



CSC 116 – DISCUSSION 3

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LOGISTICS

Projects - Individual



Project 1 - Weather Calculator - due 06/04/2021 at 11:45pm via Moodle



Project instructions are available at: <https://pages.github.ncsu.edu/engr-csc116-staff/2021-summer/projects/project1/index>

- Project 1 is posted → **due next Friday, 06/04/2021, at 11:45PM**
 - variables, constants, expressions
 - print statements via System.out
 - Scanner objects
 - Math class
 - equality, relational, and logic operators
 - conditional structures
 - debugging techniques, and
 - system testing (black-box testing)

LOGISTICS

- Growth Mindset (0.5 bonus points in total) – Mindset Theory Reflection
 - **due Thursday, 05/27/2021**, at 11:45pm
 - watch a video + write a reflection (150 words max)

Growth Mindset



What is the "Growth Mindset"?



Complete: Mindset Theory Reflection



Complete: Failure is Part of Success Reflection



Complete: Learning New Things Reflection



Complete: Balancing Talent and Effort Reflection



Complete: Characteristics of Success Reflection



Topics

- Constants and Class Constants
- Math class
- Random Numbers
- Why Test? (Intro to Software Testing)
- System Testing

Recap – Constants

- Constants
 - a fixed value
 - Initialized at declaration; cannot be reassigned
 - Naming convention
 - All uppercase with words separated by underscores
 - Visibility/Scope
 - Within method

```
final <type> <name> = <value>;
```
 - Class constants

```
public static final <type> <name> = <value>;
```

Recap – Math class

- Math class
 - java.lang (default package, no import needed)
 - dot notation
 - **<class name>.<method>(<parameters>)**
 - **<class name>.<constant>**

Recap – Random Numbers

- Random Numbers
 - Pseudo-random
 - Two approaches
 - Object via `java.util.*`;
 - `Math.random()`;

Random Numbers

Hint

nextInt(max);
Random int between $[0, (\text{max} - 1)]$

Q: What range of values can the following variables have?

► JAVA

```
1 Random rand = new Random();
2 int b = rand.nextInt(20) + 30; // [30, 49], or 30 – 49
3 int c = rand.nextInt(20 + 30); // [0, 49], or 0 – 49
4 int e = rand.nextInt(10) * 4;  // [0, 36], or 0 – 36
```


Recap – System Testing

- Intro to software testing
 - Types
 - **System testing**
 - Unit and integration testing
 - Strategies
 - Test requirements
 - Test equivalence classes
 - Test boundary values

Test ID	Description	Expected Results	Actual Results
TestName (Test Author)	Preconditions:	Test Outputs	Actual Outputs
Test Type	Test Inputs		

System Testing – eggs.java

1. Prompts the user for the number of eggs in the order
 2. Display the amount owed with a full explanation → "You ordered 27 eggs. That is 2 dozen at \$3.25 per dozen and 3 loose eggs at 45 cents each for a total of \$7.85."
- Test requirements
 - Test equivalence classes
 - Test boundary values

Lab 3

- Due May 26th, at 11:45pm
- Two parts
 - Implement MyTriangle.java to find the area of a triangle given the length of three sides
 - Hint: use the Math.class
 - System test eggs.java

