How to compile LaTeX files

LaTeX files can be edited and compiled locally on your personal computer. This is the preferred option for serious projects such as books, research publications and presentations. There are many free options for downloading and installing LaTeX on each operating system.

- Windows users can use MikTeX. See `miktex.org/`.
- Apple users can use MacTex. See `www.tug.org/mactex/`.
- Linux users may find LaTeX is already installed on their machine. If not, Debian or Ubuntu users can enter `sudo apt-get install texlive-full` in a terminal.

LaTeX files can also be edited and compiled on a third party web site such as `www.overleaf.com`. This is a fine option to get up and running quickly.

Use LaTeX by first opening and editing a plain text file. Save the file with the `.tex` extension. The `.tex` file can be compiled to produce a `.pdf` file using either `pdflatex` or `xelatex`. The choice of compiler is usually an option in a drop down menu in LaTeX software packages or, if using the command line, can be invoked by entering `pdflatex filename.tex` or `xelatex filename.tex` in a terminal. The `pdflatex` option is faster and more established, but the `xelatex` option is better at handling fonts.

I use Emacs with the Auctex package to edit `.tex` files and compile with `xelatex`. This is probably the best way to write LaTeX code, but requires knowledge of Emacs and is not for beginners.