“Zápočet” conditions

- practical test in the lab
- “zápočtový” program
  - "reasonable" size
  - topic till 11. 1. 2019
    - by email
- homeworks – 225 points (max 450)
- presence
  - > 3 absences – 315 points
Homeworks

- submissions are via the ReCodEx system
  - 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

...
Assignment 5

● Create a program, which prints out all its arguments in Morse code

- a method at String
  char charAt(int index)
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?

    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);
        }
    }
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"
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?

    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