**CSA1336**

**THEORY OF COMPUTATION**

EXP NO : 9

Write a C program to simulate a Push Down Automata (PDA) for the language 0n1n.

**AIM :**

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

**PROGRAM :**

#include<stdio.h>

#include<string.h>

char stack[20];

int top;

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 Pushdown Automata for 0n1n\n");

printf("Enter a string : ");

scanf("%s",input);

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')

{

a=pop();

if(a==0)

{

printf("String not accepted");

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);

}

}

break;

}

j=j+1;

if(j==(l))

{

break;

}

}

if(top>=1)

{

printf("String not accepted");

}

else

{

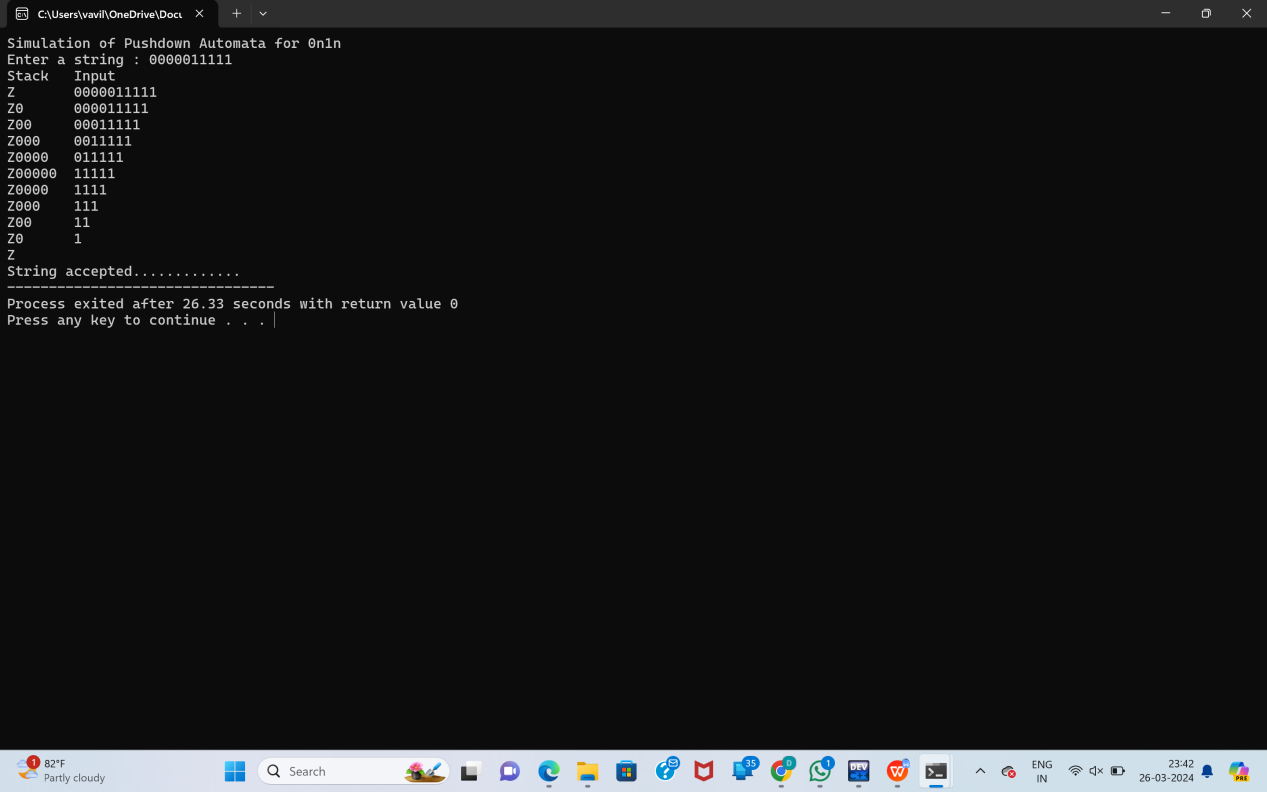
printf("String accepted");

}

b:

printf(".............");

}

**Output:**