CS 311: Computational Structures
Exercise 3

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Let A be the langauge of binary numbers congruent to two modulo three. Let M be the three state DFA recognizing A. (This was assigned as homework in PS 1 and was used in the lecture notes to illustrate the GNFA construction.)

1. Give a string w accepted by the M that contains at least 4 symbols.

2. List the state sequence witnessing the acceptance of w.

3. Decompose w into x, y, and z such that:

   (a) The states before and after the string y are the same, so all strings of the form $xy^i z \in A$.

   (b) $|y| > 0$, and

   (c) $|xy| \leq 3$

4. Verify that xz and $xyyz$ are both accepted by M.