

Notes Set 1: Introduction

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Introduction

This document is the first of a set of notes giving an overview of key syntax, tools, and concepts for using Julia. The notes are not meant to be particularly complete in terms of useful functions (Google and LLMs can now provide that quite well), but rather to introduce the language and consider key programming concepts in the context of Julia.

Given that, the document heavily relies on demos, with interpretation in some cases left to the reader.

This document covers basic syntax, basic types, data structures, and functions.

Variables and types

Basic types

Let's start by defining some variables and seeing what their types are.

```
typeof(2)
x = 2.0
typeof(x)
s = "hello"
typeof(s)
typeof(s[1])
typeof('\n')
## Unicode characters
'h'
'i'
'\n'
' '
```

```
y = (3, 7.5)
typeof(y)
```

```
Tuple{Int64, Float64}
```

As we'll be discussing more, knowing what type a variable is (particularly for large objects such as large arrays) is important for thinking about memory use, what methods work with what types of variables, and when variables need to be cast/coerced to a different type.

We can enter LaTeX characters/formatting by typing in LaTeX syntax (using a “”) and then TAB.

```
= 3.57 # \theta TAB
```

```
#=
```

```
Note the use of a comment
in the initial line.
```

```
And this here is a multi-line comment.
```

```
=#
```

```
x = 7 # x\_1 TAB
```