



Final Programming Project B: Twos Complement Division Algorithm

Directions:

You will be creating a twos complement divisor function. It will accept two binary strings as parameters where the first parameter is the dividend and the second parameter is the divisor. And it will return a binary string which will be the length of $2n$ where the most significant n bits (characters) represent the quotient and the least significant n bits (characters) represent the remainder with n being the length of the longest string parameter.

The list below will be instructions and constraints for your function that you must adhere to.

- The remainder portion of the solution must be an unsigned binary number between 0 and one minus the divisor inclusively.
- You must to define a bool function that verifies that both string parameters are binary strings. Your division function must call this function at the beginning of its definition. And if this function returns false, the division function must return "0".
- You must define a bool function(s) that compares two binary strings. It (or they) must be called in the division function whenever a comparison is needed.
- You must define a function that perform both addition and subtraction of two binary strings (either unsigned or twos complement). The function must accept two binary string parameters and a bool parameter which indicates if the function is performing addition or subtraction. Last, it will return the result of the operation as a binary string. Your division function must call this function whenever it is performing addition or subtraction.
- The use of STL library classes are prohibited.

Grading Rubric:

Your grade will be based on the following rubric:

Final Project Grading Rubric

Category	Task	Points
Specification	◦ Program compiles.	15
	◦ Program performs required tasks.	
	◦ Program produces accurate and formatted outputs.	
Readability	◦ Program uses meaningful identifiers.	5
	◦ Program indents scopes.	
		20