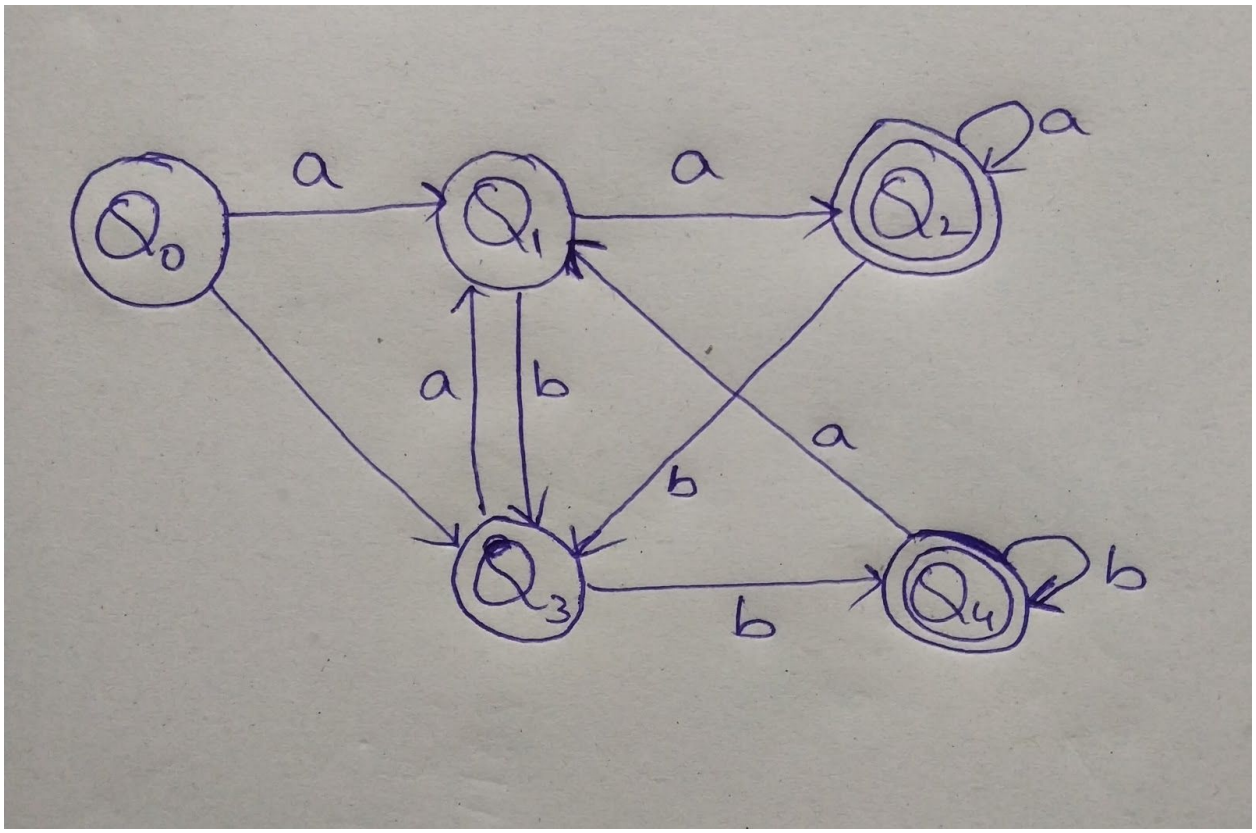
Implementation of Language recognizer for a set of all strings ending with two symbols of the same type.

Description:

The acceptable strings of the language are ε(Null string),
aa,bb,aaa,baa,bbb,abb,abbbb,baaa…...etc.
Deterministic Finite Automata for the given language is given below:
DFA M=(Q,∑,δ,Q0,F) Where
Q=Set of all states ={Q0,Q1,Q2,Q3,Q4}
∑=Input Alphabet={a,b},
Start state is Q0
F=Set of all final States={Q2,Q4}
And the transitions are defined in the transition diagram.



Algorithm: Language recognizer

Input:

input //input string

Output:

Algorithm prints a message
"String accepted": If the input is acceptable by the language,
"String not accepted" otherwise,

“Invalid token”: If the input string contains symbols other

C code

```
#include<stdio.h>                                   /*Libraries*/
#include<stdlib.h>                                  /*Libraries*/
void main(){                                        /*Denotes the main function*/.
int a=0,b=0;                                        /*"a" is for state of the variable and "b" ito hold state of input character*/
char c,d[20];                                       /"c"  holds current input and "d" is input array to hold the entire string*/
printf("Enter input string :");                     /* printf statement to enter the input string*/
scanf("%s",d);                                      /*scanf statement to read the input */
while((c=d[b++])!='\0'){                            /* to read character by character from the input string*/
switch(a)                                           /*switch case for current state of the input string*/
{
case 0: if(c=='a')                                  /*case 0 is for first state(q0)*/
a=1;
else if(c=='b')
a=3;
else
{
printf("Invalid token");
exit(0);
}
break;
case 1: if(c=='a')                                  /*case 1 is for second state(q1)*/
a=2;
else if(c=='b')
a=3;
else
{
printf("Invalid token");
exit(0);
}
break;
case 2: if(c=='a')                                  /*case 2 is for third state(q2)*/
a=2;
else if(c=='b')
a=3;
else
{
printf("Invalid token");
exit(0);
}
```

```
break;
case 3: if(c=='a')                    /*case 3 is for fourth state(q3)*/
a=1;
else if(c=='b')
a=4;
else
{
printf("Invalid token");
exit(0);
}
break;
case 4: if(c=='a')                    /*case 4 is for fifth state(q4)*/
a=1;
else if(c=='b')
a=4;
else
{
printf("Invalid token");
exit(0);
}
break;
}
}                                     /*while loop ended*/
if(a==2)                              /*denotes the final state is still zero then the string is accepted*/
printf("\nString accepted");
else if(a==4)                         /*denotes the final state is still zero then the string is accepted*/
printf("\nString accepted");
else
printf("\nString not accepted");
}
```