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## Questionnaire daQapo

Validation of Metrics-Based Quality Control

### Overview

#### Date/Location

Date: 11<sup>th</sup> of April 2008  
Time: 13.30h – 14.15h  
Location: .Windh, Malmö

#### Participants

ARiSA: Rüdiger Lincke  
Windh: daQapo developer

#### Purpose

1. Gathering specific validation metrics for correlation with model metrics

### General Information

Age:	
Profession/degree:	
Experience general:	
Position:	
Experience with daQapo:	Month/Years
Familiarity with daQapo:	1-5

### Overview

We propose two ways of collecting validation metrics. One implies that an expert assesses the quality of selected classes. The other implies that we correlate quantitative data, like bug reports, to parts of the system. In this questionnaire we want an expert opinion about the quality of classes.

### ***Expert opinion about the quality of the system/parts of the system***

We would like to get the expert opinion of .Windh (daQapo developer) about the quality of the daQapo system in general, its subsystems and a selection of classes regarding *Maintainability*, and its four sub-characteristics, which are:

- *Maintainability*, allows drawing conclusions about the effort required for modifying the software product.
- *Analyzability*, allows drawing conclusions about how well software or parts of it can be analyzed. That is the effort needed for diagnosis of deficiencies or causes of failures, or for identification of parts to be modified.
- *Changeability*, allows drawing conclusions about how well software can be changed. That is the effort needed for modification, fault removal or for environmental change.
- *Stability*, allows drawing conclusions about how stable software is. That is the risk of unexpected effects as result of modifications.
- *Testability*, allows to draw conclusions about how well software can be tested and is tested. That is the effort needed for validating the software and for assessing the test coverage.

**Expert opinion about the quality of the whole daQapo system**

The previously described characteristics should be assessed on a scale between 1 and 5. (1 = low, 3 = normal, 5 = high).

System: daQapo

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

**Expert opinion about the quality of the sub-system/components**

We were no able to reliably identify a set of subsystems or components. We suggest that the following packages represent subsystems. Please correct the list if it does not resemble the intended subsystem structure. Please assess these subsystems or components of *daQapo* according to the five characteristics. (The set of classes can be delivered in electronic form). The previously described characteristics should be assessed on a scale between 1 and 5. (1 = low, 3 = normal, 5 = high).

Subsystem 1, Name: com.windh.eqn.ise

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Subsystem 2, Name: com.windh.eqn.org

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Subsystem 3, Name: com.windh.eqn.presentation

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Subsystem 4, Name: com.windh.eqn.processor

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Subsystem 5, Name: com.windh.eqn.search

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5

**Overview**

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Testability	1	2	3	4	5
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Subsystem 6, Name: com.windh.eqn.statistic

Maintainability	1	2	3	4	5
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Analyzability	1	2	3	4	5
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Changeability	1	2	3	4	5
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Stability	1	2	3	4	5
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Testability	1	2	3	4	5
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Subsystem 7, Name: com.windh.eqn.store

Maintainability	1	2	3	4	5
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Analyzability	1	2	3	4	5
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Changeability	1	2	3	4	5
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Stability	1	2	3	4	5
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Testability	1	2	3	4	5
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Subsystem 8, Name: com.windh.eqn.user

Maintainability	1	2	3	4	5
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Analyzability	1	2	3	4	5
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Changeability	1	2	3	4	5
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Stability	1	2	3	4	5
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Testability	1	2	3	4	5
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Subsystem 9, Name: com.windh.eqn.util

Maintainability	1	2	3	4	5
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Analyzability	1	2	3	4	5
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Changeability	1	2	3	4	5
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Stability	1	2	3	4	5
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Testability	1	2	3	4	5
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Subsystem 10, Name: com.windh.eqn.webdav

Maintainability	1	2	3	4	5
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Analyzability	1	2	3	4	5
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Changeability	1	2	3	4	5
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Stability	1	2	3	4	5
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Testability	1	2	3	4	5
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### **Expert opinion about the quality of classes**

The previously described characteristics should be assessed on a scale between 1 and 5 (1 = low, 3 = normal, 5 = high) for the following classes.

Class, Full qualified name:

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.IseImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.IseUtil

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.org.OrganisationalUnitImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.user.UserUtil

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.rightsmanaged.RightUtil

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.EqnSystemConfigModule

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.KeywordManager

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.dump.Dumper

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.IseVersionImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.TraversingIseIterator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.user.UserImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.TranslationStopEvaluator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.IseFileNameSearchQuery

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.user.StaticUserPropertyMap

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.KeywordEventData

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.util.TreeItemHeavy

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.util.NavigationTreeHeavy

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name:

com.windh.eqn.presentation.action.admin.SearchTrackingActionExceptionHandlerContext

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.user.AnonymousUserPropertyOperator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.util.SearchModesParser

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name:

com.windh.eqn.presentation.action.admin.DeleteStartingPointActionContext

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.content.source.DirectoryFilter

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.content.source.PerSourceTypePollingStrategy

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.content.TxCommitHookContext

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.IseIteratorImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.rightsmanaged.MrmSphereFactory

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.SymlinkTargetEvaluator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.ise.Type

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.org.RecoveryFactory

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.action.AcceptShareAction

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.action.CreateIseNavFolderActionContext

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.action.ExceptionLoggerContext

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.action.navigate.ViewDispatcherAction

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5



Class, Full qualified name: com.windh.eqn.presentation.action.SetSecuritySettingsAction

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.framework.Controller

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.framework.ActionFilter

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.servlet.LayoutServlet

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.tags.SelectTag

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.util.httpparse.DataChunk

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.presentation.util.httpparse.MultipartParser

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.processor.XmlConfReader

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.AdminSearchManager

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.DefaultAnalyzer

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.DumbKeywordImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.DumbOrEvaluator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.IseCountrySearchEngineImpl

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.isetable.WriteDumpExecutor

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.SearchWorkLog

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.wordnet.BadEnumerationWrapper

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.search.wordnet.TranslationsIterator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.statistic.TrackedDownloadSortingStrategy

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.user.OperationAccessRule

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.DebugUtil

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.dump.ConfigHandler

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.filetype.SimpleMagicMatcher

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.IseNiceIterator

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.mail.MailHandler

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.mail.MailThread

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.migration.MigratorVersion15

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.ParameterConverter

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.sysadmin.GroovyScript

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.sysadmin.SystemAdminException

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.templates.OpAccessTemplet

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.templates.Template

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.util.xmp.XmpParser

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.webdav.LockInfo

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

Class, Full qualified name: com.windh.eqn.webdav.XmlPrinter

Maintainability	1	2	3	4	5
Analyzability	1	2	3	4	5
Changeability	1	2	3	4	5
Stability	1	2	3	4	5
Testability	1	2	3	4	5

### ***Expert opinion about the motivation for quality of classes***

Please suggest 5 additional classes having according to your opinion exceptional high and low quality (if they have not been included already) and describe why you think they have this level of quality.

#### **Exceptional high quality classes**

Class 1, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 2, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 3, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 4, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 5, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

#### **Exceptional low quality classes**

Class 1, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 2, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 3, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 4, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_

Class 5, full qualified name: \_\_\_\_\_  
Motivation: \_\_\_\_\_