**Roll No: -119**

**Assignment No: - 2**

**Assignment Name: -Implement the Candidate-Elimination Inductive learning algorithm.**

import numpy as np  
import pandas as pd  
data=pd.read\_csv("candidate-elimination.csv")  
concepts=np.array(data.iloc[:,:-1])  
print("\n Instances are:\n",concepts)  
target=np.array(data.iloc[:,-1])  
print("\n Target values are:",target)  
  
def train(concepts,target):  
 specific\_h=concepts[0].copy()  
 print("\n Initialization of specific hypothesis and general hypothesis")  
 print("\n Specific Boundary:",specific\_h)  
 general\_h=[["?" for i in range(len(specific\_h))] for i in range(len(specific\_h))]  
 print("\n Generic Boundary:",general\_h)  
  
 for i, val in enumerate(concepts):  
 print("\n Instance",i+1,"is",val)  
  
 if target[i]=="yes":  
 print("Instance is Positive")  
 for x in range(len(specific\_h)):  
 if val[x]!=specific\_h[x]:  
 specific\_h[x]='?'  
 general\_h[x][x]='?'  
  
 if target[i]=="no":  
 print("Instance is Negative")  
 for x in range(len(specific\_h)):  
 if val[x]!=specific\_h[x]:  
 general\_h[x][x]=specific\_h[x]  
 else:  
 general\_h[x][x]='?'  
  
 print("specific Boundary 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=train(concepts,target)  
print("final specific\_h:",s\_final, sep="\n")  
print("final General h:",g\_final,sep="\n")

**OUTPUT: -**



