CSE214
Extra Credit Homework
Graphs

Given the adjacency matrix representation for a weighted directed graph, where the weights are non-negative, find the distance of the shortest path from vertex **source** to vertex **destination**. Note, the graph is connected. Also print the shortest path between **source** and **destination**.

Input format:
Take input from a file in1.txt. The first line of input contains an integer T which is the number of test cases. For each test case the first line of input contains an integer N which is the number of vertices in the graph. The next line contains two integers S and D to represent **source** and **destination**. The next N lines contain N space separated values either 0 or w, where w is a non-negative integer in 0 <= w <= 100. w represents the edge weight between two vertices and 0 represents there is no edge between two vertices.
Output format:
For each test case output the shorted distance between source, S and destination, D along with the shortest path.

Sample Input:
2
7
0 5
0 2 0 1 0 0 0
0 0 0 3 10 0 0
4 0 0 0 0 5 0
0 0 2 0 2 8 4
0 0 0 0 0 0 6
0 0 0 0 0 0 0
0 0 0 0 0 1 0
5
0 2
0 10 0 5 0
0 0 1 2 0
0 0 0 0 4
0 3 9 0 2
7 0 6 0 0

Sample Output:
6
0 -> 3 -> 6 -> 5
9
0 -> 3 -> 1 -> 2