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ShareLatex

What you will  
learn ?

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# INTRODUCTION TO LATEX WRITING

UPENDRA PRATAP SINGH

Indian Institute of Information Technology, Allahabad

August 1, 2018



# Outline

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# Introduction

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LaTeX is a *typesetting* system suitable for producing scientific and mathematical documents.

- 1 LaTeX enables authors to typeset and print their work at the *highest typographical quality*.
- 2 LaTeX is pronounced “Lay-tech”.
- 3 LaTeX uses TeX formatter as its typesetting engine.



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Latex is not

- A word processor.
- Spell-checker
- Going to give you complete control over formatting (*space optimization* sneaks in)
- Providing you a graphical interface for editing

*"You take care of writing, and we'll take care of presentation"*



# Why Latex ?

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Latex has

- Sophisticated *structuring* abilities
- Platform *independent*; stylish uniformity
- Highly *extendable* capabilities (graphics, animations, modular design, easy debugging etc.)
- Rich *documentation* and multitude of *forums*
- A *universal acceptance* among researchers (bibliographic support, reference tracking available)



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Latex has

- Sophisticated *structuring* abilities
- Platform *independent*; stylish uniformity
- Highly *extendable* capabilities (graphics, animations, modular design, easy debugging etc.)
- Rich *documentation* and multitude of *forums*
- A *universal acceptance* among researchers (bibliographic support, reference tracking available)
- **Non-Latex submissions will be rejected !!!**



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*"Presentation should not get in the way of content"*

- 1 With a word processor, you spend valuable time agonizing over what font size to make the section headings.
  - With LATEX, you just tell it to start a new section.
- 2 With a word processor, changing the formatting means you have to change each instance individually.
  - With LATEX, you just redefine the relevant commands.
- 3 Manual citation (reference management) in word processor application is cumbersome
  - Create a BIB file of references and include it in tex document. Latex then manages everything for you



# How Latex works ?

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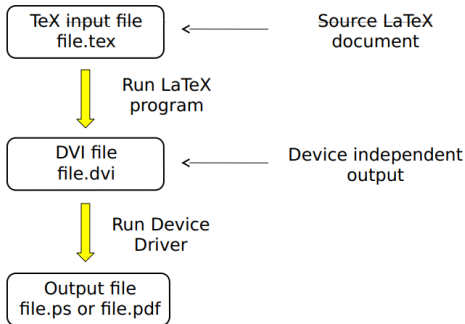
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**Figure:** Flowchart depicting the compilation of Latex code. Essential modules are latex, xdvi, dvipdf and pdflatex





# Document Class

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LATEX has several classes, selected using `\documentclass`

- 1 Book
- 2 Report
- 3 Article
- 4 Letter
- 5 Beamer

You'll be using the 'article' class for your paper, 'beamer' class for your presentation



# Packages

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Packages allow you to further customize LATEX.

The command...

```
\usepackage {name}
```



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Packages allow you to further customize LATEX.

The command...

```
\usepackage {name}
```

Some packages

graphicx, epsfig, geometry, fancyhdr, setspace, amsmath,  
listings, xcolor, url

Most of the packages you'll need are already included in the  
template



# Declarations and Environments

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## Declarations

- 1 Are stated once
- 2 Take effect until further notice
- 3 Can optionally be constrained
- 4 Ex. `\documentclass`, `\small`



# Declarations and Environments

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## Declarations

- 1 Are stated once
- 2 Take effect until further notice
- 3 Can optionally be constrained
- 4 Ex. `\documentclass`, `\small`

## Environments

- 1 Have matching begin and end declarations
- 2 be constrained
- 3 Ex. `\begin{document} ... \end{document}`



# Arguments

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## Required arguments

- 1 Are contained in curly braces
- 2 Must be included
- 3 Ex. `\documentclass{article}`



# Arguments

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## Required arguments

- 1 Are contained in curly braces
- 2 Must be included
- 3 Ex. `\documentclass{article}`

## Optional arguments

- 1 Are contained in square brackets
- 2 Can be left out
- 3 Give you more control over the commands
- 4 Ex. `\documentclass[12pt]{article}`



# Creating a Document with Latex

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## Four Step Process

- 1 Start with a skeletal document (create it, get it from classmates, download it from journals' website. . . .).
- 2 Fill (text, formula, figures, table, text . . . ) in the document.
- 3 Run LaTeX to generate output and make modifications accordingly.
- 4 Repeat 2-3 until writing is complete





# Windows Installation

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Two software modules required

- 1 Source Code Editor (TexMaker)
- 2 MikTex - Package Manager



# TexMaker Installation

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The screenshot shows the LO4D.com website for Texmaker 5.0.2. The page is titled "Free Software Downloads" and "now secured with https". The main content area displays the Texmaker logo and version number. Below this, there are tabs for "Program Info", "Screenshots (2)", and "Virus Tests". The "Program Info" tab is active, showing details such as License (Free), Language (English), Publisher (Pascal Brachet), OS (Windows 10 / 8 / 7 / Vista / XP), Updated (Aug 20, 2017), and Technical information. A "Download" button is prominently displayed with a green background and a download icon. To the right of the download button, there is a "Download Ranking" section showing the software is ranked #1 of 71. Below this, there is a star rating system with 4.4 out of 5 based on 71 ratings. At the bottom of the page, there is an advertisement for LO4D.com and a note about the review status.

Free Software Downloads

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LO4D.com

Software reviews, downloads, virus tests and more.

Software Downloads Business and Development Office Texmaker

Texmaker 5.0.2

Program Info Screenshots (2) Virus Tests

License: Free Freeware

Language: English

Publisher: Pascal Brachet

OS: Windows 10 / 8 / 7 / Vista / XP

Updated: Aug 20, 2017

Technical: [?] More Details

Download 56.83 MB

Download Ranking in Office #1 of 71

4.4 out of 5 based on 71 ratings

Advertisement

WELCOME TO LO4D.COM

No downloaders or toolbars.

Textmaker Review

Texmaker is a free and open source latex editor app filed under office software and made available by Pascal Brachet for Windows.

The review for Texmaker has not been completed yet, but it was tested by an editor here on a PC and a list of features has been compiled: see below.

Figure: Downloading TexMaker



# TexMaker Installation

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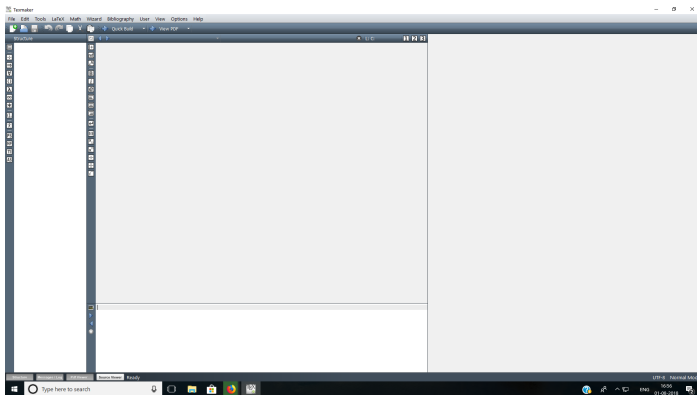


Figure: TexMaker Window



# Miktex Installation

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The screenshot shows the MikTeX website's download page. At the top, there's a navigation bar with links: Home, About, Download, Portable, Help, Contact, and Give Back. Below this, a section titled "Getting MikTeX" explains that MikTeX is available for selected operating systems and provides a link to check prerequisites. A horizontal menu allows users to select their operating system: Windows, Mac, Linux, Docker, or All downloads. The "Windows" section is expanded, showing the "Install on Windows" instructions. It specifies the file name as "basic-miktex-2.9.6753-x64.exe", the size as 192.03 MB, and provides a SHA-256 hash. A "Download" button is prominently displayed. Below the button, it notes that the 32-bit version is available under the "All downloads" tab. On the left side of the page, there is an AdMob advertisement in Hindi.

AdMob by Google

जानकारी हासिल करे और अपने ऐप्लिकेशन से कमाई करे

शुरू करे

Getting MikTeX

MikTeX is available for selected operating systems. Please check the [prerequisites](#) in order to find out whether your system is supported. If your system is not (yet) supported, it is not too difficult to [build MikTeX](#).

Windows Mac Linux Docker All downloads

Install on Windows

To install a basic TeX/LaTeX system on Windows, download and run this installer.

Date: 6/30/2018

File name: basic-miktex-2.9.6753-x64.exe

Size: 192.03 MB

SHA-256: 07837a9d0135d26706e31c47e1932aa00dc18e996e5b35eac437cfa4959cdf

Download

Looking for the 32-bit version? It is available under the "All downloads" tab.

Figure: Downloading MikTeX



# MikTeX Configuration

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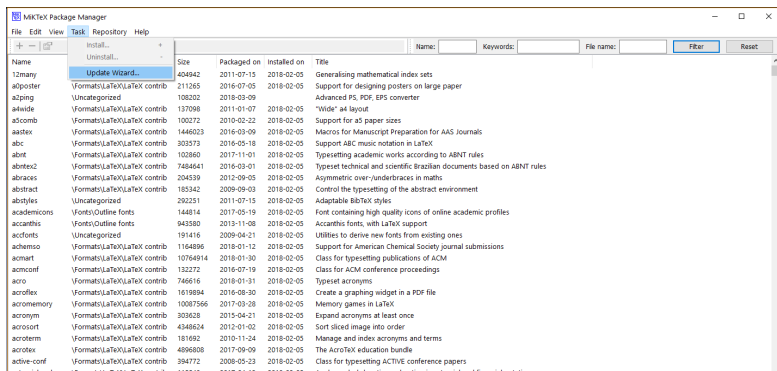


Figure: MikTeX Package Manager



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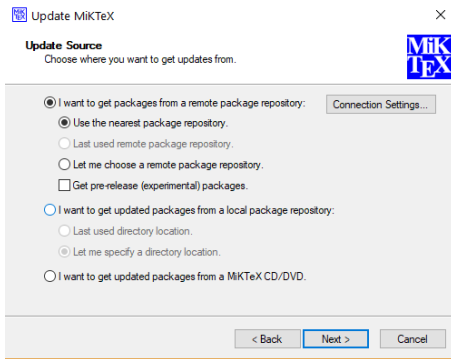


Figure: Configure connection settings



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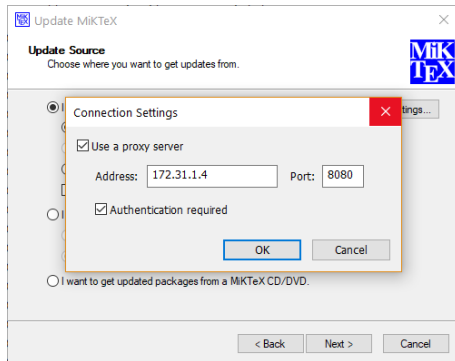


Figure: Configure package manager with proxy server details



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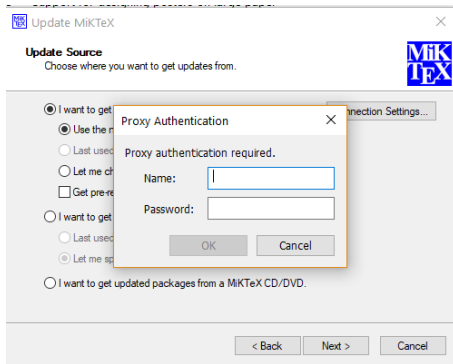


Figure: Enter LDAP login credentials





# Working with TexMaker

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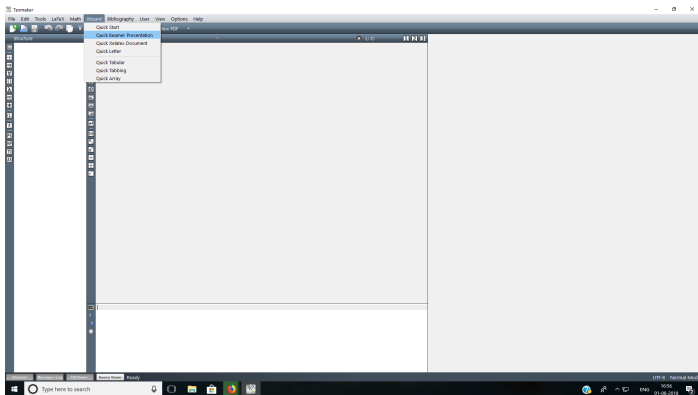


Figure: Creating Beamer presentation



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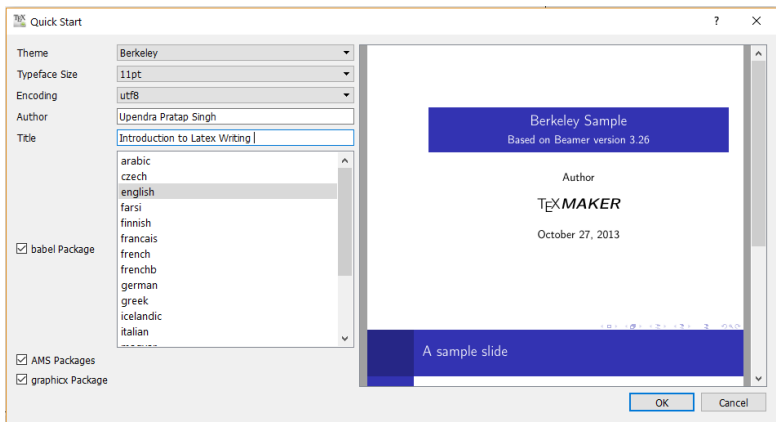
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**Figure:** Fill in the Preamble data. This includes Title, Author name, subject etc.



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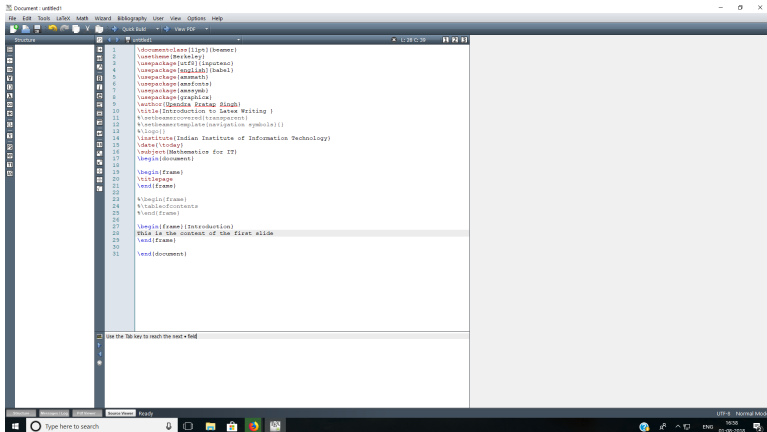


Figure: Preamble Ready



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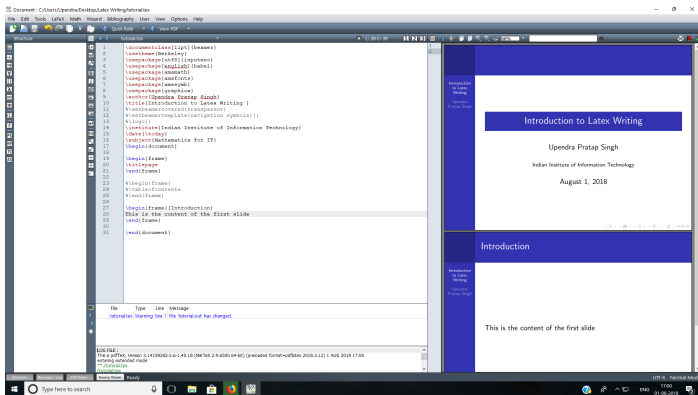


Figure: Preamble Ready. Get started



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## Easy two-step process

- 1 Install Texmaker: `sudo apt-get install texmaker`
- 2 Run: `sudo apt-get install texlive-full`

TeXMaker is also available on Software Center.



# Why ShareLatex ?

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- 1 *Online* Typesetting system
- 2 No need to *worry* about packages
- 3 Real time *collaboration*; *chat* option works
- 4 *Version* control, hundreds of LaTeX templates available
- 5 *Dedicated* servers; no data loss



# ShareLatex -Getting Started

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A screenshot of the ShareLaTeX registration page. The browser address bar shows 'https://www.sharelatex.com/register'. The page has a dark blue header with the ShareLaTeX logo and navigation links: 'Plans & Pricing', 'Help', 'Register', and 'Log In'. The main content area is light gray and contains a white 'Register' form. The form has two input fields: 'Email' with the value 'rsi2017001@iitaa.ac.in' and 'Password' with masked characters '\*\*\*\*\*'. A red 'Register' button is at the bottom of the form.

Figure: Register yourself using e-mail and password



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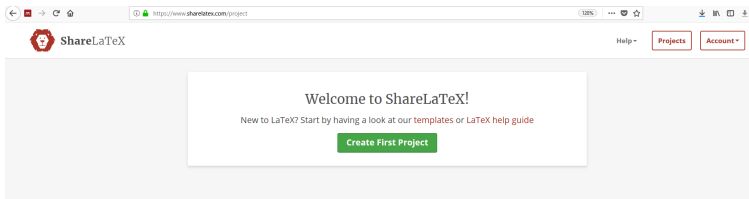


Figure: Registration complete





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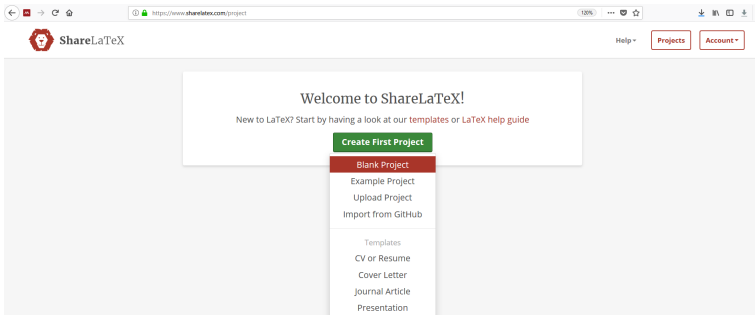


Figure: Create a blank project



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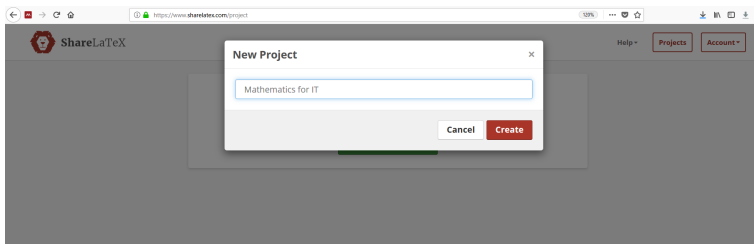


Figure: Name your blank project



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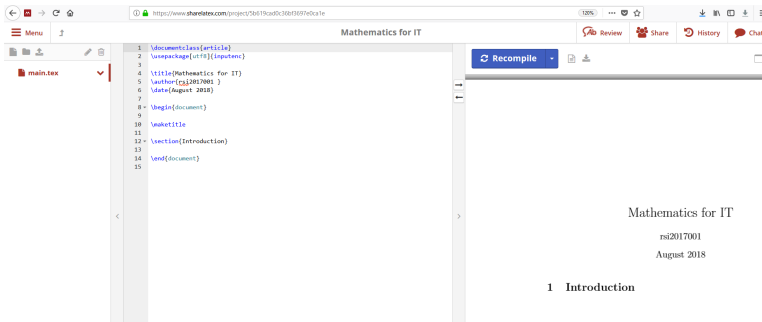


Figure: Start writing your Latex document here



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## Basic Latex Writing

- 1 Basics of Latex writing (paragraphs, sections, subsections, ordered (unordered) lists, font faces/sizes etc. )
- 2 Writing Maths in Latex (symbols, calculus, equations, operations on matrices, transformations etc.)
- 3 Working with Tables and graphics, flowcharts, data plotting etc.
- 4 Content formatting (paragraph formatting, headers, footers, text alignment, footnotes, colors, working with themes etc.)



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## Intermediate Level Latex Writing

- 1 Including references and citations (Biblatex and Natbib, manual entry etc.)
- 2 Document Structuring (sections, chapters, cross referencing etc.)



# Useful Resources

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- 1 [ShareLatex Tutorials](#)
- 2 [Latex Tutorials](#)
- 3 [Discussion Forum](#)
- 4 [Short Math Guide for LATEX by Michael Downes](#)