

MODULE 1: INTRODUCTION TO PROGRAMMING IN C#

CORE EXERCISES

Tutorial 5

A - Console Programs

- A.1 Write a program that will input a value, N, and then calculate the sum of first N natural numbers

$$(1 + 2 + 3 + + N)$$

- A.2 The factorial symbol uses the exclamation mark to indicate that a whole number is to be multiplied by successive lower numbers down to 1 e.g. $5! = 5 \times 4 \times 3 \times 2 \times 1 = 120$. Write a program to input a value of N and calculate the value of N! You should check that N is greater than 0, but you can allow N = 1.
- A.3 A local social club keeps a list of its members who are required to renew their membership annually. Their names and renewal dates are stored in a 2-D array (in this case defined within the program). Design and write a program that allows the club secretary to view a list of names whose membership has expired. Also produce a list of those people whose membership will expire within the current month.

B - Windows Form Program

- B.1 If the currency conversion rate is 1 British Pound = 1.24 US Dollars, write a program that uses a loop to produce a table in a listbox showing the conversion rates between £1 and £100 in £5 increments.
- B.2 Write a program that generates 10 random numbers and stores them in a listbox. Create a button to find the largest of these values and output the result using a simple Message Box with an OK button.
- B.3 Design and write a simple calculator program that enables the user to enter two values, x and y, and to provide the facilities of addition (x+y), subtraction (x-y), multiplication (x * y), and division (x/y). Use separate methods for each arithmetic operation.