

The American University in Cairo
Computer Science & Engineering Department
CSCE 1001 – Fundamentals of Computer Science

Lab Session 4	Integer Arithmetic Operations
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Objectives:

- To understand the use of integer data types and the differences between **short**, **int**, and **long**.
- To understand how to use the integer arithmetic operators (integer division **/**, and remainder **%**) in problem solving.
- To understand how to define constants in a C++ program.

Problems:

Write a C++ program or each of the following problems:

1. Draw a Flow chart and write a C++ program to enter a number of people (p) and number of identical boats (b). The program computes how many people to put in each boat and how many people would be left over.
2. Draw a Flow chart and write a C++ program that reads a large number of seconds and displays it in terms of an integer number of hours, an integer number of minutes, and remaining seconds (if any)..
3. The diameter of Earth is measured as a very large number of inches. Draw a Flow chart and write a C++ program that reads such diameter in inches and displays it as an integer number of yards, an integer number of feet, and any remaining inches (1 yard = 3 feet and 1 foot = 12 inches).
4. Write a C++ program to enter an integer number of 4 digits and display it in an inverse order. For example if the input is 5723 the output should be 3275.
5. Write a C++ program to enter an integer number of 4 binary digits and print its equivalent decimal value. For example if the input is 1101 the output should be 13.

Instructions:

- The TA solves problem 1 (**20 minutes**)
- The TA asks students to solve and **submit in-Lab** problem 2 (**30 minutes**)
- The TA asks students to solve problems 3, 4, and 5 and **submit before the next Lab Session**.