LaTeX Basics & Advanced

Shubham Hazra

IIT Bombay

August 2022

Introduction of myself

I am Shubham Hazra, a second year undergraduate at the department of Computer Science at Indian Institute of Technology Bombay. I am required to make this beamer presentation and write my introduction on this slide as the part of the inlab 4 assignment of CS-251, Software Systems Lab course. Till now I am really enjoying this inlab as it is of practical use to me and is also relatively easier than the previous labs on sed and awk or git. I thought of using Lipsum text to fill this section of slide but then just decided on writing a few lines by myself just so it looks a bit different from the template output pdf and what the other people are writing. I am using TeXLive with VS Code for this instead of overleaf.

Table of Contents

1. Introduction
2. Equations
3. Itemize and Linking
4. Matrices

Note how the links here are redirecting to the corresponding page

Introduction

We first see the power of frames in LaTeX. We dont need to write each and every slide just for a new line.

Introduction

We first see the power of frames in LaTeX. We dont need to write each and every slide just for a new line.We can just use beamer class with the feature of pauses.

Introduction

We first see the power of frames in LaTeX. We dont need to write each and every slide just for a new line.We can just use beamer class with the feature of pauses.However, LaTeX has another (rather the most important usage), namely the use formatting text in a more mathematical way.

Equations

We can write many equations, can be labelled like the following

$$e^{i\alpha} = cos(\alpha) + i\, sin(\alpha) \tag{1}$$

Equations

We can write many equations, can be labelled like the following

$$e^{i\alpha} = cos(\alpha) + i\, sin(\alpha) \tag{1}$$

or the unlabelled equations like the force between two charges given by

$$F = \frac{1}{4\pi\epsilon_0}\frac{q_1 q_2}{r^2}$$

Itemize and Linking

Also, LaTeXcan be used to present the items in a list format, for example, some common ways of sorting an array are:

- Bubble sort
- Insertion sort

Itemize and Linking

Also, LaTeXcan be used to present the items in a list format, for example, some common ways of sorting an array are:

- Bubble sort
- Insertion sort , then there are the more rigorous algorithms like
- QuickSort
- Heap sort

Itemize and Linking

Also, LaTeXcan be used to present the items in a list format, for example, some common ways of sorting an array are:

- Bubble sort
- Insertion sort , then there are the more rigorous algorithms like
- QuickSort
- Heap sort , *and then the best known algorithm*
- Monkey sort (or) Bogo-sort.

Some pointers to the last algorithm can be found at here

Matrices

We can also write matrices in LaTeX, for example the identity matrix of size (3x3) is

$$I_3 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

Matrices

We can also write matrices in LaTeX, for example the identity matrix of size (3x3) is

$$I_3 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

Bonus: try to indent like the below equation

$$\begin{aligned} (\mathbf{a} \cdot \mathbf{b})^2 &= (\sum a_i b_i)^2 \\ &\leq (\sum a_i^2)(\sum b_i^2) \end{aligned}$$