Session Goals

- User should be able to write nested conditional statements in Java.
- User should understand when to write nested if statements and when to use a if/else if ladder.
- User should understand how to check for multiple conditions using logical operators.
- User should be able to writing multiple conditions using logical operators.
- User should be able to understand alternative of writing if/else using ternary operators.

Java-111- Nested Conditionals and Logical Operators

Session 3

Session Agenda

- If-else ladder
- Nested If/Else
- Logical operators
- Ternary Operator

Conditional Statement: if..elseif..else

Use the else if statement to specify a new condition if the first condition is false.

Syntax:

```
if (condition1) {
  //  Block 1: block of code to be executed if condition1 is true
}
else if (condition2) {
  //  Block 2: block of code to be executed if the condition1 is
false and condition2 is true
}
else {
  //  Block 3: block of code to be executed if the condition1 is
false and condition2 is false
}
```

Example:

```
if (time < 10) {
  greeting = "Good morning";
}
else if (time < 20) {
  greeting = "Good day";
}
else {
  greeting = "Good evening";
}
```

Recap - 6 Step Strategy

1. ***Understand the problem*** *(ask questions and get clarity)*
2. ***Design test data/test cases*** *(input and expected output)*
3. ***Derive the solution - solve the problem*** *(write pseudo code)*
4. ***Test the solution*** *(against the test data/case - dry run)*
5. ***Write the program/code*** *(using Java here)*
6. ***Test the code*** *(syntax errors, run time errors, logical errors)*

Activity: Find the smallest of three numbers

Q) Write a java program to find the smallest of three numbers.

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Link

Conditional Statement: Nested if/else

Syntax:

```
if (condition1) {
  //  Block 1: block of code to be executed if condition1 is true
        if (condition2) {
                //  Block 2: block of code to be executed if the
        condition1 is true and condition2 is true
        }
        else {
                //  Block 3: block of code to be executed if the
        condition1 is true and condition2 is false
        }
}
else {
                //  Block 4: block of code to be executed if the
        condition1 is false
        }
```

Example:

```
if (time = 10) {
  console.log("Good morning");
        if (awake!= true) {
                console.log("WAKE UP!");
        }
        else {
                console.log("Drink coffee");
                }
else {
        console.log("Continue sleeping :)");
        }
```

Activity: Grading Students

Q) Write a java program to grade the students based on marks.

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Link

5 minute break

Operators - Logical

We can combine multiple conditions using logical operators -

- AND (&&)
- OR (||)
- NOT (!)

Activity: Comparing Numbers

Q) You are given three numbers as input. If EITHER the first number is equal to the second OR the second number is equal to the third, return true. Else, return false.

What will be your approach to the problem? (Step 3)

Quickly put your answers in the chat!

Link

Dry Run

```
int value1 = 1;
int value2 = 2;

if((value1 == 1) && (value2 == 2)) {
    System.out.println("Mud house");
}

if((value1 == 1) || (value2 == 1)) {
    System.out.println("Bamboo house");
}
```

Conditionals If-else (nested) | Debrief

```
int age;

if (age < 18) {
    System.out.print("Child");
} else {
    if ((age >= 18) && (age <= 60)) {
        System.out.print("Adult");
    } else {
        System.out.print("Senior");
    }
}
```

Ternary operator

- Purpose (more compact version of if else, but will be tricky for if else chains)
- Syntax
  - variable = Expression1 ? Expression2 : Expression3 (Same as the below)
  - ```
    if (Expression1) {
       variable = Expression2;
    }
    else {
       variable = Expression3;
    }
    ```
- Multi level ternary operator example (if else if else)
- Example:-
  - res = (num1 > num2) ? (num1 + num2) : (num1 - num2)
-


    ```

Keep
Learning,
Keep
Coding.