

Packages

L^AT_EX documents with the simple preamble

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\begin{document}
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...
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Searching online, it seems we want `\mathbb{R}`, but this causes an error.

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To display this symbol we need to include the package of AMS symbols, `amssymb`, with the command `\usepackage{amssymb}` in the preamble.

There are other common symbols that are in the `amssymb` package, so you should put `\usepackage{amssymb}` in all your documents.

AMS packages

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\usepackage{amsmath,amsthm,amssymb}
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in the preamble. I suggest you do the same!

Other packages

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Environments

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\end{enumerate}
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- (i) these
- (ii) parts.

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Itemize and enumerate are examples of *environments*. Every environment starts with a `\begin{...}` command and ends with an `\end{...}` command.

There are lots of environments ready to use in \LaTeX . For example, the environment `align` is used to line-up '='-signs in multi-line equations and the `verbatim` environment is used to enter computer code.

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Look at the circulated document.  
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Activity. Look at the circulated document.

Entering computer code

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For example, showing \LaTeX commands in a \LaTeX document can't be achieved by simply typing them. (Why?)

The `verbatim` environment solves this problem, and is useful for entering small bits of computer code.

For example,

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```
\begin {verbatim}
Here's the \emph{emphasise} command
\end {verbatim}
```

For example,

```
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\end {verbatim}
```

produces

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For example,

```
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\end {verbatim}
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produces

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rather than

For example,

```
\begin {verbatim}
Here's the \emph{emphasise} command
\end {verbatim}
```

produces

Here's the `\emph{emphasise}` command

rather than

Here's the *emphasise* command

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For example, the `listings` package has an environment called `lstlisting`, which allows long scripts to appear with line-numbers, commands highlighted and more.

The following was created with `listings`.

```
1 # A simple python script , for fun
2
3 name = input("What is your name? ")
4
5 for i in range(1,10):
6     print(" Hello" ,name)
7
8 if name=="Sam" :
9     print("What are you doing here? I told you to
10         leave me alone! Please leave , and close the
11         door behind you.")
else :
    print(" Nice to meet you!")
```

Activity. The document in the Week 3 presentation materials on the course website was created with a fairly minimal \LaTeX -file. Can you work out which commands were used where? On a piece of paper, recreate the main \LaTeX commands as closely as possible, looking out for environments in particular.

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Here's how the \LaTeX looks.

```
\documentclass{article}
```

```
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```

```
\usepackage{parskip}
```

```
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```

```
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```

```
\title{Lecture 3 Activity}
```

```
\author{Sam Marsh}
```

```
\date{}
```

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\documentclass{article}
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\usepackage{parskip}
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\author{Sam Marsh}
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\begin{document}
```

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\usepackage{parskip}
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\title{Lecture 3 Activity}
```

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\author{Sam Marsh}
```

```
\date{}
```

```
\begin{document}
```

```
\maketitle
```

\section{Python}

```
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```

```
\subsection{About Python}
```


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`\emph{Python}` is a programming language
which is as capable as it is accessible.
In my opinion,

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In my opinion,
```

```
\begin{itemize}
```

```
\item it is as easy to use as \emph{BASIC}  
(the first programming language I ever  
learnt), and
```

```
\item it is sophisticated enough to do pretty  
much anything the programmer wants to do.
```

```
\end{itemize}
```

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\subsection{First script}
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A good first script to try is

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\begin{verbatim}
name = input("What is your name? ")
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\ end{verbatim}
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\subsection{First script}
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\begin{verbatim}
name = input("What is your name? ")
for i in range(1,10):
    print("Hello",name)
\end{verbatim}
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which asks for the user's name, assigns the input string to the variable 'name' then outputs 'Hello (name)' 9 times. I think it's quite easy to see why!

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I do quite like it, although I'm not as struck by it as some people are.

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is considered by some to be the perfect mathematical formula, linking the fundamental concepts 0 , 1 , e , $i\pi$, addition and equality in a very simple expression.

I do quite like it, although I'm not as struck by it as some people are.

\end{document}

More on presentation

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For example, you have just received or are just about to receive marked homework from MAS110. Did you get comments on how to present your ideas?

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- 'woolly' arguments (can you make things more precise?);
- 'proof by example' (you can only disprove by counter-example!).

Overall, presenting maths well does take effort but the effort will pay off (in better understanding and higher marks).

About Computer Lab 3

In Computer Lab 3 we'll look at using some of L^AT_EX's auto-referencing features, looking at how to create numbered

$$equa = t^{ions}, \tag{1}$$

Proposition 3.1.

propositions and

Theorem 3.2.

theorems

and refer to them later.