

Department of Computer and Software Engineering
SE100L: Information and Communication Technologies Lab

Course Instructor: Mr. Hamza Shaukat	Dated: 7 – 11 – 2023
Lab Engineer : Asif Ali	Semester: Fall 2023
Batch: BSSE23	

LAB 10 Introduction to Fundamentals of LaTeX

Name	Roll. No.	Total Marks (35)
Zunaira Abdul Aziz	BSSE23058	

Checked on: _____

Signature: _____

10.1. Objective

The main objective of this lab is to introduce the students to the basics of LaTeX.

10.2. Introduction

This lab introduces the students to the fundamentals of LaTeX, a software tool that is commonly used by the academic community for documenting reports, thesis, books and research papers. It is mainly preferred over the other tools because it provides the convenience of easily formatting the document. LaTeX uses the TeX typesetting program for formatting its output, and is itself written in the TeX macro language.

One of LaTeX's key strengths is its ability to produce professionally formatted documents with excellent typographic quality. It excels in handling complex documents, such as research papers, theses, technical reports, and academic articles, where precise formatting, equations, citations, and references are critical.

LaTeX documents are written in plain text with special markup commands and environments that define the document structure, formatting, and content. LaTeX processes these source files to generate beautifully typeset output in formats such as PDF, DVI, or PostScript.

10.3. Software Tools

10.3.1. Online Editor

In this lab we will mainly be working with Overleaf which is online editor for writing documents using LaTeX.

It is a popular and user-friendly web-based platform for collaborative LaTeX document preparation. It simplifies the process of creating, editing, and sharing LaTeX documents, making it an invaluable tool for researchers, students, and professionals.

The students are required to register their overleaf accounts by accessing the URL (<https://www.overleaf.com/>). The webpage of the Overleaf opens after accessing this URL.

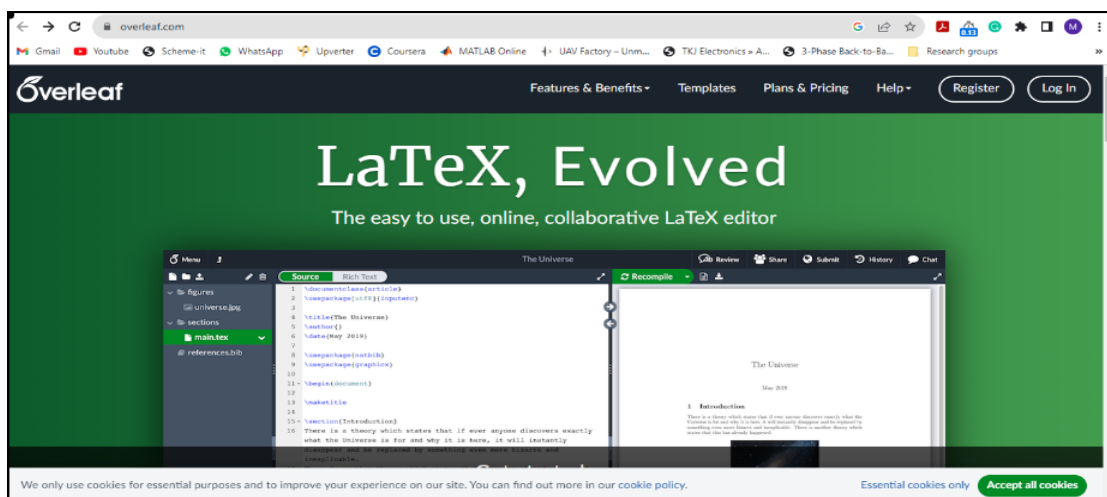


Figure 10-1 shows the webpage of Overleaf. Click on the Log In in the top right corner of the page for creating user account.

10.3.2. Offline Tools

Since the overleaf requires an active internet connection and the poor connectivity might sometimes be a problem. To avoid internet connection issues, some offline tools are available which provides the convenience of writing documents through LaTeX even without internet. To avoid the above mentioned issues students are required to install offline editors. For this purpose setup of Texmaker which is offline editor will be shared with students. Before the installation of Texmaker, it is essential that MikTeX is already installed on the PC.

10.4. Creating a document in Overleaf

To start a new project from scratch, in the main page click the **New Project** button, you will see the next drop-down menu, then click **Blank Project**. A box will open where you should enter the name of your new project, then click **Create**. After that you will be redirected to the editor. There, a new document is created with some basic information already filled in. You can start editing your .tex file now, to view the changes click **Recompile**.

After creating a new project, the next step is to start writing your document. As already mentioned LaTeX uses Tex language for documentation. The first line of the code declares the document type. `\documentclass{}` declares the document type. By having set the document class, content, known as the body of the document, is written between the `\begin{document}` and `\end{document}` tags.

10.4.1. The Preamble of a Document

Within the preamble you define the document class (type) together with specifics such as languages to be used when writing the document; loading *packages* you would like to use (more on this later), and it is where you'd apply other types of configuration.

A minimal document preamble might look like this:

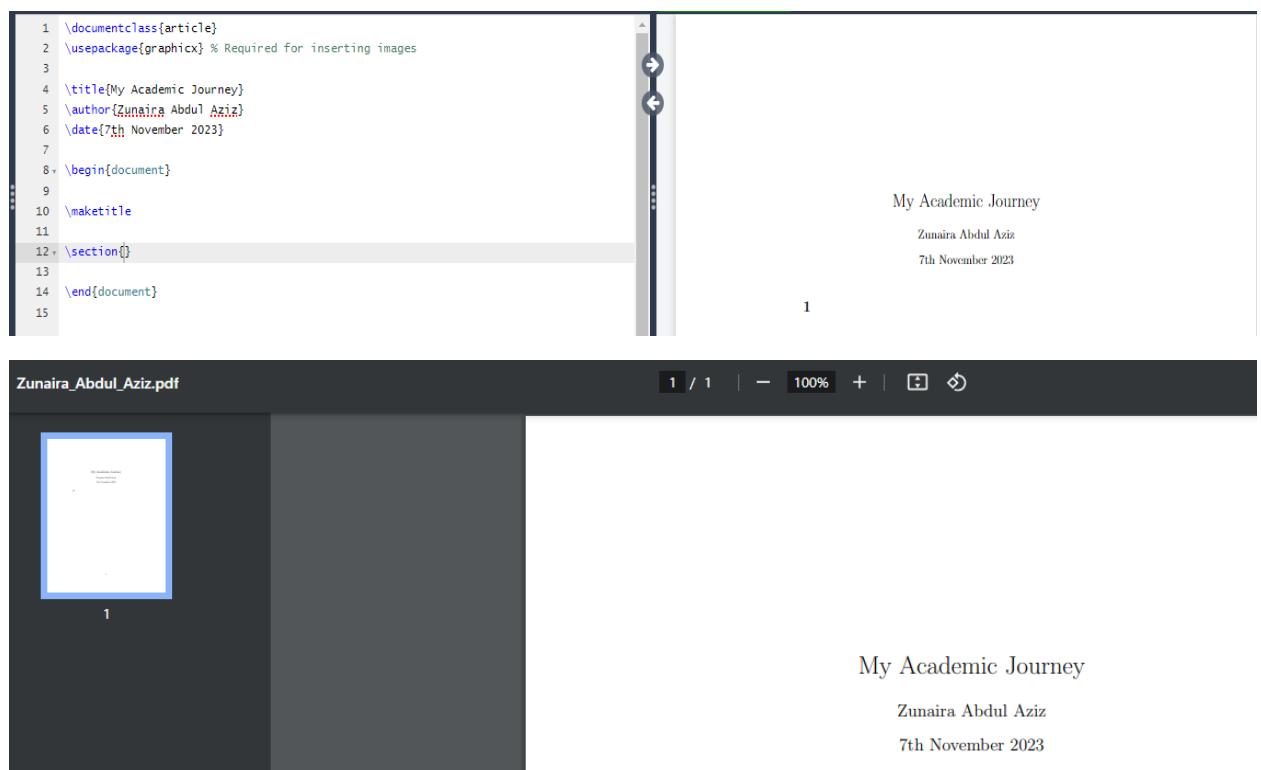
```
\documentclass[12pt, letterpaper]{article}
\usepackage{graphicx}
```

The second line in the above code is used to extend LaTeX capabilities to allow it to import graphics files such as images.

10.5. Lab Tasks

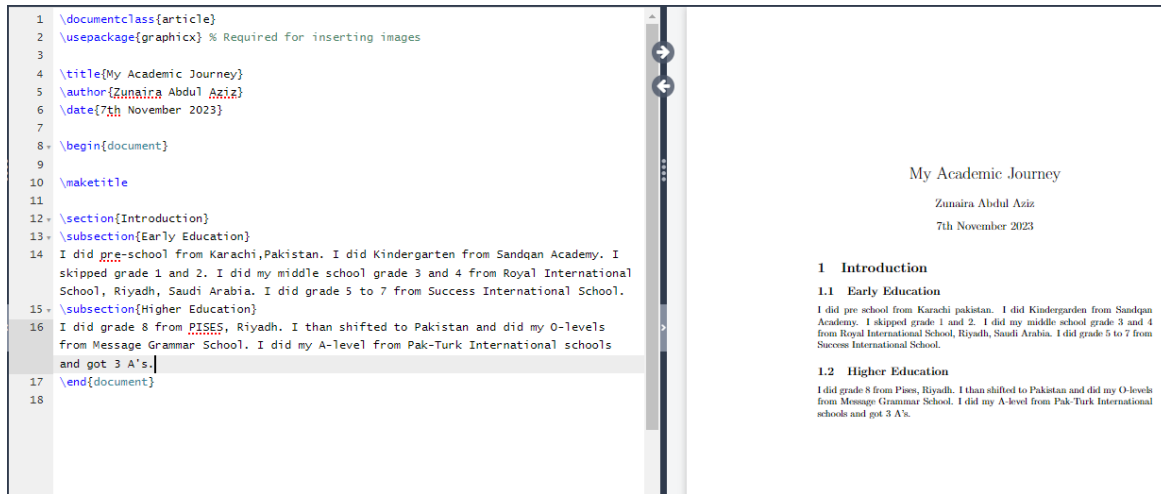
10.5.1. Task 1

- Create an article class document with title “My Academic Journey”
- Insert the author name
- Insert the date
- Paste the screen shot of pdf file generated in LaTeX clearing showing the title and author name.



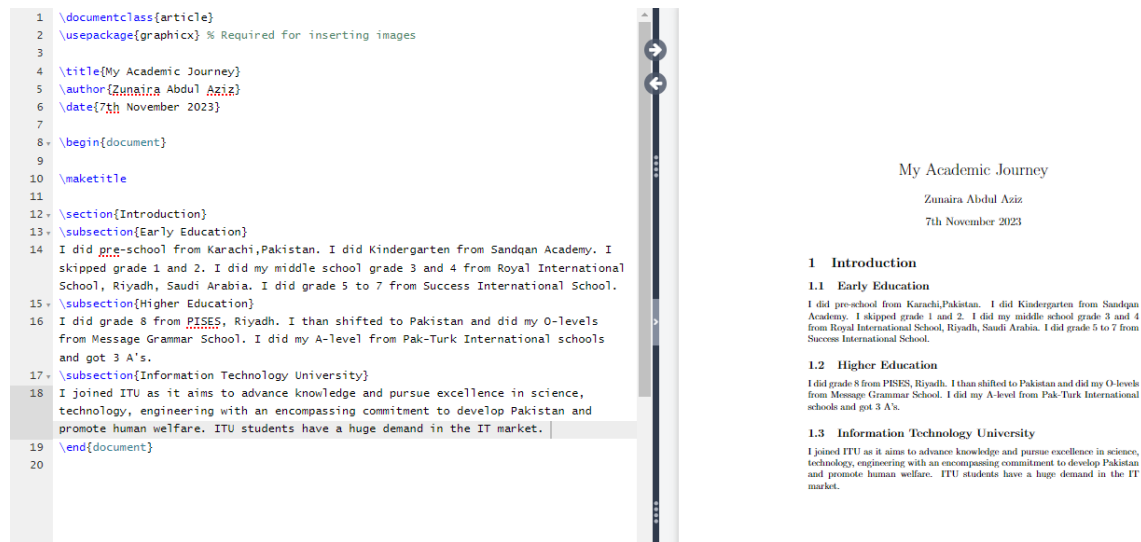
10.5.2. Task 2

- Create a section with a title “Introduction”. Write a paragraph on your early education in this section.
- Insert another section with the title “ Higher Education”



10.5.3. Task 3

- Create a subsection with titled “ Information Technology University” inside the section “Higher Education”
- Under this title, write a paragraph on why you joined



10.5.4. Task 4

In this task you are required to

- Insert a picture of ITU in the subsection created in the previous task

```

1 \documentclass{article}
2 \usepackage{graphicx} % Required for inserting images
3
4 \title{My Academic Journey}
5 \author{Zunaira Abdul Aziz}
6 \date{7th November 2023}
7
8 \begin{document}
9
10 \maketitle
11
12 \section{Introduction}
13 \subsection{Early Education}
14 I did pre-school from Karachi,Pakistan. I did Kindergarten from Sandqan Academy. I
  skipped grade 1 and 2. I did my middle school grade 3 and 4 from Royal International
  School, Riyadh, Saudi Arabia. I did grade 5 to 7 from Success International School.
15 \subsection{Higher Education}
16 I did grade 8 from PISES, Riyadh. I then shifted to Pakistan and did my O-levels
  from Message Grammar School. I did my A-level from Pak-Turk International schools
  and got 3 A's.
17 \subsection{Information Technology University}
18 I joined ITU as it aims to advance knowledge and pursue excellence in science,
  technology, engineering with an encompassing commitment to develop Pakistan and
  promote human welfare. ITU students have a huge demand in the IT market.
19 \begin{figure}
20 \centering
21 \includegraphics[width=0.5\linewidth]{image.png}
22 \caption{ITU}
23 \label{picture}
24 \end{figure}
25 \end{document}
26

```

My Academic Journey

Zunaira Abdul Aziz
7th November 2023

1 Introduction

1.1 Early Education

I did pre-school from Karachi,Pakistan. I did Kindergarten from Sandqan Academy. I skipped grade 1 and 2. I did my middle school grade 3 and 4 from Royal International School, Riyadh, Saudi Arabia. I did grade 5 to 7 from Success International School.

1.2 Higher Education

I did grade 8 from PISES, Riyadh. I then shifted to Pakistan and did my O-levels from Message Grammar School. I did my A-level from Pak-Turk International schools and got 3 A's.

1.3 Information Technology University

I joined ITU as it aims to advance knowledge and pursue excellence in science, technology, engineering with an encompassing commitment to develop Pakistan and promote human welfare. ITU students have a huge demand in the IT market.



Figure 1: ITU

10.5.5. Task 5

In this task you are required to

- Insert the label and caption for the picture inserted in the previous task

PASTED THE CODE AS IN PICTURES IT IS NOT CLEAR

```
\documentclass{article}
```

```
\usepackage{graphicx} % Required for inserting images
```

```
\title{My Academic Journey}
```

```
\author{Zunaira Abdul Aziz}
```

```
\date{7th November 2023}
```

```
\begin{document}
```

```
\maketitle
```

```
\section{Introduction}
```

```
\subsection{Early Education}
```

I did pre-school from Karachi,Pakistan. I did Kindergarten from Sandqan Academy. I skipped grade 1 and 2. I did my middle school grade 3 and 4 from Royal International School, Riyadh, Saudi Arabia. I did grade 5 to 7 from Success International School.

```
\subsection{Higher Education}
```

I did grade 8 from PISES, Riyadh. I then shifted to Pakistan and did my O-levels from Message Grammar School. I did my A-level from Pak-Turk International schools and got 3 A's.

```
\subsection{Information Technology University}
```

I joined ITU as it aims to advance knowledge and pursue excellence in science, technology, engineering with an encompassing commitment to develop Pakistan and promote human welfare. ITU students have a huge demand in the IT market.

```
\begin{figure}
```

```
\centering
\includegraphics[width=0.5\linewidth]{image.png}
\caption{ITU}
\label{picture}
\end{figure}
\end{document}
```

My Academic Journey

Zunaira Abdul Aziz

7th November 2023

1 Introduction

1.1 Early Education

I did pre-school from Karachi, Pakistan. I did Kindergarten from Sandqan Academy. I skipped grade 1 and 2. I did my middle school grade 3 and 4 from Royal International School, Riyadh, Saudi Arabia. I did grade 5 to 7 from Success International School.

1.2 Higher Education

I did grade 8 from PISES, Riyadh. I then shifted to Pakistan and did my O-levels from Message Grammar School. I did my A-level from Pak-Turk International schools and got 3 A's.

1.3 Information Technology University

I joined ITU as it aims to advance knowledge and pursue excellence in science, technology, engineering with an encompassing commitment to develop Pakistan and promote human welfare. ITU students have a huge demand in the IT market.



Figure 1: ITU