

CISC 3120

C02: Overview of Software Development and Java

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Outline

- Brief introduction to software development process
- Brief introduction to history of Java
- Writing simple Java program (from command line)
 - Review concepts of class, object
 - Text-based application user interface
- Assignments

Develop Software Applications

- Apply engineering principles and scientific techniques to software development
- Software engineering

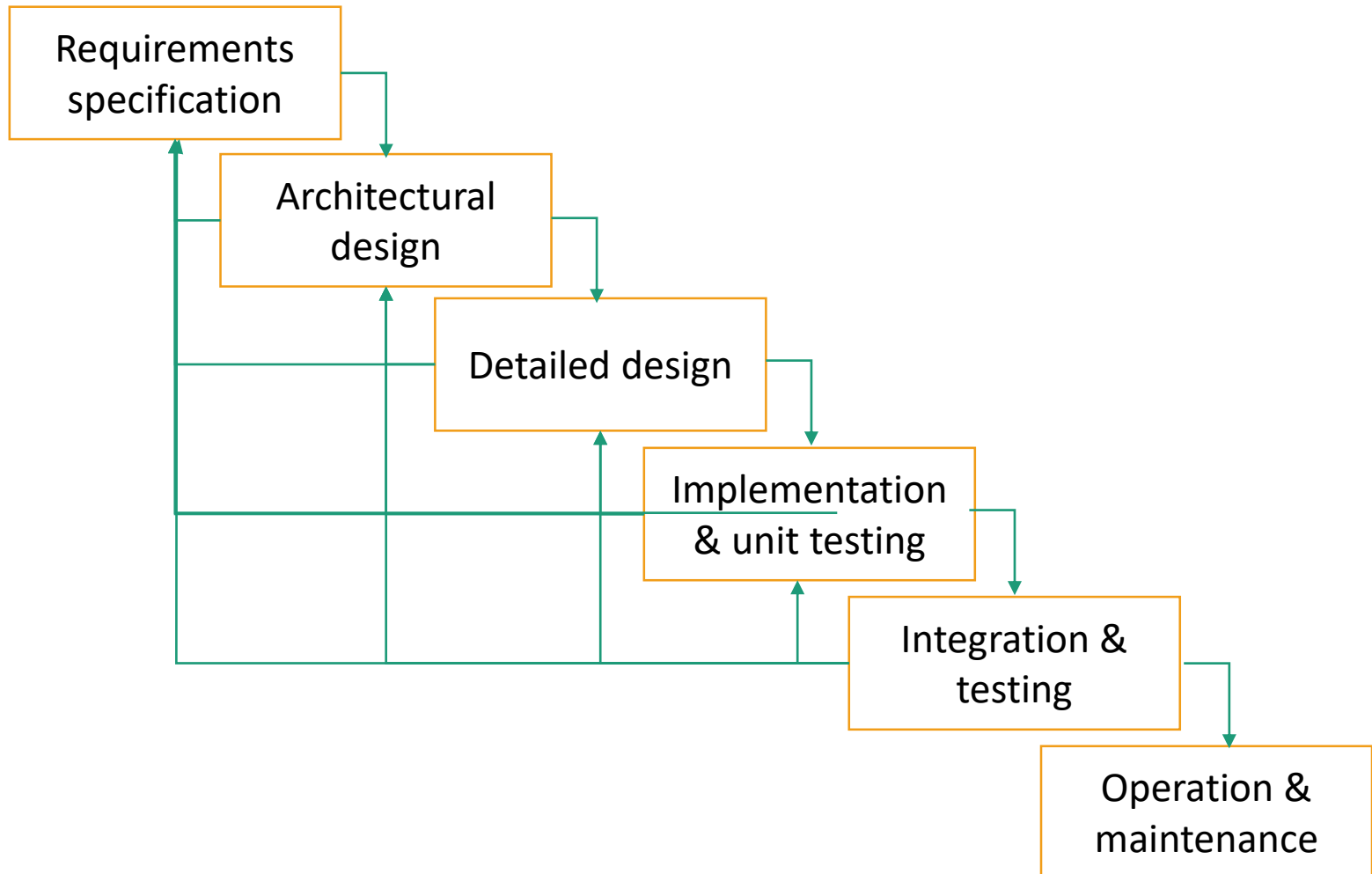
Main Parties in Software Development

- Two main parties: customers, designers
 - Real world scenarios can be more complicated about who the customers and designers are

Software Life Cycle

- Main activities
 - Requirement analysis
 - Architectural specification
 - Detailed specification
 - Implementation and unit testing
 - Integration and testing
 - Operation and maintenance

Waterfall Model



Lots of Documentation



Software Development Process

- Waterfall vs. Spiral vs. Agile



Validation and Verification

- Validation
 - Are we building the right product?
- Verification
 - Are we building the product right?
- Testing

In CISC 3120 ...



- Projects
 - The instructor is your customer
 - You and your team members are the designers
 - You deliver a verified product to the customer
- How does the software life cycle fit in?
- Learn to design and develop applications in Java

Java

- An Object-Oriented Programming language *after C++*
- Designed for devices, later for the Web
- "Write once, run anywhere"
- Java Virtual Machine (JVM)



Writing Java Programs

- Create Java source code
 - Use a text editor (e.g., notepad) or an IDE (e.g., Eclipse)
- Compile Java source code to generate Java byte code
 - Use javac to compile the Java source code
- Run Java byte code in Java Virtual Machine
 - Use java to run the Java byte code program

The "Hello, World" Java Program

Create the HelloWorld.java file

```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello, World");  
    }  
}
```

Compile and Run

- Without using any IDE
- From the command line:

- Compile

```
javac HelloWorld.java
```

- Run

```
java HelloWorld
```

The Beer Song

- A little big program that prints out the lyrics of the song "99 bottles of beer".

Command Line Arguments

- What if I want to start at 10 beers?

Different iteration mechanisms?

- For-loop
- Do-while-loop

Questions?

- Software development process
- Write your first Java programs

Assignments

- Practice examples to be posted at the class website