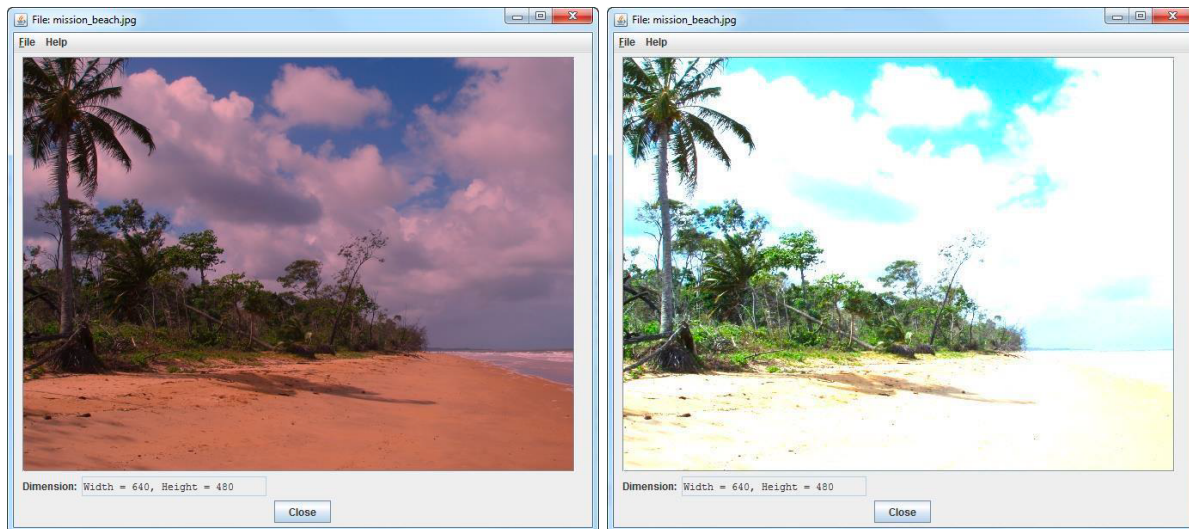


COSC 1P02 – Lab 05 –

Exercise 1 - A Sunset Clause

Estimated Time: 20 min

When the sun sets, the light is bent by the atmosphere such that the amount of green and blue light is decreased making things take on a red hue that we call a sunset. Write a program that takes an image and converts it into a sunset image by decreasing the proportion of blue and of green in each pixel by 30% (that is setting it to 70% of its original value). The result should look like picture on left.



Exercise 2 - You Light Up My Life

Estimated Time: 20 min

Sometimes when a picture is taken, the lighting is not sufficient and the picture comes out too dark. The picture can be brightened by increasing each of the color components (red, green and blue) by the same factor (e.g. *2 to double the brightness).

Write a program that opens a picture, displays it, and then increases the “brightness” of the picture by a factor of 2, showing the “brightened” picture. For example if the program is run with the beach picture it would finally display picture above on right

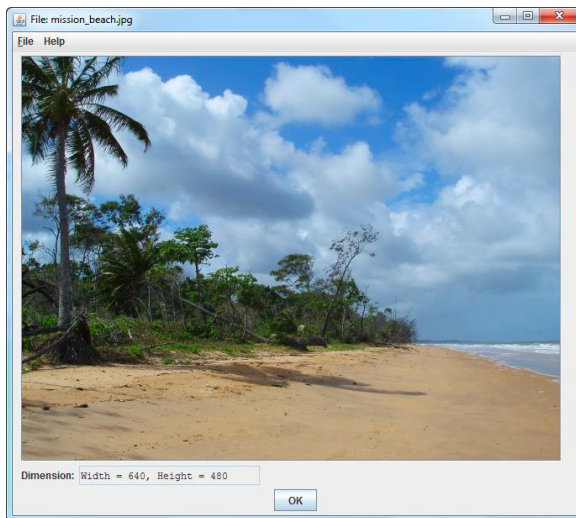
Exercise 3 - Special Fx

Estimated Time: 40 min

Weather broadcasts and many of the special effects in movies use the chromakey technique. The weatherperson or the actors are filmed in front of a blue or green screen. A separate background image (the weather map or the special effect) is then combined with the film image with the background filling in all of the blue (or green) parts of the original image. The result is that the weatherperson or actors appear to be in front of the weather map or special effects.

Write a program to input two pictures (which must be of the same size and shape), one being the desired background (e.g. weather map) and the other being the foreground

image (e.g. the weatherperson in front of the green screen). The program will modify the foreground picture by replacing each green (the chromakey color) pixel in foreground picture with the corresponding pixel from the background and leaving the other pixels unchanged. The program should display the background, then the foreground and finally the combined image such as the sequence below:



Background



Foreground



Composed Result