软件测试上机报告

第一次上机作业 – Junit and coberura

学　院　智能与计算学部

专　业　软件工程

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年　级　2020

班　级　5

1. Task

(1) Install Junit with Eclipse/IDEA

(2) Write a java program for the given problem and test the program with Junit.

1) Description of the problem:

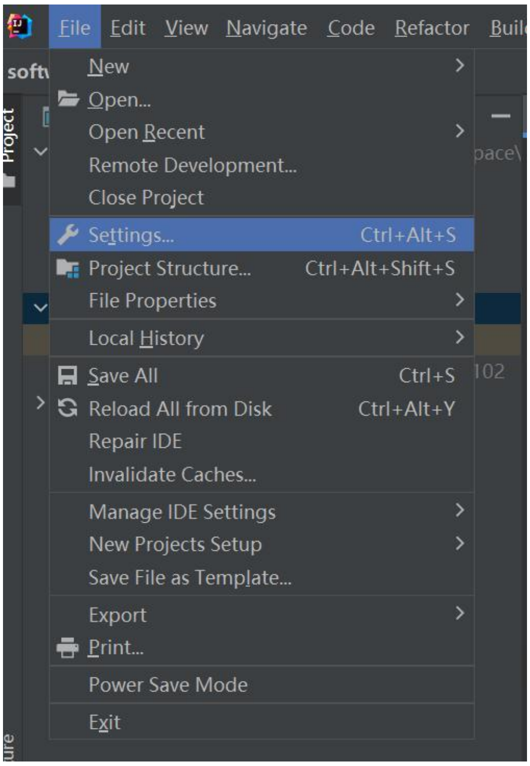
There are one 50 yuan, one 20 yuan, one 10 yuan, two 5 yuan bills and three 1 yuan coins in your pocket. Write a program to find out whether you can take out a given number (x) yuan.

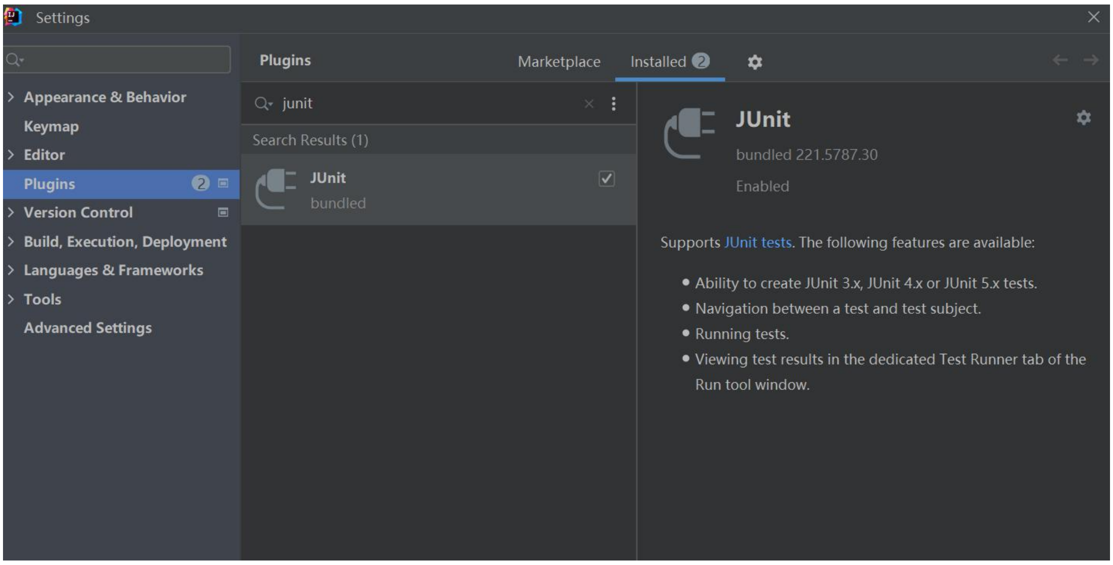
2) Design nine test cases, three for each interface, using *assertEquals( )*, *assertTrue( )*, and *assertFalse( )*

(3) Install Cobertura with Eclipse/IDEA

2. Junit

首先安装Junit插件。选择File->Setting->Plugins，安装Juint插件。





junit

JUnit

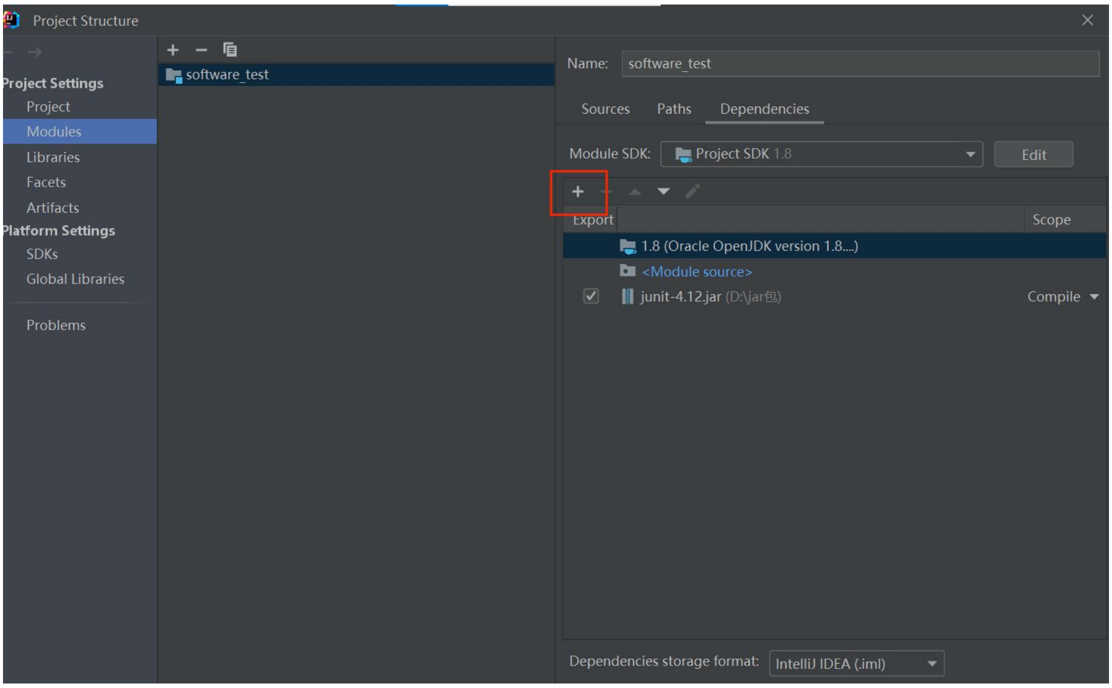
bundled 221.5787.30

Enabled

Supports JUnit tests. The following features are available:

- Ability to create JUnit 3.x, JUnit 4.x or JUnit 5.x tests.
- Navigation between a test and test subject.
- Running tests.
- Viewing test results in the dedicated Test Runner tab of the Run tool window.

选择 File->Project Settings->Modules，点击右侧“+”，选择路径导入 jar 包。



Name: software_test

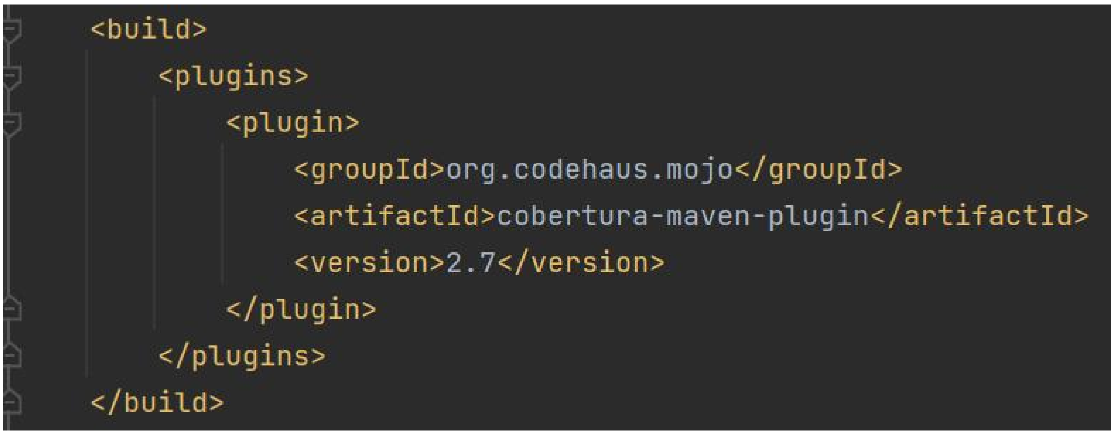
Module SDK: Project SDK 1.8

Export		Scope
	1.8 (Oracle OpenJDK version 1.8....)	
	<Module source>	
☑	junit-4.12.jar (D:\jar包)	Compile

Dependencies storage format: IntelliJ IDEA (.iml)

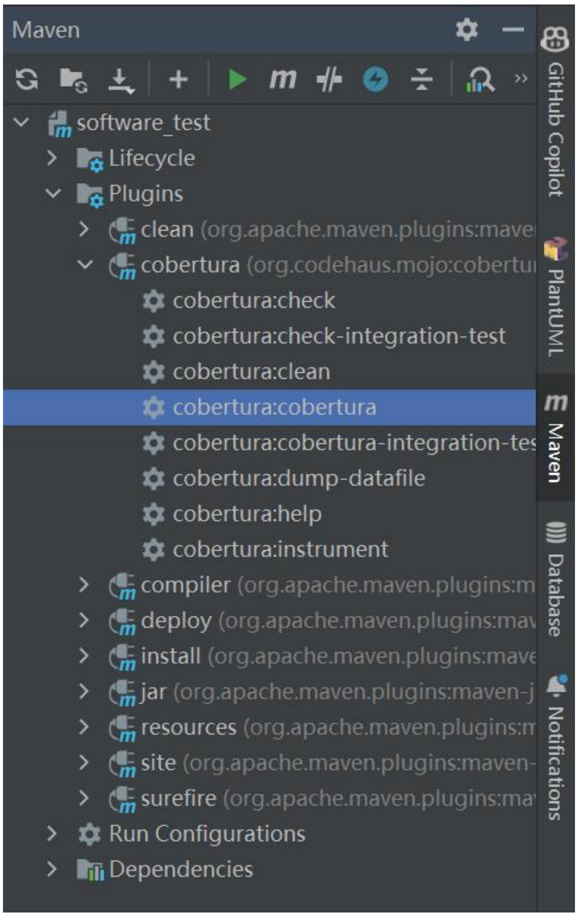
3. Cobertura

在 pom.xml 中添加依赖。



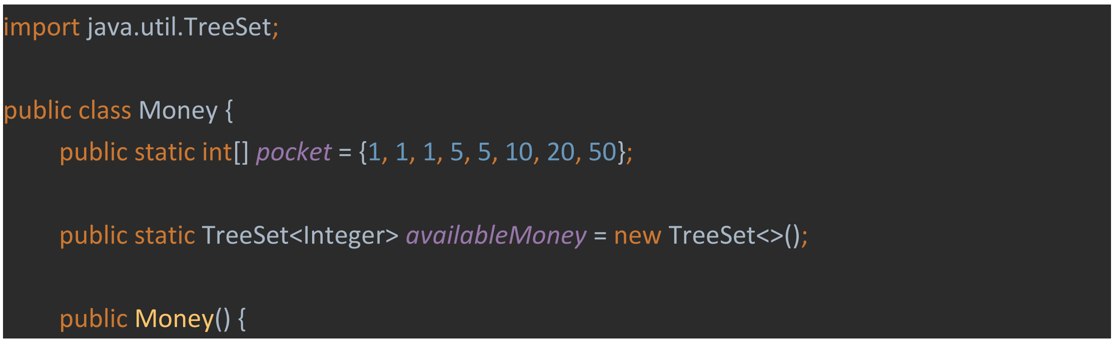
```xml
<build>
    <plugins>
        <plugin>
            <groupId>org.codehaus.mojo</groupId>
            <artifactId>cobertura-maven-plugin</artifactId>
            <version>2.7</version>
        </plugin>
    </plugins>
</build>
```

右侧 Maven 包管理点击运行 cobertura



```
software_test
    Lifecycle
    Plugins
        clean (org.apache.maven.plugins:mave
        cobertura (org.codehaus.mojo:cobertu
            cobertura:check
            cobertura:check-integration-test
            cobertura:clean
            cobertura:cobertura
            cobertura:cobertura-integration-tes
            cobertura:dump-datafile
            cobertura:help
            cobertura:instrument
        compiler (org.apache.maven.plugins:m
        deploy (org.apache.maven.plugins:mav
        install (org.apache.maven.plugins:mave
        jar (org.apache.maven.plugins:maven-j
        resources (org.apache.maven.plugins:m
        site (org.apache.maven.plugins:maven-
        surefire (org.apache.maven.plugins:ma
    Run Configurations
    Dependencies
```

4. Source code

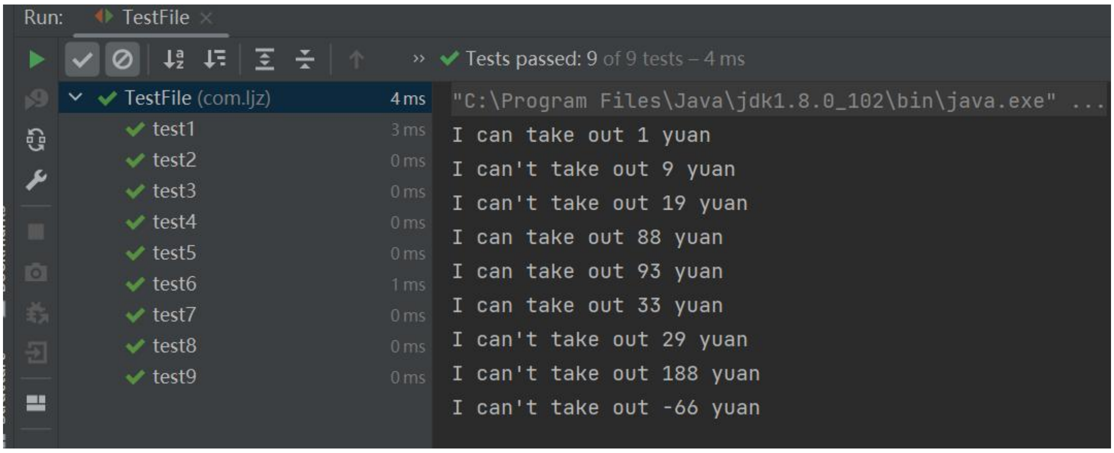


```java
import java.util.TreeSet;

public class Money {
    public static int[] pocket = {1, 1, 1, 5, 5, 10, 20, 50};

    public static TreeSet<Integer> availableMoney = new TreeSet<>();

    public Money() {
        dfs(0, 0);
    }

    private void dfs(int index, int sum) {
        if (index == pocket.length) {
            availableMoney.add(sum);
            return;
        }
        dfs(index + 1, sum);
        dfs(index + 1, sum + pocket[index]);
    }


    public boolean canTakeMoney(int money) {
        if (availableMoney.contains(money)) {
            System.out.println("I can take out " + money + " yuan");
            return true;
        } else {
            System.out.println("I can't take out " + money + " yuan");
            return false;
        }
    }
}
```

5. Test program

```
public class TestFile {
    public Money money;

    @Before
    public void setup() {
        money = new Money();
    }

    @Test
    public void test1() {
        Assert.assertEquals(true, money.canTakeMoney(1));
    }

    @Test
    public void test2() {
        Assert.assertEquals(false, money.canTakeMoney(9));
    }

    @Test
    public void test3() {
        Assert.assertEquals(false, money.canTakeMoney(19));
    }

    @Test
    public void test4() {
        Assert.assertTrue(money.canTakeMoney(88));
    }

    @Test
    public void test5() {
        Assert.assertTrue(money.canTakeMoney(93));
    }

    @Test
    public void test6() {
        Assert.assertTrue(money.canTakeMoney(33));
    }

    @Test
    public void test7() {
        Assert.assertFalse(money.canTakeMoney(29));
    }

    @Test
    public void test8() {
        Assert.assertFalse(money.canTakeMoney(188));
    }

    @Test
    public void test9() {
        Assert.assertFalse(money.canTakeMoney(-66));
    }

}
```

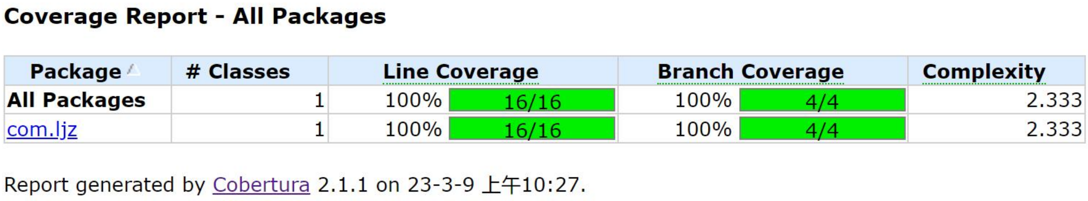
6. Result



✓ Tests passed: 9 of 9 tests – 4 ms

✓ TestFile (com.ljz)	4 ms
✓ test1	3 ms
✓ test2	0 ms
✓ test3	0 ms
✓ test4	0 ms
✓ test5	0 ms
✓ test6	1 ms
✓ test7	0 ms
✓ test8	0 ms
✓ test9	0 ms

```
"C:\Program Files\Java\jdk1.8.0_102\bin\java.exe" ...
I can take out 1 yuan
I can't take out 9 yuan
I can't take out 19 yuan
I can take out 88 yuan
I can take out 93 yuan
I can take out 33 yuan
I can't take out 29 yuan
I can't take out 188 yuan
I can't take out -66 yuan
```



Coverage Report - All Packages

Package	# Classes	Line Coverage		Branch Coverage		Complexity
All Packages	1	100%	16/16	100%	4/4	2.333
com.ljz	1	100%	16/16	100%	4/4	2.333

Report generated by Cobertura 2.1.1 on 23-3-9 上午10:27.