



Assignment #1
CS281: Multimedia Systems
Spring 2023/2024
Color Channels

General Description

In this assignment, you must implement (in any programming language such as Java, C++, Python, or C#) the following:

- Reading three different images, each one has only one channel: Red, Green, and Blue.
- Extract the red, green, and blue channels.
- Combine or merge these channels to generate a full-colored image file (.jpg) as an output.
- Store the output image on your computer.
- Generate 3 new grayscale Images from the output image, first one shows red elements only, second one shows green elements only, and the last one shows blue elements only.

You have also to test your implementation by and making sure that every piece of code is functions correctly.

Things to be submitted:

You must submit the following:

- The original source codes.
- The input and output images.

Zip them all and submit the zipped file via YU e-Learning platform.

Grading Criteria

Criteria	Weight
Reading image files	1 point
Get the channels correctly	1 point
Merge the channels	1 point
Write the output file	1 point
Isolate and display only specific color	1 point
Total	5 points

Discussion Criteria

To evaluate your work, you must bring your own laptop with a programming language and IDE installed or install the IDE on lab to discuss the assignment face-to-face according to schedule we will arrange during lecture, otherwise I will not consider your submission.



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The following example describes the requirements in more details.

Input Images



Red.jpg



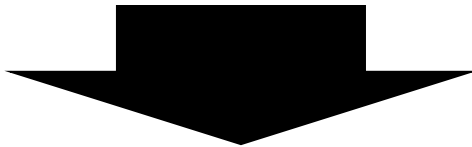
Green.jpg



Blue.jpg



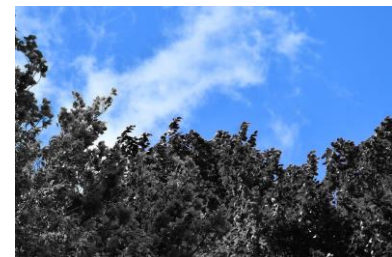
outputImage.jpg



Red_elements.jpg



Green_elements.jpg



Blue_elements.jpg