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Merge_Stego(Img1, Img2):
    x_1 = total number of rows in Img1
    y_1 = total number of columns in Img1
    // we have assumed that Img1 and Img2 have same dimension

    Steg_img = zero matrix with dimension [ x_1 × y_1 × 3 ]

    for (y = 1 to y_1 ):
        for (x = 1 to x_1):
            for ( i = 1 to 3):
                Q = 8 bits pixel in (x, y, i) of matrix Img1
                W = 8 bits pixel in (a, b, i) of matrix Img2
                Q = Bitwise And operation on Q and [11110000]
                //remove the last 4 LSB of Q by bitand command in MATLAB

                W = Zero extension shift W to the right by 4 bits
                // get only 4 MSB of W by bitshift command in MATLAB

                E = Bitwise Or operation on Q and W
                // by bitor command in MATLAB

                Steg_img[x, y, i] = Steg_img[x, y, i] + E
            endfor
        endfor
    endfor
    Output Steg_img

```

We implement the algorithm in MATLAB. Steg_img is a pixel matrix of the stego-image. To convert the matrix of pixels into an image, we can use MATLAB command “**imwrite(Steg_img, filename)**”. For example, “**imwrite(Steg_img, 'steg.png');**” will write the matrix Steg_img into a PNG image “steg.png”.

Extract_Stego(Steg_img):

A = matrix representation of Steg_img

//Steg_img converts to A which is a matrix of pixels by MATLAB command

//“imread(A, Steg_img)”

[x, y, z] = the dimension of A: $a \times b \times c$

// x = a, y = b, z = c

// z = c = 1 (Red), z = c = 2 (Green), z = c = 3 (Blue)

Extracted_img = zero matrix with dimension [x × y × 3]

for (a = 1 to x):

for (b = 1 to y):

for (i = 1 to 3):

Q = 8 bits pixel in (a, b, i) of matrix A

Q = Shift Q to the left by 4 bits in 8 bits

// remove the 4 MSB of Q by bitshift command in MATLAB

E = bitwise “And” operation on Q and [11111111]

// to get an 8 bits binary which contain Q in the 4 MSB of E and

// the remaining 4 LSB of E be 0

// by bitand command in MATLAB

Extracted_img[a, b, i] = Extracted_img[a, b, i] + E

endfor

endfor

endfor

Output **Extracted_img**

Again, we implement the algorithm in MATLAB. Extracted_img is a pixel matrix of the extracted image from the stego-image. To convert the matrix of pixels into an image, we can use MATLAB command “ **imwrite(Extracted_img, filename)** ”. For example, “ **imwrite(Extracted_img, 'extracted.png')**”; “ will write the matrix Extracted_img into a PNG image “extracted.png”.