

Traveler Digital Watch

OOPT Stage 2050

소프트웨어 모델링 및 실습
[19. 05.27]

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Index

2042 . Define Reports, UI and Storyboards

2045. Define Design Class Diagram

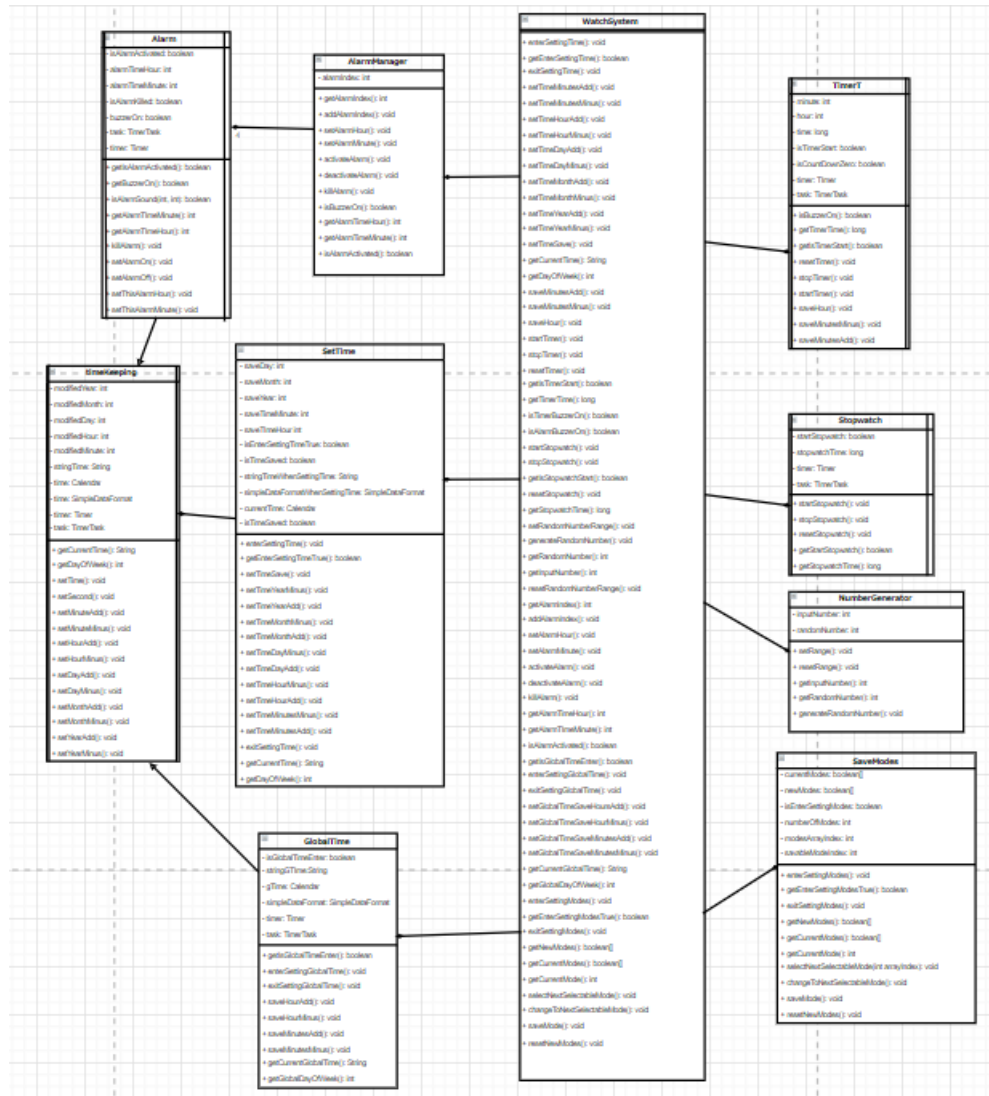
2052 . Implement Windows

2055. Write Unit Test Code

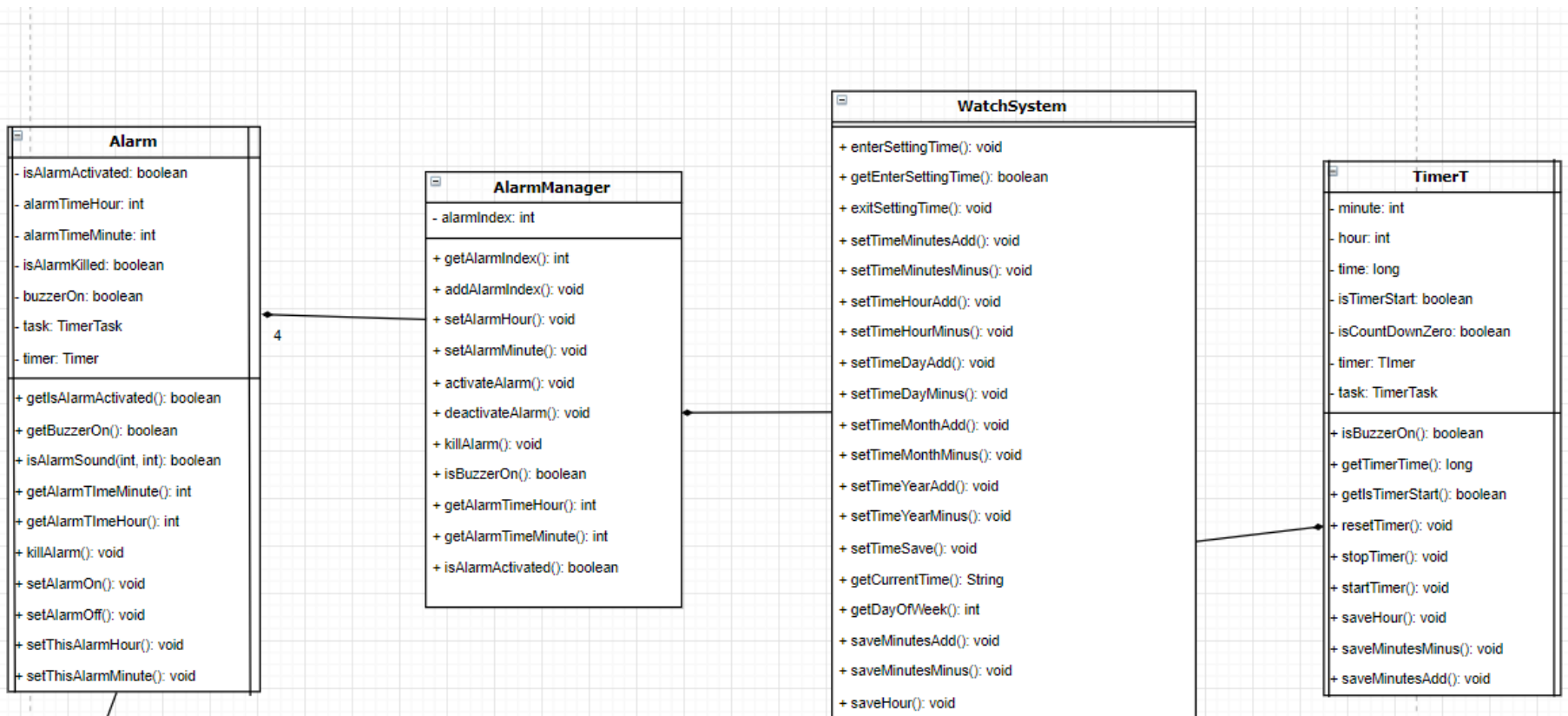
Define Reports, UI and Storyboards



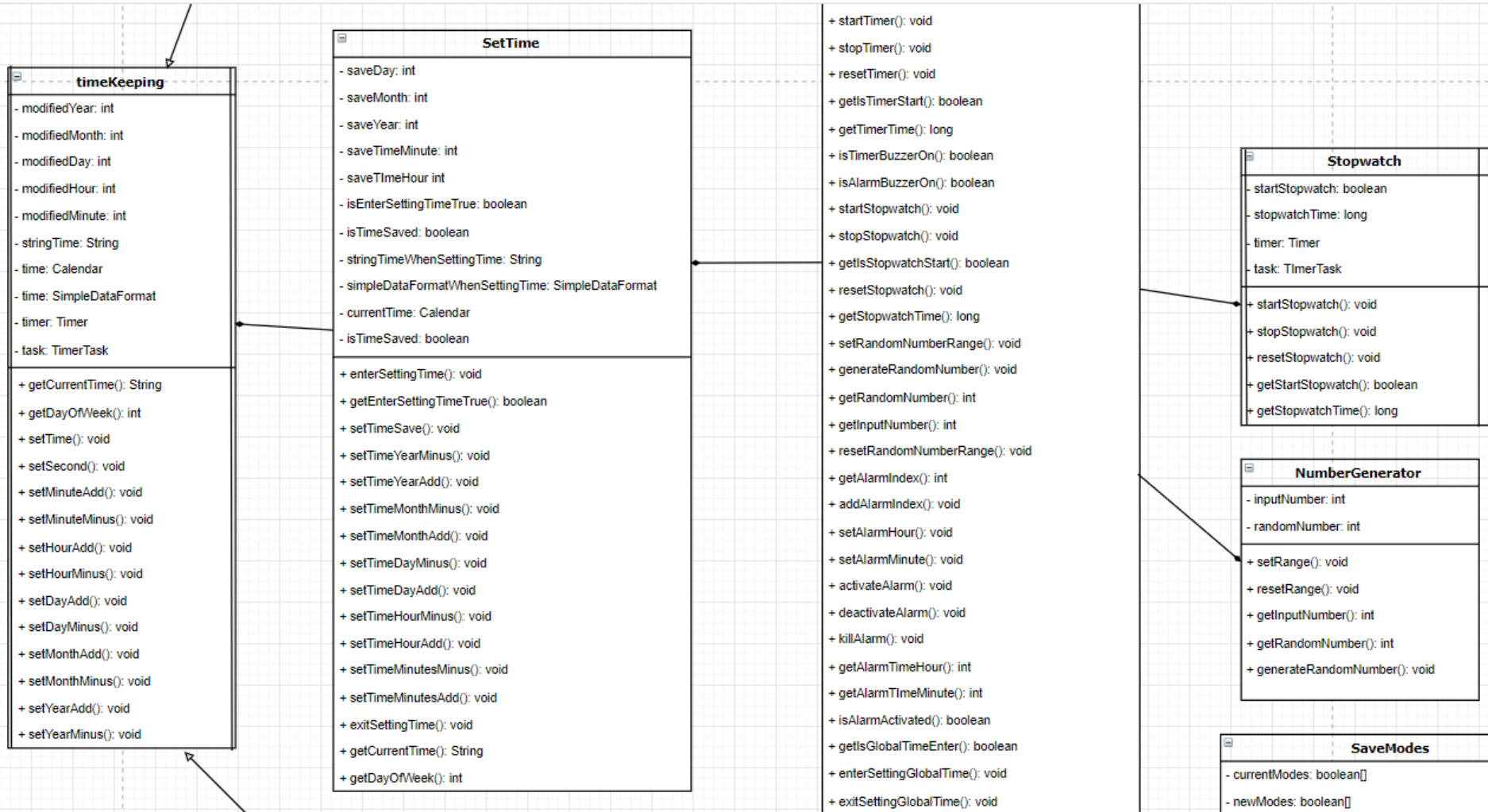
Define Design Class Diagram



Define Design Class Diagram



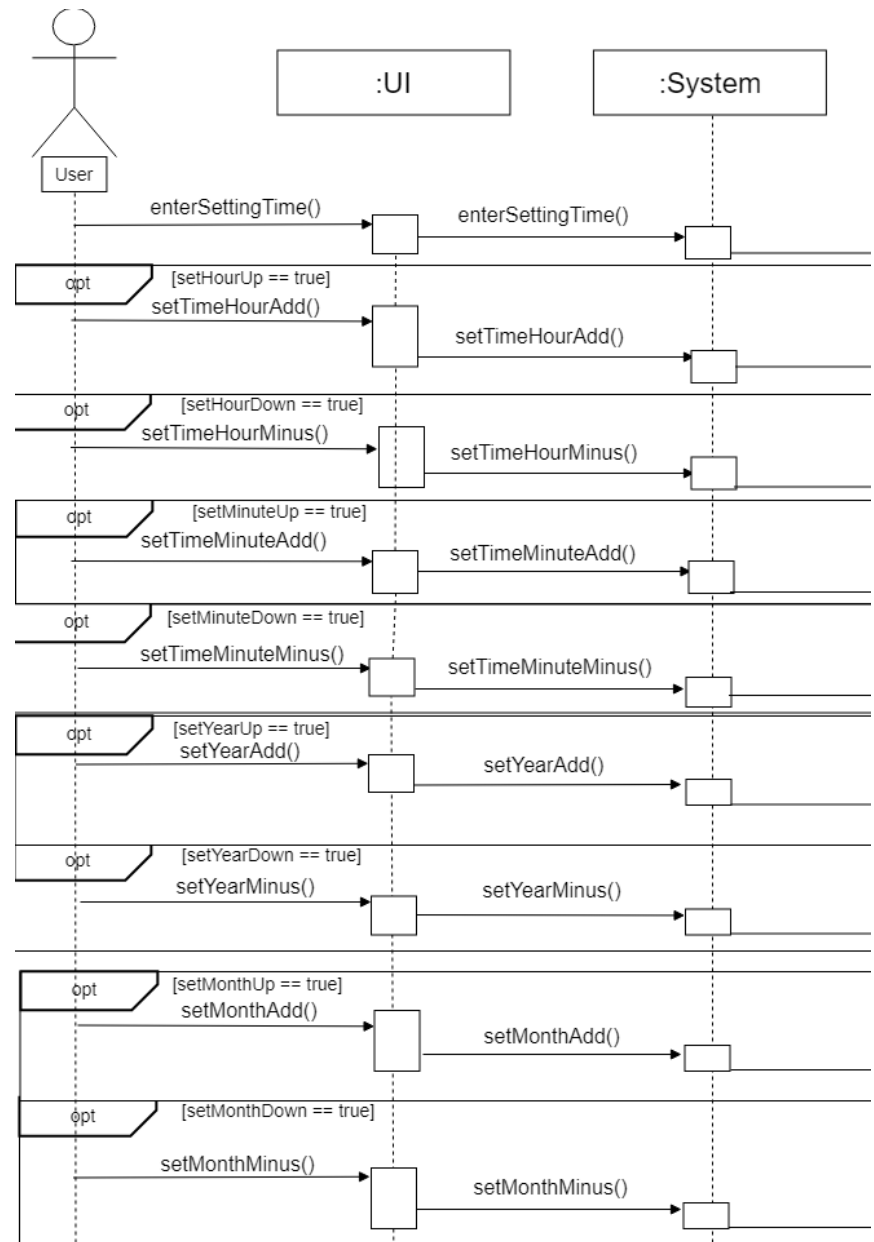
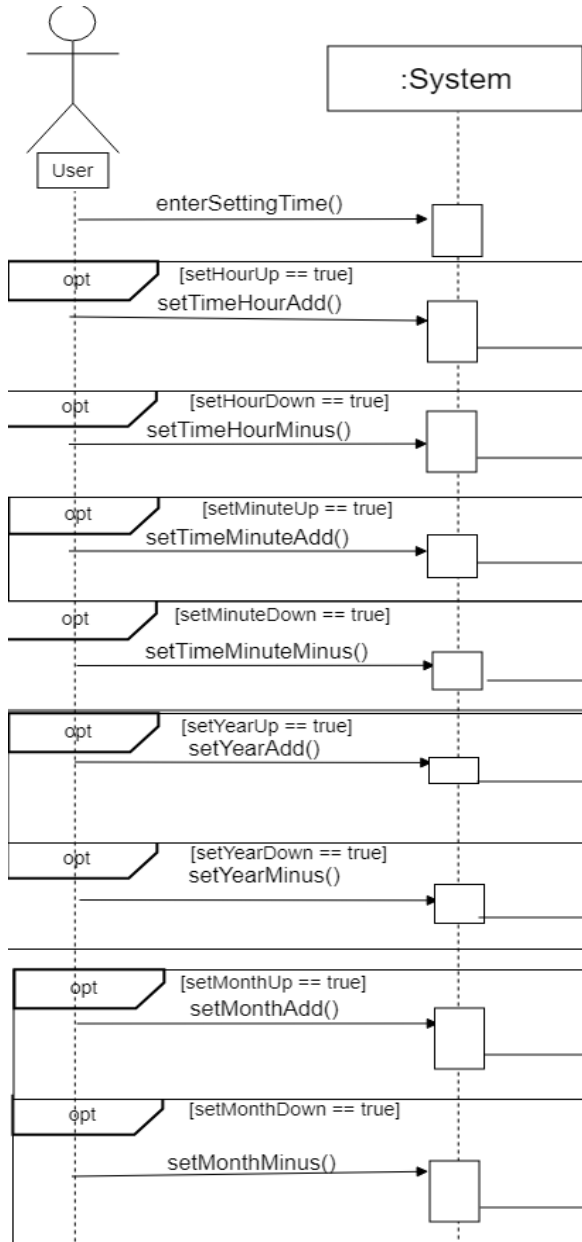
Define Design Class Diagram



Define Design Class Diagram



Implement Windows



Implement Windows

Name	SetTime
Responsibilities	시계의 현재 시간을 조정한다.
Type	UI
Cross References	R.4.3, R.6.0
Note	입력된 버튼에 따라 연, 월, 일, 시, 분을 1씩 조정할 수 있다.
Pre-Conditions	현재 시간을 보는 상태
Post-Conditions	조정된 시간을 사용자에게 보여준다.

Name	SetTimer
Responsibilities	타이머의 시간을 조정한다.
Type	UI
Cross References	R.2.1
Note	입력된 버튼에 따라 타이머 시간 1분 혹은 1시간씩 조정한다.
Pre-Conditions	타이머 모드 상태
Post-Conditions	타이머에 조정된 시간이 저장되고, 사용자에게 보여준다.

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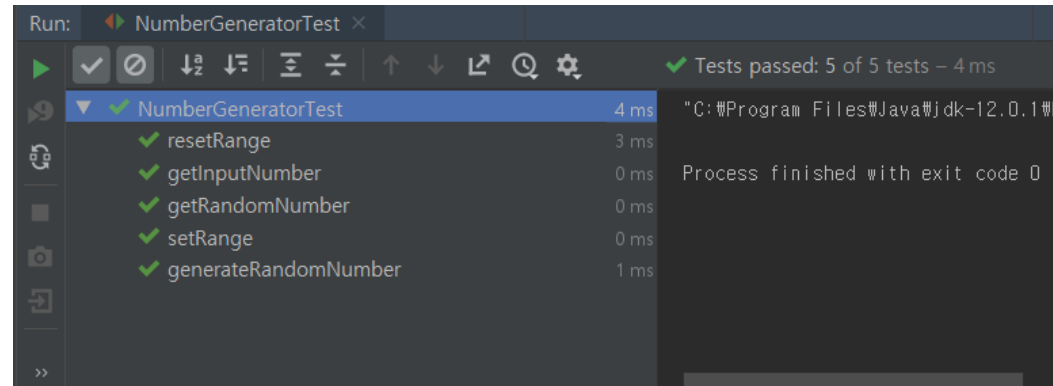
Write Unit Test Code

```
@Test
public void resetRange() {
    NumberGenerator ng = new NumberGenerator();
    ng.resetRange();
    assertEquals(ng.getInputNumber(), actual: 0);
}

@Test
public void getInputNumber() {
}

@Test
public void getRandomNumber() {
}

@Test
public void generateRandomNumber() {
    NumberGenerator ng = new NumberGenerator();
    int i=0;
    while(i<11) {
        ng.setRange();
        i++;
    }
    ng.generateRandomNumber();
    testRandomNumber=ng.getRandomNumber();
    assertTrue( condition: testRandomNumber<10);
}
```



The screenshot shows the Run window of an IDE. The title bar reads "Run: NumberGeneratorTest x". The window contains a table of test results and a console output area.

Test Name	Duration	Status
NumberGeneratorTest	4 ms	Passed
resetRange	3 ms	Passed
getInputNumber	0 ms	Passed
getRandomNumber	0 ms	Passed
setRange	0 ms	Passed
generateRandomNumber	1 ms	Passed

Summary: Tests passed: 5 of 5 tests – 4 ms

Console Output: "C:\Program Files\Java\jdk-12.0.1\bin\java.exe" -cp ... Process finished with exit code 0

Write Unit Test Code

```
@Test
public void setTimeSave() {
    SetTime st = new SetTime();
    String testTime;
    StringTokenizer st0, st1;
    Calendar time = Calendar.getInstance();
    SimpleDateFormat simpleDateFormat;

    st.setTimeSave();
    simpleDateFormat = new SimpleDateFormat("yy-MM-dd HH:mm:00");
    testTime = simpleDateFormat.format(time.getTime());
    st0 = new StringTokenizer(st.getCurrentTime(), " :-");
    st1 = new StringTokenizer(testTime, " :-");
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    // assertEquals(st0.nextToken(), st1.nextToken());
}
```

Write Unit Test Code

```
@Test
public void setYearAdd() {
    SetTime st = new SetTime();
    String testTime;
    StringTokenizer st0, st1;
    Calendar time = Calendar.getInstance();
    SimpleDateFormat simpleDateFormat;

    st.setYearAdd();
    time.add(Calendar.YEAR, amount: 1);
    simpleDateFormat = new SimpleDateFormat(pattern: "yy-MM-dd HH:mm:ss");
    testTime = simpleDateFormat.format(time.getTime());
    st0 = new StringTokenizer(st.getCurrentTime(), delim: " :-");
    st1 = new StringTokenizer(testTime, delim: " :-");
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    assertEquals(st0.nextToken(), st1.nextToken());
    //assertEquals(st0.nextToken(), st1.nextToken());
}
```

Write Unit Test Code

Method	Duration	Details
SetTimeTest	138 ms	"C:\Program Files\Java\jdk-12.0.1\bin\java.exe" -ea -Didea.test.cyclic.buffer.size=1048576 "-java
✓ setMonthMinus	1 ms	
✓ setTimeMinutesAdd	0 ms	org.junit.ComparisonFailure:
✓ getEnterSettingTimeTrue	1 ms	Expected :19
✓ getDayOfWeek	0 ms	Actual :18
✓ enterSettingTime	0 ms	<Click to see difference>
✓ setTimeHourAdd	0 ms	
✓ setDayMinus	0 ms	<input type="checkbox"/> <2 internal calls>
✓ setTimeSave	118 ms	<input type="checkbox"/> at SetTimeTest.setYearMinus(SetTimeTest.java:91) <22 internal calls>
✓ getCurrentTime	1 ms	
✓ exitSettingTime	0 ms	
✓ setTimeHourMinus	0 ms	org.junit.ComparisonFailure:
✓ setDayAdd	0 ms	Expected :19
✗ setYearMinus	12 ms	Actual :20
✓ setTimeUnsave	2 ms	<Click to see difference>
✓ setMonthAdd	0 ms	
✗ setYearAdd	3 ms	<input type="checkbox"/> <2 internal calls>
✓ getIsSetTimeSave	0 ms	<input type="checkbox"/> at SetTimeTest.setYearAdd(SetTimeTest.java:69) <22 internal calls>
✓ setTimeMinutesMinus	0 ms	

Write Unit Test Code

```
Run: SM07 [test] x SM07 [test] x
>> Tests failed: 2, passed: 147 of 149 tests – 82 ms
Test Results 82 ms
  SetTimeTest 50 ms
    > Task :classes
    > Task :compileTestJava
    > Task :processTestResources NO-SOURCE
    > Task :testClasses
    > Task :test FAILED

    expected:<19> but was:<18>
    Expected :19
    Actual   :18
    <Click to see difference>

    java.lang.AssertionError: expected:<19> but was:<18> <1 internal call>
      at org.junit.Assert.failNotEquals(Assert.java:834) <2 internal calls>
      at SetTimeTest.setYearMinus(SetTimeTest.java:92) <43 internal calls>
      at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128)
      at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628) <1 internal call>
      at java.base/java.lang.Thread.run(Thread.java:835)

    SetTimeTest > setYearMinus FAILED
      java.lang.AssertionError at SetTimeTest.java:92

    expected:<[19]> but was:<[20]>
    Expected :19
    Actual   :20
    <Click to see difference>

    org.junit.ComparisonFailure: expected:<[19]> but was:<[20]> <2 internal calls>
      at SetTimeTest.setYearAdd(SetTimeTest.java:70) <43 internal calls>
      at java.base/java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor.java:1128)
      at java.base/java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecutor.java:628) <1 internal call>
      at java.base/java.lang.Thread.run(Thread.java:835)
```

감사합니다

Q & A
