CS431: Assignment 4
Deadline: 11.55PM 08 October 2013

Submission Procedure: Email your prolog program and test cases as attachment to < asahu AT iitg.ernet.in> and name of the attached file should be #RollNo.Assign4.CS431.pl

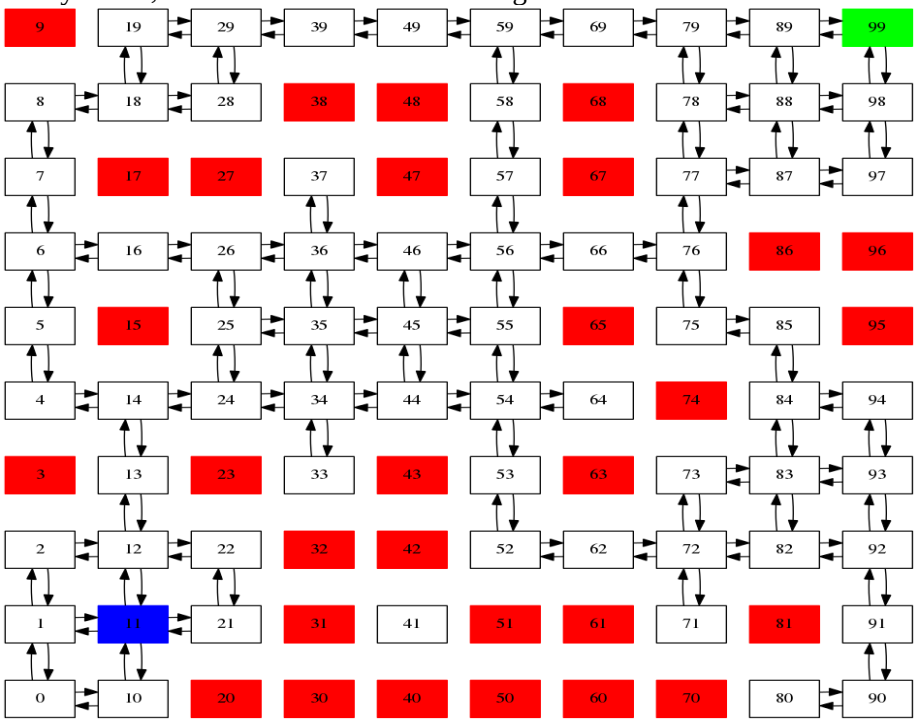
Simple but efficient Rule: Copy case Lead to F grade.

Assignment Statement:

Define a Prolog procedure "**shortest_path (src, dst, Result)"** that find shorted path solution in the maze (or grid with faulty node), where maze (or grid with faulty node) having possibly more than one path from source to destination.

Maze routing and finding path is ***discussed in CS431 Prolog Tutorial 3. You can refer Page 211 or chapter 8 of this Ebook*** ***http://www.covingtoninnovations.com/books/NLPPP.pdf*** ***or http:// jatinga.iitg.ernet.in/~asahu/cs431/NLPPP.pdf***

We can correlate this Maze problem to fault tolerant shortest path routing from a source node to destination node in Mesh network with some faulty nodes. Example given bellow shows a mesh/grid with some nodes are faulty nodes. No path can be established through faulty node. We need a find shortest path which passes **not though these fault nodes (we can simply exclude link to these nodes)**. Red nodes are faulty nodes, blue node is source node and green node is destination node.



Test Cases Generation for Maze (or Grid with some faulty nodes)

You can generate this kind of test files (Graphical PNG file) and prolog facts specifying a grid/maze with faulty node by a C++ program given at http://jatinga.iitg.ernet.in/~asahu/cs431/generateMaze.cpp
This generate two files: graph1.png and Mazedata.pl

No need to show the out put shortest path graphically. Textual output is sufficient