ANALYSIS WITH PROGRAMMING

`cout << "let's do some analysis and programming" << endl;`   http://alstatr.blogspot.com/

Introduction - First Document *L^AT_EX*	9 of September 2013

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Let us start with a simple LaTeX document. Open your text editor (Texmaker, TeXnicCenter, TeXworks, etc.), then go to File > New, and paste the following:
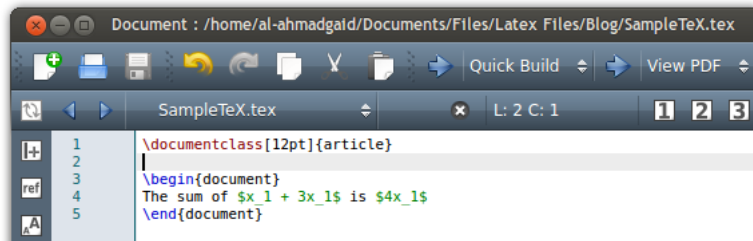
```
\documentclass[12pt]{article}


\begin{document}
The sum of $x_1 + 3x_1$ is $4x_1$
\end{document}
```

Save this and make sure the file has .tex extension. You should have something like this In Texmaker: Press F1 to compile and view the output (Mac users should

SampleTeX.tex in Texmaker

manually click the blue right arrow next to the paste button, because F1 won't work). The output is in PDF format with text on the top-left corner of the page that says the statement in Output 1. Now let us investigate these line by line. LaTeX document always starts with `\documentclass` which sets the document you are to create. In this case the document class is article, `{article}`, with font size option set to 12 point, `[12pt]`.

$$\text{The sum of } x_1 + 3x_1 \text{ is } 4x_1$$

Output 1: SampleTeX.tex

All LaTeX tag always start with backslash (`\`), use braces (`{}`) to enclose arguments, and brackets (`[]`) to enclose options of the arguments.

Click here for list of document classes and options. Proceeding to the third line, we declare the beginning of our document. This implies that anything between this line and its corresponding end (`\end{document}`) will be included in the output.

The block of codes from `\documentclass[12pt]{article}` to the line before the `\begin{document}` is sometimes called the *preamble*. This is where you setup the

properties of your document.

You can add more codes in the preamble to customize your document as we will see later. The text inside our article is coded as

```
The sum of $x_1 + 3x_1$ is $4x_1$
```

The output simply returns the plain texts 'The sum of' and 'is'. LaTeX reads alphanumeric characters, just like typing in any word processing software. But the real thing occurs when you start modifying the font, like into mathematical form. Plain text are transformed into math style when you start putting dollar ($) sign both in the beginning and end of that text. Like in our code we have `x_1 + 3x_1` and `4x_1` both enclosed with $ separately. Finally, underscore is use for subscript. Now, what about if we modify it into this?

```
\documentclass[12pt]{article}
\title{My first \LaTeX!}
\author{Al-Ahmadgaid B. Asaad}

\begin{document}
\maketitle
The sum of $x_1 + 3x_1$ is $4x_1$
\end{document}
```

The `\LaTeX` is a special function for proper formatting of the LATEX name, and `\maketitle` is a function that includes the header (title, author, and date) of the document set in the preamble. Both `\LaTeX` and `\maketitle` are example of LaTeX functions that do not take any argument.

LaTeXignores white spaces.

Thus, the following returns the same statement as in Output 1.

```
\documentclass[12pt]{article}

\begin{document}

The sum of
$x_1 + 3x_1$
is
$4x_1$

\end{document}
```

Labels

LaTeX, Tutorial,