

Output:-

Sl.no	Sky	AirTemp	Humidity	Wind	Water	Forecast	EnjoySport
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

The positive hypothesis are:

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

The negative hypothesis are:

[['rainy', 'cold', 'high', 'strong', 'warm', 'change', 'no']]

The maximally specific hypothesis is:

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