National University of Singapore
School of Computing
CS1010X: Programming Methodology
Semester II, 2021/2022

**Recitation 11
Java Programming**

Java Syntax

1. `switch` – Similar to Python `if/elif/elif/elif/.../else` conditional

2. Logical Operators `&&`, `||` and `!` – Equivalent to Python `and`, `or` and `not`

3. `for` (*initial, condition, update*) – `for` loop.

4. `Scanner#nextLine` – Getting user input

5. Returning multiple values

   - Use arrays.
   - Use Object Classes.

Problems

1. **Fibonacci Numbers.** Recall the Fibonacci numbers.

   (a) Define the function `int fib(int n)` that computes the n-th Fibonacci number iteratively and returns it.

   (b) Write a Java program that prints the 46th Fibonacci number. Compile your code and run your program.

   (c) Modify your program to print the 47th Fibonacci number. Is your printout correct? If not, explain why.

2. **Counting Change.** Write a Java program that prompts the user for an amount (in cents) and returns the number of ways to form that amount using 1¢, 5¢, 10¢, 20¢ and 50¢ coins.

3. **Returning Multiple Values.** Write a function that takes in (at least) an integer array and an integer n, and splits the array into two arrays—the first containing all the integers smaller than or equal to n and the second containing those larger.

   You may decide on the arguments and return values (if any) of the function. Write a Java program to illustrate the use of your function. State any assumptions you make.

   How can we create a sorting algorithm out of this function?