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BIT Fest Coding Dojo
Roman Numerals Kata

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What is Coding Dojo?

Coding Dojo
Idea

A Coding Dojo (from http://codingdojo.org/) is a meeting where a bunch of coders get together to work on a programming challenge. They are there to have fun and to engage in DeliberatePractice in order to improve their skills.

Code Kata (from wikipedia) is an exercise in programming which helps a programmer hone their skills through practice and repetition.

More on: http://codingdojo.org/

Coding Dojo
Organization

Meeting needs: room, computer, projector, whiteboard

Problem to solve: an simple one for ~2 h (including TDD)

Popular Dojo types: Prepared Kata, Randori Kata

Roles: Sensei, Programmer (pair: typer, guide), Advisors

Rules:

1. Sensei ask questions, doesn't give answers

2. All must participate in code being written

3. Everyone must participate in sparring

4. Dojo stops in case of any misunderstandings

Tools
General

1. Compiler: gcc, g++

2. Version/revision control system: Svn, Git

3. Building: cmake, make

4. Text editor: vim

5. IDE: Qt Creator

6. Test framework: gtest, boost test

What is TDD?

Test Driven Development
Definition

Test-driven development (from Wikipedia) is a software development process that relies on the repetition of a very short development cycle:

- first the developer writes an (initially failing) automated test case that defines a desired improvement or new function,

- then produces the minimum amount of code to pass that test,

- and finally refactors the new code to acceptable standards.

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Test Driven Development
TDD phases

1. Red
   Write a failing test

2. Green
   Write production code to make test pass

3. Refactor
   Check code for improvements/optimization

Test Driven Development
Tree laws of TDD

1. Write no production code except to pass a failing test

2. Write only enough of a test to demonstrate a failure (not compiling is failing)

3. Write only enough production code to pass the one failing test

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Code Kata
Roman Numerals Kata

Given a positive integer number (eg 42) determine its Roman numeral representation as a String (eg "XLII").

The Roman 'letters' are:

1 -> "I" | 10 -> "X" | 100 -> "C" | 1000 -> "M"

2 -> "II" | 20 -> "XX" | 200 -> "CC" | 2000 -> "MM"

3 -> "III" | 30 -> "XXX" | 300 -> "CCC" | 3000 -> "MMM"

4 -> "IV" | 40 -> "XL" | 400 -> "CD" | 4000 -> "MMMM"

5 -> "V" | 50 -> "L" | 500 -> "D"

6 -> "VI" | 60 -> "LX" | 600 -> "DC"

7 -> "VII" | 70 -> "LXX" | 700 -> "DCC"

8 -> "VIII" | 80 -> "LXXX" | 800 -> "DCCC"

9 -> "IX" | 90 -> "XC" | 900 -> "CM"

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Code Kata
Roman Numerals Kata

You cannot write numerals like IM for 999. Wikipedia states "Modern Roman numerals are written by expressing each digit separately starting with the leftmost digit and skipping any digit with a value of zero."

Examples:

1990 -> "MCMXC" (1000 -> "M" + 900 -> "CM" + 90 -> "XC")

2008 -> "MMVIII" (2000 -> "MM" + 8 -> "VIII")

99 -> "XCIX" (90 -> "XC" + 9 -> "IX")

47 -> "XLVII" (40 -> "XL" + 7 -> "VII")

End
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Questions?

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