

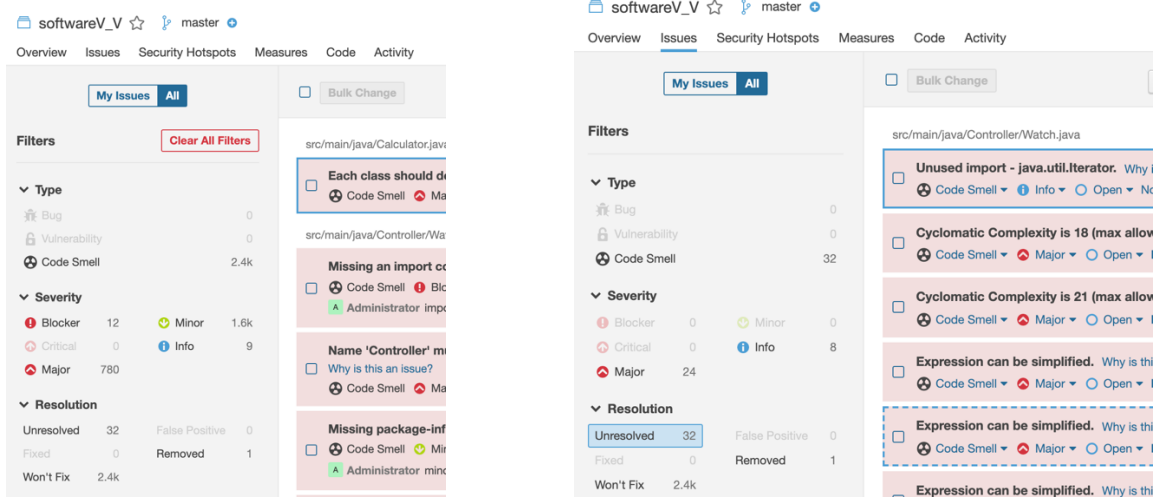
Software V&V

Static Analysis_A3

Team 2

201212519 김선우
201510624 김용현
201611261 민지호
201611293 전다운

Static Analysis



➔ 다음과 같이 필수적이지 않은 code smell 들을 제거

(1) Unused import -> Unused import 제거

- Controller/Watch.java - line 10

```
import java.util.Iterator;
```

Unused import - java.util.Iterator. Why is this an issue?

Code Smell Info Open Not assigned 2min effort Comment

- Mode/Alarm.java - line 3

```
import Type.dday_data;
```

Unused import - Type.dday_data. Why is this an issue?

Code Smell Info Open Not assigned 2min effort Comment

- Mode/Buzzer.java - line 10

```
import javax.swing.JButton;
```

Unused import - javax.swing.JButton. Why is this an issue?

Code Smell Info Open Not assigned 2min effort Comment

- Mode/FunctionActivator.java - line 3

```
import java.util.Calendar;
```

Unused import - java.util.Calendar. Why is this an issue?

 Code Smell  Info  Open  Not assigned  2min effort [Comment](#)

- Mode/FunctionActivator.java - line 9

```
import Type.watch_Type;
```

Unused import - Type.watch_Type. Why is this an issue?

 Code Smell  Info  Open  Not assigned  2min effort

- Mode/TimeKeep.java - line 12

```
import Controller.Watch;
```






Unused import - Controller.Watch. Why is this an issue?

 Code Smell  Info  Open  Not assigned  2min effort

- Mode/TimeKeep.java - line 13

```
import Type.watch_Type;
```

Unused import - Type.watch_Type. Why is this an issue?

 Code Smell  Info  Open  Not assigned  2min effort

- Mode/Worldtime.java - line 4

```
import java.util.Iterator;
```

Unused import - java.util.Iterator. Why is this an issue?

 Code Smell  Info  Open  Not assigned  2min effort

(2) Cyclomatic Complexity is N -> if - else if - else 문 줄이기

- Controller/Watch.java - line 191 ~ pressButton()

```
public void pressButton(JButton button){
```

Cyclomatic Complexity is 18 (max allowed is 10). Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 3h

- Controller/Watch.java - line 312 ~ display()

```
private void display(){
```

Cyclomatic Complexity is 21 (max allowed is 10). Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 3h

- Mode/Dday.java - line 189 ~ plusDay()

```
private void plusDay(){
```

Cyclomatic Complexity is 25 (max allowed is 10). Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 3h

- Mode/TimeKeep.java - line 179 ~ plusTime_time()

```
public void plusTime_time(){
```

Cyclomatic Complexity is 27 (max allowed is 10). Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 3h

(3) Expression can be simplified -> if 문에서 true, false 표현 제거

- Controller/Watch.java - line 506

```
if(text[i].isVisible() == true) {
```

Expression can be simplified. Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 10min effort

- Controller/Watch.java - line 513

```
if((i != cur_num) && text[i].isVisible() == false) {
```

Expression can be simplified. Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 10min effort Comment

- Controller/Watch.java - line 522

```
for(int i =0; i < text.length; i ++) {  
    if(text[i].isVisible() == false) {
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort

- Mode/FunctionActivator.java - line 55

```
for (int i = 0; i < active_function.length; i++) {  
    if(active_function[i] == true) {
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort

- Mode/FunctionActivator.java - line 86

```
for (int i = 0; i < active_function.length; i++) {  
    if(active_function[i] == true) {
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort Comment

- Mode/FunctionActivator.java - line 100

```
active_count = 0;  
for (int i = 0; i < active_function.length; i++) {  
    if(active_function[i] == true) {
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort Comment

- Mode/FunctionActivator.java - line 110

```
modeQ.clear();  
for (int i = 0; i < active_function.length; i++) {  
    if(active_function[i] == true) {
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort Comment

- Mode/StopWatch.java - line 38

```
if(is0n==false) {
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort

- Mode/StopWatch.java - line 99

```
if(this.is0n==false){
```

Expression can be simplified. Why is this an issue?
🗑️ Code Smell ▾ 🚨 Major ▾ 🔓 Open ▾ Not assigned ▾ 10min effort

- Mode/StopWatch.java - line 117

```
if(this.isOn==true) {//return elapse
```

Expression can be simplified. Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾

(4) Avoid if (x != y) A; else B; -> if (x == y) B; else A;

- Mode/Alarm.java - line 86 ~ showAlarm()

```
public void showAlarm(){  
    if(!alarmQ.isEmpty())  
        alarm_time = alarmQ.poll();  
    else{  
        alarm_time = null;  
    }  
}
```

Avoid if (x != y) ..; else ..; Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ No

- Mode/Alarm.java - line 103 ~ cmpAlarm()

```
public int cmpAlarm(Calendar cal) {  
    Calendar tmp;  
    int h2 = cal.get(Calendar.HOUR_OF_DAY);  
    int m2 = cal.get(Calendar.MINUTE);  
    int s2 = cal.get(Calendar.SECOND);  
    if(alarm_time != null){  
        tmp = (Calendar) alarm_time.clone();  
        int h1 = tmp.get(Calendar.HOUR_OF_D);  
        int m1 = tmp.get(Calendar.MINUTE);  
        int s1 = tmp.get(Calendar.SECOND);  
        if(h1 == h2 && m1 == m2 && s1 == s2)  
            return 1;  
    }  
    else{  
        return 0;  
    }  
}
```

Avoid if (x != y) ..; else ..; Why is this an issue?
☢ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 10

- Mode/Alarm.java - line 213 ~ deleteAlarm()

```
private boolean deleteAlarm(){
    if(alarm_time != null) {
        if (!alarmQ.isEmpty())
            alarm_time = alarmQ.poll();
        else {
            alarm_time = null;
        }
    }
}
```

Avoid if (x != y) ..; else ..; Why is this an issue?
⊗ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned

- Mode/Buzzer.java - line 54 ~ subTimeBuzzer()

```
public void subTimeBuzzer() {
    if(leftTime != 0)
        leftTime --1;
    else
        return;
}
```

Avoid if (x != y) ..; else ..; Why is this an issue?
⊗ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned

- Mode/Dday.java - line 113 ~ showDday()

```
public void showDday(){ // copy dday
    if(!ddayQ.isEmpty())
        current_page = ddayQ.poll();
    else
        current_page = null;
}
```

Avoid if (x != y) ..; else ..; Why is this an issue?
⊗ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned

- Mode/Dday.java - line 128 ~ deleteDday()

```
private void deleteDday(){
    if(current_page != null) {
        if(!ddayQ.isEmpty())
            current_page = ddayQ.poll();
        else {
            current_page = null;
        }
    }
}
```

Avoid if (x != y) ..; else ..; Why is this an issue?
⊗ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned

(5) Empty catch block -> 빈 catch 블록 채우기

- Mode/Buzzer.java - line 51

```
public void onBuzzer(int type) {
    buzzer_flag =type;
    leftTime = 15;
    try {
        soundBuzzer();
    } catch(Exception e) { }
```

Empty catch block. Why is this an issue?
☠ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assign

(6) Assignment of parameter 'X' is not allowed -> parameter 를 넘겨줄 때, 미리 할당해서 넘겨주기

- Mode/Stopwatch.java - line 132

```
public long calculateTime(long time,Calendar cal) {
    cal=Calendar.getInstance();
```

Assignment of parameter 'cal' is not allowed. Why is this an issue?
☠ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 10min effort C

- Mode/Stopwatch.java - line 137

```
time=(hour*3600+min*60+sec);
```

Assignment of parameter 'time' is not allowed. W
☠ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigne

(7) Variable 'X' must be private and have accessor methods -> 변수를 private 으로 변경하고 getter/setter 추가

- Mode/TimeKeep.java

```
Queue<Integer> cursorQ = new LinkedList<Integer>();
```

Variable 'cursorQ' must be private and have accessor methods.
Why is this an issue?
☠ Code Smell ▾ ⬆ Major ▾ ○ Open ▾ Not assigned ▾ 10min effort Comr