HIKOMSYS

Learning About Java Dependencies Through Gamification

Dominique Rahm

What do Foursquare, Zynga, Nike+, and Groupon have in common?

These and many other brands use **gamification** to deliver a sticky, viral, and engaging experience to their customers.

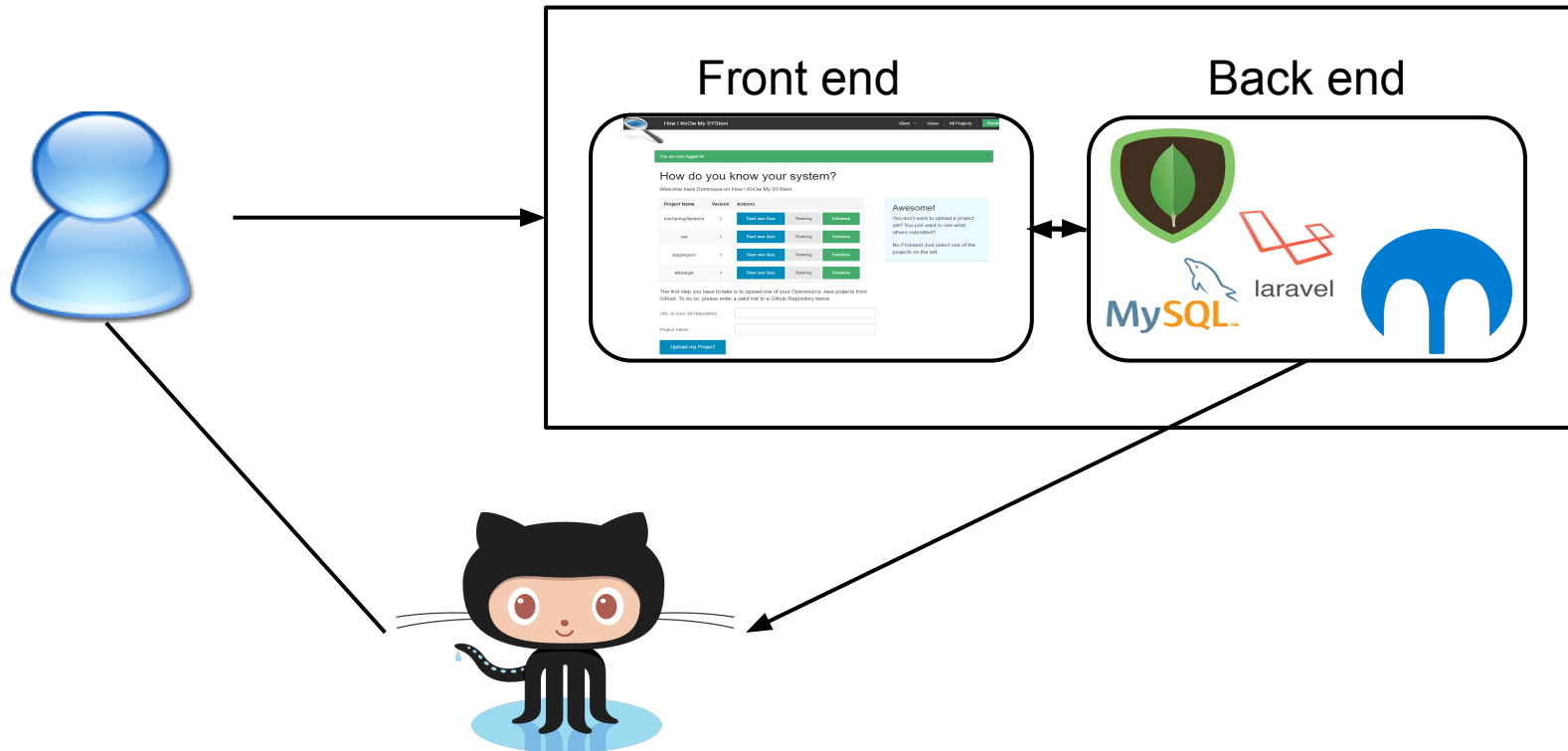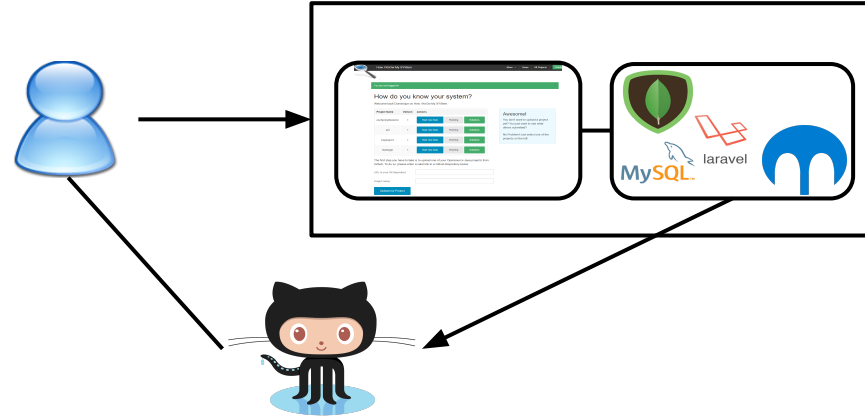"

How I KnOw My SYStem

Architecture

HIKOMSYS

Front end

Back end

Architecture

Front end

- ◉ HTML5
- ◉ CSS3 / Foundation
- ◉ JQuery, JSTree, KineticJS

Back end

- ◉ Laravel
- ◉ MySQL and MongoDB
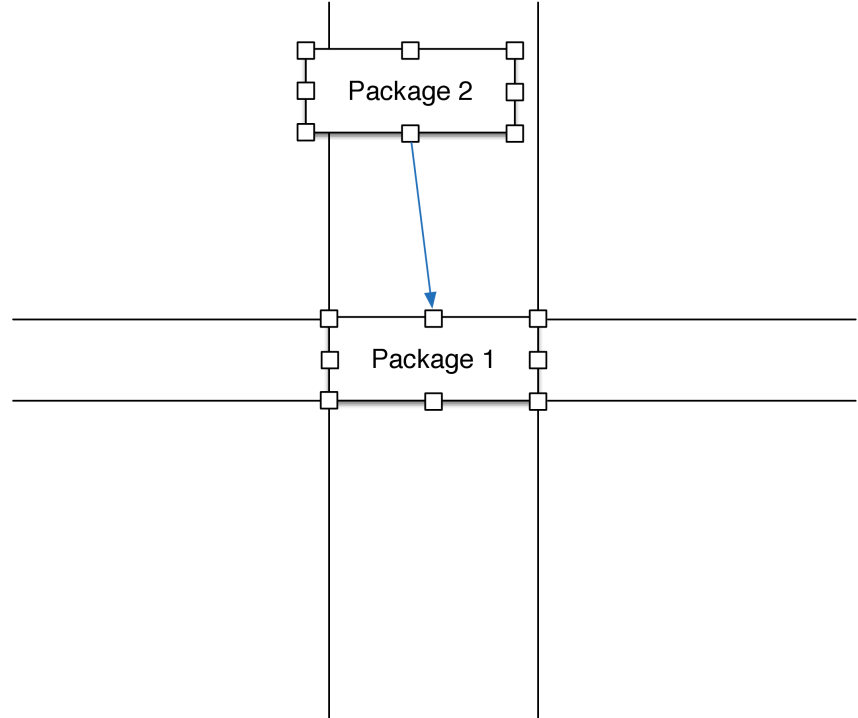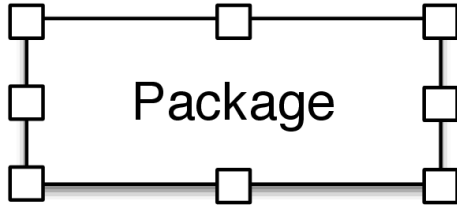- ◉ VerveineJ
- ◉ Moose / Quicksilver

Demo
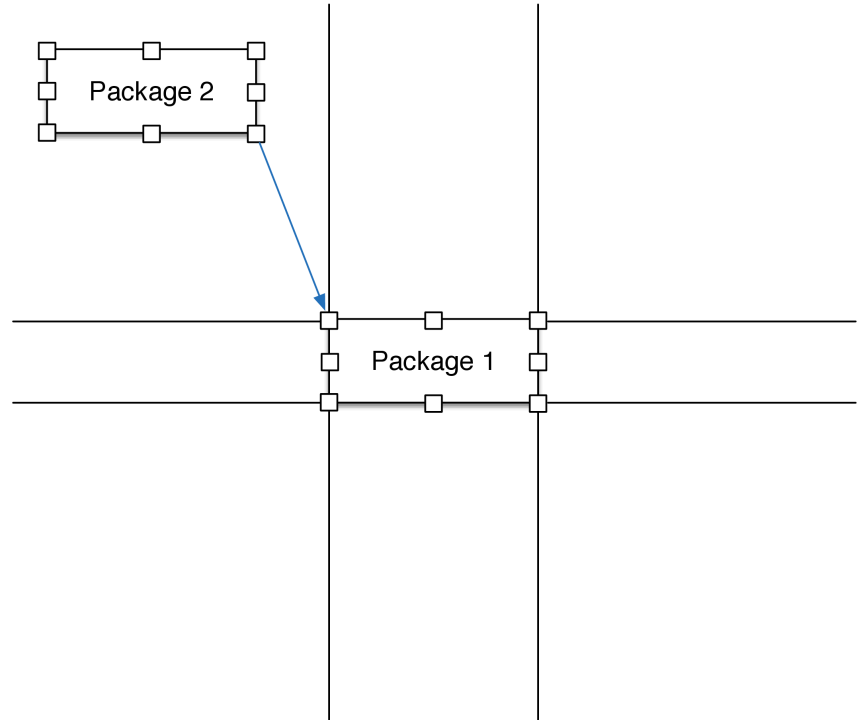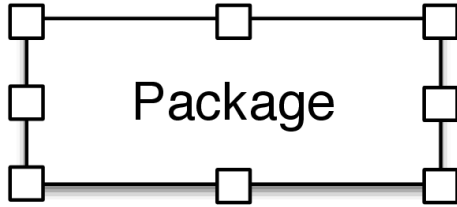
Package

Package 2

Package 1

Drawing - Corners

Package

Package 2

Package 1

Point Calculation (Example)

org::sample::controller::pojos

org::sample::model::dao

org::sample::controller::exceptions

org::sample::controller::service

org::sample::model::*

org::sample::controller::*

$$points_{total} = points_{correct} + points_{wrong}$$

Point Calculation (Example)

org::sample::controller::pojos

org::sample::model::dao

org::sample::controller::exceptions

org::sample::controller::service

org::sample::model::*

org::sample::controller::*

$$\text{points}_{total} = \mathbf{43.75} + \text{points}_{wrong}$$

$$\text{points}_{correct} = u_{correct} * p_{correct} + 25$$

$$p_{correct} = 50/\text{dep}_{correct}$$

Point Calculation (Example)

org::sample::controller::pojos

org::sample::model::dao

org::sample::controller::exceptions
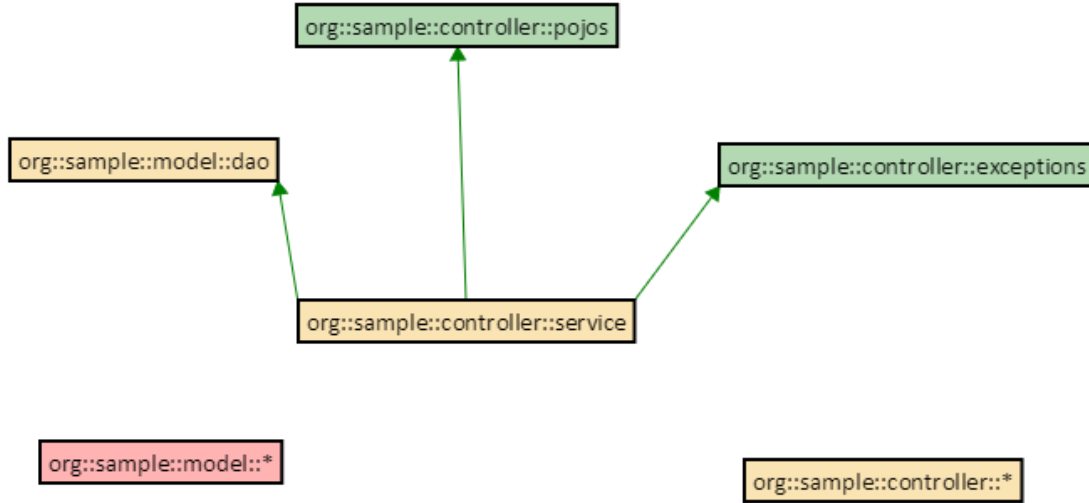
org::sample::controller::service
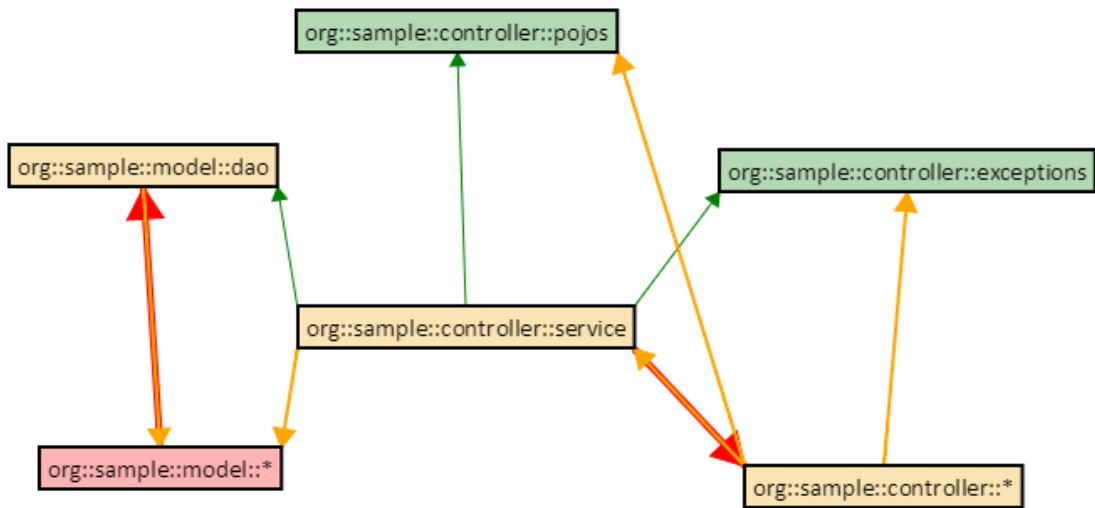
org::sample::model::*
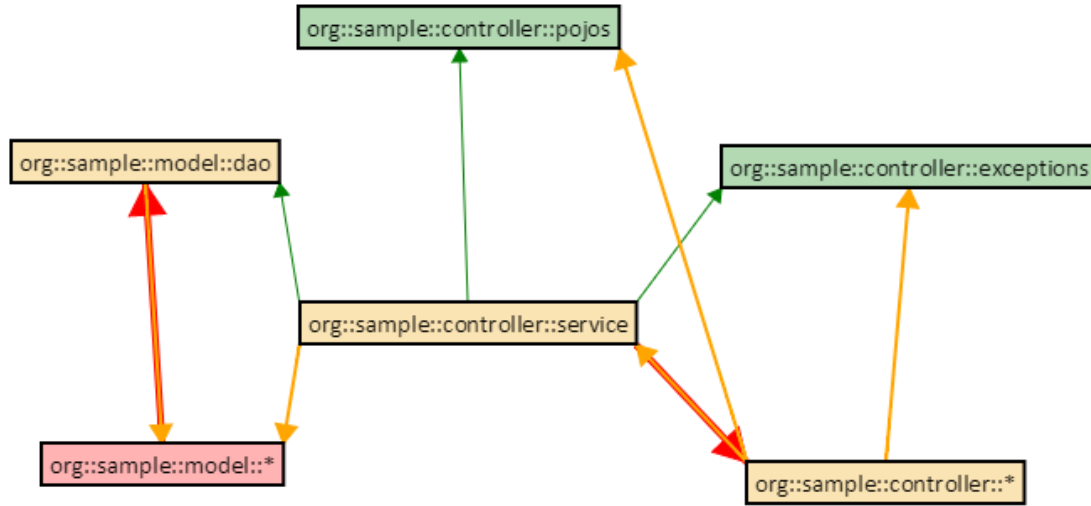
org::sample::controller::*

$\text{points}_{\text{total}} = 43.75 + 20.45 = \textbf{64.2}$

Point Calculation (Example)

$$\text{points}_{\text{total}} = 43.75 + 20.45 = \textbf{64.2}$$

Alternative formula:

$$u_{\text{correct}} - u_{\text{wrong}} + \text{dep}_{\text{potential}} - \text{dep}_{\text{actual}}) * 100 / \text{dep}_{\text{potential}}$$

$$(3 - 2 + 30 - 8) * 100 / 30 = \textbf{76.66\%}$$

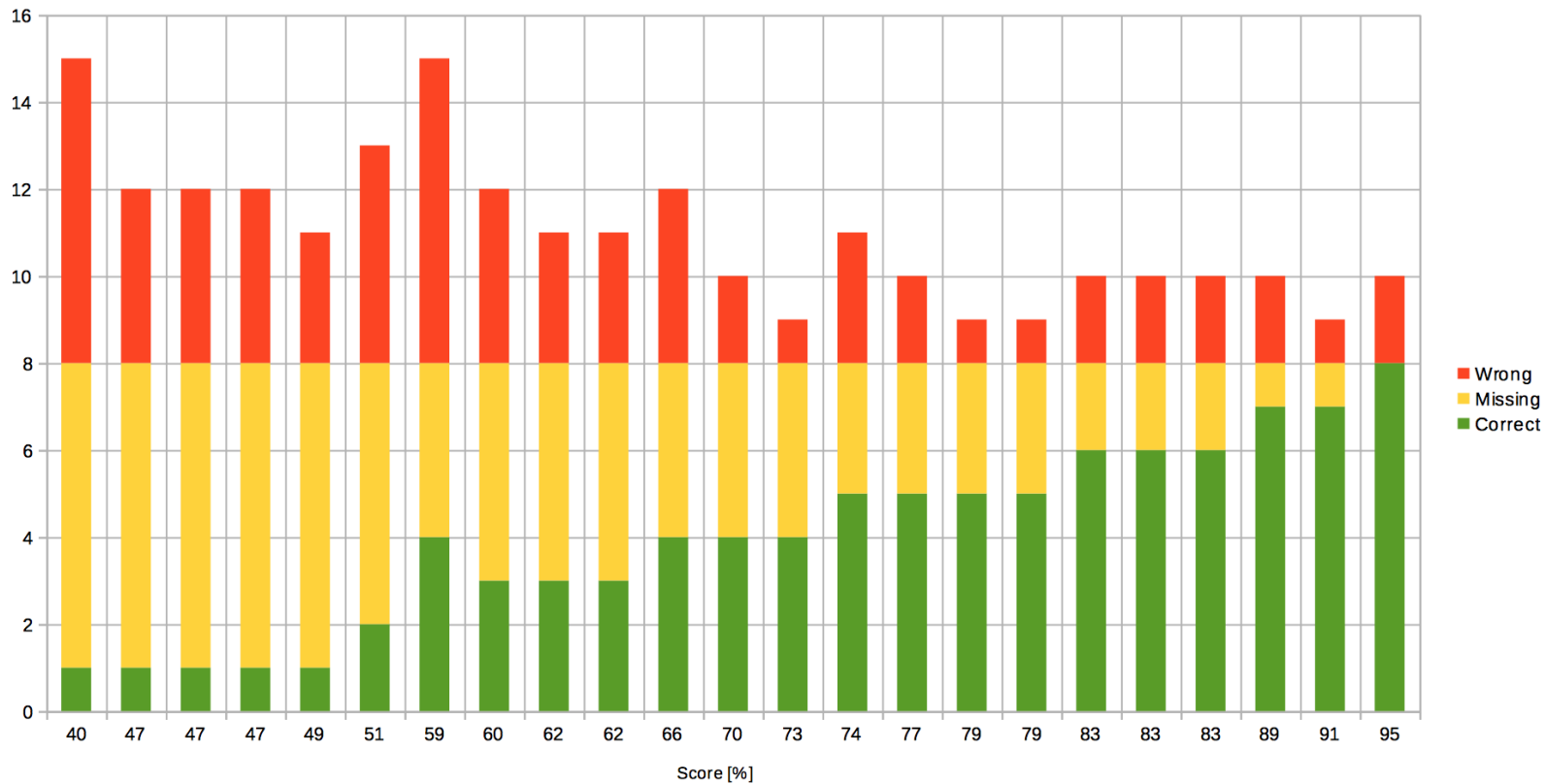# Quantitative Case Study

23 ESE students

- ◉ goals:
  - ○ usability
  - ○ knowledge about dependencies
  - ○ collect data

- ◉ results:
  - ○ accurate thinking process
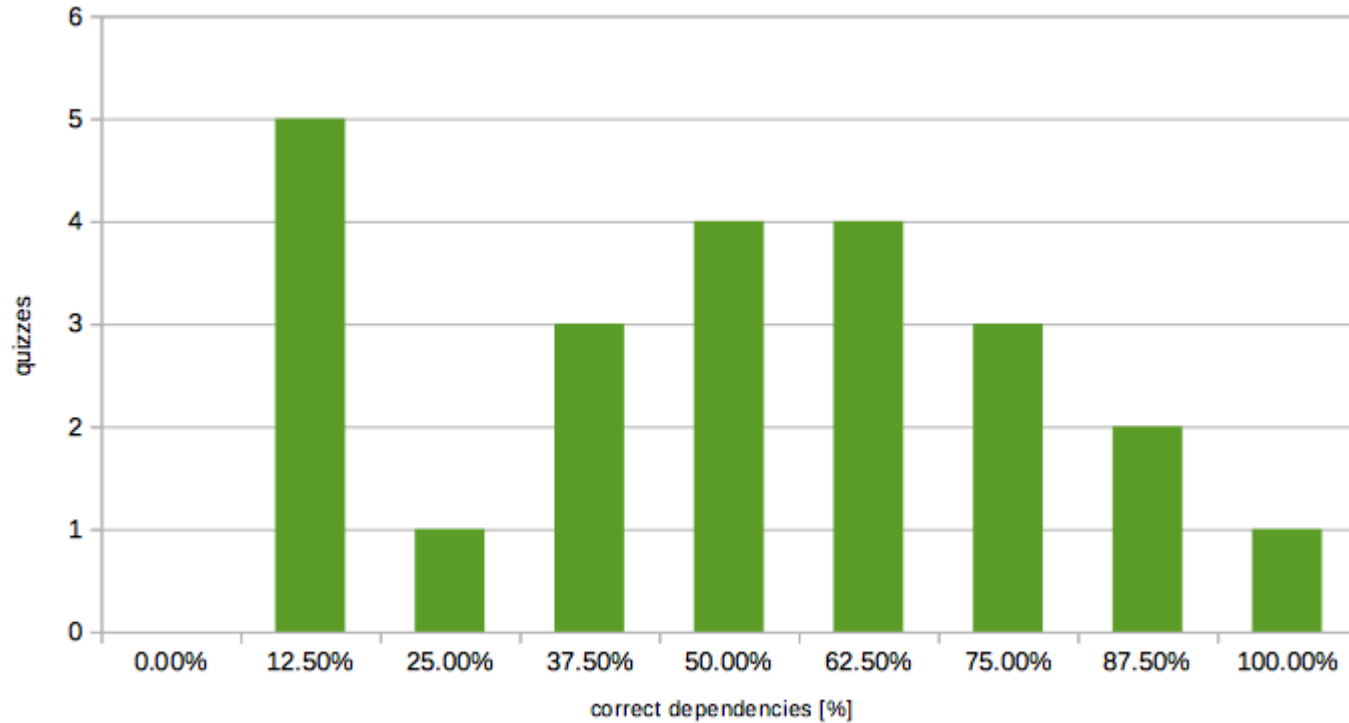 - ○ gamification aspect
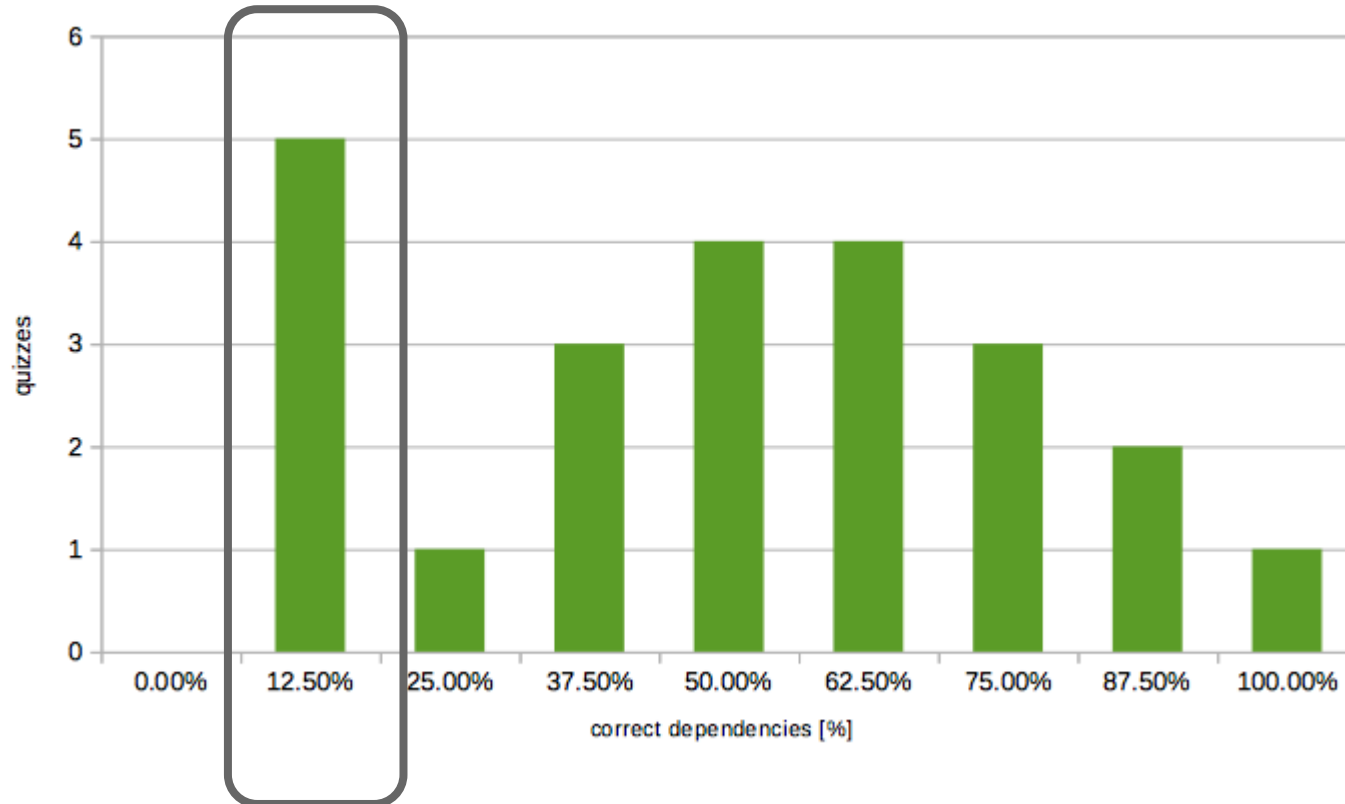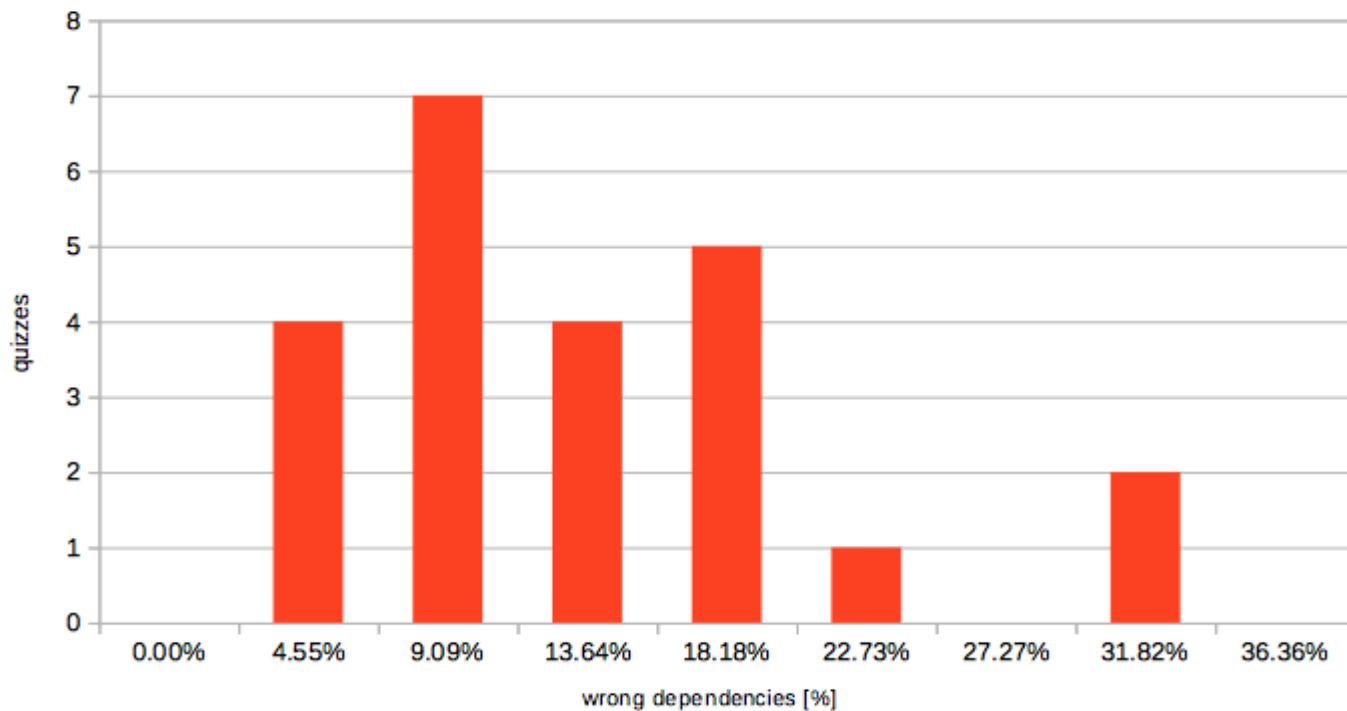 - ○ wrong direction of dependencies

23 quizzes ordered by points

Distribution

Distribution

do they know their system?

Distribution

Michael Single

(Bachelor thesis about diffraction shaders)

- in-depth knowledge
- result: 72%
- usability flaws
- very interested

Future Work

Gamification

- new levels
- experience points

Social Aspects

- link to github
- share results

Future Work

Gamification

- new levels
- experience points

Social Aspects

- link to github
- share results

Back end

- MongoDB – MySQL

User Interaction

- Tutorial
- FAQ and help

Conclusion – Lessons Learned

- Full Stack Implementation
- Open Source projects!?
- Iterative process with backlog
- general interest in dependencies

Thanks!

- gamification
- platform
- data