Lessons from Closure

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R7K Research & Conveyance
Open/Closed Principle

SOFTWARE ENTITIES (CLASSES, MODULES, FUNCTIONS, ETC.) SHOULD BE OPEN FOR EXTENSION, BUT CLOSED FOR MODIFICATION.
Prescription or Description?
A codebase is well designed when we don’t have to change it much to add new features
The Open/Closed Principle and Single Responsibility Principle are related
Git
Git

Commit
Git

Commit

commit hash (sha1)
time/date stamp
committer
files
actual change
Git

Method Event

commit hash (sha1)
time/date stamp
committer
method name
method body
add/change/delete

Commit

commit hash (sha1)
time/date stamp
committer
files
actual change
Classes By Closure Date

["DummiesController", 2008-04-21 13:03:08 -0700],
["Core::ActiveRecord::AttributeDefaults::ClassMethods", 2008-04-22 16:02:54 -0700],
["Legacy::Database", 2008-04-24 15:37:51 -0700],
["Core::ActiveRecord::AttributeDelegation::ClassMethods", 2008-04-24 20:46:58 -0700],
["Core::ActiveRecord::SkipValidationForHasOnes", 2008-04-29 21:54:32 -0700]]
def classes_by_closure events
class_names = method_events(events).map(&:class_name).uniq
classes = Hash[class_names.zip([Time.now] * class_names.length)]
method_events(events).each { |e| classes[e.class_name] = e.date }
classes.to_a.sort_by { |_, date| date }
end
Active Set of Classes
Active Set of Classes
Turbulence

Commits

Complexity

Commits
The Big Challenge is Understanding What Causes “Openness”
Is Churn all we need?
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Kandidatuppsats

Where do you save most money on refactoring?

Susanne Siverland
Use of Relative Code Churn Measures to Predict System Defect Density

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Figure 3: Actual vs. Estimated System Defect Density
How Effective Is Refactoring?
The Big Challenge is Understanding What Causes “Openness”