

Day 1: Introduction

Andrew Luo

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Contact

Day 1:
Introduction

Andrew Luo

- andrew.luo25@gmail.com
- Go to my GitHub Slides for lesson slides
 - <https://github.com/andrewlmao/javascript-lessons>

Materials

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- Notebook for taking notes
 - We will be writing some code by hand to better keep it in memory
- CodingRooms Account
 - 1 Go to <https://www.codingrooms.com/>
 - 2 Click "Sign Up" in the top right corner

What is Programming?

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- the act of constructing a program
 - a *program* is a set of instructions telling a computer what to do
 - allows us to do things in seconds that would normally take forever by hand
- a *programming language* is a constructed language used to communicate with computers
 - easier for humans to read
 - a *low-level language* is closest to the commands and functions that processor understands
 - ex. the lowest level language is machine code (binary)
 - a *high-level language* abstracts from the details of the computer
 - closer to human language and semantics
 - not understood by the computer
 - ex. Java, C++, Python

Compiling vs. Interpreter

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- the job of a *compiler* is to translate a high level language into machine code that the computer understands
 - the programmer creates *source code* file in a high-level language
 - the source code is then passed to a compiler, which produces machine code (known as a *binary*)
 - examples include Java, C++
- the job of an *interpreter* is to interpret each line of code into language that the computer understands
 - there is no source code
 - the interpreter acts as a middle person
 - slower than compiled languages
 - examples include Python and Javascript
 - browsers contain Javascript interpreters that can run Javascript

What is Javascript?

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- one of the three fundamental technologies of the web
 - Javascript
 - HTML (HyperText Markup Language)
 - CSS (Cascading Style Sheets)
- think of modern websites as a house
 - HTML gives structure to websites, like the frame of a house
 - CSS gives style to websites, like the paint of a house
 - Javascript makes websites dynamic (can change), like doors and windows that can open and close
- originally written for adding programs to Netscape Browser in 1995
- has nothing to do with Java
- implementation of the ECMAScript standard to ensure compatibility between different browsers

Hello World

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- Write the following into your editor
- `console.log("Hello World");`
- this prints "Hello World" into the console

console.log()

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- prints whatever is passed into the parentheses into standard output
- we will elaborate on functions later

Declaring and Initializing Variables

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- a *variable* holds a particular value
- each variable has a type and name
- variables are *dynamically type*
 - Javascript automatically defines the type
 - you only have to give a name

```
let myVariable = 1;
```

- *let*, *const*, and *var* are keywords that create a variable
- *myVariable* is the variable name
- `=` is the assignment operator
- the number 1 is being assigned to *myVariable*
- every statement in Javascript ends with semicolon `;` or nothing

Var, Const, Let

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- *var* is a global scope variable
- *const* is a variable whose value cannot change after being initialized
- *let* is a block scope variable
 - blocks are denoted by curly braces `{ }`

Data Types

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- number
- string
 - denoted by quotation marks
- object
- symbol
- boolean
 - true or false
- null
 - means no value
- undefined
 - variable has been defined but not initialized

Math Operations

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- +
- -
- *
 - multiplication
- /
 - division
- %
 - modulus
 - means remainder
 - ex. $6 \% 4 = 2$

String Concatenation

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- you can use the `+` operator to concatenate two strings
- `let myString = "Andrew" + "Luo"`
- you can even use the `+` operator to add strings with
 - objects
 - numbers
 - null
 - undefined

Comments

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- one line comments use `//`
- multiline comments use `/* */`

```
// This is a single line comment
/*
This is a
multiline
comment
*/
```

Sources

Day 1:
Introduction

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- Eloquent Javascript 3rd Edition by Marijn Haverbeke