

CS/ECE 374 P07

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TOTAL POINTS

100 / 100

QUESTION 1

1 Problem 7.A. 25 / 25

✓ - **0 pts** Correct

QUESTION 2

2 Problem 7.B. 25 / 25

✓ - **0 pts** Correct

QUESTION 3

3 Problem 7.C. 25 / 25

✓ - **0 pts** Correct

QUESTION 4

4 Problem 7.D. 25 / 25

✓ - **0 pts** Correct

HW3 Solution

CS/ECE 374: Algorithms & Models of Computation, Spring 2019

Version: 1.0

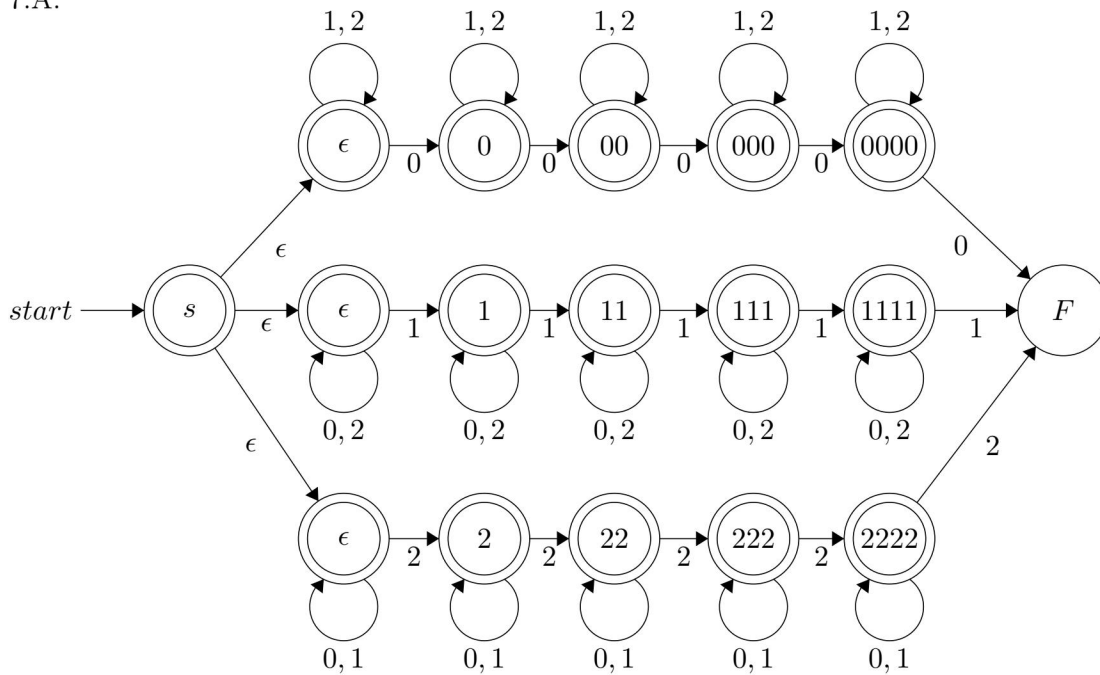
Submitted by:

- <<Pengxu Zheng>>: <<pzheng5>>
- <<Junquan Chen>>: <<junquan2>>
- <<Jiawei Tang>>: <<jiaweit2>>

7

Solution:

7.A.



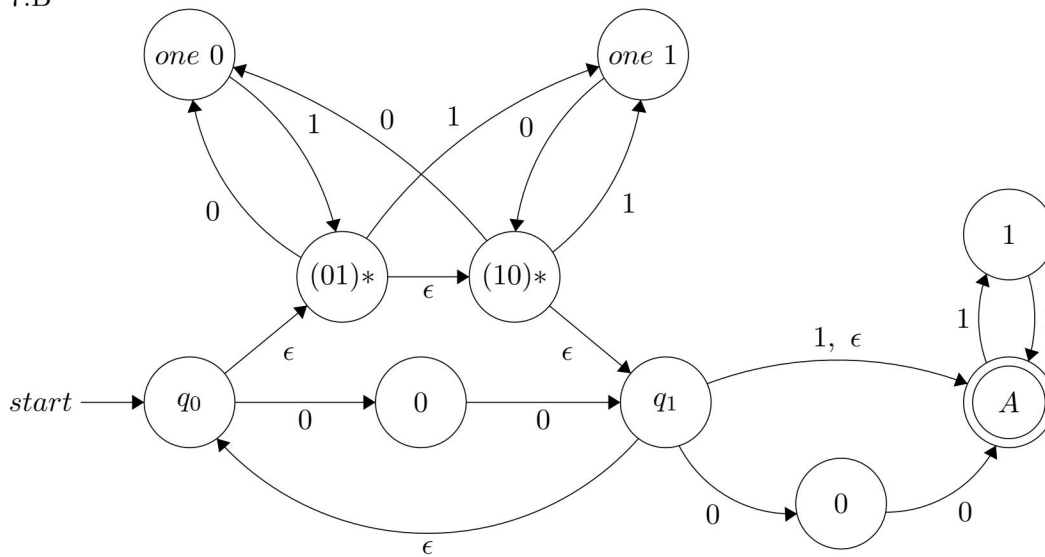
Explanation of State(s):

F: The failing state

1 Problem 7.A. 25 / 25

✓ - 0 pts Correct

7.B



Explanation of State(s):

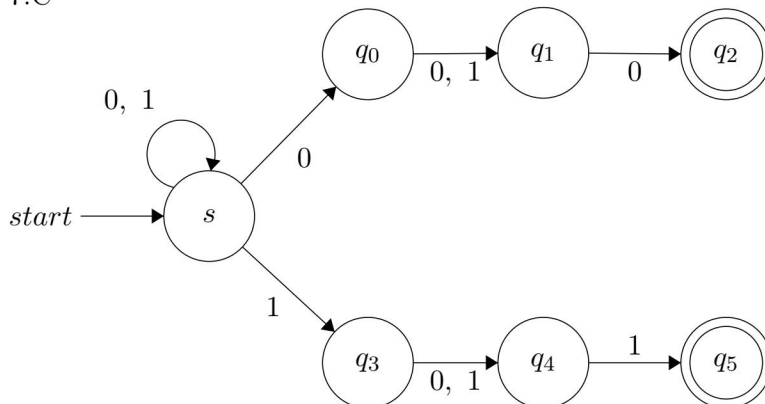
q1: the state where the NFA reached a completion of $((01)^*(10)^* + 00)^*$ stage in the regular expression.

A: the accepting state

one 0: there is a single 0 detected in the $(01)^*$ pattern

one 1: there is a single 1 detected in the $(10)^*$ pattern

7.C



Explanation of State(s):

q0: the third last digit in the string is 0

q1: the second last digit in the string is either 0 or 1

q2: the last digit in the string is 0

q3: the third last digit in the string is 1

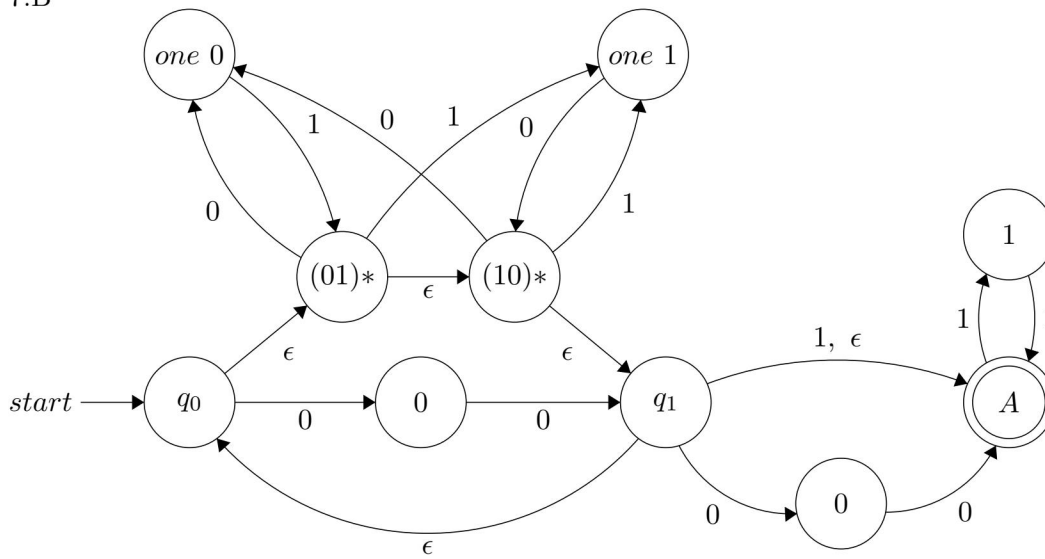
q4: the second last digit in the string is either 0 or 1

q5: the last digit in the string is 1

2 Problem 7.B. 25 / 25

✓ - 0 pts Correct

7.B



Explanation of State(s):

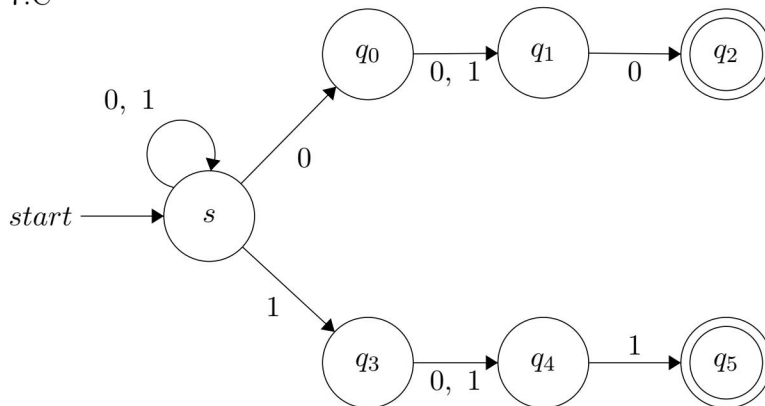
q1: the state where the NFA reached a completion of $((01)^*(10)^* + 00)^*$ stage in the regular expression.

A: the accepting state

one 0: there is a single 0 detected in the $(01)^*$ pattern

one 1: there is a single 1 detected in the $(10)^*$ pattern

7.C



Explanation of State(s):

q0: the third last digit in the string is 0

q1: the second last digit in the string is either 0 or 1

q2: the last digit in the string is 0

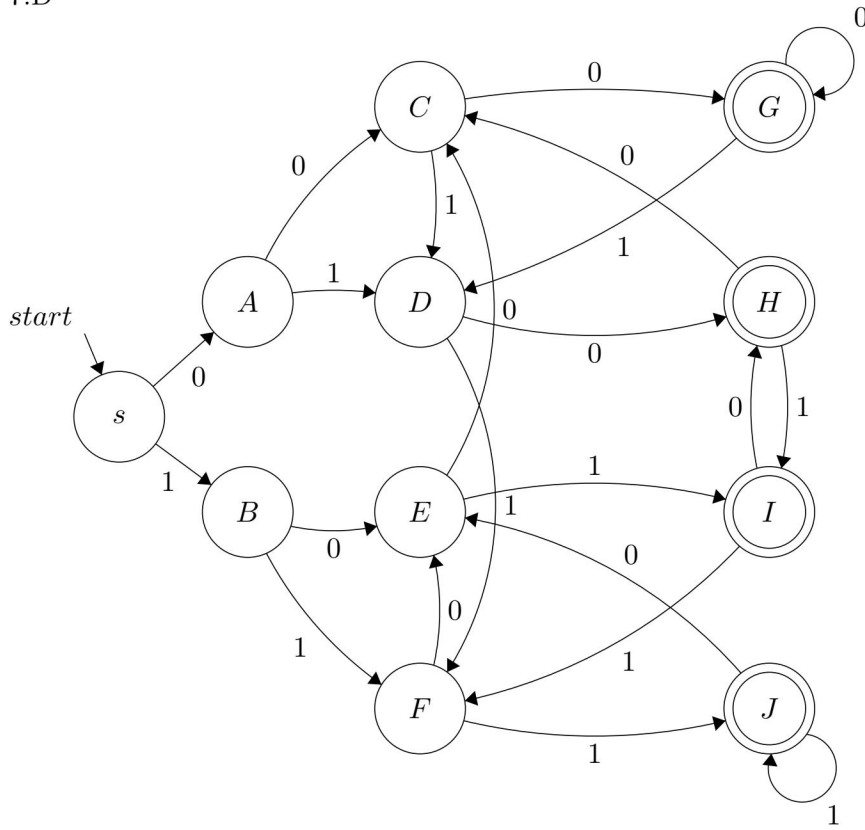
q3: the third last digit in the string is 1

q4: the second last digit in the string is either 0 or 1

q5: the last digit in the string is 1

3 Problem 7.C. 25 / 25

✓ - 0 pts Correct



Explanation of State(s):

A: $\{s, q_0\}$

B: $\{s, q_3\}$

C: $\{s, q_0, q_1\}$

D: $\{s, q_1, q_3\}$

E: $\{s, q_0, q_4\}$

F: $\{s, q_3, q_4\}$

G: $\{s, q_0, q_1, q_2\}$

H: $\{s, q_0, q_2, q_4\}$

I: $\{s, q_1, q_3, q_5\}$

J: $\{s, q_3, q_4, q_5\}$

4 Problem 7.D. 25 / 25

✓ - 0 pts Correct