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

S → A101A,   A → 0A | 1A | ε

Program:

```c
#include<stdio.h>
#include<string.h>
int main()
{
char s[100];
int i,flag,flag1;
int l;
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 Valid\n");
else
printf("string is Not Valid\n");
if(flag==1)
{
flag1=0;
for(i=0;i<l-2;i++)
{
if(s[i]=='1')
{
if(s[i+1]=='0' && s[i+2]=='1')
{
flag1=1;
printf("Substring 101 exists. String accepted\n");
break;
}
}
}
if(flag1==0)
printf("Substring 101 does not exist. String not accepted\n");
}
}
```

Output:

```
enter a string to check:000111010100
string is Valid
Substring 101 exists. String accepted


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Process exited after 33.57 seconds with return value 0
Press any key to continue . . .
```