

Lab Assignments – I

MCA Semester III CG and Java Lab (CS3307)

[For each program in this assignment, create a single .java file with a single public class containing the main method]

1. Write a Java program to read an integer as input from user, and output whether the number is prime or composite.
2. Write a Java program to read an integer as input from user, and output its factorial.
3. Write a Java program to read an integer via argument, let the variable be n , and output a Fibonacci series of length n .
4. Write a Java program to read an entire integer array from argument, implement Insertion sort to sort the array, and output the sorted array, i.e. if user provides input as “java Main 23 12 56 79 30” and you will have to output “12 23 30 56 79”.
5. Write a Java program to read a string via argument, and output whether the string is palindromic or not.
6. Write a Java program to read an entire integer array from argument. Your program will then read an integer from user input via the terminal, and will determine whether the integer is a member of the array or not (searching algorithm).
7. Write a Java program that will read a binary string from user input, and will convert it into a decimal. If the input is not binary, show an error “Input is not in proper format”. (in this assignment, simply print the error, in later course we will study how to throw an exception).
8. Write a Java program that will read a string from user input, and will output the letters of the array along with its frequency in decreasing sequence of frequency, i.e., if user inputs “mississippi”, your program should output

i 4
s 4
p 2
m 1

[If multiple letters appear to have same frequency, print them in their lexicographical order, i.e., in the example, i appeared before s]

9. Write a Java program that will read two doubles from arguments, and will read an arithmetic operation symbol as a string from user input via terminal (*, /, %, +, -). Using switch-case on the read input, show the result of corresponding calculation.
10. Write a Java program that will read three doubles from argument as a, b and c . Determine the roots of the polynomial $ax^2 + bx + c = 0$. If the roots are complex, show them accordingly. As for example, “java Main 2 -3 7” will output “0.75+1.713913650100261i 0.75-1.713913650100261i”