# Quick Latex Setup Up

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## Structure

Changes are much easier if the construction of the document is structured. Create a directory named `img/` to store images and another one named `tex/` to store the tex files themselves.

Have a `main.tex` defining the type of document, title and packages. This file also calls the tex files from `tex/`, as well as printing the bibliography. An example follows:

```
1  %%%%%%%%%% How To Latex %%%%%%%%%%
2  \documentclass[10pt, a4paper]{article}
3
4  % Load packages
5  \usepackage{mystyle}
6
7  % Title
8  \author{by John Doe}
9  \title{Quick Latex Setup Up}
10 \date{}
11
12 \begin{document}
13
14 \maketitle
15
16 \input{tex/basic.tex}
17 \input{tex/build.tex}
18
19 \printbibliography
20
21 \end{document}
```

The packages are imported in the `mystyle.sty` file, which reads (for instance) as follow:

```
1  % Styling definition
2  \ProvidesPackage{mystyle}
3
4  % use Unicode for input encoding
5  \usepackage[utf8]{inputenc}
6  % and T1 for font encoding
7  \usepackage[T1]{fontenc}
8  % Portuguese specific (maybe not)
9  % \usepackage[portuguese]{babel}
10 % Use smaller margins
11 \usepackage[a4paper, margin=1in]{geometry}
12 % math packages
13 \usepackage{amsmath}
14 \usepackage{amsfonts}
15 \usepackage{amssymb}
16 \usepackage{commath}  % for \norm and \dif $
17 \usepackage{mathtools} % for \coloneqq
```

```
18  % import external graphics
19  \usepackage{graphicx}
20  % allow figure tables
21  \usepackage{subcaption}
22  % format and highlight source code
23  \usepackage{minted}
24  % needed for minted to work properly
25  \usepackage{xcolor}
26  % modern bibliography manager
27  \usepackage{biblatex}
28  \addbibresource{references.bib}
```

Images like the one shown in Figure 1 are stored in `img/`.



Figure 1: An image

The directory `tex/` on the other hand stores tex files such as this one (`basic.tex`), which are loaded using the `\input{}` command from inside `main.tex`.

The bibliography is stored in the bib file `references.bib`. The bibliography manager is loaded and references[1] are added in the last two lines in the sty file.

# Building

The easiest way to build the document is using the latexmk command. In case the `minted` package is used (as in this document), the syntax is as follows:

```
latexmk -shell-escape -pdf main.tex
```

otherwise the `shell-escape` option can be dropped. This command will call `latex`, `bib`, and whatever else is necessary as many times as needed. Clean up can be performed calling a script such as `cleanup_tex.sh`:

```bash
#!/bin/bash
rm --force *{aux,log,bbl,blg,bcf,xml,fls,fdb_latexmk}
```

# References

[1] Jorge Nocedal and Stephen Wright. *Numerical optimization.* Springer Science & Business Media, 2006.