

# Document Classes and Packages Exercise

Guelma University LaTeX Course

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## Objective

Understand document classes and how to enhance documents with packages in LaTeX.

## Tasks

### 1. Use Different Document Classes

Experiment with different document classes:

- **article** — Suitable for shorter documents such as papers and articles.
- **report** — Often used for longer documents, like reports or thesis work. It allows for chapters and additional sections.
- **book** — Ideal for creating books, with chapters, sections, and advanced layout options.

Change the document class by modifying the `\documentclass{}` line in the preamble, and observe how each class affects the appearance of the document.

### 2. Add Packages to Modify the Document's Appearance

Enhance the document with packages to extend its functionality:

- **amsmath** — Provides additional mathematical symbols and environments.
- **graphicx** — Allows for inserting and scaling images.
- **geometry** — Customize page layout, margins, and paper size.

Use the `\usepackage{}` command in the preamble to load each package.

## Example Code

Below is example LaTeX code for this exercise:

```
\documentclass{report} % Try changing to article, report, or book

\usepackage{amsmath}
\usepackage{graphicx}
\usepackage{geometry}
```

```

\geometry{a4paper, margin=1in} % Adjust margins using geometry

\begin{document}

\title{Understanding Document Classes and Packages}
\author{Student Name}
\date{\today}
\maketitle

\chapter*{Introduction} % Chapter is available in report and book classes
This document demonstrates how different document classes and packages work in LaTeX.

\section*{Using Packages}
With \texttt{amsmath}, we can write more complex mathematical expressions:
\[
\int_0^{\infty} e^{-x^2} \, dx = \frac{\sqrt{\pi}}{2}
\]

Using \texttt{graphicx}, we can include images:
\begin{figure}[h!]
  \centering
  \includegraphics[width=0.5\textwidth]{sample-image.jpg} % Replace with an actual image
  \caption{Sample image}
\end{figure}

\end{document}

```