Sample Assignment # 3

1. Present a transition diagram for a DFA that recognizes the set of binary strings that start with a 1 and, when interpreted as entering the DFA most to least significant digit, each represents a binary number that is divisible by seven. Thus, 111, 1110 and 10101 are in the language, but 110, 1001 and 11000 are not.

2.`   a.) Present a transition diagram for an NFA for the language associated with the regular expression (1101 + 110 + 11)*. Your NFA must have no more than four states.

`   b.) Use the standard conversion technique (subsets of states) to convert the NFA from (a) to an equivalent DFA. Be sure to not include unreachable states. Hint: This DFA should have no more than seven states.