CS101
XeTeX Worksheet Test

Tutorial Class 1

John Doe A0123456Z

February 1, 2020

1 Section

1.1 Subsection

1.1.1 Subsubsection

Introducing LaTeX

As a Computer Science undergraduate, one needs to be able to learn many new technologies on the go. One particular technology that I learnt that I want to *emphasize* is **LaTeX** (stylized as LaTeX, pronounced "*Lah-Tek*"). Here's an excerpt from Wikipedia on LaTeX:

> LaTeX is a document preparation system. When writing, the writer uses plain text as opposed to the formatted text found in WYSIWYG word processors like Microsoft Word, LibreOffice Writer and Apple Pages.

Using LaTeX's inherent typesetting makes producing aesthetically pleasing documents *just look better*. Not only that, it works on Windows, Apple and Linux operating systems and is completely free! It might look daunting at first, but with a bit of grit, one will realise how easy LaTeX is to operate.

Syntax Here are some of the word formatting options that you can use to add versatility to your text using this template and LaTeX:

- "`\textsf{...}`" Lighter font
- **"`\texttt{...}`" `Monospaced font`**
- *"`\textit{...}`" Italicized*
- **"`\textbf{...}`" Bold**
- "`\textsc{...}`" SMALL CAPITALISED FONT
- "`\UPPERCASE{...}`" UPPERCASED
- Lists:
    1. You can add numbered lists using the command "`\begin{enumerate}`" and "`\end{enumerate}`". Items can be generated using "`\item`".
    2. Otherwise, typical unordered lists can be generated using "`\begin{itemize}`" and "`\end{itemize}`".

You can also use various commands to edit the alignment of blocks of texts:

Centered - "`\centering`"

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like not at all!

Flushed Left - "`\flushleft`"

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like not at all!

Flushed Right - "`\flushright`"

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like not at all!

It is easy to manipulate the alignment of text blocks!

Typesetting for mathematical equations

More notably, LaTeX is amazing for typesetting mathematical equations. By simply enveloping equations in $, you can create neatly formatted mathematical equations. Here is a small example for what you can do:

- Simple Equations: $f(x) = x^2 + \dots$
- Integrals: $F(x) = \int_b^a \frac{1}{3}x^3$
- Matrices: $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
- Fractions: $\left(\frac{1}{\sqrt{x}}\right)$
- For more formatting options, see this link.

More about TEX, LATEX, XeTeX and XeLaTeX

To be more precise, LATEX is actually built on TEX, a typesetting system built mostly by Donald Knuth in 1978. While TeX is the actual typesetting system, LaTeX is actually a set of macros that allows people to quickly build their documents without having to worry about tables, sections, etc. LaTeX files can then be compiled by several engines such as pdftex into a PDF output. XeTeX is an extension to TeX, allowing unicode input and other typesetting features, which uses XeTeX engine. The command to invoke the XeTeX engine is `xelatex` which has caused some confusion regarding the nomenclature. To see more, see this post.