

Lecture 1: Introduction, Data Types, Variables and Assignment

Ben Rosenberg

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Welcome!

Welcome to CS XXXX: Intro CS: 7-week version (cool version)!

Today we'll go over some logistics very quickly, and then dive into material.

All the course materials are on the course website, which is <https://benrosenberg.info/introcs-course/>. This includes the syllabus, assignments, exam practice materials, etcetera. Definitely check the website out ASAP so that you can read the syllabus.

Due to the large amount of material we need to cover, the syllabus won't be covered in depth in today's lecture. Instead, please read over the syllabus on your own time.

Your first homework assignment is already up on the course website, on the Assignments page. It's due Tuesday (next week).

It's mainly an assignment to gauge the prior experience of the class, as well as introduce you to the way homeworks are going to be handed in. There are some questions that you won't be able to answer yet, but you'll have all the knowledge you need by the end of today's lecture (hopefully).

Primitives: most basic kind of data type. Examples:

- integers: 1, 10000, -239847
- floats: 1.0, 12.36457, -34523478.36742, 1.28e+27, 3.237e-18
- booleans: True, False
- strings:
 - `'a', 'abcdef', 'the quick brown fox jumps over the lazy dog',`
 - `"double quotes work too in Python",`
 - `'you can include the \'same kind\' of quote if you "escape" the quote with backslashes, or you can use a different kind of quote without escaping it'`

How do different types interact with one another?

iClicker question

Say I have the following code:

```
>>> 10.0 * 10
```

What do you think it will evaluate to?

- A) 100.0
- B) 100
- C) There will be an error
- D) Something else

Demonstration in Python REPL.

Casting

Python does not make “narrowing” casts – only “widening” casts.

Order of primitives, from “narrow” to “wide”:

bool -> int -> float -> str

Booleans can only have 2 different values. Integers can have a lot more but can still not have decimal values. Floats can have both. Strings can contain characters.

Python wants to make sure that no information is lost when performing operations.

Variables

If we want to store values, we use **variables**. We *assign* values to variables using the = symbol:

```
>>> a = 1
```

```
>>> b = 2
```

```
>>> c = a + b
```

```
>>> c
```

```
3
```