Document classes

Document Classes

`article`	For articles in scientific journals, presentations, short reports, program documentation, invitations, ...
`IEEEtran`	For articles with the IEEE Transactions format.
`proc`	A class for proceedings based on the article class.
`report`	For longer reports containing several chapters, small books, thesis, ...
`book`	For real books.
`slides`	For slides. The class uses big sans serif letters.
`memoir`	For changing sensibly the output of the document. It is based on the `book` class, but you can create any kind of document with it [1]
`letter`	For writing letters.
`beamer`	For writing presentations (see LaTeX/Presentations).

Go through the below link for full details

Document Class Options

`10pt, 11pt, 12pt`	Sets the size of the main font in the document. If no option is specified, 10pt is assumed.
`a4paper, letterpaper,...`	Defines the paper size. The default size is `letterpaper`; However, many European distributions of TeX now come pre-set for A4, not Letter, and this is also true of all distributions of pdfLaTeX. Besides that, `a5paper`, `b5paper`, `executivepaper`, and `legalpaper` can be specified.
`fleqn`	Typesets displayed formulas left-aligned instead of centered.
`leqno`	Places the numbering of formulas on the left hand side instead of the right.
`titlepage, notitlepage`	Specifies whether a new page should be started after the document title or not. The article class does not start a new page by default, while report and book do.
`twocolumn`	Instructs LaTeX to typeset the document in two columns instead of one.
`twoside, oneside`	Specifies whether double or single sided output should be generated. The classes `article` and `report` are single sided and the `book` class is double sided by default. Note that this option concerns the style of the document only. The option `twoside` does not tell the printer you use that it should actually make a two-sided printout.
`landscape`	Changes the layout of the document to print in landscape mode.
`openright, openany`	Makes chapters begin either only on right hand pages or on the next page available. This does not work with the `article` class, as it does not know about chapters. The `report` class by default starts chapters on the next page available and the `book` class starts them on right hand pages.
`draft`	makes LaTeX indicate hyphenation and justification problems with a small square in the right-hand margin of the problem line so they can be located quickly by a human. It also suppresses the inclusion of images and shows only a frame where they would normally occur.

The above details can be found in the below link

https://en.wikibooks.org/wiki/LaTeX/Document_Structure

Otherwise you can refer the below links

https://texblog.org/2013/02/13/latex-documentclass-options-illustrated/
https://texblog.org/2007/07/09/documentclassbook-report-article-or-letter/
https://tug.org/TUGboat/tb35-3/tb111thurnherr.pdf

Font styles and families

Default font families

typeface = family	command	switch command	output
serif (roman)	`\textrm{Sample Text 0123}`	`\rmfamily`	Sample Text 0123
sans serif	`\textsf{Sample Text 0123}`	`\sffamily`	Sample Text 0123
typewriter (monospace)	`\texttt{Sample Text 0123}`	`\ttfamily`	Sample Text 0123

Font styles

style	command	switch command	output
medium	`\textmd{Sample Text 0123}`	`\mdseries`	Sample Text 0123
bold	`\textbf{Sample Text 0123}`	`\bfseries`	**Sample Text 0123**
upright	`\textup{Sample Text 0123}`	`\upshape`	Sample Text 0123
italic	`\textit{Sample Text 0123}`	`\itshape`	*Sample Text 0123*
slanted	`\textsl{Sample Text 0123}`	`\slshape`	*Sample Text 0123*
small caps	`\textsc{Sample Text 0123}`	`\scshape`	Sample Text 0123

Task-II

Practice the above commands and observe the outputs

Font sizes:

There are LATEX commands for a range of font sizes:

Command	Output in latex
{\tiny tiny words}	tiny words
{\scriptsize scriptsize words}	scriptsize words
{\footnotesize footnotesize words}	footnotesize words
{\small small words}	small words
{\normalsize normalsize words}	normalsize words
{\large large words}	large words
{\Large Large words}	Large words
{\huge huge words}	huge words

Note: In order to apply the font sizes just insert the command before the text where you want to differentiate the font sizes

For example the text is….

Hello Welcome toRGUIIIT

If you want to show hello as large just insert the command like below

{\huge Hello } Welcome toRGUIIIT

Task-III

Practice the above font sizes and observe the outputs

Generally in latex if you give more space in between text, latex will treat it as one space. If you are giving more line spaces in between text of lines, latex will treat it as one line space
Observe the below code.

Example code

```
\documentclass{report}
\begin{document}
Hello                RGUKT \\
Hello welcome to rgukt
I am studying Pre University Course.
\end{document}
```

Output:

Hello RGUKT
Hello welcome to rgukt
I am studying Pre University Course.

Just observe the output even we give more space between hello and rgukt it displayed as a single space, even we give more line spaces in between line of text it displayed a single line space.

Spaces:

\quad will produce a current font size space if you are using 12 pt fonts, then the space provided by \quad will also be 12 pt(horizontally). \qquad will produce double amount space. Similarly you can use
\, \: \; \! \> ~ \space \enspace etc

Example code
```
\documentclass{article}
\begin{document}
Demo code on giving spaces in text \\  \\
ax+by+c=0 \\ \\
ax+by+c=\, 0 \\
ax+by+c=\: 0 \\
ax+by+c=\; 0 \\
ax+by+c=\! 0 \\
ax+by+c=\quad 0 \\
ax+by+c=\qquad 0
\end{document}
```

Output

Demo code on giving spaces in text

$$ax+by+c=0$$

$$ax+by+c= 0$$
$$ax+by+c=0$$
$$ax + by + c = 0$$
$$ax + by + c =0$$
$$ax + by + c = 0$$
$$ax + by + c = 0$$

Using \hspace and \vspace

\hspace is used to give vertical space between text and \vspace is used to give space vertically between text. These are followed by some recognized units, \hspace and \vspace followed by these units like \hspace{2cm}, \vspace{mm}, \hspace{3sp}, \vspace{3pt} etc

Just observe the below uints

```
pt  point          (1 in = 72.27 pt)
pc  pica           (1 pc = 12 pt)
in  inch           (1 in = 25.4 mm)
bp  big point      (1 in = 72 bp)
cm  centimetre     (1 cm = 10 mm)
mm  millimetre
dd  didot point    (1157 dd = 1238 pt)
cc  cicero         (1 cc = 12 dd)
sp  scaled point   (65536 sp = 1 pt)
```

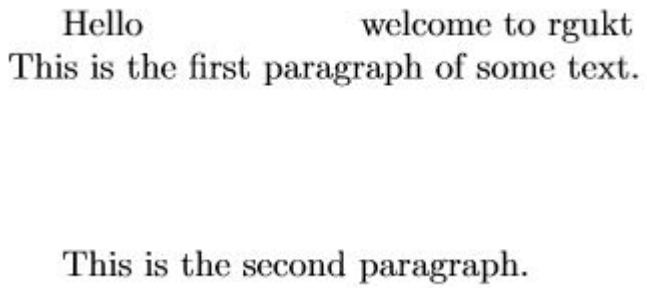
Example code

```
\documentclass{book}
\begin{document}
Hello\hspace{2cm} welcome to rgukt \\
This is the first paragraph of some text.

\vspace{15 mm}

This is the second paragraph.
\end{document}
```

Output



Basic formatting in latex

Example code for bold, underling and italic

```
Some of the \textbf{greatest}                    %textbf means text bold font
Discoveries in \underline{science}               %for underlined text
Were made by \textbf{\textit{accident}}.         % for underlined and italic
This is for \textit{italic text}                 % for italicized text
```

Practice the above code and observe the output.

Emphasizing text

Text can be emphasized by using **\emph** command. Sometimes the *emph* command behaves just as *textit*, but is not exactly the same:

Practice the below code and observe the output

```
Some of the greatest \emph{discoveries}
in science
were made by accident.

\textit{Some of the greatest \emph{discoveries}
in science
were made by accident.}

\textbf{Some of the greatest \emph{discoveries}
in science
were made by accident.}
```

Paragraphs and new lines

```
\begin{center}
This text will be placed in the middle of the document
\end{center}

New paragraph

\par command will be used to start a new paragraph

This is the text in first paragraph. This is the text in first
paragraph. This is the text in first paragraph. \par
This is the text in second paragraph. This is the text in second
paragraph. This is the text in second paragraph.
```

Try the above code in latex with using \par command, without using \par command and observe the output.

Paragraph Indentation

By default, LATEX does not indent the first paragraph of a section. The size of the subsequent paragraph indents is determined by the parameter. \parindent

\setlength{\parindent}{10ex}
This is the text in first paragraph. This is the text in first
paragraph. This is the text in first paragraph. **\par**
\noindent %The next paragraph is not indented
This is the text in second paragraph. This is the text in second
paragraph. This is the text in second paragraph.

Explanation: \setlength{\parindent}{10ex}
Here \setlength is for setting length of \parindent{10ex}, means where to start the paragraph line(space will be given at line starging), to observe the difference just 20ex in the place of 10ex and you can clearly observe the difference.

\noindent means there will be no space given at second line starting.

Note: Try the above code with \noindent command and without \noindent command you can clearly observe the difference.

Text alignment

The default environment for left-alignment is flushleft
\begin{flushleft}
Hello! Welcome to latex, this module is about text alignment.This is the left alignment text.
Happy learning latex.
\end{ flushleft}

Note: Try the above code to observe the output.

Right-justified text

Right-aligning text is straightforward with the environment \flushright.

\begin{flushright}
Hello! Welcome to latex, this module is about text alignment.This is the right alignment text.
Happy learning latex.
\end{flushright}

Note: Try the above code to observe the output.

Centred text

To centre a block of text use the environment \center

\begin{center} and \end{center} environment will be used for centered text.

Similarly \centering and \justify commands will be used….
Example:
\centering
Text will come here……..

\justify
Text will come here……..

Note: Try the above code to observe the output.