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|  | Homework #3  Functions (Overloads and Name Visibility) |  |

1. Ensure that you have read the lessons on [cplusplus.com](http://www.cplusplus.com/doc/tutorial/). Your solution should be a Code::Blocks project. All work will be done in one .cpp file. When you are ready to submit (or whenever you would like to save your work), you should “push” your work into your GitHub repository.
2. ([Structure of a program](http://www.cplusplus.com/doc/tutorial/program_structure/)) Write the basic outline of a C++ program.
   1. Write a program that prints your name (3/c Hopley Yeaton) on one line and “TOOP HW3” (without the quotation marks) on the second line.
3. ([Statements and flow control](http://www.cplusplus.com/doc/tutorial/control/)) Write a loop that presents the user with several options.
   1. The user should be shown the following six options.
      1. The first option will be to add two user specified numbers together
      2. The second option will be to add three user specified numbers together
      3. The third option will be to raise a user specified number to the power of another user specified number
      4. The fourth option will be to double a user specified number
      5. The fifth option will be the print the author’s information
      6. The sixth and final option will be to exit the program
   2. The program should accept user input in order to determine which option the user selected.
      1. Read in an integer from 1-6.
      2. Create either a switch statement or an if-else structure corresponding to each input option.
         1. Implement options five and six directly in the switch structure. The rest of the options will call functions that we write in step four.
4. ([Functions](http://www.cplusplus.com/doc/tutorial/functions/)) Write several functions to fulfill the functionality listed above
   1. The first function should be called sum. It will take two integers as an argument and return an integer representing the sum of the two inputs.
   2. The second function will also be called sum. This function, however, will take in three arguments and return an integer representing the sum of all three inputs.
   3. The third function should be called power. It will take two positive integers and return a long representing the first integer to the power of the second integer.
   4. The fourth function should be called doubleNumber. It will take in one integer and will **not** return anything. The number that was passed into the function should be modified after the execution of that function! (Hint: You will need to pass by reference here.)
5. ([Functions](http://www.cplusplus.com/doc/tutorial/functions/)) For each of the following questions, write 2-3 sentence long responses in a block comment at the top of your homework file.
   1. Give an explanation of the difference passing arguments by reference and passing arguments by value as well as when you would use either.
   2. Give an explanation of what “overloaded” means in the context of functions.
   3. Give an explanation of return types and how they might be used.

**Sample output has been provided.**

