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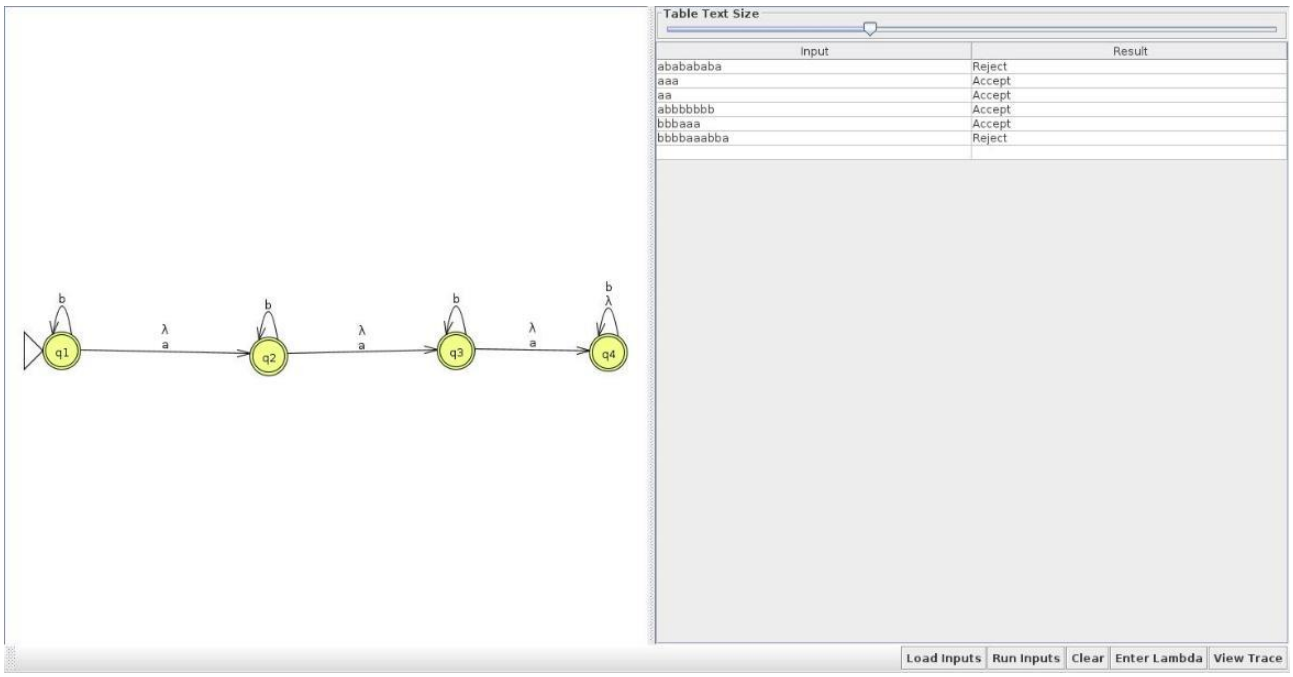
ASSIGNMENT - 06

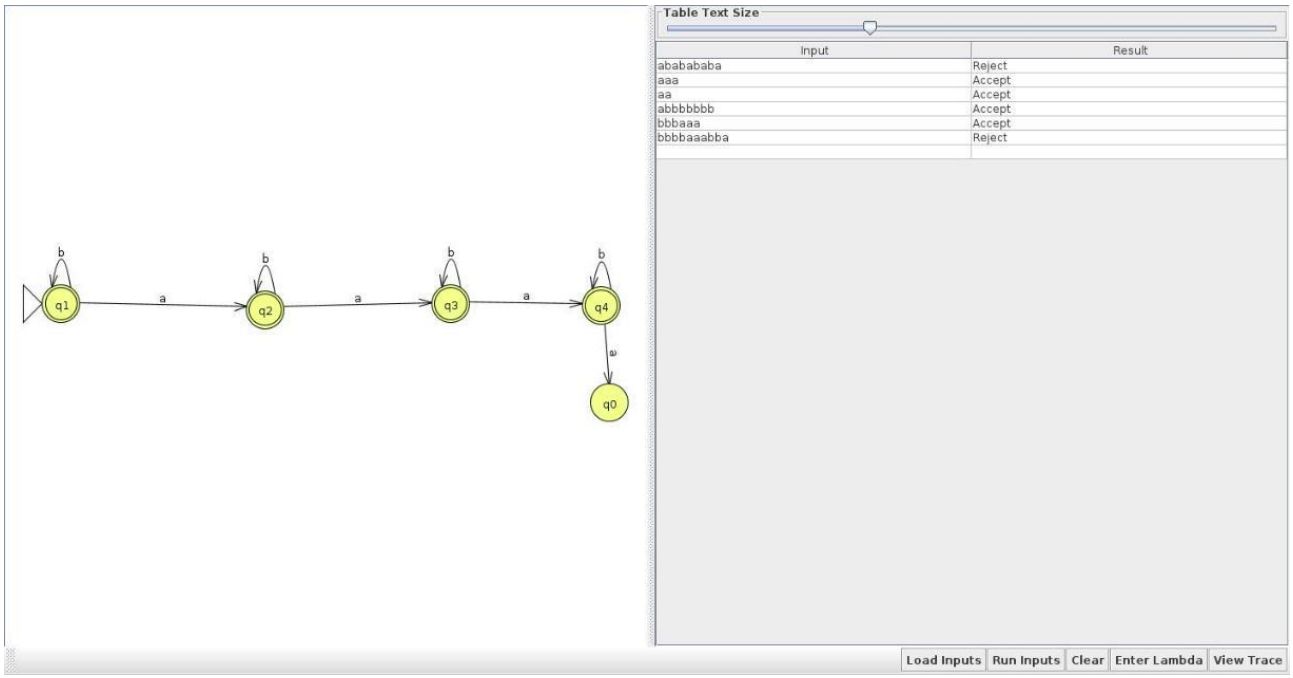
Q1. Construct the eplison NFA and convert into DFA for all strings with no more than three ‘a’s.

Ans:-

NFA



DFA



C Program:

```
#include <stdio.h>

#include <stdlib.h>

int main()
{

char s[1000];

int check = 1;

int count_a = 0;

scanf("%s" , &s);
for (int i = 0; s[i] != '\0' ; I++)

{

if (s[i] == ‘a')

{

count_a++;
```

```
}
if (count_a > 3)
{
check = 0;
 exit;
}
}
if(check == 0)
{
printf("REJECTED");
}
else
{
 printf("ACCEPTED");
}
```

Q2) Construct the NFA and convert into DFA for all strings with atleast one ‘a’ and exactly two ‘b’s.

Ans:-

NFA

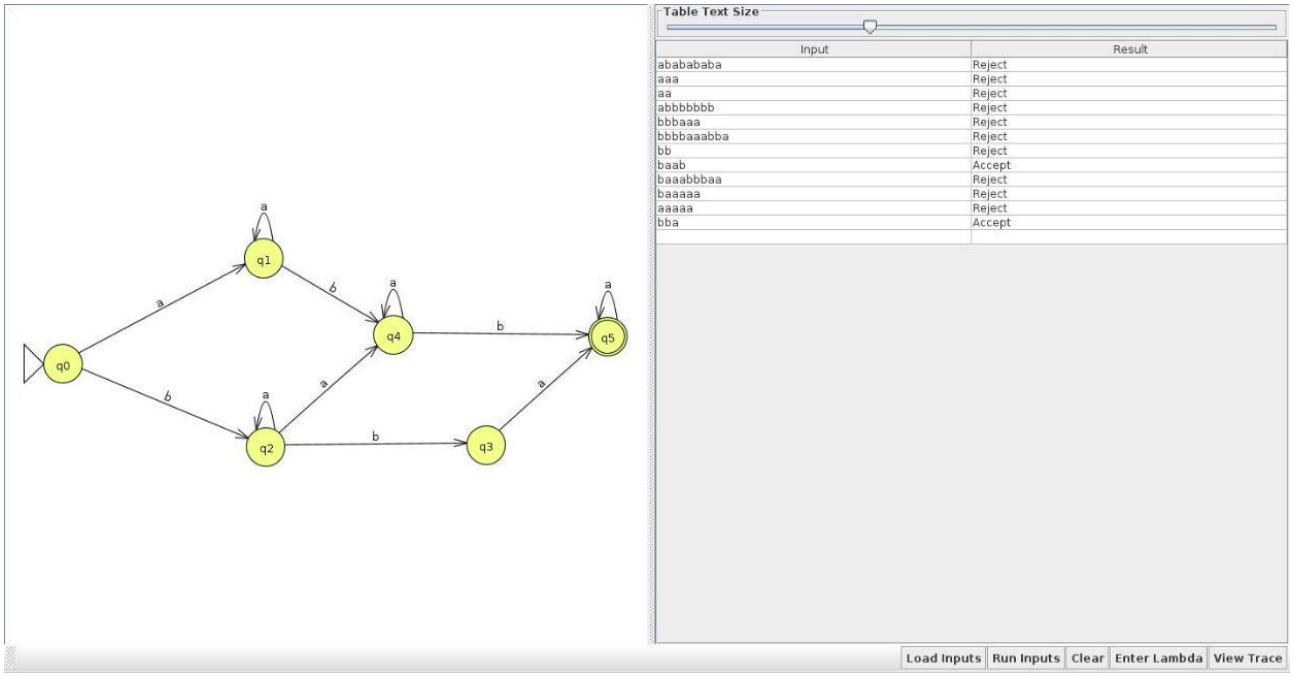


Table Text Size
Input
Result
ababababa
Reject
aaa
Reject
aa
Reject
abbbbbbb
Reject
bbbaaa
Reject
bbbbaaabba
Reject
bb
Reject
baab
Accept
baaabbbaa
Reject
baaaaa
Reject
aaaaa
Reject
bba
Accept
Load Inputs
Run Inputs
Clear
Enter Lambda
View Trace
q0
q1
q2
q3
q4
q5
a
b

DFA

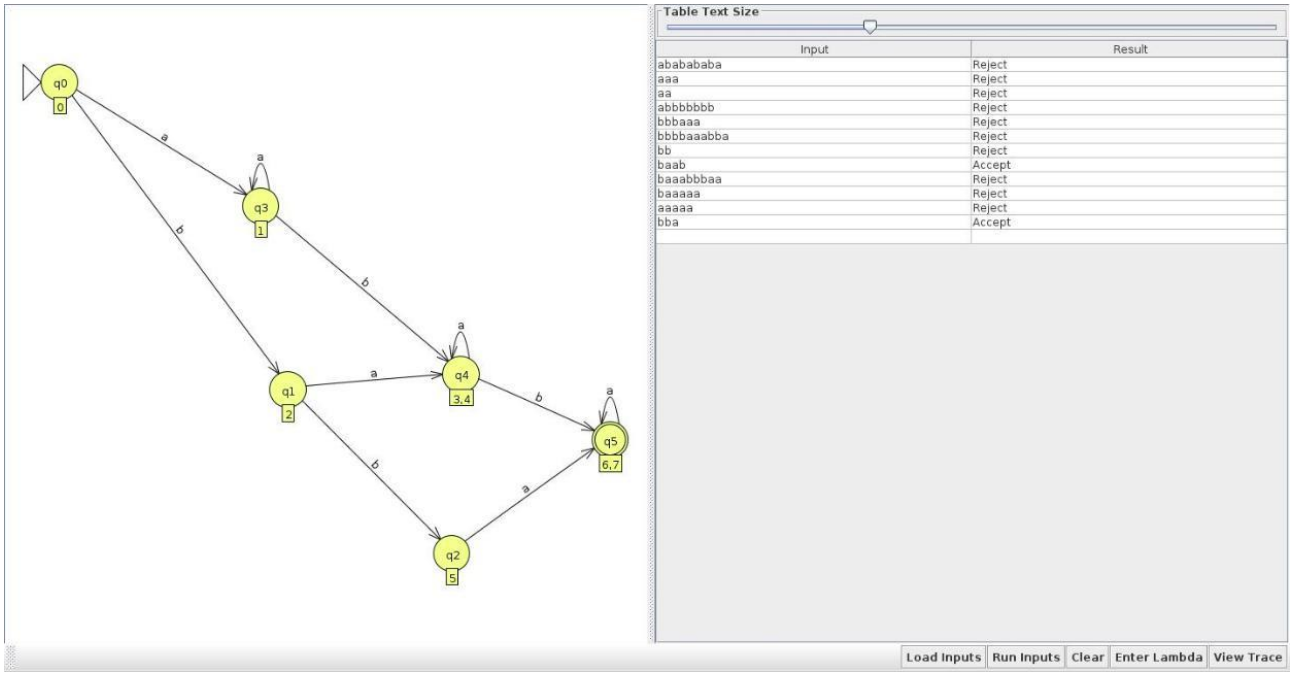


Table Text Size
Input
Result
ababababa
Reject
aaa
Reject
aa
Reject
abbbbbbb
Reject
bbbaaa
Reject
bbbbaaabba
Reject
bb
Reject
baab
Accept
baaabbbaa
Reject
baaaaa
Reject
aaaaa
Reject
bba
Accept
Load Inputs
Run Inputs
Clear
Enter Lambda
View Trace
q0
0
q3
1
q1
2
q4
3,4
q2
5
q5
6,7
a
b

C Program:

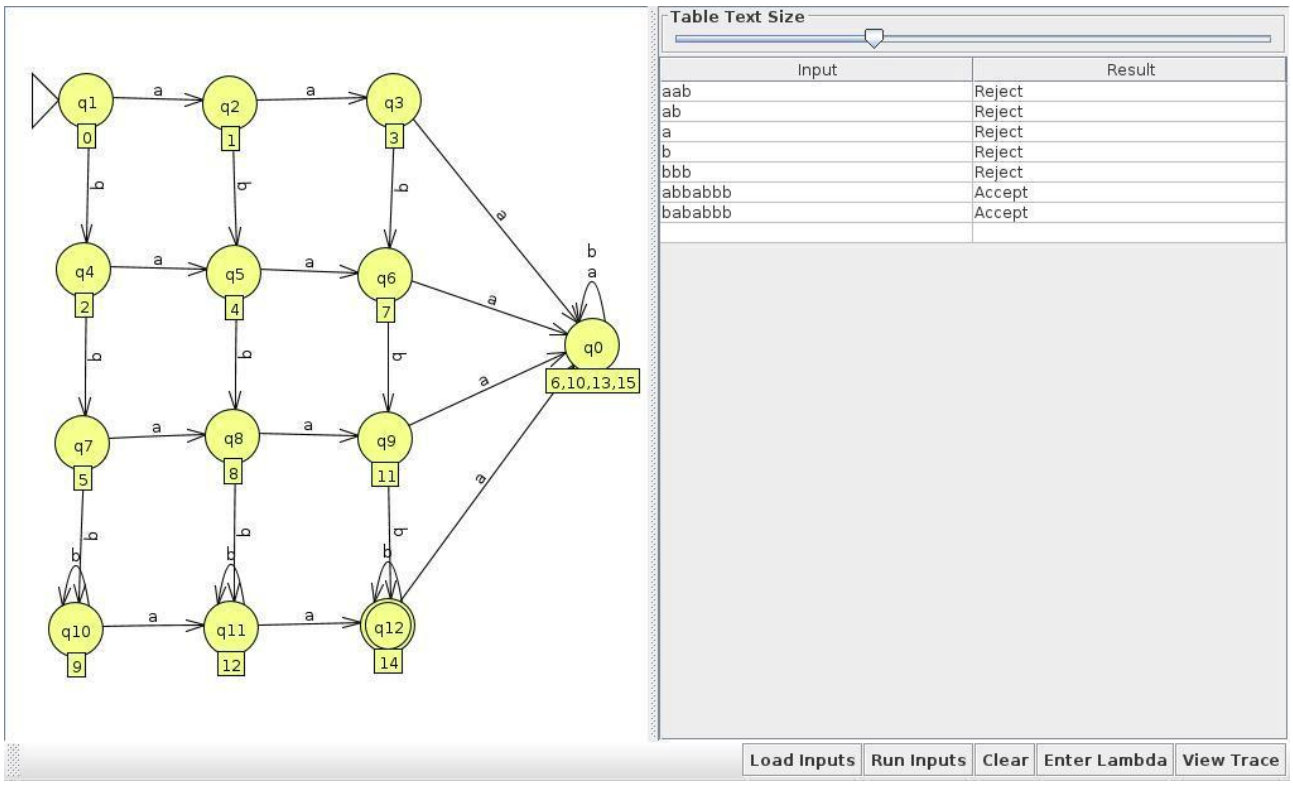
```
#include <stdio.h>
#include <stdlib.h>
int main()
{
char s[1000];
 int check = 0;
int count_a = 0;
int count_b = 0;
scanf("%s" , &s);
for (int i = 0; s[i] != '\0' ; I++)
{
if (s[i] == ‘a')
{
count_a++;
}
if (s[i] == ‘b')
{
 count_b++;
}
}
if (count_a > 0 && count_b == 2)
{
```

```
check = 1;
}
if(check == 0)
{
 printf("REJECTED");
}
else
{
printf("ACCEPTED"); }
}
```

Q3) . Construct DFA for All strings with exactly two ‘a’s and more than two ‘b’s.

Ans:-

DFA



C Program:

```
#include <stdio.h>

 #include <stdlib.h>

int main()
{

char s[1000];
int check = 0;
int count_a = 0;
int count_b = 0;

scanf("%s" , &s);
for (int i = 0; s[i] != '\0' ; I++)

{

if (s[i] == ‘a')

{

count_a++;
```

```
}
if (s[i] == ‘b')
{
count_b++;
 }
}
if (count_a == 2 && count_b > 2)
{
 check = 1;
}
if(check == 0)
{
 printf("REJECTED");
}
 else
{
printf("ACCEPTED"); }
}
```