Elementary Programming

Software Development High Level Process

EECS1021:
Object Oriented Programming:
from Sensors to Actuators
Winter 2020

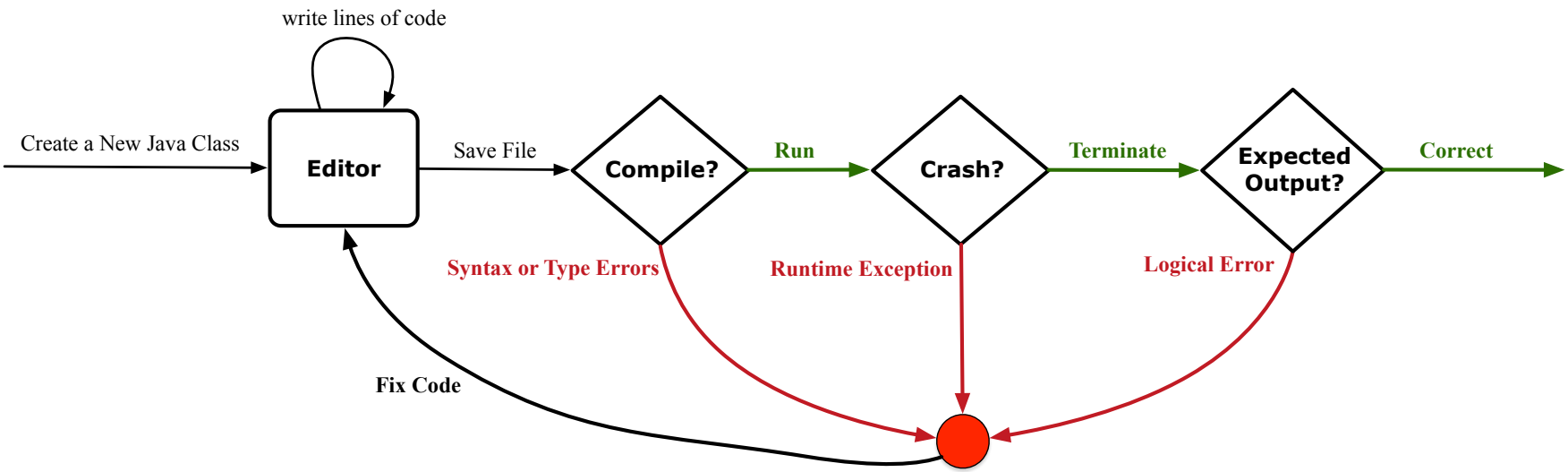
Original slides: DR. CHEN-WEI "JACKIE" WANG
Updates: DR. JAMES ANDREW SMITH

Topics in “Elementary Program’g” series

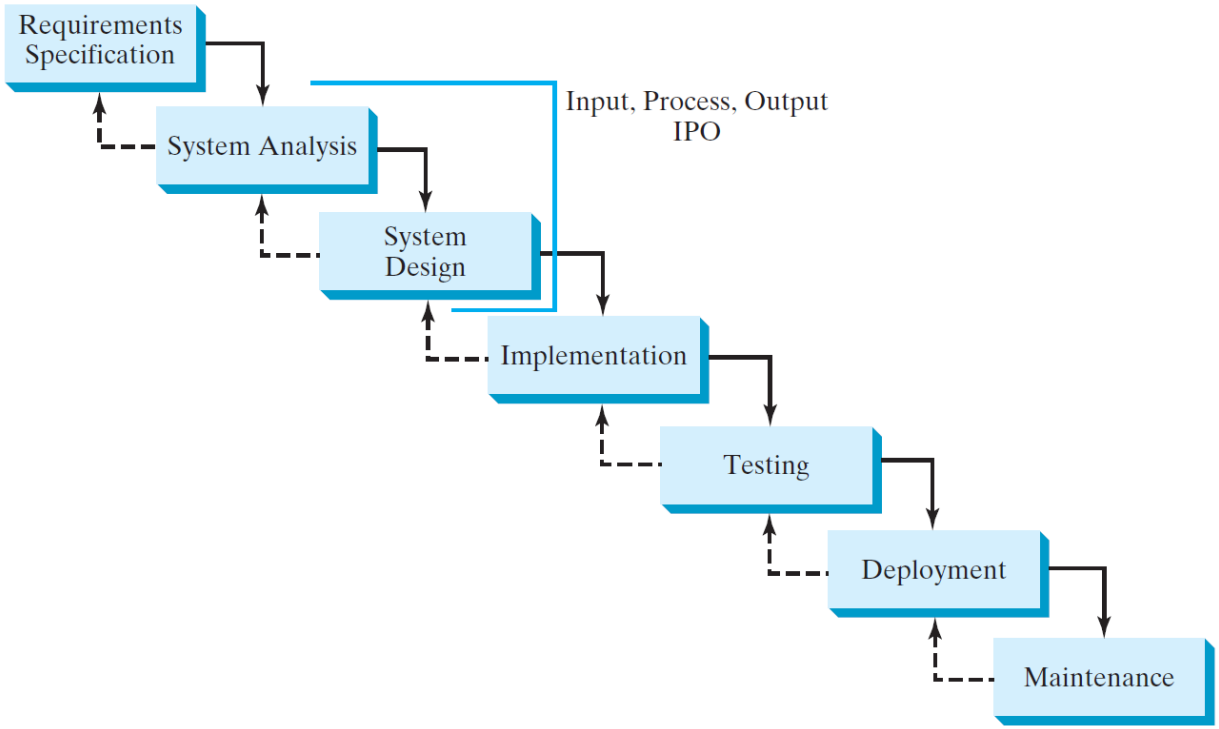
LASSONDE SCHOOL OF ENGINEERING

- Intro to Java (General)
- Operations and Data
- Input & Output (+ Case Study 1)
- More I/O (+ Case Study 2)
- Numbers Types & Conversions
- *Software Development High Level Process*

Development Process: Low Level



Software Development Process: High Level (1/2)



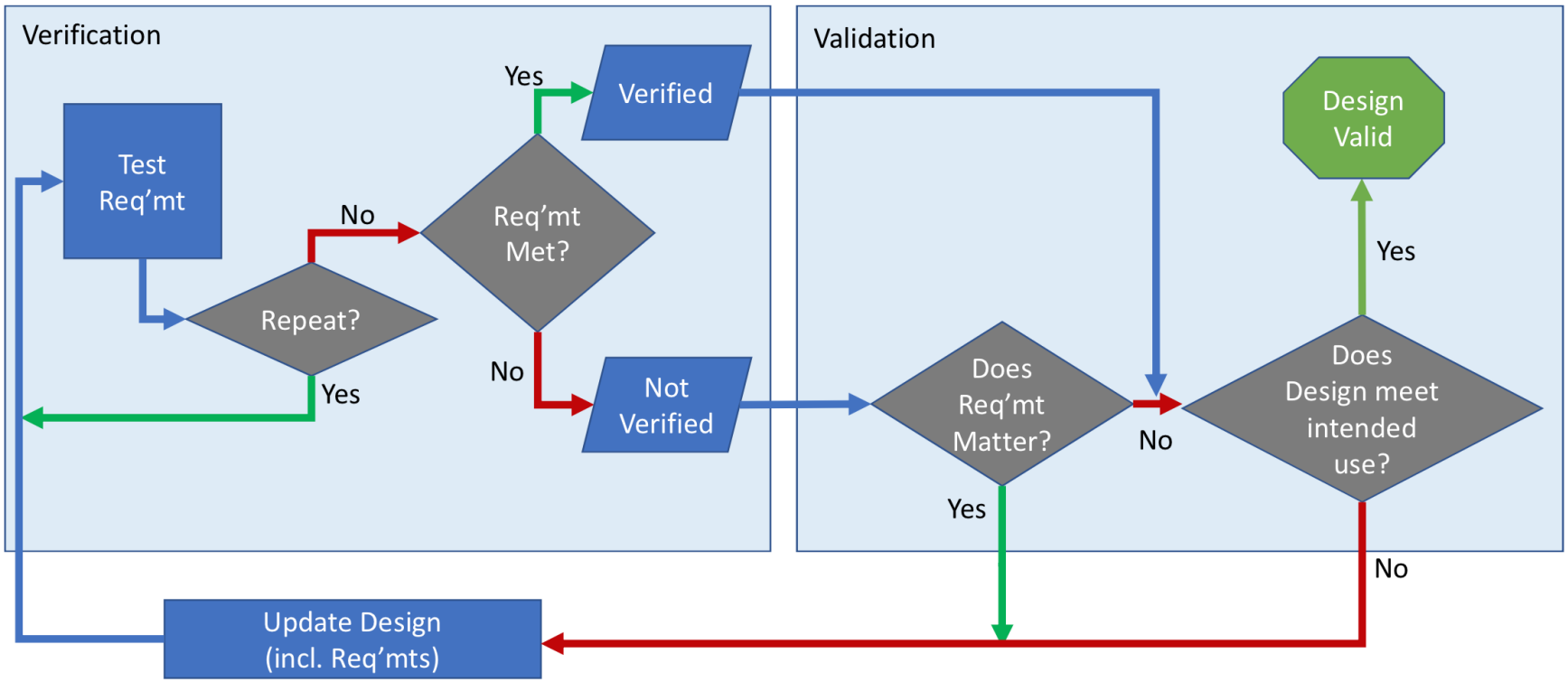
The commonly-used “waterfall” engineering design process can be applied to software development.

Software Development Process: High Level (2/2)

- Customer's desires:
  - *Requirements*: informal and sometimes vague.
  - *Specifications*: formal and purposefully *specific*.
- *System analysis* is the process of understanding the relationships between inputs and outputs.
- *System design* is to break the task into functional units.
- *Implementation* is to translate the system design into programs.
- *Testing* ensures that software meets the requirements.
- *Deployment* makes the software available for use by your customers.
- *Maintenance* is the ongoing process of fixing reported bugs or implementing new functionalities for your software.
- *Decommissioning*is the removal or phasing out the software

Testing: Verification and Validation

Test Verification Vs. Validation



Verification: did I meet the requirements?

Validation: were the requirements important?

Beyond this lecture. . .

- Create sample programs in your Java IDE (IntelliJ, Eclipse, etc.).
- Try out the examples give in the slides.
- See `https://docs.oracle.com/javase/tutorial/java/nutsandbolts/datatypes.html` for more information about data types in Java.