Course notes

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UNDER CONSTRUCTION

Introduction

This document gives an overview of key syntax, tools, and concepts for using Julia. It's 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.

(Day 1) Introduction: basic syntax, functional programming, and basic types

Variables and types

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

```julia
typeof(2)
```

```
Int64
```

```julia
x = 2.0
```

```
2.0
```

```julia
typeof(x)
```

```
Float64
```

```julia
s = "hello"
```

```
"hello"
```

```julia
typeof(s)
```

```
String
```

```julia
typeof(s[1])
```

```
Char
```

```julia
typeof('\n')
```

```
Char
```

```julia
## Unicode characters
'h'
```

```
'h': ASCII/Unicode U+0068 (category Ll: Letter, lowercase)
```

```julia
'i'
```

```
'i': ASCII/Unicode U+0069 (category Ll: Letter, lowercase)
```

```julia
'\n'
```

```
'\n': ASCII/Unicode U+000A (category Cc: Other, control)
```

```julia
'θ'
```

```
'θ': Unicode U+03B8 (category Ll: Letter, lowercase)
```

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

```
(3, 7.5)
```

```julia
typeof(y)
```

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