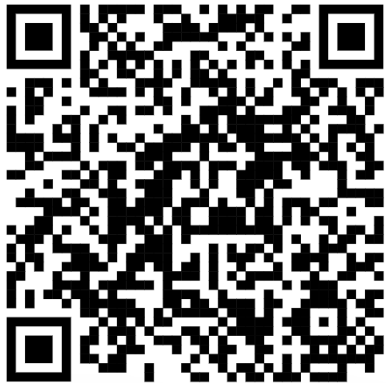
CSE 121 – Lesson 6

Miya Natsuhara

Autumn 2023

Music: 121 23au Lecture Tunes



sli.do #cse121

TAs:	Trey	Christina	Sahej	Vinay	Kriti
	Sebastian	Colton	Anju	Maria	Minh
	Annie	Janvi	Jonus	Shreya	Vivian
	Jasmine	Arkita	Lydia	Andy	Nicole
	Christian	Vidhi	Luke	Nicolas	Simon
	Lucas	Ritesh	Andras	Shayna	Jessie
	Logan	Hibbah	Archit	Hannah	Lydia
	Jacob	Julia	Ayesha	Aishah	Yijia

Announcements, Reminders

- Programming Assignment 1 will be released later today
  - Due Tuesday, October 24
- Resubmission Cycle 0 due tomorrow, Thurs Oct 19
  - Resubmission Cycle 1 will be released tomorrow, due Thurs Oct 26

- **Quiz 0: tomorrow, October 19 during section**

Last Time

- Nested for loops
  - Syntax & conventions: `(i, j, k)`
  - Applications
- Random
  - `nextInt(max)` returns random `int` value [0, `max`)
    i.e. between 0 and `max`-1

```
Random rand = new Random();
```

type name Random creation code

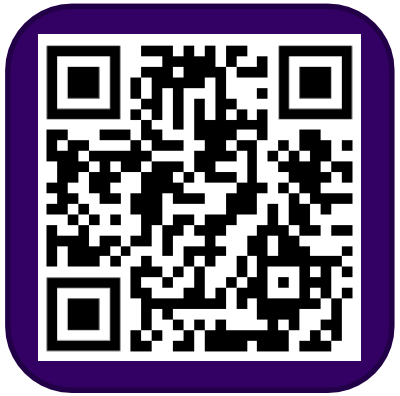
(PCM) Methods

Writing our own *methods* allow us to define our own statements / commands in Java!

- Naming conventions for methods are the same as variables: `camelCased`

```
public static void myMethod() {
    /***
    Your code here
    **/
}
```

Poll in with your answer!



What is the output of this program?

```
public class Example {
    public static void main(String[] args) {
        welcome();
        hello();
        welcome();
        glad();
    }

    public static void hello() {
        System.out.println("hello");
        glad();
    }

    public static void goodbye() {
        System.out.println("goodbye");
        hello();
    }

    public static void welcome() {
        System.out.println("Welcome!!");
        glad();
    }

    public static void glad() {
        System.out.println("Glad you're here.");
    }
}
```

A.

```
Welcome!!
hello
Welcome!!
Glad you're here.
```

B.

```
hello
glad
goodbye
hello
welcome
glad
glad
```

C.

```
Glad you're here.
Welcome!!
Glad you're here.
hello
Glad you're here.
Welcome!!
Glad you're here.
```

D.

```
Welcome!!
Glad you're here.
hello
Glad you're here.
Welcome!!
Glad you're here.
Glad you're here.
```

Scope

- The part of a program where a variable exists.
  - From its declaration to the end of the { } braces
  - Ex: a variable declared in a for loop only exists in that loop
  - Ex: a variable declared in a method exists only in that method

```
public static void example() {
    System.out.println("hello");
    int x = 3;
    for (int i = 1; i <= 10; i++) {
        System.out.print(x);
    }
}
```

i's scope

x's scope

Class Constants

A fixed value visible to the whole program (the entire *class*).

- Value can be set only at declaration; cannot be reassigned (so the value is *constant*)

```
public static final type NAME_OF_CONSTANT = expression;
```

Method Comments!

- Now that we know how to write methods, we have a new form of documentation (using comments) to write.
- Each method you write (except for main) should be accompanied by a short comment that describes what it does.

```
// Randomly generates and prints out a division problem where the
// operands are in the range 1-10 (inclusive), and prints the result
// rounded to two decimal places.
public static void generateDivisionRoundingProblem() {
    Random randy = new Random();
    int num1 = randy.nextInt(10) + 1;
    int num2 = randy.nextInt(10) + 1;
    ...
}
```