Latex Template for Major Project Report Writing

A Major Project Report
Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Technology
in
Electronics and Communication Engineering

by

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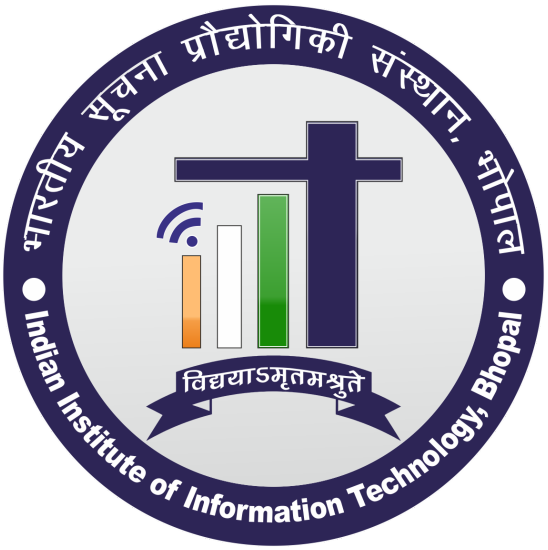

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29 March 2022

Certificate

Department of Electronics and Communication Engineering

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It is certified that the work contained in the project report entitled "Latex Template for Major Project Report Writing" by the following students has been carried out under my/our supervision and that this work has not been submitted elsewhere for a degree.

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This project report entitled "Latex Template for Major Project Report Writing" submitted by the group is approved for the degree of Bachelor of Technology.
The viva-voce examination has been held on _____.

Supervisor(s) Examiner(s)

Declaration

IIIT Bhopal
29 March 2022

I/We declare that this written submission represents my/our ideas in my/our own words and where others' ideas or words have been included, I/We have adequately cited and referenced the original sources. I/We declare that I/We have properly and accurately acknowledged all sources used in the production of this report. I/We also declare that I/We have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I/We understand that any violation of the above will be a cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Acknowledgements

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This section is for the acknowledgments. Please keep this brief and resist the temptation of writing flowery prose! Do include all those who helped you, e.g. other faculty/staff you consulted, colleagues who assisted etc.

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Abstract

This document contains essential templates required to write technical reports using LaTeX. Particularly it shows how to create an equation, figure, table, symbols list, and bibliographic citation in a LaTeX document. The Abstract in the report, however, shall have two more parts, namely, the layout of the thesis giving a brief chapter wise description of the work and the key words.
Keywords: LaTeX, Report, Template.

Table of Contents

List of Figures

List of Tables

Chapter 1

Introduction

This document contains commonly used essential templates to write a LaTeX document. This document is to be used along with the files and folders provided. Writing a LaTeX document is very simple. Often students need only very simple constructs. This document shows certain essential features that almost all technical report writing requires. Please consult the PDF file for the output of the document, and then look at the corresponding LaTeX file to reproduce it. The document illustrates the following constructs

- Unnumbered and numbered Lists
- Equations
- Defining short macros for frequently used symbols
- Bibliography
- Figures
- Tables

The normal procedure for compiling a LaTeX document that contains bibliographic entries is to follow the following steps

1. `pdflatex mainrep`
2. `bibtex mainrep`
3. `pdflatex mainrep`

In the above example `mainrep` is the main LaTeX file.

In the preliminary pages, A blank page is inserted.[1]

[1] A blank page may be inserted after the cover page when using the twoside (duplex printing) option so that the beginning of the paper does not appear on the back side of the cover page.

1.1 First section of this chapter

This is the first chapter, which resides in a directory (folder) intro. Each chapter can contain `section`, `subsection` and so on.

1.1.1 Equations and Math symbols

Equations should be set in a separate mode. For details on getting various types of aligned equations, consult the $\mathcal{AMS}$-LaTeX documentation `amsldoc.pdf`. Simple equations are set as

$$\int \mathrm{d}x \ \cos x = \sin x \tag{1.1}$$

Equation (1.1) is the integral of the cosine function. Mathematical symbols must always be put inside `$$`, when they appear outside a math environment (such as `equation`, `align`, `gather`, etc). The symbol "ex" must be written as x and not as x.

Another commonly used construct for equations is the `align` environment to align several equations along a vertical line. It is usually the = sign across which the alignment is done. The point of alignment for each equation is specified using the ampersand symbol. One may use the online equation generator to get the latex code of required equations: `https://www.codecogs.com/latex/eqneditor.php`

$$a = b \tag{1.2}$$

$$a + e + f + g = m + n + z \tag{1.3}$$

$$x + 2 = x^3 + 3x^2 + 2x + 5 \tag{1.4}$$

1.1.2 Commonly used Symbols

For mathematical symbols it is very convenient to define frequently used symbols as a short macro. For example if you are to be using the symbol η_s frequently it is convenient to define it in as:

```
\newcommand{\etas}{\ensuremath{\eta_{\mathrm{s}}}}
```

in the preamble and to simply refer it to in the text as η_s or in a mathematical equation as $\eta_\mathrm{s} = \eta\,(1 + \phi)$.

1.2 Second section of this chapter

Chapter 2

Literature Review

The bibliographic entries are to be kept in a file named `<something>.bib`. In this sample report we call it as `mylit.bib`. This file must be included without the `.bib` extension in the main file as: `\bibliography{mylit}`. Open the file `mylit.bib` to see the format in which the entries are written. This is written in the BibTEXformat. Most of the bibliographic web pages (Scopus, ISI Web) and software (EndNote, etc) allow you to export bibliographic entries in the BibTEXformat.

Items with same author is shown in .....

An article [1]

A book [2]

A series [3]

Someone's thesis [4]

Some technical report [5]

A collection [6]

Visited website [7]

Accepted for publication [8]

Submitted for publication [9]

Not published [10]

Conversation [11]

Chapter 3

Problem Formulation and Proposed Solution

3.1 Figures and Tables

Figures are conveniently included using postscript format. If you are generating a figure in a software, please check if the software supports writing to a postscript or a PDF format. This format is loss less vector format and with reproduce in any magnification without any pixelation. Make sure to write it to an "Encapsulated Post-script"or .eps format.

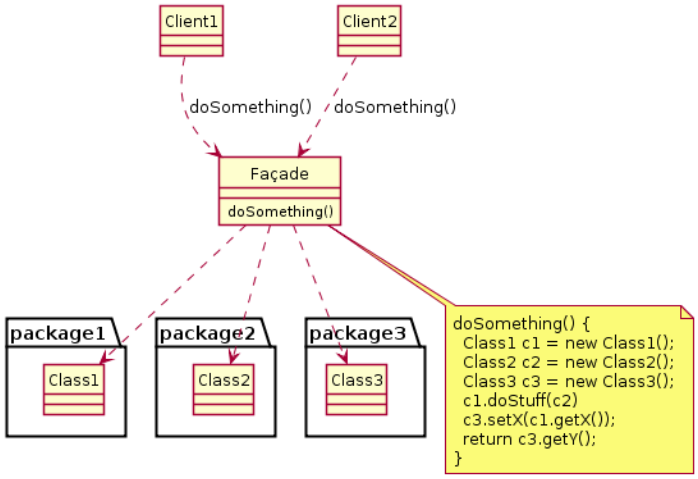
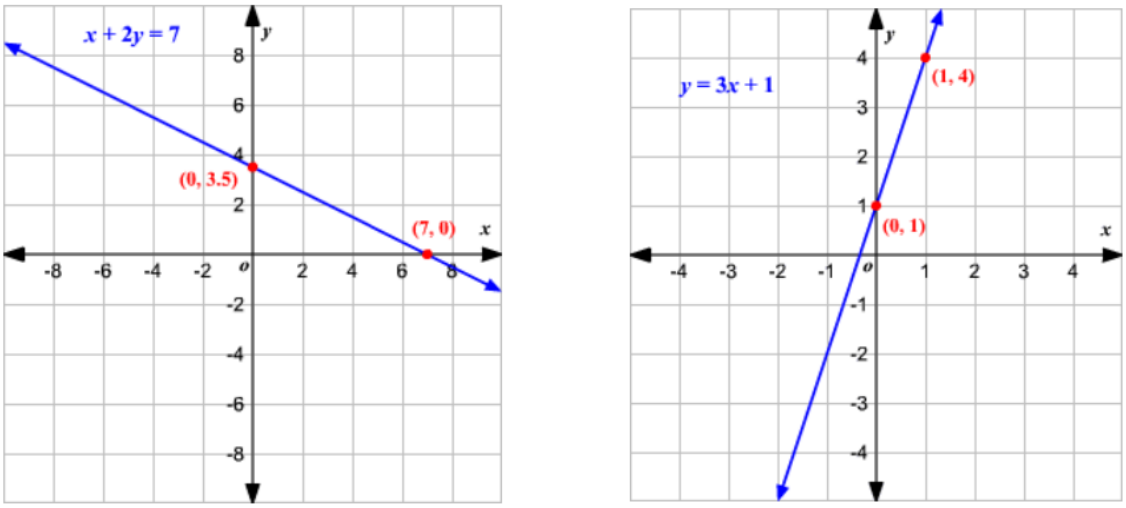


Figure 3.1: UML Class diagram showing an example of the Facade design pattern. The caption of the figure goes here. A shorter caption can be written in square brackets to identify it in the list of figures if required.

Figures should be given a label and which can be used to refer to them in the running text using `\ref{}` command. Figure 3.1 describes the process flow sheet of the Facade design pattern used in this study. Two simple graphs are shown in Figure 3.2. Multiple

figures with same caption can be arranged as shown in Figure 3.2 and they are referred in text such as Figure 3.2a and Figure 3.2b. The graphs should be drawn at appropriate places with center alignment and it should be referred in text.



(a) Figure2a (b) Figure2b

Figure 3.2: Two simple graphs

The format for tables is given below. The table must referred in the text as Table 3.1. The title of the table with table number should be written at the top of the table with center aligned as shown below in Table 3.1.

Table 3.1: A table shows an example of multirow and multicolumn.

numeric literals		in decimal	`8743`
		in octal	`0o7464`
	integers	in hexadecimal	`0x5A0FF`
			`0xE0F2`
	fractionals	in decimal	`140.58`
			`8.04e7`
			`0.347E+12`
			`47e22`
char literals			`'H'`
			`'\n'`
			`'\x65'`
string literals			`''bom dia"`
			`''ouro preto\nmg"`

A simple table is shown in Table 3.2. One may use the online latex table generator to get the latex code for required table: `https://www.tablesgenerator.com/`

Table 3.2: Simple table.

Value 1 α	**Value 2** β	**Value 3** γ
1	1110.1	a
2	10.1	b
3	23.113231	c

3.2 Code

A simple JAVA code is given below:

```
// Hello.java
import javax.swing.JApplet;
import java.awt.Graphics;

public class Hello extends JApplet {
    public void paintComponent(Graphics g) {
        g.drawString("Hello, world!", 65, 95);
    }
}
```

Chapter 4

Results and Discussion

In this chapter, ...

Chapter 5

Conclusion and Future Work

In this chapter, ...

5.1 Conclusion

In this study, ...

5.2 Future Work

Future direction includes ....

Appendix A

Appendix

A.1 Appendix 1

A.2 Appendix 2

References

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