```python
from google.colab import files
files.upload()
```

```python
import numpy as np
import pandas as pd
data = pd.read_csv('filtered_dataset.csv')
data=data[1:10]
data.head()
```

	Unnamed: 0	Survived	Pclass	Sex	Parch	Embarked	Age Category	Fare Category	Sibsp Category
1	1	1	3	female	0	S	Elderly	General	Low
2	2	0	2	male	0	Q	Elderly	General	Low
3	3	0	3	male	0	S	Adult	General	Low
4	4	1	3	female	1	S	Young Adult	General	Low
5	5	0	3	male	0	S	Teenager	General	Low

```python
# data = pd.read_csv('filtered_data.csv')
concepts = np.array(data.iloc[:,0:-1])
print("\nInstances are:\n",concepts)
target = np.array(data.iloc[:,1])
print("\nTarget Values are: ",target)

def learn(concepts, target):
    specific_h = concepts[0].copy()
    print("\nInitialization of specific_h and genearal_h")
    print("\nSpecific Boundary: ", specific_h)
    general_h = [["?" for i in range(len(specific_h))] for i in range(len(specific_h))]
    print("\nGeneric Boundary: ",general_h)

    for i, h in enumerate(concepts):
        print("\nInstance", i+1 , "is ", h)
        if target[i] == 1:
            print("Instance is Positive ")
            for x in range(len(specific_h)):
                if h[x]!= specific_h[x]:
                    specific_h[x] ='?'
                    general_h[x][x] ='?'

        if target[i] == 0:
            print("Instance is Negative ")
            for x in range(len(specific_h)):
                if h[x]!= specific_h[x]:
                    general_h[x][x] = specific_h[x]
                else:
                    general_h[x][x] = '?'

        print("Specific Bundary after ", i+1, "Instance is ", specific_h)
        print("Generic Boundary after ", i+1, "Instance is ", general_h)
        print("\n")

    indices = [i for i, val in enumerate(general_h) if val == ['?', '?', '?', '?', '?', '?']]
    for i in indices:
        general_h.remove(['?', '?', '?', '?', '?', '?'])
    return specific_h, general_h

s_final, g_final = learn(concepts, target)

print("Final Specific_h: ", s_final, sep="\n")
print("Final General_h: ", g_final, sep="\n")
```

```
Instance 4 is  [4 1 3 'female' 1 'S' 'Young Adult' 'General']
Instance is Positive
Specific Bundary after  4 Instance is  ['?' 1 3 'female' '?' 'S' '?' 'General']
Generic Boundary after  4 Instance is  [['?', '?', '?', '?', '?', '?', '?', '?'], ['?', 1, '?', '?', '?', '?', '?', '?'], ['?', '?',


Instance 5 is  [5 0 3 'male' 0 'S' 'Teenager' 'General']
Instance is Negative
Specific Bundary after  5 Instance is  ['?' 1 3 'female' '?' 'S' '?' 'General']
Generic Boundary after  5 Instance is  [['?', '?', '?', '?', '?', '?', '?', '?'], ['?', 1, '?', '?', '?', '?', '?', '?'], ['?', '?',


Instance 6 is  [6 1 3 'female' 0 'Q' 'Adult' 'General']
Instance is Positive
Specific Bundary after  6 Instance is  ['?' 1 3 'female' '?' '?' '?' 'General']
Generic Boundary after  6 Instance is  [['?', '?', '?', '?', '?', '?', '?', '?'], ['?', 1, '?', '?', '?', '?', '?', '?'], ['?', '?',


Instance 7 is  [7 0 2 'male' 1 'S' 'Adult' 'General']
Instance is Negative
Specific Bundary after  7 Instance is  ['?' 1 3 'female' '?' '?' '?' 'General']
Generic Boundary after  7 Instance is  [['?', '?', '?', '?', '?', '?', '?', '?'], ['?', 1, '?', '?', '?', '?', '?', '?'], ['?', '?',


Instance 8 is  [8 1 3 'female' 0 'C' 'Teenager' 'General']
Instance is Positive
Specific Bundary after  8 Instance is  ['?' 1 3 'female' '?' '?' '?' 'General']
Generic Boundary after  8 Instance is  [['?', '?', '?', '?', '?', '?', '?', '?'], ['?', 1, '?', '?', '?', '?', '?', '?'], ['?', '?',


Instance 9 is  [9 0 3 'male' 0 'S' 'Young Adult' 'General']
Instance is Negative
Specific Bundary after  9 Instance is  ['?' 1 3 'female' '?' '?' '?' 'General']
Generic Boundary after  9 Instance is  [['?', '?', '?', '?', '?', '?', '?', '?'], ['?', 1, '?', '?', '?', '?', '?', '?'], ['?', '?',


Final Specific_h:
['?' 1 3 'female' '?' '?' '?' 'General']
Final General h:
```