Gradiance Online Accelerated Learning

Zayd

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Help

Submission number: 61844
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Number of questions: 4
Positive points per question: 3.0
Negative points per question: 1.0
Your score: 12

Based on Section 4.4 of HMU

1. Design the minimum-state DFA that accepts all and only the strings of 0's and 1's that end in 010. To verify that you have designed the correct automaton, we will ask you to identify the true statement in a list of choices. These choices will involve:

   1. The number of *loops* (transitions from a state to itself).
   2. The number of transitions into a state (including loops) on input 1.
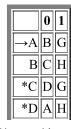   3. The number of transitions into a state (including loops) on input 0.

   Count the number of transitions into each of your states ("in-transitions") on input 1 and also on input 0. Count the number of loops on input 1 and on input 0. Then, find the true statement in the following list.

   a) There is one loop on input 0 and one loop on input 1.

   b) There are two states that have two in-transitions on input 0.

   c) There is one state that has no in-transitions on input 0.

   d) There are two loops on input 1 and no loop on input 0.

   Answer submitted: **a)**

   You have answered the question correctly.

2. Here is the transition table of a DFA that we shall call *M*:

	0	1
→A	B	G
B	C	H
*C	D	G
*D	A	H

E	F	C
F	G	I
*G	H	C
*H	A	D
I	E	I

Find the minimum-state DFA equivalent to the above. States in the minimum-state DFA are each the merger of some of the states of M. Find in the list below a set of states of M that forms one state of the minimum-state DFA.

   a) {D,H,I}

   b) {G,I}

   c) {B,F}

   d) {C,G}

Answer submitted: **d)**

You have answered the question correctly.

3. Design the minimum-state DFA that accepts all and only the strings of 0's and 1's that have 110 as a substring. To verify that you have designed the correct automaton, we will ask you to identify the true statement in a list of choices. These choices will involve:

     1. The number of *loops* (transitions from a state to itself).
     2. The number of transitions into a state (including loops) on input 1.
     3. The number of transitions into a state (including loops) on input 0.

Count the number of transitions into each of your states ("in-transitions") on input

1 and also on input 0. Count the number of loops on input 1 and on input 0. Then, find the true statement in the following list.

   a) There are two states that have two in-transitions on input 0.

   b) There are two states that have no in-transitions on input 1.

   c) There are two states that have two in-transitions on input 1.

   d) There is one state that has one in-transition on input 0.

Answer submitted: **a)**

You have answered the question correctly.

4. Here is the transition table of a DFA:

	0	1
→A	E	D
*B	A	C
C	G	B
D	E	A
*E	H	C

E	H	C
F	C	B
G	F	E
H	B	H

Find the minimum-state DFA equivalent to the above. Then, identify in the list below the pair of equivalent states (states that get merged in the minimization process).

a) A and F

b) D and F

c) B and C

d) A and D

Answer submitted: **d)**

You have answered the question correctly.