

CSC 016 – Class Assignment – Base Conversion

1. Implement an algorithm that converts from any base to base 10 (Decimal)

- Implement the algorithm in C++ for all bases between 2 and 9
- Write a driver program (a program that tests your algorithm implementation) that asks the user for the number to convert (**num**) and a base (**b**) to convert from and display the result
- Use a native C/C++ char array for user input and as the number storage structure. The array can be either static or dynamic.
- Bonus 1: add support for base 16 (hexadecimal => 10=a, 11=b,..., 15=f)
- Bonus 2: add support for all bases between 11 to 36 (use the English alphabet to represent digits 10 to 35 => 10=a, 11=b,..., 35=z)

Algorithm description

- Let **num** be the number to convert
- Let **n** be the number of digits in **num**
- Let **b** be the base of **num**
- Let **sum** be a running total, initially 0.
- For each digit in **num**, working left to right do:
 - Subtract 1 from **n**.
 - Multiply the digit times b^n and add it to **sum**.
- When your done with all the digits in the number, its decimal value will be equal **sum**.

Submission instructions

- Document your code thoroughly inside the source file/s using C++ style comments ('//' and/or '/* */')
- Zip and upload the following files to blackboard:
 - Source files/s
 - Instructions on how to run your code (can be in text/doc/pdf file format)
 - Program output examples (show at least two run examples with different bases(ex. b=2,b=4)

Hints

- Always concentrate on the first error. Fix that first and recompile!
- Remember, when it comes to errors, google is your friend