

# CS 270 C Programming Assignment

# Assignment

- Write a program that converts numbers from one base to another. The program expects 3 or more command line arguments. The first command line argument is the base of the input and the second command line argument is the base of the output. The remaining arguments are integers in the base of the input. For each integer the program should output the representation of the integer in the output base. There should be one line of output for each integer in the input

# Example

- `./convert 10 2 -20 40 4`
- The above execution converts the base 10 representation of the integers to the base 2 representation.
- The output of the above execution should be  
-10100  
101000  
100
- Note for negative numbers the program is not producing two's complement representation instead it is producing sign magnitude representation.

# Assignment

- The program must be able to accept bases between 2 and 10 inclusive and base 16. For base 16 values between 10 and 15 I will use a, b, c, d, e, f (lower case letters).
- You can assume the input is correct (i.e. no error checking is required)
- The implementation should include three functions. The main function, a function to create an int from a string of digits and a function to create a string of digits from an int.
- See the function signatures on the next slide

# Function signatures

- `int makeInt(char digits[], int b)`
  - Returns the int represented by the string digits. Digits is a base b representation of the int
- `char * toString(int number, int b)`
  - Return a string containing the base b representation of the number
- The C library includes functions to do this but you must not use them.
- Use `printf` to write the output but you can only use the `%s` formatting character

# Assignment Submission

- The program **MUST** be called convert.c
- Email only one file (convert.c) to me at [tgendreau@uwlax.edu](mailto:tgendreau@uwlax.edu)
- Put CS 270 Homework in the subject line of the email
- The due date is 11:59 PM Friday May 5.
- Late assignments will not be accepted.