Enhancing Quality of Lossy Compressed Images Using Minimum Decreasing Technique

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The acceleration in technology development came with the urgent need to use large amounts of information, and the way of storing or transferring the huge information via various digital networks became very important issues, particularly in terms of compressing size and quality preservation. The digital image usage has become widespread in many sectors; it become important to manipulate these images to use them in optimal form by maintaining the quality, especially during the compression process using the lossy techniques. This paper presents a new technique to enhance the quality of compressed images while preserving the compression ratio by adding some of pre-processing steps before implementing any existing lossy compression technique. The proposed technique depends on decreasing the minimum elements from the image pixels values in each: row, column, and 2x2 block, respectively. These steps minimize the required number of bits to represent each pixel in the compressed images. In order to prove the efficiency of the proposed technique, two lossy compression techniques (novel and classical) were implemented with the proposed. They implemented on wide range of well-known images with different dimensions, sizes, and types. The experimental results show that the quality of the decompressed images with the proposed technique were enhanced in terms of: MSE, MAE and PSNR as quality evaluation metrics.