Computer Science Division
Department of Mathematics
Faculty of Science

Level 3 - Fall Semester
Course Code: COMP 301
Date: October 7, 2024

# Sheet 1

Objective: upon successful completion of this sheet, the students should be able to

(1) Get familiar with JDK and text editors or IDEs available.
(2) Know the structure of a Java program.
(3) Know input and output statements.
(4) Practice the control and loop statements.

1. Write a Java program to evaluate the following expressions and resolve the issues that may occur.

```
int x=5; double y=x;
System.out.println("y= "+y);
double a=2.7; int b=a;
System.out.println("b= "+b);
float c=2.7; double d=c;
System.out.println("d= "+d);
```

```
char e='x';
e++;
System.out.println("e= "+e);
char f=90;
System.out.println("f= "+f);
```

2. Write a Java program to compute the quotient and remainder of two given integer numbers. Rewrite the same program where the input is entered by two different ways: (1) Command line arguments and (2) Input/output streams (e.g., `Scanner` class).
   **Hint**: The `Scanner` class is defined in the `util` package.

3. Write a Java program that asks the user for two numbers (a base and an exponent) and then calculates the result of the base raised to the power of the exponent using a loop statement.

4. Write a Java program to compute all roots of a quadratic equation.
   **Hint**: you can use the `Math.sqrt()` method that returns the square root of the specified number.

5. Write a Java program to get the first `n` Fibonacci numbers.

6. Write a Java program to display prime numbers between a given interval.

7. Write two Java programs, each displaying one of the following patterns.

```
A
B B
C C C
D D D D
E E E E E
```

```
        1
      2 3 2
    3 4 5 4 3
  4 5 6 7 6 5 4
5 6 7 8 9 8 7 6 5
```