DIP ASSIGNMENT - 2

Analysis Report

1. Oppenheimer's Poster

a.   Memory size = 2 GB = 2×10^9

Size of image = 720 x 480 = 345600

Thus, the image will have 345600 pixels and since it is a colour image there will be three channels so (345600 * 3) pixels.

Number of images that can be stored = $\dfrac{2 * 10^9}{345600 * 3}$

$$= 1929$$

Thus, from our calculation we can see that approximately 1929 images can be stored in the memory of size 2GB.

2. Quantised Explosion

a.   We notice that with k = 4, the quantised image is very similar to the original image even while using a fewer number of bits (4 bits corresponds to 2^4=8 levels)

b.   Bit planes of the explosion image have been plotted and we see that the image formed from the LSB holds the least significant information about the final image while the MSB bit plane holds most of the valuable information about the image. The LSB image is noisy and as we keep going to the LSB image the information becomes more apparent.

3. Colour Corrected Barbie

a. It is apparent that when we apply contrast stretching, the most frequent colours of the image change values. If we increase the range [a,b] then the values of the frequent colours increases.

For example, in the original provided image the value of the most frequently occurring pixel is 55. However, when the image is stretched to [0,255] the value changes to 255.