

# Project Name

## Report

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## **Contents**

<b>1</b>	<b>Introduction To Organisation</b>	<b>1</b>
<b>2</b>	<b>Introduction</b>	<b>2</b>
<b>3</b>	<b>L<sup>A</sup>T<sub>E</sub>X</b>	<b>3</b>
3.1	Introduction to L <sup>A</sup> T <sub>E</sub> X . . . . .	3
3.2	Typesetting . . . . .	4
3.3	Installing L <sup>A</sup> T <sub>E</sub> X on System . . . . .	4
3.4	Graphical Editors for L <sup>A</sup> T <sub>E</sub> X . . . . .	5
3.5	Making Graphics in L <sup>A</sup> T <sub>E</sub> X . . . . .	6
3.6	Pdftscreen L <sup>A</sup> T <sub>E</sub> X . . . . .	7
3.7	Web based graphic generation using L <sup>A</sup> T <sub>E</sub> X . . . . .	8
<b>4</b>	<b>Project Work</b>	<b>9</b>
<b>5</b>	<b>Results and Discussions</b>	<b>10</b>
<b>6</b>	<b>Conclusion and Future Scope</b>	<b>11</b>
<b>7</b>	<b>Bibliography</b>	<b>12</b>

## **List of Figures**

# **1 Introduction To Organisation**

write your content

## 2 Introduction

write your content

### 3 $\LaTeX$

#### 3.1 Introduction to $\LaTeX$

# $\LaTeX$

$\LaTeX$ , I had never heard about this term before doing this project, but when I came to know about it's features, it is just excellent.  $\LaTeX$  (pronounced /leɪtk/, /leɪtx/, /ltx/, or /ltk/) is a document markup language and document preparation system for the  $\TeX$  typesetting program. Within the



typesetting system, its name is styled as  $\LaTeX$ . Donald Knuth, Inventor Of  $\TeX$  typesetting system. Within the typesetting system, its name is styled as  $\LaTeX$ . The term  $\LaTeX$  refers only to the language in which documents are written, not to the editor used to write those documents. In order to create a document in  $\LaTeX$ , a .tex file must be created using some form of text editor. While most text editors can be used to create a  $\LaTeX$  document, a number of editors have been created specifically for working with  $\LaTeX$ .

$\LaTeX$  is most widely used by mathematicians, scientists, engineers, philosophers, linguists, economists and other scholars in academia. As a primary or intermediate format, e.g., translating DocBook and other XML-based formats to PDF,  $\LaTeX$  is used because of the high quality of typesetting achievable by  $\TeX$ . The typesetting system offers programmable desktop publishing features and extensive facilities for automating most aspects of typesetting and desktop publishing, including numbering and cross-referencing, tables and figures, page layout and bibliographies.

$\LaTeX$  is intended to provide a high-level language that accesses the power of  $\TeX$ .  $\LaTeX$  essentially comprises a collection of  $\TeX$  macros and a program to process  $\LaTeX$  documents. Because the  $\TeX$  formatting commands are very low-level, it is usually much simpler for end-users to use  $\LaTeX$ .

## 3.2 Typesetting

$\text{\LaTeX}$  is based on the idea that authors should be able to focus on the content of what they are writing without being distracted by its visual presentation. In preparing a  $\text{\LaTeX}$  document, the author specifies the logical structure using familiar concepts such as chapter, section, table, figure, etc., and lets the  $\text{\LaTeX}$  system worry about the presentation of these structures. It therefore encourages the separation of layout from content while still allowing manual typesetting adjustments where needed.

```
\documentclass[12pt]{article}
\usepackage{amsmath}
\title{\LaTeX}
\begin{document}
  \maketitle
  \LaTeX{} is a document preparation system
  for the \TeX{} typesetting program.
  \par
   $E=mc^2$ 
\end{document}
```

$\text{\LaTeX}$

August 10, 2013

$\text{\LaTeX}$  is a document preparation system for the  $\text{\TeX}$  typesetting program  
 $E = mc^2$

## 3.3 Installing $\text{\LaTeX}$ on System

Installation of  $\text{\LaTeX}$  on personal system is quite easy. As I have used  $\text{\LaTeX}$  on Ubuntu 13.04 so I am discussing the installation steps for Ubuntu 13.04 here:

- Go to terminal and type

```
sudo apt-get install texlive-full
```

- Your LaTeX will be installed on your system and you can check for manual page by typing.

```
man latex
```

in terminal which gives manual for latex command.



- To do very next step now one should stick this to mind that the document which one is going to produce is written in any type of editor whether it may be your most common usable editor Gedit or you can use vim by installing first vim into your system using command.

*sudo apt-get install vim*

- After you have written your document it is to be embedded with some set of commands that Latex uses so as to give a structure to your document. Note that whenever you wish your document to be looked into some other style just change these set of commands.

- When you have done all these things save your piece of code with .tex format say test.tex. Go to terminal and type

*latex path of the file test.tex Or pdflatex path of the file test.tex*

*eg: pdflatex test.tex*

for producing pdf file simultaneously.

After compiling it type command

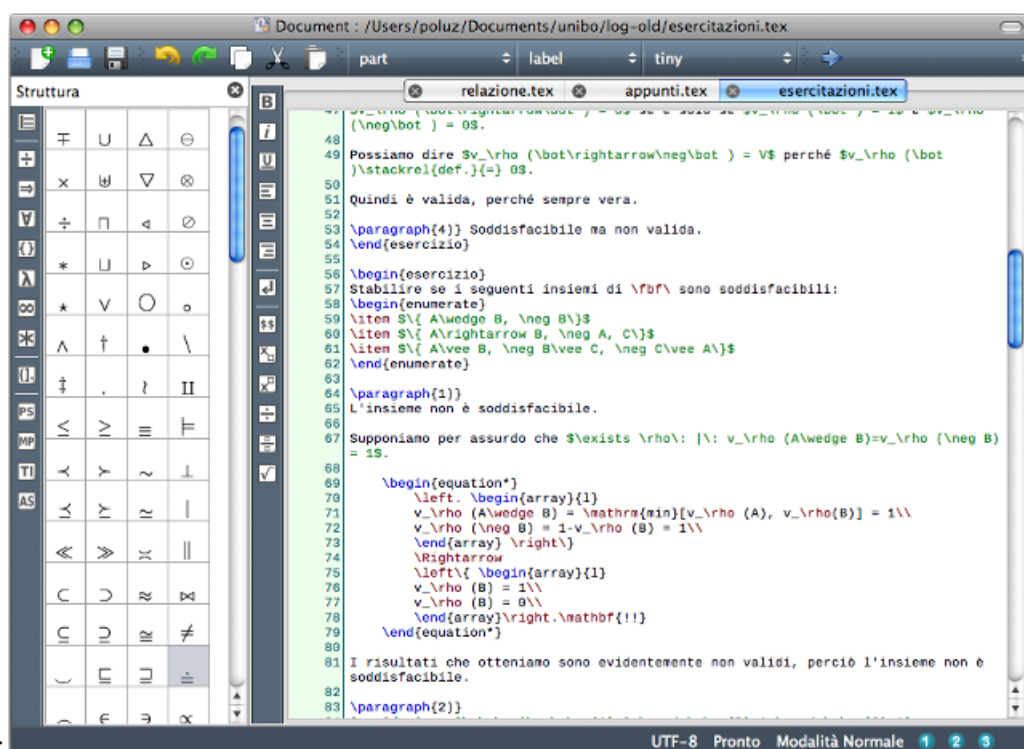
*evince filename.pdf*

*eg: evince test.pdf*

To see output pdf file.

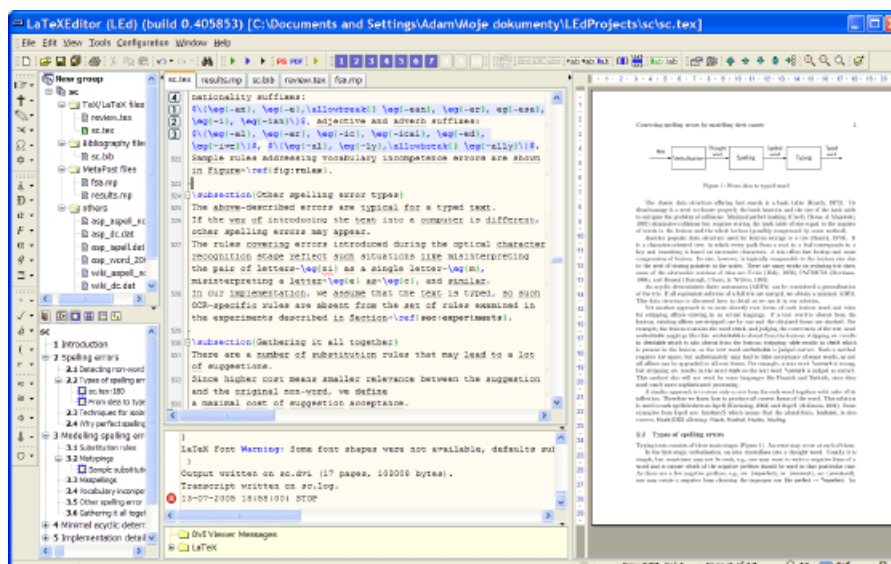
### 3.4 Graphical Editors for L<sup>A</sup>T<sub>E</sub>X

L<sup>A</sup>T<sub>E</sub>X is not restricted to command line only there are so many graphical based editors available to be used. These GUI based editors provide an easy interface to user so as to do typesetting in an efficient manner. Some of them are listed below:



- Texmaker  
A Graphical L<sup>A</sup>T<sub>E</sub>X Editor

- LED L<sup>A</sup>T<sub>E</sub>X Editor



And many more but the preferred method to produce L<sup>A</sup>T<sub>E</sub>X document is through console mode only.

## 3.5 Making Graphics in L<sup>A</sup>T<sub>E</sub>X

L<sup>A</sup>T<sub>E</sub>X is also known popularly for making complex graphics. One such example is shown below here:

```
\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{calendar,shadings}
\renewcommand*{\familydefault}{\sfdefault}
\colorlet{winter}{blue}
\colorlet{spring}{green!60!black}
\colorlet{summer}{orange}
\colorlet{fall}{red}
\newcount\mycount
\begin{document}
\begin{tikzpicture}[transform shape,
every day/.style={anchor=mid,font=\tiny}]
\node[circle,shading=radial,outer color=blue!30,inner color=white,
minimum width=15cm] {\textcolor{blue!80!black}{\Huge\the\year}};
\foreach \month/\monthcolor in
{1/winter,2/winter,3/spring,4/spring,5/spring,6/summer,
7/summer,8/summer,9/fall,10/fall,11/fall,12/winter} {
\mycount=\month
\advance\mycount by -1
\multiply\mycount by 30
\advance\mycount by -90
\shadedraw[shading=radial,outer color=\monthcolor!30,middle color=white,
inner color=white,draw=none] (\the\mycount:5.4cm) circle(1.4cm);
\calendar at (\the\mycount:5.4cm) [
dates=\the\year-\month-01 to \the\year-\month-last]
if (day of month=1) {\large\color{\monthcolor!50!black}\tikzmonthcode
```

```

if (Sunday) [red]
if (all) {
\mycount=1
\advance\mycount by -\pgfcalendarcurrentday
\multiply\mycount by 11
\advance\mycount by 90
\pgftransformshift{\pgfpointpolar{\mycount}{1.2cm}}};}
\end{tikzpicture}
\end{document}

```



Graphics

in L<sup>A</sup>T<sub>E</sub>X L<sup>A</sup>T<sub>E</sub>X with just invoking few additional packages.

### 3.6 Pdfscreen L<sup>A</sup>T<sub>E</sub>X

There are some packages that can help to have unified document using L<sup>A</sup>T<sub>E</sub>X. Example of such a package is pdfscreen that let the user view its document in two forms-print and screen. Print for hard copy and screen for viewing your document on screen. Download this package from [www.ctan.org/tex-archive/macros/latex/contrib/pdfscreen/](http://www.ctan.org/tex-archive/macros/latex/contrib/pdfscreen/).

Then install it using above mention method.

To test it the test code is given below:-

Just changing print to screen gives an entirely different view. But for working of pdfscreen another package required are comment and fancybox.

The fancybox package provides several different styles of boxes for framing and rotating content in your document. Fancybox provides commands that produce square-cornered boxes with single or double lines, boxes with shadows, and round-cornered boxes with normal or bold lines. You can box mathematics, floats, center, flushleft, and flushright, lists, and pages.

Whereas comments package selectively include/excludes portions of text. The comment package allows you to declare areas of a document to be included or excluded. One need to make these declarations in the preamble of your file. The package uses a method for exclusion that is pretty robust, and can cope with ill-formed bunches of text.

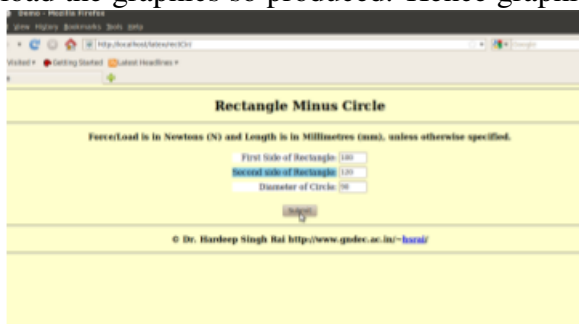
So these extra packages needed to be installed on system for the proper working of pdfscreen package.

### 3.7 Web based graphic generation using $\text{\LaTeX}$

$\text{\LaTeX}$  is also useful when there is need of generating the graphics from browser. For example to draw a circle by just entering its radius in html input box. So this kind A of project can be conveniently handled using  $\text{\LaTeX}$ . Basic idea behind this generation process is that when user clicks on submit button after entering radius a script will run that enter the radius in already made .tex file and recompiles it on server and makes its pdf and postscript file. After that user can view those files by clicking on link provided to view the files. See some screen shots of such a graphic generation project made by Dr. H.S. Rai:

So here in the above input page which is also the index page user can enter input for length of rectangle, breadth of rectangle and for radius of circle after that user can submit the values. After the values get submitted a script get runs by php code at server side. This script first enters the dimensions of rectangle and circle that were selected by user in to an already existing .tex file and replace with the older dimensions there. After that script recompiles the the tex file and make it available for user.

In above figure it gets clear that .tex file has been compiled and pdf and postscript files are available to user and user can download the graphics so produced. Hence graphics can be generated



in  $\text{\LaTeX}$  through web interface.  
generation using  $\text{\LaTeX}$ (input page)s

Web based graphic

## **4 Project Work**

# Project

## 5 Results and Discussions

- The results of the project work have been depicted in the Figure below. The results depict that almost ninety percent of the time is being saved when we use automation. This not only helps to increase efficiency but also enhances the work experience of the user.
- The graphics used in the application are made using GIMP v2.6 which supports batch processing of images and thus acts as a great added advantage when several image files have to be processed simultaneously. This saves time and effort required to modify each file individually. Also by setting the properties of the various layers of the images during making the graphics for the souvenir, we can increase or decrease the quality of the images according to our requirements.
- Use of very high quality graphics increases the running time of the application as such graphics have large file sizes and thus affect the processing time immensely especially during the making of the adobe postscript format file which is further converted to the pdf format after highly compressing the file. In case of the test data used by us, we used 20 MB graphics for covers(8 pages) and 40 MB files for backgrounds(78 pages) and thus ended up with a 2 GB postscript file which was further compressed to a 35 MB PDF file. In another instance, we used 2 MB graphics for both cover pages as well as separator pages. This gave us a 180 MB postscript file which was further compressed to a 3.1 MB pdf file. Thus, size of the graphics plays a major role in the processing time and disk space usage requirements. 0.2images/All.pngAll Files Created
- postscript file which was further compressed to a 3.1 MB pdf file. Thus, size of the graphics plays a major role in the processing time and disk space usage requirements.
- The application can also be made light weight by using small sized graphics which will not only reduce running time but also save time on making them as not much effort will be needed to make them. Application of pictures of students can be done through a simple code snippet that might be included in the main script itself or might be added as a separate utility that has to be run by the user before the main script is run.
- The time measurements and comparisons have been done in seconds and thus the accuracy of these might vary under different test conditions. 0.3images/2.pngCover Page

## **6 Conclusion and Future Scope**

write your content

## **7 Bibliography**

### **References**

- [1] R.L. Graham, D.E. Knuth, and O. Patashnik, Concrete mathematics, Addison-Wesley, Reading, MA, 1989.
- [2] Donald E. Knuth, The TeXbook, AddisonWesley, Boston, 1986, p. 1.
- [3] Leslie Lamport (April 23, 2007). The Writings of Leslie Lamport: LaTeX: A Document Preparation System.
- [4] Welcome to the TeX Users Group web site
- [5] Comprehensive TeX Archive Network (CTAN)