In this assignment, you will explore the concept of dimension: how it comes about through use of the Exchange Lemma, and how other concepts such as rank, independence, direct sum, and matrix invertibility can draw on it.

To complete this assignment, please carefully follow the following instructions:

- 1. Download the detailed instructions for this assignment, Dimension\_problems.pdf
- 2. Download the stencil, Dimension\_problems.py, for this assignment, and move it into your matrix folder.
- 3. You do not need to submit anything marked ungraded.
- 4. Support code and data resources can be found at the Coding the Matrix Resources page. Here, you will find independence.py, solver.py, and triangular.py. Please make sure you have these files before you start the assignment.
- 5. For each problem/task,
  - 1. Test out your solution in the Python REPL;
  - 2. Copy your solution into the stencil file Dimension problems.py;
  - 3. Submit your solution by opening a console window, navigating using cd to the matrix folder, and entering the command python3 coursera\_submit Dimension\_problems.py. The script will ask for your username and password. They are located on the assignments page.

You can use the submit command to submit solutions for as many tasks as you like at one time.

Have fun!

