

## Assignment3 Report

This assignment is a tool for processing bitmap image files. It can perform a series of transformations, specifically including a quarter reduction of the image and a merged transformation.

First, we need to enable the computer to read bmp type image files, and at the same time check to confirm that the computer has successfully read it. If not, an error message will pop up.

Later, we can move on to reduce the image by a quarter. In the image reduction step, the program implements a strategic subsampling algorithm to decrease the image size. It does this by iterating over the pixel matrix of the original BMP image and selectively picking every second pixel along both the horizontal and vertical axes. This means, for every two pixels in a row, the program takes the first and skips the second, and it applies the same rule scanning down every column. The process smartly discards the pixels that are not selected, resulting in a smaller image that is precisely one-fourth the size of the original. Then place the shrunken image into a new album and make four copies of the same image. At the same time, we must pay

attention to the requirements of the assignment, rotate,  
change colors, etc.