Introduction to LaTeX: Basic typesetting

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1 Introduction

Today's workshop will introduce a lot of the basics of LaTeX. The goal by the end of the hour is for you to be able to typset a basic document. Some of the more sophisticated features—including those that you'll need for a full dissertation—will be covered in later workshops. Of course, there are countless tutorials and helps available to you online.

It is assumed that you already have some way to use LaTeX. You can do this on your own computer with a variety of software packages (Atom, TeXStudio, TeXShop, etc.) or you can do it entirely online using Overleaf.com. The concepts that will be covered today will apply regardless of which software you use. If you need help, please get my attention as soon as possible.

2 Basic document structure

To get started, the most basic structure you'll need in a LaTeXfile is this:

```
\documentclass{article}
\begin{document}
  ...
\end{document}
```

Everything before the `\begin{document}` line is called the *preamble*, and it's where you'll put information to customize your document. Everything after that (but before `\end{document}`) is the body of your text, and that's where you'll do most of the typing. For now, we'll leave the preamble alone and we'll just start typing stuff in the body.

3 Basic text

Once you're in the body of your document, you can type almost whatever you want. If you're considering switching over from Word to LaTeX, for example, the

vast majority of what you copy and paste over will transfer just fine. However, there are a few things to consdier.

First, to make a new line in LaTeX, you need to hit enter twice, so that in your text editor there is a blank line between paragraphs. If you only hit enter once, LaTeXwon't know that you want to do a new line and it'll actually continue from the previous paragraph. Here's an example with what your code might look like on the left, and what the PDF might look like on the right (this template of code + PDF will be used throughout this document):

```
Paragraph one.
Paragraph two.

Paragraph three.
```

Paragraph one. Paragraph two.
Paragraph three.

By default, LaTeXwill do some indentation for you at the start of each paragraph. You can suppress indentation for a paragraph by putting `\noindent`. just before it:

```
This is a very short paragraph
but it is long enough to show
that it's indented.

\noindent
This paragraph is slightly
shorter and it's not indented.
```

This is a very short paragraph but it is long enough to show that it's indented.
This paragraph is slightly shorter and it's not indented.

4 Special characters

4.1 Non-word characters

There are a few characters that will cause you some trouble in LaTeX. These are characters like \, %, &, and a few others. They won't display properly because they are reserved for specific purposes within the LaTeXlanguage itself. For most of these, you can just precede the symbol with a backslash (\). For the backslash itself, you'll need to use `\textbackslash`.

```
Made up numbers are used in
\LaTeX documents 75% and 90%
of the time!

But, almost 100\% of the time
it doesn't matter!
```

Made up numbers are used in LaTeXdocuments 75
But, almost 100% of the time it doesn't matter!

One thing that may not be intuitive is how quotation marks work. Because English text typically uses the curly quotes (“...”) instead of straight quotes ("..."), we have to type opening and closing quotation marks differently. For

opening quotes, use the tick ‘ character (which is found to the left of the 1 key on my keyboard). For closing quotation marks, use just the regular apostrophe. For double quotes, just two two ticks or two apostophes. There's not need for the actual double quotation character. For apostrophes, just use the apostrophe.

```
I overheard her say, ‘‘And
he’s like, ‘I don’t believe
you!’.’’
```

I overheard her say, “And he’s like, ‘I don’t believe you!’.”

Finally, for en-dashes, which are for ranges of numbers and a few other special cases, type two hyphens in a row. For em-dashes, type three hyphens in a row. For a regular dash or hyphen, just one will do fine, as expected.

```
Kelly single-handedly made
4--5 dozen New York--style
bagels and they were---and I
cannot stress this enough---
heaven-sent.
```

Kelly single-handedly made 4–5 dozen New York–style bagels and they were—and I cannot stress this enough—heaven-sent.

4.2 Non-English characters

For accented, non-English, or other less-common characters, you may have to play around with them. Most accented characters will render just fine in LaTeX, which means you can feel free to type naïve, résumé, japapeño, vis-à-vis, tête-à-tête, façade, Māori, and háček. For other characters that are more specialized or are non-Latin based, you may have to resort to add-on packages to get them to render properly. The first one to check is the babel package, which has support for over 200 languages, including Arabic, Cherokee, Chinese, Devanagari, Georgian, Greek, Hebrew, Persian, Faroese, Japanese, Korean, Russian, Sanskrit, Vietnamese, and a whole bunch more.

5 Changing the text

5.1 Fonts

In addition to being able to type whatever you want, it's important to also be able to format that text. You can use **bold** with `\textbf{}` and *italics* with `\textit{}`. There is also a *slanted text* with `\textsl{}` in case you need that.

```
This is \textbf{bold}.
This is \textit{italicized}.
This is \textsl{slanted}.
```

This is **bold**.
This is *italicized*.
This is *slanted*.

Also, note that these functions can be embedded within one another so that to do ***bold italics*** you can type `\textbf{\textit{bold italics}}`.

5.2 Captitalization

You can also adjust the capitalization of your text. Note that these commands ignore whatever case your original text is in and displays them correctly.

```
This is \uppercase{upPerCase}.
This is \lowercase{loWerCaSe}.
This is \textsc{Small Caps}.
```

This is UPPERCASE.
This is lowercase.
This is Small Caps.

Note that if you have accented characters that need to change case, try `\MakeUppercase{}` and `\MakeLowercase` instead.

5.3 Typefaces

It may also be important to change font families. Body text is usually written in a serif font, which is one that has the little tails and horizontal embellishments on the letters (called *serifs*). To force text to be in a serif (or *roman*) font, you can use `\textrm{}`. Headers are often typed in a sans serif font. Computer code is often typed in a `typewriter` or `monospaced` font:

```
This is a \textrm{serif} font.
This is a \textsf{sans serif} font.
This is a \texttt{typewriter} font.
```

This is a serif font.
This is a sans serif font.
This is a `typewriter` font.

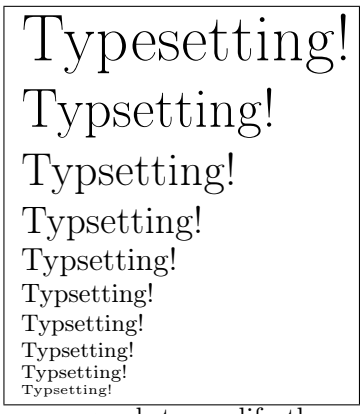
5.4 Size

Finally, it may be important to change the font size. While this is not done very often within the body of a document, it's good to be aware of the options.

First off the default size of the text is 10-point font. But you can change it to something different by adding some additional information in the very first line of your document: `\documentclass[11pt]{article}` will change it to 11-point font, for example. As with most other things in the preamble, this change will modify your entire document.

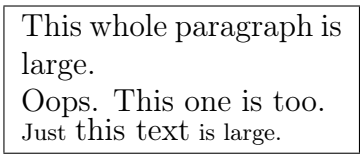
The easiest way to *change* sizes is by using one of several built-in commands for changing the size relative to the normal size. The benefit of this is that if you ever need to change your font size, these changes will scale up or down proportionally.

```
\Huge Typesetting!
\huge Typsetting!
\LARGE Typsetting!
\Large Typsetting!
\large Typsetting!
\normalsize Typsetting!
\small Typsetting!
\footnotesize Typsetting!
\scriptsize Typsetting!
\tiny Typsetting!
```



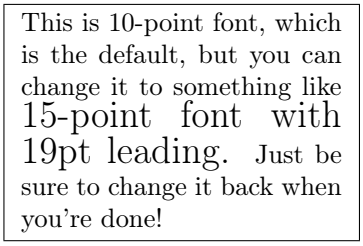
For these, you can put them at the beginnning of a paragraph to modify the entire paragraph (and any subsequent paragraphs until another size change), or you can put them in brackets to modify just a specific word or two:

```
\large
This whole paragraph is large.

Oops. This one is too.

\small
Just {\large this text} is large.
```



Of course you can manually set the font size to a specific size if you'd like. This is accomplished with the template `\fontsize{}{}\selectfont`. Within the first pair of curly brackets, you put the size and the unit (points = `pt`, millimeters = `mm`, centimeters = `cm`, inches = `in`, whatever). Within the second pair, you need to specify the *leading*, which the typographical term for the line spacing, because when you change font size you're probably going to want to change the spacing. Typically, you give it a little extra spacing so that it doesn't run into the line above it.

```
This is 10-point font, which is
the default, but you can change
it to something like
\fontsize{15pt}{19pt}\selectfont
15-point font with 19pt leading.
\normalsize Just be sure to change
it back when you're done!
```



6 To-Do

1. lists
2. centering and alignment
3. vertical and horizontal spacing
4. sections
5. accents, dashes & hyphens, quotation marks

Things I won't get to, but would like to.

1. Change paragraph indentation with `\setlength{\parindent}{1cm}`. Note that the default is 15 points. You can change it to not indent something with `\noindent`.
2. tables