

Write A Program for Bottom Up Parser[Shift-Reduce]

```

grammer={}
var= [k for k in input("Enter The Variable in Grammer:").split(" ")]
ter =[k for k in input("Enter The Terminal in Grammer:").split(" ")]
for v in var:
    grammer[v]=[k for k in input("Enter the production of "+v+" Separated by space:").split(" ")]
inpbuff=input("Enter The String to pass:")
inpbuff=inpbuff
inp2=inpbuff
stack=""
print("=====")
print("STACK\t\tINPUT\t\tACTION")
print("=====")
reduced=0
for i in inpbuff:
    reduced=1
    while(reduced==1):
        for v in var:
            for prod in grammer[v]:
                if prod in stack:
                    if prod[-1]==stack[-1]:
                        stack=stack.replace(prod,v)
                        print(stack,"\t\t",inp2,"\t\tReduced!!!")
                        reduced=1
                    else:
                        reduced=0
            stack+=i
            inp2=inp2[1:len(inp2)]
            print(stack,"\t\t",inp2,"\t\tShifted!!!")
            reduced=1
        while(reduced==1):
            for v in var:
                for prod in grammer[v]:
                    if prod in stack:
                        if prod[-1]==stack[-1]:
                            stack=stack.replace(prod,v)
                            print(stack,"\t\t",inp2,"\t\tReduced!!!")
                            reduced=1
                        else:
                            reduced=0
                    else:
                        reduced=0
            reduced=0
            print("=====")
            if(len(inp2)==0 and len(stack)==1 and stack[0]==var[0]):
                print("STRING PARSED SUCCESSFULLY!!!")
            else:
                print("STRING NOT PARSED!!!")
            print("\n"*3)

```

```

root@kali: ~/Third Year/CDO/CDO/10th
File Edit View Search Terminal Help
root@kali:~/Third Year/CDO/CDO/10th# python3 srParser.py
Enter The Variable in Grammer:E
Enter The Terminal in Grammer:( ) + * a
Enter the production of E Separated by space:E+E E*a (E) a
Enter The String to pass:(a+a)*a

=====
STACK          INPUT          ACTION
=====
(              a+a)*a          Shifted!!
(a             +a)*a          Shifted!!
(E             +a)*a          Reduced!!
(E+            a)*a          Shifted!!
(E+a           )*a          Shifted!!
(E+E           )*a          Reduced!!
(E             )*a          Reduced!!
(E)            *a          Shifted!!
E              *a          Reduced!!
E*             a           Shifted!!
E*a            Shifted!!
E*a            Reduced!!
E              Reduced!!
=====
STRING PARSED SUCCESSFULLY!!

```