IT Systems for Knowledge Management
(used in Software Engineering)

Dr. Peter Kofler, System One GmbH
FHWien, June 2010
Very Short CV ;-)

• In Love with Programming

• Ph.D. in Applied Mathematics

• Professional Software Developer

• Lead Developer at System One
Peter Kofler

- fanatic about code quality since 2004
- ‘Code Cop’ since 2006
- Quality Evangelist, Blog Posts, Articles, ...
- Software Craftsman
Software
Craftsmanship
Craftsmanship

Engineering
Mindset
Agenda

- The Problem
- Personal Knowledge Management
- Community of Practice
- Knowledge (hidden) in Code
- Knowledge Management in the Enterprise
- Conclusion
18 Months
Personal
What do I Read?

- (e)Books
- Magazines (Yeah, still Paper)
- Newsletter (Email sucks)
- Blogs, Online Magazines (WWW)
- Aggregator Services, Feeds
- Code (of Other People)
Code Quality Management Tool Sonar Provides Design and Architecture Metrics

von InfoQ Personalized Feed for Peter Kofler von Shrii Penchakala

The new version of open source code quality management tool Sonar provides design and architecture metrics. Sonar 2.0 introduced the analysis of design, architecture and object-oriented metrics for Java applications. And Sonar 2.1 version, which was released recently, supports the detection of unused methods and calls to deprecated methods. By Shrii Penchakala

GeeCON_News: Most of the #GeeCON presentation slides were published! Visit the schedule page for download: http://bit.ly/dCG5RX (links are marked blue)

von Twitter / GeeCON_News

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What do I ...

• ... Listen To?
  – Audiocasts (Podcasts)
  – Software Engineering Radio

• ... Watch?
  – Television
  – Screencasts
  – Conference Talks
Trying Out New Things

• Examples
• Code Katas
• Little Projects
• New Technologies
• New Programming Languages
• Open Source
The only stuff I retain is the stuff I apply.
Plain Text
Just Plain Text

• Temporary Notes
• Things I keep forgetting
• How-To (Processes)
• Extracts of Books/Articles
• Cheat Sheets/“Refcardz”
### IntelliJ IDEA 8 Default Keymap

#### Editing
- **Ctrl + Space**: Basic code completion (the name of any class, method, or variable)
- **Ctrl + Shift + Space**: Smart code completion (fills the list of methods and variables by expected type)
- **Ctrl + Alt + Space**: Class name completion (the name of any project class independently of current imports)
- **Ctrl + Shift + Enter**: Complete statement
- **Ctrl + P**: Parameter info (within method call arguments)
- **Ctrl + Q**: Quick documentation lookup
- **Shift + F**: Edit/undo
- **Ctrl + V**: Move over caret
- **Ctrl + F**: Show edit/undo list
- **Alt + Insert**: Generate code (Getters, Setters, Constructors, hash/Code/Equals, EJB)
- **Ctrl + A**: Clear code
- **Ctrl + I**: Implement methods
- **Ctrl + Alt + I**: Surrounded with... (if, also by, catch, for, synchronized, etc)
- **Ctrl + /**: Uncomment/Comment with line comment
- **Ctrl + Shift + /**: Uncomment/Comment with block comment
- **Ctrl + W**: Select successfully increasing code blocks
- **Ctrl + Shift + W**: Decrease current selection to previous state
- **Alt + J**: Complete info
- **Alt + Enter**: Show intention actions
- **Alt + Split**: Description of code
- **Ctrl + S**: Commit changes
- **Tab**: Add space
- **Ctrl + Enter**: Start new line
- **Ctrl + Shift + U**: Toggle case for word at cursor or selected block
- **Ctrl + Shift + I**: Select all code block(s)
- **Ctrl + Shift + E**: Delete code block(s)
- **Ctrl + Shift + K**: Delete caret
- **Ctrl + Shift + N**: New file
- **Ctrl + Shift + F1**: Find
- **Ctrl + Shift + F2**: Find next
- **Ctrl + Shift + F3**: Find previous
- **Ctrl + Shift + F**: Find in path
- **Ctrl + Shift + R**: Replace in path
- **Ctrl + Shift + S**: Search structurally
- **Ctrl + Shift + M**: Replace structurally

#### Usage Search
- **Alt + F7 / Ctrl + F**: Find usages / Find usages in file
- **Ctrl + Shift + F7**: Highlight usages in file
- **Ctrl + Alt + F7**: Show usages

#### Compile and Run
- **Ctrl + F6**: Make project (complete modified and dependent)
- **Ctrl + Shift + F9**: Compile selected file, package or module
- **Alt + Shift + F10**: Open rundebug configurations dropzone
- **Shift + F10**: Open rundebug configurations
- **Ctrl + Shift + F10**: Run configuration from editor

#### Debugging
- **F8**: Step over
- **F7**: Step into
- **Shift + F8**: Step out
- **Alt + F9**: Run to cursor
- **Alt + F10**: Evaluation expression
- **F9**: Run to here
- **Shift + F9**: Toggle breakpoints

#### Navigation
- **Ctrl + N**: Go to class
- **Ctrl + Shift + N**: Go to file
- **Ctrl + Alt + Shift + N**: Go to symbol
- **Alt + Right/Left**: Go to next/previous editor tab
- **F10**: Go back to previous tool window
- **Esc**: Go to editor (from tool windows)
- **Shift + Esc**: Hide active or last active window
- **Shift + F8**: Close active windows/terminals

#### Search/Replace
- **Ctrl + F**: Find
- **F3**: Find next
- **Shift + F3**: Find previous
- **Ctrl + H**: Replace
- **Ctrl + Shift + F**: Find in path
- **Ctrl + Shift + R**: Replace in path
- **Ctrl + Shift + S**: Search structurally
- **Ctrl + Shift + M**: Replace structurally

### IntelliJ IDEA 8 Default Keymap

#### Refactoring
- **F5**: Cut
- **F6**: Copy
- **Shift + F6**: Rename
- **Ctrl + F6**: Change Signature
- **Ctrl + Alt + R**: Inline
- **Ctrl + Alt + M**: Extract Method
- **Ctrl + Alt + V**: Introduce Variable
- **Ctrl + Alt + A**: Introduce Field
- **Ctrl + Alt + C**: Introduce Constant
- **Ctrl + Alt + P**: Introduce Parameter

#### VCS Local History
- **Ctrl + K**: Commit project to VCS
- **Ctrl + T**: Update project from VCS
- **Alt + Shift + C**: Your recent changes

#### Line Templates
- **Ctrl + Shift + J**: Surround with Live Template
- **Ctrl + J**: Insert Live Template
- **Shift + Enter**: Insert according to Java SEK 1 Style
- **Shift + tab**: Insert object type with instance and downcast
- **Alt + Enter**: Insert elements of Java util’s Collection
- **Ctrl + O**: Insert elements of java.util.List
- **Ctrl + I**: Insert elements of java.util.List
- **Ctrl + Shift + I**: Insert elements of java.util.List
- **Ctrl + Shift + U**: Insert elements of java.util.List’s
- **Shift + Enter**: Insert elements of java.util.List in reverse order
- **Ctrl + Alt + Shift + S**: Insert the last element of an array
- **Shift + Enter**: Insert elements of java.util.Collection into an array
- **Shift + F10**: Set less to a variable
- **Alt + Tab**: Set greater value to a variable
- **Ctrl + Tab**: Set next line to a variable
- **Ctrl + Shift + Tab**: Set previous line to a variable
- **Shift + Enter**: Print a string to System.err
- **Shift + Enter**: Print a string to System.out
- **Ctrl + Shift + Enter**: Print current class and method name to System.err
- **Ctrl + Shift + Enter**: Print a value to System.out
- **Ctrl + Shift + Enter**: Print a message

#### General
- **Ctrl + F8 / Ctrl + G**: Open corresponding tool window
- **Ctrl + S**: Save all
- **Ctrl + W**: Synchronize
- **Ctrl + F11**: Toggle full screen mode
- **Ctrl + Shift + F**: Toggle maximizing editor
- **Ctrl + Shift + F1**: Add to Favorites
- **Ctrl + Shift + I**: Ignore file in current profile
- **Ctrl + Shift + ( )**: Quick switch current profile
- **Ctrl + Shift + 5**: Open Settings dialog
To-Do List

- Be Awesome
- Fix table styles in CSS
- Fix js scrolling issues
- Be Awesome ... again
- Take a break
Process Automation

• Operation System Level
  – e.g. Scripts (Batch/Bash)
  – e.g. Apple’s ‘Folder Actions’

• Application Level
  – e.g. Command-Line Usage
  – e.g. Keyboard Shortcuts
  – e.g. Word Macros (VBA)
Sometimes Text is Not Enough

- Drawings
- Mind Maps
- UML (sort of)
Community
Few Precious Buddies
Ask, Discuss, Answer, Exchange
Social Bookmarking
We don't have friends. We have peers and treat them as friends.

(Thorbiörn Fritzon)
Community Events

“Stammtisch”

User Groups (JSUG)

“Javaabend” (openForce)

Eclipse DemoCamp

Barcamps

eJugDays (eJUG/irian)
Less Personal, “Community”

• Mailing Lists
• Forums
• Snippets
• Review Services
• Wikis
http://stackoverflow.com/
Publishing
(advanced)
I have strong opinions
Open Source

• Portal Sites
• Defined Development Process
• Mailing List/Forum
• Wiki
• Issue Tracker
• Review
• Code Repository
Vortrag IT Systeme im Wissensmanagement in der Softwareentwicklung

Created: 2010-05-30 16:21  Updated: Yesterday 17:32

Components: None
Affects Versions: None
Fix Versions: Iteration 9

Time Tracking:
- Original Estimate: 3 days, 5 hours
- Remaining Estimate: 3 days, 5 hours
- Time Spent: Not Specified

Rank: 248

Description:
Wie Du weißt, unterrichte ich an der FH IT Systeme im Wissensmanagement und ich habe darüber nachgedacht, den Studentinnen einen etwas anderen Vortrag zu zuschreiben: IT Systeme im Wissensmanagement in der Softwareentwicklung.

Hättest Du Lust, das zu machen? Es geht um ca. 45 Minuten Vortrag, darum welche Tools und Prozesse verwendet werden um Wissen in der Softwareentwicklung weiterzugeben. Ich denke Du könntest das super machen.

So, nochmal zur Konkretisierung, weil wir das am Mittwoch nicht mehr hinterherhaben.

http://www.atlassian.com/software/jira/
Code
Business Process
Business Domain
Full History
def self.copy_tree(source, dest, verbose=false)
  File.makedirs(dest)
  Dir.entries(source).each do |e|
    name = source + '/' + e
    if File.file? name
      File.copy(name, dest, verbose)
    elsif e == '.' or e == '..'
      copy_tree(name, dest+ '/'+ e, verbose)
    end
  end
end
end

# Copy a whole directory tree from source to dest
# Does not move the whole folder but every file inside
def self.copy_tree(source, dest, verbose=false)
  File.makedirs(dest)
  Dir.entries(source).each do |e|
    name = source + '/'+ e
    if File.file? name
      File.copy(name, dest, verbose)
    elsif e == '.' or e == '..'
      copy_tree(name, dest+ '/'+ e, verbose)
    end
  end
end
end

# Move a whole directory tree from source to dest
# Does not move the whole folder but every file inside
def self.move_tree(source, dest, verbose=false)
  File.makedirs(dest)
  Dir.entries(source).each do |e|
    name = source + '/'+ e
    if File.file? name
      File.move(name, dest, verbose)
    elsif e == '.' or e == '..'
      move_tree(name, dest+ '/'+ e, verbose)
    end
  end
end
end

# Delete a whole tree starting in folder directory
def self.delete_tree(folder)
  raise "not a folder: #{folder}" unless File.directory?(folder)
  Dir.entries(folder).each do |e|
    name = folder + '/'+ e
    if File.file? name
      File.delete(name)
    elsif e == '.' or e == '..'
      delete_tree(name)
    end
  end
end
Dir.rmtree folder
end
end

http://www.eclipse.org/
Cause Tracking
Typical Usage
Implicit Documentation
Enterprise
Enterprise means Big

(Dan North)
More (Old) Books
Email Hell
(Redundant) Wikis
And Much More...

- More Code
  - Millions of Lines
  - Too Much to Review
- Years of History
- Thousands of Issues
- Longer Checklists (if any)
- Dumps of Office Documents
Communication

- Official Meetings
- Scrum Meetings (Daily Standup)
- Jour Fixes
- “Breaks”
- Spontaneous Discussions
- Asking and Answering
- Mentoring
(No) Large Conferences
(No) Google Friday
Developer Presentations
Internal Workshops
(Domain/Tech)
(No) External Training
Conclusion
18 Months
Look For Dedicated Individuals
Don’t Manage
(You Can’t)
Support Them
Thank You
http://www.systemone.net/

http://www.code-cop.org/
Links #1

Mindset

18 Months

Personal ‘Get It’
- http://www.heise.de/
Links #2

• http://www.infoq.com/
• http://www.se-radio.net/
• http://www.parleys.com/
• http://www.ted.com/
• http://en.wikipedia.org/wiki/Kata_(programming)
• http://stackoverflow.com/questions/1003940/learn-a-new-language-every-year
• http://en.wikipedia.org/wiki/Fraggle_Rock#Marjory.2C_the_Trash_Heap

Personal ‘Keep It’

• http://delicious.com/
• http://stackoverflow.com/questions/78756/what-do-you-use-to-keep-notes-as-a-developer
• http://en.wikipedia.org/wiki/Plain_text
• http://www.cheat-sheets.org/
• http://refcards.com/
Links #3

• http://refcardz.dzone.com/
• http://www.rememberthemilk.com/
• http://en.wikipedia.org/wiki/Visual_Basic_for_Applications
• http://www.autoitscript.com/
• http://freemind.sourceforge.net/wiki/index.php/Main_Page

Community
• http://twitter.com/
• https://www.dropbox.com/
• http://jsug.at/
• http://wiki.eclipse.org/Eclipse_DemoCamps_Helios_2010/Vienna
• http://ejugdays.ejug.at/
Links #4

- http://groups.google.de/
- http://stackoverflow.com/questions/1571013/snippets-for-productivity-collect-good-code
- http://codesnippets.joyent.com/
- http://refactormycode.com/
- http://stackoverflow.com/

**Open Source**
- http://sourceforge.net/
- http://github.com/
- https://code.google.com/
- http://www.atlassian.com/software/jira/

**Code**
Links #5

• http://subversion.tigris.org/
• http://www.atlassian.com/software/fisheye/
• http://en.wikipedia.org/wiki/Unit_testing
• http://www.joelonsoftware.com/articles/fog0000000069.html

Enterprise
• http://www.spinellis.gr/blog/20100312/
• http://stackoverflow.com/questions/2832191/what-tools-do-you-use-to-share-knowledge-amongst-developers-in-your-company
• http://www.mountaingoatsoftware.com/scrum/daily-scrum

Conclusion
• http://sciencev1.orf.at/science/liessmann/144545
Images #1

- spray face: http://www.flickr.com/photos/iangallagher/4115047191/
- shoe maker: http://www.flickr.com/photos/tbatty/1450209613/
- shoe factory: http://www.flickr.com/photos/94693506@N00/4643248587/
- man at beach: http://www.flickr.com/photos/kevinkemmerer/2548414335/
- books: http://www.flickr.com/photos(raymondyee/591991800/
- conference: http://www.flickr.com/photos/sonicwalker/2418497199/
- experiment: http://www.flickr.com/photos/delis/4073612774/
- waste dump: http://www.flickr.com/photos/sanmartin/2682745838/
- boxes: http://www.flickr.com/photos/1suisse/2763887636/
Images #2

- todo list: http://www.flickr.com/photos/kylesteeddesign/3724074594/
- lever to automatic: http://www.flickr.com/photos/aquilaonline/510921786/
- sheep: http://www.flickr.com/photos/slimjim/3316666755/
- open source: http://www.flickr.com/photos/27316226@N02/3000888100/
- cubicles: http://www.flickr.com/photos/sundazed/1450388845/
- education centre: http://www.flickr.com/photos/kokeshi/234790558/
- finish line: http://www.flickr.com/photos/jayneandd/4450623309/
- racer: http://www.flickr.com/photos/diekuchars/3690872215/
- questions: http://www.flickr.com/photos/seandreilinger/2326448445/