Victoria University
of Wellington, New Zealand
Te Whare Wananga o te
Upoko o te Ika a Maui
Aotearoa

SWEN221:
Software Development

13: Java Puzzlers

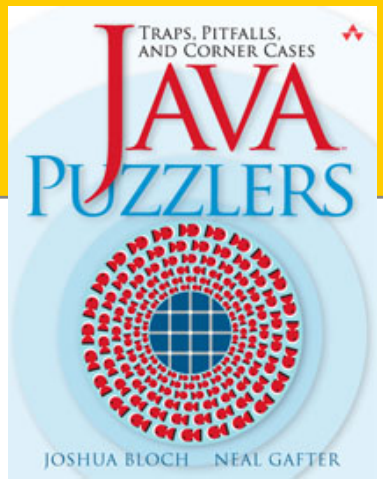
Yi Mei
Engineering and Computer Science, Victoria University
Modified from slides by David Pearce

Java Puzzlers

How well do you know Java?

(See "Java Puzzlers", Addison Wesley)

About Java



- Java
  - It's a **complicated** language!
  - Most programmers (even really good ones) **don't know all the rules**

- Java Language Specification (JLS)
  - Provides a (nearly) complete **guide to the rules**.
    - See:

http://java.sun.com/docs/books/jls/third_edition/html/j3TOC.html

Puzzle #1 (Division)

- What does this code print?

```
int x = (-1 / 2);
int y = (1 / 2);

System.out.println(x + "," + y);
```

A) 0,1 B) -1,0 C) 0, 0

Puzzle #2 (Post Increment)

- What does this code print?

```
int x = 0;
int y = x++ + x++ + x++;

System.out.println(y);
```

A) 0 B) 2 C) 3

Puzzle #3 (oddity)

- How to check an integer is odd?

```
boolean isOdd(int x) {
  return (x%2) == 1;
}
```

  - Does this method work?

A) Yes B) No C) Don't know

Puzzle #4 (Binary Operators)

- What does this code print?

```
int x = 3 * 11 / 2;
int y = 11 / 2 * 3;
System.out.println(x + "," + y);
```

A) 15,16 B) 16,1 C) 16,15

Puzzle #5 (Finally)

- What does this code print?

```
static void main(String[] args) {
      System.out.println(f());
}

static boolean f() {
 try { return true; }
 finally { return false; }
}
```

A) true B) false C) doesn't compile

Puzzle #6 (Exceptions)

- What does this code print?

```
try {
 try {
   String x = null;
   x.toString();
 } catch(NullPointerException e1) {
   int x = 10 / 0;
 } catch(ArithmeticException e2) {
   System.out.println("1");
 }
} catch(ArithmeticException e2) {
 System.out.println("2");
}
```

A) 1 B) 2 C) other

Puzzle #7 (Constructors)

- What does this code print?

```
public class Test {
    Test() { f(); }
    void f() {}
}

public class Test2 extends Test {
    int i = 1;
    void f() { System.out.println(i); }

    public static void main(String[] args) {
       new Test2();
}   }
```

A) 0 B) 1 C) nothing

Puzzle #8 (Multiplication)

- What does this code print?

```
public class Test {
    public static void main(String[] args) {
      int x = 60 * 60 * 24 * 1000 * 1000;

      System.out.println(x);
    }
}
```

A) 86400000000000 B) 1 C) other

Puzzle #9 (Sums)

- What does this code print?

```
int[] arr = {77, 077, 0x4D};
int sum = 0;

for(int i : arr) {
 sum = sum + i;
}

System.out.println(sum);
```

A) 232 B) 231 C) 217

Puzzle #10 (Static Blocks)

- What does this code print?

```
public class Test {
    static Test t1 = new Test();
    static Integer t2 = new Integer(1);

    Integer i1;

    public Test() { i1 = t2; }
    int f() { return i1; }

    public static void main(String[] args) {
      System.out.println(t1.f());
}}
```

A) 1 B) 0 C) other

Puzzle #11 (Final)

```
public class Final {
 public Final() { trickster(); }
 void trickster() {}

 public static class Inner extends Final {
  public int x,y = 123;
  public final int z = 456;

  public void Inner() { x += 10; }
  void trickster() { x += y + z; }
 }

 public static void main(String[] args) {
  System.out.println(new Inner().x);
}}
```

A) 589 B) 466 C) 456 d) 123 e) 579

Puzzle #12 (Equality)

What does this code print?

```
public class FarmYard {
  public static void main(String[] a) {
    final String pig = "length: 10";
    final String dog = "length: " + pig.length();
    System.out.println(
      "Animals are equal: " + pig == dog);
  }
}
```

A) "Animals are equal: true"
B) "Animals are equal: false"
C) other