SF Lab - 2
Assignment - 1

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Algorithm:

Encryption:

1. The image is being read using opencv using the flag *IMREAD_UNCHANGED* which will import black and white images as 2D array and colored images as 3D array.
2. Using the dimensions of the images we are detecting if the image is colored or not.
3. Then the user will have to enter the secret key.
4. The secret key will be divided into three parts, *initial_x, initial_y* and *initial_seed*.
5. *Initial_x* and *initial_y* will be used to select the position from which the secret message will be stored.
6. In each iteration we will be generating a random number using a particular seed. This random number will decide the next position where the bit should be stored.
7. Using seed for random numbers will give a unique sequence of numbers for a particular *initial_seed*. So the bits of the secret message will be stored at random distances from each other.
8. After entering the secret key, the user will have to enter the secret message which needs to be hidden.
9. The message will be converted to binary format.
10. We will use '\0' as the delimiter to detect the end of the message.
11. Then the program will store the encrypted image and save it to the folder as "res.png".

Decryption:

1. While decrypting we will read the image using opencv.
2. The user will have to enter the secret key.
3. The secret key will be divided into three parts, same as during encryption.
4. Now we can get the sequence of positions where message bits are stored using the initial position and the *initial_seed* for generating random variables.
5. For every 8 bits a character is stored to the decrypted message.
6. We will be reading the next positions and storing characters until we get '\0' character.