Design Patterns

July 21, 2014

Design Patterns

Introduction Lite

Some guys got together and wrote down some *patterns* they've encountered over their careers in software development and slapped some names on them.

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Some guys got together and wrote down some *patterns* they've encountered over their careers in software development and slapped some names on them.

That's it... really.

Design Patterns

Introduction Lite

Definition

Design Patterns are recurring architectural concepts in software development that have been used to solve specific problems.

Design Patterns

Introduction Lite

1. There are many named *patterns* in the wild.
2. You've already derived and used a couple patterns.

Design Patterns

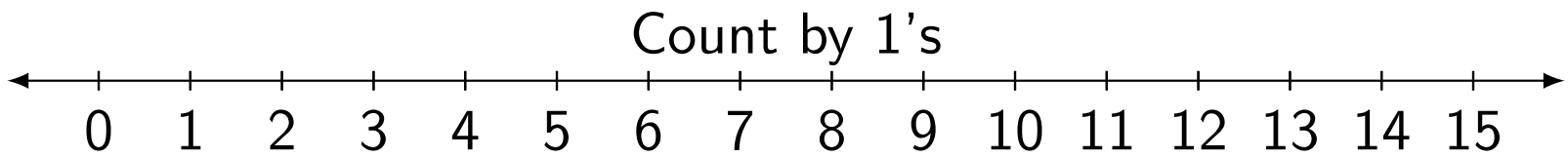
Introduction Lite

You just did not know it was a *thing* that had a name.

And they exist everywhere **else**...

Design Patterns

Learning how to count... again



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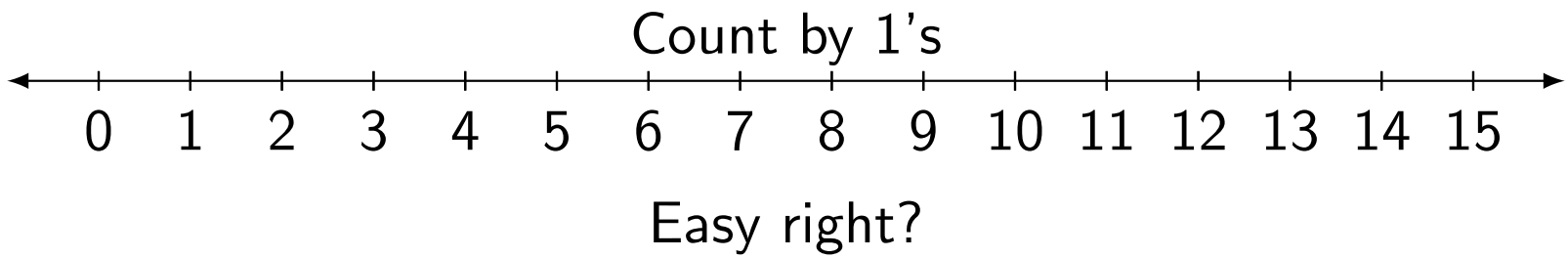
Learning how to count... again



Easy right?

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Learning how to count... again

What mathematical operation did you use?

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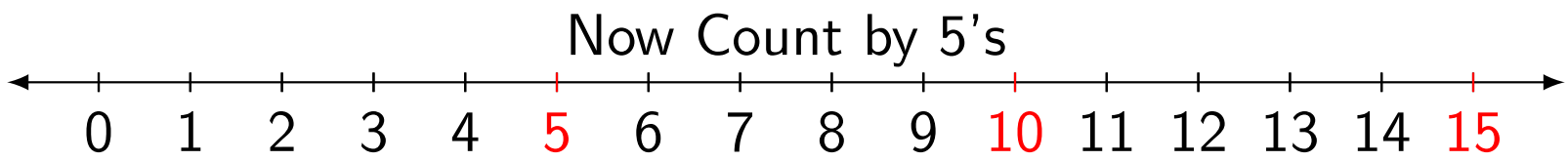
Learning how to count... again



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Think like a programmer

1. Create a function that calculates the *nth* multiple of 5.
2. Create a function that calculates the *next* multiple of 5.
3. What do all the multiples of 5 have in common?

Definition

intrinsic state - sharable features of the defines something.

Design Patterns

Think like a programmer

Definition

intrinsic state - sharable features of the defines something.

Definition

extrinsic state - features/behavior created by a context of usage and therefore can not be shared.

Design Patterns

Think like a programmer

1. What is an **intrinsic state** of numbers that are multiples of 5?

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Think like a programmer

1. What is an **intrinsic state** of numbers that are multiples of 5?
2. Provide an **extrinsic state** for a multiple of 5.

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Think like a programmer

Task: Create a **NumberLine** class that represents the first 77 trillion multiples of 5 on the interval $(0, \infty)$

Design Patterns

Flyweight

A **flyweight** is a pattern where you can use a single shared object to represent many *items*.

Huh?!

You already know how to do this in ruby

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Flyweight

~~Kanye's~~ Conway's Game of Life

1. why couldn't we create an object for each cell in a *large* grid?
2. what was the **intrinsic state** of a cell?
3. what was the **extrinsic state** of a cell?

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Flyweight

Task: Create an object or object instance that represents all live cells in a ∞-by-∞ sized grid.

Ta-dah!