

JUnit A Cook's Tour

: JUnit 3.8.x .

1.

(Test Infected : Programmers Love Writing Tests, Java Report, July 1998, Volume 3, Number 7)
가
가
JUnit
가 가
(,)
가

2.

JUnit ?
, 가 가 가
가 가 가
가 가
가 가 , ,
가 가 ?
, PM !!
가 가
가
1 5
가 가

Setup	Fixture	Fixture
-------	---------	---------

3. JUnit

JUnit ("Patterns Generate Architectures", Kent Beck Ralph Johnson, EC00P 94) 가 JUnit

3.1 - TestCase

TestCase

-
-
-

가

()

Command (Gamma, E., et al. Design Patterns : Elements of Reusable Object-Oriented Software, Addison-Wesley, Reading, MA, 1995)

"

"execute"

TestCase

```
public abstract class TestCase implements Test
{
    ...
}
```

Test	TestCase	class	"public abstract"
TestCase		가	

```
public abstract class TestCase implements Test
{
    private final String fName;

    public TestCase (String name) {
        fName = name;
    }
}
```

```
}

public abstract void run ();
...
}
```

JUnit

가

가

가

(Gamma, E., Applying Design Patterns in Java, in Java Gems, SIGS Reference Library, 1997)

1 TestCase



3.2 Blanks to fill in - run()

fixture

TestCase abstract 가 subclassing TestCase

가 super class

test fixture fixture

fixture 가 fixture 가

가

가

가

가 fixture(setup and teardown)

fixture 가 가

```
public void run()
{
    setUp();
    runTest();
    tearDown();
}
```

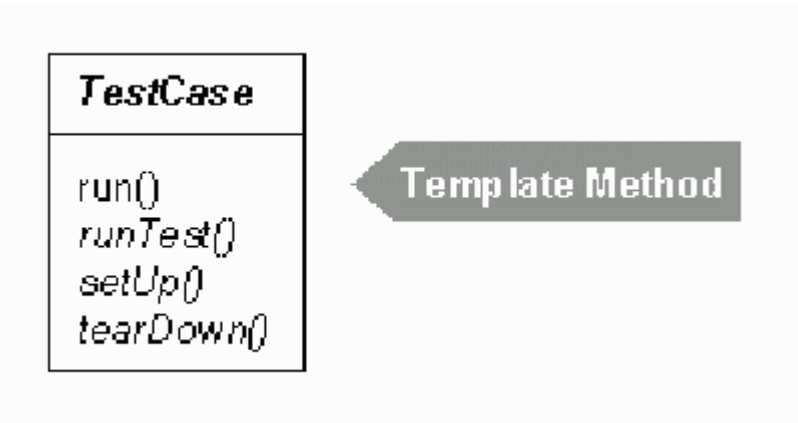
```
protected void runTest()
{
    ...
}
```

```
protected void setUp()
{
    ...
}
```

```
protected void tearDown()
{
    ...
}
```

setUp tearDown

2



3.3 Reporting results - TestResult

TestCase가 forest	가	?	.
가	.	.	.
가		TestCase	flag
가	flag	.	.

```
Smalltalk (Beck, K. Smalltalk , Prentice Hall, 1996)
Collecting Parameter .
가
.
TestResult .
```

```
public class TestResult extends Object
{
    protected int fRunTests;
    public TestResult () {
        fRunTests = 0;
    }
}
```

```

    def run (self) :
        self.result = self.runTest ()
        return self.result

```

```
public void run (TestResult    ) {
    result.startTest (this);
    ();
    runTest ();
    tearDown ();
}
```

TestResult

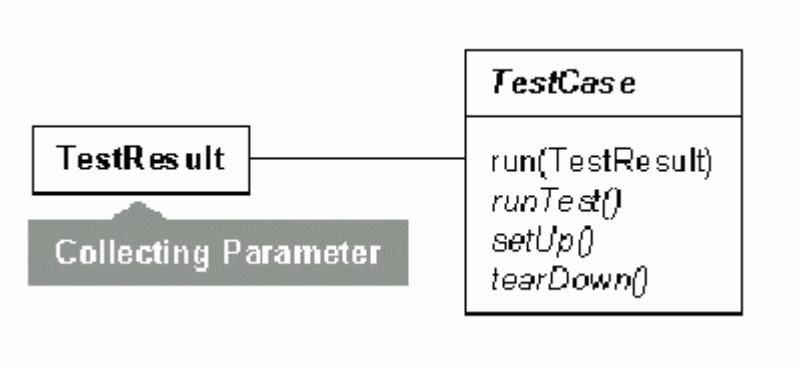
```
startTest (           ) {
fRunTests ++;
}
```

```
가
TestResult startTest
TestCase
run ()
TestResult가
```

```
public TResult run () {
    TResult      = createResult ();
    (    );
    ;
}
```

```
protected TResult createResult () {
    return new TResult ();
}
```

3



가

가

가

JUnit
가
ArrayIndexOutOfBoundsException
AssertionFailedError
가 catch (1)
(2)

```
public void run (TestResult result) {
    result.startTest (this);
    ();
    {
        runTest ();
    }
    catch (AssertionFailedError e) { // 1
        result.addFailure (this, e);
    }
    catch (Throwable e) { // 2
        result.addError (this, e);
    }
    {
        tearDown ();
    }
}
```

AssertionFailedError TestCase assert
JUnit assert
가

```
protected void assertTrue (boolean condition) {
    if (! condition)
        throw new AssertionFailedError ();
}
```

AssertionFailedError (TestCase)가
 TestCase.run () AssertionFailedError

```
AssertionFailedError {
public AssertionFailedError () {}
}
```

. TestResult

```
addError (, Throwable t) {
fErrors.addElement (new TestFailure (test, t));
}
```

```
addFailure (, Throwable t) {
fFailures.addElement (new TestFailure (test, t));
}
```

TestFailure

```
TestFailure Object {
protected Test fFailedTest
Throwable fThrownException;
}
```

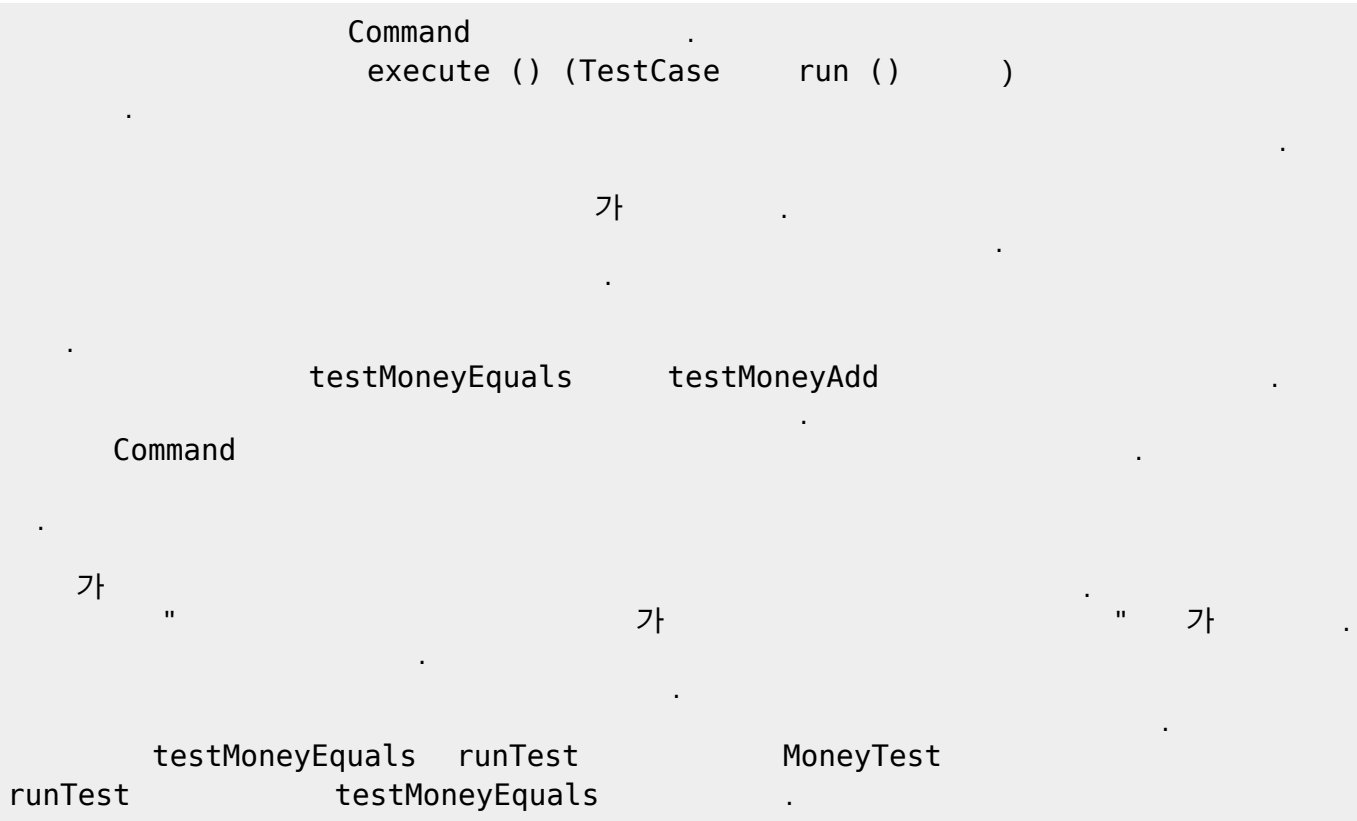
```

    TestResult 가
    " "
    TestResult
    throw
    MoneyTest
    TestResult 가
```

```
public void testMoneyEquals () {
    assertTrue (! f12CHF.equals (null));
    assertEquals (f12CHF, f12CHF);
    assertEquals (f12CHF, new Money (12, "CHF"));
    assertTrue (! f12CHF.equals (f14CHF));
}
```

```
JUnit TestResult
TextTestResult
UITestResult JUnit Test Runner
TestResult
TestResult
HTMLTestResult HTML
```

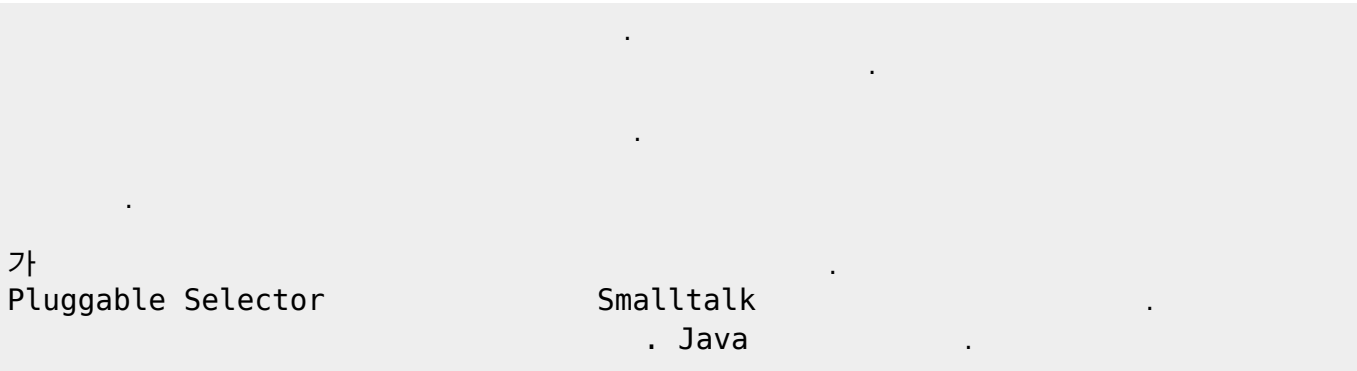
3.4 -TestCase



```
TestMoneyEquals MoneyTest {
public TestMoneyEquals () {super ( "testMoneyEquals"); }
runTest () {testMoneyEquals (); }
}
```



```
TestCase test = new MoneyTest ( "testMoneyEquals" ) {
protected void runTest () {testMoneyEquals (); }
};
```



Java

Java

API

Java

JUnit

runTest

Method

가

```

protected void runTest () throws Throwable {
    Method runMethod = null;
    try {
        runMethod = getClass (). getMethod (fName, new Class [0]);
    } catch (NoSuchMethodException e) {
        assertTrue ( "Method \" " + fName + "\" " " ", false);
    }
    try {
        runMethod.invoke (this, new Class [0]);
    }
    // InvocationTargetException  IllegalAccessException
}

```

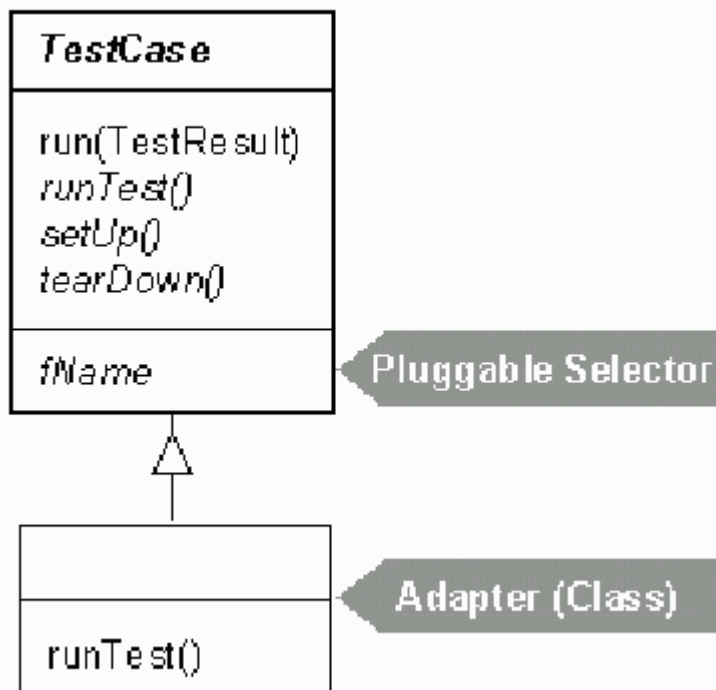
JDK 1.1

API

public

NoSuchMethodException

가 가



-TestSuite

```

graph TD
    JUnit --> Composite
    Composite --> Leaf
    Leaf --> JUnit

```

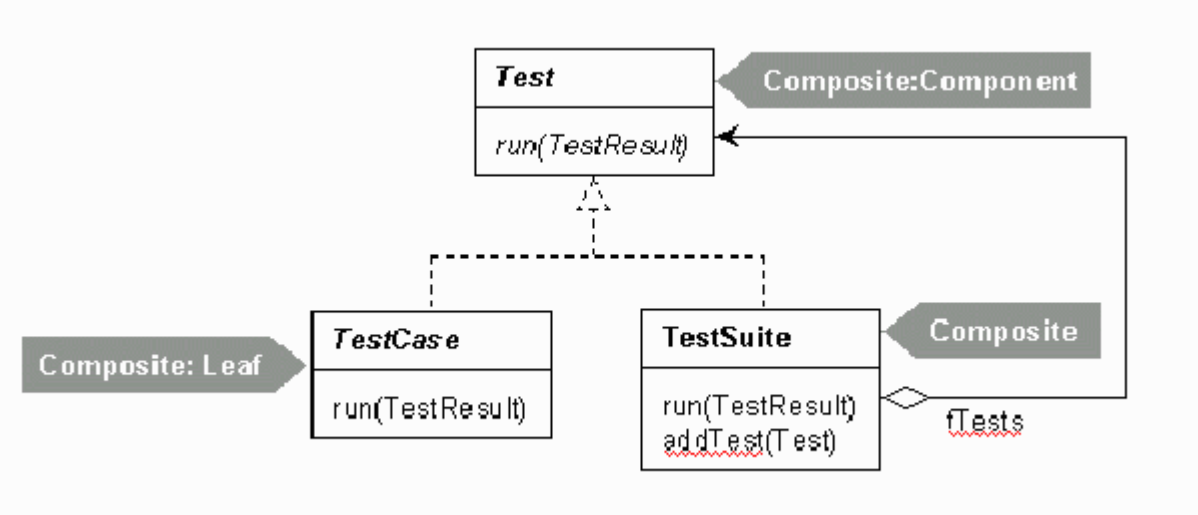
```
public interface Test {
    public abstract void run (TestResult result);
}
```

```
TestCase Composite Leaf
      가
      TestSuite
TestSuite
```

```
TestSuite Test {
    private Vector fTests = new Vector ();
}
```

```
run ()
```

```
public void run (TestResult result) {
    for (Enumeration e = fTests.elements (); e.hasMoreElements ();) {
        Test test = (Test) e.nextElement ();
        test.run ();
    }
}
```



```
가 addTest
```

```
public void addTest (
    ) {
    fTests.addElement (test);
}
```

```
가
TestCase TestSuite Test
      TestSuite
      TestSuite
TestSuite
```

```
public static Test suite()
{
    TestSuite = new TestSuite ();
    suite.addTest (new MoneyTest ( "testMoneyEquals"));
}
```

```
suite.addTest (new MoneyTest ( "testSimpleAdd"));
}
```

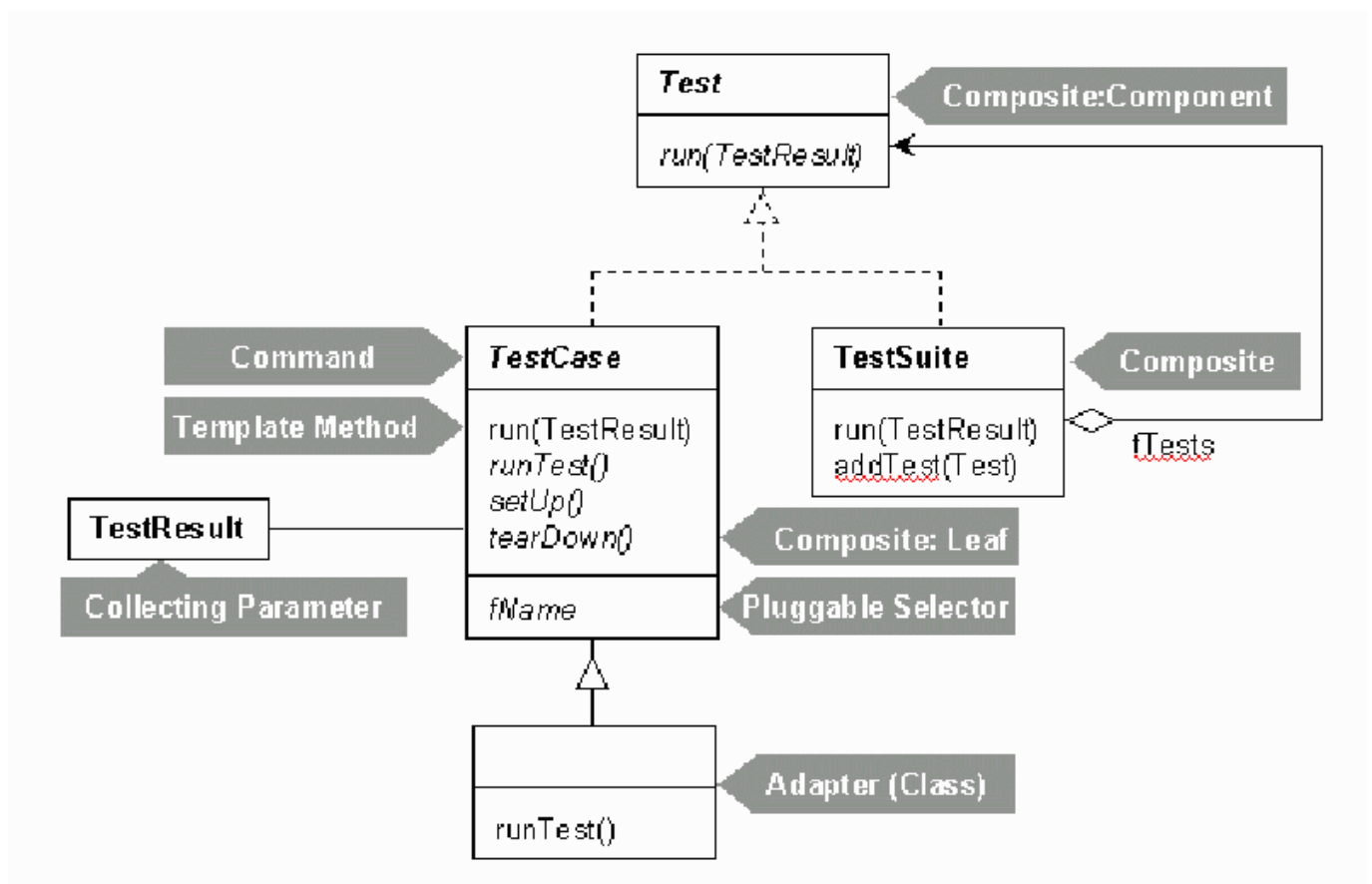
```
JUnit
    static suite ()
    {
        TestSuite
        "test"
    }
    가
```

```
public static Test suite ()
{
    return new TestSuite (MoneyTest.class);
}
```

The original way is still useful when you want to run a subset of the test cases only.

3.6

JUnit A Cook's Tour
 JUnit

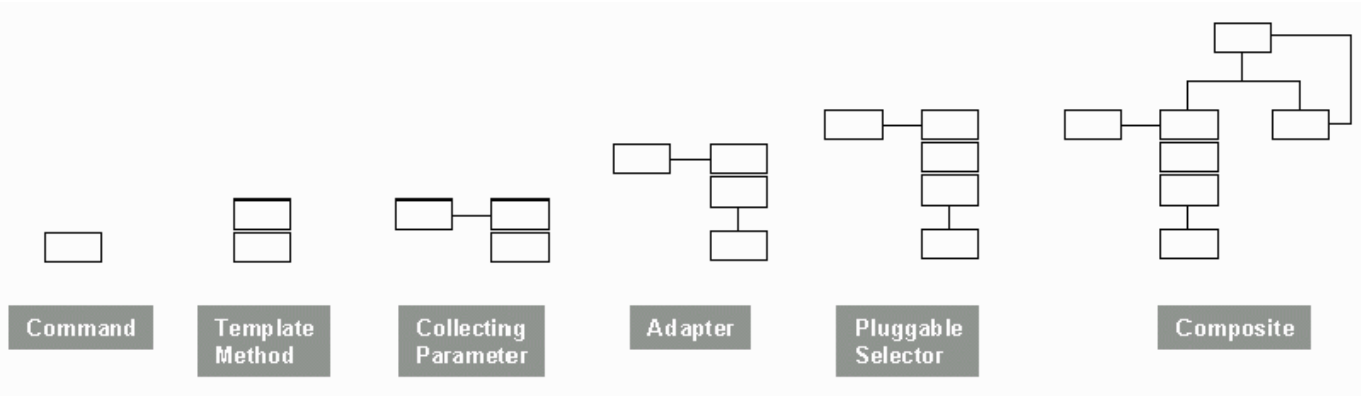


TestCase가 4가

JUnit

Command TestCase Templage Method run

(가 6.)



Composite

Composite가 " "

4.

가 .

Patterns

.

Pattern density

JUnit TestCase " "가 .

가 가 가 .

가 " "

Eat your own dog food

TestTest 가 , .

Intersection, not union

[illegible]

JUnit 가 ,
가 가 .
JUnit, , 가
monomania
().

JUnit <http://www.junit.org>

5.

John Vlissides, Ralph Johnson, Nick Edgar

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