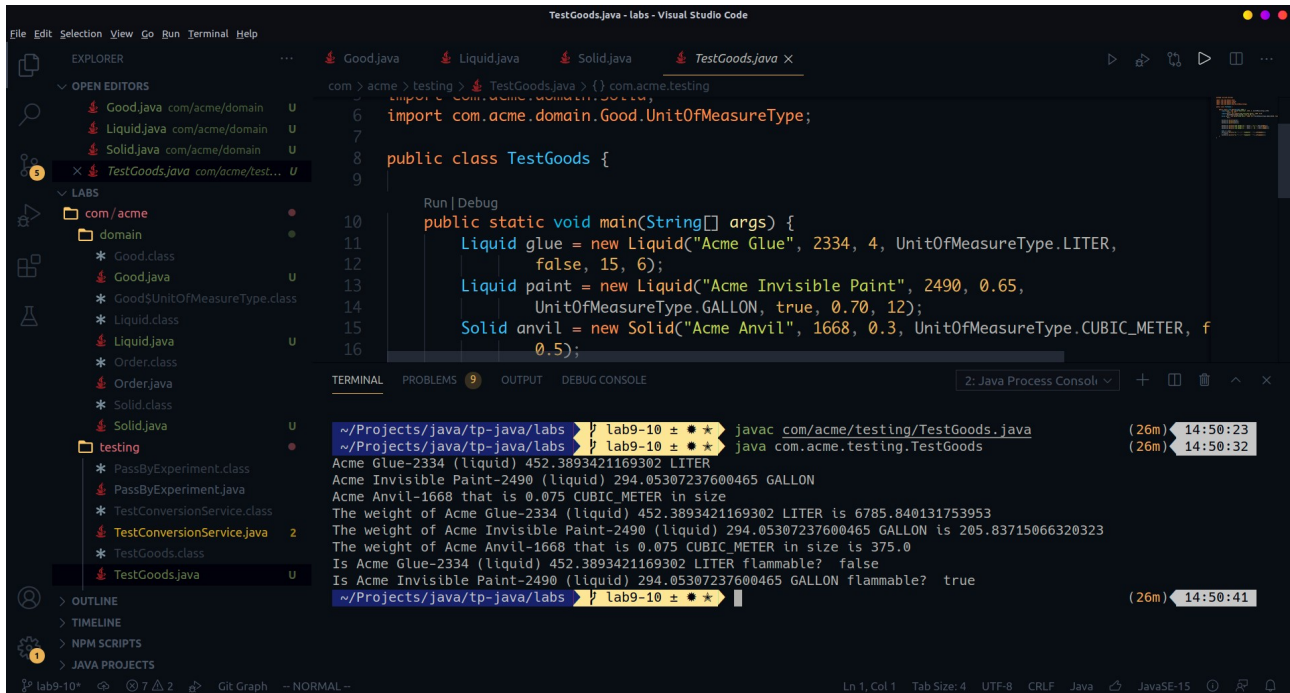


Compte Rendu TP3 Atelier Java

Organized by: Ala Ben Hamouda GL2

Lab 9:



The screenshot shows the Visual Studio Code editor with the file `TestGoods.java` open. The code defines a `TestGoods` class with a `main` method that creates instances of `Liquid` and `Solid` classes. The terminal output shows the execution of the program, displaying the weight and volume of the created objects, and the results of the `isFlammable` method calls.

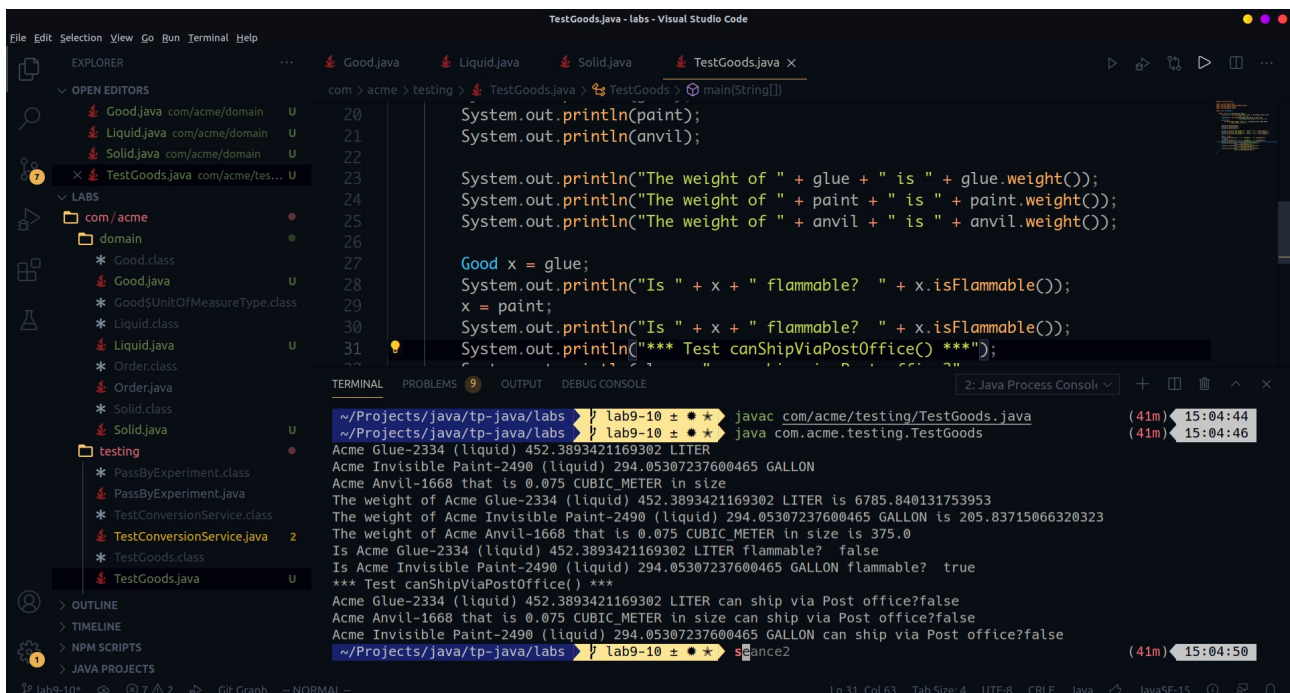
```
com > acme > testing > TestGoods.java > {} com.acme.testing
import com.acme.domain.*;
import com.acme.domain.Good.UnitOfMeasureType;

public class TestGoods {

    Run | Debug
    public static void main(String[] args) {
        Liquid glue = new Liquid("Acme Glue", 2334, 4, UnitOfMeasureType.LITER,
            false, 15, 6);
        Liquid paint = new Liquid("Acme Invisible Paint", 2490, 0.65,
            UnitOfMeasureType.GALLON, true, 0.70, 12);
        Solid anvil = new Solid("Acme Anvil", 1668, 0.3, UnitOfMeasureType.CUBIC_METER, f
            0.5);

~/Projects/java/tp-java/labs lab9-10 ± ★ javac com/acme/testing/TestGoods.java (26m) 14:50:23
~/Projects/java/tp-java/labs lab9-10 ± ★ java com.acme.testing.TestGoods (26m) 14:50:32
Acme Glue-2334 (liquid) 452.3893421169302 LITER
Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON
Acme Anvil-1668 that is 0.075 CUBIC_METER in size
The weight of Acme Glue-2334 (liquid) 452.3893421169302 LITER is 6785.840131753953
The weight of Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON is 205.83715066320323
The weight of Acme Anvil-1668 that is 0.075 CUBIC_METER in size is 375.0
Is Acme Glue-2334 (liquid) 452.3893421169302 LITER flammable? false
Is Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON flammable? true
~/Projects/java/tp-java/labs lab9-10 ± ★ (26m) 14:50:41
```

X is defined to be of type Good but a variable of type Liquid got assigned to it. This is possible because Liquid extends Good. X can reference any variable of a type that is a subclass of Good.



The screenshot shows the Visual Studio Code editor with the file `TestGoods.java` open. The code defines a `TestGoods` class with a `main` method that creates instances of `Liquid` and `Solid` classes. The terminal output shows the execution of the program, displaying the weight and volume of the created objects, and the results of the `isFlammable` method calls.

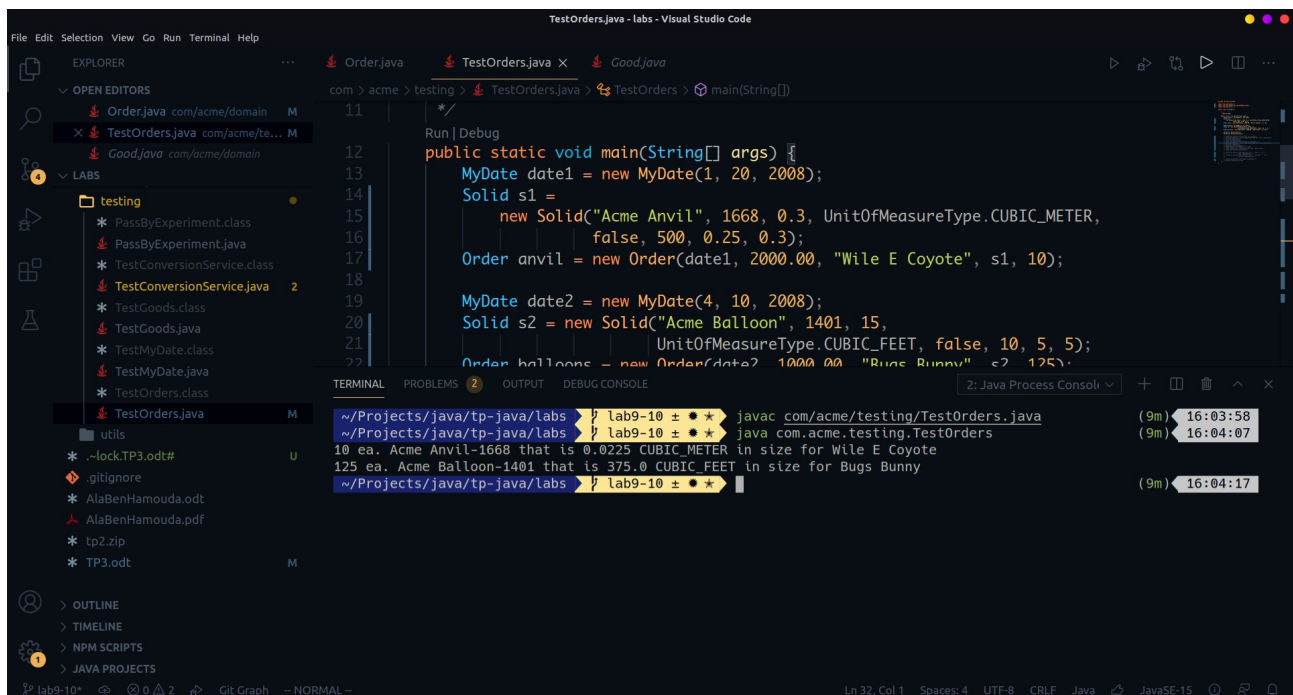
```
com > acme > testing > TestGoods.java > TestGoods > main(String[])
System.out.println(paint);
System.out.println(anvil);

System.out.println("The weight of " + glue + " is " + glue.weight());
System.out.println("The weight of " + paint + " is " + paint.weight());
System.out.println("The weight of " + anvil + " is " + anvil.weight());

Good x = glue;
System.out.println("Is " + x + " flammable? " + x.isFlammable());
x = paint;
System.out.println("Is " + x + " flammable? " + x.isFlammable());
System.out.println("*** Test canShipViaPostOffice() ***");

~/Projects/java/tp-java/labs lab9-10 ± ★ javac com/acme/testing/TestGoods.java (41m) 15:04:44
~/Projects/java/tp-java/labs lab9-10 ± ★ java com.acme.testing.TestGoods (41m) 15:04:46
Acme Glue-2334 (liquid) 452.3893421169302 LITER
Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON
Acme Anvil-1668 that is 0.075 CUBIC_METER in size
The weight of Acme Glue-2334 (liquid) 452.3893421169302 LITER is 6785.840131753953
The weight of Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON is 205.83715066320323
The weight of Acme Anvil-1668 that is 0.075 CUBIC_METER in size is 375.0
Is Acme Glue-2334 (liquid) 452.3893421169302 LITER flammable? false
Is Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON flammable? true
*** Test canShipViaPostOffice() ***
Acme Glue-2334 (liquid) 452.3893421169302 LITER can ship via Post office?false
Acme Anvil-1668 that is 0.075 CUBIC_METER in size can ship via Post office?false
Acme Invisible Paint-2490 (liquid) 294.05307237600465 GALLON can ship via Post office?false
~/Projects/java/tp-java/labs lab9-10 ± ★ (41m) 15:04:50
```

Lab 10:

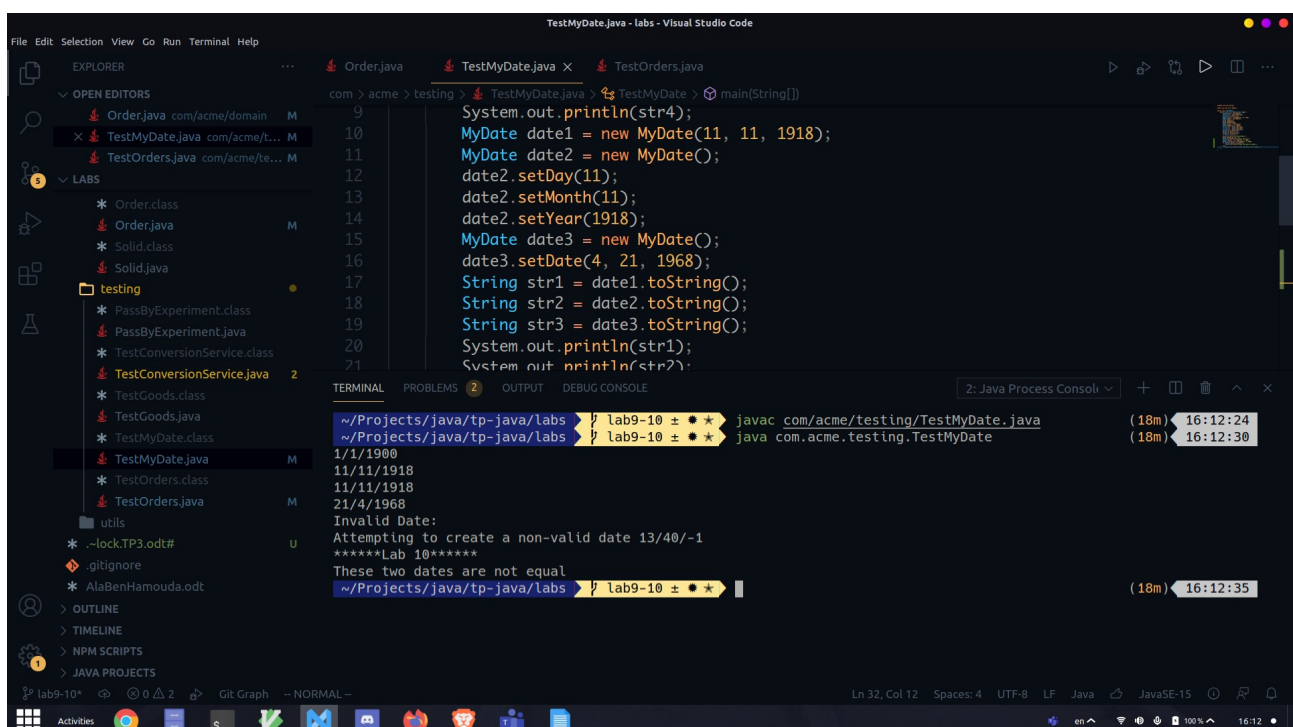


The screenshot shows the Visual Studio Code editor with the file `TestOrders.java` open. The code defines a `main` method that creates two `MyDate` objects, two `Solid` objects, and two `Order` objects. The `Order` objects are created with a `date`, a `price`, a `customer`, and a `product`. The `product` is a `Solid` object. The `Order` objects are then printed to the console using the `toString` method. The terminal output shows the following:

```
~/Projects/java/tp-java/labs > javac com/acme/testing/TestOrders.java
~/Projects/java/tp-java/labs > java com.acme.testing.TestOrders
10 ea. Acme Anvil-1668 that is 0.0225 CUBIC_METER in size for Wile E Coyote
125 ea. Acme Balloon-1401 that is 375.0 CUBIC_FEET in size for Bugs Bunny
```

The output changes a little because now the `toString` method of `Order` class uses the `toString` method of `Good` class. So the `toString` method called on the product is dynamically bound the right `toString` method depending on the actual type of the product.

Step 2: Implement Equals on MyDate



The screenshot shows the Visual Studio Code editor with the file `TestMyDate.java` open. The code defines a `main` method that creates two `MyDate` objects, `date1` and `date2`, and a `MyDate` object, `date3`. `date1` is created with the year 1918, `date2` is created with the year 1918, and `date3` is created with the year 1968. The `toString` method is called on `date1`, `date2`, and `date3`. The `toString` method is then called on `date1` and `date2` again. The terminal output shows the following:

```
~/Projects/java/tp-java/labs > javac com/acme/testing/TestMyDate.java
~/Projects/java/tp-java/labs > java com.acme.testing.TestMyDate
1/1/1900
11/11/1918
11/11/1918
21/4/1968
Invalid Date:
Attempting to create a non-valid date 13/40/-1
*****Lab 10*****
These two dates are not equal
```

The screenshot shows the Visual Studio Code editor with the file `TestMyDate.java` open. The code defines a `MyDate` class and a `main` method that creates three `MyDate` objects, sets their properties, and prints them. The terminal output shows the compilation and execution of the program, which prints the dates and confirms that the two dates are equal.

```

System.out.println(str4);
MyDate date1 = new MyDate(11, 11, 1918);
MyDate date2 = new MyDate();
date2.setDay(11);
date2.setMonth(11);
date2.setYear(1918);
MyDate date3 = new MyDate();
date3.setDate(4, 21, 1968);
String str1 = date1.toString();
String str2 = date2.toString();
String str3 = date3.toString();
System.out.println(str1);
System.out.println(str2);

```

```

~/Projects/java/tp-java/labs > javac com/acme/testing/TestMyDate.java
~/Projects/java/tp-java/labs > java com.acme.testing.TestMyDate
11/11/1900
11/11/1918
11/11/1918
21/4/1968
Invalid Date:
Attempting to create a non-valid date 13/40/-1
*****Lab 10*****
These two dates are equal

```

The default equals method inherited from the Object super class checks if the two variables have identical references.

Bonus:

The `getProduct` method defined in the Order class return a Good object. And the Good class doesn't define any `getLength` method. Besides, the compiler doesn't have a clue about the actual type of the Good object.

The screenshot shows the Visual Studio Code editor with the file `TestOrders.java` open. The code defines a `MyDate` class, a `Solid` class, and an `Order` class. The `main` method creates two `Order` objects, one with a `Solid` object and one with a `MyDate` object, and prints them. The terminal output shows the compilation and execution of the program, which prints the details of the orders and their products.

```

MyDate date1 = new MyDate(1, 20, 2008);
Solid s1 =
    new Solid("Acme Anvil", 1668, 0.3, UnitOfMeasureType.CUBIC_METER,
        false, 500, 0.25, 0.3);
Order anvil = new Order(date1, 2000.00, "Wile E Coyote", s1, 10);

MyDate date2 = new MyDate(4, 10, 2008);
Solid s2 = new Solid("Acme Balloon", 1401, 15,
    UnitOfMeasureType.CUBIC_FEET, false, 10, 5, 5);
Order balloons = new Order(date2, 1000.00, "Bugs Bunny", s2, 125);

System.out.println(anvil);
System.out.println(balloons);

```

```

~/Projects/java/tp-java/labs > javac com/acme/testing/TestOrders.java
~/Projects/java/tp-java/labs > java com.acme.testing.TestOrders
10 ea. Acme Anvil-1668 that is 0.0225 CUBIC_METER in size for Wile E Coyote
125 ea. Acme Balloon-1401 that is 375.0 CUBIC_FEET in size for Bugs Bunny
The volume of the anvil is: 0.0225
The length of the anvil is: 0.3

```

If it was really a Liquid rather than a Solid the program would throw an Exception at runtime because it cannot cast a Liquid object to a Solid.