Assignment 4

Submit Assignment

Due Sep 2 by 11:55pm   **Points** 25   **Submitting** a file upload

---

For this assignment, you will implement the CODEC support and the new Bitmap class. You should define a WindowsBitmapEncoder and WindowsBitmapDecoder class that implement the IBitmapEncoder and IBitmapDecoder interfaces, respectively.

Keep in mind that your encoder and decoder implementations must be created initially with no information to encode or decode. These initial instances would be added to the prototype registry; and if they are used directly, rather than after cloning, they should alert the client of their misuse. Note that, for your decoder implementation, you can employ an empty `std::istringstream` to initialize its `std::istream` reference to simulate the behavior of an invalid or non-existent stream.

To test your implementation, create a command-line program that allows color inversion and brightness adjustments to bitmaps. This program should create a second, modified bitmap, rather than modifying the original. To implement your color inversion, simply subtract each color component from 255. In your test, be sure to check that your WindowsBitmapDecoder's `isSupported` method behaves properly in all possible situations. Also, make sure you address all possible exceptional circumstances, including

- no decoder or encoder available for a requested mime type;
- no decoder to support incoming header information

Resources:

UML Tutorial: Class Diagrams

Assignment 3 Design Diagram

Assignment 4 Design Diagram

Example unit tests and output files for Assignment 4

To submit your assignment:

1. Use the *+Submit Assignment* link located in the top right.
2. Click the *Choose File* button to find and select the saved file.
3. Click the *Submit Assignment* button to turn in your assignment.

Here are the items I will especially be looking for in assignment 4:

CodecLibrary /7
Encode/Decode /7
BitmapIterator/Decorator /7

Unit Test /4
Extra Credit
----
ranged_number /7
each extra decorator /2
--
Grade /25+

Assignment 4 Rubric		
Criteria	**Ratings**	**Pts**
CodecLibrary		7.0 pts
Encode/Decode		7.0 pts
BitmapIterator/Decorator		7.0 pts
Unit Test		4.0 pts
Extra Credit: ranged_number		7.0 pts
Extra Credit: each extra decorator		2.0 pts
		Total Points: 34.0