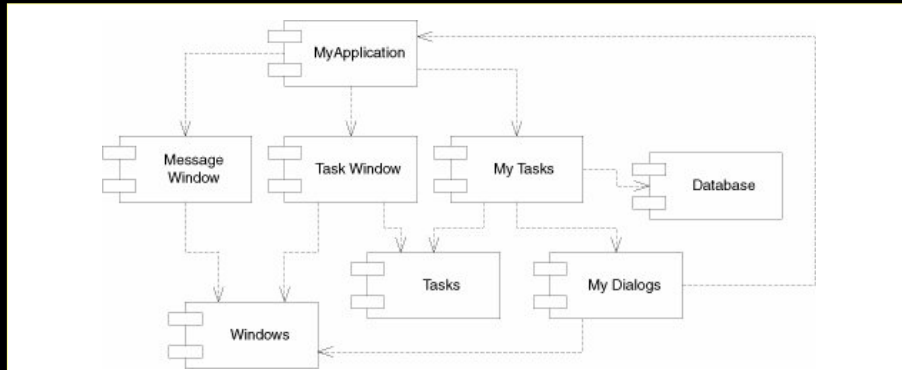


Principles

- Acyclic Dependencies Principles (ADP)
 - No cycles in the package diagram of a particular layer.
 - No cycles in the component dependency graph



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Q80reference – zipengine Q81reference - FileCopier Q82reference - faxNo

A component contains one or more packages. If there are no cycles in package diagram, then there will be no cycles in component diagram.

Cycles are introduced in package diagram as an example of code deterioration. So run JDepend tools regularly.

Example of violation

- java.util <-> java.lang : Java.lang.String imports java.util.Locale. java.util.Locale uses String.

- Hibernate

Good example: Spring does not contain a single package circle.

Measure Stability

- Afferent Coupling – Fan In
- Efferent Coupling – Fan Out

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JDepend for Java measures these values for different packages.

It should be run as a part of Continuous Integration.

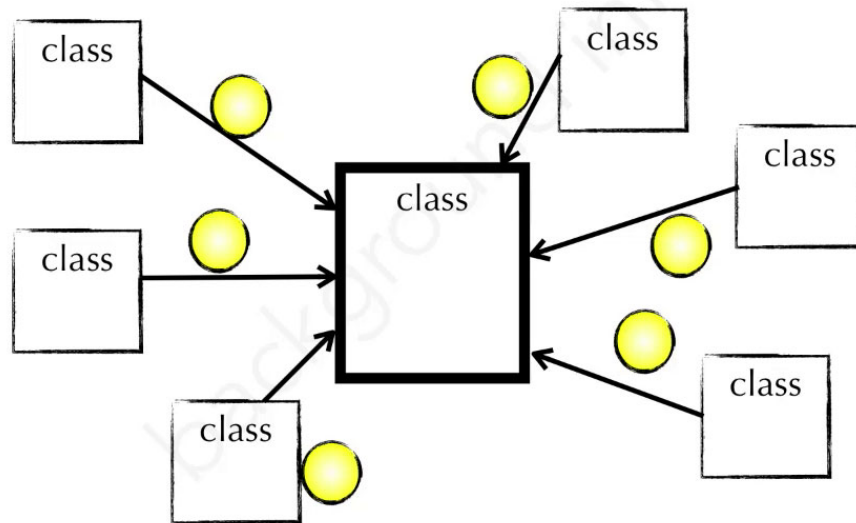
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We can quantify the attributes of cohesion, coupling, stability, generality, and conformance to the main sequence with a few simple metrics.

But why should we want to?

To paraphrase Tom DeMarco: You can't manage what you can't control, and you can't control what you don't measure.

Afferent Coupling



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God Class in center should be refactored.

Struts

classname	WMC	Ca
org.apache.struts2.components.DoubleListUIBean	66	3
org.apache.struts2.views.jsp.ui.AbstractDoubleListTag	66	2
org.apache.struts2.views.xmlt.AbstractAdapterNode	57	4
org.apache.struts2.portlet.util.HttpServletRequestMock	57	1
org.apache.struts2.components.UIBean	53	22
org.apache.struts2.components.Tree	51	3
org.apache.struts2.views.freemarker.tags.StrutsModels	50	1
org.apache.struts2.views.jsp.ui.TreeTag	49	0
org.apache.struts2.components.OptionTransferSelect	44	3
org.apache.struts2.views.xmlt.SimpleAdapterDocument	44	2
org.apache.struts2.views.jsp.ui.OptionTransferSelectTag	43	0
org.apache.struts2.dispatcher.Dispatcher	37	19
org.apache.struts2.views.jsp.ui.AbstractUITag	34	18
org.apache.struts2.components.InputTransferSelect	34	3
org.apache.struts2.components.table.WebTable	33	12
org.apache.struts2.views.jsp.ui.InputTransferSelectTag	33	0
org.apache.struts2.components.Component	28	177
org.apache.struts2.components.AutoCompleteer	26	3
org.apache.struts2.views.jsp.ui.SubmitTag	25	0
org.apache.struts2.components.Form	24	10
org.apache.struts2.views.xmlt.AbstractAdapterElement	24	6

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4

For every class in Struts, we have cyclomatic complexity and Afferent coupling. There may be little value in refactoring a class with high cyclomatic complexity, but low Afferent coupling. A class with low cyclomatic complexity is likely not badly designed. We need to concentrate on classes where sum of cyclomatic complexity and Afferent coupling is high.