요놈~! Category Partition Testing Tool

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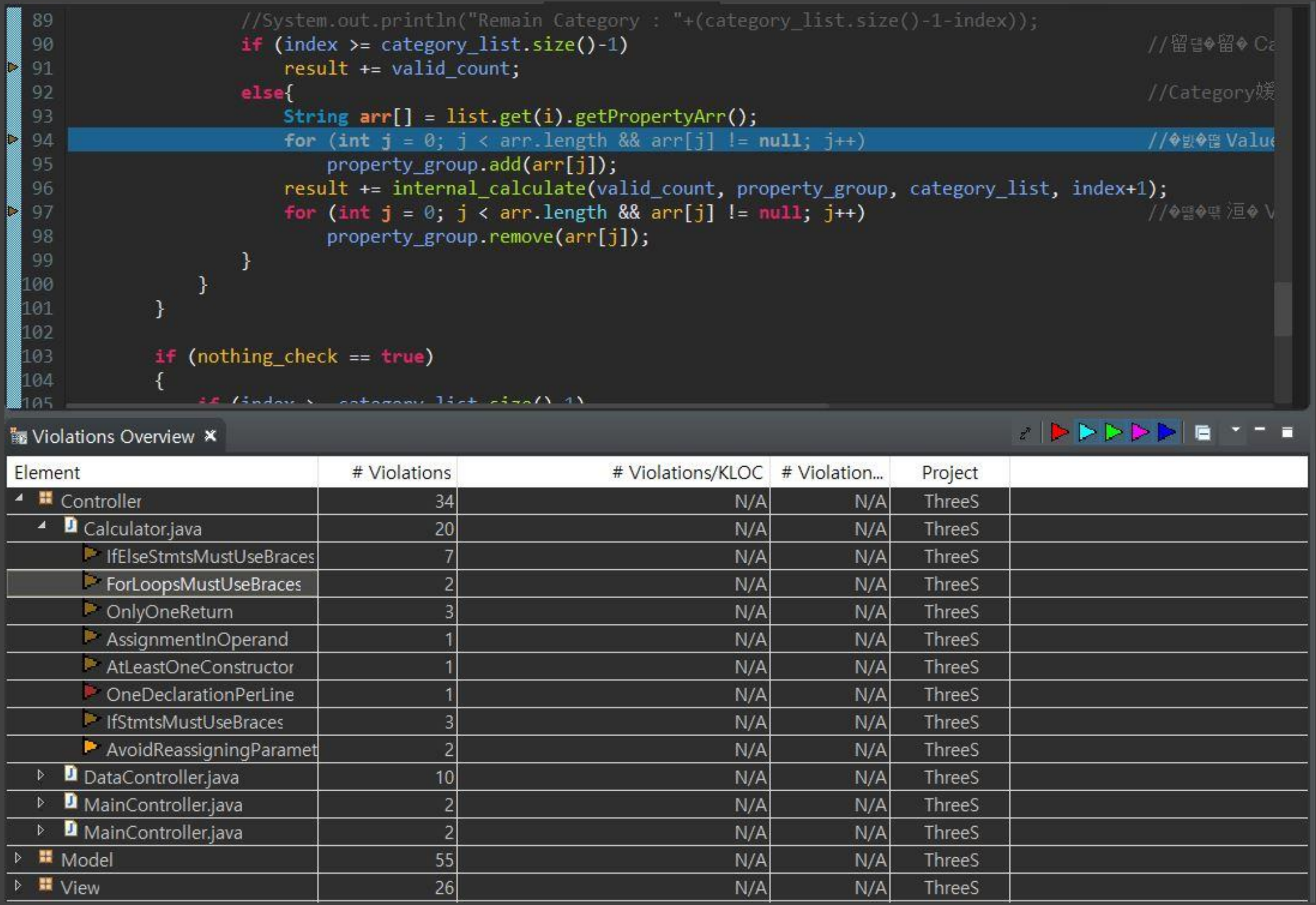
Static Analysis

PMD

Static Analysis



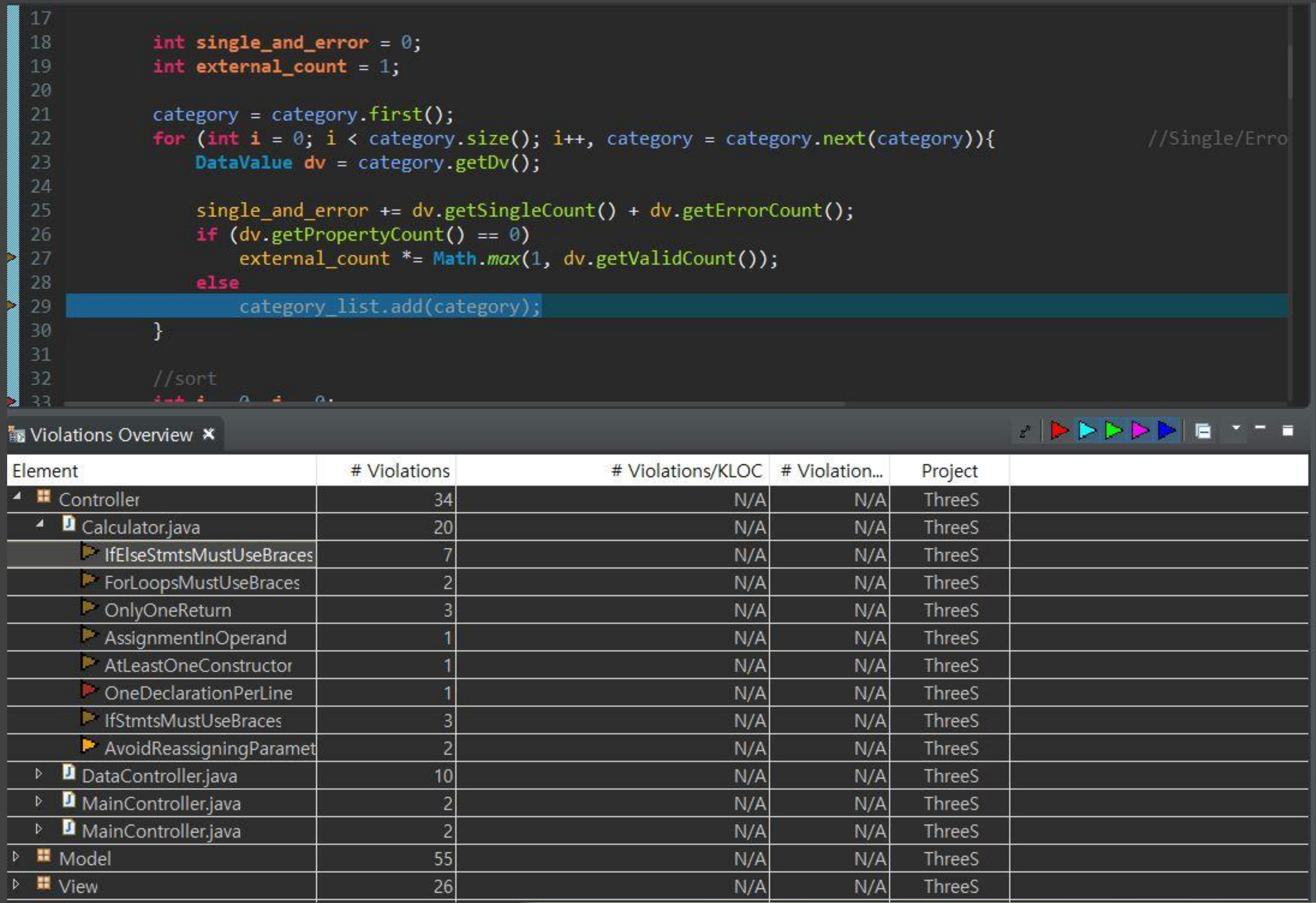
```
            //System.out.println("Remain Category : "+(category_list.size()-1-index));
            if (index >= category_list.size()-1)                                      //留댁�留� Ca
                result += valid_count;
            else{                                                                     //Category媛
                String arr[] = list.get(i).getPropertyArr();
                for (int j = 0; j < arr.length && arr[j] != null; j++)               //�뱀�쓣 Value
                    property_group.add(arr[j]);
                result += internal_calculate(valid_count, property_group, category_list, index+1);
                for (int j = 0; j < arr.length && arr[j] != null; j++)               //�뺣�瑜 洹� V
                    property_group.remove(arr[j]);
            }
        }
    }

    if (nothing_check == true)
    {
        if (index >  category_list.size()-1)
```

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	N/A	N/A	ThreeS
Calculator.java	20	N/A	N/A	ThreeS
IfElseStmtsMustUseBraces	7	N/A	N/A	ThreeS
ForLoopsMustUseBraces	2	N/A	N/A	ThreeS
OnlyOneReturn	3	N/A	N/A	ThreeS
AssignmentInOperand	1	N/A	N/A	ThreeS
AtLeastOneConstructor	1	N/A	N/A	ThreeS
OneDeclarationPerLine	1	N/A	N/A	ThreeS
IfStmtsMustUseBraces	3	N/A	N/A	ThreeS
AvoidReassigningParamet	2	N/A	N/A	ThreeS
DataController.java	10	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

For문 중괄호 없어서 생긴 오류

PMD

Static Analysis



```
        int single_and_error = 0;
        int external_count = 1;

        category = category.first();
        for (int i = 0; i < category.size(); i++, category = category.next(category)){            //Single/Erro
            DataValue dv = category.getDv();

            single_and_error += dv.getSingleCount() + dv.getErrorCount();
            if (dv.getPropertyCount() == 0)
                external_count *= Math.max(1, dv.getValidCount());
            else
                category_list.add(category);
        }

        //sort
```

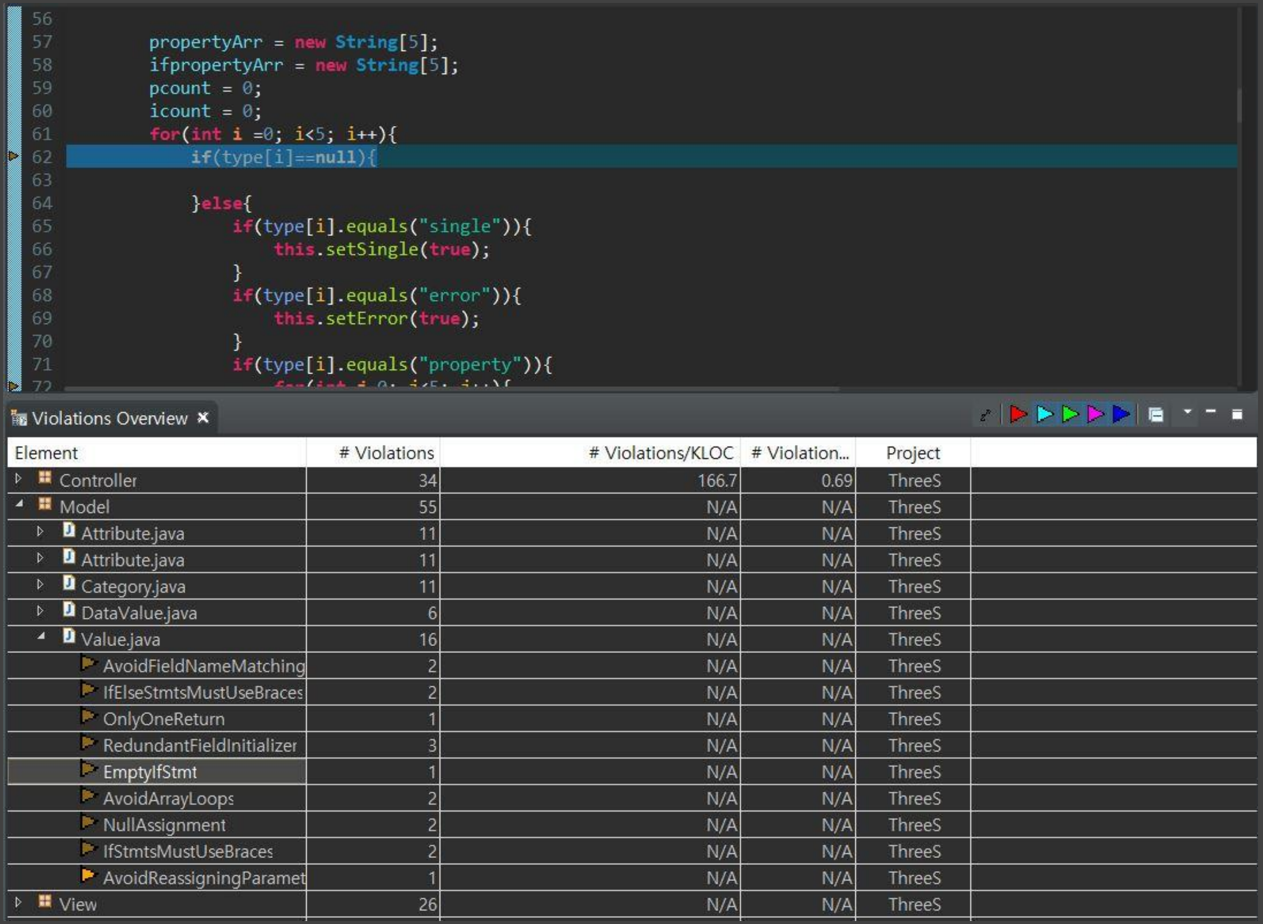
Violations Overview

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	N/A	N/A	ThreeS
Calculator.java	20	N/A	N/A	ThreeS
IfElseStmtsMustUseBraces	7	N/A	N/A	ThreeS
ForLoopsMustUseBraces	2	N/A	N/A	ThreeS
OnlyOneReturn	3	N/A	N/A	ThreeS
AssignmentInOperand	1	N/A	N/A	ThreeS
AtLeastOneConstructor	1	N/A	N/A	ThreeS
OneDeclarationPerLine	1	N/A	N/A	ThreeS
IfStmtsMustUseBraces	3	N/A	N/A	ThreeS
AvoidReassigningParamet	2	N/A	N/A	ThreeS
DataController.java	10	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

If-else 중괄호 없어서 생긴 오류

PMD

Static Analysis



```java

        propertyArr = new String[5];
        ifpropertyArr = new String[5];
        pcount = 0;
        icount = 0;
        for(int i =0; i<5; i++){
            if(type[i]==null){

            }else{
                if(type[i].equals("single")){
                    this.setSingle(true);
                }
                if(type[i].equals("error")){
                    this.setError(true);
                }
                if(type[i].equals("property")){
                    for(int i=0; i<5; i++){
```

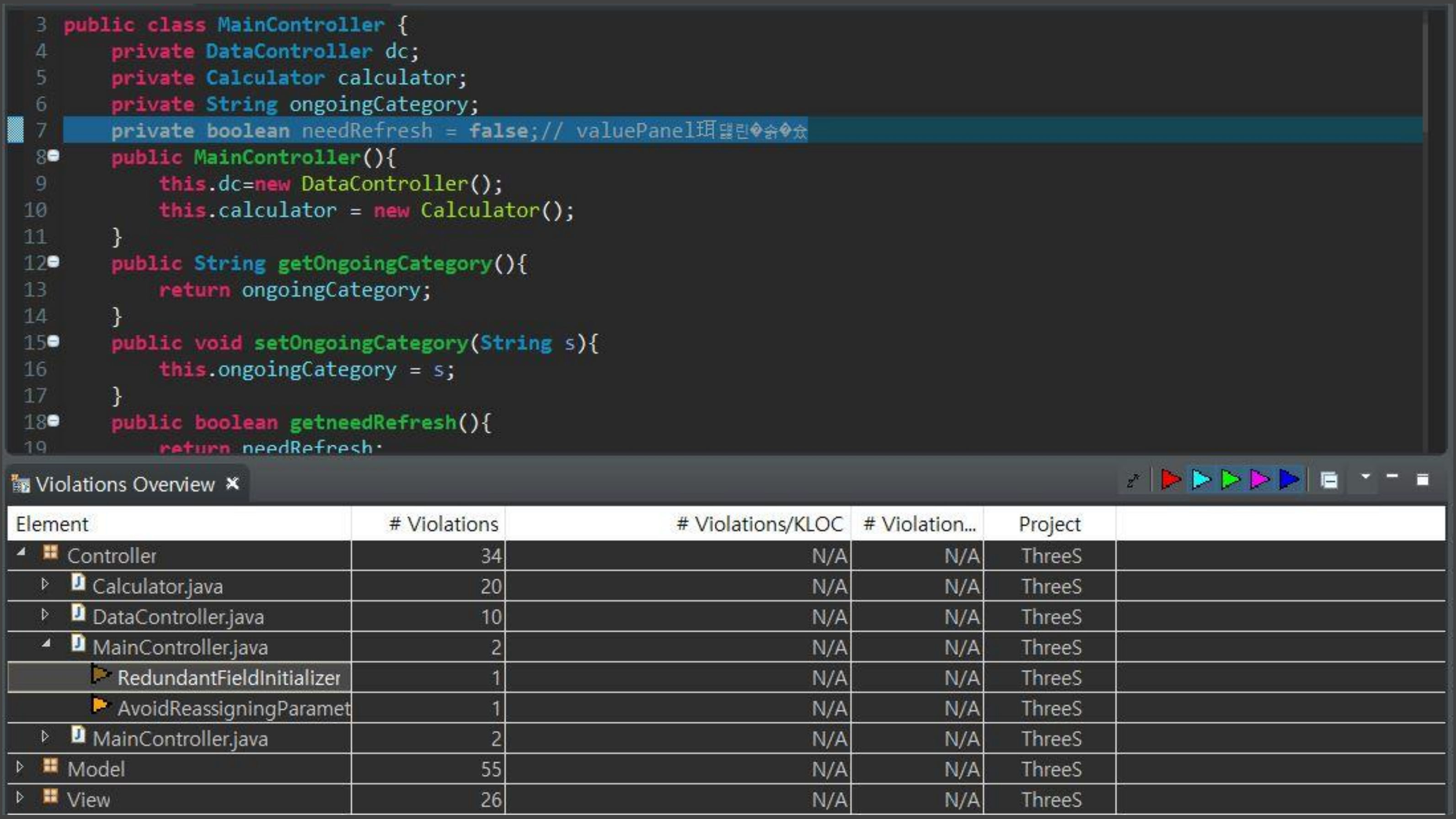
Violations Overview

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	166.7	0.69	ThreeS
Model	55	N/A	N/A	ThreeS
Attribute.java	11	N/A	N/A	ThreeS
Attribute.java	11	N/A	N/A	ThreeS
Category.java	11	N/A	N/A	ThreeS
DataValue.java	6	N/A	N/A	ThreeS
Value.java	16	N/A	N/A	ThreeS
AvoidFieldNameMatching	2	N/A	N/A	ThreeS
IfElseStmtsMustUseBraces	2	N/A	N/A	ThreeS
OnlyOneReturn	1	N/A	N/A	ThreeS
RedundantFieldInitializer	3	N/A	N/A	ThreeS
EmptyIfStmt	1	N/A	N/A	ThreeS
AvoidArrayLoops	2	N/A	N/A	ThreeS
NullAssignment	2	N/A	N/A	ThreeS
IfStmtsMustUseBraces	2	N/A	N/A	ThreeS
AvoidReassigningParamet	1	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

If statement가 비어서 생긴 오류

PMD

Static Analysis



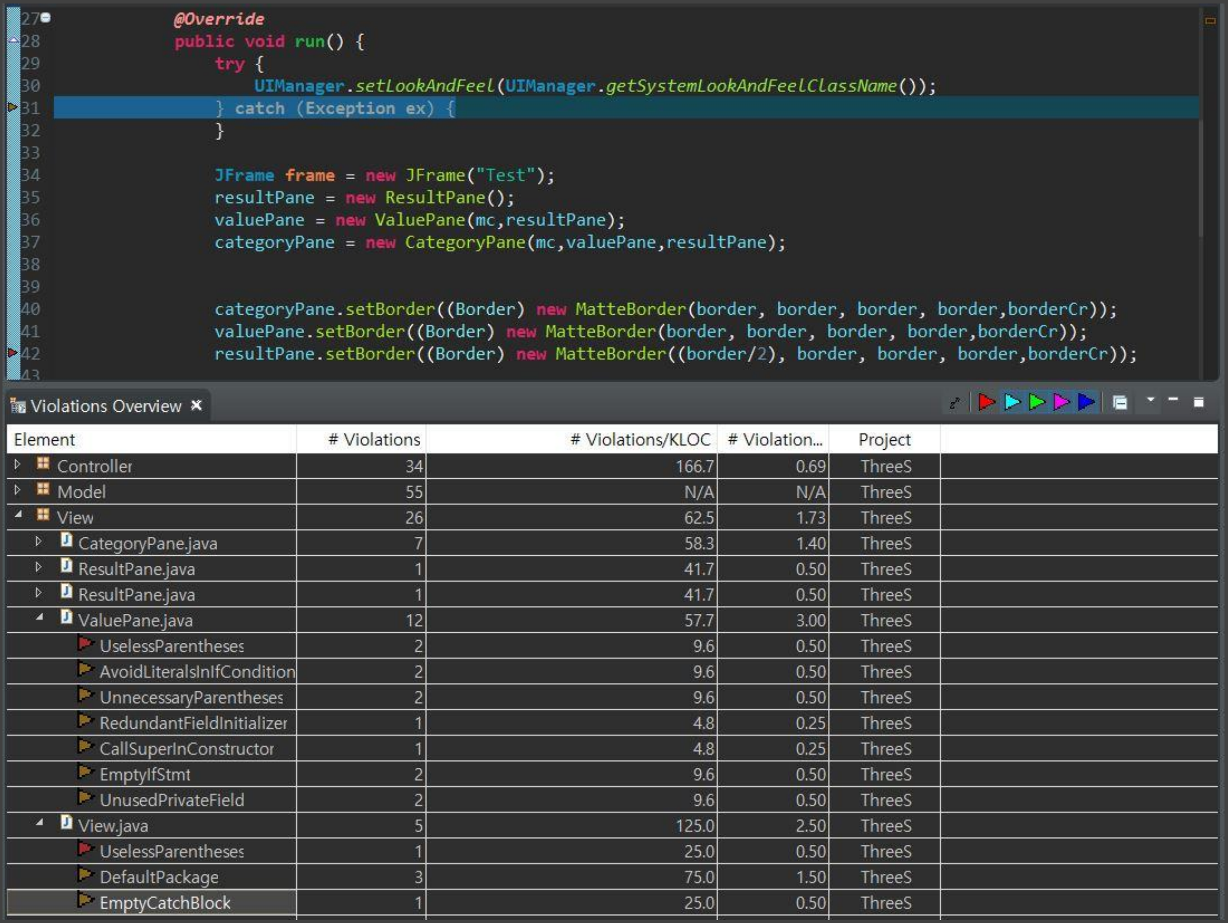
```java
public class MainController {
    private DataController dc;
    private Calculator calculator;
    private String ongoingCategory;
    private boolean needRefresh = false;// valuePanel珥댈린�슭�衆
    public MainController(){
        this.dc=new DataController();
        this.calculator = new Calculator();
    }
    public String getOngoingCategory(){
        return ongoingCategory;
    }
    public void setOngoingCategory(String s){
        this.ongoingCategory = s;
    }
    public boolean getneedRefresh(){
        return needRefresh;
```

Violations Overview

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	N/A	N/A	ThreeS
Calculator.java	20	N/A	N/A	ThreeS
DataController.java	10	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
RedundantFieldInitializer	1	N/A	N/A	ThreeS
AvoidReassigningParamet	1	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

Initializer 불필요해서 생긴 오류

PMD

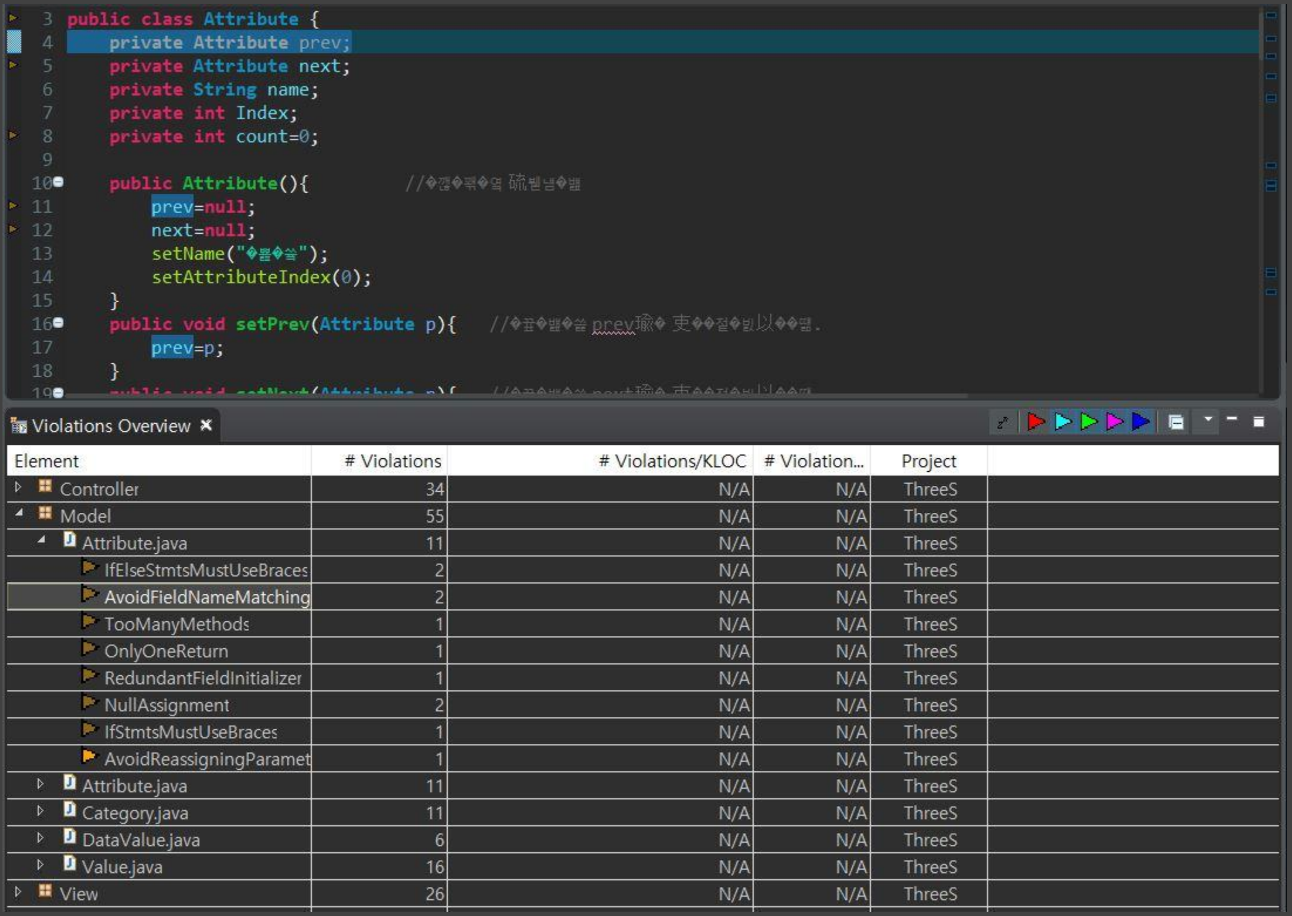


```
    @Override
    public void run() {
        try {
            UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());
        } catch (Exception ex) {
        }

        JFrame frame = new JFrame("Test");
        resultPane = new ResultPane();
        valuePane = new ValuePane(mc,resultPane);
        categoryPane = new CategoryPane(mc,valuePane,resultPane);


        categoryPane.setBorder((Border) new MatteBorder(border, border, border, border,borderCr));
        valuePane.setBorder((Border) new MatteBorder(border, border, border, border,borderCr));
        resultPane.setBorder((Border) new MatteBorder((border/2), border, border, border,borderCr));
```

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	166.7	0.69	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	62.5	1.73	ThreeS
CategoryPane.java	7	58.3	1.40	ThreeS
ResultPane.java	1	41.7	0.50	ThreeS
ResultPane.java	1	41.7	0.50	ThreeS
ValuePane.java	12	57.7	3.00	ThreeS
UselessParentheses	2	9.6	0.50	ThreeS
AvoidLiteralsInIfCondition	2	9.6	0.50	ThreeS
UnnecessaryParentheses	2	9.6	0.50	ThreeS
RedundantFieldInitializer	1	4.8	0.25	ThreeS
CallSuperInConstructor	1	4.8	0.25	ThreeS
EmptyIfStmt	2	9.6	0.50	ThreeS
UnusedPrivateField	2	9.6	0.50	ThreeS
View.java	5	125.0	2.50	ThreeS
UselessParentheses	1	25.0	0.50	ThreeS
DefaultPackage	3	75.0	1.50	ThreeS
EmptyCatchBlock	1	25.0	0.50	ThreeS

Catch Statement 비어서 생긴 오류

PMD



```
public class Attribute {
    private Attribute prev;
    private Attribute next;
    private String name;
    private int Index;
    private int count=0;

    public Attribute(){          //�갭�퀎�옄 硫붿냼�뱶
        prev=null;
        next=null;
        setName("�뿉�슜");
        setAttributeIndex(0);
    }
    public void setPrev(Attribute p){   //�꾩�옱�쓽 prev瑜� 吏��젙�빀�땲�떎.
        prev=p;
    }
    public void setNext(Attribute p){   //�꾩�옱�쓽 next瑜� 吏��젙�빀�땲�떎.
```

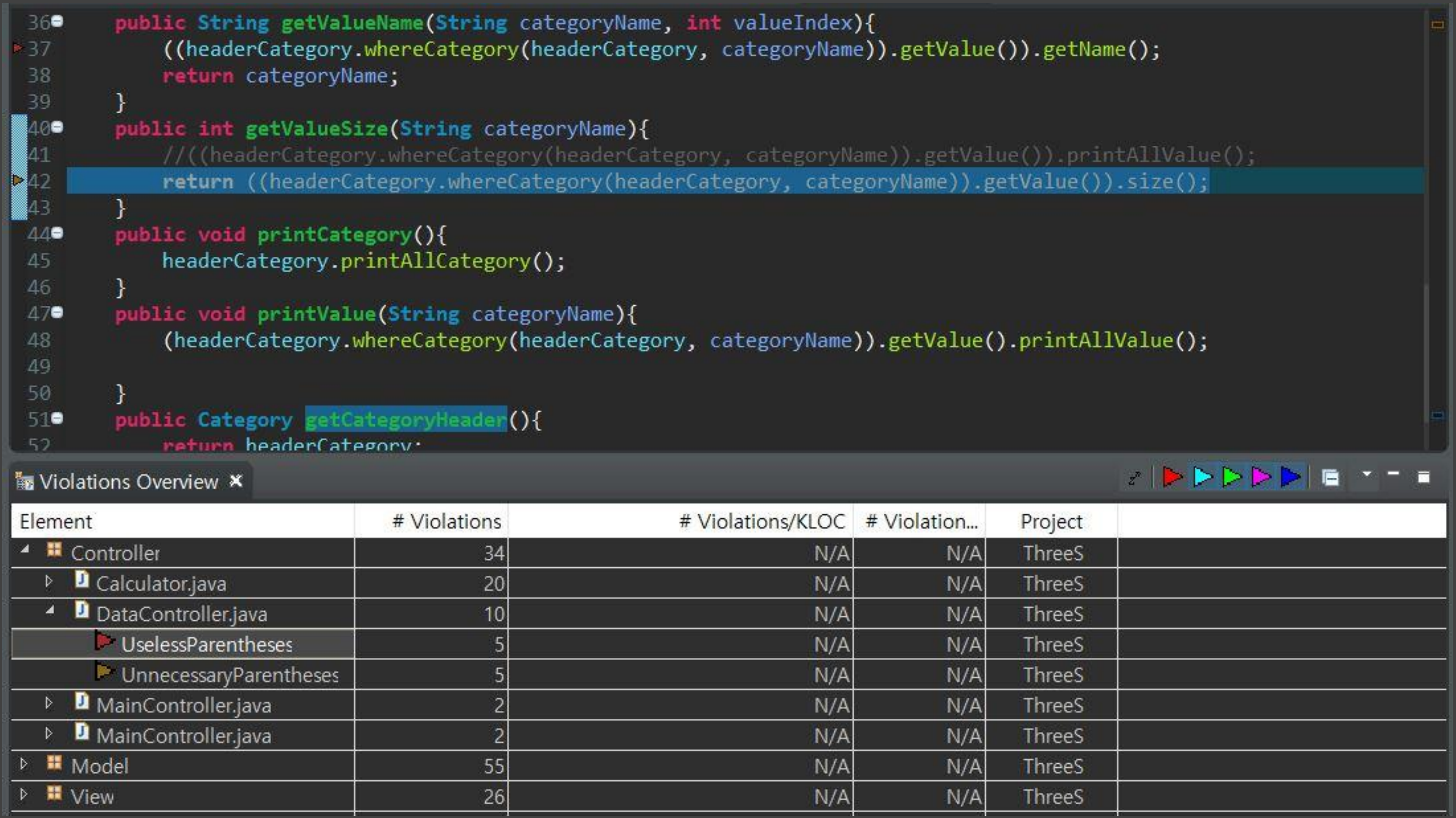
Violations Overview

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	N/A	N/A	ThreeS
Model	55	N/A	N/A	ThreeS
Attribute.java	11	N/A	N/A	ThreeS
IfElseStmtsMustUseBraces	2	N/A	N/A	ThreeS
AvoidFieldNameMatching	2	N/A	N/A	ThreeS
TooManyMethods	1	N/A	N/A	ThreeS
OnlyOneReturn	1	N/A	N/A	ThreeS
RedundantFieldInitializer	1	N/A	N/A	ThreeS
NullAssignment	2	N/A	N/A	ThreeS
IfStmtsMustUseBraces	1	N/A	N/A	ThreeS
AvoidReassigningParamet	1	N/A	N/A	ThreeS
Attribute.java	11	N/A	N/A	ThreeS
Category.java	11	N/A	N/A	ThreeS
DataValue.java	6	N/A	N/A	ThreeS
Value.java	16	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

메소드 이름과 같은 이름의 필드가 있어서 생긴 오류

PMD

Static Analysis



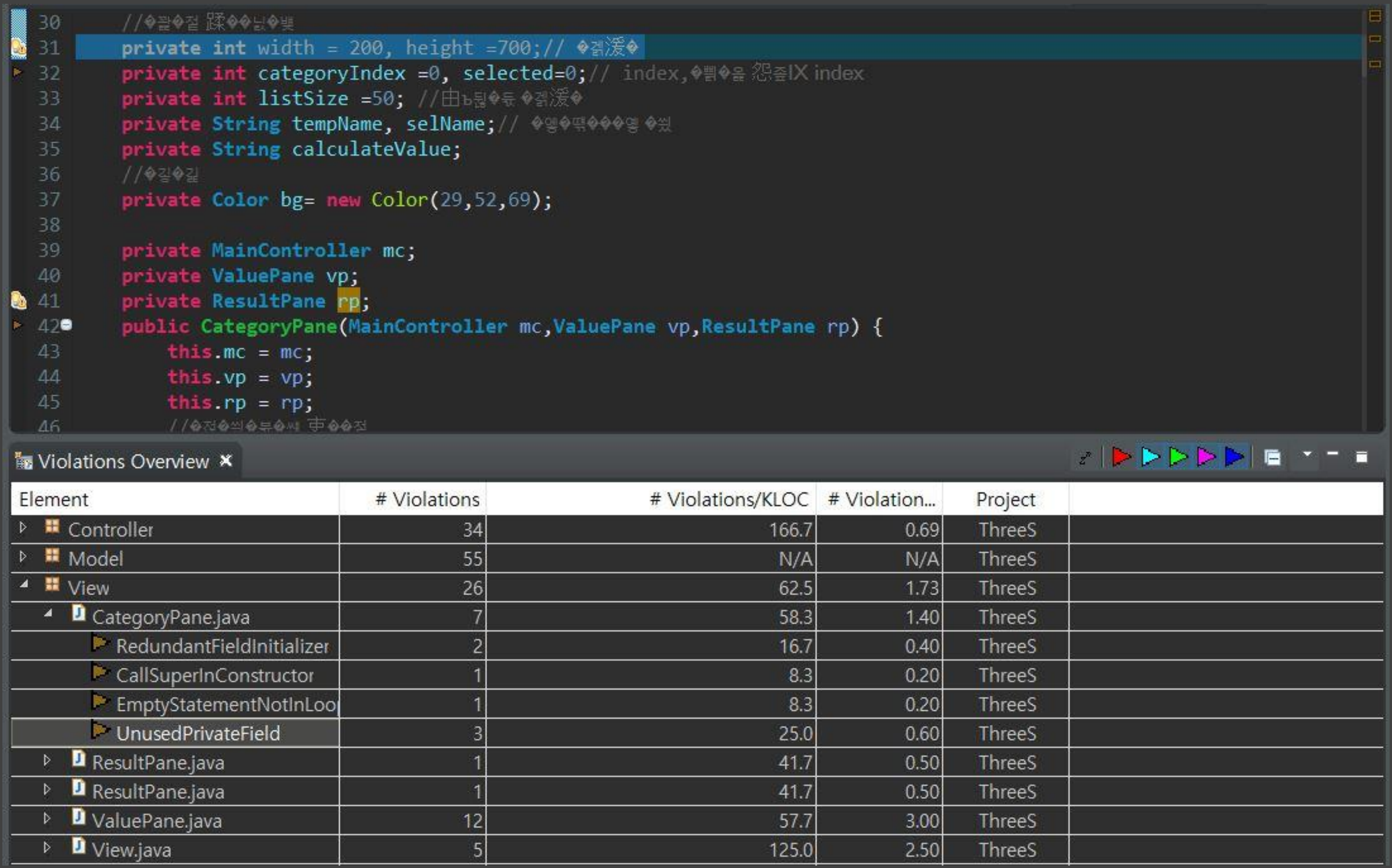
```
    public String getValueName(String categoryName, int valueIndex){
        ((headerCategory.whereCategory(headerCategory, categoryName)).getValue()).getName();
        return categoryName;
    }
    public int getValueSize(String categoryName){
        //((headerCategory.whereCategory(headerCategory, categoryName)).getValue()).printAllValue();
        return ((headerCategory.whereCategory(headerCategory, categoryName)).getValue()).size();
    }
    public void printCategory(){
        headerCategory.printAllCategory();
    }
    public void printValue(String categoryName){
        (headerCategory.whereCategory(headerCategory, categoryName)).getValue().printAllValue();

    }
    public Category getCategoryHeader(){
        return headerCategory;
```

Violations Overview

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	N/A	N/A	ThreeS
Calculator.java	20	N/A	N/A	ThreeS
DataController.java	10	N/A	N/A	ThreeS
UselessParentheses	5	N/A	N/A	ThreeS
UnnecessaryParentheses	5	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

불필요한 괄호가 있어서 생긴 오류

PMD



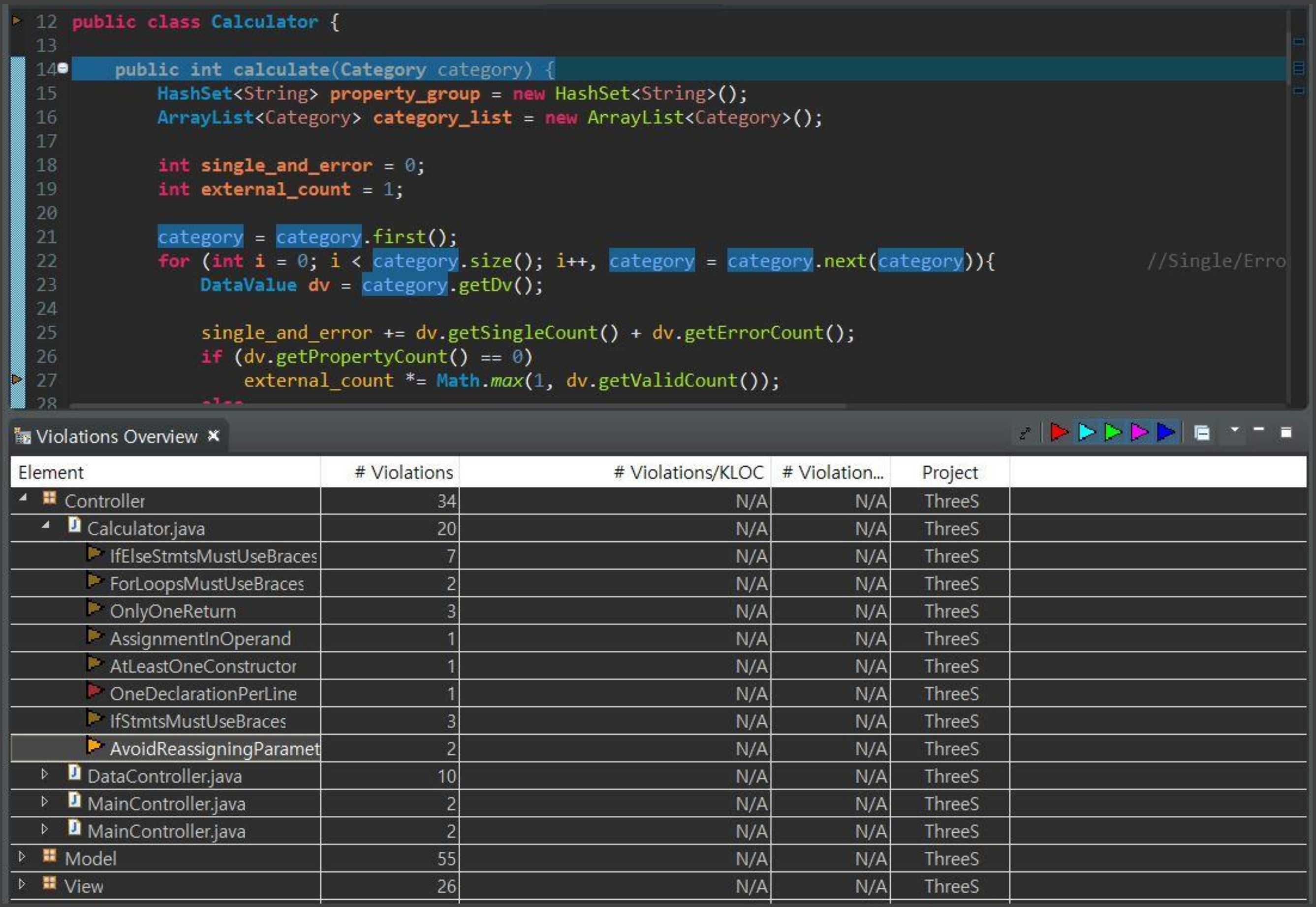
```
    //�끸�젙 蹂��닔�뱾
    private int width = 200, height =700;// �겕湲�
    private int categoryIndex =0, selected=0;// index,�뿰�쓣 怨좊IX index
    private int listSize =50; //由ы뒪�듃 �겕湲�
    private String tempName, selName;// �엫�떆���옣 �씠
    private String calculateValue;
    //�깋�깮
    private Color bg= new Color(29,52,69);

    private MainController mc;
    private ValuePane vp;
    private ResultPane rp;
    public CategoryPane(MainController mc,ValuePane vp,ResultPane rp) {
        this.mc = mc;
        this.vp = vp;
        this.rp = rp;
        //�젙�씤�뷡�씠 吏��젙
```

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	166.7	0.69	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	62.5	1.73	ThreeS
CategoryPane.java	7	58.3	1.40	ThreeS
RedundantFieldInitializer	2	16.7	0.40	ThreeS
CallSuperInConstructor	1	8.3	0.20	ThreeS
EmptyStatementNotInLoo	1	8.3	0.20	ThreeS
UnusedPrivateField	3	25.0	0.60	ThreeS
ResultPane.java	1	41.7	0.50	ThreeS
ResultPane.java	1	41.7	0.50	ThreeS
ValuePane.java	12	57.7	3.00	ThreeS
View.java	5	125.0	2.50	ThreeS

사용 되지 않은 변수가 정의되어 생긴 오류

PMD

Static Analysis



```
public class Calculator {

    public int calculate(Category category) {
        HashSet<String> property_group = new HashSet<String>();
        ArrayList<Category> category_list = new ArrayList<Category>();

        int single_and_error = 0;
        int external_count = 1;

        category = category.first();
        for (int i = 0; i < category.size(); i++, category = category.next(category)){              //Single/Erro
            DataValue dv = category.getDv();

            single_and_error += dv.getSingleCount() + dv.getErrorCount();
            if (dv.getPropertyCount() == 0)
                external_count *= Math.max(1, dv.getValidCount());
```

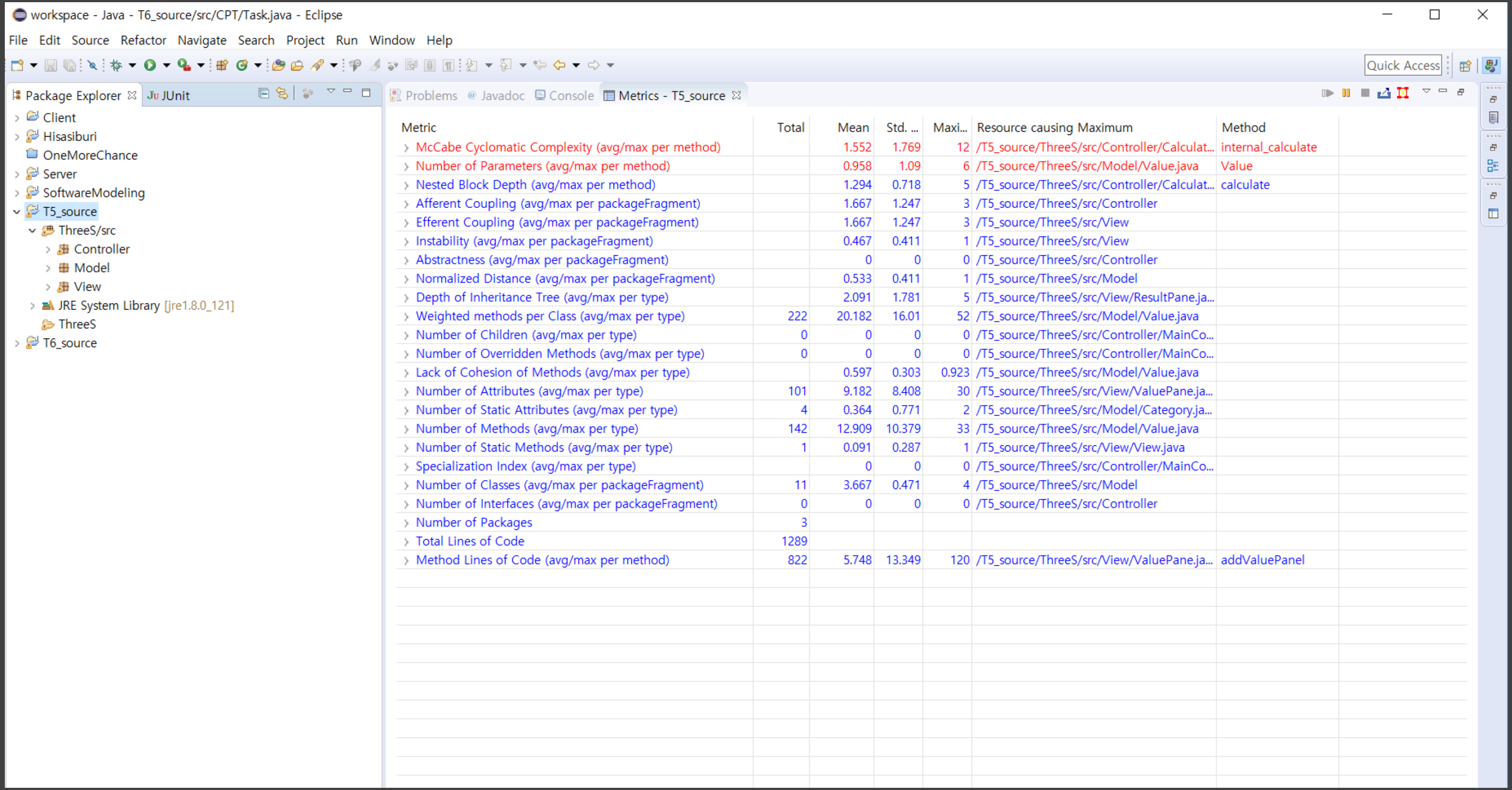
Violations Overview

Element	# Violations	# Violations/KLOC	# Violation...	Project
Controller	34	N/A	N/A	ThreeS
Calculator.java	20	N/A	N/A	ThreeS
IfElseStmtsMustUseBraces	7	N/A	N/A	ThreeS
ForLoopsMustUseBraces	2	N/A	N/A	ThreeS
OnlyOneReturn	3	N/A	N/A	ThreeS
AssignmentInOperand	1	N/A	N/A	ThreeS
AtLeastOneConstructor	1	N/A	N/A	ThreeS
OneDeclarationPerLine	1	N/A	N/A	ThreeS
IfStmtsMustUseBraces	3	N/A	N/A	ThreeS
AvoidReassigningParamet	2	N/A	N/A	ThreeS
DataController.java	10	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
MainController.java	2	N/A	N/A	ThreeS
Model	55	N/A	N/A	ThreeS
View	26	N/A	N/A	ThreeS

수신 매개변수에 값을 수정해서 생긴 오류

Eclipse Metrics Plugin(T5)

Static Analysis

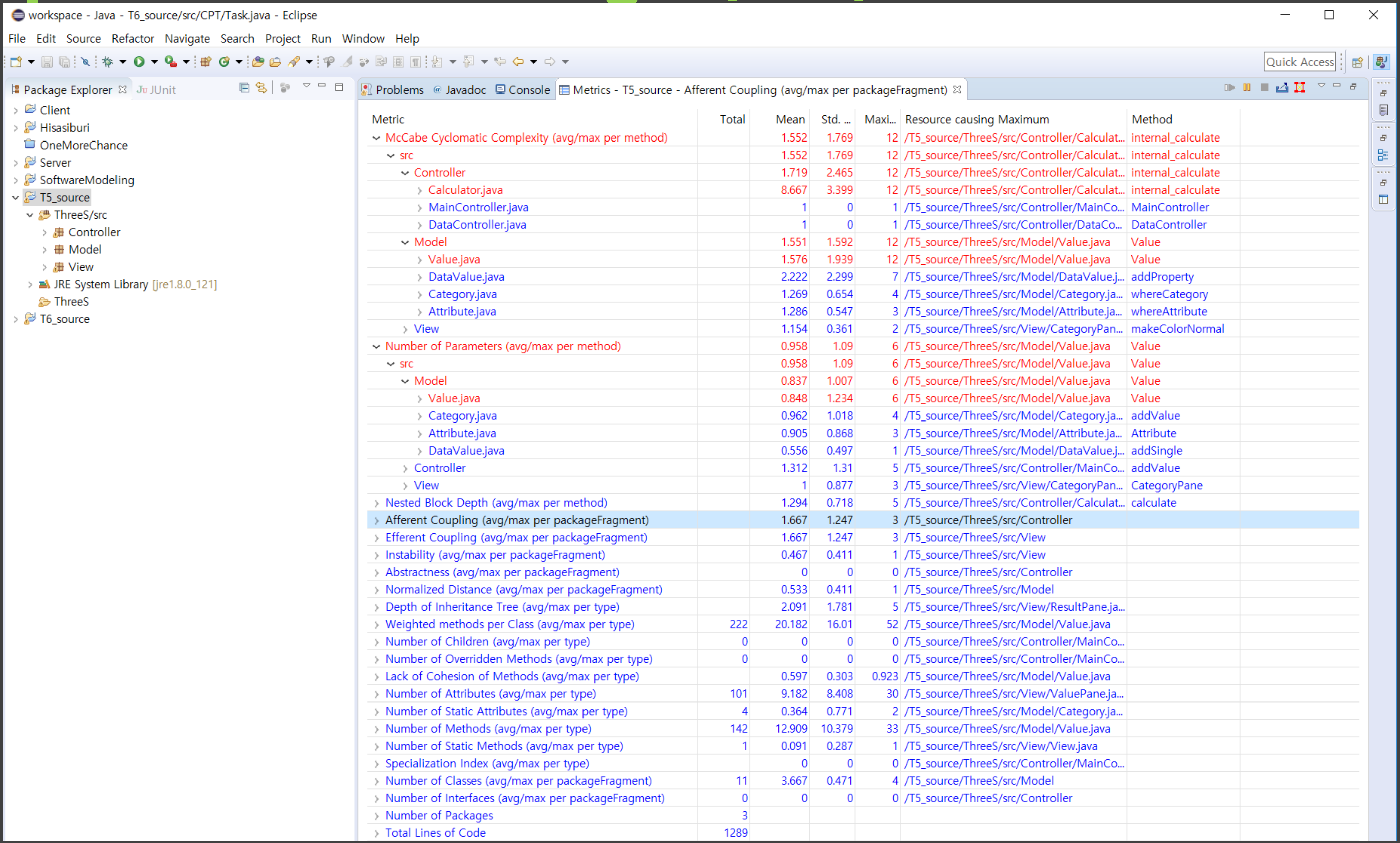


Metric	Total	Mean	Std. ...	Maxi...	Resource causing Maximum	Method
McCabe Cyclomatic Complexity (avg/max per method)		1.552	1.769	12	/T5_source/ThreeS/src/Controller/Calculat...	internal_calculate
Number of Parameters (avg/max per method)		0.958	1.09	6	/T5_source/ThreeS/src/Model/Value.java	Value
Nested Block Depth (avg/max per method)		1.294	0.718	5	/T5_source/ThreeS/src/Controller/Calculat...	calculate
Afferent Coupling (avg/max per packageFragment)		1.667	1.247	3	/T5_source/ThreeS/src/Controller	
Efferent Coupling (avg/max per packageFragment)		1.667	1.247	3	/T5_source/ThreeS/src/View	
Instability (avg/max per packageFragment)		0.467	0.411	1	/T5_source/ThreeS/src/View	
Abstractness (avg/max per packageFragment)		0	0	0	/T5_source/ThreeS/src/Controller	
Normalized Distance (avg/max per packageFragment)		0.533	0.411	1	/T5_source/ThreeS/src/Model	
Depth of Inheritance Tree (avg/max per type)		2.091	1.781	5	/T5_source/ThreeS/src/View/ResultPane.ja...	
Weighted methods per Class (avg/max per type)	222	20.182	16.01	52	/T5_source/ThreeS/src/Model/Value.java	
Number of Children (avg/max per type)	0	0	0	0	/T5_source/ThreeS/src/Controller/MainCo...	
Number of Overridden Methods (avg/max per type)	0	0	0	0	/T5_source/ThreeS/src/Controller/MainCo...	
Lack of Cohesion of Methods (avg/max per type)		0.597	0.303	0.923	/T5_source/ThreeS/src/Model/Value.java	
Number of Attributes (avg/max per type)	101	9.182	8.408	30	/T5_source/ThreeS/src/View/ValuePane.ja...	
Number of Static Attributes (avg/max per type)	4	0.364	0.771	2	/T5_source/ThreeS/src/Model/Category.ja...	
Number of Methods (avg/max per type)	142	12.909	10.379	33	/T5_source/ThreeS/src/Model/Value.java	
Number of Static Methods (avg/max per type)	1	0.091	0.287	1	/T5_source/ThreeS/src/View/View.java	
Specialization Index (avg/max per type)		0	0	0	/T5_source/ThreeS/src/Controller/MainCo...	
Number of Classes (avg/max per packageFragment)	11	3.667	0.471	4	/T5_source/ThreeS/src/Model	
Number of Interfaces (avg/max per packageFragment)	0	0	0	0	/T5_source/ThreeS/src/Controller	
Number of Packages	3					
Total Lines of Code	1289					
Method Lines of Code (avg/max per method)	822	5.748	13.349	120	/T5_source/ThreeS/src/View/ValuePane.ja...	addValuePanel

복잡성 지수, 매개변수 개수, 총 코드라인 수, etc

Eclipse Metrics Plugin(T5)

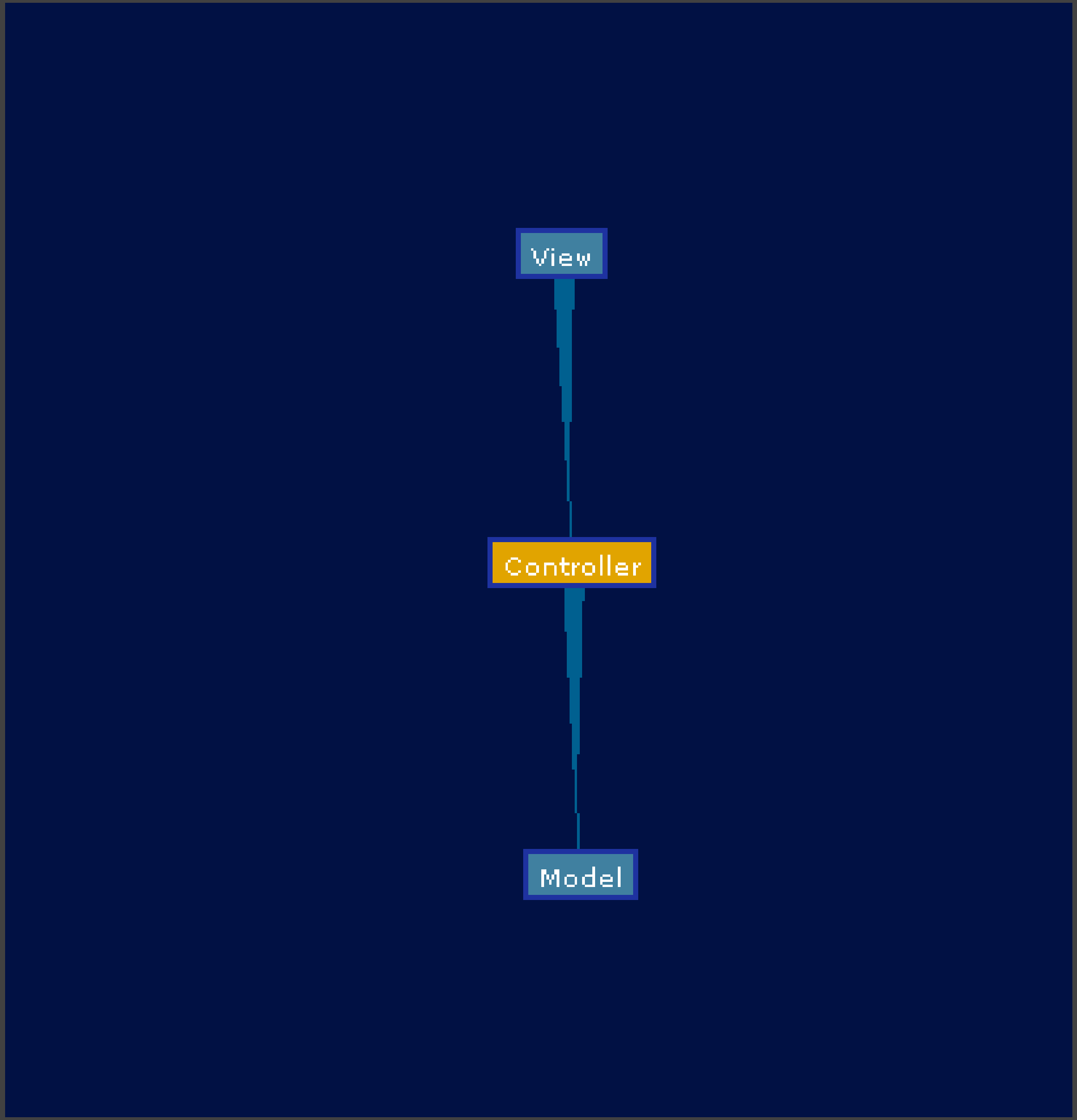
Static Analysis



Metric	Total	Mean	Std. ...	Maxi...	Resource causing Maximum	Method
McCabe Cyclomatic Complexity (avg/max per method)		1.552	1.769	12	/T5_source/ThreeS/src/Controller/Calculat...	internal_calculate
src		1.552	1.769	12	/T5_source/ThreeS/src/Controller/Calculat...	internal_calculate
Controller		1.719	2.465	12	/T5_source/ThreeS/src/Controller/Calculat...	internal_calculate
Calculator.java		8.667	3.399	12	/T5_source/ThreeS/src/Controller/Calculat...	internal_calculate
MainController.java		1	0	1	/T5_source/ThreeS/src/Controller/MainCo...	MainController
DataController.java		1	0	1	/T5_source/ThreeS/src/Controller/DataCo...	DataController
Model		1.551	1.592	12	/T5_source/ThreeS/src/Model/Value.java	Value
Value.java		1.576	1.939	12	/T5_source/ThreeS/src/Model/Value.java	Value
DataValue.java		2.222	2.299	7	/T5_source/ThreeS/src/Model/DataValue.j...	addProperty
Category.java		1.269	0.654	4	/T5_source/ThreeS/src/Model/Category.ja...	whereCategory
Attribute.java		1.286	0.547	3	/T5_source/ThreeS/src/Model/Attribute.ja...	whereAttribute
View		1.154	0.361	2	/T5_source/ThreeS/src/View/CategoryPan...	makeColorNormal
Number of Parameters (avg/max per method)		0.958	1.09	6	/T5_source/ThreeS/src/Model/Value.java	Value
src		0.958	1.09	6	/T5_source/ThreeS/src/Model/Value.java	Value
Model		0.837	1.007	6	/T5_source/ThreeS/src/Model/Value.java	Value
Value.java		0.848	1.234	6	/T5_source/ThreeS/src/Model/Value.java	Value
Category.java		0.962	1.018	4	/T5_source/ThreeS/src/Model/Category.ja...	addValue
Attribute.java		0.905	0.868	3	/T5_source/ThreeS/src/Model/Attribute.ja...	Attribute
DataValue.java		0.556	0.497	1	/T5_source/ThreeS/src/Model/DataValue.j...	addSingle
Controller		1.312	1.31	5	/T5_source/ThreeS/src/Controller/MainCo...	addValue
View		1	0.877	3	/T5_source/ThreeS/src/View/CategoryPan...	CategoryPane
Nested Block Depth (avg/max per method)		1.294	0.718	5	/T5_source/ThreeS/src/Controller/Calculat...	calculate
Afferent Coupling (avg/max per packageFragment)		1.667	1.247	3	/T5_source/ThreeS/src/Controller	
Efferent Coupling (avg/max per packageFragment)		1.667	1.247	3	/T5_source/ThreeS/src/View	
Instability (avg/max per packageFragment)		0.467	0.411	1	/T5_source/ThreeS/src/View	
Abstractness (avg/max per packageFragment)		0	0	0	/T5_source/ThreeS/src/Controller	
Normalized Distance (avg/max per packageFragment)		0.533	0.411	1	/T5_source/ThreeS/src/Model	
Depth of Inheritance Tree (avg/max per type)		2.091	1.781	5	/T5_source/ThreeS/src/View/ResultPane.ja...	
Weighted methods per Class (avg/max per type)	222	20.182	16.01	52	/T5_source/ThreeS/src/Model/Value.java	
Number of Children (avg/max per type)	0	0	0	0	/T5_source/ThreeS/src/Controller/MainCo...	
Number of Overridden Methods (avg/max per type)	0	0	0	0	/T5_source/ThreeS/src/Controller/MainCo...	
Lack of Cohesion of Methods (avg/max per type)		0.597	0.303	0.923	/T5_source/ThreeS/src/Model/Value.java	
Number of Attributes (avg/max per type)	101	9.182	8.408	30	/T5_source/ThreeS/src/View/ValuePane.ja...	
Number of Static Attributes (avg/max per type)	4	0.364	0.771	2	/T5_source/ThreeS/src/Model/Category.ja...	
Number of Methods (avg/max per type)	142	12.909	10.379	33	/T5_source/ThreeS/src/Model/Value.java	
Number of Static Methods (avg/max per type)	1	0.091	0.287	1	/T5_source/ThreeS/src/View/View.java	
Specialization Index (avg/max per type)		0	0	0	/T5_source/ThreeS/src/Controller/MainCo...	
Number of Classes (avg/max per packageFragment)	11	3.667	0.471	4	/T5_source/ThreeS/src/Model	
Number of Interfaces (avg/max per packageFragment)	0	0	0	0	/T5_source/ThreeS/src/Controller	
Number of Packages	3					
Total Lines of Code	1289					

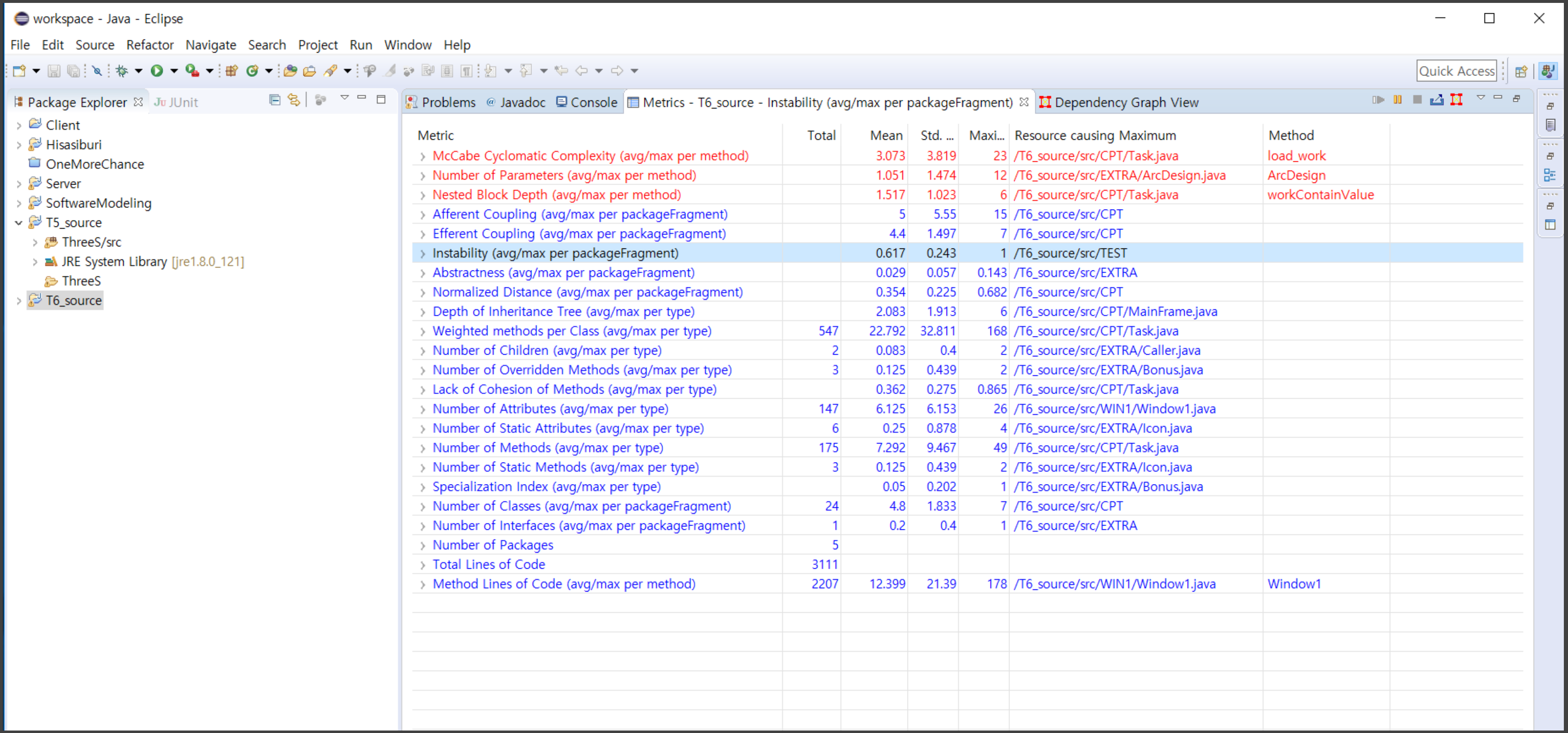
Eclipse Metrics Plugin(T5)

Static Analysis



Eclipse Metrics Plugin(T6)

Static Analysis

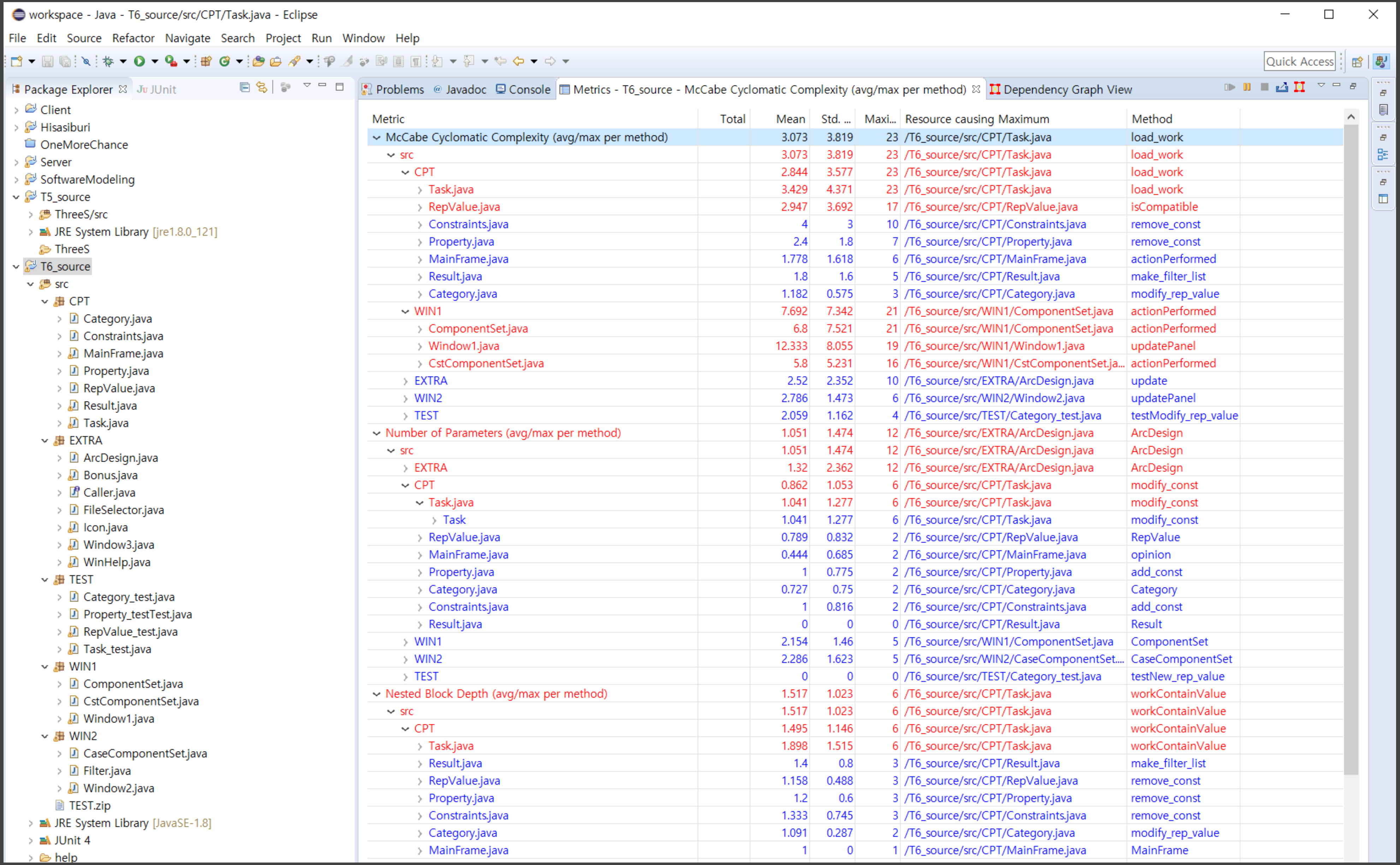

workspace - Java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package Explorer
JUnit
Client
Hisasiburi
OneMoreChance
Server
SoftwareModeling
T5_source
ThreeS/src
JRE System Library [jre1.8.0_121]
ThreeS
T6_source
Problems
Javadoc
Console
Metrics - T6_source - Instability (avg/max per packageFragment)
Dependency Graph View

Metric	Total	Mean	Std. ...	Maxi...	Resource causing Maximum	Method
McCabe Cyclomatic Complexity (avg/max per method)		3.073	3.819	23	/T6_source/src/CPT/Task.java	load_work
Number of Parameters (avg/max per method)		1.051	1.474	12	/T6_source/src/EXTRA/ArcDesign.java	ArcDesign
Nested Block Depth (avg/max per method)		1.517	1.023	6	/T6_source/src/CPT/Task.java	workContainValue
Afferent Coupling (avg/max per packageFragment)		5	5.55	15	/T6_source/src/CPT	
Efferent Coupling (avg/max per packageFragment)		4.4	1.497	7	/T6_source/src/CPT	
Instability (avg/max per packageFragment)		0.617	0.243	1	/T6_source/src/TEST	
Abstractness (avg/max per packageFragment)		0.029	0.057	0.143	/T6_source/src/EXTRA	
Normalized Distance (avg/max per packageFragment)		0.354	0.225	0.682	/T6_source/src/CPT	
Depth of Inheritance Tree (avg/max per type)		2.083	1.913	6	/T6_source/src/CPT/MainFrame.java	
Weighted methods per Class (avg/max per type)	547	22.792	32.811	168	/T6_source/src/CPT/Task.java	
Number of Children (avg/max per type)	2	0.083	0.4	2	/T6_source/src/EXTRA/Caller.java	
Number of Overridden Methods (avg/max per type)	3	0.125	0.439	2	/T6_source/src/EXTRA/Bonus.java	
Lack of Cohesion of Methods (avg/max per type)		0.362	0.275	0.865	/T6_source/src/CPT/Task.java	
Number of Attributes (avg/max per type)	147	6.125	6.153	26	/T6_source/src/WIN1/Window1.java	
Number of Static Attributes (avg/max per type)	6	0.25	0.878	4	/T6_source/src/EXTRA/Icon.java	
Number of Methods (avg/max per type)	175	7.292	9.467	49	/T6_source/src/CPT/Task.java	
Number of Static Methods (avg/max per type)	3	0.125	0.439	2	/T6_source/src/EXTRA/Icon.java	
Specialization Index (avg/max per type)		0.05	0.202	1	/T6_source/src/EXTRA/Bonus.java	
Number of Classes (avg/max per packageFragment)	24	4.8	1.833	7	/T6_source/src/CPT	
Number of Interfaces (avg/max per packageFragment)	1	0.2	0.4	1	/T6_source/src/EXTRA	
Number of Packages	5					
Total Lines of Code	3111					
Method Lines of Code (avg/max per method)	2207	12.399	21.39	178	/T6_source/src/WIN1/Window1.java	Window1

복잡성 지수, 매개변수 개수, 총 코드라인 수, etc

Eclipse Metrics Plugin(T6)

Static Analysis

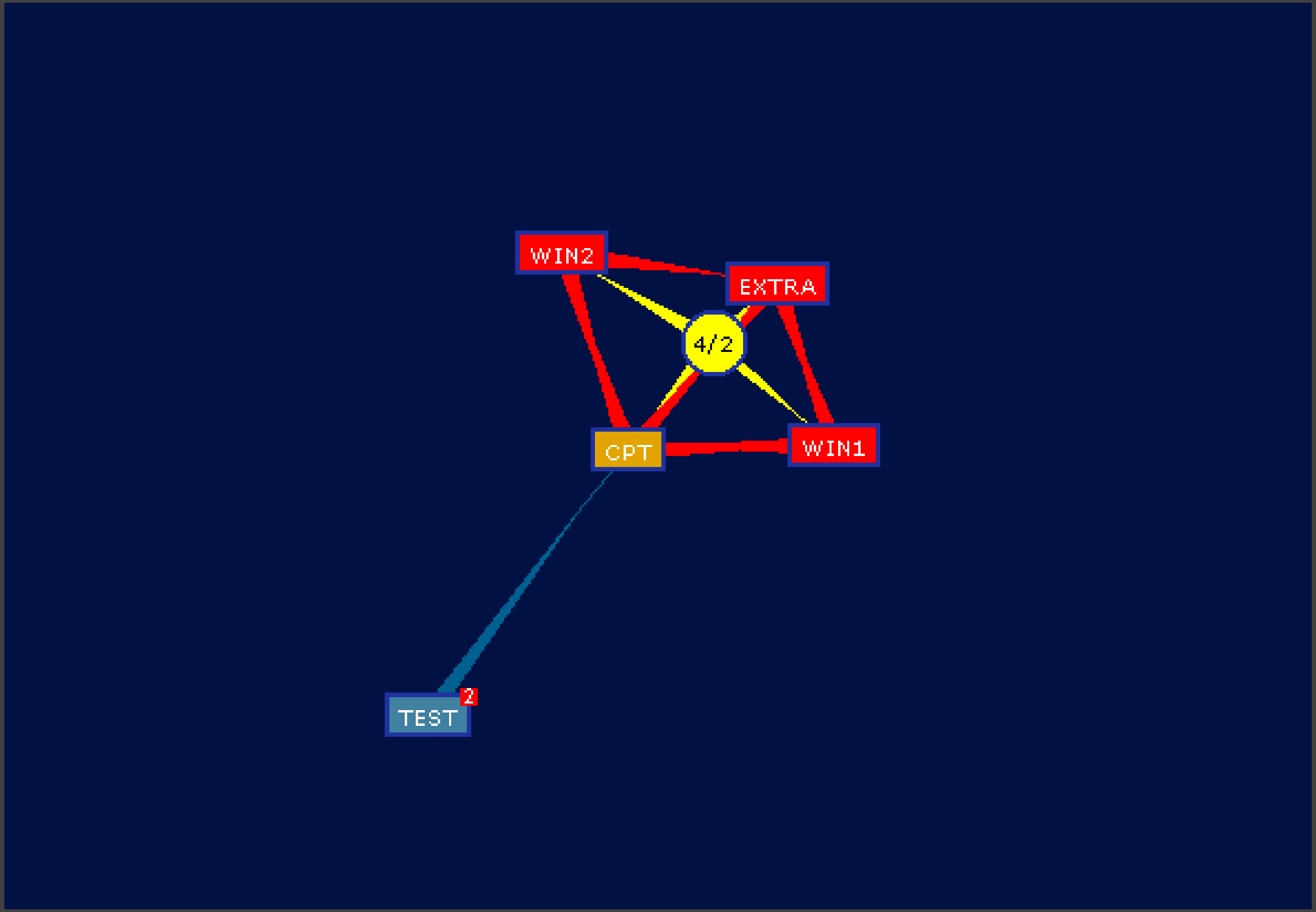

workspace - Java - T6_source/src/CPT/Task.java - Eclipse
File Edit Source Refactor Navigate Search Project Run Window Help
Quick Access
Package Explorer
JUnit
Problems
Javadoc
Console
Metrics - T6_source - McCabe Cyclomatic Complexity (avg/max per method)
Dependency Graph View

- Client
- Hisasiburi
- OneMoreChance
- Server
- SoftwareModeling
- T5_source
  - ThreeS/src
  - JRE System Library [jre1.8.0_121]
  - ThreeS
- T6_source
  - src
    - CPT
      - Category.java
      - Constraints.java
      - MainFrame.java
      - Property.java
      - RepValue.java
      - Result.java
      - Task.java
    - EXTRA
      - ArcDesign.java
      - Bonus.java
      - Caller.java
      - FileSelector.java
      - Icon.java
      - Window3.java
      - WinHelp.java
    - TEST
      - Category_test.java
      - Property_testTest.java
      - RepValue_test.java
      - Task_test.java
    - WIN1
      - ComponentSet.java
      - CstComponentSet.java
      - Window1.java
    - WIN2
      - CaseComponentSet.java
      - Filter.java
      - Window2.java
    - TEST.zip
  - JRE System Library [JavaSE-1.8]
  - JUnit 4
  - help

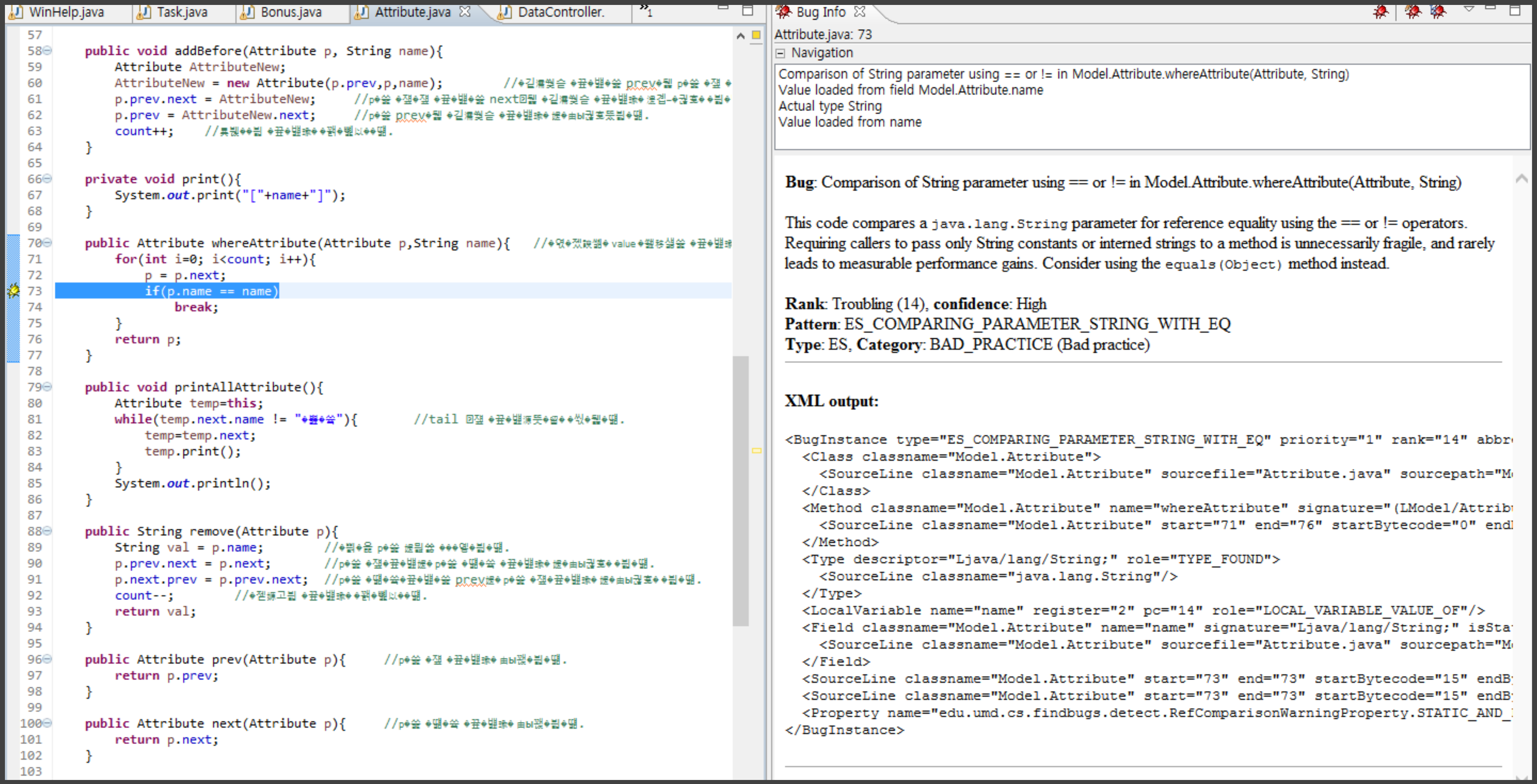
Metric	Total	Mean	Std. ...	Maxi...	Resource causing Maximum	Method
McCabe Cyclomatic Complexity (avg/max per method)		3.073	3.819	23	/T6_source/src/CPT/Task.java	load_work
src		3.073	3.819	23	/T6_source/src/CPT/Task.java	load_work
CPT		2.844	3.577	23	/T6_source/src/CPT/Task.java	load_work
Task.java		3.429	4.371	23	/T6_source/src/CPT/Task.java	load_work
RepValue.java		2.947	3.692	17	/T6_source/src/CPT/RepValue.java	isCompatible
Constraints.java		4	3	10	/T6_source/src/CPT/Constraints.java	remove_const
Property.java		2.4	1.8	7	/T6_source/src/CPT/Property.java	remove_const
MainFrame.java		1.778	1.618	6	/T6_source/src/CPT/MainFrame.java	actionPerformed
Result.java		1.8	1.6	5	/T6_source/src/CPT/Result.java	make_filter_list
Category.java		1.182	0.575	3	/T6_source/src/CPT/Category.java	modify_rep_value
WIN1		7.692	7.342	21	/T6_source/src/WIN1/ComponentSet.java	actionPerformed
ComponentSet.java		6.8	7.521	21	/T6_source/src/WIN1/ComponentSet.java	actionPerformed
Window1.java		12.333	8.055	19	/T6_source/src/WIN1/Window1.java	updatePanel
CstComponentSet.java		5.8	5.231	16	/T6_source/src/WIN1/CstComponentSet.ja...	actionPerformed
EXTRA		2.52	2.352	10	/T6_source/src/EXTRA/ArcDesign.java	update
WIN2		2.786	1.473	6	/T6_source/src/WIN2/Window2.java	updatePanel
TEST		2.059	1.162	4	/T6_source/src/TEST/Category_test.java	testModify_rep_value
Number of Parameters (avg/max per method)		1.051	1.474	12	/T6_source/src/EXTRA/ArcDesign.java	ArcDesign
src		1.051	1.474	12	/T6_source/src/EXTRA/ArcDesign.java	ArcDesign
EXTRA		1.32	2.362	12	/T6_source/src/EXTRA/ArcDesign.java	ArcDesign
CPT		0.862	1.053	6	/T6_source/src/CPT/Task.java	modify_const
Task.java		1.041	1.277	6	/T6_source/src/CPT/Task.java	modify_const
Task		1.041	1.277	6	/T6_source/src/CPT/Task.java	modify_const
RepValue.java		0.789	0.832	2	/T6_source/src/CPT/RepValue.java	RepValue
MainFrame.java		0.444	0.685	2	/T6_source/src/CPT/MainFrame.java	opinion
Property.java		1	0.775	2	/T6_source/src/CPT/Property.java	add_const
Category.java		0.727	0.75	2	/T6_source/src/CPT/Category.java	Category
Constraints.java		1	0.816	2	/T6_source/src/CPT/Constraints.java	add_const
Result.java		0	0	0	/T6_source/src/CPT/Result.java	Result
WIN1		2.154	1.46	5	/T6_source/src/WIN1/ComponentSet.java	ComponentSet
WIN2		2.286	1.623	5	/T6_source/src/WIN2/CaseComponentSet....	CaseComponentSet
TEST		0	0	0	/T6_source/src/TEST/Category_test.java	testNew_rep_value
Nested Block Depth (avg/max per method)		1.517	1.023	6	/T6_source/src/CPT/Task.java	workContainValue
src		1.517	1.023	6	/T6_source/src/CPT/Task.java	workContainValue
CPT		1.495	1.146	6	/T6_source/src/CPT/Task.java	workContainValue
Task.java		1.898	1.515	6	/T6_source/src/CPT/Task.java	workContainValue
Result.java		1.4	0.8	3	/T6_source/src/CPT/Result.java	make_filter_list
RepValue.java		1.158	0.488	3	/T6_source/src/CPT/RepValue.java	remove_const
Property.java		1.2	0.6	3	/T6_source/src/CPT/Property.java	remove_const
Constraints.java		1.333	0.745	3	/T6_source/src/CPT/Constraints.java	remove_const
Category.java		1.091	0.287	2	/T6_source/src/CPT/Category.java	modify_rep_value
MainFrame.java		1	0	1	/T6_source/src/CPT/MainFrame.java	MainFrame

Eclipse Metrics Plugin(T6)

Static Analysis



Find Bugs(T5)



```java
    public void addBefore(Attribute p, String name){
        Attribute AttributeNew;
        AttributeNew = new Attribute(p.prev,p,name);        //[illegible] prev[illegible]
        p.prev.next = AttributeNew;     //p[illegible] next[illegible]
        p.prev = AttributeNew.next;     //p[illegible] prev[illegible]
        count++;    //[illegible]
    }

    private void print(){
        System.out.print("["+name+"]");
    }

    public Attribute whereAttribute(Attribute p,String name){   //[illegible] value [illegible]
        for(int i=0; i<count; i++){
            p = p.next;
            if(p.name == name)
                break;
        }
        return p;
    }

    public void printAllAttribute(){
        Attribute temp=this;
        while(temp.next.name != "[illegible]"){        //tail [illegible]
            temp=temp.next;
            temp.print();
        }
        System.out.println();
    }

    public String remove(Attribute p){
        String val = p.name;        //[illegible]
        p.prev.next = p.next;       //p[illegible]
        p.next.prev = p.prev.next;  //p[illegible] prev[illegible]
        count--;        //[illegible]
        return val;
    }

    public Attribute prev(Attribute p){     //p[illegible]
        return p.prev;
    }

    public Attribute next(Attribute p){     //p[illegible]
        return p.next;
    }
```

Attribute.java: 73

Navigation

Comparison of String parameter using == or != in Model.Attribute.whereAttribute(Attribute, String)
Value loaded from field Model.Attribute.name
Actual type String
Value loaded from name

Bug: Comparison of String parameter using == or != in Model.Attribute.whereAttribute(Attribute, String)

This code compares a `java.lang.String` parameter for reference equality using the == or != operators. Requiring callers to pass only String constants or interned strings to a method is unnecessarily fragile, and rarely leads to measurable performance gains. Consider using the `equals(Object)` method instead.

Rank: Troubling (14), **confidence**: High
Pattern: ES_COMPARING_PARAMETER_STRING_WITH_EQ
Type: ES, **Category**: BAD_PRACTICE (Bad practice)

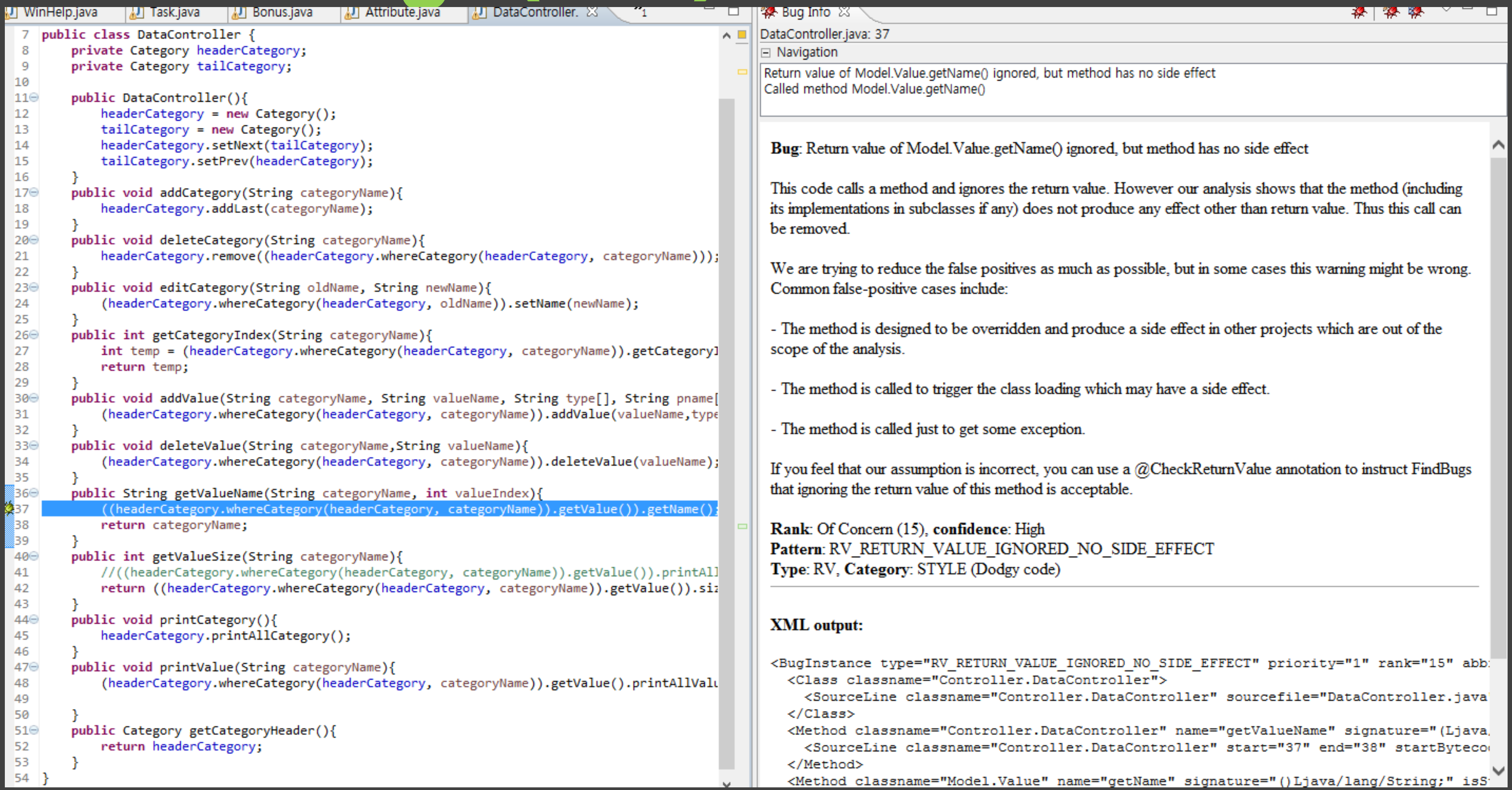
XML output:

```xml
<BugInstance type="ES_COMPARING_PARAMETER_STRING_WITH_EQ" priority="1" rank="14" abbr
  <Class classname="Model.Attribute">
    <SourceLine classname="Model.Attribute" sourcefile="Attribute.java" sourcepath="M
  </Class>
  <Method classname="Model.Attribute" name="whereAttribute" signature="(LModel/Attrib
    <SourceLine classname="Model.Attribute" start="71" end="76" startBytecode="0" end
  </Method>
  <Type descriptor="Ljava/lang/String;" role="TYPE_FOUND">
    <SourceLine classname="java.lang.String"/>
  </Type>
  <LocalVariable name="name" register="2" pc="14" role="LOCAL_VARIABLE_VALUE_OF"/>
  <Field classname="Model.Attribute" name="name" signature="Ljava/lang/String;" isSta
    <SourceLine classname="Model.Attribute" sourcefile="Attribute.java" sourcepath="M
  </Field>
  <SourceLine classname="Model.Attribute" start="73" end="73" startBytecode="15" endB
  <SourceLine classname="Model.Attribute" start="73" end="73" startBytecode="15" endB
  <Property name="edu.umd.cs.findbugs.detect.RefComparisonWarningProperty.STATIC_AND_
</BugInstance>
```

T5_Troubling_String비교!=,==_Model.Attribute.whereAtrribute(Attribute,String)

Find Bugs(T5)

Static Analysis



```
 7 public class DataController {
 8     private Category headerCategory;
 9     private Category tailCategory;
10 
11     public DataController(){
12         headerCategory = new Category();
13         tailCategory = new Category();
14         headerCategory.setNext(tailCategory);
15         tailCategory.setPrev(headerCategory);
16     }
17     public void addCategory(String categoryName){
18         headerCategory.addLast(categoryName);
19     }
20     public void deleteCategory(String categoryName){
21         headerCategory.remove((headerCategory.whereCategory(headerCategory, categoryName)));
22     }
23     public void editCategory(String oldName, String newName){
24         (headerCategory.whereCategory(headerCategory, oldName)).setName(newName);
25     }
26     public int getCategoryIndex(String categoryName){
27         int temp = (headerCategory.whereCategory(headerCategory, categoryName)).getCategoryI
28         return temp;
29     }
30     public void addValue(String categoryName, String valueName, String type[], String pname[
31         (headerCategory.whereCategory(headerCategory, categoryName)).addValue(valueName,type
32     }
33     public void deleteValue(String categoryName,String valueName){
34         (headerCategory.whereCategory(headerCategory, categoryName)).deleteValue(valueName);
35     }
36     public String getValueName(String categoryName, int valueIndex){
37         ((headerCategory.whereCategory(headerCategory, categoryName)).getValue()).getName();
38         return categoryName;
39     }
40     public int getValueSize(String categoryName){
41         //((headerCategory.whereCategory(headerCategory, categoryName)).getValue()).printAll
42         return ((headerCategory.whereCategory(headerCategory, categoryName)).getValue()).siz
43     }
44     public void printCategory(){
45         headerCategory.printAllCategory();
46     }
47     public void printValue(String categoryName){
48         (headerCategory.whereCategory(headerCategory, categoryName)).getValue().printAllValu
49 
50     }
51     public Category getCategoryHeader(){
52         return headerCategory;
53     }
54 }
```

DataController.java: 37

Return value of Model.Value.getName() ignored, but method has no side effect
Called method Model.Value.getName()

Bug: Return value of Model.Value.getName() ignored, but method has no side effect

This code calls a method and ignores the return value. However our analysis shows that the method (including its implementations in subclasses if any) does not produce any effect other than return value. Thus this call can be removed.

We are trying to reduce the false positives as much as possible, but in some cases this warning might be wrong. Common false-positive cases include:

- The method is designed to be overridden and produce a side effect in other projects which are out of the scope of the analysis.

- The method is called to trigger the class loading which may have a side effect.

- The method is called just to get some exception.

If you feel that our assumption is incorrect, you can use a @CheckReturnValue annotation to instruct FindBugs that ignoring the return value of this method is acceptable.

Rank: Of Concern (15), **confidence**: High
Pattern: RV_RETURN_VALUE_IGNORED_NO_SIDE_EFFECT
Type: RV, **Category**: STYLE (Dodgy code)

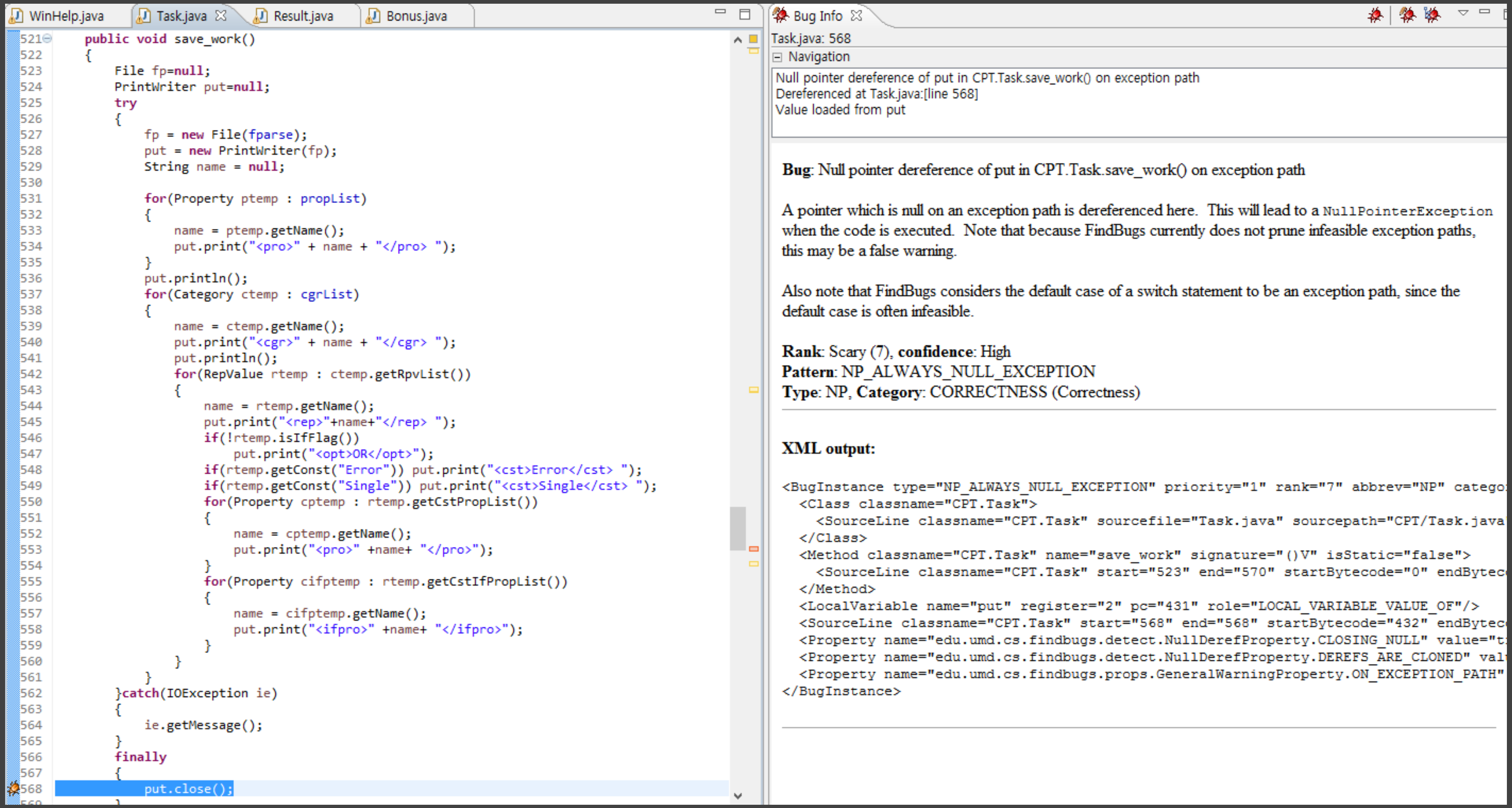
XML output:

```
<BugInstance type="RV_RETURN_VALUE_IGNORED_NO_SIDE_EFFECT" priority="1" rank="15" abb
  <Class classname="Controller.DataController">
    <SourceLine classname="Controller.DataController" sourcefile="DataController.java
  </Class>
  <Method classname="Controller.DataController" name="getValueName" signature="(Ljava
    <SourceLine classname="Controller.DataController" start="37" end="38" startByteco
  </Method>
  <Method classname="Model.Value" name="getName" signature="()Ljava/lang/String;" isS
```

T5_OfConcern_Model.Value.getName()_returnvalue무시

Find Bugs(T6)

Static Analysis



```
521     public void save_work()
522     {
523         File fp=null;
524         PrintWriter put=null;
525         try
526         {
527             fp = new File(fparse);
528             put = new PrintWriter(fp);
529             String name = null;
530
531             for(Property ptemp : propList)
532             {
533                 name = ptemp.getName();
534                 put.print("<pro>" + name + "</pro> ");
535             }
536             put.println();
537             for(Category ctemp : cgrList)
538             {
539                 name = ctemp.getName();
540                 put.print("<cgr>" + name + "</cgr> ");
541                 put.println();
542                 for(RepValue rtemp : ctemp.getRpvList())
543                 {
544                     name = rtemp.getName();
545                     put.print("<rep>"+name+"</rep> ");
546                     if(!rtemp.isIfFlag())
547                         put.print("<opt>OR</opt>");
548                     if(rtemp.getConst("Error")) put.print("<cst>Error</cst> ");
549                     if(rtemp.getConst("Single")) put.print("<cst>Single</cst> ");
550                     for(Property cptemp : rtemp.getCstPropList())
551                     {
552                         name = cptemp.getName();
553                         put.print("<pro>" +name+ "</pro>");
554                     }
555                     for(Property cifptemp : rtemp.getCstIfPropList())
556                     {
557                         name = cifptemp.getName();
558                         put.print("<ifpro>" +name+ "</ifpro>");
559                     }
560                 }
561             }
562         }catch(IOException ie)
563         {
564             ie.getMessage();
565         }
566         finally
567         {
568             put.close();
```

Task.java: 568

Navigation

Null pointer dereference of put in CPT.Task.save_work() on exception path
Dereferenced at Task.java:[line 568]
Value loaded from put

Bug: Null pointer dereference of put in CPT.Task.save_work() on exception path

A pointer which is null on an exception path is dereferenced here. This will lead to a `NullPointerException` when the code is executed. Note that because FindBugs currently does not prune infeasible exception paths, this may be a false warning.

Also note that FindBugs considers the default case of a switch statement to be an exception path, since the default case is often infeasible.

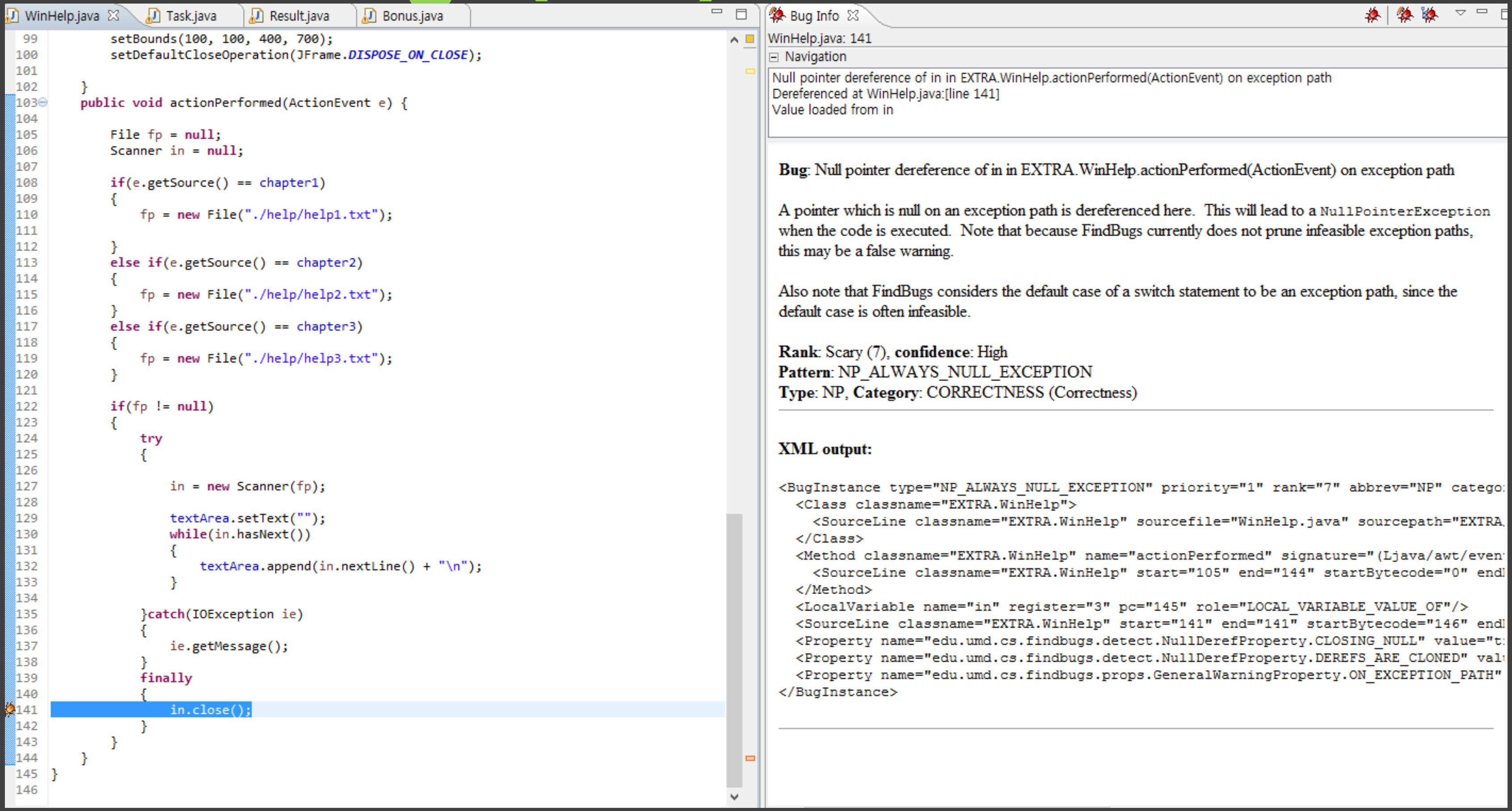
Rank: Scary (7), **confidence**: High
Pattern: NP_ALWAYS_NULL_EXCEPTION
Type: NP, **Category**: CORRECTNESS (Correctness)

XML output:

```
<BugInstance type="NP_ALWAYS_NULL_EXCEPTION" priority="1" rank="7" abbrev="NP" catego
  <Class classname="CPT.Task">
    <SourceLine classname="CPT.Task" sourcefile="Task.java" sourcepath="CPT/Task.java
  </Class>
  <Method classname="CPT.Task" name="save_work" signature="()V" isStatic="false">
    <SourceLine classname="CPT.Task" start="523" end="570" startBytecode="0" endBytec
  </Method>
  <LocalVariable name="put" register="2" pc="431" role="LOCAL_VARIABLE_VALUE_OF"/>
  <SourceLine classname="CPT.Task" start="568" end="568" startBytecode="432" endBytec
  <Property name="edu.umd.cs.findbugs.detect.NullDerefProperty.CLOSING_NULL" value="t
  <Property name="edu.umd.cs.findbugs.detect.NullDerefProperty.DEREFS_ARE_CLONED" val
  <Property name="edu.umd.cs.findbugs.props.GeneralWarningProperty.ON_EXCEPTION_PATH"
</BugInstance>
```

Scary_CPT.Task.java finally put.close() NullException 처리하지 않아서 생긴 오류

Find Bugs(T6)



```
 99         setBounds(100, 100, 400, 700);
100         setDefaultCloseOperation(JFrame.DISPOSE_ON_CLOSE);
101 
102     }
103     public void actionPerformed(ActionEvent e) {
104 
105         File fp = null;
106         Scanner in = null;
107 
108         if(e.getSource() == chapter1)
109         {
110             fp = new File("./help/help1.txt");
111 
112         }
113         else if(e.getSource() == chapter2)
114         {
115             fp = new File("./help/help2.txt");
116         }
117         else if(e.getSource() == chapter3)
118         {
119             fp = new File("./help/help3.txt");
120         }
121 
122         if(fp != null)
123         {
124             try
125             {
126 
127                 in = new Scanner(fp);
128 
129                 textArea.setText("");
130                 while(in.hasNext())
131                 {
132                     textArea.append(in.nextLine() + "\n");
133                 }
134 
135             }catch(IOException ie)
136             {
137                 ie.getMessage();
138             }
139             finally
140             {
141                 in.close();
142             }
143         }
144     }
145 }
146 
```

WinHelp.java: 141

Null pointer dereference of in in EXTRA.WinHelp.actionPerformed(ActionEvent) on exception path
Dereferenced at WinHelp.java:[line 141]
Value loaded from in

Bug: Null pointer dereference of in in EXTRA.WinHelp.actionPerformed(ActionEvent) on exception path

A pointer which is null on an exception path is dereferenced here. This will lead to a `NullPointerException` when the code is executed. Note that because FindBugs currently does not prune infeasible exception paths, this may be a false warning.

Also note that FindBugs considers the default case of a switch statement to be an exception path, since the default case is often infeasible.

Rank: Scary (7), **confidence**: High
Pattern: NP_ALWAYS_NULL_EXCEPTION
Type: NP, **Category**: CORRECTNESS (Correctness)

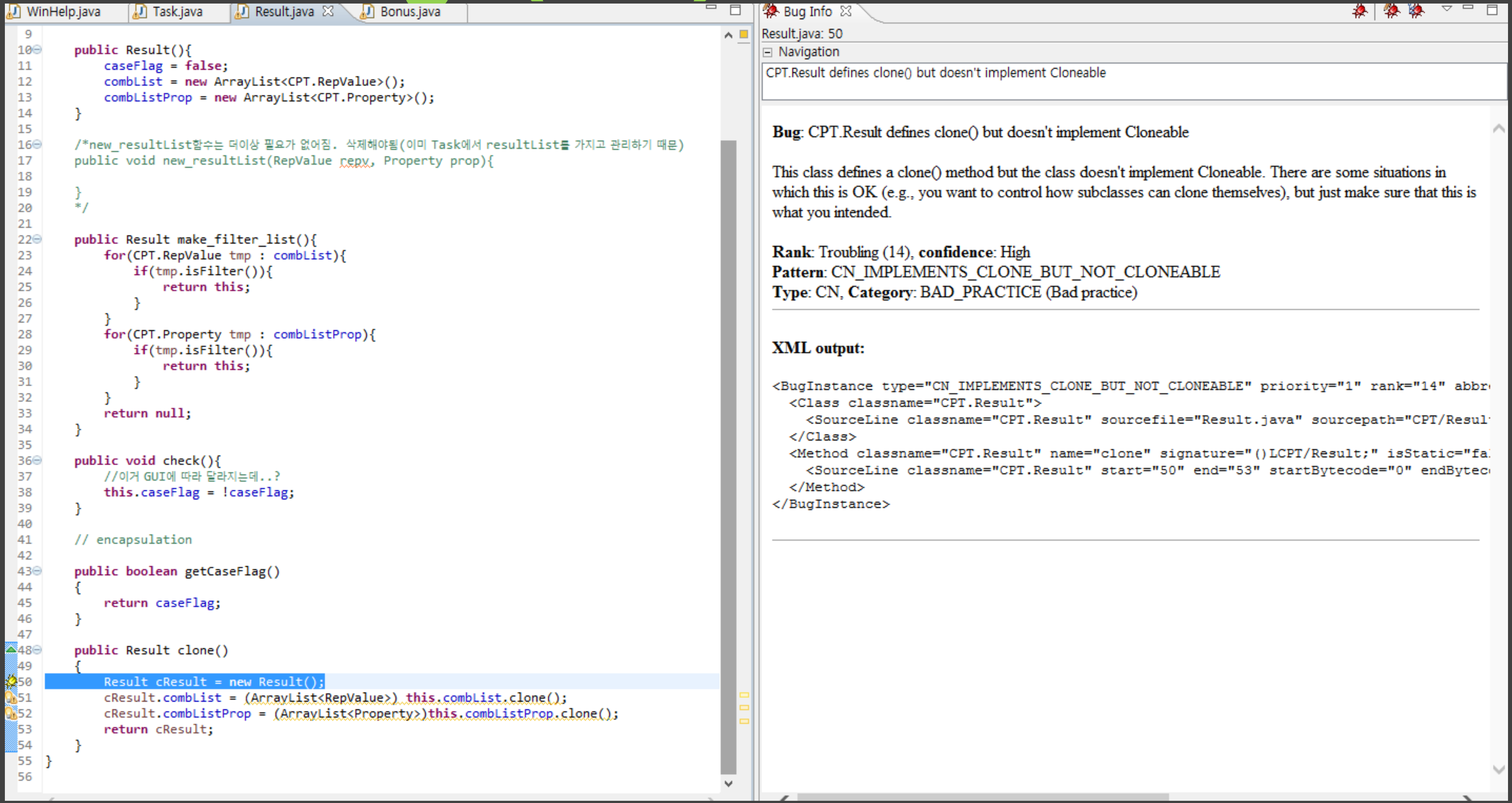
XML output:

```
<BugInstance type="NP_ALWAYS_NULL_EXCEPTION" priority="1" rank="7" abbrev="NP" catego
  <Class classname="EXTRA.WinHelp">
    <SourceLine classname="EXTRA.WinHelp" sourcefile="WinHelp.java" sourcepath="EXTRA
  </Class>
  <Method classname="EXTRA.WinHelp" name="actionPerformed" signature="(Ljava/awt/even
    <SourceLine classname="EXTRA.WinHelp" start="105" end="144" startBytecode="0" end
  </Method>
  <LocalVariable name="in" register="3" pc="145" role="LOCAL_VARIABLE_VALUE_OF"/>
  <SourceLine classname="EXTRA.WinHelp" start="141" end="141" startBytecode="146" end
  <Property name="edu.umd.cs.findbugs.detect.NullDerefProperty.CLOSING_NULL" value="t
  <Property name="edu.umd.cs.findbugs.detect.NullDerefProperty.DEREFS_ARE_CLONED" val
  <Property name="edu.umd.cs.findbugs.props.GeneralWarningProperty.ON_EXCEPTION_PATH"
</BugInstance>
```

Scary_EXTRA.WinHelp.java finally in.close() NullException 처리하지 않아서 생긴 오류

Find Bugs(T6)

Static Analysis



```
 9
10    public Result(){
11        caseFlag = false;
12        combList = new ArrayList<CPT.RepValue>();
13        combListProp = new ArrayList<CPT.Property>();
14    }
15
16    /*new_resultList함수는 더이상 필요가 없어짐. 삭제해야됨(이미 Task에서 resultList를 가지고 관리하기 때문)
17    public void new_resultList(RepValue repv, Property prop){
18
19    }
20    */
21
22    public Result make_filter_list(){
23        for(CPT.RepValue tmp : combList){
24            if(tmp.isFilter()){
25                return this;
26            }
27        }
28        for(CPT.Property tmp : combListProp){
29            if(tmp.isFilter()){
30                return this;
31            }
32        }
33        return null;
34    }
35
36    public void check(){
37        //이거 GUI에 따라 달라지는데..?
38        this.caseFlag = !caseFlag;
39    }
40
41    // encapsulation
42
43    public boolean getCaseFlag()
44    {
45        return caseFlag;
46    }
47
48    public Result clone()
49    {
50        Result cResult = new Result();
51        cResult.combList = (ArrayList<RepValue>) this.combList.clone();
52        cResult.combListProp = (ArrayList<Property>)this.combListProp.clone();
53        return cResult;
54    }
55 }
56
```

Result.java: 50

Navigation

CPT.Result defines clone() but doesn't implement Cloneable

Bug: CPT.Result defines clone() but doesn't implement Cloneable

This class defines a clone() method but the class doesn't implement Cloneable. There are some situations in which this is OK (e.g., you want to control how subclasses can clone themselves), but just make sure that this is what you intended.

Rank: Troubling (14), **confidence**: High
Pattern: CN_IMPLEMENTS_CLONE_BUT_NOT_CLONEABLE
Type: CN, **Category**: BAD_PRACTICE (Bad practice)

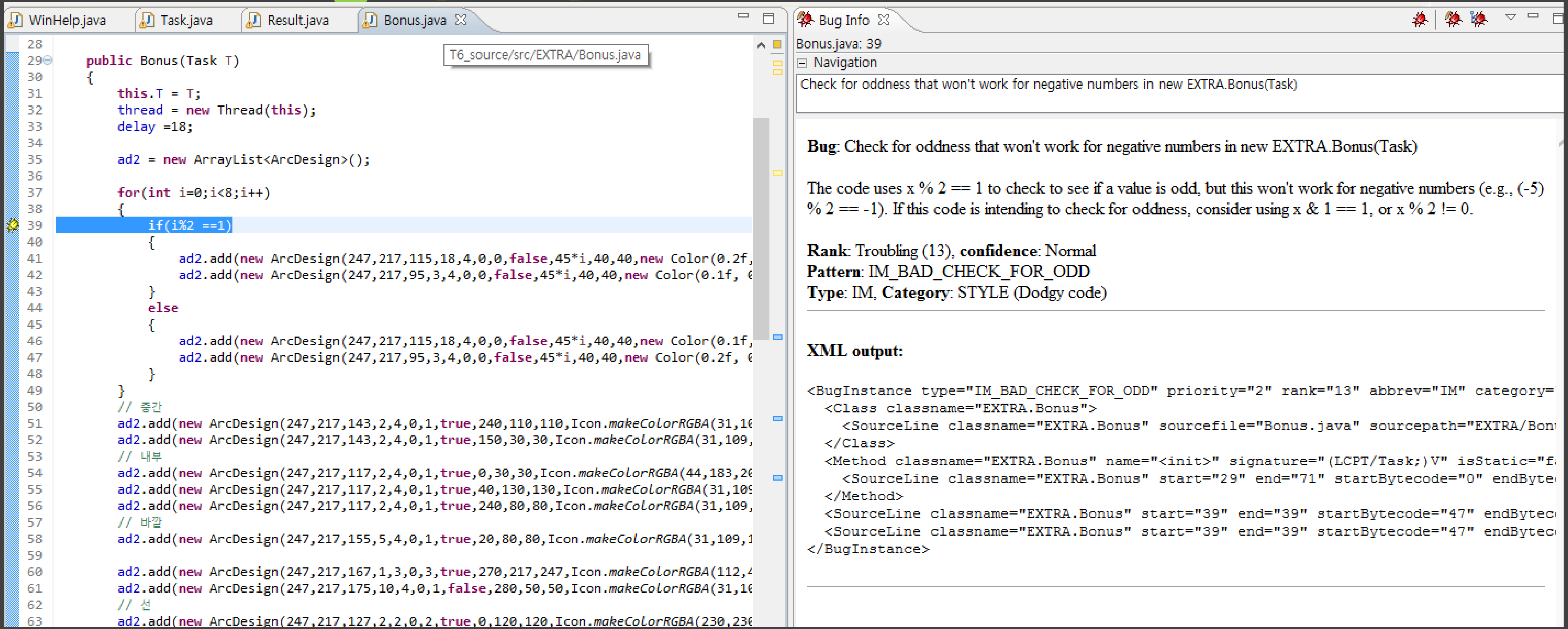
XML output:

```
<BugInstance type="CN_IMPLEMENTS_CLONE_BUT_NOT_CLONEABLE" priority="1" rank="14" abbr
  <Class classname="CPT.Result">
    <SourceLine classname="CPT.Result" sourcefile="Result.java" sourcepath="CPT/Resul
  </Class>
  <Method classname="CPT.Result" name="clone" signature="()LCPT/Result;" isStatic="fa
    <SourceLine classname="CPT.Result" start="50" end="53" startBytecode="0" endByte
  </Method>
</BugInstance>
```

Troubling_CPT.Result.java clone()를 Cloneable 인터페이스로 구현하지 않아서 생긴 오류

Find Bugs(T6)

Static Analysis



```
28
29      public Bonus(Task T)
30      {
31          this.T = T;
32          thread = new Thread(this);
33          delay =18;
34
35          ad2 = new ArrayList<ArcDesign>();
36
37          for(int i=0;i<8;i++)
38          {
39              if(i%2 ==1)
40              {
41                  ad2.add(new ArcDesign(247,217,115,18,4,0,0,false,45*i,40,40,new Color(0.2f,
42                  ad2.add(new ArcDesign(247,217,95,3,4,0,0,false,45*i,40,40,new Color(0.1f, 0
43              }
44              else
45              {
46                  ad2.add(new ArcDesign(247,217,115,18,4,0,0,false,45*i,40,40,new Color(0.1f,
47                  ad2.add(new ArcDesign(247,217,95,3,4,0,0,false,45*i,40,40,new Color(0.2f, 0
48              }
49          }
50          // 중간
51          ad2.add(new ArcDesign(247,217,143,2,4,0,1,true,240,110,110,Icon.makeColorRGBA(31,10
52          ad2.add(new ArcDesign(247,217,143,2,4,0,1,true,150,30,30,Icon.makeColorRGBA(31,109,
53          // 내부
54          ad2.add(new ArcDesign(247,217,117,2,4,0,1,true,0,30,30,Icon.makeColorRGBA(44,183,20
55          ad2.add(new ArcDesign(247,217,117,2,4,0,1,true,40,130,130,Icon.makeColorRGBA(31,109
56          ad2.add(new ArcDesign(247,217,117,2,4,0,1,true,240,80,80,Icon.makeColorRGBA(31,109,
57          // 바깥
58          ad2.add(new ArcDesign(247,217,155,5,4,0,1,true,20,80,80,Icon.makeColorRGBA(31,109,1
59
60          ad2.add(new ArcDesign(247,217,167,1,3,0,3,true,270,217,247,Icon.makeColorRGBA(112,4
61          ad2.add(new ArcDesign(247,217,175,10,4,0,1,false,280,50,50,Icon.makeColorRGBA(31,10
62          // 선
63          ad2.add(new ArcDesign(247,217,127,2,2,0,2,true,0,120,120,Icon.makeColorRGBA(230,230
```

Bonus.java: 39

Navigation

Check for oddness that won't work for negative numbers in new EXTRA.Bonus(Task)

Bug: Check for oddness that won't work for negative numbers in new EXTRA.Bonus(Task)

The code uses x % 2 == 1 to check to see if a value is odd, but this won't work for negative numbers (e.g., (-5) % 2 == -1). If this code is intending to check for oddness, consider using x & 1 == 1, or x % 2 != 0.

Rank: Troubling (13), **confidence**: Normal
Pattern: IM_BAD_CHECK_FOR_ODD
Type: IM, **Category**: STYLE (Dodgy code)

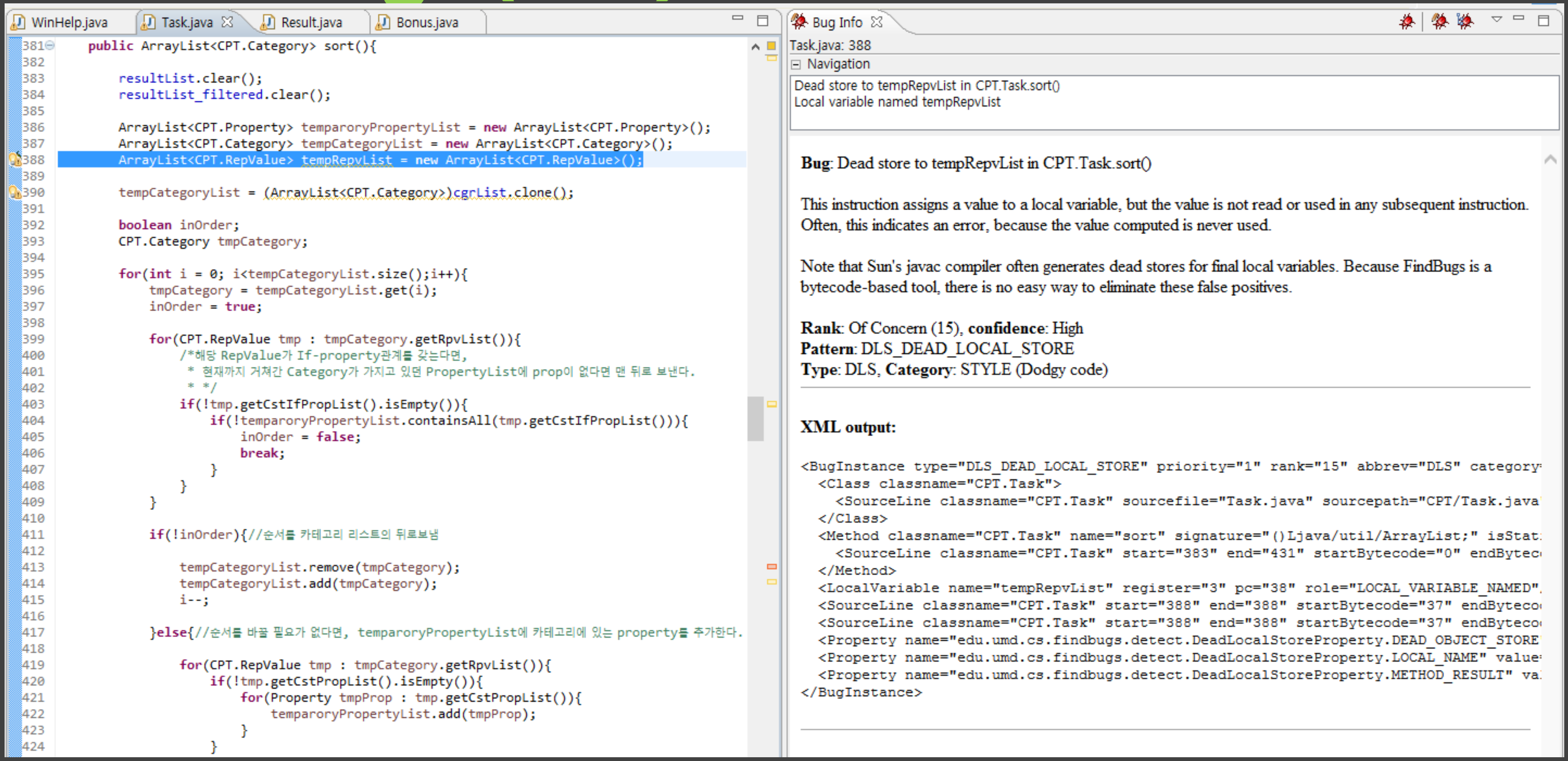
XML output:

```
<BugInstance type="IM_BAD_CHECK_FOR_ODD" priority="2" rank="13" abbrev="IM" category=
  <Class classname="EXTRA.Bonus">
    <SourceLine classname="EXTRA.Bonus" sourcefile="Bonus.java" sourcepath="EXTRA/Bon
  </Class>
  <Method classname="EXTRA.Bonus" name="<init>" signature="(LCPT/Task;)V" isStatic="f
    <SourceLine classname="EXTRA.Bonus" start="29" end="71" startBytecode="0" endByte
  </Method>
  <SourceLine classname="EXTRA.Bonus" start="39" end="39" startBytecode="47" endBytec
  <SourceLine classname="EXTRA.Bonus" start="39" end="39" startBytecode="47" endBytec
</BugInstance>
```

Troubling_EXTRA.Bonus.java 생성자에서 음수 예외처리 하지 않아서 생긴 오류

Find Bugs(T6)

Static Analysis



```java
    public ArrayList<CPT.Category> sort(){

        resultList.clear();
        resultList_filtered.clear();

        ArrayList<CPT.Property> temparoryPropertyList = new ArrayList<CPT.Property>();
        ArrayList<CPT.Category> tempCategoryList = new ArrayList<CPT.Category>();
        ArrayList<CPT.RepValue> tempRepvList = new ArrayList<CPT.RepValue>();

        tempCategoryList = (ArrayList<CPT.Category>)cgrList.clone();

        boolean inOrder;
        CPT.Category tmpCategory;

        for(int i = 0; i<tempCategoryList.size();i++){
            tmpCategory = tempCategoryList.get(i);
            inOrder = true;

            for(CPT.RepValue tmp : tmpCategory.getRpvList()){
                /*해당 RepValue가 If-property관계를 갖는다면,
                 * 현재까지 거쳐간 Category가 가지고 있던 PropertyList에 prop이 없다면 맨 뒤로 보낸다.
                 * */
                if(!tmp.getCstIfPropList().isEmpty()){
                    if(!temparoryPropertyList.containsAll(tmp.getCstIfPropList())){
                        inOrder = false;
                        break;
                    }
                }
            }

            if(!inOrder){//순서를 카테고리 리스트의 뒤로보냄

                tempCategoryList.remove(tmpCategory);
                tempCategoryList.add(tmpCategory);
                i--;

            }else{//순서를 바꿀 필요가 없다면, temparoryPropertyList에 카테고리에 있는 property를 추가한다.

                for(CPT.RepValue tmp : tmpCategory.getRpvList()){
                    if(!tmp.getCstPropList().isEmpty()){
                        for(Property tmpProp : tmp.getCstPropList()){
                            temparoryPropertyList.add(tmpProp);
                        }
                    }
```

Task.java: 388

⊟ Navigation

Dead store to tempRepvList in CPT.Task.sort()
Local variable named tempRepvList

Bug: Dead store to tempRepvList in CPT.Task.sort()

This instruction assigns a value to a local variable, but the value is not read or used in any subsequent instruction. Often, this indicates an error, because the value computed is never used.

Note that Sun's javac compiler often generates dead stores for final local variables. Because FindBugs is a bytecode-based tool, there is no easy way to eliminate these false positives.

Rank: Of Concern (15), **confidence**: High
Pattern: DLS_DEAD_LOCAL_STORE
Type: DLS, **Category**: STYLE (Dodgy code)

XML output:

```
<BugInstance type="DLS_DEAD_LOCAL_STORE" priority="1" rank="15" abbrev="DLS" category
  <Class classname="CPT.Task">
    <SourceLine classname="CPT.Task" sourcefile="Task.java" sourcepath="CPT/Task.java
  </Class>
  <Method classname="CPT.Task" name="sort" signature="()Ljava/util/ArrayList;" isStat
    <SourceLine classname="CPT.Task" start="383" end="431" startBytecode="0" endBytec
  </Method>
  <LocalVariable name="tempRepvList" register="3" pc="38" role="LOCAL_VARIABLE_NAMED"
  <SourceLine classname="CPT.Task" start="388" end="388" startBytecode="37" endByteco
  <SourceLine classname="CPT.Task" start="388" end="388" startBytecode="37" endByteco
  <Property name="edu.umd.cs.findbugs.detect.DeadLocalStoreProperty.DEAD_OBJECT_STORE
  <Property name="edu.umd.cs.findbugs.detect.DeadLocalStoreProperty.LOCAL_NAME" value
  <Property name="edu.umd.cs.findbugs.detect.DeadLocalStoreProperty.METHOD_RESULT" va
</BugInstance>
```

OfConcern_CPT.Task.java sort()에서 tempRepvList를 사용하지 않는데 정의해 생긴 오류

Thank you ~!