PLC PSS REPORT

Submitted By

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6th Semester, CSE (Section-M)

In The Supervision Of

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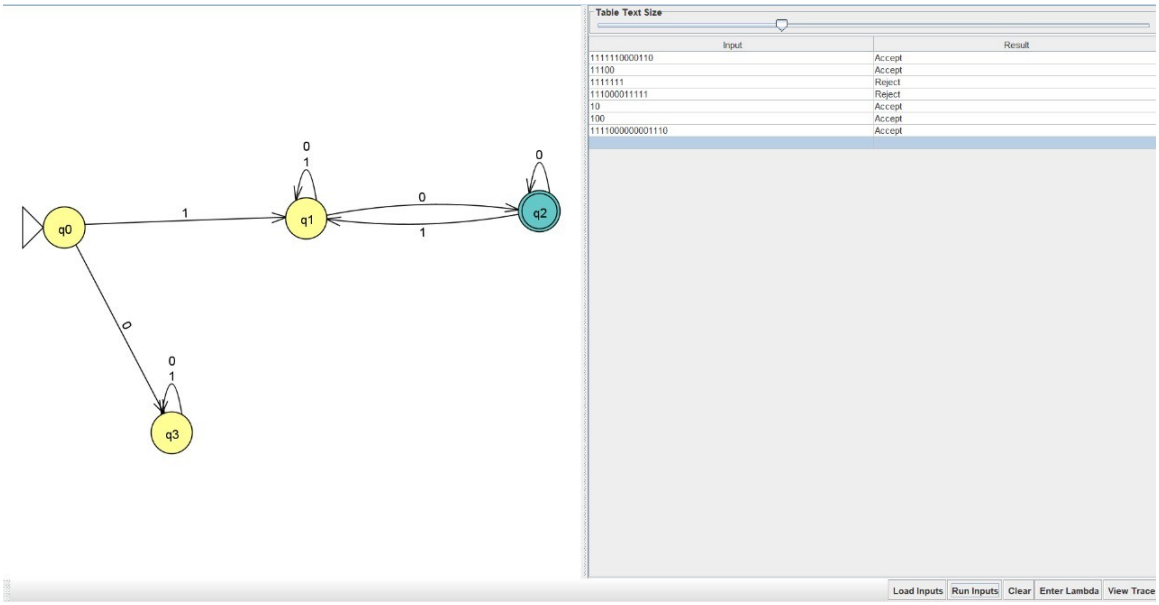
Assignment-1

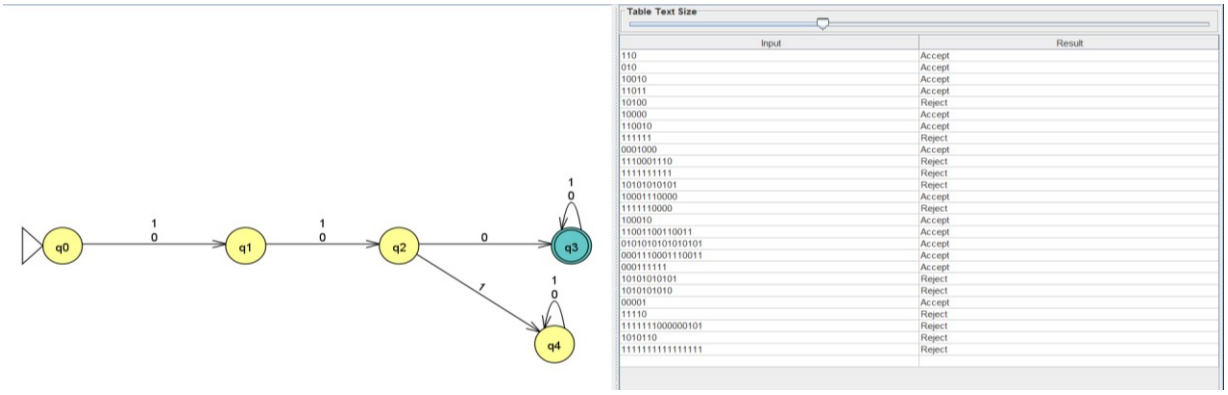
1. Construct DFA(s) for the following languages:
   (a) {w | w begins with a 1 and ends with a 0}.
   (b) {w | w has length at least 3 and its third symbol from left is a 0}.
   (c) {w | w doesn't contain the sub-string 110}.
   (d) {w | the length of w is at most 5}.
   (e) {w | the decimal equivalent number of w is divisible by 5}.
2. Consider ∑ = {a, b} and, wE∑. Design DFA(s) accepting the following languages:
   (a) Starts with a and |w| = 1 (mod 4).
   (b) Containing sub-string "ab" but |w| is not divisible by 2.
3. Construct DFA(s):
   (a) Over the alphabet set (0, 1} such that it recognizes set of all strings in which every "00" is immediately followed by a 1. (For instance, the strings 1001, 0010, 0010011001 are in the language but 0001, 00100 are not).
   (b) Over the alphabet set (a, b) and wE∑*, such that (w | w contains an even number of a's and an odd number of b's and does not contain the sub-string "ab"). (in 5 states)

Q1 Construct DFA(s) for the following languages:

(a) {w | w begins with a 1 and ends with a 0}.



(b) {w | w has length at least 3 and its third symbol from left is a 0}.



(c) {w | w doesn't contain the sub-string 110}.

Table Text Size

Input	Result
1111100010	Reject
00011	Reject
110	Reject
000011111	Reject
100011	Reject
11110001111110000010101000	Reject
00001	Reject
010	Reject
10010	Reject
111111111	Accept
0000111111111	Reject
0000100000	Reject
101000	Reject

Load Inputs | Run Inputs | Clear | Enter Lambda | View Trace

(d) {w | the length of w is at most 5}.

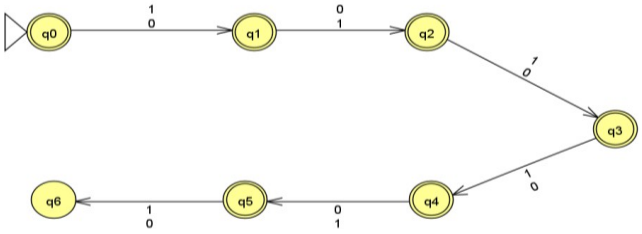


Table Text Size

Input	Result
110	Accept
010	Accept
10010	Accept
11011	Accept
10100	Accept
10000	Accept
110010	Reject
111111	Reject
0001000	Reject
1110001110	Reject
1111111111	Reject
10101010101	Reject
10001110000	Reject
1111110000	Reject
100010	Reject
11001100110011	Reject
01010101010101	Reject
00011100011110011	Reject
000111111	Reject
10101010101	Reject
1010101010	Reject
00001	Accept
11110	Accept
1111111000000101	Reject
1010110	Reject
1111111111111111	Reject

(e) {w | the decimal equivalent number of w is divisible by 5}.

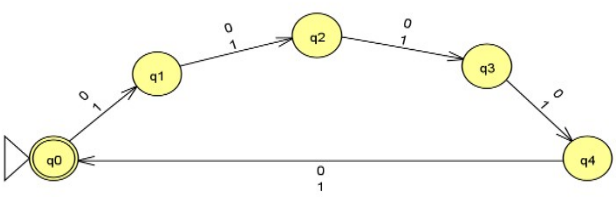
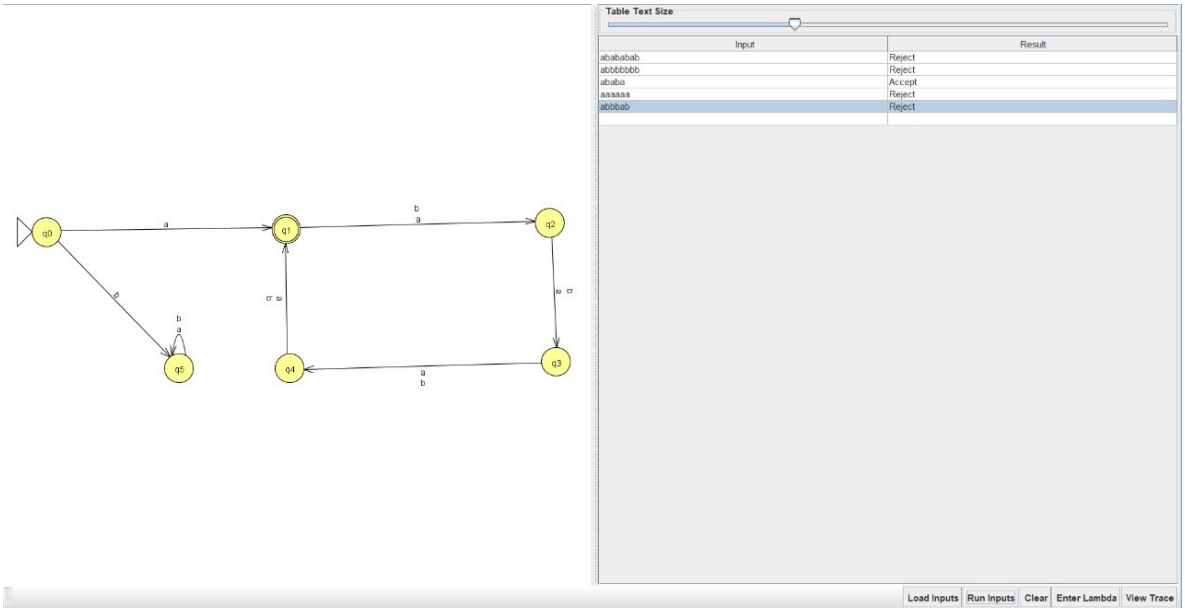


Table Text Size

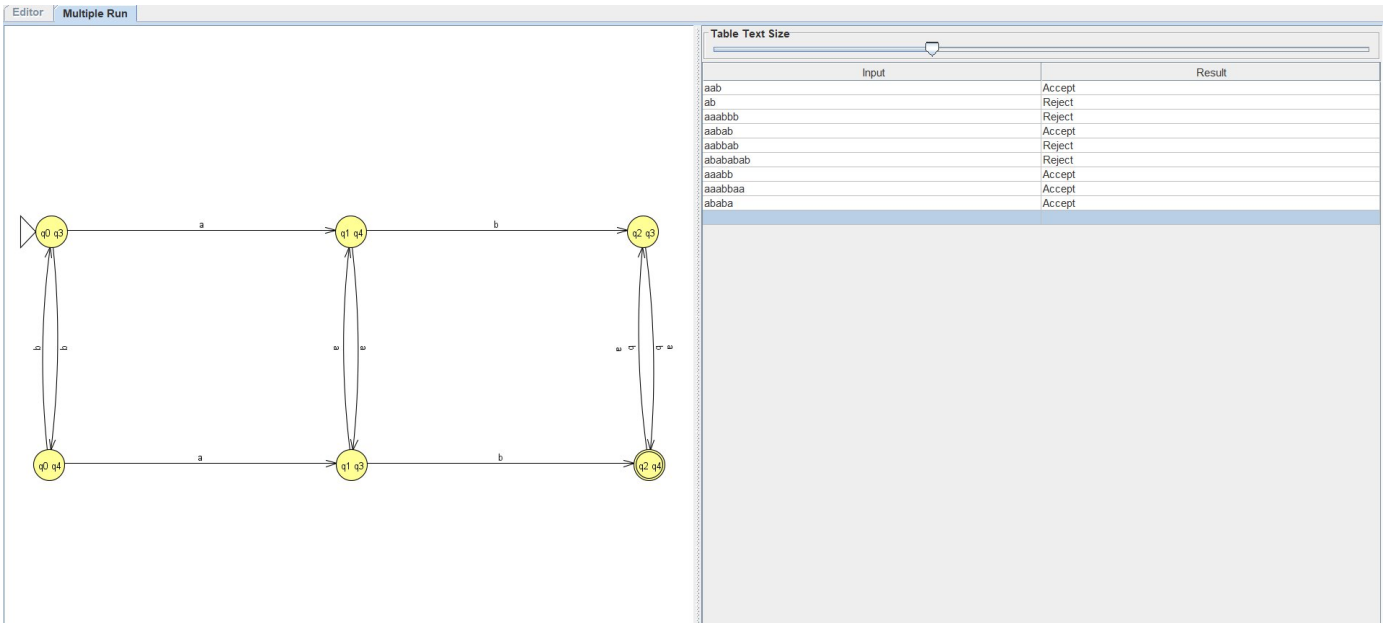
Input	Result
110	Reject
010	Reject
10010	Accept
11011	Accept
10100	Accept
10000	Accept
110010	Reject
111111	Reject
0001000	Reject
1110001110	Accept
1111111111	Accept
10101010101	Reject
10001110000	Reject
1111110000	Accept
100010	Reject
11001100110011	Reject
01010101010101	Reject
00011100011110011	Reject
000111111	Reject
10101010101	Reject
1010101010	Accept
00001	Accept
11110	Accept
1111111000000101	Reject
1010110	Reject
1111111111111111	Reject

Q2. Consider ∑ = {a, b} and, wE∑. Design DFA(s) accepting the following languages:

(a) Starts with a and |w| = 1 (mod 4).



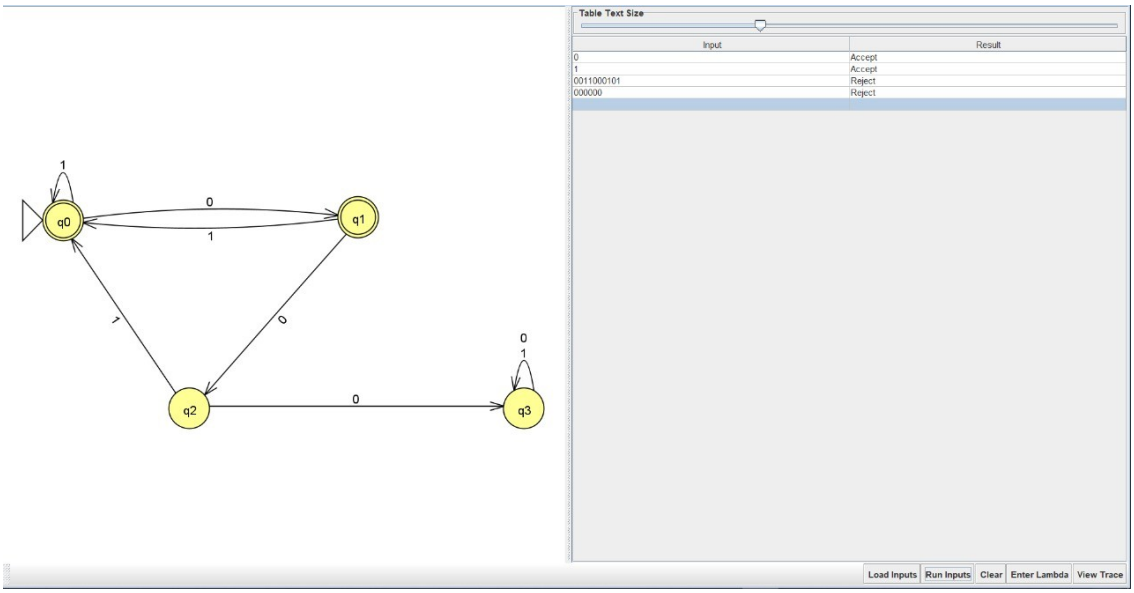
(b) Containing sub-string "ab" but |w| is not divisible by 2.



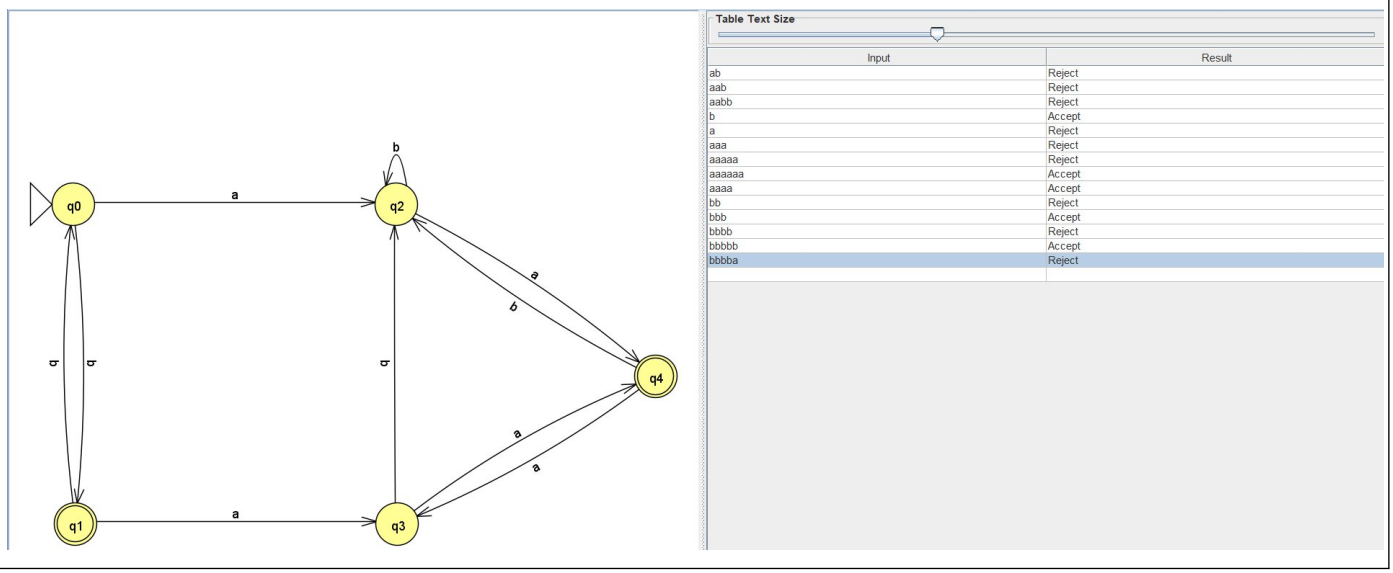
Q3

Construct DFA(s):

(a) Over the alphabet set (0, 1} such that it recognizes set of all strings in which every "00" is immediately followed by a 1. (For instance, the strings 1001, 0010, 0010011001 are in the language but 0001, 00100 are not).



(b) Over the alphabet set (a, b) and wE∑*, such that (w | w contains an even number of a's and an odd number of b's and does not contain the sub-string "ab"). (in 5 states)



	Date: 8th June 2022 Nitya. Put your signature here Registration Number: 1941012425