

National University of Singapore
School of Computing
CS1010X: Programming Methodology
Semester II, 2022/2023

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?