MAT 335E
Programming Algorithms

2023-2024 Fall

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CONTACT INFORMATION

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COURSE INFORMATION

References & Supplementary Materials for Matlab

- Java How To Program, International 10/E", Paul Deitel ve Harvey Deitel, Pearson Higher Education
- Murach's Java Programming", 4 Edition, Joel Murach, Mike Murach & Associates Inc.
- http://www.oracle.com/technetwork/java/index.html
- http://www.oracle.com/technetwork/java/javase/documentation/index.html

COURSE INFORMATION

Attendence Policy

/* Course attendance : 70% attendence is compulsory.

Lab attendance is required */

Grading

Course Grading : Curve

%15 Term Project

%15 Laboratory Works

%30 Midterm Exam

%40 Final Exam

COURSE INFORMATION

Term Project and Laboratory Works

- Submit your project in soft copy through course web page. (http://www.ninova.itu.edu.tr)
- Project must be done individually by yourself.
- Grading will be done based on correctness and clarity of the code and proper execution of the program.

COURSE OBJECTIVES

Term Project and Laboratory Works

- To teach object oriented approach to computer program development using Java language.
- To enhance knowledge on Java Technologies
- To improve ability of analytical thinking
- To develop problem solving skills.
- To develop skills in constructing an algorithm.

TOOLS USED TO ACHIEVE THE OBJECTIVES

- Laboratory sessions held in the computer labs, homework problems requiring computer and software use.

- Term Project: project assignment will be announced on the web of the course.

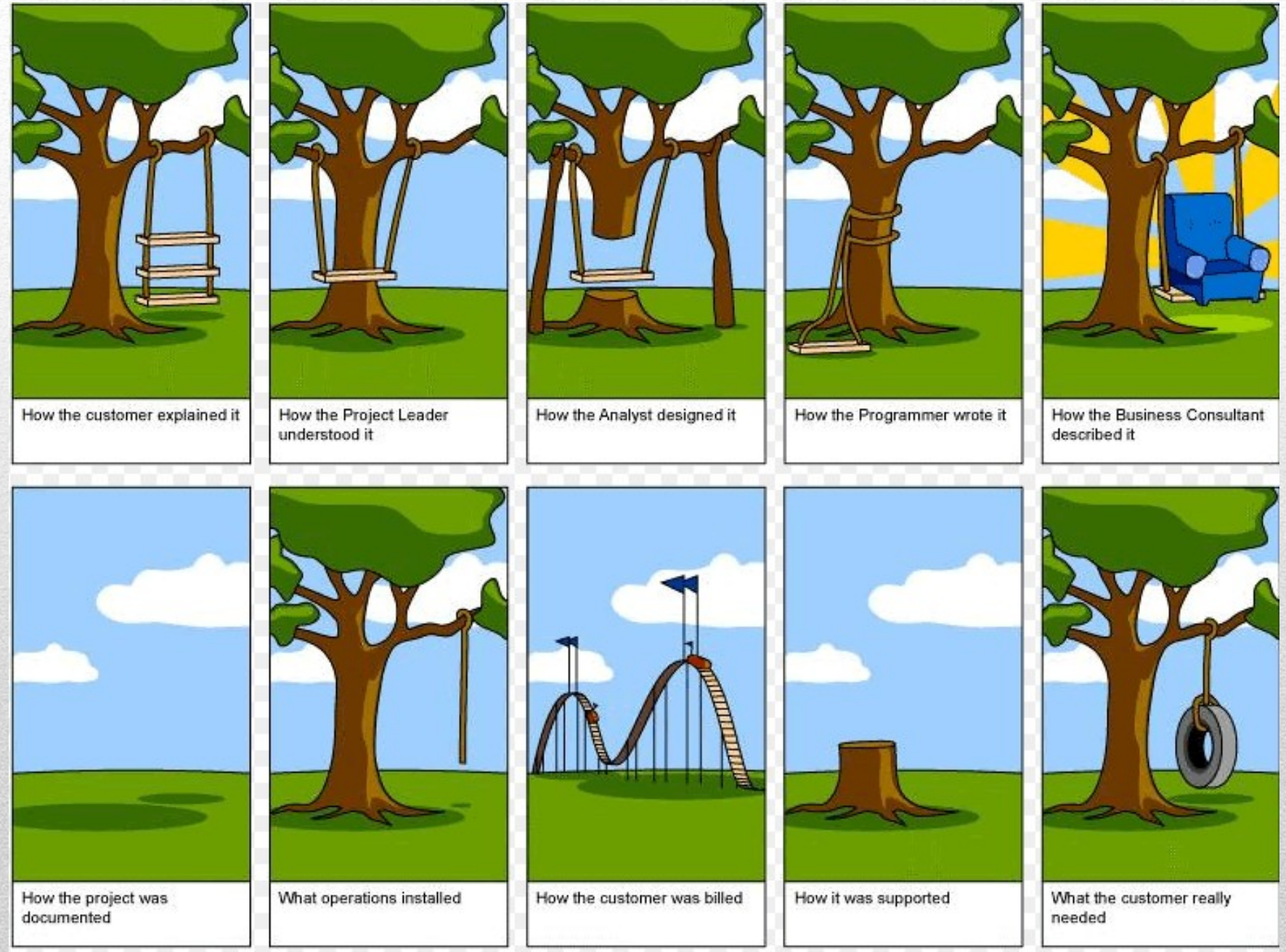
  Late submission will not be accepted.

SYLLABUS

Lecture	Topics
1	Introduction to Computers, the internet and Java
2	Object Oriented Programming
3	Simple Input and Output
4	Data Types and Operators, String and Characters and UML
5	Introduction to Classes, Objects, Methods
6	Communication Between Objects
7	Control Statements
8	Midterm Exam

SYLLABUS

Lecture	Topics
9	Arrays and ArrayLists
10	Exception Handling
11	Inheritance
12	Polymorphism
13	Graphical User Interface (GUI)
14	Project Presentation


How the customer explained it
How the Project Leader understood it
How the Analyst designed it
How the Programmer wrote it
How the Business Consultant described it
How the project was documented
What operations installed
How the customer was billed
How it was supported
What the customer really needed

Software Development Life Cycle(SDLC)

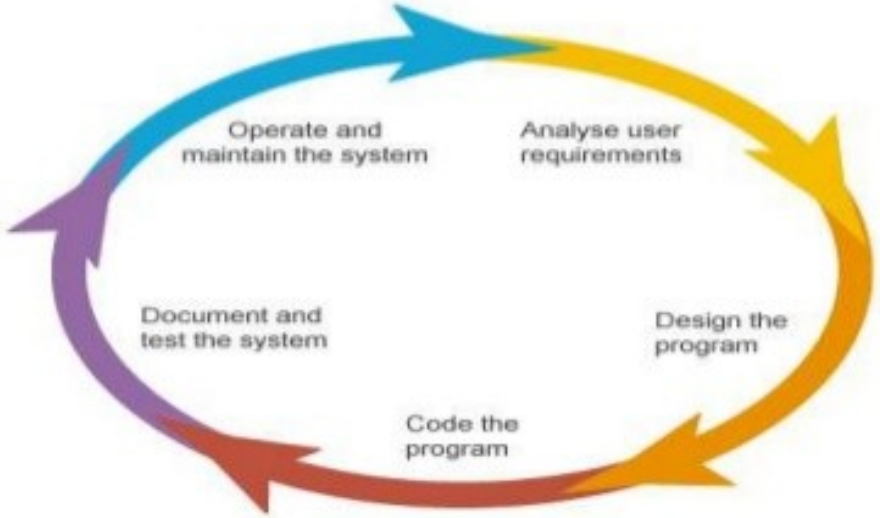


Fig: Software Development Life Cycle(SDLC)

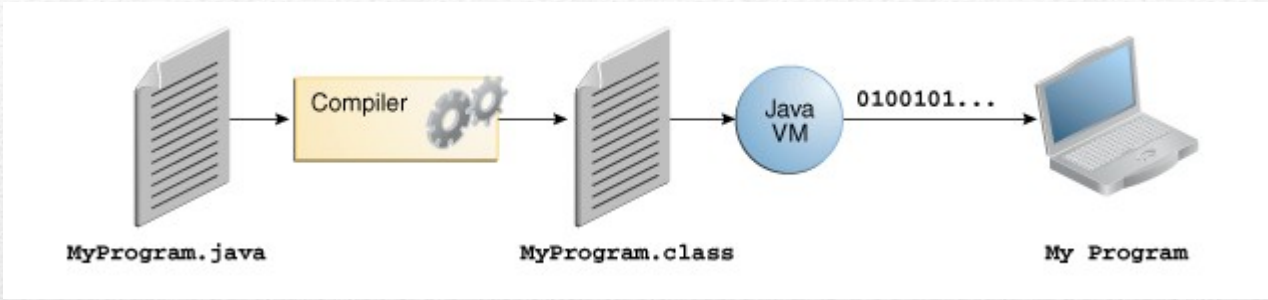
- Requirements Gathering and Analysis
- Design
- Testing
- Implementation
- Operation and Maintenance

JAVA is platform independent with the help of JVM

- In the Java programming language, all source code is first written in plain text files ending with the .java extension. You can write it in any notepad or text editor. Those source files are then compiled into .class files by the javac compiler.

- A .class file does not contain code that is native to your processor; it instead contains bytecodes — the machine language of the Java Virtual Machine1 (Java VM). The java launcher tool then runs your application with an instance of the Java Virtual Machine.

JAVA is platform independent with the help of JVM



- A Java VM (Virtual Machine) is available on many different operating systems, the same .class files are capable of running on Microsoft Windows, the Solaris™ Operating System (Solaris OS), Linux, or Mac OS. Some virtual machines,

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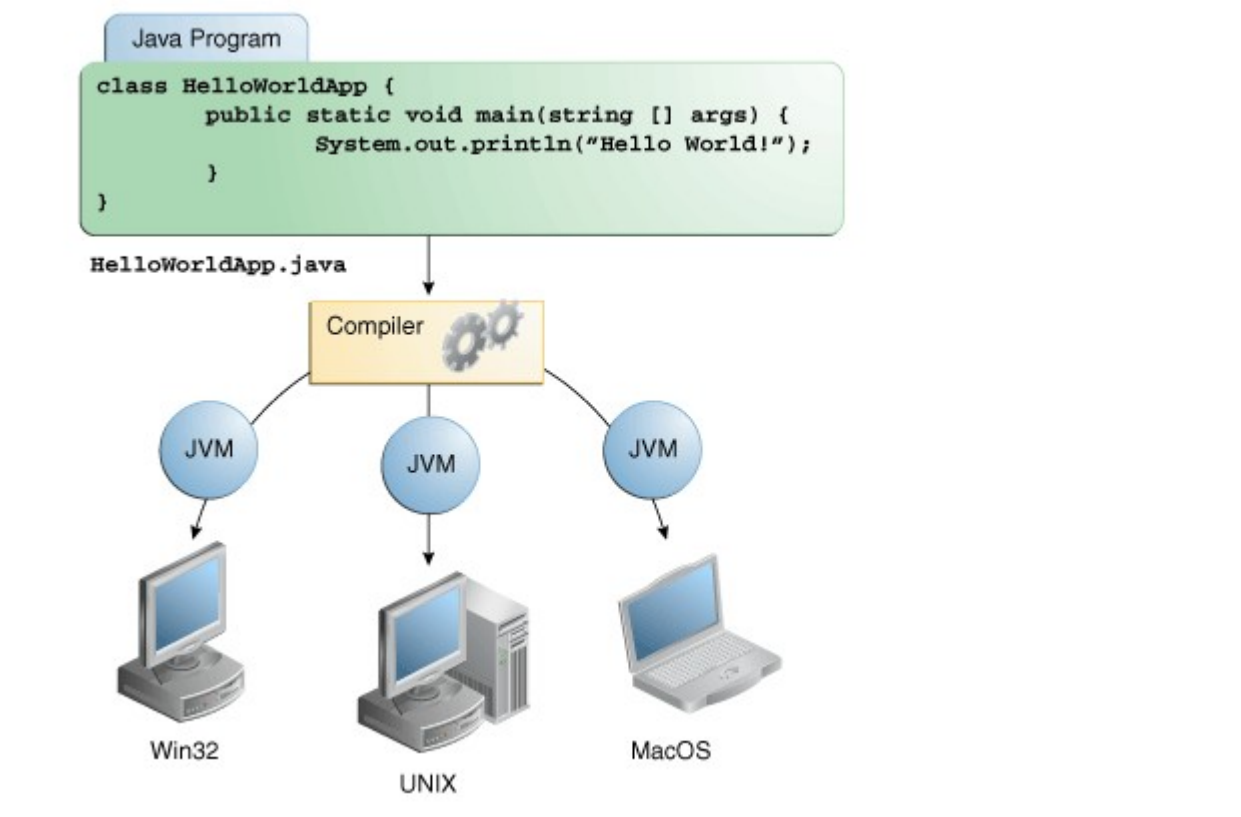
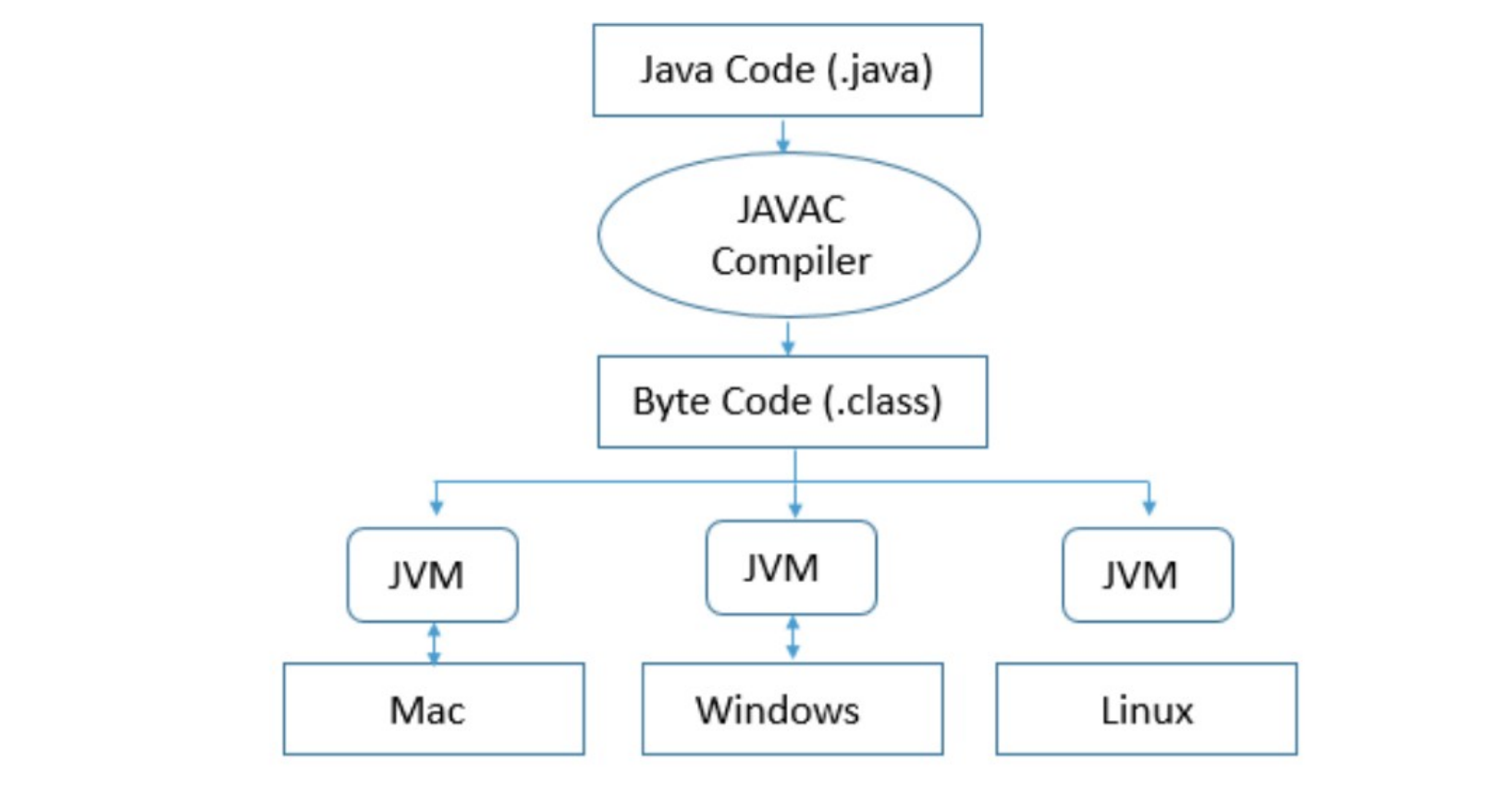


JAVA is platform independent with the help of JVM



JAVA is platform independent with the help of JVM

- When you compile Java programs using javac compiler it generates bytecode.
- We need to execute this bytecode using JVM (Java Virtual machine)
- Then, JVM translates the Java bytecode to machine understandable code.

The Java Development Kit (JDK)

- The Java Development Kit (JDK) is one of three core technology packages used in Java programming, along with the JVM (Java Virtual Machine) and the JRE (Java Runtime Environment). It's important to differentiate between these three technologies, as well as understanding how they're connected:
- The JVM is the Java platform component that executes programs.
- The JRE is the on-disk part of Java that creates the JVM.
- The JDK allows developers to create Java programs that can be executed and run by the JVM and JRE.

Integrated development environment (IDE)

- An IDE, or integrated development environment, is software that provides a cohesive set of tools for developing applications.

- The three IDEs most often chosen for Java development are:

➔ Eclipse

➔ NetBeans

➔ IntelliJ IDEA