

5. Write a C program to check whether a given string belongs to the language defined by a Context Free Grammar (CFG)

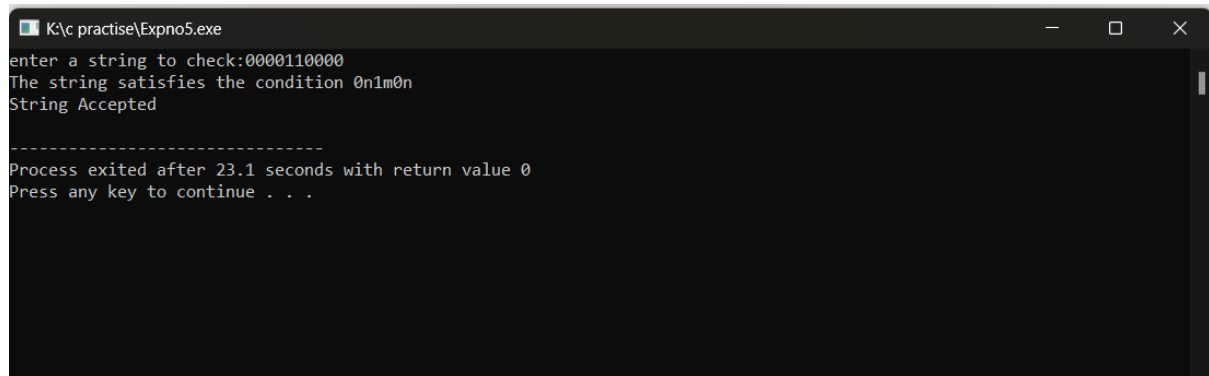
$S \rightarrow 0S0 \mid A$ $A \rightarrow 1A \mid \epsilon$

Program:

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[100];
    int i,flag,flag1,a,b;
    int l,count1,count2;
    printf("enter a string to check:");
    scanf("%s",s);
    l=strlen(s);
    flag=1;
    for(i=0;i<l;i++)
    {
        if(s[i]!='0' && s[i]!='1')
        {
            flag=0;
        }
    }
    if(flag!=1)
        printf("string is Not Valid\n");
    if(flag==1)
    {
        i=0;count1=0;
        while(s[i]=='0') // Count the no of 0s in the front
        {
            count1++;
            i++;
        }
        while(s[i]=='1')
        {
            i++; // Skip all 1s
        }
        flag1=1;
        count2=0;
        while(i<l)
        {
            if(s[i]=='0')// Count the no of 0s at the end
            {
                count2++;
            }
            else
            {
                flag1=0;
            }
        }
    }
```

```
i++;  
}  
if(flag1==1)  
{  
if(count1==count2)  
{  
printf("The string satisfies the condition 0n1m0n\n");  
printf("String Accepted\n");  
}  
else  
{  
printf("The string does not satisfy the condition 0n1m0n\n");  
printf("String Not Accepted\n");  
}  
}  
else  
{  
printf("The string does not satisfy the condition 0n1m0n\n");  
printf("String Not Accepted\n");  
}  
}  
}
```

Output:



```
K:\c practise\Expno5.exe  
enter a string to check:0000110000  
The string satisfies the condition 0n1m0n  
String Accepted  
-----  
Process exited after 23.1 seconds with return value 0  
Press any key to continue . . .
```