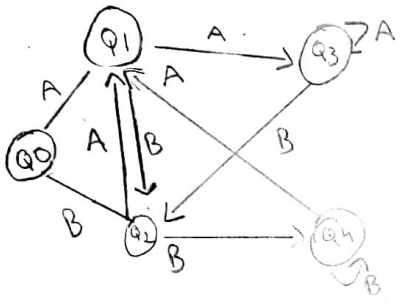
Program 2
Implementation of Language recognizer for set of all strings ending with two symbols of same type.

The acceptable strings of the language are ε(Null string), aa, bb, aabb, abaa 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}
∑=Input Alphabet={a,b},
Start state is Q0
F=Set of all final States={ Q0}



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 alphabet.

Code:

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

```
while ((current = input[i++]) != '\0')
  {
    switch (state)
        {
        case 0:
          if (current == 'a')
            state = 1;
          else if (current == 'b')
            state = 2;
          else
            {
              printf ("Invalid token");
              exit (0);
            }
          break;
        case 1:
          if (current == 'a')
            state = 3;
          else if (current == 'b')
            state = 2;
          else
            {
              printf ("Invalid token");
              exit (0);
            }
          break;
        case 2:
          if (current == 'a')
            state = 1;
          else if (current == 'b')
            state = 4;
          else
            {
              printf ("Invalid token");
              exit (0);
            }
          break;
        case 3:
          if (current == 'a')
            state = 3;
          else if (current == 'b')
            state = 2;
          else
            {
```

```
            printf ("Invalid token");
            exit (0);
          }
         break;
        case 4:
         if (current == 'a')
           state = 1;
         else if (current == 'b')
           state = 4;
         else
           {
            printf ("Invalid token");
            exit (0);
           }
         break;
       }
   }
  if (state == 3 || state == 4)
    printf ("\n\nString accepted\n\n");
  else
    printf ("\n\nString not accepted\n\n");
}
```