EXP 4 e

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CHECKING WHETHER A STRING BELONGS TO A GRAMMAR

AIM :

To write a C program to check whether a string belongs to the grammar

S -> A 1 0 1 A

A -> 0 A | 1 A | ε

Language defined by the Grammar

Set of all strings over **Σ**={0,1} having 101 as a substring

ALGORITHM :

1. Get the input string from the user.

2. Find the length of the string.

3. Check whether all the symbols in the input are either 0 or 1. If so,

print “String is valid” and go to step 4. Otherwise print “String not

valid” and quit the program.

4. Read the input string character by character

5. If the i

th input symbol is 1, check whether (i+1)

th symbol is 0 and

(i+2)

th symbol is 1. If so, the string has the substring 101. So print

“String Accepted”. Otherwise, print “String Not Accepted”

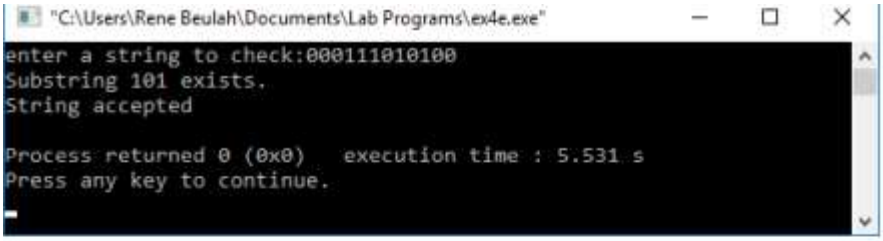
PROGRAM :

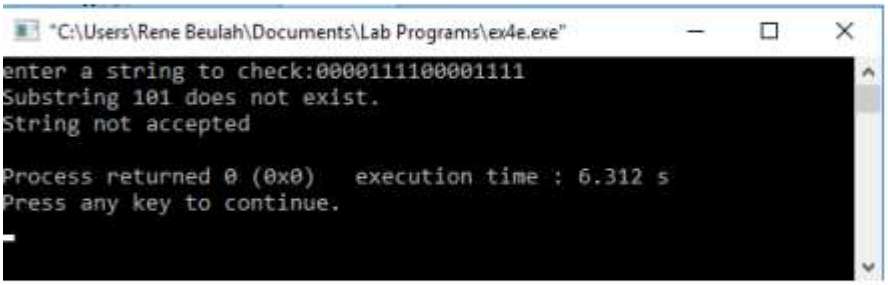
```
#include<stdio.h>

#include<string.h>
```

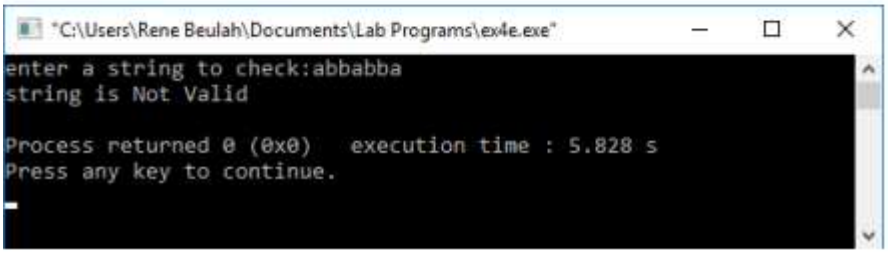
```
int main()
{
char s[100];
int i,flag,flag1;
int l;
printf("enter a string to check:");
scanf("%s",s);
l=strlen(s);
flag=1;
for(i=0;i<l;i++)
{
if(s[i]!='0' && s[i]!='1')
{
 flag=0;
}
}
if(flag==1)
printf("string is Valid\n");
else
printf("string is Not Valid\n");
if(flag==1)
{
flag1=0;
for(i=0;i<l-2;i++)
{
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 :


"C:\Users\Rene Beulah\Documents\Lab Programs\ex4e.exe"
enter a string to check:000111010100
Substring 101 exists.
String accepted
Process returned 0 (0x0) execution time : 5.531 s
Press any key to continue.


"C:\Users\Rene Beulah\Documents\Lab Programs\ex4e.exe"
enter a string to check:0000111100001111
Substring 101 does not exist.
String not accepted
Process returned 0 (0x0) execution time : 6.312 s
Press any key to continue.


"C:\Users\Rene Beulah\Documents\Lab Programs\ex4e.exe"
enter a string to check:abbabba
string is Not Valid
Process returned 0 (0x0) execution time : 5.828 s
Press any key to continue.