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Class Timing: ST 1:00 PM – 2:30 PM (LIB-611)

Topic: Arithmetic Operator, Conditional statement

Objective

1. To learn about Arithmetic & conditional Operators
2. To learn to use conditional statements (if-else, switch case, ternary operator)

Conditional statement (If-else):

Java if statement is used to test the condition. It checks boolean condition: true or false. The following code example shows how to determine grade using the basic if-else-if ladder.

ConditionalStatement01.java

```
public class ConditionalStatement01 {
    public static void main(String[] args) {
        int marks = 90;
        if (marks < 50) {
            System.out.println("fail");
        } else if (marks >= 50 && marks < 60) {
            System.out.println("D grade");
        } else if (marks >= 60 && marks < 70) {
            System.out.println("C grade");
        } else if (marks >= 70 && marks < 80) {
            System.out.println("B grade");
        } else if (marks >= 80 && marks < 90) {
            System.out.println("A grade");
        } else if (marks >= 90 && marks < 100) {
            System.out.println("A+ grade");
        } else {
            System.out.println("Invalid!");
        }
    }
}
```

Conditional statement (Switch):

The switch statement works with byte, short, int, long, enum types, String and some wrapper types like Byte, Short, Integer, and Long. (A Wrapper class or types is a class whose object wraps or contains a

primitive data types. Every primitive type has a corresponding wrapper type or class.)

ConditionalStatement02.java

```
public class ConditionalStatement02 {
    public static void main(String[] args) {
        int number = 20;
        switch (number) {
            case 10:
                System.out.println("10");
                break;
            case 20:
                System.out.println("20");
                break;
            case 30:
                System.out.println("30");
                break;
            default:
                System.out.println("Not in 10, 20 or 30");
        }
    }
}
```

Operators:

Java provides a rich set of operators to manipulate variables such as Arithmetic Operators, Relational Operators, Logical Operators, Ternary Operator. Following code shows how to find min and max of two number using Ternary Operator.

ConditionalStatement03.java

```
public class ConditionalStatement03 {
    public static void main(String[] args) {
        int a = 10;
        int b = 50;
        int min = (a < b) ? a : b;
        int max = (a > b) ? a : b;
        System.out.println("Min: " + min);
        System.out.println("Max: " + max);
    }
}
```

1. Write down a program that will interchange the value of three integers in the following order:
   a -> b -> c -> a

```
Sample input/output:

Enter a: 10
Enter b: 20
Enter c: 30
After interchange a = 30, b = 10, c= 20
```

2. Write down a program that will take two persons' height as input (in feet and inches) and will print the difference of height in feet and inches. Assume that the taller person's height will be always given as input first.

```
Sample input/output:

First person:
Enter feet: 5
Enter inch: 7
Second person:
Enter feet: 3
Enter inch: 8
Difference: 1 feet 11 inch
```

3. Write a program that takes an arithmetic operator ('+', '-', '*' or '/') and two operands as input and performs the corresponding arithmetic operation on the operands. You must use switch-case to solve the problem.

```
Sample input/output:

Enter operator: +                Enter operator: /
Enter 1st Operand:  23           Enter 1st Operand:  12
Enter 2nd Operand: 12            Enter 2nd Operand: 6
23 + 12 =  35                    12 / 6 = 2
```

4. Write down a program that will calculate and print tax based on income. If income amount is less than 1,00,000 Taka, the tax is 10% on total amount. Otherwise, the tax is the tax is 10% on first 1,00,000 Taka and 20% on the rest amount. You need to find the tax amount using Tarnary operator.

```
Sample input/output:

Enter your anual income: 100000      Enter your anual income: 500000
Eligible tax amount is : 10000       Eligible tax amount is : 90000
```