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EXPERIMENT: 6

SIMULATING PUSHDOWN AUTOMATA(PDA)

AIM : To write a C program to simulate a PDA for the language L={ 0n 12n | n>=1 } in which n number of 0's are followed by 2n number of 1's

ALGORITHM :

1. Get the input string from the user.

2. Define a stack and push the symbol 'Z' onto the stack. The symbol 'Z' acts as the bottom marker of the stack.

3. Initialize a variable count=0

4. Find the length of the string.

5. Read the input string character by character.

6. Read the current input symbol do steps 7 and 8. If the end of the input is reached, go to step 9

7. If the input symbol is 0, push it onto the stack. Print the content of the stack and the remaining input and go to step 6

8. If the input symbol is 1 a. Increment count. b. If count is odd, go to step 6 to read the next input symbol c. If count is even, check whether there is a 0 at the top of the stack. If so, pop it from the stack. Print the content of the stack and the remaining input and go to step 6. If not, print "String not accepted" and quit the program

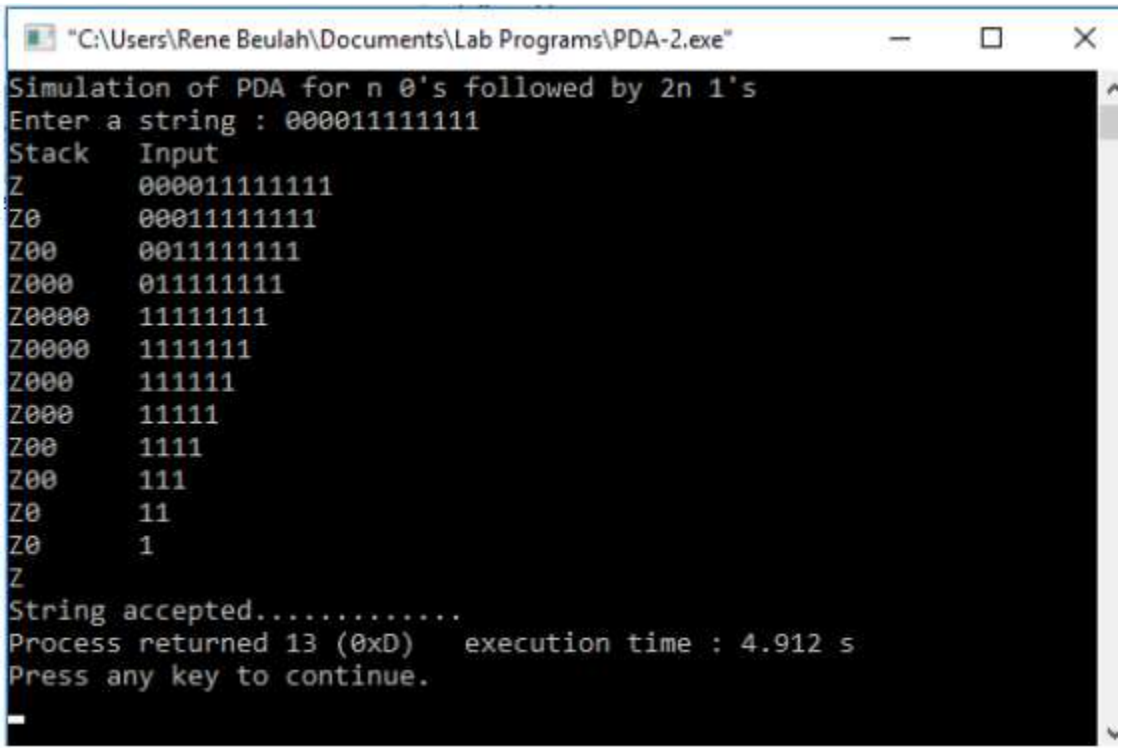
9. If the stack is empty having only the bottom marker, print “String Accepted”. Otherwise print “String not accepted”.

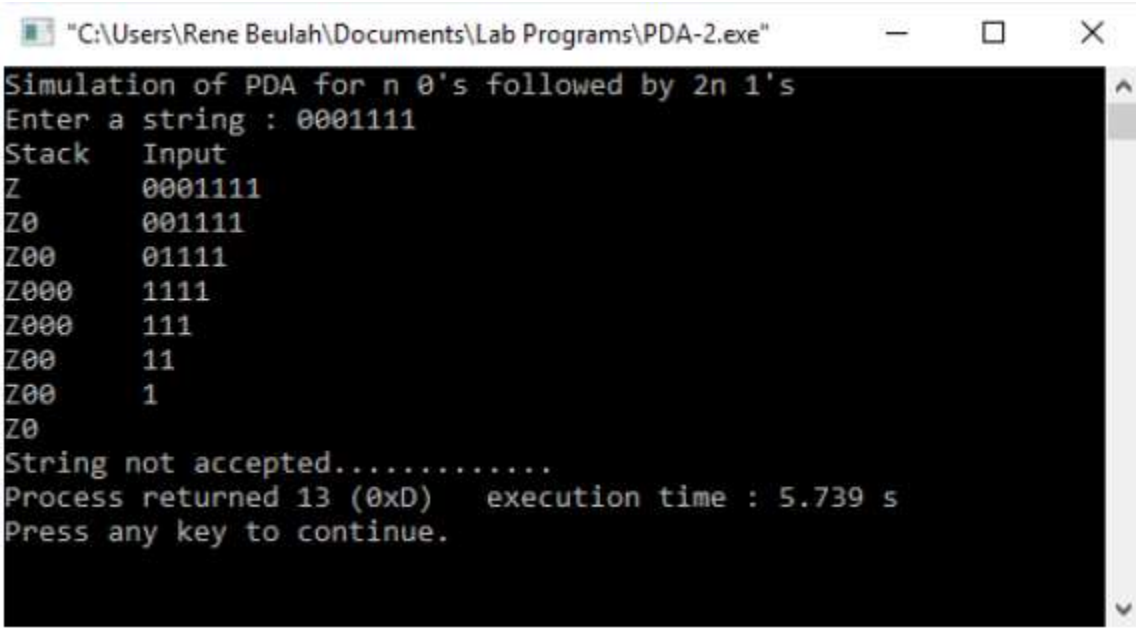
PROGRAM:

```
#include<stdio.h>
#include<string.h>
char stack[20];
int top,count=0;
void push()
{
top=top+1;
stack[top]='0';
stack[top+1]='\0';
}
int pop()
{
if(top0)
{
if(input[0]=='0')
{
push(); m=0; for(k=1;k=1)
{
printf("String not accepted");
```

```
}
else
{
 printf("String accepted");
 }
 b:
 printf(".............");
}
```

OUTPUT:




"C:\Users\Rene Beulah\Documents\Lab Programs\PDA-2.exe"
Simulation of PDA for n 0's followed by 2n 1's
Enter a string : 0001111
Stack Input
Z 0001111
Z0 001111
Z00 01111
Z000 1111
Z000 111
Z00 11
Z00 1
Z0
String not accepted.....
Process returned 13 (0xD) execution time : 5.739 s
Press any key to continue.