COMPILER DESIGN LAB

WEEK 1

NAME : N.B.Jaya chandra
ROLL NO. : AP19110010438

Program 1: Implement a language recogniser which accepts set of all strings over the alphabet.

C Code

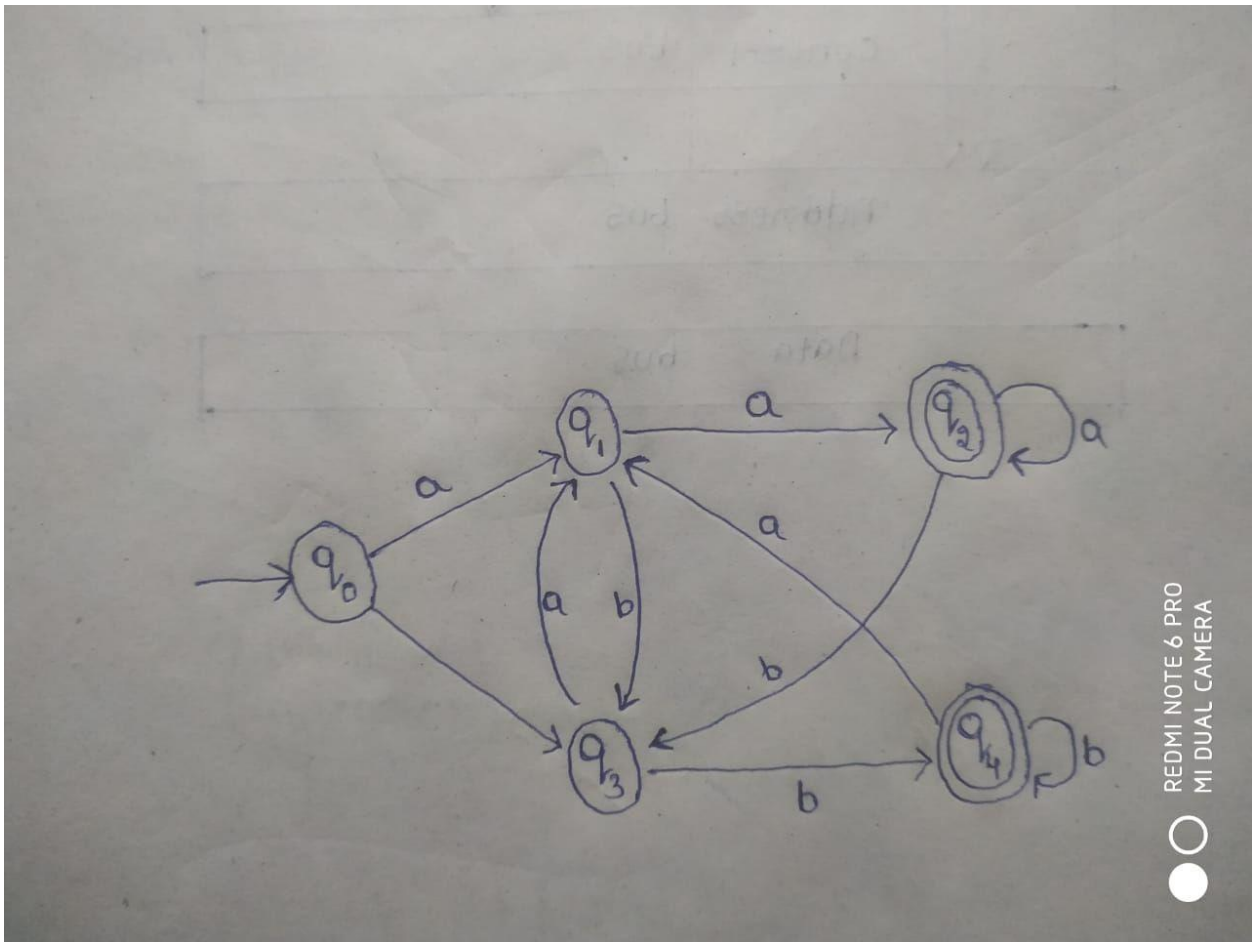
```
#include<stdio.h>
void main()
{
   int state=0,i=0;
   char token,input[20];
   printf("Enter input string \t :");
   scanf("%s",input);
   //printf("Given string is : %s");

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

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



Description:
The acceptable strings of the language are ε(Null string), aa, bb, aaaaabbbb, babbabb etc.
Non Acceptable String are aaaaaaaba, bbbbbbbaba, abababab etc.
Deterministic Finite Automata for the given language is given above:
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.

C Code

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

                  break;
          case 2: if(token=='a')
                     state=2;
                  else if(token=='b')
```

```
                state=3;
            else
            {
                printf("Invalid token");
                exit(0);
            }
            break;
        case 3: if(token=='a')
                state=1;
            else if(token=='b')
                state=4;
            else
            {
                printf("Invalid token");
                exit(0);
            }
        case 4: if(token=='a')
                state=1;
            else if(token=='b')
                state=4;
            else
            {
                printf("Invalid token");
                exit(0);
            }
            break;
      }
     // printf("state = %d  ",state);
   }
   if(state==0||state==2||state==4)
      printf("\n\nString accepted\n\n");
   else
      printf("\n\nString not accepted\n\n");
}
```