

Einführung in die Informatik 2 für Ingenieure (MSE)

Übung I

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Agenda

1. Organisation
2. Umfrage
3. Java
4. UML
5. Übungsblatt I

Organisation

Termine

- **Vorlesung** (Prof. Alfons Kemper)
 - Montag 09:30 - 11:00; IAS HS I
- **Zentralübung** (Alexander van Renen)
 - Montag 11:15 - 12:00; IAS HS I
- **Fragestunde** (Moritz Sichert)
 - Donnerstag 15:30 - 16:30; BC2 0.01.17 (GHB)

Website

The screenshot shows a web browser window with the URL db.in.tum.de/teaching/ss16/ei2/?lang=en. The page features the TUM logo and the tagline 'Die unternehmerische Universität'. A navigation menu on the left includes 'Home', 'People', 'Research', 'Teaching', and 'SoSe 2016'. The main content area displays the course title 'Einführung in die Informatik 2 für Ingenieure' and lists the lecturers: Prof. Alfons Kemper, Ph.D. and Alexander van Renen, M.Sc. The 'Organisation' section includes 'Vorlesung' (Lecture) and 'Zentralübung' (Central Exercise). The 'Vorlesung' section provides the following details:

- Termin: Montag 09:30 - 11:00
- Ort: 5301.EG.001 (Hörsaal 1 im IAS) ([link](#))
- Vorlesungsbeginn: Montag 11.04.2016

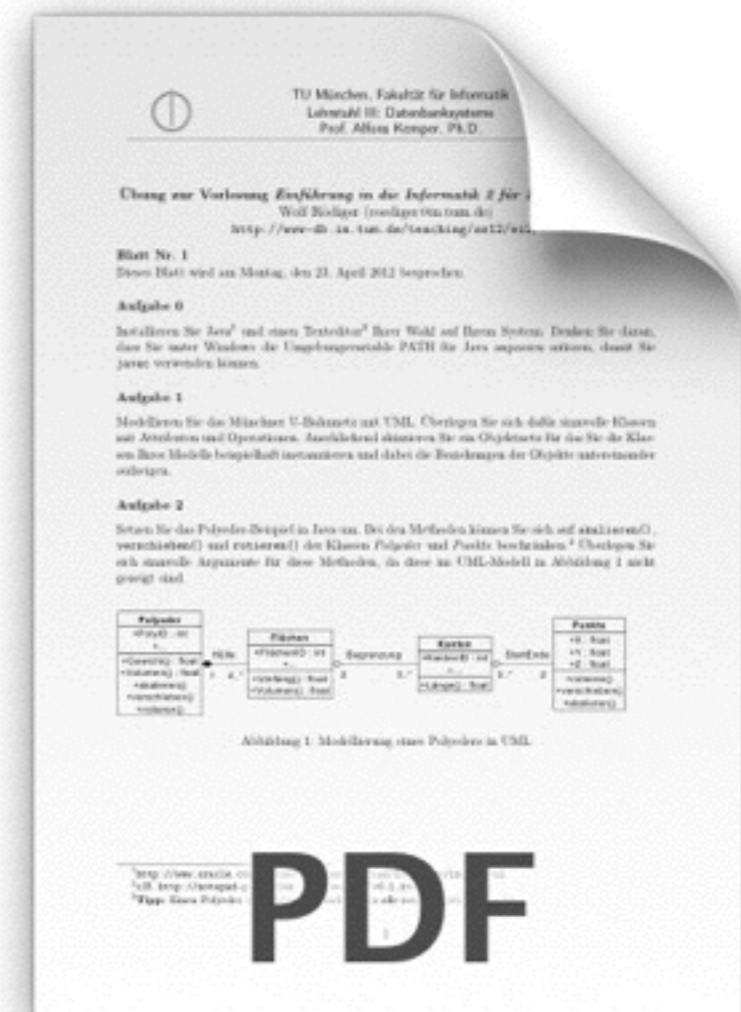
The 'Zentralübung' section is partially visible, showing the start time: 'Termin: Montag 11:00 - 12:00'.

On the right side, the page identifies the 'Lehrstuhl III Datenbanksysteme' (Chair III Database Systems), listing 'Prof. Kemper' and 'Prof. Neumann' as faculty members, and the 'Fakultät für Informatik TU München' (Faculty of Informatics TU München).

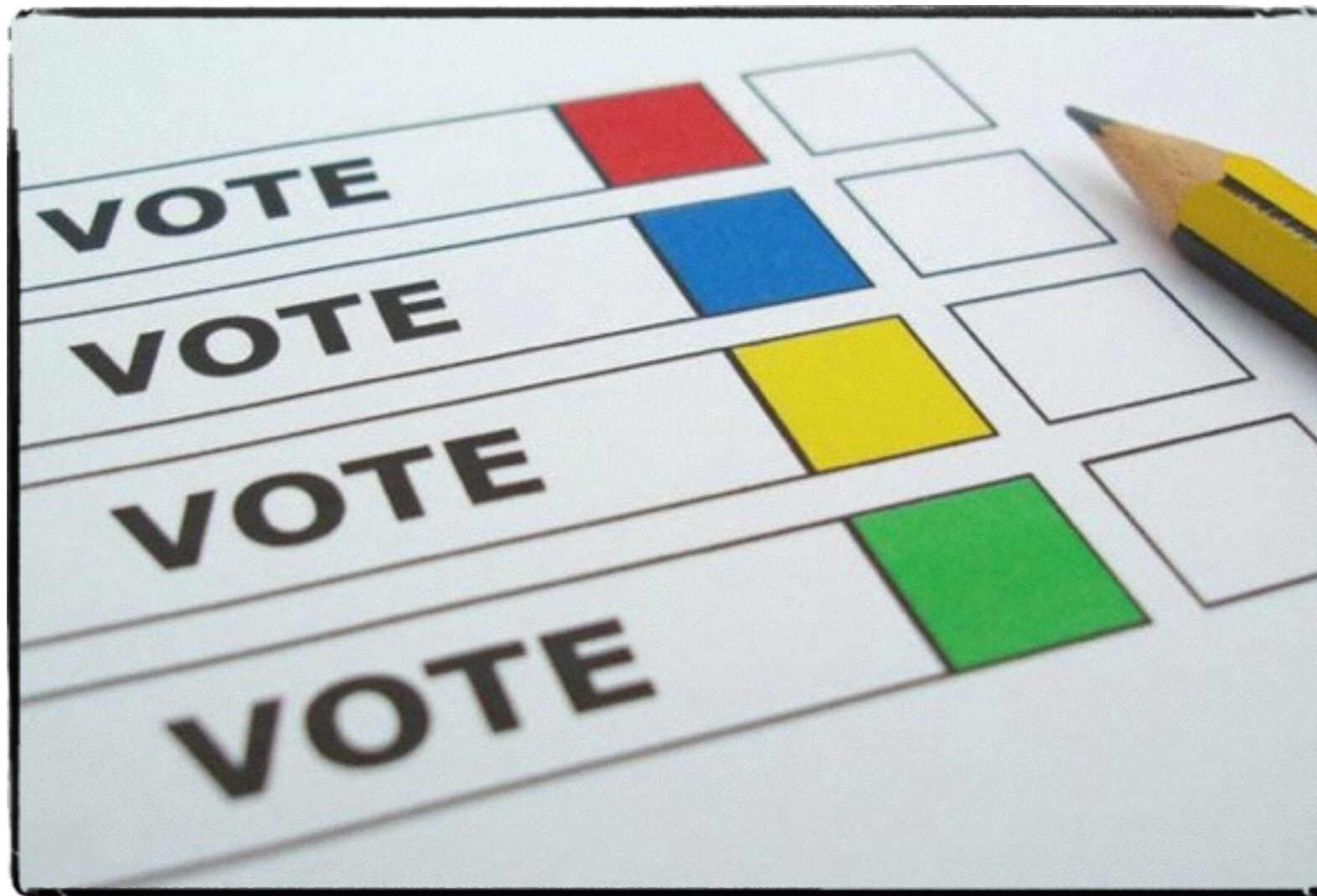
<http://db.in.tum.de/teaching/ss16/ei2/>

Übungsblätter

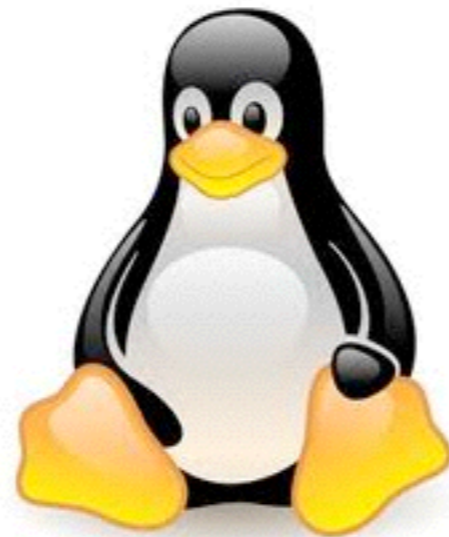
- Erscheinen immer zu Beginn der Woche (12x)
- Keine Hausaufgaben
- Stattdessen:
Ihr stellt eure Lösung vor
- Musterlösung danach auf der Webseite verfügbar



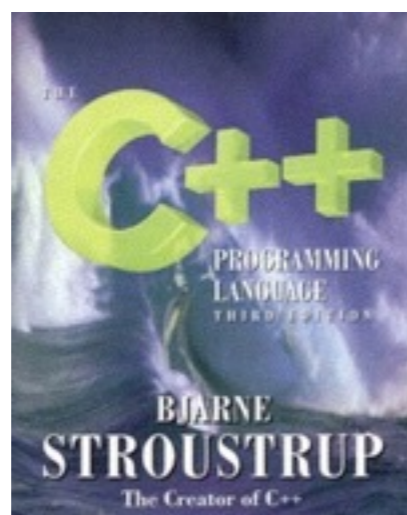
Umfrage



Betriebssysteme ?



Programmiersprachen ?



C#



Datenbanken ?

ORACLE®

IBM

 Microsoft®
SQL Server®

 SQLite


MySQL®



Einführung in



Ein paar Links

- Google !!!!!
- IDE: IntelliJ IDEA: <https://www.jetbrains.com/idea/>
- Online IDE: http://www.tutorialspoint.com/compile_java_online.php
- Zusätzliche Übungsaufgaben: <https://www.hackerrank.com/>

Getting Started (Windows)

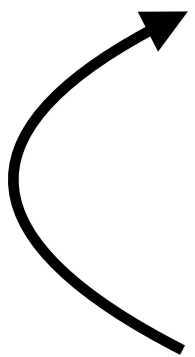
1. Java Development Kit (JDK) installieren

2. IntelliJ IDEA installieren

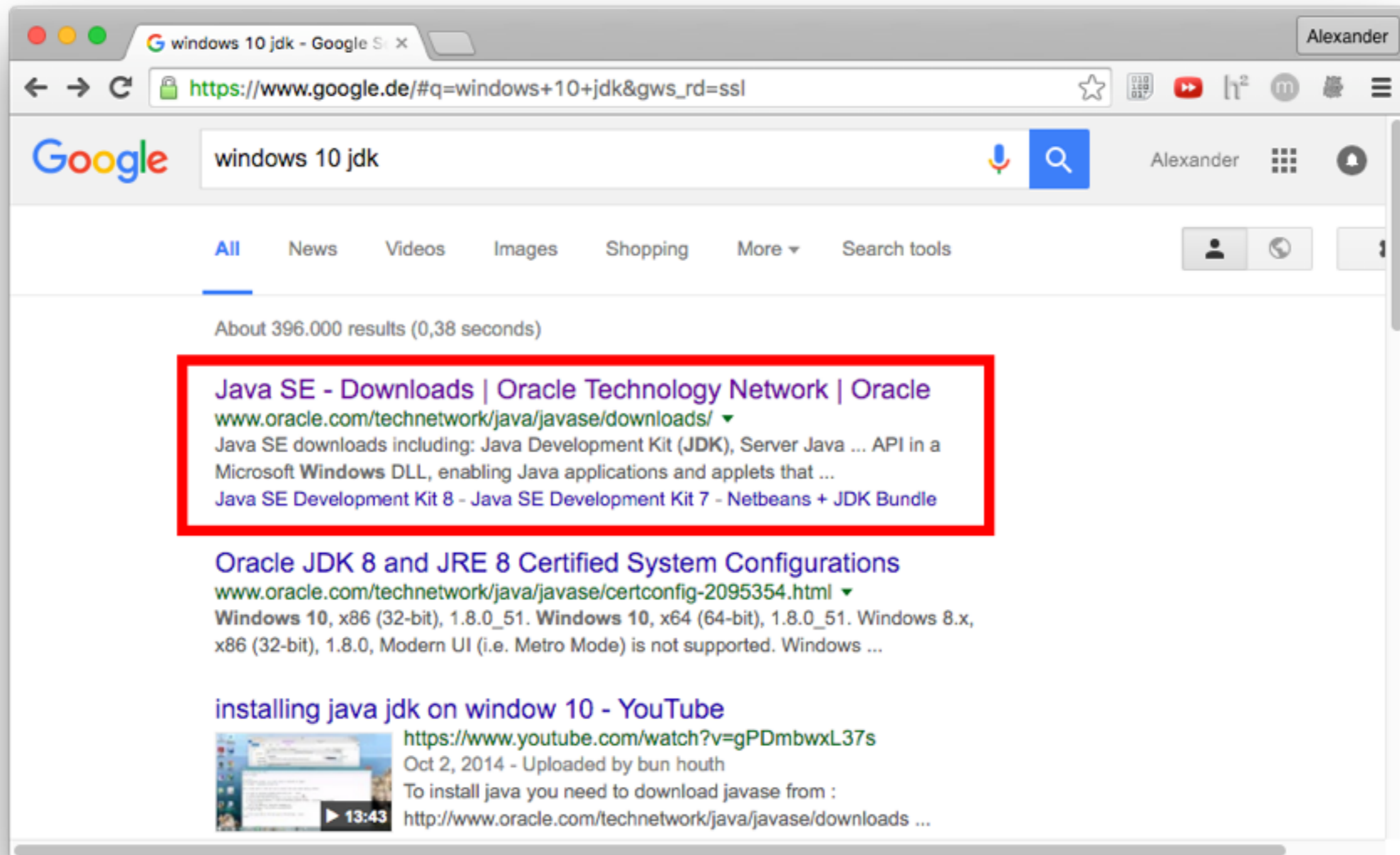
3. Code schreiben

4. Debuggen

5. Goto 3



Java Setup (Windows)



A screenshot of a web browser window showing a Google search for "windows 10 jdk". The search results page displays several results, with the top one highlighted by a red box. The highlighted result is "Java SE - Downloads | Oracle Technology Network | Oracle" with the URL www.oracle.com/technetwork/java/javase/downloads/. Below the URL, it says "Java SE downloads including: Java Development Kit (JDK), Server Java ... API in a Microsoft Windows DLL, enabling Java applications and applets that ..." and lists "Java SE Development Kit 8 - Java SE Development Kit 7 - Netbeans + JDK Bundle". Other visible results include "Oracle JDK 8 and JRE 8 Certified System Configurations" and a YouTube video titled "installing java jdk on window 10".

Windows 10 jdk - Google Search

https://www.google.de/#q=windows+10+jdk&gws_rd=ssl

Google windows 10 jdk

All News Videos Images Shopping More Search tools

About 396.000 results (0,38 seconds)

Java SE - Downloads | Oracle Technology Network | Oracle
www.oracle.com/technetwork/java/javase/downloads/
Java SE downloads including: Java Development Kit (JDK), Server Java ... API in a Microsoft Windows DLL, enabling Java applications and applets that ...
Java SE Development Kit 8 - Java SE Development Kit 7 - Netbeans + JDK Bundle

Oracle JDK 8 and JRE 8 Certified System Configurations
www.oracle.com/technetwork/java/javase/certconfig-2095354.html
Windows 10, x86 (32-bit), 1.8.0_51. Windows 10, x64 (64-bit), 1.8.0_51. Windows 8.x, x86 (32-bit), 1.8.0, Modern UI (i.e. Metro Mode) is not supported. Windows ...

installing java jdk on window 10 - YouTube
<https://www.youtube.com/watch?v=gPDmbwxL37s>
Oct 2, 2014 - Uploaded by bun houth
To install java you need to download javase from :
[http://www.oracle.com/technetwork/java/javase/downloads ...](http://www.oracle.com/technetwork/java/javase/downloads...)

Java Setup (Windows)

The screenshot shows a web browser window displaying the Oracle Java SE Downloads page. The browser's address bar shows the URL www.oracle.com/technetwork/java/javase/downloads/index.html. The page features the Oracle logo on the left and a navigation menu with links for Products, Solutions, Downloads, Store, Support, Training, Partners, and About. Below the navigation, a breadcrumb trail reads "Oracle Technology Network > Java > Java SE > Downloads".

The main content area is titled "Java SE Downloads" and includes tabs for Overview, Downloads, Documentation, Community, Technologies, and Training. Two download options are prominently displayed: "Java Platform (JDK) 8u77" and "NetBeans with JDK 8". The "Java Platform (JDK) 8u77" option is highlighted with a red rectangular border. Below these options, a section titled "Java Platform, Standard Edition" provides information about "Java SE 8u77", stating that it includes important security fixes and that Oracle strongly recommends upgrading to this release. A "Learn more" link is provided.

On the right side of the page, there are two vertical lists of links. The first list, titled "Java SDKs a", includes links for Java SE, Java EE and G, Java ME, Java Card, NetBeans IDE, and Java Mission C. The second list, titled "Java Reso", includes links for Java APIs, Technical Article, Demos and Vid, Forums, Java Magazine, and Java.net.

The browser's status bar at the bottom left shows "Resolving host...".

Java Setup (Windows)

The screenshot shows the Oracle Java SE Development Kit 8u77 download page. The browser address bar shows the URL: www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html. The page title is "Java SE Development Kit 8u77".

Below the title, there is a license agreement section with two radio buttons: "Accept License Agreement" (highlighted with a red box) and "Decline License Agreement".

Below the license agreement, there is a table of download links for various operating systems and architectures. The "Windows x64" row is highlighted with a red box.

Product / File Description	File Size	Download
Linux ARM 32 Soft Float ABI	77.7 MB	jdk-8u77-linux-arm32-vfp-hflt.tar.gz
Linux ARM 64 Soft Float ABI	74.68 MB	jdk-8u77-linux-arm64-vfp-hflt.tar.gz
Linux x86	154.74 MB	jdk-8u77-linux-i586.rpm
Linux x86	174.92 MB	jdk-8u77-linux-i586.tar.gz
Linux x64	152.76 MB	jdk-8u77-linux-x64.rpm
Linux x64	172.96 MB	jdk-8u77-linux-x64.tar.gz
Mac OS X	227.27 MB	jdk-8u77-macosx-x64.dmg
Solaris SPARC 64-bit (SVR4 package)	139.77 MB	jdk-8u77-solaris-sparcv9.tar.Z
Solaris SPARC 64-bit	99.06 MB	jdk-8u77-solaris-sparcv9.tar.gz
Solaris x64 (SVR4 package)	140.01 MB	jdk-8u77-solaris-x64.tar.Z
Solaris x64	96.18 MB	jdk-8u77-solaris-x64.tar.gz
Windows x64	187.31 MB	jdk-8u77-windows-x64.exe

Below the table, there is a section titled "Java SE Development Kit 8u77 Demos and Samples Downloads".

Getting Started (Windows)

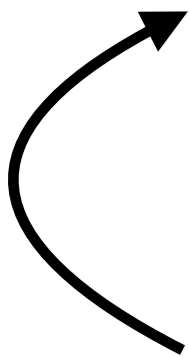
1. ~~Java Development Kit (JDK) installieren~~

2. ~~IntelliJ IDEA installieren~~

3. Code schreiben

4. Debuggen

5. Goto 3



Hello World ...

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

Files & Packages

- Eine Klasse pro File
- Packages entsprechen der Ordner Struktur

```
package de.mse.uebung1;

public class HaveFun {

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

Klassen & Objekte

- Eine Klasse ... zB: Punkt
 - ... beschreibt einen Daten-Typen.
 - ... ist sowas wie ein 'struct' in C.
- Ein Objekt ... zB: (1;3)
 - ... ist eine Ausprägung eines Daten-Typen.
 - ... ist sowas wie eine Instanz von einer 'struct' C.

Klassen & Objekte

- Objekt Attribute/Methoden gehören zu einem Objekt.
- Klassen Attribute/Methoden zu einer Klasse.

```
public class Point {  
    float x; // Objekt Attribut  
    float y; // Objekt Attribut  
    float length() { /*...*/ } // Objekt Methode  
}
```

Objekt Methoden

- Nachgebaut in C

```
struct Point {  
    float x;  
    float y;  
};  
float pointGetLength(Point* this) { /* ... */ }
```

- Java

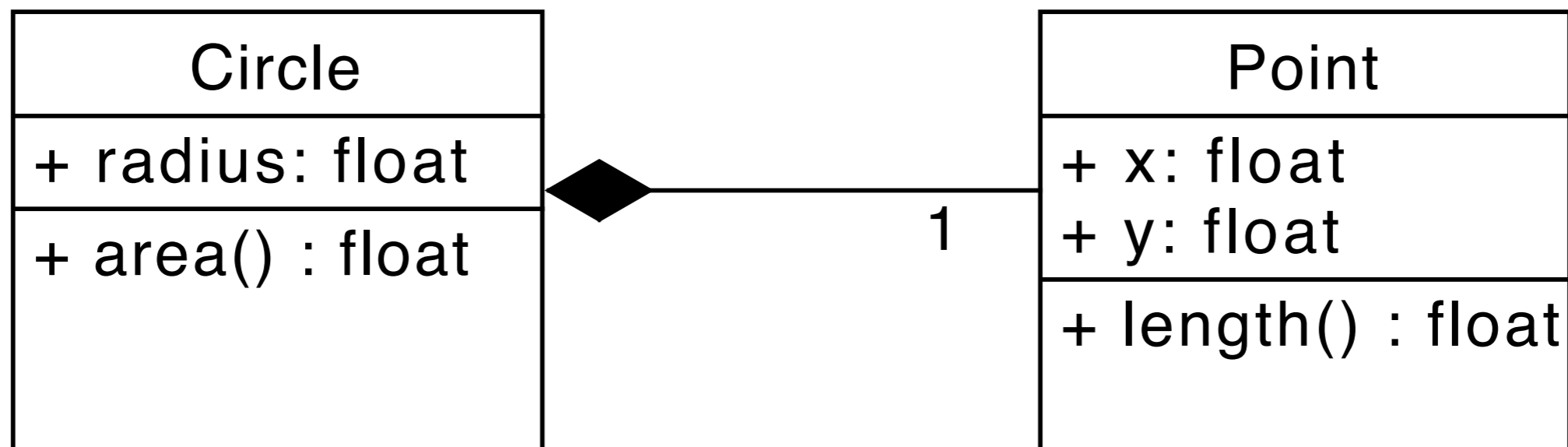
```
public class Point {  
    float x;  
    float y;  
    float length() { /* ... */ }  
}
```

Modellierungsbeispiel



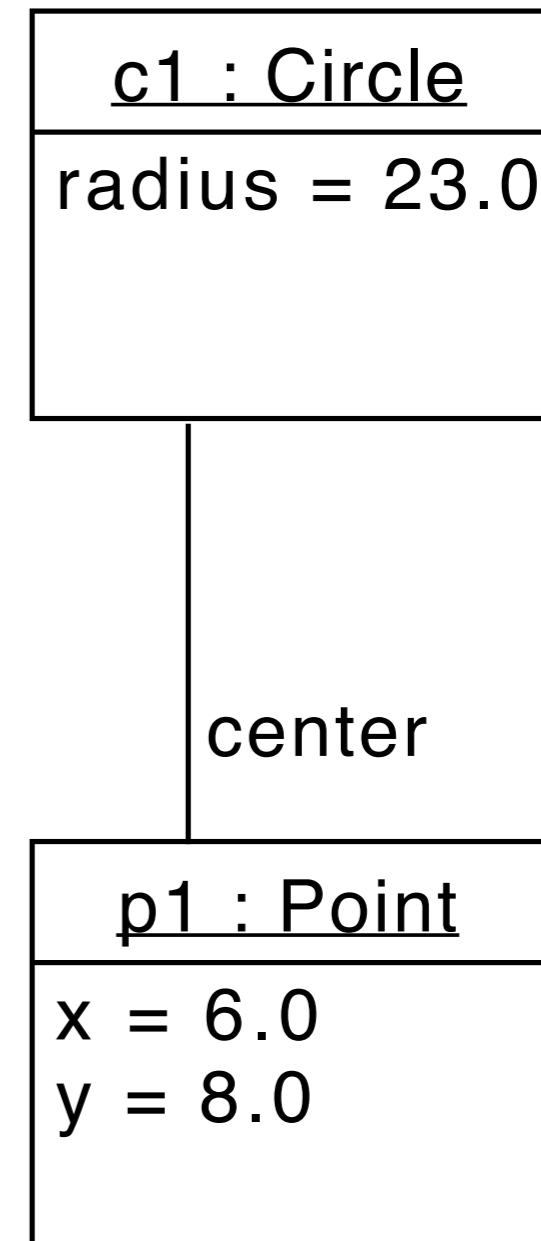
Klassendiagramm

- Zeigt die Struktur des modellierten Systems
- Beschreibt Klassen mit Attributen und Operationen
- Zeigt Beziehungen zwischen Klassen



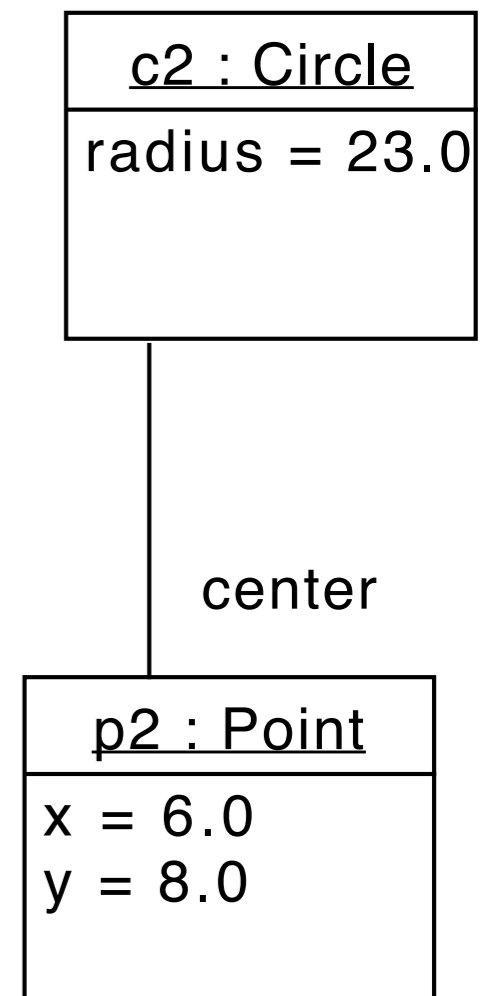
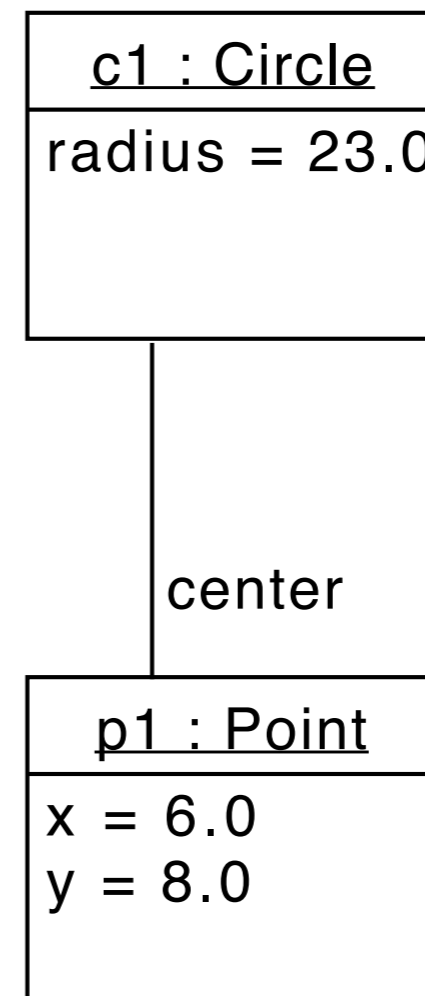
Objektdiagramm

- Zeigt das modellierte System zu einem Zeitpunkt
- Enthält Instanzen von Klassen und Assoziationen



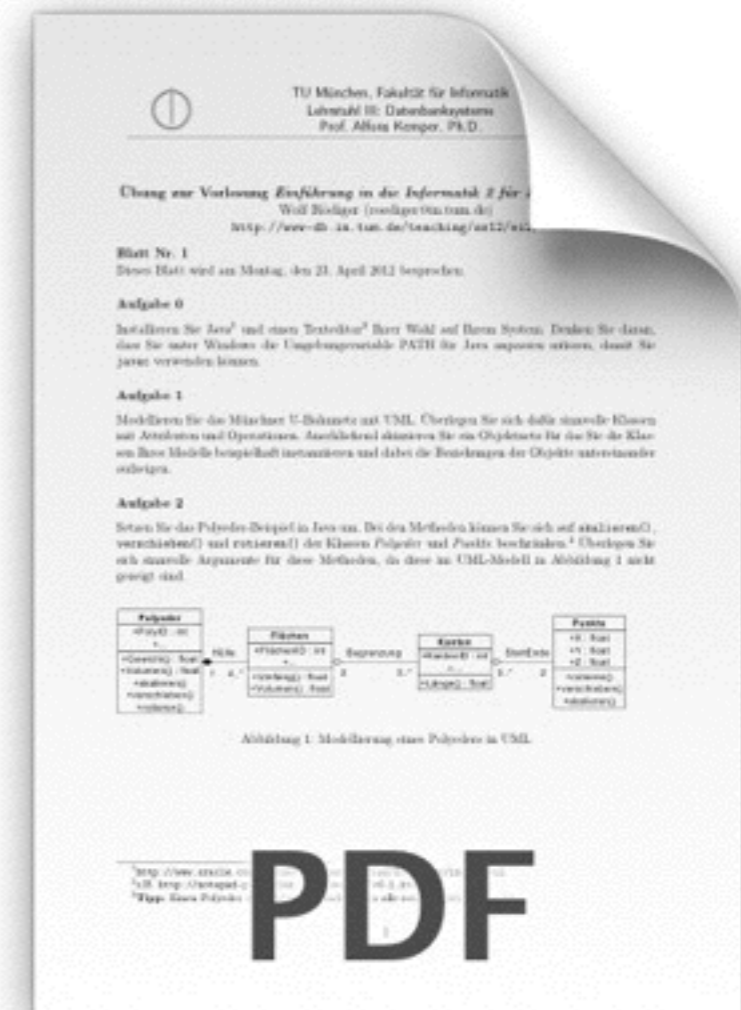
Objektdiagramm

- Zeigt das modellierte System zu einem Zeitpunkt
- Enthält Instanzen von Klassen und Assoziationen

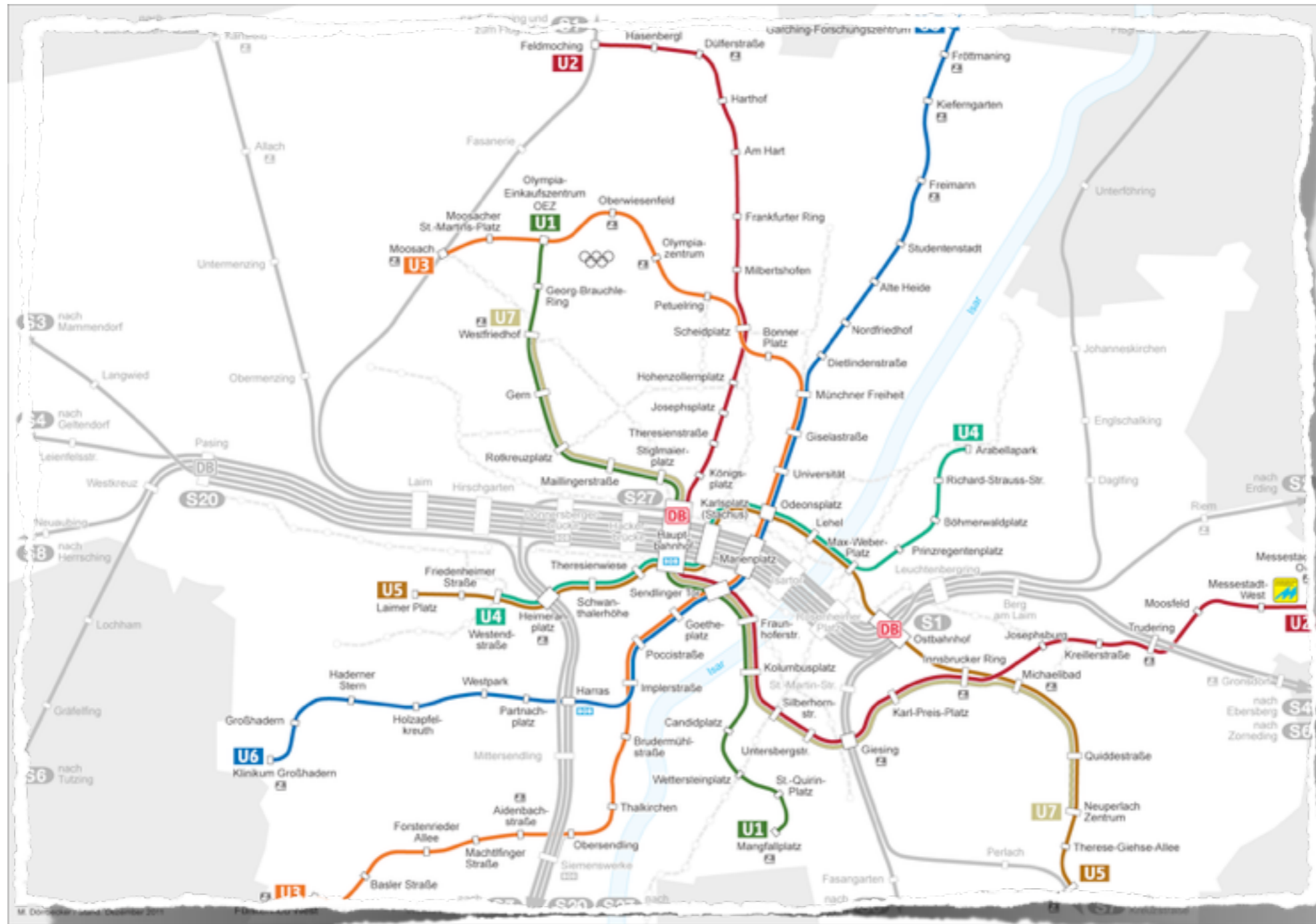


Übungsblatt I

- Verfügbar auf der Webseite
- Benötigt Java Compiler und Laufzeitumgebung



Aufgabe I



Aufgabe 2

