COS226 Maxflow Activity

1. Use the table (from the assignment) below to determine if Philadelphia is already eliminated from the division. Draw the FlowNetwork and then calculate the augmenting paths of the Ford-Fulkerson algorithm.

		w[i]	l[i]	r[i]	g[i][j]			
i	team	wins	loss	left	Atl	Phi	NY	Mon
0	Atlanta	83	71	8	-	1	6	1
1	Philadelphia	80	79	3	1	-	0	2
2	New York	78	78	6	6	0	-	0
3	Montreal	77	82	3	1	2	0	-

2. Then determine if Montreal is eliminated? Is a graph needed? Why or why not?

3. How many game vertices are needed (at most) if there are N teams (meaning N-1 teams in the flow network)?

Algorithms 4th edition, Section 5.3

4. Give the KMP DFA for the pattern MAMAMIA over the 3 letter alphabet by filling in the table below. Draw the DFA too.

```
    M   A   M   A   M   I   A
    0   1   2   3   4   5   6
    ------------------------
A   0   2
I   0   0
M   1   1
```

5. Give the trace using Boyer-Moore to search for the pattern BANANA in the text

```
PINEAPPLESMANGOSANDBANANAS
```

by completing the table below.

```
i  j  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
      P  I  N  E  A  P  P  L  E  S  M  A  N G  O  S  A  N  D  B  A  N  A  N  A  S
```

One rule not used with the above example is shown here:

```
i  j  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
      P  I  N  E  A  P  P  L  E  S  M  A  N G  O  S  A  N  D  B  A  N  A  N  A  S
                  T  A  P
```