

COMPILER LAB 2 ASSIGNMENT

```
def PDA():
    s=input("Enter String for Given CFG{0,1} :")
    n=len(s)
    stack=[]
    state=0
    i=0
    while(i<n and state==0):
        if (s[i]=='0'):
            stack.append(s[i])
        else:
            state=1
            break
        i+=1

    while(i<n and state==1 and len(stack)!=0):
        if (s[i]=='1'):
            stack.pop()
            if (i==n-1 and len(stack)==0):
                state=2
                break
        else:
            break
        i+=1

    if (state==2):
        print("Given CFG is accepted by PDA",s," : ",state)
    else:
        print("CFG is rejected by PDA at state ",s," : ",state)

PDA()
```

```
def pda2():
    string=input("Enter String for CFG over {0,1} : ")
    stack=[]
    state="q0"
```

```

for item in string:
    if (item=='0'):
        if (len(stack)==0):
            stack.append('0')
        elif (stack[-1]=='0'):
            stack.append('0')
        elif (stack[-1]=='1'):
            stack.pop()

    elif (item=="1"):
        if (len(stack)==0):
            stack.append('1')
        elif (stack[-1]=='1'):
            stack.append('1')
        elif (stack[-1]=='0'):
            stack.pop()

print(stack)
if (len(stack)==0):
    state="qf"

if (state=="qf"):
    print("Input CFG is accepted by this PDA {string} at state : ",state)
elif (state=="q0"):
    print("Input CFG is rejected by this PDA {string} at state : ",state)

pda2()

```

PART 1 PDA OUTPUT:

```
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/L
piler LAb/lab2/q2.py"
Enter String for CFG over {0,1} : 0011
0011 is accepted at state : qf
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/L
piler LAb/lab2/q2.py"
Enter String for CFG over {0,1} : 000111
000111 is accepted at state : qf
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/L
piler LAb/lab2/q2.py"
Enter String for CFG over {0,1} : 01
01 is accepted at state : qf
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/L
piler LAb/lab2/q2.py"
Enter String for CFG over {0,1} : 001
001 is rejected at state : q1
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> █
```

PART 3 PDA OUTPUT:

```
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/Us
Compiler LAb/lab2/q2.py"
Enter String for CFG over {0,1} :
is accepted at state : qf
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/Us
Compiler LAb/lab2/q2.py"
Enter String for CFG over {0,1} : 00011
00011 is rejected at state : q1
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> & "C:/Us
Compiler LAb/lab2/q2.py"
Enter String for CFG over {0,1} : 010110
010110 is accepted at state : qf
PS C:\Users\Samar Mittal\Desktop\Compiler LAb\lab2> █
```