

# System Software

## Assignment - 4

Adm No.: U19CS082

Name: Sourabh Patel

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

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

int main (){
    char s [ 20 ], c ;
    int state = 0 , i = 0 ;

    // clrscr();
    printf ( " \n Enter a string:" );
    gets ( s );

    while ( s [ i ]!= ' \0 ' ){
        switch ( state ){
            case 0 : c = s [ i ++];
                if ( c == 'a' )
                    state = 1 ;
                else if ( c == 'b' )
                    state = 2 ;
                else
                    state = 6 ;
                break ;

            case 1 : c = s [ i ++];
                if ( c == 'a' )
                    state = 3 ;
                else if ( c == 'b' )
                    state = 4 ;
                else
                    state = 6 ;
                break ;

            case 2 : c = s [ i ++];
                if ( c == 'a' )
                    state = 6 ;
                else if ( c == 'b' )
                    state = 2 ;
```

```

        else
            state = 6 ;
        break ;

    case 3 : c = s [ i ++];
    if ( c == 'a' )
        state = 3 ;
    else if ( c == 'b' )
        state = 2 ;
    else
        state = 6 ;
    break ;

    case 4 : c = s [ i ++];
    if ( c == 'a' )
        state = 6 ;
    else if ( c == 'b' )
        state = 5 ;
    else
        state = 6 ;
    break ;

    case 5 : c = s [ i ++];
    if ( c == 'a' )
        state = 6 ;
    else if ( c == 'b' )
        state = 2 ;
    else
        state = 6 ;
    break ;

    case 6 : printf ( " \n %s is not recognised." , s );
    exit ( 0 );
}


if ( state == 1 )
    printf ( " \n %s is accepted under rule 'a'" , s );
else if (( state == 2 )||( state == 4 ))
    printf ( " \n %s is accepted under rule 'a*b+'" , s );
else if ( state == 5 )
    printf ( " \n %s is accepted under rule 'abb'" , s );

// getch();

```

```
    return 0 ;  
}
```

Output:

 C:\Users\Sourabh Patel\Desktop\assignment\82\SEM6\Distributeds\ASS4\Q1.exe

Enter a string:abcd

abcd is not recognised.

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Process exited after 9.059 seconds with return value 0

Press any key to continue . . .

Enter a string:aaaaaab

aaaaaab is accepted under rule 'a\*b+'%

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