CSE 5311 Lab Assignment 3

Due August 6, 2007

Goals:

1. Review of network flow concepts.
2. Understanding of minimum bipartite vertex cover, a problem solvable by network flows.

Requirements:

1. Write (and test) a C or C++ program that produces a list of vertices in a minimum bipartite vertex cover.

   The first line of the input file will give $|V_1|$, $|V_2|$, and $|E|$. These will not exceed 100, 100, and 10,000, respectively. Vertices in V_1 will be numbered consecutively, starting with 0. Vertices in V_2 will be numbered consecutively, starting with $|V_1|$. Each of the remaining $|E|$ lines will contain a pair with a V_1 vertex then a V_2 vertex to give an edge.

   Your output will be a list of vertices, one vertex per line.

2. Email your code (as attachments) to `spal@uta.edu` before 10:15 am on August 6, 2007. The subject should include your name as recorded by the University.

Getting Started:

1. Notes 18, pages 13-14, shows how an instance of network flow may be used to determine a minimum bipartite vertex cover. You may use available code for finding the flow, but you must give appropriate credit. You will need code to create the network flow instance and to translate the solution to a vertex cover.
2. Do not prompt for a file name. Use a shell redirect (<) to access test case files.
3. Your submission should have the debugging trace turned off.
4. The network flow code you use must use adjacency lists.