Compiler Design Lab CS306L

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CSE_C

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.

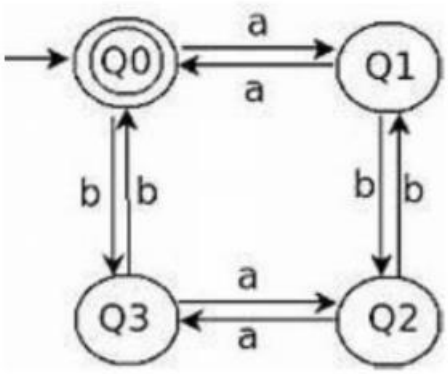
Problem 1 (C Code)

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

```
state=1;

else

{

printf("Invalid token");


exit(0);

}

break;

}

}

if(state==0)

printf("\n\nString accepted\n\n");

else

printf("\n\nString not accepted\n\n");

}
```

DFA



Input	Expected Output
aabb	String accepted
abab	String accepted
aaabb	String not accepted
aaa	String not accepted

abcd	**Invalid token**

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

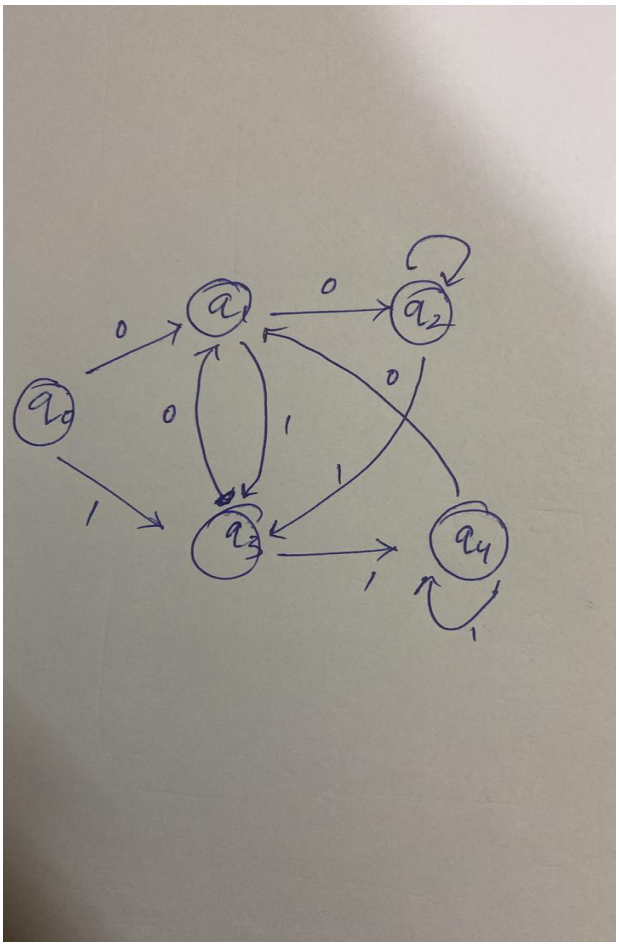
Problem 2 (C Code)

```
#include <stdio.h>

#include<stdlib.h>


int 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=='0')

            state=1;

            else if(current=='1')

            state=3;

            else


           { {printf("%d",current);
```

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

```
            state=4;
            else
            { printf("Invalid token");
            exit(0);
              }
              break;
          case 4:if(current=='0')
            state=1;
            else if(current=='1')
            state=4;
            else
            { printf("Invalid token");
            exit(0);
              }
}
}
if(state==2||state==4)
printf("\n\nString accepted\n\n");
else
printf("\n\nString not accepted\n\n");
}
```

DFA



OUTPUT

Input	Expected Output
abababba	String not accepted
aaaaaaa	String accepted
aaabbbb	String accepted
abcd	Invalid token