



CSC116 – DISCUSSION 4

GINA BAI

LOGISTICS

- Pre-lab 4 → extended to **05/27/2021**, at 2:00PM → some more participation activities
- Lab 3 → **due tonight, 05/26/2021**, at 11:45PM
- Growth Mindset – Mindset Theory Reflection
→ **due Thursday, 05/27/2021**, at 11:45pm
- Project 1 is posted → **due next Friday, 06/04/2021**, at 11:45PM
- Share office hours

TOPICS

➤ Operators

- equality
- relational
- logical

➤ Boolean

- short circuit evaluation

➤ Conditionals

- if
- if-else
- sequential ifs
- nested if-else

RECAP – OPERATORS

- Equality
 - `==, !=`
- Relational
 - `<, <=, >, >=`
- Logical
 - `&&, ||, !`
 - De Morgan's Law
- Precedence
 - `()` → **!** → Multiplicative → Additive → **Relational** → **Equality** → **&&** → **||** → `=`

DE MORGAN'S LAW

Q: Simplify the following expression, and then find its truth value given p is true and q is false

- $\neg (\neg p \wedge \neg q)$

$\neg(\neg p) \vee \neg(\neg q)$

$!!p \vee !!q$

$p \vee q$

$\text{true} \vee \text{false}$

true

RECAP – CONDITIONALS

Deciding if a student's GPA puts them on the Dean's list (3.8 to 4.0) or honor roll (3.5 to 3.8)

Q: Which is correct?

```
► JAVA
1 // A
2 if(gpa >= 3.8){
3     System.out.println("Dean's list");
4 } else {
5     System.out.println("Honor roll");
6 }
```

```
► JAVA
1 // B
2 if(gpa >= 3.8){
3     System.out.println("Dean's list");
4 } else if (gpa >= 3.5){
5     System.out.println("Honor roll");
6 }
7
```

```
► JAVA
1 // C
2 if(gpa >= 3.8){
3     System.out.println("Dean's list");
4 }
5 if (gpa >= 3.5){
6     System.out.println("Honor roll");
7 }
8
```

```
► JAVA
1 // D
2 if(gpa >= 3.8){
3     System.out.println("Dean's list");
4 }
5 if (gpa >= 3.5 && gpa < 3.8){
6     System.out.println("Honor roll");
7 }
8
```

RECAP – CONDITIONALS

Q: What type of conditional structure would you use?

- Reading a number and reporting if the number is divisible by 2, 3, and/or 5.
- Telling a kid that they can either have a chocolate bar or a lollipop (exclusive or)

LAB 4 – TRIANGLE TYPES

- Create a triangle classification program to help students learn about triangles.
 1. Prompts the user for the **three** side lengths of the triangle
 2. check whether the sides form a valid triangle
 1. **Valid?**
 1. Print out the type of triangle the side lengths represent.
 1. Equilateral? → three sides of the same length
 2. Isosceles? → two sides of the same length
 3. Scalene? → no sides of the same length
 2. **Not valid?**
 1. Otherwise, output "Not a valid triangle"
→ negative, one side's length is longer than the sum of the other two
- System test your TriangleType.java (starter file is attached)