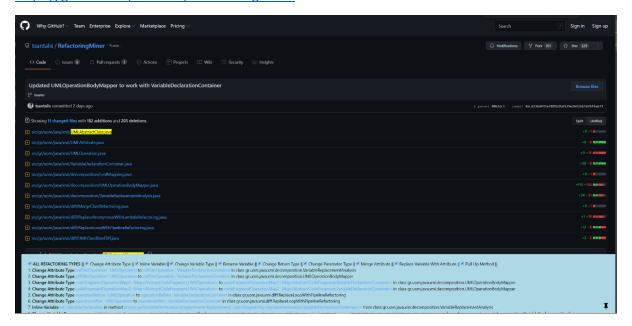
Part 2

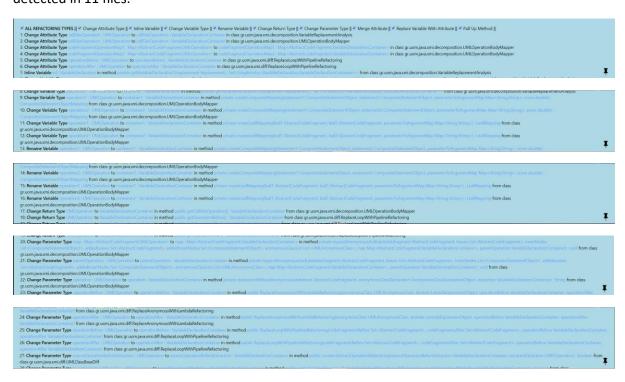
Commits Detection using Refactoring Miner

I choose the java project as "**Refactoring Miner**". Link for the project is, https://github.com/tsantalis/RefactoringMiner



Screenshot of the commit changes that were made for the project for a particular commit.

Below is all the refactoring done and there types detected by tool. There were total of 34 refactoring detected in 11 files.





Using Understand to analysis the CK Metrics

Kind	Name	CountClassCoupled	CountDeclMethodAll	CountDeclInstanceMethod	MaxInheritanceTree	PercentLackOfCohesion	CountClassDerived
Public Abstract Class gr.uom.java.xmi.UMLAbstractClass		24	48	48	1	85	2
Public Class	gr.uom.java.xmi.UMLAttribute	22	45	45	1	90	1
Public Class	gr.uom.java.xmi.UMLOperation	29	100	99	1	94	0
Public Interface	gr.uom.java.xmi.VariableDeclarationContainer	9	14	12	1	0	2
Public Class	gr.uom.java.xmi.decomposition.LeafMapping	19	43	7	2	0	0
Public Class	gr.uom.java.xmi.decomposition.UMLOperationBodyMapper	88	134	132	1	93	0
Public Class	gr.uom.java.xmi.decomposition.VariableReplacementAnalysis	70	67	62	1	91	0
Public Class	gr.uom.java.xmi.diff.MergeClassRefactoring	18	17	17	1	41	0
Public Class	gr.uom.java.xmi.diff.ReplaceAnonymousWithLambdaRefactoring	18	15	15	1	61	0
Public Class	gr.uom.java.xmi.diff.ReplaceLoopWithPipelineRefactoring	15	14	14	1	58	0
Public Abstract Class gr.uom.java.xmi.diff.UMLClassBaseDiff		68	120	103	2	95	3
	Average	34.54545455	56.09090909	50.36363636	1.181818182	64.36363636	0.727272727

Above are CK metrics stats before the commit was made.

Below are CK metrics stats after the commit was made. (I have also added the same excel file in part2.zip)

Kind	Name	CountClassCoupled	CountDeclMethodAl	CountDeclInstanceMethod	MaxInheritanceTree	PercentLackOfCohesion	CountClassDerived
Public Abstract Class gr.uom.java.xmi.UMLAbstractClass		24	48	48	1	85	2
Public Class	gr.uom.java.xmi.UMLAttribute	23	46	46	1	90	1
Public Class	gr.uom.java.xmi.UMLOperation	29	99	98	1	94	0
Public Interface	gr.uom.java.xmi.VariableDeclarationContainer	11	18	16	1	0	2
Public Class	gr.uom.java.xmi.decomposition.LeafMapping	19	43	7	2	0	0
Public Class	gr.uom.java.xmi.decomposition.UMLOperationBodyMapper	88	136	134	1	93	0
Public Class	gr.uom.java.xmi.decomposition.VariableReplacementAnalysis	70	67	62	1	91	0
Public Class	gr.uom.java.xmi.diff.MergeClassRefactoring	18	17	17	1	41	0
Public Class	gr.uom.java.xmi.diff.ReplaceAnonymousWithLambdaRefactoring	17	14	14	1	66	0
Public Class	gr.uom.java.xmi.diff.ReplaceLoopWithPipelineRefactoring	16	14	14	1	58	0
Public Abstract Class gr.uom.java.xmi.diff.UMLClassBaseDiff		69	120	103	2	95	3
	Average	34.90909091	56.54545455	50.81818182	1.181818182	64.81818182	0.727272727

I have taken average of each metrics for the following files mentioned in commit changes.

CBO: "CountClassCoupled"

We see a slight increase in CBO value from before commit to after the commit.

RFC: "CountDeclMethodAll"

We see a slight increase in RFC value from before commit to after the commit.

WMC: "CountDeclInstanceMethod"

We see a slight increase in WMC value from before commit to after the commit.

DIT: "MaxInhertianceTree"

We see no change in DIT value from before commit to after the commit.

LCOM: "PercentageLackOfCohesion"

We see a slight increase in LCOM value from before commit to after the commit.

NOC: "CountClassDerived"

We see no change in NOC value from before commit to after the commit.

Overall, due to this refactoring project quality has degraded very slightly as we can see from CK metrics values.