

# BiL 102 – Computer Programming HW 02

**Last Submission Date: Mar. 13, 2013 – 14:00**

Your program will calculate and print the results of the operations written in a text file. The file will contain only one line of text. The program will read the file **character by character** (use %c identifier with fscanf only) and obtain integers and operators by using the ASCII values of the characters. The first character is the number of integers at a line. Some example lines of the text can be:

4 123+345-100\*456

2 1+4

3 23-15/12

Formatting is strict; space character will be used after the number of integers identifier and in no other place, no signature and whitespace characters will be used after the last number. Maximum number of integers is 5. Maximum number of digits in an integer is 3. Operator precedence will not be concerned; operations will be done in left order, i.e. result of the third line will be 1.

You have to use at least these functions:

**int convertToInt1d(char ch)** /\*converts the given character to its equivalent integer prints error message if the input does not refer a number\*/

**int convertToInt2d(char ch1, char ch2)** /\*converts the given characters to their equivalent integer of 2 digits, prints error message if the inputs do not refer a number\*/

**int convertToInt3d(char ch1, char ch2, char ch3)** /\*converts the given characters to their equivalent integer of 3 digits, prints error message if the inputs do not refer a number\*/

**int isDigit(char ch)** /\*returns 1 if the input refers a number and 0 otherwise\*/

**int isPlusSign(char ch)** /\*returns 1 if the input refers a plus sign and 0 otherwise\*/

**int isMinusSign(char ch)** /\*returns 1 if the input refers a minus sign and 0 otherwise\*/

**int isMultiplicationSign(char ch)** /\*returns 1 if the input refers a multiplication sign and 0 otherwise\*/

**int isDivisionSign(char ch)** /\*returns 1 if the input refers a division sign and 0 otherwise\*/

**int isSign(char ch)** /\* returns 1 if the input refers any operator sign and 0 otherwise \*/

**Using any loop clauses (for, while, etc.) is forbidden.**

Avoid code replication (use the functions you defined when possible).

Hint: fscanf returns the number of items it reads. When the end of the file is reached and you try to read one more item fscanf returns a special number defined in "stdio.h", EOF. When reading the last number, you need to check if the end of file is reached to understand its end.

**BONUS(30 Pts):** Make the same implementation considering operator residence.

## General:

1. Obey honor code principles.
2. Obey coding convention.
3. Your submission should include the following files only:  
HW02\_<student\_name>\_<studentSurname>\_<student number>.c  
HW02\_<student\_name>\_<studentSurname>\_<student number>\_Bonus.c

4. Deliver the printout of your code until the last submission date (March, 13<sup>th</sup>, 2013 at **14:00**).