POLBAN

Jurusan Teknik Komputer dan Informatika

Politeknik Negeri Bandung

Pertemuan 1 Introduction

D3 Kelas 2A/2B

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Outline

- Pengenalan Mata Kuliah Pemrograman Berorientasi Object (Praktikum)
- Pengenalan Java
- Materi Praktikum Pertemuan ke-1

Introduction

- Pemrograman Berorientasi Objek (PBO) praktikum fokus pada pendalaman praktikum fundamental pemrograman berorientasi object menggunakan bahasa Java yang diselaraskan dengan mata kuliah PBO teori.
- Topik Praktikum : *java environment, Fundamental java Programming, Class dan Object, class relationship, inheritance , polymorpishm, abstract class & interface,* Exception, Logging, Debugging*, Java Collection Framework, Java GUI,* Concurrency Thread , Junit
- Pertemuan selama 14 minggu, dengan bentuk pembelajaran tatap muka, eksplorasi, kolaborasi, penugasan terstruktur serta belajar mandiri.

Prasyarat / prerequisites

- Dasar-dasar Pemrograman

Topik Pembahasan

- Pertemuan Praktikum
  1. Introduction
  2. Fundamental Java 1
  3. Fundamental Java 2
  4. Class & object 1
  5. Class & object 2
  6. Class Relationship
  7. Inheritance
  8. Polymorphism
  9. Abstract & interface,
  10. Exception, Logging, Debugging
  11. Java Collection Framework (JFC)
  12. Concurrency Thread
  13. Component Test with Swing
  14. Unit Testing

Mekanisme Perkuliahan

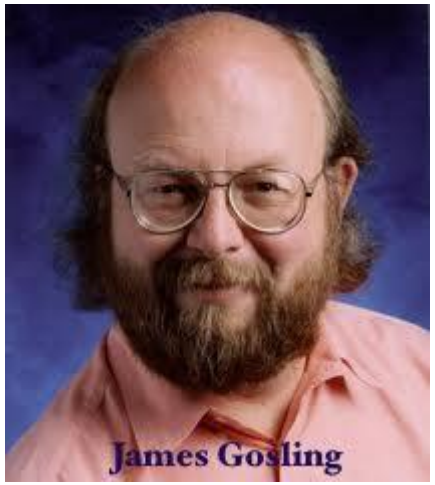
- Pemaparan Materi praktikum
- Kasus berdasarkan topik yang dibahas di setiap Minggu
- Challange
- Diskusi
- Demonstrasi

References

- Horstmann, Cay S. ”Core Java Volume I-Fundamentals Ten Edition”,PrenticeHall,2015

Materi Praktikum

Introduction Java



- Java - The new programming language developed by Sun Microsystems in 1991.
- Java goes back to 1991, when a group of Sun engineers, led by Patrick Naughton and James Gosling , wanted to design a small computer language that could be used for consumer devices like cable TV switchboxes.
- Originally called Oak by James Gosling, one of the inventors of the Java Language.
- Java Authors: James Gosling and others

Introduction Java

Java White paper Buzzword

- Simple
  - Cleanup Version of C++ syntact
  - No need for header files, pointer arithmetic, structure union, operator overloading, virtual based class and soon.
- Object Oriented
  - Simply stated, object-oriented design is a programming technique that focuses on the data (= objects) and on the interfaces to that object
- Portable
  - The libraries that are a part of the system define portable interfaces

Introduction Java

- Distributed
  - Java has an extensive library of routines for coping with TCP/IP protocols like HTTP and FTP. Java applications can open and access objects across the Net via URLs with the same ease as when accessing a local file system.
- Multithread
  - benefits of multithreading are better interactive responsiveness and real-time behavior.
- Dynamic
  - In a number of ways, Java is a more dynamic language than C or C++. It was designed to adapt to an evolving environment, Libraries can freely add new methods and instance variables without any effect on their clients.

Java Jargon

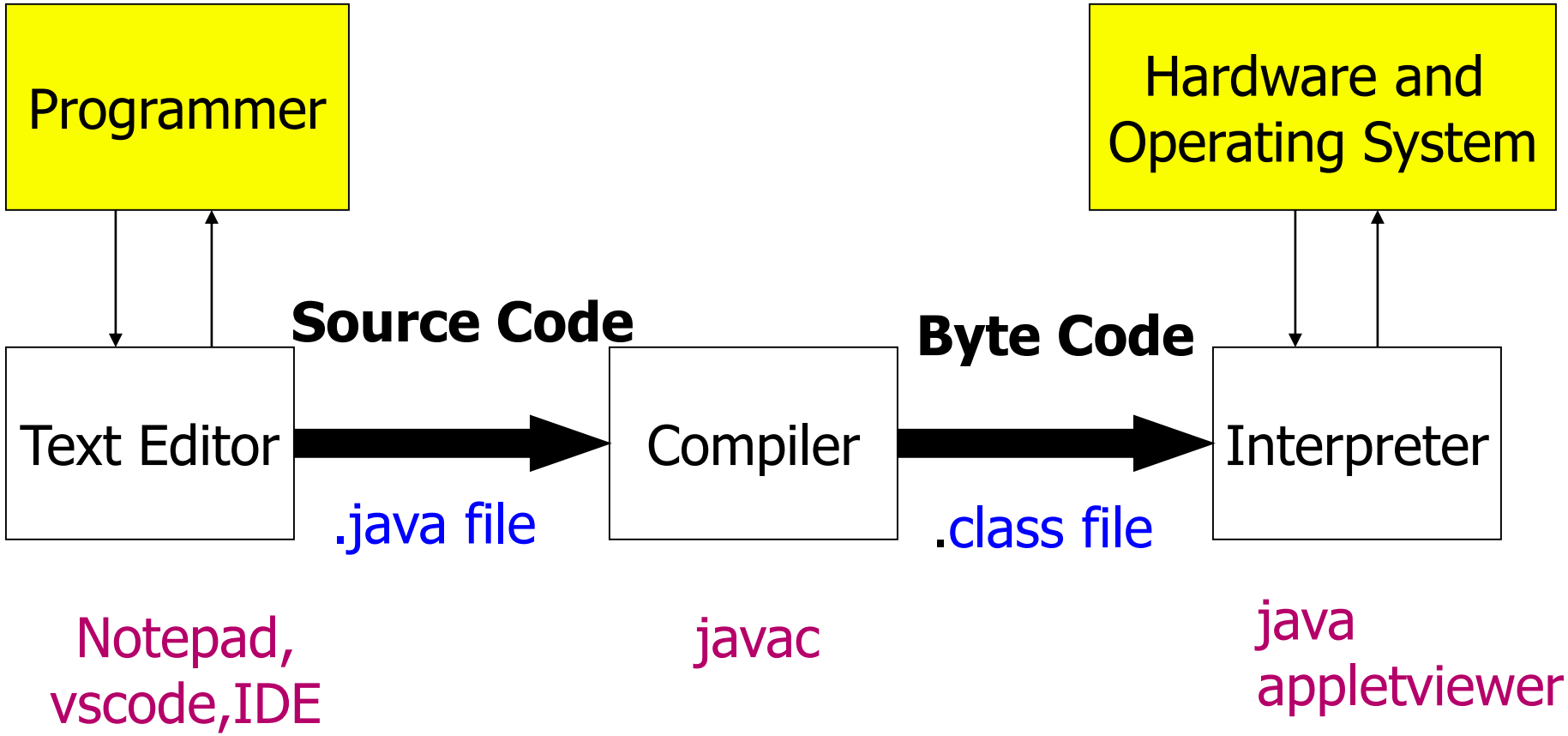
Table 2.1 Java Jargon

Name	Acronym	Explanation
Java Development Kit	JDK	The software for programmers who want to write Java programs
Java Runtime Environment	JRE	The software for consumers who want to run Java programs
Server JRE	—	The software for running Java programs on servers
Standard Edition	SE	The Java platform for use on desktops and simple server applications
Enterprise Edition	EE	The Java platform for complex server applications
Micro Edition	ME	The Java platform for use on cell phones and other small devices
Java FX	—	An alternate toolkit for graphical user interfaces that is included in Oracle's Java SE distribution
OpenJDK	—	A free and open source implementation of Java SE. It does not include browser integration or JavaFX.
Java 2	J2	An outdated term that described Java versions from 1998 until 2006
Software Development Kit	SDK	An outdated term that described the JDK from 1998 until 2006
Update	u	Oracle's term for a bug fix release
NetBeans	—	Oracle's integrated development environment

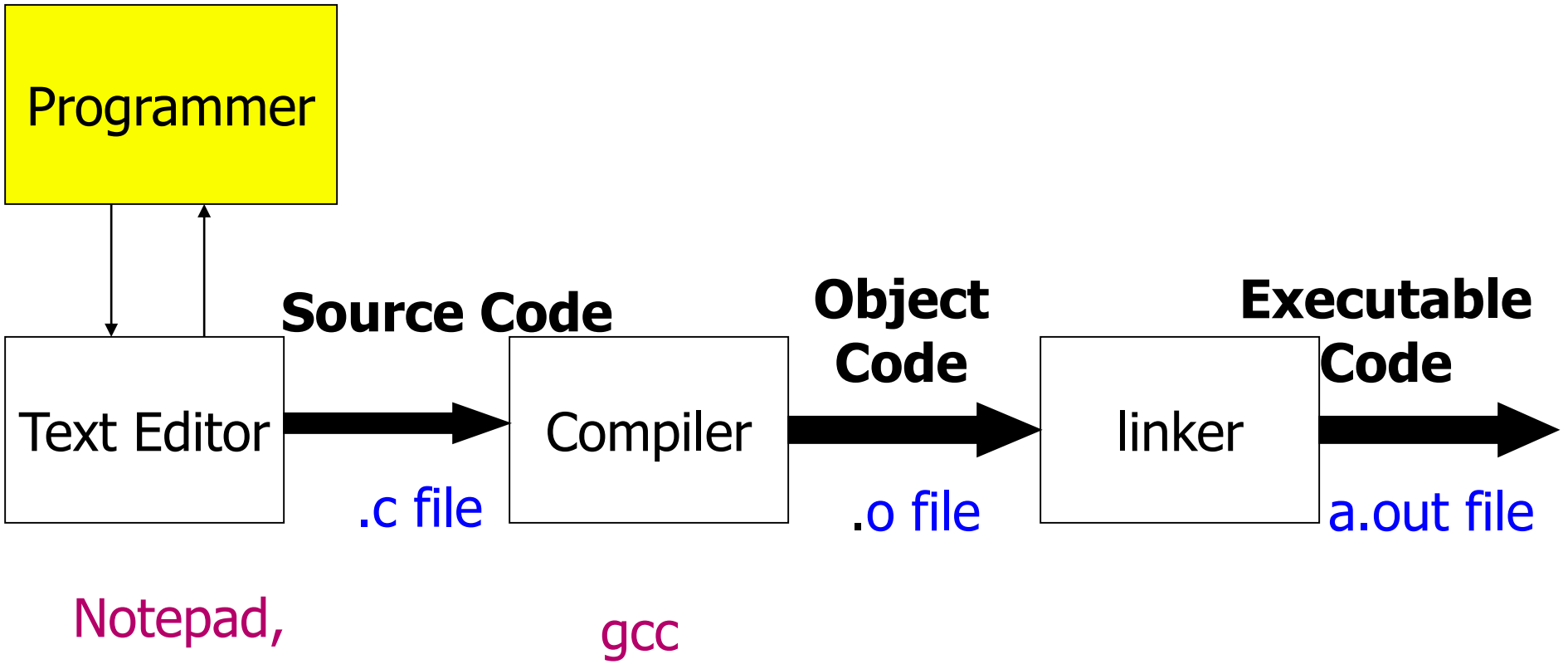
Evolution of Java

Version	Year	New Language Features	Number of Classes and Interfaces
1.0	1996	The language itself	211
1.1	1997	Inner classes	477
1.2	1998	The `strictfp` modifier	1,524
1.3	2000	None	1,840
1.4	2002	Assertions	2,723
5.0	2004	Generic classes, "for each" loop, varargs, autoboxing, metadata, enumerations, static import	3,279
6	2006	None	3,793
7	2011	Switch with strings, diamond operator, binary literals, exception handling enhancements	4,024
8	2014	Lambda expressions, interfaces with default methods, stream and date/time libraries	4,240

Java is Compiled

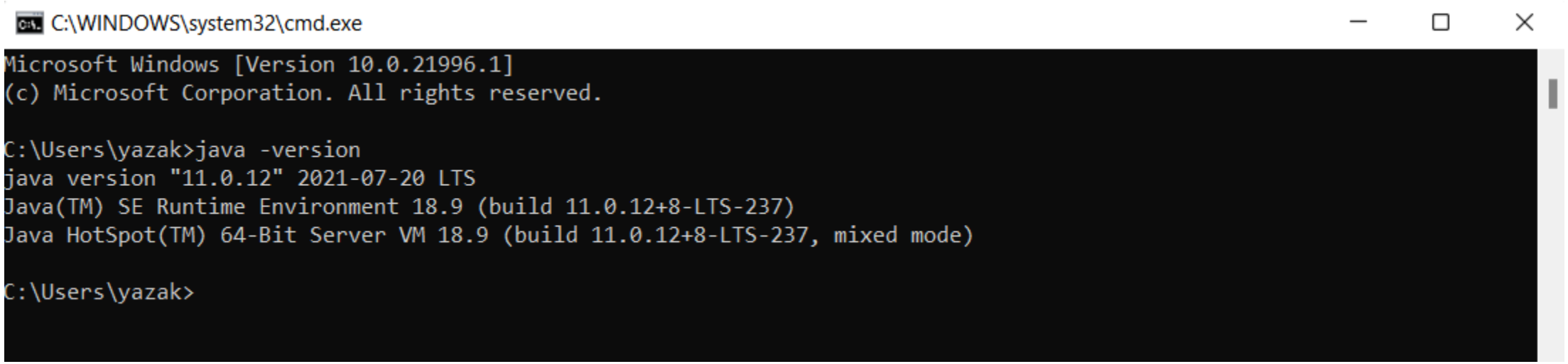


Compiled Languages



1. Setup Software Environment

- Install Java Development Kit (JDK11)
- Setting JDK
  - Ikuti petunjuk pada 2.1.2 Setting up JDK
- Test pada command prompt *Java -version*



2. Using Command Line Tools

- Listing 2.1 Welcome.java

  javac welcome.java

  java welcome

Listing 2.1 Welcome/Welcome.java

```
1  /**
2   * This program displays a greeting for the reader.
3   * @version 1.30 2014-02-27
4   * @author Cay Horstmann
5   */
6  public class Welcome
7  {
8     public static void main(String[] args)
9     {
10       String greeting = "Welcome to Core Java!";
11       System.out.println(greeting);
12       for (int i = 0; i < greeting.length(); i++)
13          System.out.print("=");
14       System.out.println();
15    }
16 }
```

3. Soal analisis 1

```
public class Soal1 {
    public static void main(String[] args) {
        byte angka1 = 125;
        byte angka2 = 6;
        byte hasil = (byte) (angka1+angka2);

        System.out.println("Hasil 1 "+hasil);
    }
}
```

- Berapa output yang keluar ? Tuliskan alasan dan referensinya

4. Soal Analisis 2

- Bagaimana output setelah dijalankan ?
- Tuliskan Konsep yang digunakan

```
public class Soal2 {

    public static void main(String[] args) {
        int i = 42;
        String s = (i<40)?"life":(i>50)?"universe":"everything";
        System.out.println(s);
    }
}
```

5. Using an Integrate Development Environment

- Gunakan Netbeans/Eclipse
- Run Listing 2.1 Welcome.java