

Lab Report-6

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Experiment: 06

Experiment Name: Write a C program that recognizes strings under the regular expression: $ab(a|b)^*abb$

//Code:

```
#include<stdio.h>
#include<string.h>
int main(){

char str[100];
printf ("Enter a string which has only (a,b): ");
gets(str);

int length,i,state=0;

length=strlen(str);

for(i=0;i<length;i++){
if(state==0 && str[i]=='a'){
state=1;
}
else if(state==0 && str[i]=='b'){
state=7;
}
else if (state==1 && str[i]=='a'){
state=7;
}
else if (state==1 && str[i]=='b'){
state=2;
}
else if (state==2 && str[i]=='a'){
state=3;
}
else if (state==2 && str[i]=='b'){
state=4;
```

```

    }
    else if (state==3 && str[i]=='a'){
        state=3;
    }
    else if (state==3 && str[i]=='b'){
        state=5;
    }
    else if (state==4 && str[i]=='a'){
        state=3;
    }
    else if (state==4 && str[i]=='b'){
        state=4;
    }
    else if (state==5 && str[i]=='a'){
        state=3;
    }
    else if (state==5 && str[i]=='b'){
        state=6;
    }
    else if (state==6 && str[i]=='a'){
        state=3;
    }
    else if (state==6 && str[i]=='b'){
        state=4;
    }
    else if (state==7 && str[i]=='a'){
        state=7;
    }
    else if (state==7 && str[i]=='b'){
        state=7;
    }
}

```

```

if(state==6){
    printf("\n Accepted \n\n");
}
else{
    printf("\n Rejected \n\n");
}

```

```

return 0;
}

```

Output:

```
"E:\Mahmud\All Code\All Code\Compiler Code\recognizes.exe"
Enter a string which has only (a,b): ababb
    Accepted
Enter a string which has only (a,b): abbabb
    Accepted
Enter a string which has only (a,b): ababbabb
    Accepted
Enter a string which has only (a,b): ababba
    Rejected
Enter a string which has only (a,b): baabba
    Rejected
Enter a string which has only (a,b): abbabbaabb
    Accepted
Enter a string which has only (a,b): aaa
    Rejected
Enter a string which has only (a,b): b
    Rejected
```

Discussion:

First I drew a DFA for $ab(a|b)^*abb$ equation.

I can see that Here the final state 6.

Get a string from user that contain only a,b.

Find out length this string .

According to DFA

Matching with every character & state

Like :

State==0 && str[i]=='a'

State=1;

State==0 && str[i]=='b'

State=7;

According to the DFA, each state has been completed in this way.