HOMEWORK #4, MATH 441, FALL 2018

JOEL FRIEDMAN

Please note:
(1) You may work collaboratively on the software in this assignment, but you must **make your own comments** and run your software individually.
(2) You must acknowledge with whom you worked. You must also acknowledge any sources you have used beyond the textbook and class material.
(3) In all these problems you must **justify your answer** and **make comments on your software** so that it can be read.
(4) Submit the entire homework as a single PDF file to `canvas.ubc.ca`.

Homework Problems

Recall from Homework 2 what is meant by a Latin square puzzle.
(1) Solve the following Latin square problem using optimization software:

$$
\begin{array}{ccccc}
1 & ? & ? & 3 & ? \\
? & 1 & ? & ? & ? \\
? & ? & ? & ? & ? \\
? & ? & ? & ? & ? \\
? & ? & ? & 2 & ?
\end{array}
$$

If you are using Gurobi (i.e., the Gurobi shell, Python with Gurobi, C++ with Gurobi, etc.) you must use .addVars and .addConstrs, i.e., **the commands to add variables and constraints that end with an "s"** when you are adding decision variables and writing repetitive constraints.

Department of Computer Science, University of British Columbia, Vancouver, BC V6T 1Z4, Canada, and Department of Mathematics, University of British Columbia, Vancouver, BC V6T 1Z2, Canada.

E-mail address: jf@cs.ubc.ca or jf@math.ubc.ca
URL: http://www.math.ubc.ca/~jf