Exp No . 07 : HOMOMORPHIC FILTERRING TECHNIQUE

Name : Vinay Malkar

Reg No. 21BEC1430

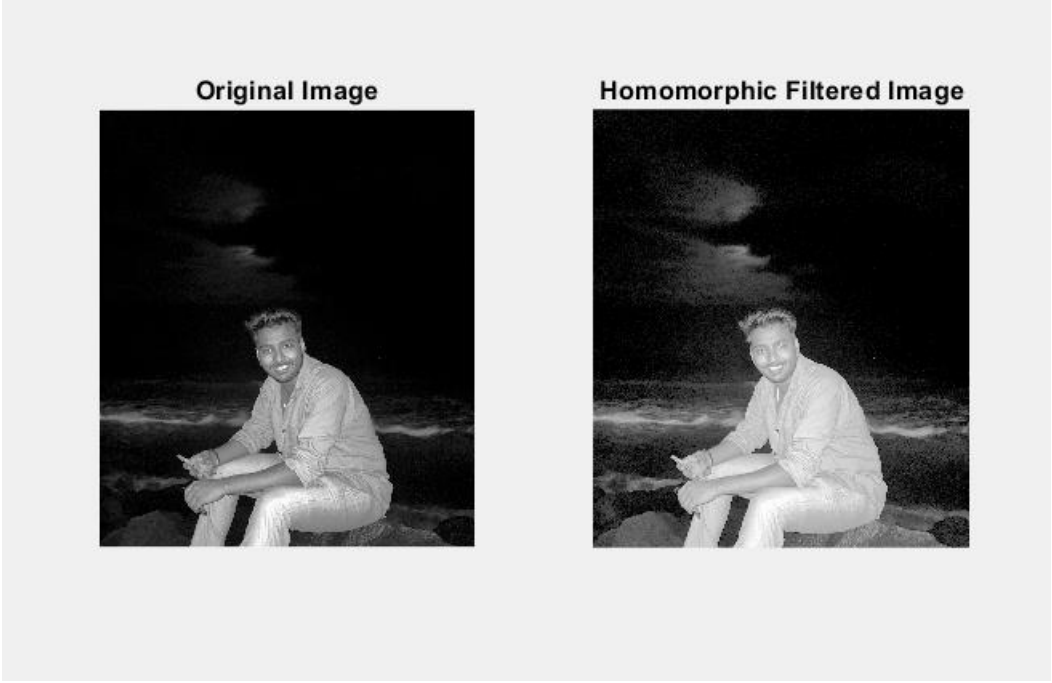
Aim:- Design and implement a homomorphic filterring technique using matlab

Code :

```
clc;
close all;
clear all;
d = 10; % Cutoff frequency
d2 = d^2; % Square of cutoff frequency
f = double(rgb2gray(imread("F:\IMG_1158.jpg")));
l = log(1 + f); % Logarithmic transformation
z = fft2(l);
[m, n] = size(f);
b = zeros(m, n);
h = zeros(m, n);
for i = 1:m
for j = 1:n
b(i, j) = sqrt((i - m / 2)^2 + (j - n / 2)^2);%eucledian distance
h(i, j) = exp(-b(i, j)^2 / (2 * d2)); % Gaussian filter
end
end
L = 0.5; % Gamma low value
H = 1.5; % Gamma high value
```

```
filter = L + (H - L) * h;

s = z .* filter;

g = abs(ifft2(s));%inverse fourier transformation

e = exp(g) - 1;%inverse the logarithmic transformation

subplot(1, 2, 1);

imshow(f, []);

title('Original Image');

subplot(1, 2, 2);

imshow(e, []);

title('Homomorphic Filtered Image');
```

Matlab Output :



CONCLUSION:-This project successfully designed and implemented a homomorphic filtering technique using MATLAB.