



University of Ghana

College of Basic and Applied Sciences

School of Engineering Sciences

1st Semester (2021/2022)

CPEN 201: C++ Programming

Lab Assignment 1

Given: Wednesday, November 1, 2023

Due Tuesday, November 7, 2023 11:59 pm

Integer Operations (Functions)

Write a program that uses a random number generator to generate a two-digit positive integer and allows the user to perform one or more of the following operations:

- a. Double the number.
- b. Reverse the digits of the number.
- c. Raise the number to the power of 2, 3, or 4.
- d. Sum the digits of the number.
- e. If the number is a two-digit number, then raise the first digit to the power of the second digit.

f. If the number is a three-digit number and the last digit is less than or equal to 4, then raise the first two digits to the power of the last digit.

After performing an operation if the number is less than 10, add 10 to the number. Also, after each operation, determine if the number is prime. Each successive operation should be performed on the number generated by the last operation. Your program should not contain any global variables and each of these operations must be implemented by a separate function. Also, your program should be menu-driven.

Additional Instructions:

Create an enumeration type with the name ***selection*** containing values corresponding to each of the menu items. Compare the enum values with the input entered by the user to determine which operation to call. Operations **a-c** should be implemented as void functions. Use **typedef** to define an alias for the **int** data type, which would be used in the declaration of the random two-digit integer variable.

Note: Extra marks would be awarded for the implementation of any concepts taught or discovered other than those explicitly stated in the lab instructions. All extra work should be clearly indicated in a file named ***bonus.txt***.