INSTALLING LaTeX ON YOUR MACHINE

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November, 2019

LaTeX, pronounced *lay-tek* or *la-tek* (but NOT *lay-teks*!), is a programming language. Thus like any other programming language, when we speak of "installing" the language, what we actually mean is installing a piece of software called a *compiler* for that language. A compiler translates the code we write in the LaTeX language into a page description language, such as PDF or postscript, which can then be viewed in PDF readers such as Adobe Acrobat.

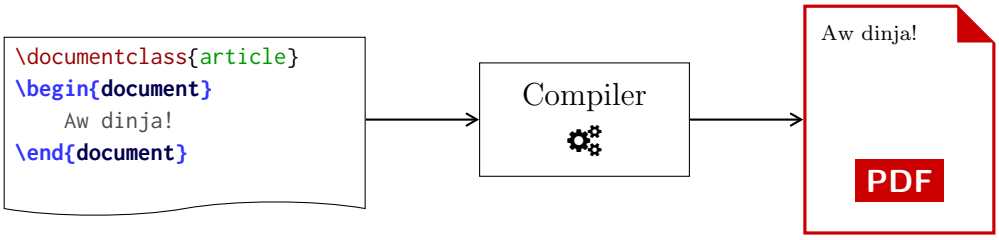

Figure 1: What a LaTeX compiler does

The compiler we will be using to produce PDF documents from LaTeX source code is called pdfLaTeX. There are different ways to get pdfLaTeX, and these differ from one operating system to another.

In truth, the situation is not as simple as we have made it out to be. LaTeX is a document preparation system which runs on top of Donald Knuth's TeX typesetting system, and thus we actually need a TeX compiler too, among

other things. Luckily, programs called *TEX distributions* exist which bundle together all necessary parts needed for a working TEX system, and nowadays these all contain pdfLATEX.

So now we will describe how to go about obtaining a TEX distribution for different operating systems.

For Linux Users

For Linux, the best option is to install the `texlive` distribution. This distribution comes in various forms, but the best for a beginner is one of the following:

- `texlive-latex-extra` (404MB)
- `texlive-full` (4.7GB)

The former will download most of the things we need, the latter will download practically all commonly used LATEX packages onto your system (including *edgy* things like Japanese language packs, etc.). The choice is mainly a matter of disk space on your machine.

If you use a Debian based Linux distribution (such as Ubuntu), then open a terminal (ctrl+alt+T), enter the command

```
sudo apt install texlive-latex-extra
```

(or `texlive-full`, based on your choice) and hit enter.[1] This will download the relevant packages and install the distribution. When you're done, run

```
pdflatex
```

in a new terminal, and you should get an output like

```
This is pdfTeX, Version xx (TeX Live 20xx/Linux Distro)
```

Hit ctrl+C to exit.

If this method of installing `texlive` isn't working for you, there are other options available.[2]

[1] If you use other versions of Linux, such as Arch, then look at the ArchWiki for more information: https://wiki.archlinux.org/index.php/TeX_Live

[2] See https://tug.org/texlive/.

Next, you'll need an editor. Any ordinary text editor such as `vim` will do, but to keep compilation simple, a TEX IDE is preferable. You can download TEXStudio on Debian based distributions by running the following commands in order (hit enter after each one).

```
sudo add-apt-repository ppa:sunderme/texstudio
sudo apt-get update
sudo apt-get install texstudio
```

Once this is done, you should be able to find the program TEXStudio installed on your system. Open it up, create a new TEX file (ctrl + N) and enter the following code:

```
\documentclass{article}
\begin{document}
    Aw dinja!
\end{document}
```

and hit F5 on your keyboard. You should see a document output with the text "Aw dinja!".

For Windows Users

On Windows, there are two main contenders for the choice of TEX distribution, namely, `texlive` and MikTEX. The latter has the advantage that it downloads packages which are needed on the fly (over internet) rather than downloading thousands of packages which you may never use upfront, like `texlive` does. For the sake of simplicity, we suggest you download `texlive` for now, but you can take a look at MikTEX if you like (`https://miktex.org/`).

`texlive` comes in various forms, but the best for a beginner is one of the following:

- `texlive-latex-extra` (404MB)
- `texlive-full` (4.7GB)

The former will download most of the things we need, the latter will download practically all commonly used LATEX packages onto your system (including *edgy* things like Japanese language packs, etc.). The choice is mainly a matter of disk space on your machine.

You can install `texlive` by downloading the `install-tl-windows.exe` file by clicking the relevant link at

https://tug.org/texlive/acquire-netinstall.html.

Run the installer, and it should guide you step-by-step on the installation (the usual Next, Accept, Next, Finish procedure). At some point you will be asked which of the two versions (extra vs. full) you prefer.

Once you've installed `texlive`, you'll need an editor. Any ordinary text editor such as `vim` or `notepad++` will do, but to keep compilation simple, a TEX IDE is preferable. You can download TEXStudio by clicking "Download" at

https://sourceforge.net/projects/texstudio/.

Run the installer, and it should guide you step-by-step on the installation (the usual Next, Accept, Next, Finish procedure). Once this is done, you should be able to find the program TEXStudio installed on your system. Open it up, create a new TEX file (ctrl + N) and enter the following code:

```
\documentclass{article}
\begin{document}
    Aw dinja!
\end{document}
```

and hit F5 on your keyboard. You should see a document output with the text "Aw dinja!".

For Macintosh Users

The TEX distribution for Macintosh is called MacTEX. You can download it by clicking on `macTeX.pkg` at

https://tug.org/mactex/mactex-download.html.

After downloading, move the file `MacTeX.pkg` to the desktop or another convenient spot, and double click it to install. Follow the straightforward instructions. Installation on a recent Macintosh takes about ten minutes.

At the end of installation, the installer will report "Success." But sometimes, the installer puts up a dialogue saying "Verifying..." and then the install hangs. In most cases, rebooting the Macintosh fixes this problem. After the reboot, install again.

Once you've installed MacTEX, you'll need an editor. Any ordinary text editor such as `vim` will do, but to keep compilation simple, a TEX IDE is preferable. You can download TEXStudio by clicking "Download" at

http://texstudio.sourceforge.net/.

and scrolling down to the "Mac OS" section.

Run the installer, and it should guide you step-by-step on the installation (the usual Next, Accept, Next, Finish procedure). Once this is done, you should be able to find the program TEXStudio installed on your system. Open it up, create a new TEX file (⌘+N) and enter the following code:

```
\documentclass{article}
\begin{document}
    Aw dinja!
\end{document}
```

and go to Tools > Build & View from the menu. You should see a document output with the text "Aw dinja!".

If you got stuck: An Online TEX IDE

Alternatively, you can make use of Overleaf, an in-browser IDE for LATEX which requires an active internet connection. Visit

https://overleaf.com,

and register for an account. Once you do that, create a blank project, (call it anything you like), and enter the IDE. Delete the code in the middle column, type

```
\documentclass{article}
\begin{document}
    Aw dinja!
\end{document}
```

and hit Recompile.