**WEEK4**  
**Topic: Switch Case statement, for loop in Java, while loop do-while in Java**

**Switch case statement:**

switch...case is a statement that gives ability to make decisions from fixed available choices. Rather making decision based on conditions. Using switch, we can write a more clean and optimal code, that take decisions from available choices.

To be accurate the switch case statement should be used with break statement even though its optional. In switch statement either expression or variable can be use. In this statement we use the case to define each choice that we should need, and the default should me insert so that it’s the end line that we assign to the program. For some switch statements we will use the return statement to make the program runs.

How it works: First the variable, value or expression which is provided in the switch parenthesis is evaluated and then based on the result, the corresponding case block is executed that matches the result.

Helpful: Case doesn’t always need to have order 1, 2, 3 and so on. It can have any integer value after case keyword. Also, case doesn’t need to be in an ascending order always, you can specify them in any order based on the requirement. We can also use characters in switch case using String or Char.

The expression given inside switch should result in a constant value otherwise it would not be valid. Example: switch (1+2+23)switch (1\*2+3%4)

Nesting of switch statements are allowed, which means you can have switch statements inside another switch. However nested switch statements should be avoided as it makes program more complex.

**For loop in Java, while loop do-while in Java:**

Java has three types of basics loops: For loops, while and do-while loop. Loops are used to execute a set of statements repeatedly until a particular condition is satisfied.

**Java For loop**:

it runs in 3 steps: initialization, condition, increment/decrement, reevaluation. The initialization step happens first and only one time, which means that the initialization part of for loop only executes once

Condition in for loop is evaluated on each iteration, if the condition is true then the statements inside for loop body gets executed. Once the condition returns false, the statements in for loop does not execute and the control gets transferred to the next statement in the program after for loop.

The increment /decrement part happens after the condition gets executed, the execution of that part of the program updates the loop encounter.

**Java While loop:**

In while loop, condition is evaluated first and if it returns true then the statements inside while loop execute. When condition returns false, the control comes out of loop and jumps to the next statement after while loop. The important point to note when using while loop is that we need to use increment or decrement statement inside while loop so that the loop variable gets changed on each iteration, and at some point, condition returns false. This way we can end the execution of while loop otherwise the loop would execute indefinitely.

**java Do-while loop:**

do-while loop is similar to while loop, however there is a difference between them: In while loop, condition is evaluated before the execution of loop’s body but in do-while loop condition is evaluated after the execution of loop’s body. Here the statements inside loop execute and then the condition gets evaluated, if the condition returns true then the control gets transferred to the “do” else it jumps to the next statement after do-while.