Homework #8
CS 310 Fall 2010

Due Nov 23, 5 pm

Email me the answers to the following questions from your book:

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  3.8 a, b, c
  3.9 a

Please produce a PUNetID_cs310Hmwk8.tar.gz or .zip file containing the following JFLAP files and attach the compressed file to the email above. None of the following TMs should use the S (stationary) extension in JFLAP.

Submit JFLAP files:

   TM1_PUNetID.jff

  Build a single tape, deterministic Turing Machine that accepts the language
  $\{ww^R | w \in \{0,1\}^*; |w| > 0\}$

   TM2_PUNetID.jff

  Build a single tape, deterministic Turing Machine that accepts the language $\{A^n B^n C^n | n > 0\}$

   TM3_PUNetID.jff

  Build a single tape, deterministic Turing Machine that accepts the language
$\{A^{2*n} B^n C^{3*n} | n \geq 0\}$

   BinAdd_PUNetID.jff

  8-bit binary addition: Produce a 3-tape TM in JFLAP that will produce the sum on tape 3 of the 8-bit binary numbers given on tape 1 and tape 2. For example, if tape 1 contains: 00001111 (15) and tape 2 contains 00000011 (3) the sum on tape 3 should be: 00010010 (18). Don't worry about overflows. Each number on tape 1 and tape 2 will be exactly 8 bits long.

   Bin2sComp_PUNetID.jff

  8-bit binary complement: Produce a 2 tape TM that will produce the 2s complement on tape 2 of the 8-bit binary number on tape 1. The 2s complement is created by flipping each bit in the number and adding the value 1 to the resulting 8-bit number. For example, the 2s complement of 00001110 is 11110010