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

Description : Acceptable strings are ε,aa,bb,aabb,aaaabb,bbbbaa,etc.

DFA for the language is below-

DFA M=(Q,∑,δ,Q0,F) Where

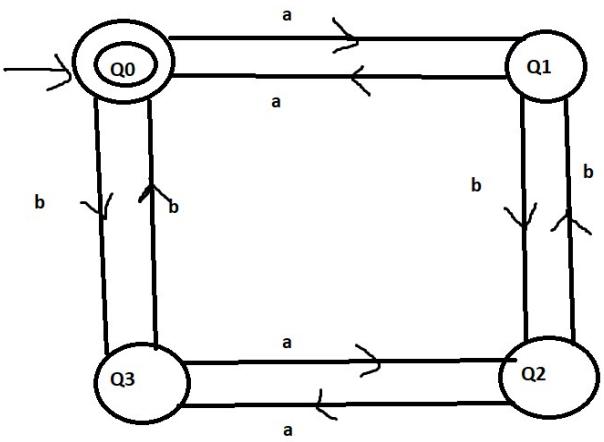
Q=Set of all states ={Q0,Q1,Q2,Q3}

∑=Input Alphabet={a,b},

Start state is Q0

F=Set of all final States={ Q0}

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 than input.

Method:

```
state=0 //initial state
        while((current=input[i++])!='\0'){
                switch(state)
                    case 0: if(current=='a') state=1;
                                else if(current=='b') state=2;
                                 else
                                      Print "Invalid token" ; exit;
                    case 1: if(current=='a') state=0;
                                else if(current=='b') state=3;
                                 else
                                      Print "Invalid token" ; exit;
                    case 2: if(current=='a') state=3;
                                 else if(current=='b') state=0;
                                 else
                                       Print "Invalid token" ; exit;
                    case 3: if(current=='a') state=2;
                                else if(current=='b') state=1;
                               else
                                   Print "Invalid token" ; exit;
                  end switch
             end while
//Print output
if(state==0)
         Print ”String accepted”
else
         Print ”String not accepted”
```