



Test Driven Development

It sounds great
but how do we do it?

brianjbayer

The mechanics of Test Driven Development using the Fizz Buzz
code kata





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- Done it: DevOps, Agile, Scrum, XP, Kanban, Lean, and Waterfall
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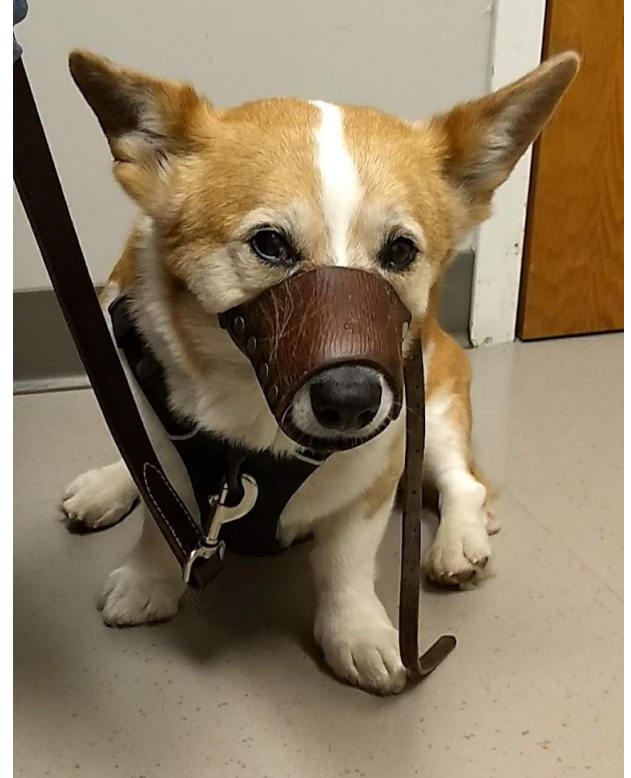
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Why am
I here?



We are told the benefits of and/or to do Test Driven Development (TDD) and Acceptance Test Driven Development (ATDD) but we are not told HOW to do it

This can be frustrating and lead to
bad behaviors and practices



We are going to try and remedy
that here




In this interactive live-coding presentation we will demonstrate the mechanics of TDD using the Fizz Buzz code kata

A code kata is an exercise in programming which helps programmers hone their skills through practice and repetition

Code Kata







Using Code Kata's to become a better developer



Code Kata is an exercise in programming that helps a programmer hone their skills through practice and repetition.

A kata a day keeps the debugger away

Happy coding! Keep it in your mind. It's not just for coding, it's for living.



Before you begin a Kata:

Try not to read ahead.

Do one kata at a time. The idea is to learn incrementally.

Make sure you understand the kata before you start. It's not just for coding, it's for living.

Kata

Programming

[More images](#)

[Feedback](#)

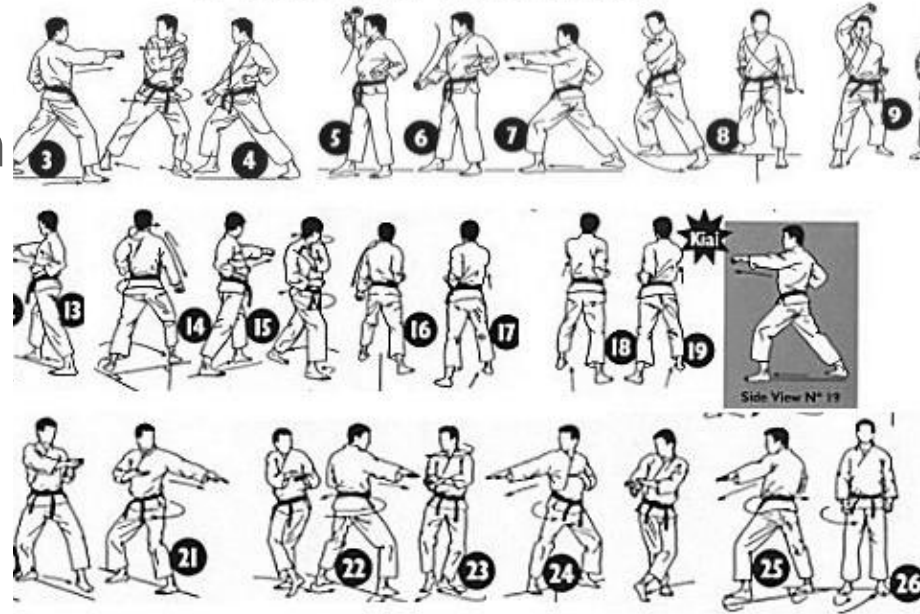
A code kata is an exercise in programming which helps programmers hone their skills through practice and repetition. In 1999, the term was used by Dave Thomas, co-author of the book *The Pragmatic Programmer*, in a bow to the Japanese concept of kata in the martial arts.

[Wikipedia](#)

[Feedback](#)

Kata, a Japanese word, meaning literally: "form" (型 or 形), is a detailed **choreographed pattern of movements** made to be **practiced** alone, but are also practiced within groups and in unison when training.

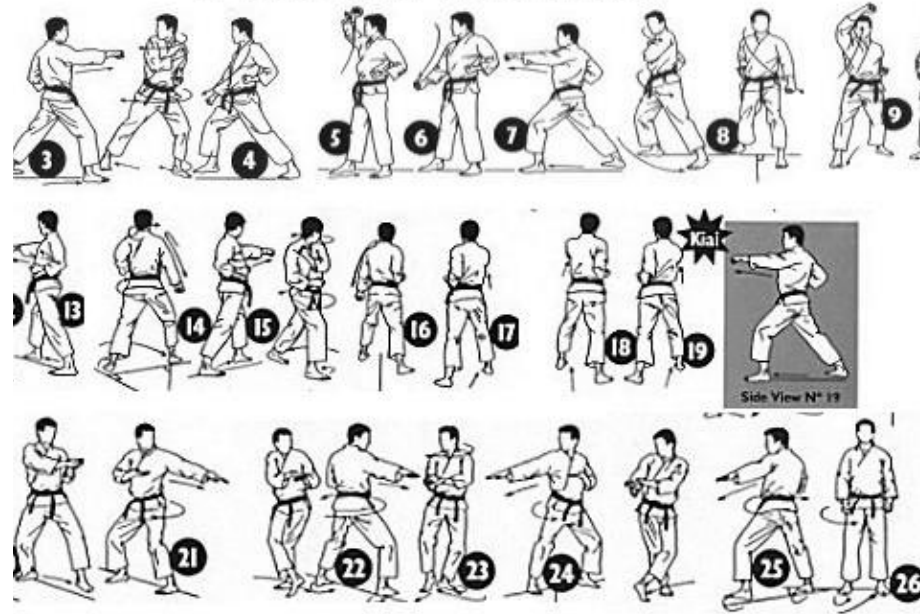
Pinan Nidan



It is **practiced** as a way to **memorize** and **perfect** the **movement** being **executed**.

<https://en.wikipedia.org/wiki/Kata>

Pinan Nidan



Fizz Buzz - the kids math and counting game ...



Fizz buzz

From Wikipedia, the free encyclopedia

Fizz buzz is a group word game for children to teach them about [division](#).^[1] Players take turns to count incrementally, replacing any number divisible by three with the word "fizz", and any number divisible by five with the word "buzz".

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Play [[edit](#)]

Players generally sit in a circle. The player designated to go first says the number "1", and each player thenceforth counts one number in turn. However, any number [divisible](#) by three is replaced by the word *fizz* and any divisible by five by the word *buzz*. Numbers divisible by both become *fizz buzz*. A player who hesitates or makes a mistake is eliminated from the game.

For example, a typical round of fizz buzz would start as follows:

1, 2, Fizz, 4, Buzz, Fizz, 7, 8, Fizz, Buzz, 11, Fizz, 13, 14, Fizz Buzz, 16, 17, Fizz, 19, Buzz, Fizz, 22, 23, Fizz, Buzz, 26, Fizz, 28, 29, Fizz Buzz, 31, 32, Fizz, 34, Buzz, Fizz, ...

Fizz Buzz...

Count from 1 to supplied number, **replacing** numbers that are **divisible** by...

- 3 with '**Fizz**'
- 5 with '**Buzz**'
- 3 and 5 with '**FizzBuzz**'



WELCOME TO
ACCEPTANCE

CRITERIA

ENJOY YOUR JOURNEY

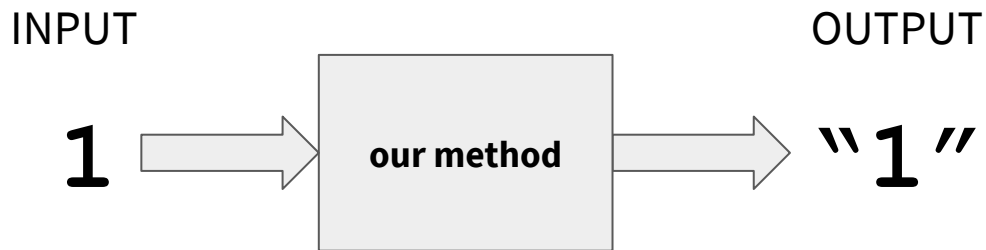
Fizz Buzz...

A **method** that **outputs** a **string counting** from **1 to supplied number**, **replacing** numbers that are **divisible** by...

- **3** with '**Fizz**'
- **5** with '**Buzz**'
- **3** and **5** with '**FizzBuzz**'

Fizz Buzz...

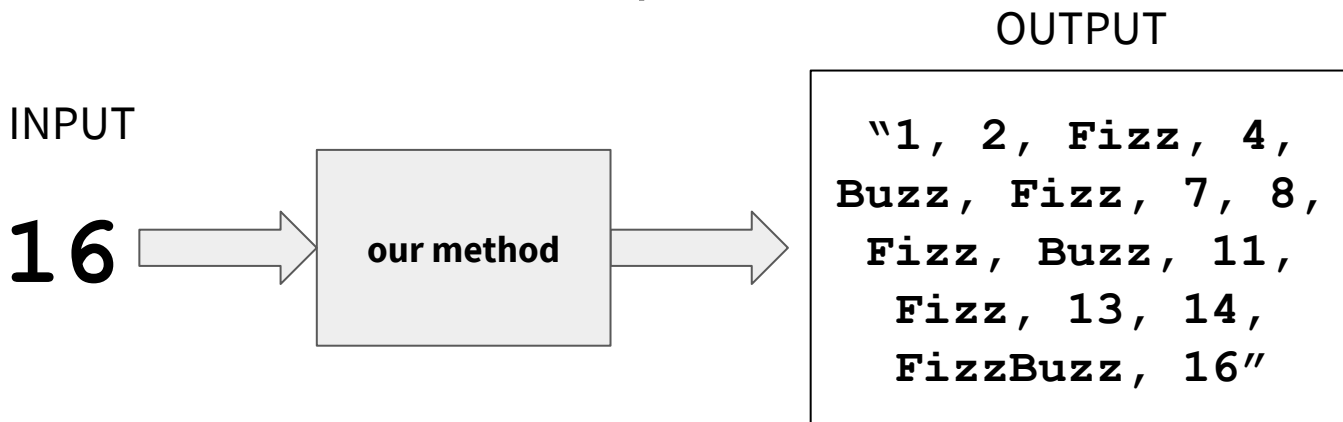
Specification by Example (an example)



Example 1: for **1**, output **"1"**

Fizz Buzz...

Specification by Example (an example)



Example 2: for **16**, output...

"1, 2, Fizz, 4, Buzz, Fizz, 7, 8, Fizz, Buzz, 11, Fizz, 13, 14, FizzBuzz, 16"

Some ground rules since we only have an hour...

- **Interactive** so **ask questions** as we go
- **BUT** focus is on TDD and its mechanics not basic programming or Ruby or RSpec



**JUST ONE MORE
THING...**

Columbo



My Recipe for Test Driven Development...

- 1. DESCRIBE**
- 2. CODIFY**
- 3. IMPLEMENT**

My Recipe for Test Driven Development...

- 1. DESCRIBE (the new behavior, aka Acceptance Criteria)**
- 2. CODIFY**
- 3. IMPLEMENT**

My Recipe for Test Driven Development...

- 1. DESCRIBE (the new behavior, aka Acceptance Criteria)**
- 2. CODIFY (by writing and verifying the test using stubs)**
- 3. IMPLEMENT**

My Recipe for Test Driven Development...

- 1. DESCRIBE** (the new behavior, aka Acceptance Criteria)
- 2. CODIFY** (by writing and verifying the test using stubs)
- 3. IMPLEMENT** (the behavior by writing the code under test)



Pro Tip

Do a thing (like write some code), run the tests

Let's do this in the code...

Let's do this in the code...

Let's do this in the code...

A sample solution can be found at https://github.com/brianjbayer/fizz_buzz



ACCEPTANCE CRITERIA: Fizz Buzz...

A **method** that **outputs** a **string counting** from **1** to **supplied number**, **replacing** numbers that are **divisible** by...

- 3 with '**Fizz**'
- 5 with '**Buzz**'
- 3 and 5 with '**FizzBuzz**'

Meets Examples

- For 1, returns '1'
- For 16, returns...
'1, 2, Fizz, 4, Buzz, Fizz, 7, 8, Fizz, Buzz, 11, Fizz, 13, 14, FizzBuzz, 16'

Image Sources

Cover art : <https://www.truscore.com/360-feedback-resources/wp-content/uploads/2017/11/iStock-160832468.jpg>

Who are you: <https://sayingimages.com/wp-content/uploads/im-sorry-who-are-you-meme.png>

Boo boo: <http://sadmoment.com/wp-content/uploads/2013/11/Sad-Puppy-At-The-Vet-Fixing-a-Boo-Boo-Error.jpg>

Acceptance: <https://pro.psychcentral.com/child-therapist/wp-content/uploads/sites/3/2016/12/acceptance-pic.jpg>

Kata: <http://www.warrior-martial-arts.com/kata/>

Kids in a circle <https://pbskids.org/plumlanding/educators/activities/i/biobingo.hotpotato.jpg>

Shake hands: <https://www.thefightcity.com/wp-content/uploads/2014/11/Jeffries-vs.-Fitzsimmons-shake-hands.jpg>

Recipe: <https://makeameme.org/meme/follow-the-recipe>

Columbo: <https://answeritsa.files.wordpress.com/2013/07/tv-columbo.jpg>