

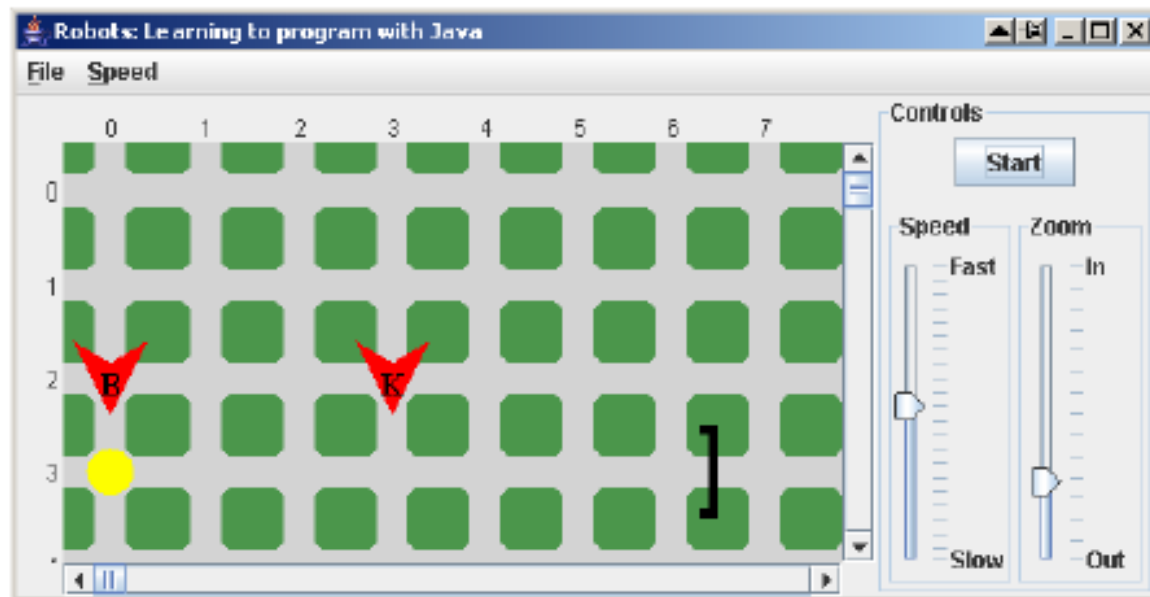
For Monday

- Read Becker, sections 1.6, 1.8, 2.1-2.2
- Recommended practice problems: chapter 1, problems 9-18

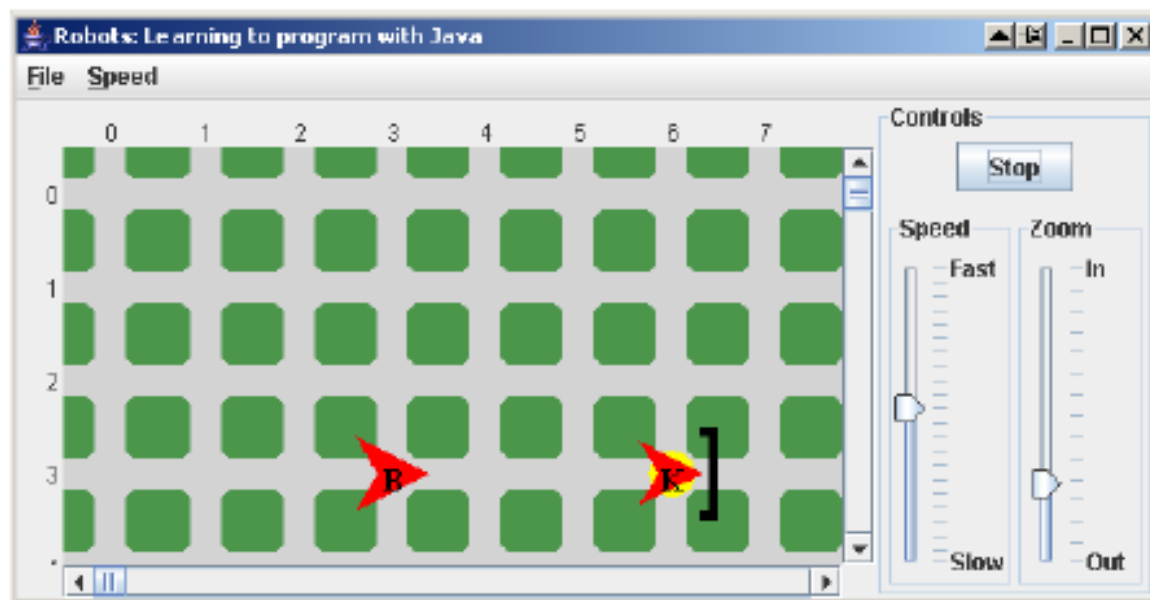
Questions before the quiz?

Quiz

Two robots running a “relay.”



Initial Situation



Final Situation

“B” picks up the baton and takes it to “K”, who finishes the race.

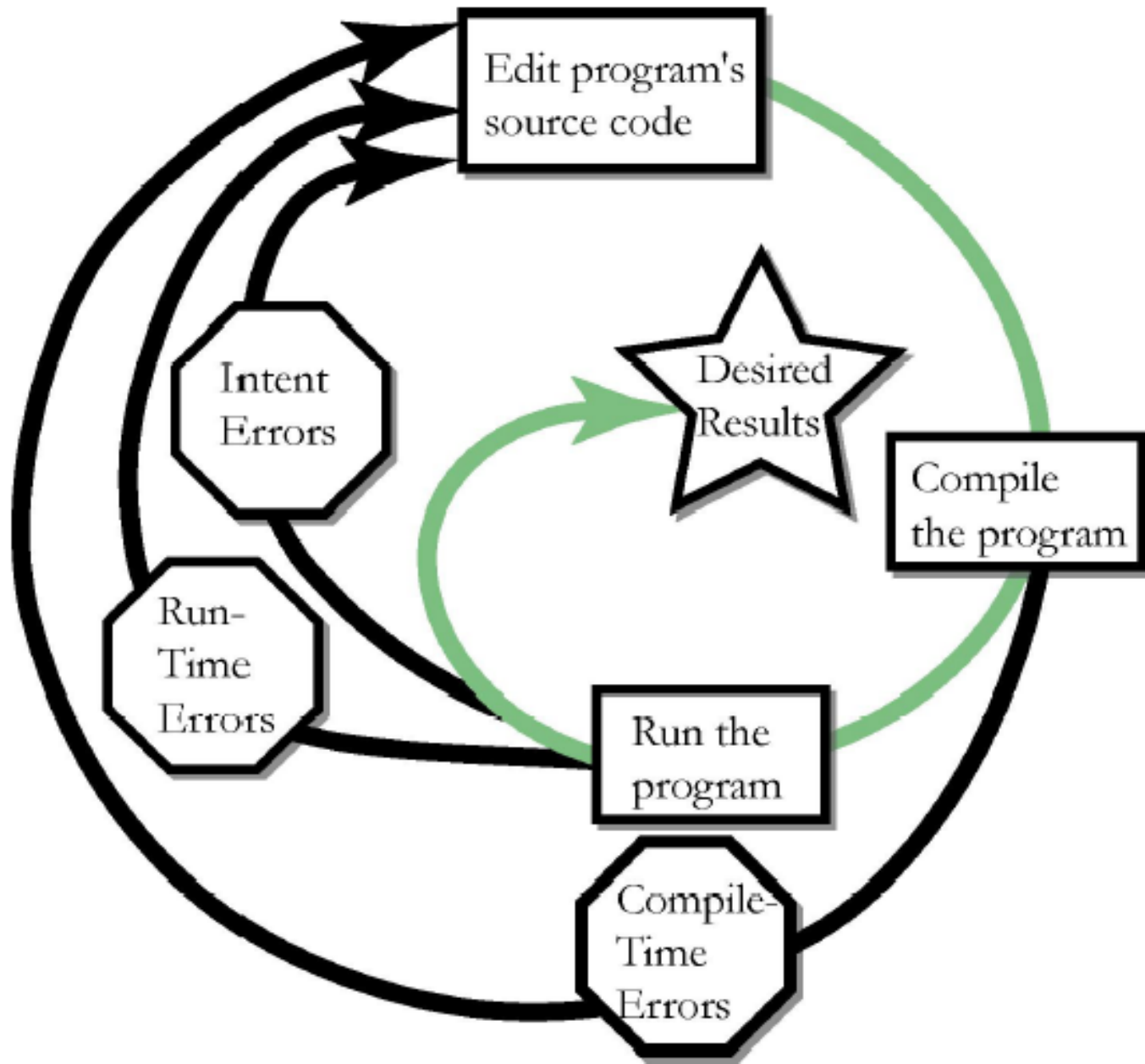
Documentation

- What is documentation?

Sources of Documentation

- www.learningwithrobots.com
- java.sun.com

Programming Process



Errors

- Compile-time errors
 - Also known as syntax errors
- Run-time errors
- Intent errors
 - Also known as logic errors

Compile-time Errors

- Program breaks some rules of Java
- Examples
 - Leaving out parentheses, semi-colons, braces
 - Misspelling words
 - Capitalization wrong (Java is case-sensitive)
- Discovered because the compiler points them out

Run-time Errors

- Program compiles correctly and starts to run by reaches an error state and stops
- Examples:
 - Robot run into a wall
 - Robot tries to put a thing down when it doesn't have one
 - Robot tries to pick something up, but there's nothing there

Intent Errors

- Programs run fine, but doesn't actually work
- What if we forgot to make a robot turn left in the relay race program?
- These are not too hard to recognize and fix in the robot world, but can be quite challenging in other kinds of programs.

Software Patterns

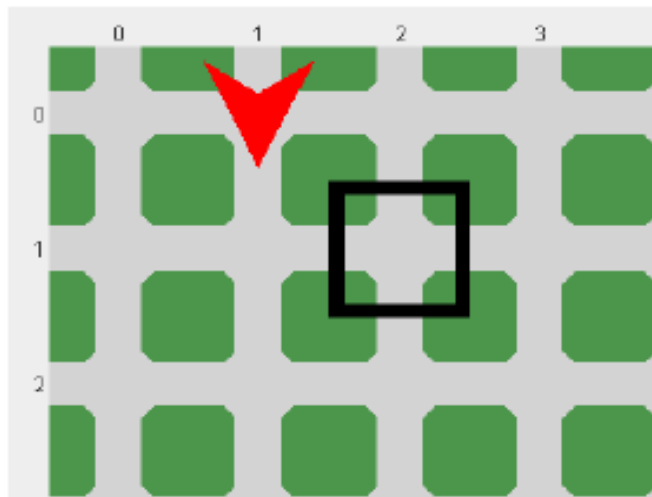
- Intended to help you learn and generalize.
- Not to be skipped over and ignored.

Basic Java Patterns

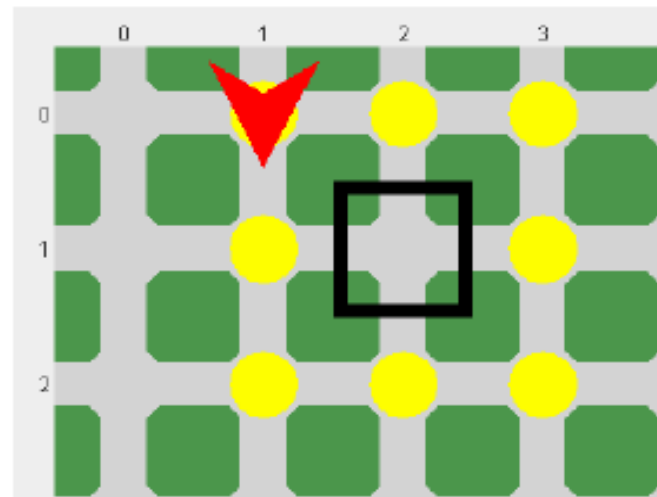
- Java Program Pattern
- Object Instantiation Pattern
- Command Invocation Pattern
- Sequential Execution Pattern

Planting Flowers

- You have a square enclosure. You want to have a robot plant flowers (Things) around the enclosure. See below.



Initial Situation



Final Situation

Questions:

How many walls are there? How are they positioned?

Where do the flowers come from?

Beyond Robots

- Objects are used in all contexts in Java programs.
- The same patterns are used to develop GUI (Graphical user interface) programs as to develop Robot programs.
- However, the classes we use are different.

Sample Simple GUI

- Use the `JFrame`, `JLabel`, `TextField`, and `TextArea` classes to produce a program that creates a window that looks like a browser window (sort of).

