

### LAB EXERCISE – 3

**(1)//Implementation of NFA for texts i.e Example word: Theory**

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

```
int current = 0;
```

```
void q0(char c)
```

```
{
```

```
    if(c=='T' || c=='t') current=1;
```

```
    else current=-1;
```

```
}
```

```
void q1(char c)
```

```
{
```

```
    if(c=='H' || c=='h') current= 2;
```

```
    else current = -1;
```

```
}
```

```
void q2(char c)
```

```
{
```

```
    if(c=='E' || c=='e') current = 3;
```

```
    else current = -1;
```

```
}
```

```
void q3(char c)
```

```
{
```

```
    if(c=='O' || c=='o') current = 4;
```

```
    else current = -1;
```

```
}  
void q4(char c)  
{  
    if(c=='R' || c=='r') current = 5;  
    else current = -1;  
}
```

```
void q5(char c)  
{  
    if(c=='Y' || c=='y') current = 6;  
    else current = -1;  
}
```

```
void q6(char c)  
{  
    current = -1;  
}
```

```
int main()  
{  
    char str[20],c;  
    int i;  
    printf("Enter your word: ");  
    scanf("%s",&str);  
    for(i=0;str[i]!='\0';i++)  
    {
```

```
c=str[i];  
switch(current)  
{  
    case 0:  
        q0(c);  
        break;  
    case 1:  
        q1(c);  
        break;  
    case 2:  
        q2(c);  
        break;  
    case 3:  
        q3(c);  
        break;  
    case 4:  
        q4(c);  
        break;  
    case 5:  
        q5(c);  
        break;  
    case 6:  
        q6(c);  
    default:
```

```

        break;
    }
}
if(current==6)
{
    printf("\nYour word is accepted.");
}
else{
    printf("\nYour word is not accepted.");
}
return 0;
}

```

## **(2)//Implementing DFA of language (a+aa\*b)\***

```

#include<stdio.h>
#include<conio.h>
#include<strings.h>
#include<stdlib.h>
void main() {
    int table[2][2],i,j,l,status=0,success;
    char input[100];
    printf("Implementing DFA of language (a+aa*b)* Enter Input String:");
    table[0][0]=1;
    table[0][1]=-1;
}

```

```
table[1][0]=1;
table[1][1]=0;
scanf("%s",input);
l=strlen(input);
for (i=0;i<l;i++) {
    if(input[i]!='a'&&input[i]!='b') {
        printf("The entered Value is wrong");
        getch();
        exit(0);
    }
    if(input[i]=='a')
        status=table[status][0];
    else
        status=table[status][1];
    if(status==-1) {
        printf("String not Accepted");
        break;
    }
}
if(i==l)
    printf("String Accepted");
getch();
}
```