

Assignment 4 Intro to C++

Value: 7pts

Due at the beginning of the next session.

This assignment is to *use class inheritance* in C++. Hand in the files you write, and console output to demonstrate correct operation of your program.

Derive a class from the class GetFile which was written in class as an example, this class “GetBinaryFile” specifically retrieves binary files. To provide additional value, it may be useful to get information about the data in the binary file.

Provide a member function that given any byte value 0 through 255, returns the number of bytes the file contains with that value. For instance if the byte value is 65 (‘A’), and the file contained the string “Apples Always ARE rated AAA” the function would return 6, the count of the occurrences of the ASCII char 65.

Provide a member function that counts the number of bytes that may contain printable ASCII values.

Test your program with the file “Assignment4TestFile.bin” posted to blackboard.

Have your program create an instance of your derived class “GetBinaryFile”. Query the member function in your derived class to determine the number of bytes having the decimal value of 0, 40, 116, 204, and 255.

Hint: the correct answer for the number of bytes having the value of 255 is 518.

Background:

At first this may seem to be a pointless task. Later in the semester we may look at applying C++ to image processing. Image files are usually stored in binary, some image formats use bytes representing individual pixel values. How many are at any given gray value is useful information.

For such applications this might be particularly useful. Images do not contain a uniform distribution of brightness values. That is one application for this derived class, can you think of others?