COMP00900 – Practical Introduction to LaTeX

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In this exercise you are going to write some documents using LaTeX. You need to learn how to make basic use of this tool, but your main aim should be to think about this different way of preparing documents – what is it good at, what is it bad at, and when should you use it.

You should write *brief* notes about how LaTeXworks and what commands you used inside the source of your documents (you will need these notes later).

1   Introduction

LaTeX is a document preparation system which is fundamentally different to any you are likely to have seen before (e.g. Microsoft Word). It is widely used by clever people who are quite rightly more concerned with the *content* of their documents than the layout, but who also want a professional looking result with hardly any effort. Rather like the idea of dictating a letter to a trusted secretary – you know he or she will do a good job with the *presentation* of the letter, so you can concentrate on its contents.

So, you can already see two reasons for wanting to learn LaTeX.

1. One of the main points of being at University is to learn *different ways of thinking*.

2. You are a clever person and you want to benefit from the power and convenience of LaTeX.

Of course, nothing really worth having is ever free – one has to earn it. You will have probably spotted the following recurring pattern. To perform certain tasks, we often have the choice between two approaches. The first allows us to get started straight away – it is novice friendly, but does not allow us to 'grow' much expertise to get better and faster. Or, we can adopt an approach which is inherently more powerful, but which needs a learning curve before we can get started. The file browser versus the command line is an example of this principle.

By the time you get to write your third year project report, you will almost certainly want to use LaTeX. Indeed, that might well be the point at which you will gain the *most* benefit from it throughout your studies here. What you do not want is to be having to learn LaTeX *at* that point – it will be stressful enough without that extra burden. So, we are embarking you on a programme of learning LaTeX more gradually.

the explanatory document that goes with your project plan, and for

2 Getting started

- Create the directory `COMP00900/latex` in your home (starting) directory, and make it your current one.

- Copy the file `$COMP10120/ex3/latex-intro.tex` to your current directory.

- Read the first part of this file. You are not going to edit the file but even so you should use an editor that provides "syntax highlighting" to distinguish the different parts of the document (e.g. mark-up, comments, and text). For example, you could use `nedit` or `gedit`. (If you use `gedit`, you may need to use the "`view`" menu to set the "`highlight mode`", via "`markup`", to be "LaTeX".)

- Follow the instructions in the file to 'bootstrap' your learning of LATEX. Don't forget to write brief notes as you proceed throughout this exercise, in particular focusing on things which are new to you.

Note that if you search on the Web for LATEX you may find a number of tools that provide a GUI front end with a WYSIWYG style. You are *strongly* advised against using such tools at this stage (and maybe forever) – they miss the point of what LATEX is about, and you certainly do not want to.

Internet search will help you to solve virtually any LATEX related problem. The LATEX user community is huge. One brilliant overview document to look at is: "*The Not So Short Introduction to LATEX* " by Tobias Oetiker

LATEX comes typically with all Linux distributions for PCs. Windows users can install the MiKTeX environment. There are plenty of LATEX editors and development environments available. I personally found TeXnicCenter to be very productive for beginners.

When you feel ready, proceed to Task 1.

3 Task 1: A reflection on your studies

Your first LATEX document will be a very brief reflection on some of your studies since last September.

You will work in COMP00900/latex. Write a hand-crafted LATEX document called `courses-reflection.tex` . It will have the following structure.

1. Appropriate title including author and date.

2. Table of contents.

3. A brief paragraph saying what the document is about.

4. A section, appropriately titled, for one of your course-units, containing:

   - A brief paragraph saying what the course-unit is about. This will contain a **citation** referring to the URL of the course-unit syllabus page (or a page that describes it, or a Blackboard site for it, or whatever else that you can find).

- A sub-section, appropriately titled, containing an **enumeration** of the three things you like the most about the course-unit.

- A sub-section, appropriately titled, containing an **enumeration** of the three things you like the least about the course-unit.

5. A repeat of item 4 for at least another of your course-units. These sections should appear in alphabetical order by course-unit name.

After completing and successfully 'compiling' and viewing your document, you should spell-check it as follows.

```
ispell courses-reflection.tex
```

Once you are completely satisfied with it, produce a hard copy to show to us.

Finally, produce an HTML version of your document and view it, as follows.

```
latex2html courses-reflection.tex
ls -l courses-reflection
firefox `pwd`/courses-reflection/index.html &
```

4   Task 2: Arguments about Command User Interfaces

We want you to produce LaTeX documents that compare Graphical User Interfaces (GUIs) for performing commands (e.g. a file browser) with Command Line Interfaces (CLIs) (e.g. the bash shell, that you used in the introduction to Linux). In particular, we want you to outline the pros and cons of GUIs: by "pros" we mean the ways in which GUIs are better than CLIs, and by "cons" we mean the ways in which CLIs are better than GUIs.

We want you to make use of `http://www.computerhope.com/issues/ch000619.htm` but feel free to add your own ideas, or ideas from other sources, such as `http://www.softpanorama.org/OFM/gui_vs_command_line.shtml`.

You will create three LaTeX documents which have two shared parts in common. All together you will create five files as follows.

1. `pros-and-cons.tex` This will be a document that contains the pros and cons of Graphical User Interfaces (GUIs). It will contain an introduction, a section listing the pros, another section listing the cons and finally a section concluding the balanced argument.

2. `for.tex` This will be a document that contains only the pros of GUIs. It will contain an introduction, a section listing the pros and finally a section concluding the argument for GUIs.

3. `against.tex` This will be a document that contains only the cons of GUIs. It will contain an introduction, a section listing the cons and finally a section concluding the argument against GUIs.

4. `pros.tex` This will be a piece of LaTeX (not a full document) that will be included in the first and second document.

5. `cons.tex` This will be a piece of LaTeX (not a full document) that will be included in the first and third document.

Just to be clear, you will *not* cut and paste the pros and cons lists into the two documents they each finally appear in. Instead you will arrange for the file containing each list to be *input* by the two documents. The idea here is that if you think of more pros or cons, or wish to change the wording of any, you can edit the corresponding single file, and the changes will appear in both documents that use it. You will need to find out how to make a LaTeX source file input another one.

The introduction for each of your documents should be similar to that in task 1 i.e. an appropriate title including author and date, a table of contents, and a brief paragraph saying what the document is about.

As usual, please remember to reference your source(s) of information at the end of your documents, and to make clear exactly which text is quoted verbatim and which is in your own words.

Once you are completely satisfied with your documents, produce hard copy to show to us.

4.1 Optional, but instructive

Include not only your own pros and cons in your document, but also the ones found by your other group members. Carry this out without copying files (by directly including those files into your document).

4.2 Optional, but fun

`http://www.softpanorama.org/OFM/gui_vs_command_line.shtml`
points to "In The Beginning Was The Command Line" by Neal Stephenson, which is an entertaining read.

5 Completing your work

Please tell Dirk when you have completed the tasks.