app

In [3]:

import pandas as pd

In [4]:

data = pd.read\_excel('data.xslx')  
data

Out[4]:

|  | Eyes | Nose | Head | Fcolor | Hair | Smile |
| --- | --- | --- | --- | --- | --- | --- |
| 0 | Circle | Triangle | Circle | Pink | Yes | Yes |
| 1 | Square | Square | Square | Green | Yes | No |
| 2 | Square | Triangle | Circle | Yellow | Yes | Yes |
| 3 | Circle | Triangle | Circle | Green | No | No |
| 4 | Square | Square | Circle | Yellow | Yes | Yes |

In [5]:

target = data['Smile']

In [6]:

concepts = data[data.columns[data.columns != 'Smile']].values

In [7]:

init\_hyp = ['0']\*concepts.shape[1]  
init\_hyp

Out[7]:

['0', '0', '0', '0', '0']

In [8]:

rows, cols = concepts.shape  
def find\_s(init\_hypo):  
 for i in range(rows):   
 if (target[i] == 'Yes'):  
 for j in range(cols):  
 if init\_hypo[j] == '0':  
 init\_hypo[j] = concepts[i][j]  
 elif (init\_hypo[j] != concepts[i][j]):  
 init\_hypo[j] = '?'  
 print(f"Step {i+1} Hypothesis {init\_hypo}")  
  
 return init\_hypo

In [9]:

print(f"Inital Hypothesis: {init\_hyp}")  
final\_hyp = find\_s(init\_hyp)  
print(f"Final Hypothesis: {final\_hyp}")

Inital Hypothesis: ['0', '0', '0', '0', '0']  
Step 1 Hypothesis ['Circle', 'Triangle', 'Circle', 'Pink', 'Yes']  
Step 2 Hypothesis ['Circle', 'Triangle', 'Circle', 'Pink', 'Yes']  
Step 3 Hypothesis ['?', 'Triangle', 'Circle', '?', 'Yes']  
Step 4 Hypothesis ['?', 'Triangle', 'Circle', '?', 'Yes']  
Step 5 Hypothesis ['?', '?', 'Circle', '?', 'Yes']  
Final Hypothesis: ['?', '?', 'Circle', '?', 'Yes']