Juniorprogrammierer.de

Java 3: Loops & Conditions

2024/25 – Sascha Stojanovic

Agenda

- Loop I + II
- Conditions
- Exercise I + II

Loops I

for-Loop: for (statement 1, statement 2, statement 3) {}

- When you know exactly how often you want to execute something
- for (int i = 0, i < 5, i++) {}
- for each for arrays => for (type variable : array){}

While-Loop: while (condition) {}

- Is executing as long as condition is true
- int i = 0; while (i<5) { xxx; i++ }

Loops II

Do-While-Loop: do {} while (condition);

- Code is executed before condition check
- int i = 0; do { xxx; i++; } while (i < 5);

Recommendation: for-Loop because Go and usually mainly used

Important cmds:

- Continue: if (something) { continue; } => to skip loop for certain condition
- Break: if (something) { continue; } => to stop loop in case of certain condition

Conditions

Do-While-Loop: do {} while (condition);

- Code is executed before condition check
- int i = 0; do { xxx; i++; } while (i < 5);

Recommendation: for-Loop because Go and usually mainly used

Important cmds:

- Continue: if (something) { continue; } => to skip loop for certain condition
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Conditions

- if (condition) {}
  - if (a > b) {xxx; }
- if (condition) { xxx; } else { xxx; }
  - if (a > b) { “do this”; } else { ”do this”;}
- if (condition) { xxx;} else if (condition2) { xxx;} else { xxx;}
  - if (a > b) { “do this”; } else if (a = b) { ”do this”;} else { ”do this”;}
- Switch-case
  - switch (expression) { case x: xxx; break; …; default: xxx; }

Exercise factorial (Deutsch: Fakultät)

Create an fakultaet.java.

- The factorial (Fakultät) of a positive integer n, denoted as n!, is the product of all positive integers less than or equal to n
  - 3! = 3 * 2 * 1 = 6 oder
  - 5! = 5 * 4 * 3 * 2 * 1 = 120
- Your program should first ask “Bitte um Eingabe” and then return the following result: “Die Fakultät aus n ist xxx”
- To import numbers from your terminal you need the java.util.scanner, see below example:

```
import java.util.Scanner;
Scanner scanner = new Scanner(System.in);
System.out.println(”Bitte um Eingabe”)
//String anystring = scanner.nextLine(); => for string
int booked_tickets = scanner.nextInt();
scanner.close();
```

- Create for every loop a solution!

Exercise leap year (Deutsch: Schaltjahr)

Create an schaltjahr.java.

- A leap year is a year that includes an extra day, February 29th, to keep the calendar year synchronized with the Earth's orbit around the Sun. The rule for determining a leap year is as follows:
  - **Divisibility by 4**: A year is a leap year if it is divisible by 4.
  - **Exception for centuries**: Years that are divisible by 100 are **not** leap years **unless** they are also divisible by 400.
- Your program should first ask “Bitte um Eingabe” and then return the following result: “Das Jahr n ist ein/kein Schaltjahr”
- To import numbers from your terminal you need the java.util.scanner, see below example:

```
import java.util.Scanner;
Scanner scanner = new Scanner(System.in);
System.out.println(”Bitte um Eingabe”)
//String anystring = scanner.nextLine(); => for string
int booked_tickets = scanner.nextInt();
scanner.close();
```