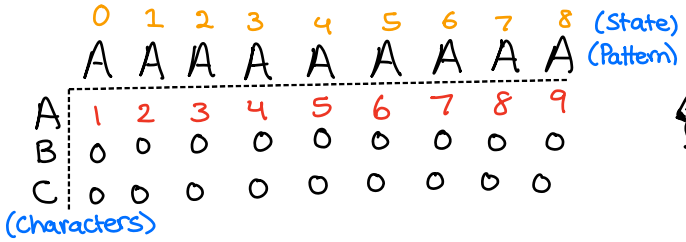
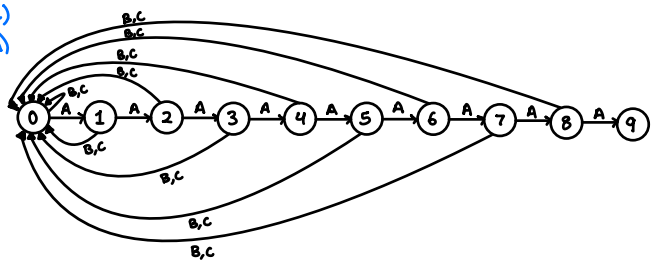
OCS 25 - Data Structures and Algorithms
Programming Assignment - 9
Substring Search

1) Give the dfa[][] array for the Knuth-Morris-Pratt algorithm for the pattern A A A A A A A A A, and draw the DFA, in the style of the figures in the text.

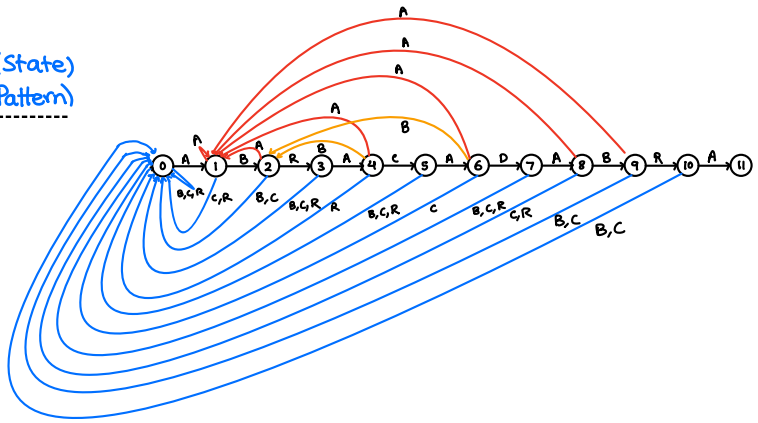




Show the trace of the DFA states when you search the above pattern in the following text:

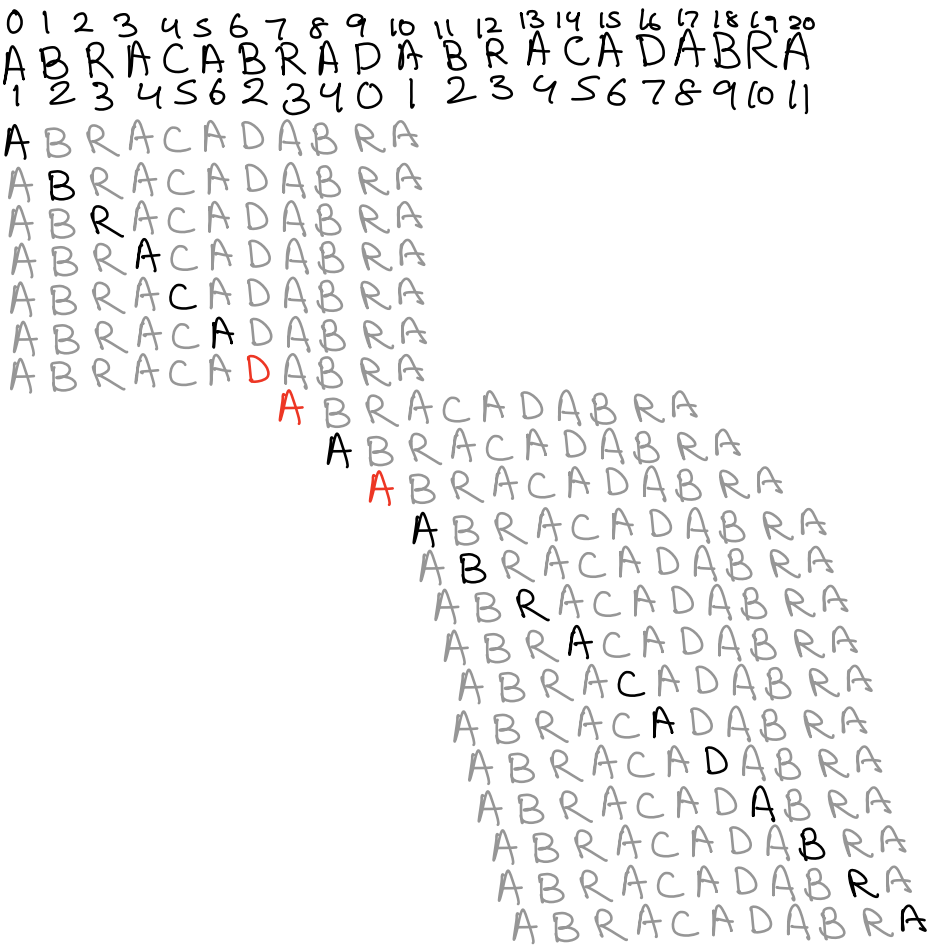
A A A A B C A A A B A A A A A A A A B

2) Give the dfa[][] array for the Knuth-Morris-Pratt algorithm for the pattern A B R A C A D A B R A, and draw the DFA, in the style of the figures in the text.



Show the trace of the DFA states when you search the above pattern in the following text:

A B R A C A B R A B R A D A B R A C A D A B R A



3) Give the right[] array computed for the pattern A B R A C A D A B R A.

		A	B	R	A	C	A	D	A	B	R	A
		0	1	2	3	4	5	6	7	8	9	10
A	-1	0	0	0	3	3	5	5	7	7	7	10
B	-1	-1	1	1	1	1	1	1	1	8	8	8
C	-1	-1	-1	-1	-1	4	4	4	4	4	4	4
D	-1	-1	-1	-1	-1	-1	-1	6	6	6	6	6
⋮												
R	-1	-1	-1	2	2	2	2	2	2	2	9	9
⋮												
Z	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

	right[c]
A	10
B	8
C	4
D	6
⋮	
R	9
⋮	
Z	-1

Show the trace of the Boyer-Moore algorithm when you search the above pattern in the following text:

A B R A C A B R A B R A D A B R A C A D A B R A