Lab 01
Introduction to IDE, Input/output and Integer Arithmetic

Lab objectives

1. To get familiar with the IDE and write your first program.
2. To practice the integer arithmetic and operator precedence concepts using simple C++ programs

Integrated Development Environment (IDE) is a software tool that facilitates programmers in software development. Normally, they come with editor, build automation and debugger etc.

For this particular lab, we are using **Visual Studio 2010**

Main Topics

Installation of the Visual Studio 2010

Task: Install visual Studio 2010 on your lap/desktops

Writing your first program

To create a new project in Visual Studio 2010, follow these steps

File → New → Project → Visual C++ → Wind32 Console application → Press Next → select Create empty project → Finish

Task 01: Write a C++ program that displays "Hello World"

Task 02: Write a program that displays your name and class number in the following format

Name: **Mr. XYZ**

Class No: **x**

Introduction to Input and Output functions

Task: Write a program that takes a number from the user and displays it

Integer Arithmetic

Task 01: Write a program that adds 2 and 5 and displays the result

Task 02: Write a program that takes two integer numbers from the user and performs the addition, subtraction, multiplication and division operations on them. Display all 4 outputs properly.

Task 03: Write a program that takes the length and width of a rectangle from the user and displays its perimeter and area. (Note: Length and width can only be integers)

Task 04:

a. What is the value of 'i' (an integer variable) in the following expression?

$$i = 2/3$$

b. Is it '0'? If yes, Why?

Operators precedence

Task: Write down the outputs of the following expressions? Compare your results with the C++ program. **(Note: 'i' and 'j' are integer variables)**

a. $i = 2 + 3 * 4 - 5$
b. $i = (2 + 3) * 4 - 5$
c. $i = 2 + 3 * (4 - 5)$
d. $i = 2 + (3 * 4) - 5$
e. $j = 2 + 3 - 5 * 6 + 7/3 + 100$
f. $j = 2 + (3 - 5) * (6 + 7/3) + 100$
g. $j = 7 + 4 * (9/(9 - 3 * 2) + (7 * (9 - 2 * (8 + 1))))$

Mod operator (%)

Task 01: Write the output of the following expressions

a. $i = 5\%2$
b. $i = 57\%3$
c. $i = 100\%10$

Task 02: Write a program that takes a number from the user and displays its least significant digit

Task 03: Write a program that takes seconds from the user and displays the time in Hours, minutes and seconds format. E.g. if the user enters 3700, the output of the program should be 1 Hour 1 minute and 40 seconds.