PUSHDOWN AUTOMATA(PDA)

```c
#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(top<1)
 return(0);
 else
 {
 stack[top]='\0';
 top=top-1;
 return(1);
 }
}
int main()
{
 int m,i,j,k,l,a,len;
 char input[20],rem_input[20];
 printf("Simulation of PDA for n 0's followed by 2n 1's\n");
 printf("Enter a string : ");
 scanf("%s",input);
```

```c
l=strlen(input);

j=0;stack[0]='Z';top=0;

printf("Stack\tInput\n");

printf("%s\t%s\n",stack,input);

while(1)

{

len=strlen(input);

while(len>0)

{

if(input[0]=='0')

{

push();

m=0;

for(k=1;k<len;k++)

{

rem_input[m]=input[k];

m=m+1;

}

rem_input[m]='\0';

strcpy(input,rem_input);

printf("%s\t%s\n",stack,input);

}

if(input[0]=='1')

{

count++;

if(count%2==0)

{

a=pop();

if(a==0)

{

printf("String not accepted");
```

```c
goto b;
}
else
{
m=0;
for(k=1;k<len;k++)
{
rem_input[m]=input[k];
m=m+1;
}
}
rem_input[m]='\0';
strcpy(input,rem_input);
printf("%s\t%s\n",stack,input);
}
else
{
m=0;
for(k=1;k<len;k++)
{
rem_input[m]=input[k];
m=m+1;
}
rem_input[m]='\0';
strcpy(input,rem_input);
printf("%s\t%s\n",stack,input);
}
}
break;
}
j=j+1;
```

```c
//printf("j = %d\t l = %d\n",j,l);

if(j==l)
{
break;
}
}
if(top>=1)
{
printf("String not accepted");
}
else
{
printf("String accepted");
}
b:
printf(".............");
}
```

```
C:\Users\gkgag\OneDrive\Documents\exp 6.exe                                    —    □    ×

Simulation of PDA for n 0's followed by 2n 1's
Enter a string : 000011111111
Stack    Input
Z        000011111111
Z0       00011111111
Z00      0011111111
Z000     011111111
Z0000    11111111
Z0000    1111111
Z000     111111
Z000     11111
Z00      1111
Z00      111
Z0       11
Z0       1
Z
String accepted.............
-------------------------------
Process exited after 9.141 seconds with return value 0
Press any key to continue . . .
```

```
C:\Users\gkgag\OneDrive\Documents\exp 6.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 exited after 7.987 seconds with return value 0
Press any key to continue . . .
```