Writing in the Major Lab (CS 296)

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This document describes basic tools and elements of LaTeX one needs to start working on a paper. LaTeX fundamentals are described in [1] and [3].

1 TOOLS

1.1 tex-live

You are going to need `tex-live` package to work with LaTeX. It is a multi-platform TeX document production system[2] that comes packed with various tools you may use to compile your file. You can also use GUI tools like *TeXShop* (macOS), *Kile* (multi-platform), *Texmaker* (multi-platform), or *LaTeX Workshop* for *VS Code*.

```
sudo apt install tex-live
```

Listing 1. Installing tex-live

1.2 Kile

Kile is an IDE for LaTeX that allows you to compile, convert, and preview your document.

```
sudo apt install kile
```

Listing 2. Installing Kile

1.3 LaTeX Workshop for VS Code

If you prefer *VS Code* to write code, install the *LaTeX Workshop* extension to write your LaTeX, build (compile) it, and generate (preview) the resulting PDF.

1.4 Lucid chart

While professional tools like *OmniGraffle* (macOS) or *Visio* (Windows) are usually used to create diagrams, *Lucid chart* should be sufficient for the purposes of this paper and it is free. You should not include photos in your paper but rather draw diagrams and generate charts[1].

2 STRUCTURE

The main goal of this course if for you write a scientific paper while using proper tools and methods. Your paper is going to be a survey/review of existing sources and should not exceed 7 pages. You should use class *article*.

The paper should include at least the following sections:

- Introduction
- History of the subject
- Prominent features
- Conclusion
- References

[1] Use *Excel* or *Spreadsheets* for charts

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3 TIMELINE

You are expected to stick to the schedule specified on KATIE (see Table 1 in the Appendix).

4 ADVANCED ELEMENTS

4.1 Math

Your paper may include mathematical formulas. They can appear *inline* (e.g. $i^2 = -1$ or $E = mc^2$) or in *display* mode.

$$F = G\frac{m_1 m_2}{r^2} \tag{1}$$

or

$$a^2 + b^2 = c^2$$

4.2 Code

An easy way to include code is to use package `listings` and have your code in a separate file. Other options (e.g. package `minted`) are acceptable too but may require additional tools.

```
1 def hello():
2     print("Hello, Panda!")
```

Listing 3. `hello` from file

You can also include code in the body of your document.

```
def hello():
    print("Hello, Panda")
```

Listing 4. `hello` inline and with different options

4.3 Image

An image (see Figure 1) or a chart can be inserted into the document.

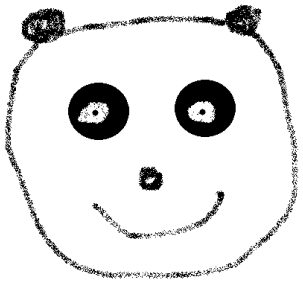

Fig. 1. Panda

4.4 Fancy text

Text reflected horizontally. Text reflected vertically.

REFERENCES

[1] [n. d.]. *Learn LaTeX in 30 minutes - Overleaf, Online LaTeX Editor.* Retrieved 10/22/2019 from https://www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes

[2] [n. d.]. *TeX Live - TeX Users Group.* Retrieved 10/22/2019 from https://www.tug.org/texlive/

[3] Tobias Oetiker, Hubert Partl, Irene Hyna, and Elisabeth Schlegl. 1995. The not so short introduction to LATEX2ε. (1995).

APPENDIX A

Table 1. Tentative schedule

Task	Week	Points
Watch LaTeX video	1	5
Propose the topic	1	10
Discover library	2	5
Find the sources	2	10
Prepare the outline	3	10
Submit the first draft	4	25
Meet the instructor	5	5
Submit the final draft	7	20
Present the paper	8	10