“Zápočet” conditions

• practical test **in the lab**
• “zápočtový” program
  – "reasonable" size
  – **topic till 12. 1. 2018**
    • by email
• homeworks – 225 points (max 450)
• presence
  – > 3 absences – 315 points
Homeworks

- submissions are via the ReCodEx system
  - a new version of CodEx
  - more information later
package cz.cuni.mff.java.example01;

public class Hello {
    public static void main(String[] args) {
        System.out.println("Hello world!");
    }
}

Hello world
Arguments of main

- public static void main(String[] args)

- arguments
  - args ~ arguments of the command line
  - contains arguments **only**
  - do not contain name of the program as in C/C++

- return value of the program
  - System.exit(3);
  - return value of the **main** method – **void**
Output

• standard output
  – System.out
    • methods
      – print()
        • defined for all types
        • prints its argument
      – println()
        • as print()
        • plus prints new-line
      – printf()
        • as printf in C
        • System.out.printf("1 + 2 = %d", 1 + 2)
Assignment 1

• Create the “Hello World” program
  – use your own package

• Help
  – create a directory structure for the project & package
    mkdir -p project/src/cz/cuni/mff/java

  – implement classes
    gvim project/src/cz/cuni/mff/java/Hello.java

  – compile (creates Hello.class)
    javac project/src/cz/cuni/mff/java/Hello.java

  – run it
    java -cp project/src cz.cuni.mff.java.Hello
Assignment 2

- Divide the “Hello World” program into two classes
  - each one in a different package

  - class Printer
    - static method `print(String s)`

  - class Hello
    - contains main
    - uses `Printer.print(“Hello world”)`
Assignments 3 & 4

• Assignment 3
  – create a program, which prints out all its arguments from the command line

• Assignment 4
  – create a program, which prints out a multiplication table for numbers 1-10

  1 * 1 = 1
  1 * 2 = 2
  ...
Examples
Operators: comparison

• what is printed?

```java
Integer i1 = new Integer(1);
Integer i2 = new Integer(1);
if (i1 == i2)
    System.out.println("YES");
else
    System.out.println("NO");
```
Overflow

• What is printed?

```java
package cz.cuni.mff.java.example01;

public class Overflow {
    public static void main(String[] argv) {
        int b = 2147483647;
        System.out.println(b);
        b = b + 1;
        System.out.println(b);
    }
}
```

The example based on code from J. Bloch, N. Gafter: Java Puzzlers
• What is printed?

```java
package cz.cuni.mff.java.example01;

public class URL {

    public static void main(String[] argv) {
        System.out.println("url:");
        http://google.com/
        System.out.println(":url");
    }
}
```

A cannot be compiled
B runtime error
C prints "url:http://google.com/:url"
D prints "url::url"

The example based on code from J. Bloch, N. Gafter: Java Puzzlers
What is printed?

```java
package cz.cuni.mff.java.example01;
public class Swap {
    public static void main(String[] argv) {
        int x = 10;
        int y = 20;
        x ^= y ^= x ^= y;
        System.out.println(x);
        System.out.println(y);
    }
}
```

A cannot be compiled  
B runtime error  
C prints 10 20  
D prints 20 10  
E prints 0 20  
F prints 0 10  
G prints 10 0  
H prints 20 0  
I prints something  

The example based on code from J. Bloch, N. Gafter: Java Puzzlers
• What is printed?

```java
package cz.cuni.mff.java.example01;
public class ForCycle {
    public static void main(String[] argv) {
        int j = 0;
        for (int i = Integer.MAX_VALUE - 10; i <= Integer.MAX_VALUE; i++) {
            j++;
        }
        System.out.println(j);
    }
}
```

A 10          D nothing
B 11          E runtime error
C 0

The example based on code from J. Bloch, N. Gafter: Java Puzzlers