Module 1 - Lecture 6

Introduction to Objects

Review

- Command Line programs
- Reading in data
- Parsing data
- Writing data to the console

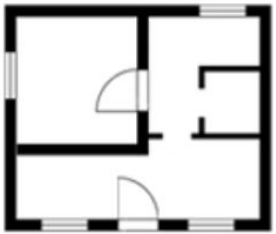
Objects!

What is an Object?

An **object** is an in-memory data structure that combines state and behavior into a useful abstraction.

Classes

A **class** is a grouping of variables and methods in a source code file from which we can generate objects.



Blueprint

Class

Object

Object

Creating an Object

Declare:

```
House myHouse;
```

Instantiate and Initialize:

```
myHouse = new House("Red");
```

All in one:

```
House myHouse = new House("Red");
```

There is that **new** keyword again.

Primitive vs. Reference Types

Primitive or Value Types

boolean

char

byte
int
long
float
decimal

Reference Types

Strings

Arrays

Objects

... really everything other than primitives.

Primitive vs. Reference Types

Primitive or Value Types

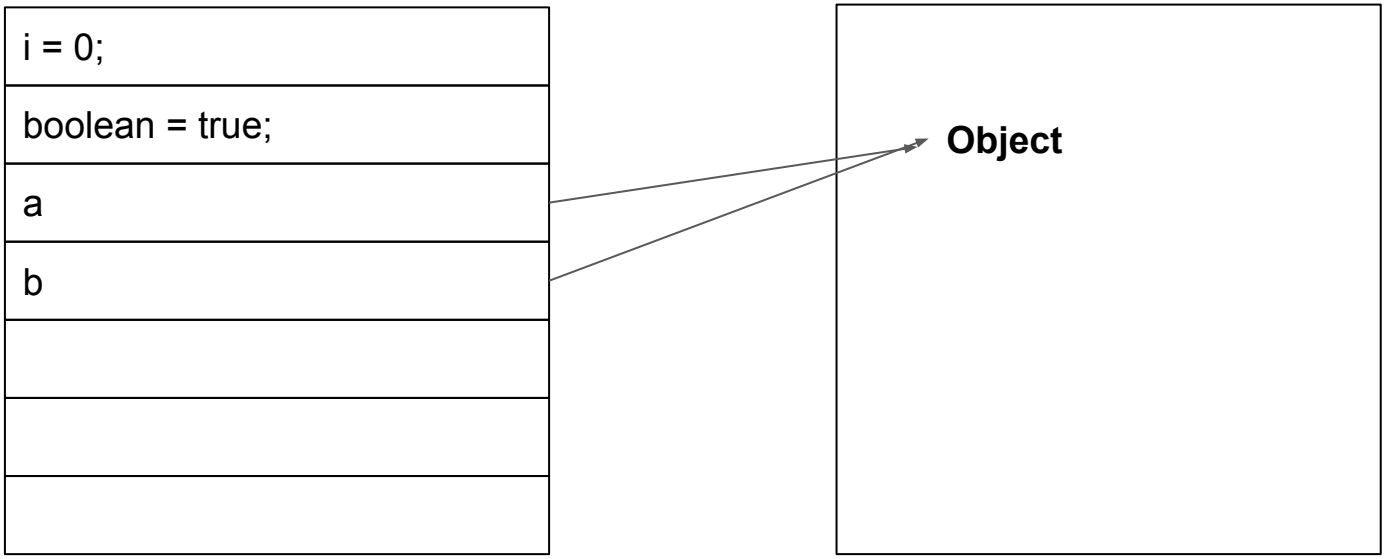
Type	Size (bits)
boolean	1
char	16
byte	8
int	32
long	64
float	32
decimal	64

Reference Types

Type	Size (bits)
Strings	???
Arrays	???
Objects	???

... really everything other than primitives.

Stack vs. Heap



Reference type assignment

What will be printed by the code below?

```
boolean[] first = { true, true, false, false };

boolean[] second = first;

second[2] = true;

System.out.print(first[2]);
```

Strings

- They are an object, but they are unique.
  - Do not require the **new** keyword.
  - Immutable

Let's Code!

Reading

- Module 1
  - Collections Part 1

QUESTIONS?