Image Processing Laboratory (EC69502)

Experiment No 1

Write C/C++ modular functions to read, perform transformations, and then write BMP image files. All functions must support 24-bit RGB and 8-bit grayscale image formats.

(a) **Read BMP**:

a. Input: Filename of input image

b. Output: BMP header structure printing height, width, bit width, File size in bytes, offset size, image pixel array loaded onto memory.

If the Image is not a BMP it should print the message.

(b) **Geometrical Transforms**:

a. Input: Image pixel array

b. Output: 1. Grayscale-converted (if it is color)
2. diagonally flipped (transposed) pixel array
3. 90-degree rotated pixel array
4. 45-degree rotated pixel array
5. scale the pixel array two times

All the operations should be implemented for both square and rectangular images. Use nearest neighbor interpolation if required.

(c) **Write BMP**:

a. Input: Filename of output (grayscale) image, BMP header structure, Image pixel array

b. Output: BMP file of grayscale and different geometrical transformed images (for both square and rectangular images) written on disk

Submit C/C++ code, read me file, Report in PDF format, input images, output images, executable in a zip file and name it "Exp-01-Gr-<Group No>