1. Implementation of Language recognizer for set of all strings over input alphabet ∑={a,b} containing even number of a's and even number of b's.

```c
#include<stdio.h>
void main()
{
    int state=0,i=0;
    char token,input[20];
    printf("Enter input string \t :");
    scanf("%s",input);
    //printf("Given string is : %s");

    while((token=input[i++])!='\0')
    {
        // printf("current token : %c \n",token);
        switch(state)
        {
            case 0: if(token=='a')
                        state=1;
                    else if(token=='b')
                        state=2;
                    else
                    {
                        printf("Invalid token");
                        exit(0);
                    }
                    break;
            case 1: if(token=='a')
                        state=0;
```

```c
        else if(token=='b')
            state=3;
        else
        {
            printf("Invalid token");
            exit(0);
        }


        break;
case 2: if(token=='a')
            state=3;
        else if(token=='b')
            state=0;
        else
        {
            printf("Invalid token");
            exit(0);
        }
        break;
case 3: if(token=='a')
            state=2;
        else if(token=='b')
            state=1;
        else
        {
            printf("Invalid token");
            exit(0);
        }
        break;
```

```c
            }
        // printf("state = %d    ",state);
    }
    if(state==0)
        printf("\n\nString accepted\n\n");
    else
        printf("\n\nString not accepted\n\n");
}
```

2. Implementation of Language recognizer for set of all strings ending with two symbols of same type.

```c
#include<stdio.h>
void main()
{
    int q=0,i=0;
    char current,in_str[20];
    printf("\nEnter input string   :");
    scanf("%s",in_str);
    while((current=in_str[i++])!='\0')
    {
        switch(q)
        {
            case 0:
                if(current=='a')
                    q=1;
                else if(current=='b')
                    q=3;
```

```c
        else
        {
                printf("Invalid");
                exit(0);
        }
        break;
case 1:
        if(current=='a')
                q=2;
        else if(current=='b')
                q=3;
        else
        {
                printf("Invalid");
                exit(0);
        }
        break;
case 2:
        if(current=='a')
                q=2;
        else if(current=='b')
                q=3;
        else
        {
                printf("Invalid");
                exit(0);
        }
        break;
case 3:
```

```c
                if(current=='a')
                        q=1;
                else if(current=='b')
                        q=4;
                else
                {
                        printf("Invalid");
                        exit(0);
                }
                break;
            case 4:
                if(current=='a')
                        q=1;
                else if(current=='b')
                        q=4;
                else
                {
                        printf("Invalid");
                        exit(0);
                }
                break;
        }

    }
    if(q==2 || q==4)
    printf("String is accepted\n");
    else
    printf("String is not accepted\n");
}
```