

SYSTEM SOFTWARES - ASSIGNMENT -4

1) Write a C program to recognize strings under 'a*', 'a*b+', 'abb'.

Code=>

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//U19CS009
//Brijesh Rohit

#include<stdio.h>
#include<string.h>
#include<stdlib.h>
#include<stdbool.h>

int main()
{
    char s[100], c;
    int i = 0;
    printf("We have following grammar rules :");
    printf("\n1 : 'a'");
    printf("\n2 : 'abb'");
    printf("\n3 : 'a*b+'\n");
    printf("Enter a string : ");
    int n = scanf("%[^\n]s", s);
    if (n != 1)
    {
        printf("You didn't entered any input!!\nHence it is recognized under 'a*' grammar.\n");
        return 0;
    }
    printf("Your input is ");
    if (strlen(s) == 3)
    {
        if (s[0] == 'a' && s[1] == 'b' && s[2] == 'b')
        {
            printf("recognized under 'abb' grammar.\n");
            return 0;
        }
    }
    int aflag = 0, bflag = 0;
    for (int i = 0; s[i] != '\0'; i++)
    {
        if (s[i] == 'a')
        {
            if (bflag == 1)
            {
                printf("not recognized under any mentioned grammar!!\n");
                return 0;
            }
            aflag = 1;
        }
    }
}
```

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    }
    else if(s[i] == 'b')
        bflag = 1;
    else
    {
        printf("not recognized under any mentioned grammar!!\n");
        return 0;
    }
}
if (aflag = 1 && bflag == 0)
    printf("recognized under 'a*' grammar.\n");
else if (aflag >= 0 && bflag > 0)
    printf("recognized under 'a*b+' grammar.\n");
else
    printf("not recognized under any mentioned grammar!!\n");
return 0;
}

```

Output=>

```

brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ gcc u19cs009-ss-assign04.c
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string :
You didn't entered any input!!
Hence it is recognized under 'a*' grammar.
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : a
Your input is recognized under 'a*' grammar.
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : aaaaaaaaaaaaaaaaaaaaaa
Your input is recognized under 'a*' grammar.
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : aaaaaaaaaaaaaaaaaaaaaaab
Your input is recognized under 'a*b+' grammar.
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : abbbbbbbbbbbbbbbbbbbbbbbbbbb
Your input is recognized under 'a*b+' grammar.

```

```
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : bbb
Your input is recognized under 'a*b+' grammar.
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : abb
Your input is recognized under 'abb' grammar.
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : ababaa
Your input is not recognized under any mentioned grammar!!
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : baa
Your input is not recognized under any mentioned grammar!!
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : c
Your input is not recognized under any mentioned grammar!!
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : cbabda
Your input is not recognized under any mentioned grammar!!
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : abbbc
Your input is not recognized under any mentioned grammar!!
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : ewsdgvevha
Your input is not recognized under any mentioned grammar!!
brijesh@brijesh-GF75-Thin-9SCSR:~/Documents/ss/ss-assign04$ ./a.out
We have following grammar rules :
1 : 'a'
2 : 'abb'
3 : 'a*b+'
Enter a string : good bye!
Your input is not recognized under any mentioned grammar!!
```