“Zápočet” conditions

- practical test **in the lab**
- “zápočtový” program
  - "reasonable" size
  - **topic till 10. 1. 2020**
    - 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)
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"
• 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  E prints  0  20  I prints something
B runtime error        F prints  0  10                 else
C prints  10  20      G prints 10  0
D prints  20  10      H prints  20  0

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