**PROGRAM 4 :**

For a given set of training data examples stored in a .CSV file, implement and demonstrate the Find-S algorithm to output a description of the set of all hypotheses consistent with the training examples.

*import* pandas *as* pd

def find\_s\_algorithm(*file\_path*):

data = pd.read\_csv(file\_path)

print("Training data:")

print(data)

attributes = data.columns[:-1]

class\_label = data.columns[-1]

hypothesis = ['?' *for* \_ *in* attributes]

*for* index, row *in* data.iterrows():

*if* row[class\_label] == 'Yes':

*for* i, value *in* enumerate(row[attributes]):

*if* hypothesis[i] == '?' or hypothesis[i] == value:

hypothesis[i] = value

*else*:

hypothesis[i] = '?'

*return* hypothesis

file\_path = 'training\_data.csv'

hypothesis = find\_s\_algorithm(file\_path)

print("\nThe final hypothesis is:", hypothesis)

**OUTPUT:**

Training data:

Outlook Temperature Humidity Windy water forecast enjoysport

0 Sunny warm normal strong warm same Yes

1 Sunny warm high strong warm same Yes

2 rainy cold high strong warm change no

3 Sunny warm high strong cold change Yes

The final hypothesis is: ['Sunny', 'warm', 'high', 'strong', '?', '?']