



Property-based Testing

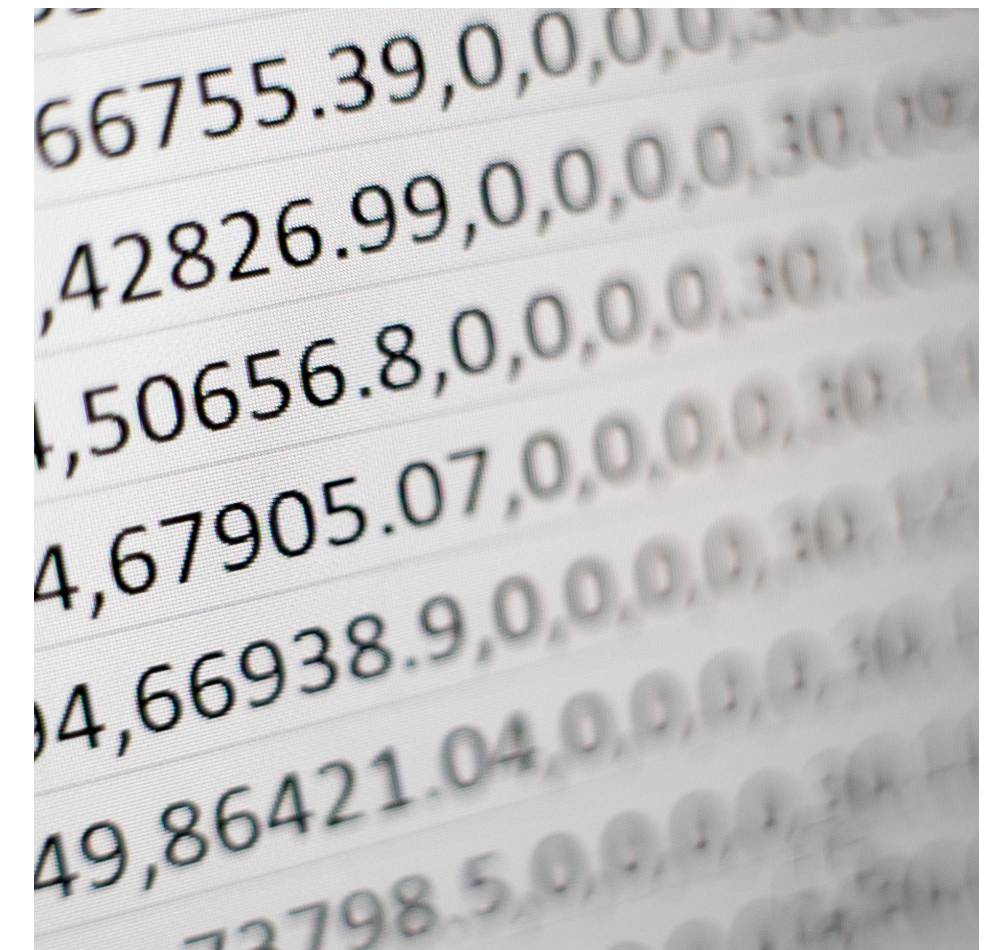


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Example-based testing

Unit-tests and micro-tests define examples of behaviors.

- They run on pre-chosen and fixed values.
- Parametrized tests help us in checking more values easily.
- Examples are not enough to explore our problem space.



Property-based testing
moves from examples to
properties.



Let's consider FizzBuzz

Example

The number **12** is converted into the string **"Fizz"**.

Property

Every number that is a **multiple of 3** is converted into a string that starts with **"Fizz"**.



Properties are general rules
that describe a program's
behavior.



jqwik

Brings Property-Based Testing to the JVM.

- Property: post-condition given some pre-condition.
- jqwik tries to falsify a wrong assumption.
- Example on [FizzBuzz](#)



Project FiFo

Open source Cloud Management and Orchestration system for SmartOS.

- 60000 lines of production code.
- 450 lines of quickcheck tests.
- 25 bugs uncovered.



References



PropEr Testing

<https://proPERTesting.com/toc.html>

Property-based Testing in Java

<https://blog.johanneslink.net/2018/03/24/property-based-testing-in-java-introduction/>

Testing Asynchronous APIs With QuickCheck

<http://www.erlang-factory.com/static/upload/media/1461230674757746pbterlangfactorypptx.pdf>