Homework 19

1. Spring 2008 Final Question 6

Complete the following DFA to match precisely those strings (over the two letter alphabet) that contain bababba as a substring. State 0 is the start state and state 7 is the accept state.

	0	1	2	3	4	5	6	7
a	0	2	0	4	0	4	7	7
b	1	1	3	1	5	6	1	7

2. Fall 2009 Final Question 6

Create the Knuth-Morris-Pratt DFA for the string aacaaab over the alphabet { a, b, c } by completing the following table. As usual, state 0 is the start state and state 7 is the accept state.

	0	1	2	3	4	5	6
a	1	2	2	4	5	6	2
b	0	0	0	0	0	0	7
c	0	0	3	0	0	3	3

3. Fall 2012 Final Question 10

Suppose that you run the Boyer-Moore algorithm (the basic version considered in the textbook and lecture) to search for the pattern

    I   D   O   F   T   H   E

in the text

    M   E   N   D   E   R   O   F   R   O   A   D   S   W   I   T   H
T   H   E   A   I   D   O   F   T   H   E

    Give the trace of the algorithm in the grid below, circling the characters in the pattern that get compared with the text.

M	E	N	D	E	R	O	F	R	O	A	D	S	W	I	T	H	T	H	E	A	I	D	O	F	T	H	E
I	D	O	F	T	H	Ⓔ																					
		I	D	O	F	T	H	Ⓔ																			
						I	D	O	F	T	H	Ⓔ															
								I	D	O	Ⓕ	Ⓣ	Ⓗ	Ⓔ													
									I	D	O	F	T	H	Ⓔ												
																					Ⓘ	Ⓓ	Ⓞ	Ⓕ	Ⓣ	Ⓗ	Ⓔ