Optimizing CI using Test Case Prioritization

December 16, 2019

Pieter De Clercq

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“ Lost time is never found again.

-- *Benjamin Franklin* ”

Overview

1. What is Continuous Integration?

Overview

1. What is Continuous Integration?
2. Problem

Overview

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2. Problem
3. Existing solutions

Overview

1. What is Continuous Integration?
2. Problem
3. Existing solutions
4. VeloCIty

Overview

1. What is Continuous Integration?
2. Problem
3. Existing solutions
4. VeloCIty
5. Progress

What is CI?

Agile Software Development

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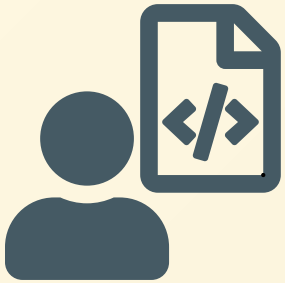

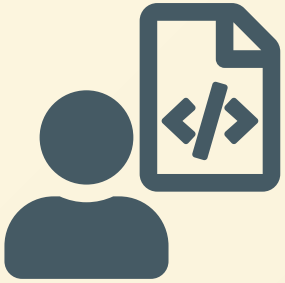

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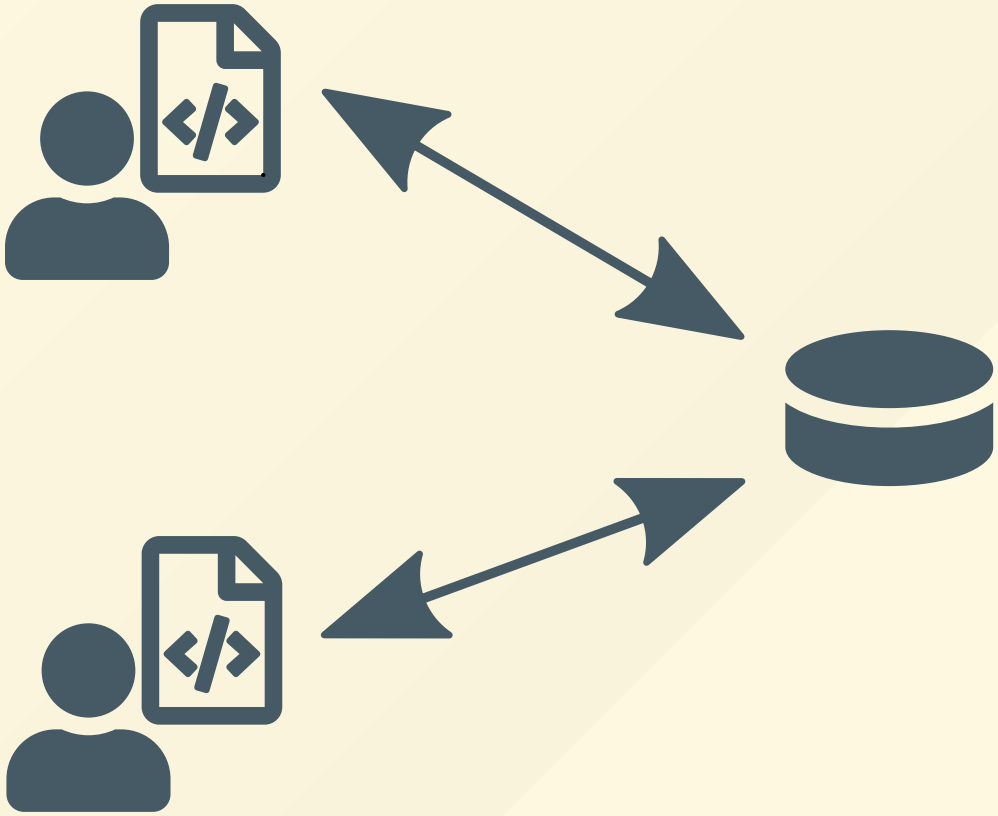

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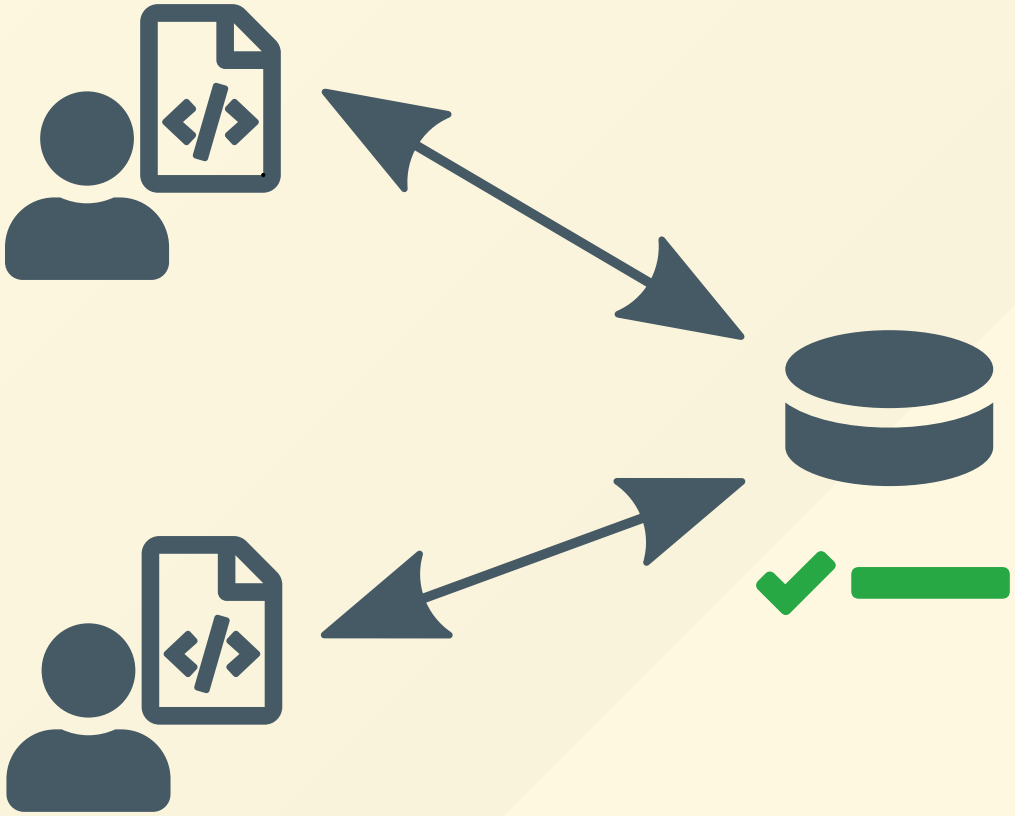

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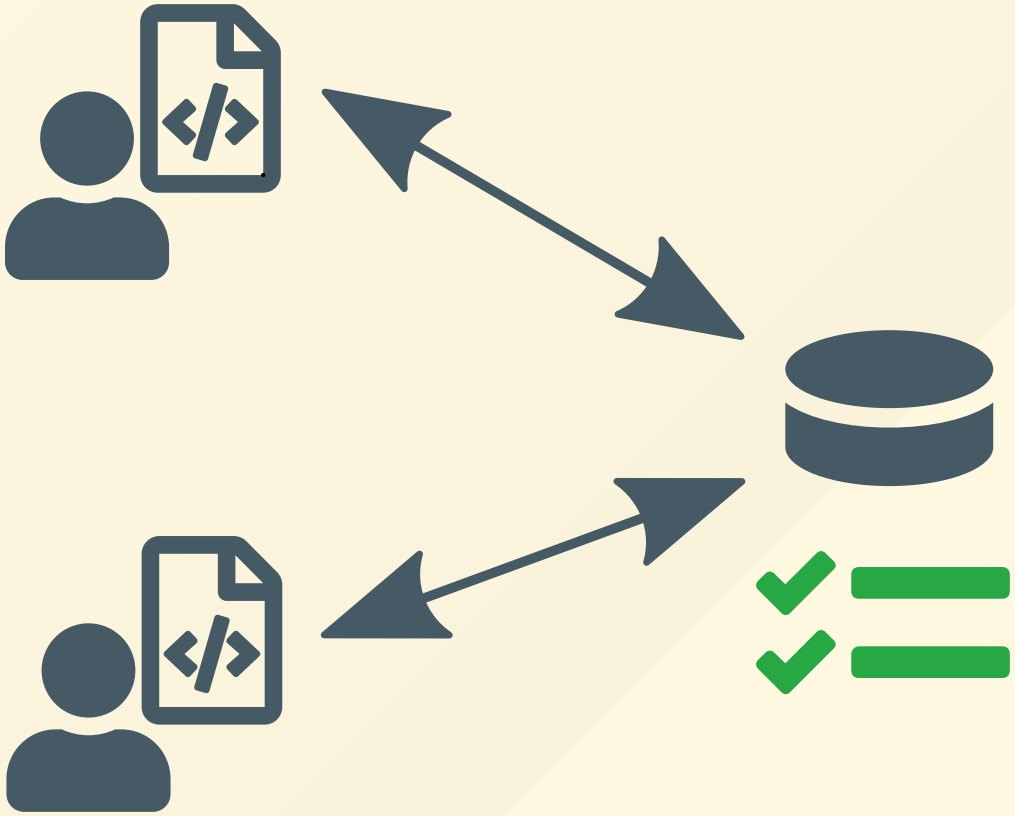

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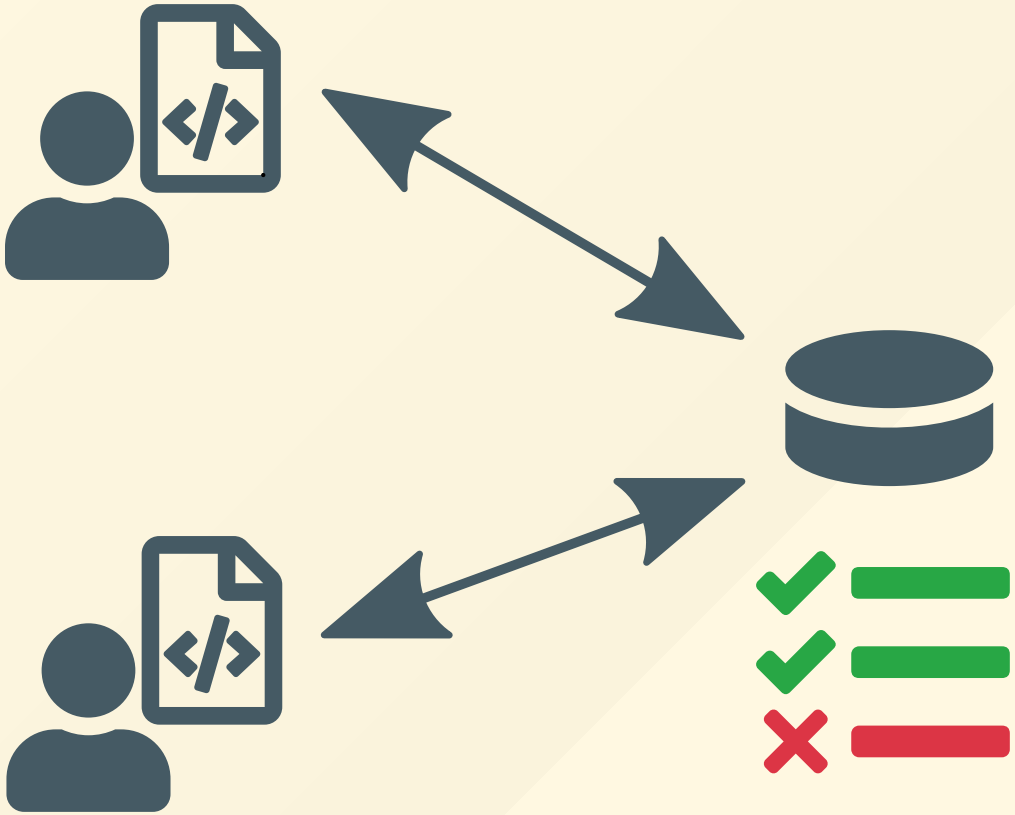

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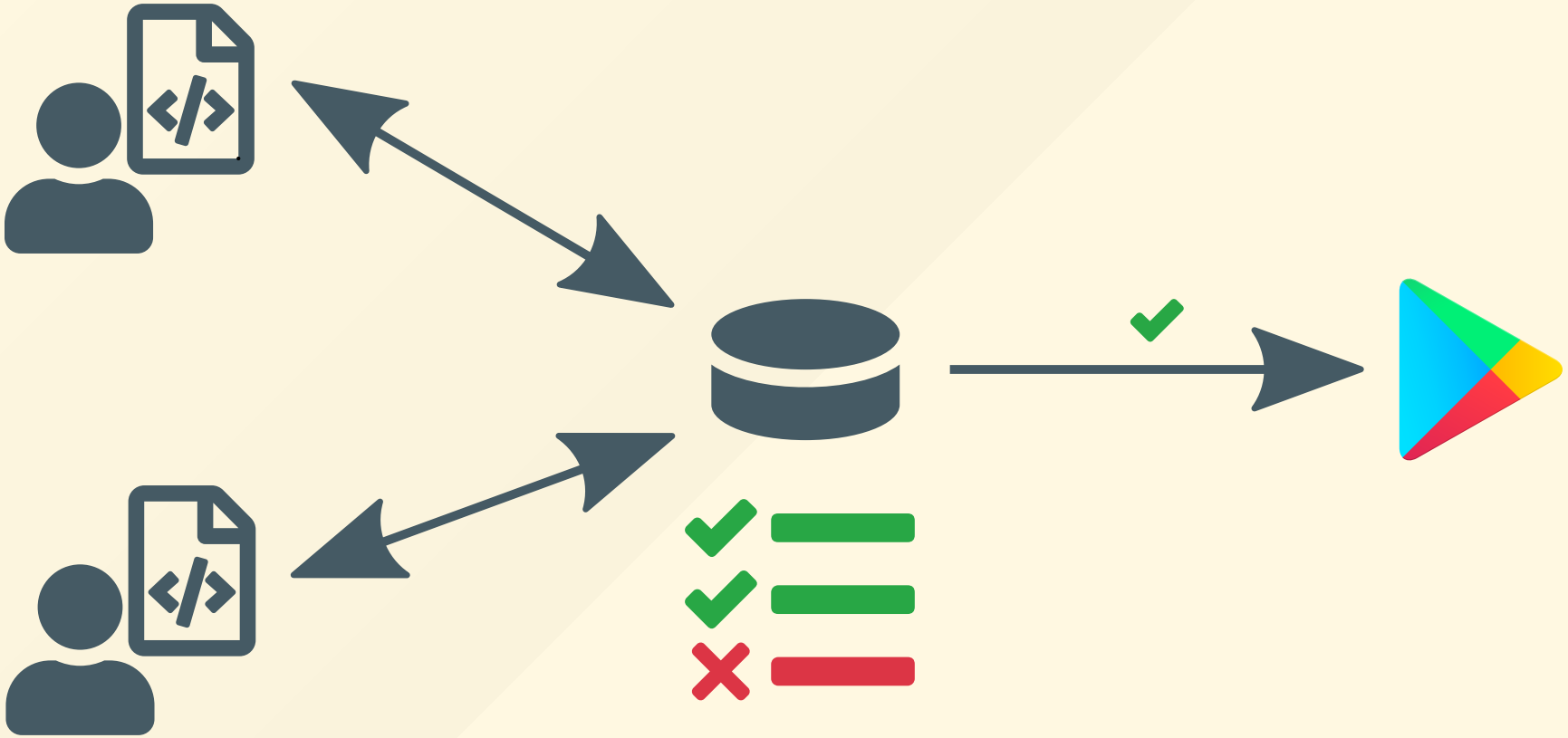


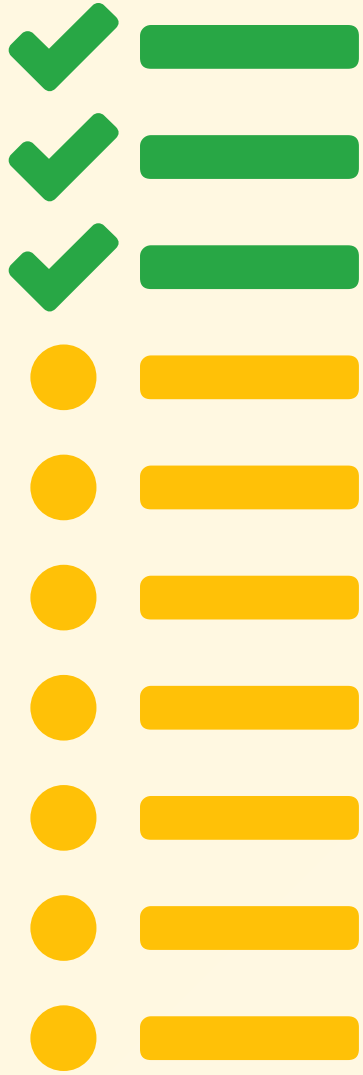
Problem

Tests!

Tests

Tests

Tests



Existing solutions

Existing solutions

- Test Case Selection

Existing solutions

- Test Case Selection
- Test Suite Minimization

Existing solutions

- Test Case Selection
- Test Suite Minimization
- ➡️ Test Case Prioritization

Test Case Prioritization

- History based

Test Case Prioritization

- History based
- Diversity (Coverage) based

Test Case Prioritization

- History based
- Diversity (Coverage) based
  - Branch / Statement coverage
  - Distance metric

VeloCIty

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VeloCIty

- Compare TCP algorithms

VeloCIty

- Compare TCP algorithms
- Metapredictor

VeloCIty

- Compare TCP algorithms
- Metapredictor
- Plugin for Jenkins CI

Progress

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Progress

- Data scraping

Progress

- Data scraping
- Literature study

Questions?

References

- Slides created using Marp.
- Icons are property of FontAwesome.