

## Project [2]: Arithmetic Expressions

### Project Goals

The goals of this project are to:

1. Get students familiar with arithmetic expressions

### Problem 1

Write a program that reads an integer entered by the user and displays it in binary (base 2):

```
Enter a number between 0 and 31: 13  
In binary, your number is: 01101
```

The output should be displayed using 5 bits, even if fewer bits are sufficient. Hint: to convert the number to binary, first divide it by 2; the remainder is the last digit of the binary number (1, in this case). Then divide the original number by 2 and repeat the process to arrive at the next-to-last digit.

Save your program in a file called `convert.cpp`.

### Problem 2

Modify your previous program so that your program reads an integer and a base (in integer) entered by the user and displays in the given base:

```
Enter a number between 0 and 31: 23  
Enter a base between 2 and 9: 3  
In base 3, your number is: 00212
```

Save your program in a file called `convert_c.cpp`.

**Note:** Please submit both your `convert.cpp` and `convert_c.cpp` on blackboard.

## Submission details

Please submit the following on blackboard:

1. Source code
2. A screenshot of the output of your program execution

## Grading Rubric

Grading will be done for **each** problem as follows:

Correctly-named file	5%
Header comment	2%
Program compiles	5%
Correctly-reading data from terminal	18%
Correct result printed	20%

## Academic Honesty

Academic dishonesty is against university as well as the system community standards. Academic dishonesty includes, but is not limited to, the following:

Plagiarism: defined as submitting the language, ideas, thoughts or work of another as one's own; or assisting in the act of plagiarism by allowing one's work to be used in this fashion.

Cheating: defined as (1) obtaining or providing unauthorized information during an examination through verbal, visual or unauthorized use of books, notes, text and other materials; (2) obtaining or providing information concerning all or part of an examination prior to that examination; (3) taking an examination for another student, or arranging for another person to take an exam in one's place; (4) altering or changing test answers after submittal for grading, grades after grades have been awarded, or other academic records once these are official.

Cheating, plagiarism or otherwise obtaining grades under false pretenses" constitute academic dishonesty according to the code of this university. Academic dishonesty will not be tolerated and penalties can include cancelling a student's enrolment without a grade, giving an F for the course, or for the assignment.