In [1]:
```
import numpy as np
import pandas as pd
```

In [2]:
```
data = pd.read_csv('C:/Users/shara/OneDrive/Desktop/ML LAB/enjoysport.csv')
```

In [3]:
```
concepts = np.array(data)[:,:-1]
print(concepts)
```

```
[['sunny' 'warm' 'normal' 'strong' 'warm' 'same']
 ['sunny' 'warm' 'high' 'strong' 'warm' 'same']
 ['rainy' 'cold' 'high' 'strong' 'warm' 'change']
 ['sunny' 'warm' 'high' 'strong' 'cool' 'change']]
```

In [4]:
```
target = np.array(data)[:,-1]
print(target)
```

```
['yes' 'yes' 'no' 'yes']
```

In [7]:
```
def learn(con,tar):
    specific_h = con[0].copy()
#     print(specific_h)
    general_h =[["?" for i in range(len(specific_h))]for i in range(len(specific_h))]
#     print(general_h)
    for i,h in enumerate(con):
        if tar[i] == 'yes':
            for x in range(len(specific_h)):
                if h[x] != specific_h[x]:
                    specific_h[x] = '?'
                    general_h[x][x] = '?'
        if tar[i] == 'no':
            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] = '?'
    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")
```

```
final specific H
['sunny' 'warm' '?' 'strong' '?' '?']
final general H
[['sunny', '?', '?', '?', '?', '?'], ['?', 'warm', '?', '?', '?', '?']]
```

In [ ]:
```
```