Computer Science 245
Homework 7
BFS & Path Computation
Due Wednesday, April 9th, 2008

1. Implement the following two functions:

   ● void BFS(Graph G, int Parent[], int startVertex, boolean Visited[])

     A standard BFS, except that the BFS search tree is created in the Parent[] array, using the
     same parent pointer representation as disjoint sets (that is, Parent[x] = index of the parent of
     x, or -1 if x has no parent). You can assume that all elements of the array Visited[] are false,
     and all elements of the array Parent[] are -1 when the function is first called.
   
   ● void PrintPath(int Parent[], int endvertex)

     Prints out the path from the root of the tree to endvertex, all on one line, followed by an end-of-
     line. If there is no path from the root of the tree to the end vertex (or if the root vertex is passed
     in), just print out the end vertex, followed by a end-of-line. Recursion is your friend here. You
     may need to use a helper function to get the end-of-line printed out correctly.

Code for implementing graphs can be found online, check the website. All you need to do is download
the files, and then fill in the empty functions for BFS and PrintPath (as well as adding any helper
functions that you might need).

What to turn in:

   ● Hardcopy of your BFS and PrintPath, and any helper functions that you created. Do not turn in
     hardcopies of any of my code (cut and paste the functions into a new document)

   ● Softcopy of your modified version of Graphtest.java, plus any other files required for Graphtest.java to
     compile and run, to subversion:

     https://www.cs.usfca.edu/svn/<username>/cs245/Homework7/