Welcome to CSSE 220

- We are excited that you are here:
  - Start your computer
  - Pick up a quiz from the back table
    - Answer the first two questions

Course Introduction, Starting with Java

CSSE 220—Object-Oriented Software Development

Rose-Hulman Institute of Technology

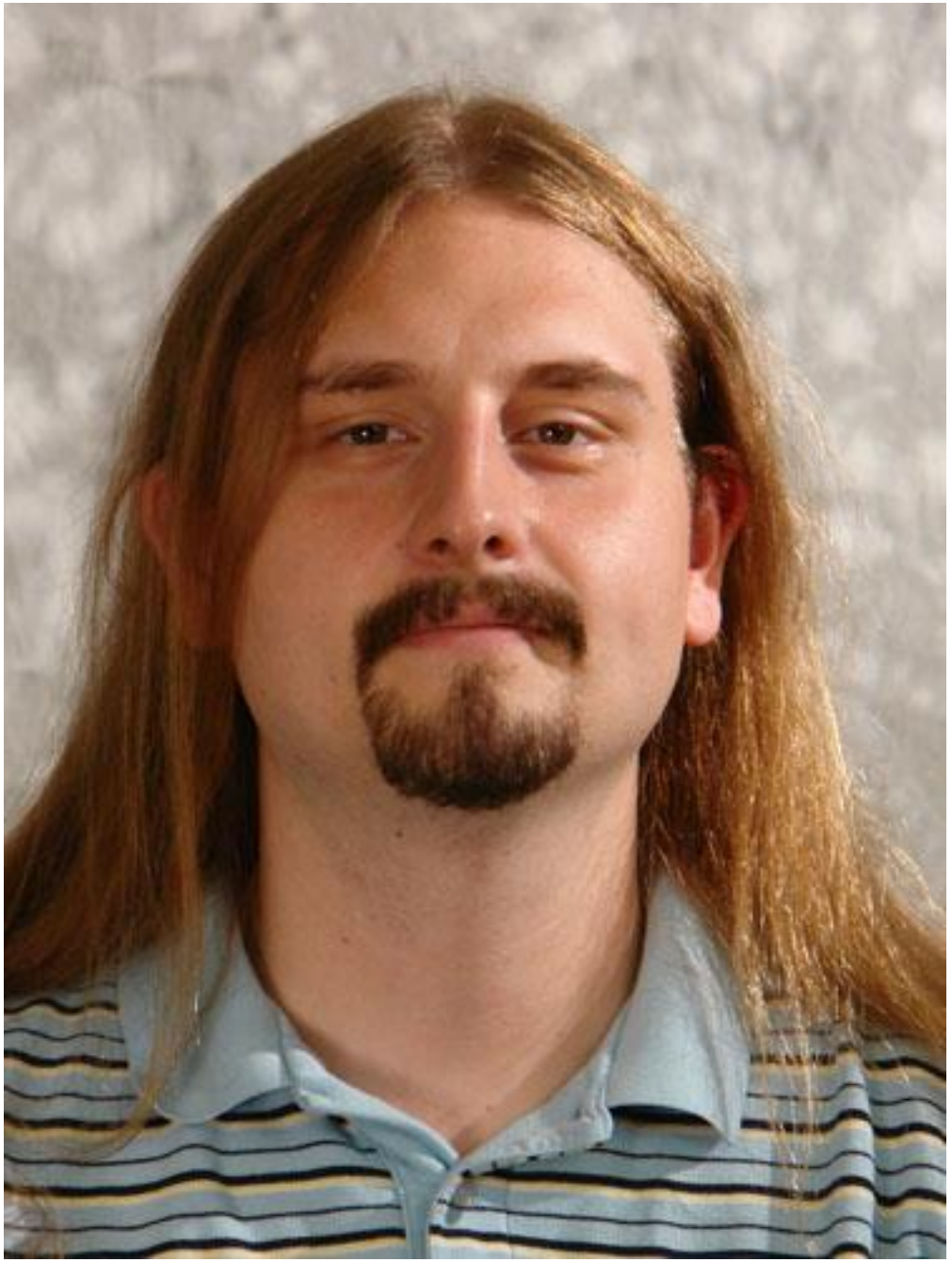
Agenda

- Instructor intro
- A few administrative details
- Verify Eclipse and Subclipse configuration
- Java *vs*. Python
- Examine and modify simple Java programs

Instructor Info

- Aaron Wilkin

7UP
JAY GOULD
STAGE
SPONSORED BY
HAYS
CRATE



Instructor Info (continued)

- On Campus every day
  - Office Hours (F203)
    - …
  - Email – wilkin@rose-hulman.edu
  - If you need another time, let me know and I'll do my best

Daily Quizzes

- I expect you to answer every question.
  - Including the last two, at least put N/A
- Stop me if I don't cover a question!

Q1 - 2

A Tour of the On-line Course Materials

- Moodle
- Schedule
- Syllabus

Q3 – 5

Programming is not a spectator sport

- And neither is this course
- Ask, evaluate, respond, comment!
- Interrupt me! Even with statements like, *“I have no idea what you were just talking about.”*
- I do not intend for classroom discussions to go over your head. Don't let them!

Ok, let’s write our first Java program!

- Hello world

Opening Eclipse

- Start Eclipse
  - Go to C:\Program Files\eclipse
  - Double-click “eclipse.exe”
- When prompted for the workspace, enter:
  - C:\EclipseWorkspaces\csse220
- If not prompted for the workspace, after Eclipse loads:
  - Click File → Switch Workspaces → Other
  - Enter path above

Select Perspective

- Look at the top-right corner of Eclipse
- If “Java” is selected, do nothing and wait for next slide
- Otherwise:
  - Click Window → Perspective → Other…
  - Select “Java”
  - Click OK

SVN Repositories Window

- You can also display the SVN Repositories Window by doing the following:
  - Click Window → Show View → Other…
  - Expand SVN
  - Select “SVN Repositories”
  - Click OK

Add Your Repository

- Click SVN → "Checkout projects from SVN"
  - Select "Create a new repository location"
- Click Next
- Type the following URL, replace the user in blue with your username:

  http://svn.csse.rose-hulman.edu/repos/csse220-201710-user

  Mine would be:

  http://svn.csse.rose-hulman.edu/repos/csse220-201630-hewner
- Click Next

Checkout Project for Today

- If you received an error at the end of the last slide,
  - let myself or a TA know immediately
  - Use https://svn.csse.rose-hulman.edu/password/ to reset your SVN password
- Otherwise, expand your repository and select "JavaIntro"
- Click Finish
  - Do the same for HW1 now if you'd like, or you can wait and check it out later

Show Package Explorer

- If JavaIntro did not show up in the Package Explorer (defaults to the left):
  - Click Window → Show View → Package Explorer

HelloPrinter.java

- To run a Java program:
  - Right-click the .java file in Package Explorer view
  - Choose **Run As → Java Application**
- Change the program to say hello to a person next to you
- Introduce an error in the program
  - See if you can come up with a different error than the person next to you
- Fix the error that the person next to you introduced

A First Java Program

In Java, all variable and function definitions are inside *class* definitions

main is where we start

```
public class HelloPrinter {

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

}
```

System.out is Java's standard output stream. This is the variable called **out** in the **System** class.

System.out is an *object* from the **PrintStream** class. **PrintStream** has a *method* called **println( ).**

Q6

Introduction to Java

Things Java Has in Common with Python

- Classes and objects
- Lists (but no special language syntax for them like Python)
- Standard ways of doing graphics and GUIs
- A huge library of classes/functions that make many tasks easier
- Nice integration with the Eclipse IDE

Why Java?

- Widely used in industry for large projects
  - From cell phones
    - including smart phones—Android platform
  - To global medical records
- Highlights essential topic of the class – Object Orientation
- Similar to other popular languages C#, Objective-C
- Less complex than C++
- Most popular language according to the TIOBE Programming Community Index [March 2016]

http://www.tiobe.com/index.php/content/paperinfo/tpci/index.html

Interlude: JavaScript and Java

Java is to Javascript as Ham is to Hamster

From Wikipedia (edited, bullets added to enhance PowerPoint readability):

- The change of name to JavaScript roughly coincided with Netscape adding support for Java technology in its web browser.
- The name caused confusion, giving the impression that JavaScript was a spin-off of Java.
- The choice has been characterized by many as a marketing ploy by Netscape to give JavaScript the cachet of what was then the hot new web-programming language.
- It has also been claimed that the language's name is the result of a co-marketing deal between Netscape and Sun, in exchange for Netscape bundling Sun's Java runtime with its then-dominant browser.

Interlude: Wanted: Assistants

- If you have workstudy funding for this year (ask Financial Aid if you aren't sure)
  - We are looking for in-class assistants for CSSE120
  - Up to 6 hours/week typically
  - We will also pay for 1 hour/week training (Monday, 10th hour)
  - Starting rate is $8.50/hour
  - Can lead to grading/helping for upper-level classes and higher pay
  - Talk to your instructor if you are interested, or just show up Monday

Basic Java Functions and Conditionals

- Let’s go through the ConditionalExamples.java file

Q7

What are Types?

- All variables in Java have a “type”
- Describes the data that can be stored in a variable
  - String – text only
  - short/int/long – whole numbers only
  - float/double – numbers with decimals
  - boolean – true or false
  - char – a single text character
- Classes – Class names are also types, let you define your own, more complex, types

Strings

- String myString = “hello”;
- String otherString = new String(“hello2”);

- Java’s way of storing text data
- Has many handy functions like substring, charAt, etc. that you will slowly learn
- But how do you find out about these cool functions?

Java API Documentation

- What's an API?
  - Application Programming Interface

- The Java API on-line
  - Google for: java api documentation 7
  - Or go to: http://download.oracle.com/javase/7/docs/api/
  - Also hopefully on your computer at
    C:\Program Files\Java\jdk1.7.0_9\docs\api\index.html

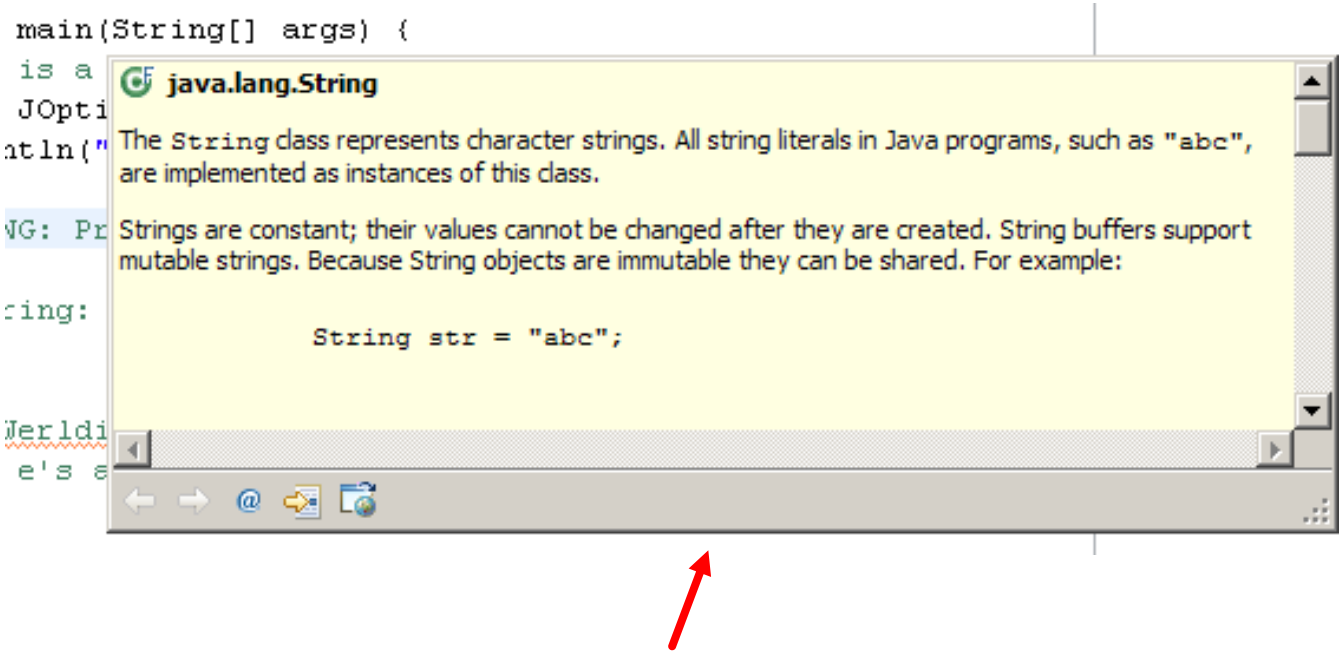
You need the 7 (or 8) to get the current version of Java

Note: Your version may be something other than 7.0_9. We recommend that you bookmark this page in your browser, so you can refer to it quickly, with or without an internet connection.

Q8

Java Documentation in Eclipse

- Setting up Java API documentation in Eclipse
  - Should be done already,
- Using the API documentation in Eclipse
  - Hover text
  - Open external documentation (Shift-F2)



Exercise

- Work on StringProbs

Q9-12

HW1 DUE
BEFORE NEXT SESSION

IT'S ON THE SCHEDULE PAGE.

(IT IS YOUR RESPONSIBILITY TO KEEP UP WITH THE SCHEDULE PAGE)

AS ALWAYS, EMAIL ME IF YOU HAVE ANY QUESTIONS