Inception: LaTeX Website

Software Atelier 1, Group 2

02 November 2018

Contents

1 Homepage, History, Sitemap, FAQs, Credits & Sources

(9-10 pages)

1.1 Homepage (1 page, owner: Aron Dalle Pezze)

Our current vision for our homepage is the following:

A parallax scrolling animation, first showing a poorly formatted, horrible Microsoft Word document, with overlaid text saying,

> "Turn this..."
>
> "... into this"

Enter, via parallax, an image the same content (e.g. some lab report w/ tables, a photo, text) but formatted in beautiful LaTeX. There will be some number of menu, or sub-menu-style links in the header and footer, to the other associated sections.

1.2 History (3-4 pages, owner: Aron Forni)

This section will have the following:

- The creator(s?) of LaTeX, Leslie Lamport et al.
  - optional: embed a video presentation of Lamport's from YouTube?
- TeX, the precursor to LaTeX
- Some kind of comparison (comparing code input or rendered document output) between TeX and LaTeX.
- Other, different versions of LaTeX: are there compatibility issues?

1.3 Frequently Asked Questions (1 page, owner: Julian Prokofiev)

Similar to FAQ pages on other popular websites, we will present common questions or scenarios and advise what to do.

Example: **I need to learn LaTeX in one afternoon, what should I read?**

We'll know the answer to this by the time we finish our website :-)

1.4 Installation Guide (1 page, owner: Mejrima Smajilbasic)

Basically a re-hashing of other installation guides, but in our words, and hopefully addressing some of the common issues encountered when first installing LaTeX.

1.5 Sources/Credits (2 pages, owner: Mejrima Smajilbasic)

Source will provide citations for where we got our knowledge from, as well as the visuals.

Credits will be something like a "Meet the Team" page, group photo and all. :-)

2 Group Basic Syntax + Overview

2.1 Introduction

Our group will cover the Overview and the Basic Syntax of Latex. In this session we will discuss and decide what each of us will do and when will you finish it. Every pages need examples in form of image. Takes 2 screen shot, 1 for the latex code and 1 for the output and then include them into the html page.

The deadline for the first draft is Friday 9th of November. Further group meeting will be decided later.

2.2 Works to cover

- Create your first Latex document (1 page):
  A brief guide on creating a Latex document for the first time. The section will cover how to initiate a Tex document, how to compile it into pdf, displaying the title of the document, with some simple commands.
- Basic paragraph processing and comments (1 page):
  This part covers how to make a new line for a paragraph, how to indent/notindent a paragraph, and how to write comments on a Tex file.
- Fonts and Text processing (1 page):
  Text processing will include making your text bold, italic, underline, or emphasize.
- More on Fonts (1 page):
  A closer look on font: font families, font styles, and font sizes
- Format (1 page):
  Format session will cover length in Latex, header footer, and page numbering
- List (2 pages):
  Unordered list, ordered list, nested list and list styling will be covered.

- Links and HyperLinks (1 page):
  How to link within the document and how to include web link into your document
- Tikz Mindmap: A better Hello World (1 page):
  A small introduction to create your first mindmap on Latex
- Language support (1 page):
  How to make your Latex support the language you want.
- Common Errors (4 to 8 most common errors in 4 to 8 different pages):
  4 Most common errors on Latex that beginners make.

2.3 Work assignment

- Thuong Le (Ted) part:
  - Bibliography Management in Latex (1 page)
  - Biblatex citation styles (1 page)
- Marco Barabaschi part:
  - Create your first Latex document (1 page)
  - Basic paragraph processing and comments (1 page)
  - Fonts and Text processing (1 page)
  - More on Fonts (1 page)
- Federico Lagrasta part:
  - Formatting (1 page)
  - List (1 pages)
  - Language support (1 page)
  - Title section (1 page)
- Giulio Maria Catanese part:
  - Document class (3 pages)
  - Bibtex bibliography styles (1 page)

- Mejrima Smajilbasic:
  - Table of content and page numbering (1 page)
  - Footnote (1 page)

3 Graphics, Tables, Boxes

Carlo Bettelini (leader), Maxim Ryakhovskiy, Leonardo Cino, Tommaso Rodolfo-Massera

3.0.1 What is graphic?

This section will take up to 1-2 pages. Graphics are visual images or designs

on some surface, in our case LaTeX, to inform, illustrate, or entertain. In contemporary usage it includes: a pictorial representation of data. Images that are generated by a computer are called computer graphics. Examples of graphics are photographs, drawings, Line art, graphs, diagrams, typography, numbers, symbols, geometric designs, maps, engineering drawings, or other images.

3.0.2 Different kind of graphics on LaTeX

Each section will take up to one page.

3.0.3 CHARTS - Tommaso - 4 pages

- We'll explain what you can do with the most famouse packages: tikz, pgfplots and smartdiagram.
- 1-2 examples per package on how to use them to make charts.

3.0.4 IMAGES - Leonardo - 4 pages

- How to add images in LaTeX (includes graphics, width and height)
- How to place image (H, T, P).
- How to add caption to an image
- How to add border to an image

- How to rotate and scale back an image.

3.0.5 TABLES *(Owner: Maxim - 4 pages)*

- *Environment*
  In this section we will explain how to begin the table environment. The table environment is important, because it determinate the future representation of the table, like the lines between the rows and columns.
- *Multicolumn*
  The multicolumn option in the tables is used to unify columns in one unique column.
- *Positioning*
  The positioning is an important topic, especially for the content of the table.
  - *How the table is positioned in the page.*
    This little section will speak about the positioning the table in the page.
  - *How the content of the table is positioned in a cell (width, height for cell, aligning, etc).*
    In this section, we will speak about, how to position the content in the cell, for example: it can be in the middle of the cell (in vertical), in the top (in vertical). Also the content can be aligned horizontally to the left, right or middle.
- *Borders*
  Here we will explain essential elements of table's border, like the width.
- *Colour*
  In this small section, there will be some instruction how to change colour of the cells or the borders.

3.0.6 MAPS

Mind maps. This section will be linked to the section overview.

3.0.7 VECTOR DRAWING - Carlo - 2 pages

LaTeXDraw is an editor for LaTeX which allows the user to make custom draws.

3.0.8 TYPOGRAPHY (BONUS PART)

A typeface is a collection of letters. While each letter is unique, certain shapes are shared across letters. A typeface represents shared patterns across a collection of letters.

3.1 Main packages

Do not write any specific description for each package, but rather a possible implementation for each kind of graphic.

- Ticz provides a high-level user interface.
- PGF provides lower-level macros.
- PSTricks is a set of extensions, like graphic
- Graphic including external images
- Xcolor Adding colors to your text
- pgfplots a package for creating 2D and 3D plots of mathematical functions and numerical data, using the PGF graphics framework.
- Xy-pic a package for creating 2D and 3D plots of mathematical functions and numerical data, using the PGF graphics framework.
- ePiX creates PSTricks, tikz, or eepic macros.
- MetaPost Allows direct inclusion in a LaTeX file via the emp, gmp and mpgraphics package.
- MetaFun A set of (La)TeX macros providing an interface to MetaPost (or METAFONT).

- Mfpic A set of (La)TeX macros providing an interface to MetaPost (or METAFONT).

3.2 Designing a graphic

The final goal of this section will be to design a graphic of the website, or the section as a plan B, in order to represent a practical use of what we represented in this chapter.

4 Equations

Jacob Salvi, Alessio Giovagnini, Sasha Bagnovini, Jacopo C.

Preamble

Latex is especially useful to write academic papers that includes mathematical operations, for example:

$$x = \phi^2$$

It took me roughly 5 seconds to write this with latex, with other programs like Word or Page it would have taken me way longer. This simple example should show the appeal of using latex for academic papers. Another good point of Latex is flexibility, not only simple operations but also more complex stuff can be represented easily and quickly:

$$\sum_{k=1}^{n} k = \frac{k(k+1)}{2}$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \end{bmatrix}$$

In our part of the site we plan to explain how to use Latex to write mathematical expressions
For starting, we will explain how to represent the basics symbles needed to formally write mathematical expression, like the following example.

$$x : S \subset \mathbb{R} \mapsto f(x) = kx, \forall k \in \mathbb{Q}$$

Greek letters

$$\alpha\beta\gamma...\phi$$

And how to manipulate the mathematical envirment. We would also like to explain how to make in row sum. After reading this part the user should be able to write simple mathematical expression like sequences:

$$F_1 = 1, F_2 = 1 \quad F_n = F_{n-1} + F_{n-2} \quad \forall n \in \mathbb{N}, n \geq 2$$

We also plan to make exercise for each section so that the user can improve and try to do what he is learning. For this we need to put a black box that on hover will reveal the answer.

$$F_n = F_{n-1} + Fn - 2 \quad \forall n \in \mathbb{N}, n \geq 2$$

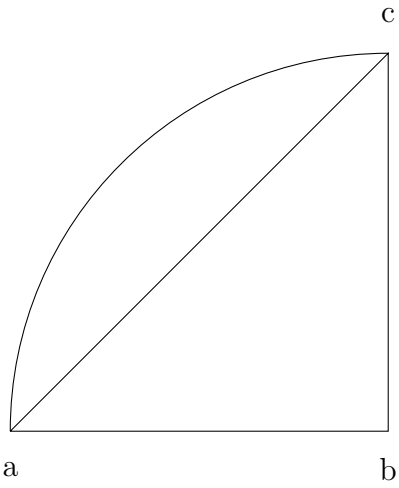
If this is not possible or if it conflicts with other part of the css we will put the answer in separated pages.

We will then explain how to make sum, and how to set up a proof with latex. For example Induction or proof by contradiction. How to represent limits, integrals and derivates, sin, exponential.

$$\int_a^b \sin \alpha dx$$

We will also include a page on how to make simples geometrical forms and

graphics:



At least another page will be used to explain how to make matrices and vectors.

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}$$

It follows our estimate for the number of pages for each topic.

basics	2 pages
mathematical environment	2pages
Proofs	2 pages
symbols	1 page
Matrix	2pages
Geometry	2pages
graphics	1-2 pages
Totalt:	12-13 pages

5 Packages

Davide Trupia (leader), Renato Iannace, Filippo Cesena, Andrea Di Micco, Jacopo Stucchi

5.1 Introduction

Our topics are the packages and types of documents in latex. In this document we will list the main points and decide what each of us will do. The idea that we had to talk about this topic is to list the most relevant packages that you can use in Latex and then list a sort of "TOP 5" of the most useful ones. To decide the main packages we will be based on the other groups' packages; so that the hypothetical student looking for something particular, that requires a package, in the website, will find the main features in the other groups pages and the specific use of that package in our pages. There will be also pages talking briefly about the main doctypes.

The deadline for this first part is Friday 9th of November. Will be set later other group meetings to talk about our ideas and structure of every page.

5.2 Topics

- ASM math and XY-pic packages (4 pages):
  This packages regards maths. In fact they are useful to have available all the fonts containing mathematical symbols, diagrams and matrixes.
- TiKz/Pgf, xcolor packages (4 pages):
  This package are useful to draw graphics, lines, dots, curves, circles, rectangles. Xcolor to add colors to your text or background.
- geometry, fancyhdr, quotchap, Todonotes packages (8 pages):
  They are all styles packages to have a better looking layout of your pages. The todonotes package is used to add notes and appear in the margin of the page.

- Hyperref, Babel packages + Document types. (3 pages)
  Hyperref is useful to create hyperlinks, Babel to use special characters in your page and has 100 of languages available. In this pages we will list briefly the main doctypes and their features.
- TOP 5 packages:(1 page)
  After documenting about our topics we decide together the "top 5" most useful packages.

5.3 Work assignment

- Renato Iannace part:
  - ASM math and XY-pic packages (4 pages)
- Filippo Cesana part:
  - TiKz/Pgf package and xcolor(4 pages)
- Andrea Di Micco and Jacopo Stucchi:
  - geometry, fancyhdr, quotchap, Todonotes packages (8 pages)
- Davide Trupia part:
  - Hyperref, babel packages and Doctypes (3 pages)
- WORKING TOGETHER:
  - "TOP 5" (1 page)

6 Quiz

Stefano Taillefert

6.1 Description

The goal of the quiz section (we can also give it a fancy name like "Test yourself" or something like that) is to provide the user a way to assess their LaTeX knowledge. On the first page, the user will be presented a set of multiple-choice questions for every section of the website, with increasing difficulty. Once finished, the user can see the results and his score on the second page.

Every team has to come up with 3-6 (?) questions about their topic, and submit them to Stefano, who will mark up the quiz pages and implement the required JavaScript or PHP.

7 Website Styling via CSS

Aron Dalle Pezze, Davide Trupia

7.1 Description

The site will have some padding in order not to cover the full width of the window, and will have a logo and a navigation bar. The navigation bar will lead to a main page of every theme in which the theme will be explained and that will link every subpage. The colors of the website will be more plain than "rainbowish".

It will probably also have a search bar and a side-bar with all the pages of the theme you're in.

8 Deadlines, Responsibilities

We propose the following table as a reference to keep our website project on track:

	Class Deadlines	CSS Crew Deadlines	Content Crew Deadlines	Bonus Crew Deadlines
02 Nov 2018	Inception Document			
05 Nov 2018	Go/No-Go Presentation			
06 Nov 2018		Content Page Template due (rough)		
08 Nov 2018			Headings done (all pages)	
09 Nov 2018		Homepage (rough)	1st page done	Initial script (rough)
10 Nov 2018				
11 Nov 2018			2nd page done	
12 Nov 2018	Midway Milestone	CSS for Content done		Almost working script
13 Nov 2018			3rd page done	
14 Nov 2018		Homepage done		
15 Nov 2018		**REVIEW DAY**, 4th page done, bonus script done		
19 Nov 2018	Final Milestone			
23 Nov 2018	Final Presentation			

In addition we present the current allocation of pages to each team member. The current *assigned* total adds up 75 pages, less than the minimum of 80. This is in part because 3 more pages will be assigned by the graphics group,

and in part because guided examples combining elements from multiple topics/subtopics have not yet been devised. For the extra manpower, we will turn to our SVN lead Stefano Taillefert and our superstar Math team, as they're currently a few pages shy of the individual requirement.

First Name	Last Name	# of pages
Alessio	Giovagnini	13/4
Andrea	Di Micco	8/2
~~Arash~~	~~Mowdoudi~~	~~0~~
Aron	Dalle Pezze	1 + CSS
Aron	Forni	3-4
Carlo	Bettelini	2 + Bonus
~~Christopher~~	~~Tibaldo~~	~~0~~
Davide	Trupia	3 + CSS
Federico	Lagrasta	4
Filippo	Cesana	4
~~Gabriele~~	~~Cicchinelli~~	~~0~~
Giulio	Catanese	4
Jacob	Salvi	13/4 + Bonus
Jacopo	Caratti	13/4
Jacopo	Stucchi	8/2
Julian	Prokofiev	1 + Lead
Leonardo	Cino	4
Marco	Barabaschi	4
Maxim	Ryakhovskiy	4
Mejrima	Smajilbasic	5 + Bonus
Renato	Iannace	4
Sasha	Bagnovini	13/4
Stefano	Taillefert	5 + SVN
Thuong	Le	2 + Bonus + Co-Lead
Tommaso	Rodolfo Masera	4
		75 (total)