CME211 Lecture 0 - Text Files

A **text file** is simply a sequence of characters that can be opened by any **text editor**. In scientific computing and data science applications, text files can be used for a variety of tasks:

- Publication and presentation with LaTeX (`.tex` file extension)
- Dataset storage in comma-separated value files (`.csv`)
- Object serialization with JSON (`*.json`)
- Websites (`.html`)
- Graphics with tools like SVG or TikZ
- Source code in any language, CME211 will use Python (`.py`) and C++ (`.cpp`)
- Tools for 3d models
- Commonmark/Markdown for many things (`.md`)
- Software build systems with GNU Make or CMake
- Music notation (note: the author of these notes knows very little about music composition)

One benefit of working with text files is that they can be checked into version control systems and easily compared to previous versions. It is also possible to check binary files into a version control system, but it is not as easy to find the differences from previous versions.

A few examples of binary files: `.zip`, `.jpg`, `.xls`, `.docx`.

Text Editors

Text editors that work in a terminal:

- Emacs: https://www.gnu.org/software/emacs/
- Vim: http://www.vim.org/
- GNU Nano: https://www.nano-editor.org/

GUI Based text editors:

- Atom: https://atom.io/
- Visual Studio Code: https://code.visualstudio.com/
- Sublime Text: https://www.sublimetext.com/
- TextWrangler: http://www.barebones.com/products/textwrangler/ (macOS)