CSC 383
Fall, 2011
Assignment 9 (version 2)
Due 11:59pm CT, Tuesday, November 15th

This is an updated version of the assignment. I fixed the pseudocode for the breadth-first traversal and added some information about the input file.

Requirements. Write a program called `TraverseGraph` that performs first a depth-first and then a breadth-first traversal of an undirected graph.

Assume that the graph to be traversed as n vertices, numbered 0 to $n - 1$. The input is a text file with n lines, where line i is a list of the vertices adjacent to vertex i. Read these values into an array list of integer arrays lists (that is, use the adjacency list data structure for the graph).

Next perform each of the following traversals, described in pseudocode.

```
void depthFirstTraversal(adjacency, visited, start)
  if visited[start] {
    return
  }
  print start
  visited[start] = true
  for (vertex: adjacency[start]) {
    depthFirstTraversal(adjacency, visited, vertex)
  }
}

void breadthFirstTraversal(adjacency, visited, start)
  create a new queue
  put start on the queue
  while the queue is not empty {
    start = queue.remove
    if not visited[start] {
      visited[start] = true
      print start
      for (vertex: adjacency[start]) {
        put vertex on the queue
      }
    }
  }
}
```

An example of the input is the following, which is the adjacency list for the Petersen graph (see Wikipedia). It has ten vertices, numbered 0 to 9, and each has three neighbors.

```
4  5  1
0  6  2
1  7  3
2  8  4
3  9  0
0  7  8
1  8  9
2  9  5
3  5  6
4  6  7
```