

JDepend Analysis

1 Summary

Package	Total Classes	Abstract Classes	Concrete Classes	Afferent Couplings	Efferent Couplings	Abstractness	Instability	Distance
apps.mondrian	7	1	6	1	5	0.14	0.83	0.02
apps.mondrian.ui	1	0	1	0	6	0	1	0
org.artoflife5.app	5	1	4	8	11	0.2	0.58	0.22
org.artoflife4.app.generator	4	0	4	1	10	0	0.91	0.09
org.artoflife4.app.inspector	4	0	4	1	7	0	0.88	0.12
org.artoflife4.app.mutator	4	0	4	1	7	0	0.88	0.12
org.artoflife4.app.nursery	4	0	4	1	6	0	0.86	0.14
org.artoflife1.app.save	1	0	1	4	5	0	0.56	0.44
org.artoflife1.app.svg	1	0	1	1	8	0	0.89	0.11
org.artoflife19	19	8	5	20	1	0.62	0.05	0.34
org.artoflife14.genome4	14	4	10	5	3	0.29	0.38	0.34
org.artoflife11.genome3.bool	11	3	8	1	3	0.27	0.75	0.02
org.artoflife19.genome2.numeric	19	2	17	3	3	0.11	0.5	0.39
org.artoflife1.tp.individual	1	0	0	1	1	1	0.5	0.5
org.artoflife4.tp.population	4	0	3	3	3	0.25	0.5	0.25
org.artoflife3.tp.reproduction	3	0	3	0	2	0	1	0
org.artoflife1.tp.selection	1	0	1	1	2	0	0.67	0.33
org.artoflife1.tp.world	1	0	1	2	1	0	0.33	0.67
org.artoflife3.gui.paintable	3	0	2	6	4	0.33	0.4	0.27
org.artoflife7.gui.population	7	0	6	3	3	0.14	0.5	0.36

org.artoflife	5gui.scope	0	5	4	6	0	0.6	0.4
org.artoflife	2util	0	2	10	0	0	0	1
org.artoflife	3util.dnd	2	1	2	0	0.67	0	0.33
samples.gp	1genome.nu	0	1	0	4	0	1	0
samples.gp	4population	0	4	0	8	0	1	0
org.apache	batik	No stats available: package referenced, but not analyzed.						
org.apache	batik.swing	No stats available: package referenced, but not analyzed.						
org.apache	batik.swing	No stats available: package referenced, but not analyzed.						
org.scope	m	No stats available: package referenced, but not analyzed.						
org.scope	m	No stats available: package referenced, but not analyzed.						
org.scope	m	No stats available: package referenced, but not analyzed.						
org.scope	m	No stats available: package referenced, but not analyzed.						
org.scope	m	No stats available: package referenced, but not analyzed.						
org.scope	m	No stats available: package referenced, but not analyzed.						
org.w3c.dom	HTML	No stats available: package referenced, but not analyzed.						

2 Packages

2.1 apps.mondrian

Afferent Couplings : 1	Efferent Couplings : 5	Abstractness : 0.14	Instability : 0.83	Distance : 0.02
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
MondrianGene	Area ColorGene HGene MondrianIndividual MondrianPhenotype VGene	apps.mondrian.ui	org.artoflife.gp org.artoflife.gp.genome org.artoflife.gp.genome.numeric org.artoflife.gp.individual org.artoflife.gui.paintable	

2.2 apps.mondrian.ui

Afferent Couplings : 0	Efferent Couplings : 6	Abstractness : 0	Instability : 1	Distance : 0
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	MondrianLauncher	None	apps.mondrian org.artoflife.app org.artoflife.gp.population org.artoflife.util org.scopemvc.core org.scopemvc.util	

2.3 org.artoflife.app

Afferent Couplings : 8	Efferent Couplings : 11	Abstractness : 0.2	Instability : 0.58	Distance : 0.22
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
AbstractChildController	ApplicationController AppControls CommonControls UserPreferences	apps.mondrian.ui org.artoflife.app.generator org.artoflife.app.inspector org.artoflife.app.mutator org.artoflife.app.nursery org.artoflife.app.save org.artoflife.app.svg org.artoflife.gui.paintable	org.artoflife.app.generator org.artoflife.app.inspector org.artoflife.app.mutator org.artoflife.app.nursery org.artoflife.app.save org.artoflife.app.svg org.artoflife.gp org.scopemvc.controller.basic org.scopemvc.core org.scopemvc.util org.scopemvc.view.swing	

2.4 org.artoflife.app.generator

Afferent	Efferent	Abstractness : 0	Instability : 0.91	Distance : 0.09
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Couplings: 1	Couplings: 10		
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages
None	GeneratorController GeneratorControls GeneratorModel GeneratorView	org.artoflife.app	org.artoflife.app org.artoflife.app.save org.artoflife.gp org.artoflife.gp.population org.artoflife.gp.world org.artoflife.gui.population org.artoflife.gui.scope org.scopemvc.core org.scopemvc.util org.scopemvc.view.swing

2.5 org.artoflife.app.inspector

Afferent Couplings: 1	Efferent Couplings: 7	Abstractness: 0	Instability: 0.88	Distance: 0.12
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	InspectorController InspectorControls InspectorModel InspectorView	org.artoflife.app	org.artoflife.app org.artoflife.app.save org.artoflife.gp org.artoflife.gui.scope org.scopemvc.core org.scopemvc.util org.scopemvc.view.swing	

2.6 org.artoflife.app.mutator

Afferent Couplings: 1	Efferent Couplings: 7	Abstractness: 0	Instability: 0.88	Distance: 0.12
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	

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None	MutatorController MutatorControls MutatorModel MutatorView	org.artoflife.app	org.artoflife.app org.artoflife.app.save org.artoflife.gp org.artoflife.gui.scope org.scopemvc.core org.scopemvc.util org.scopemvc.view.swing
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2.7 org.artoflife.app.nursery

Afferent Couplings : 1	Efferent Couplings : 6	Abstractness : 0	Instability : 0.86	Distance : 0.14
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	NurseryController NurseryControls NurseryModel NurseryView	org.artoflife.app	org.artoflife.app org.artoflife.gp org.artoflife.gui.scope org.scopemvc.core org.scopemvc.util org.scopemvc.view.swing	

2.8 org.artoflife.app.save

Afferent Couplings : 4	Efferent Couplings : 5	Abstractness : 0	Instability : 0.56	Distance : 0.44
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	SaveUtility	org.artoflife.app org.artoflife.app.generator org.artoflife.app.inspector org.artoflife.app.mutator	org.artoflife.app org.artoflife.gp org.artoflife.gui.paintable org.scopemvc.controller.basic org.scopemvc.controller.swing	

2.9 org.artoflife.app.svg

Afferent Couplings : 1	Efferent Couplings : 8	Abstractness : 0	Instability : 0.89	Distance : 0.11
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	SvgUtility	org.artoflife.app	org.apache.batik.dom org.apache.batik.svggen org.artoflife.app org.artoflife.gp org.artoflife.gui.paintable org.scopemvc.controller.basic org.scopemvc.controller.swing org.w3c.dom	

2.10 org.artoflife.gp

Afferent Couplings : 20	Efferent Couplings : 1	Abstractness : 0.62	Instability : 0.05	Distance : 0.34
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
Chromosome	Fitness	apps.mondrian	org.artoflife.util	
Individual	IncompatibleChromosomeException	org.artoflife.app		
Phenotype	IncompatibleGenotypeException	org.artoflife.app.generator		
Population	IndividualFitnessComparator	org.artoflife.app.inspector		
PopulationListener	PopulationEvent	org.artoflife.app.mutator		
Reproducer		org.artoflife.app.nursery		
Selector		org.artoflife.app.save		
World		org.artoflife.app.svg org.artoflife.gp.genome org.artoflife.gp.genome.bool org.artoflife.gp.genome.numeric		

		org.artoflife.gp.individual org.artoflife.gp.population org.artoflife.gp.reproduction org.artoflife.gp.selection org.artoflife.gp.world org.artoflife.gui.paintable org.artoflife.gui.population org.artoflife.gui.scope samples.gp.population.value	
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2.11 org.artoflife.gp.genome

Afferent Couplings : 5	Efferent Couplings : 3	Abstractness : 0.29	Instability : 0.38	Distance : 0.34
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
FunctionGene	CopyJumpDownMutator	apps.mondrian	org.apache.commons.beanutils	
GpCrossover	GeneFactory	org.artoflife.gp.genome.boobrg.artoflife.gp		
GpMutator	GeneSelection	org.artoflife.gp.genome.numorg.artoflife.util		
GpTreeNode	GpTreeChromosome	samples.gp.genome.numeric		
	JumpDownMutator	samples.gp.population.value		
	JumpUpMutator			
	ReplaceParameterMutator			
	RootGene			
	SwapSubtreeCrossover			
	VariableGene			

2.12 org.artoflife.gp.genome.bool

Afferent Couplings : 1	Efferent Couplings : 3	Abstractness : 0.27	Instability : 0.75	Distance : 0.02
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	

BinaryLogicalGene	AndGene	samples.gp.genome.numer	org.artoflife.gp
ComparisonGene	BooleanGene		org.artoflife.gp.genome
UnaryLogicalGene	BooleanMutator		org.artoflife.util
	EqualsGene		
	GreaterThanGene		
	LessThanGene		
	NotGene		
	OrGene		

2.13 org.artoflife.gp.genome.numeric

Afferent Couplings : 3	Efferent Couplings : 3	Abstractness : 0.11	Instability : 0.5	Distance : 0.39
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
BinaryNumericGene	AbsGene	apps.mondrian	org.artoflife.gp	
UnaryNumericGene	AddGene	samples.gp.genome.numer	org.artoflife.gp.genome	
	AtanGene	samples.gp.population.val	org.artoflife.util	
	CosGene			
	DivideGene			
	FloatGaussianRangeMutator			
	FloatGene			
	LogGene			
	MaxGene			
	MinGene			
	ModGene			
	MultiplyGene			
	NumericIfGene			
	PowGene			
	RoundGene			
	SinGene			

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	SubGene		
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2.14 org.artoflife.gp.individual

Afferent Couplings : 1	Efferent Couplings : 1	Abstractness : 1	Instability : 0.5	Distance : 0.5
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
MutableFitnessIndividual	None	apps.mondrian	org.artoflife.gp	

2.15 org.artoflife.gp.population

Afferent Couplings : 3	Efferent Couplings : 3	Abstractness : 0.25	Instability : 0.5	Distance : 0.25
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
GenerationalPopulation	DecayingMinFitnessGenerationalPopulation MinFitnessGenerationalPopulation SelectorGenerationalPopulation	org.artoflife.gp.population org.artoflife.app.generator org.artoflife.gp.population.value	org.artoflife.gp org.artoflife.gp.selection org.artoflife.util	

2.16 org.artoflife.gp.reproduction

Afferent Couplings : 0	Efferent Couplings : 2	Abstractness : 0	Instability : 1	Distance : 0
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	CloneReproducer CrossoverReproducer MutationReproducer	None	org.artoflife.gp org.artoflife.util	

2.17 org.artoflife.gp.selection

Afferent Couplings : 1	Efferent Couplings : 2	Abstractness : 0	Instability : 0.67	Distance : 0.33
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	SimpleTournamentSelector	org.artoflife.gp.population	org.artoflife.gp org.artoflife.util	

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2.18 org.artoflife.gp.world

Afferent Couplings : 2	Efferent Couplings : 1	Abstractness : 0	Instability : 0.33	Distance : 0.67
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	TimedStepWorld	org.artoflife.app.generator samples.gp.population.value	org.artoflife.gp	

2.19 org.artoflife.gui.paintable

Afferent Couplings : 6	Efferent Couplings : 4	Abstractness : 0.33	Instability : 0.4	Distance : 0.27
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
PaintablePhenotype	PaintableIndividualPersistent PaintableIndividualTransferable	org.mondrian org.artoflife.app.save org.artoflife.app.svg org.artoflife.gui.population org.artoflife.gui.scope samples.gp.population.value	org.artoflife.app org.artoflife.gp org.artoflife.util.dnd org.w3c.dom	

2.20 org.artoflife.gui.population

Afferent Couplings : 3	Efferent Couplings : 3	Abstractness : 0.14	Instability : 0.5	Distance : 0.36
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
RecordPositionPolicy	FreeVerticalFitnessPolicy IndividualRecord PopulationView PopulationViewDropTargetListener PopulationViewTransferHandler VerticalFitnessPolicy	org.artoflife.app.generator org.artoflife.gui.scope samples.gp.population.value	org.artoflife.gp org.artoflife.gui.paintable org.artoflife.util.dnd	

2.21 org.artoflife.gui.scope

Afferent Couplings : 4	Efferent Couplings : 6	Abstractness : 0	Instability : 0.6	Distance : 0.4
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	IndividualImagePanel IndividualTransferHandler MultiIndividualImagePanel PopulationPanel ScalableIndividualImagePanel	org.artoflife.app.generator org.artoflife.app.inspector org.artoflife.app.mutator org.artoflife.app.nursery	org.artoflife.gp org.artoflife.gui.paintable org.artoflife.gui.population org.scopemvc.core org.scopemvc.view.swing org.scopemvc.view.util	

2.22 org.artoflife.util

Afferent Couplings : 10	Efferent Couplings : 0	Abstractness : 0	Instability : 0	Distance : 1
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	Configuration RandomGenerator	apps.mondrian.ui org.artoflife.gp org.artoflife.gp.genome org.artoflife.gp.genome.bool org.artoflife.gp.genome.numeric org.artoflife.gp.population org.artoflife.gp.reproduction org.artoflife.gp.selection samples.gp.genome.numeric samples.gp.population.value	None	

2.23 org.artoflife.util.dnd

Afferent Couplings : 2	Efferent Couplings : 0	Abstractness : 0.67	Instability : 0	Distance : 0.33
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Abstract Classes	Concrete Classes	Used by Packages	Uses Packages
ThumbnailIconDropTarget ThumbnailTransferable	ThumbnailIcon	org.artoflife.gui.paintable org.artoflife.gui.population	None

2.24 samples.gp.genome.numeric

Afferent Couplings : 0	Efferent Couplings : 4	Abstractness : 0	Instability : 1	Distance : 0
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	Simple	None	org.artoflife.gp.genome org.artoflife.gp.genome.bool org.artoflife.gp.genome.numeric org.artoflife.util	

2.25 samples.gp.population.value

Afferent Couplings : 0	Efferent Couplings : 8	Abstractness : 0	Instability : 1	Distance : 0
Abstract Classes	Concrete Classes	Used by Packages	Uses Packages	
None	Launcher SolverIndividual SolverPhenotype ViewLauncher	None	org.artoflife.gp org.artoflife.gp.genome org.artoflife.gp.genome.numeric org.artoflife.gp.population org.artoflife.gp.world org.artoflife.gui.paintable org.artoflife.gui.population org.artoflife.util	

3 Cycles

3.1 apps.mondrian

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org.artoflife.gui.paintable

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.2 apps.mondrian.ui

apps.mondrian

org.artoflife.gui.paintable

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.3 org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.4 org.artoflife.app.generator

org.artoflife.app.save

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

3.5 org.artoflife.app.inspector

org.artoflife.app.save

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

3.6 org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

org.artoflife.app.mutator

3.7 org.artoflife.app.nursery

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.8 org.artoflife.app.save

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

3.9 org.artoflife.app.svg

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.10 org.artoflife.gui.paintable

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.11 org.artoflife.gui.population

org.artoflife.gui.paintable

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.12 org.artoflife.gui.scope

org.artoflife.gui.paintable

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

3.13 samples.gp.population.value

org.artoflife.gui.paintable

org.artoflife.app

org.artoflife.app.mutator

org.artoflife.app.save

org.artoflife.app

4 Explanations

The following explanations are for quick reference and are lifted directly from the original [JDepend documentation](#).

4.1 Number Of Classes

The number of concrete and abstract classes (and interfaces) in the package is an indicator of the extensibility of the package.

4.2 Afferent Couplings

The number of other packages that depend upon classes within the package is an indicator of the package's responsibility.

4.3 Efferent Couplings

The number of other packages that the classes in the package depend upon is an indicator of the package's independence.

4.4 Abstractness

The ratio of the number of abstract classes (and interfaces) in the analyzed package to the total number of classes in the analyzed package.

The range for this metric is 0 to 1, with A=0 indicating a completely concrete package and A=1 indicating a completely abstract package.

4.5 Instability

The ratio of efferent coupling (Ce) to total coupling ($Ce / (Ce + Ca)$). This metric is an indicator of the package's resilience to change.

The range for this metric is 0 to 1, with I=0 indicating a completely stable package and I=1 indicating a completely instable package.

4.6 Distance

The perpendicular distance of a package from the idealized line $A + I = 1$. This metric is an indicator of the package's balance between abstractness and stability.

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A package squarely on the main sequence is optimally balanced with respect to its abstractness and stability. Ideal packages are either completely abstract and stable ($x=0, y=1$) or completely concrete and instable ($x=1, y=0$).

The range for this metric is 0 to 1, with $D=0$ indicating a package that is coincident with the main sequence and $D=1$ indicating a package that is as far from the main sequence as possible.