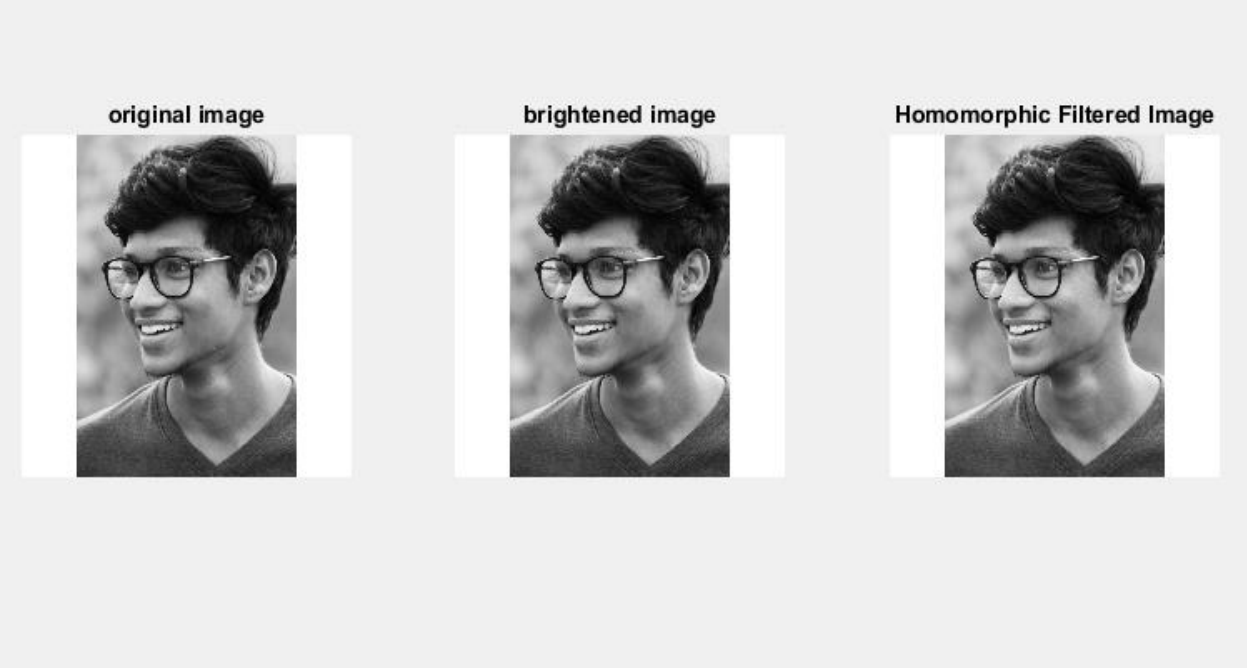
EXP 7 – HOMOMORPHIC FILTER

REG:21BEC1051
NAME: PRAMOTH KP

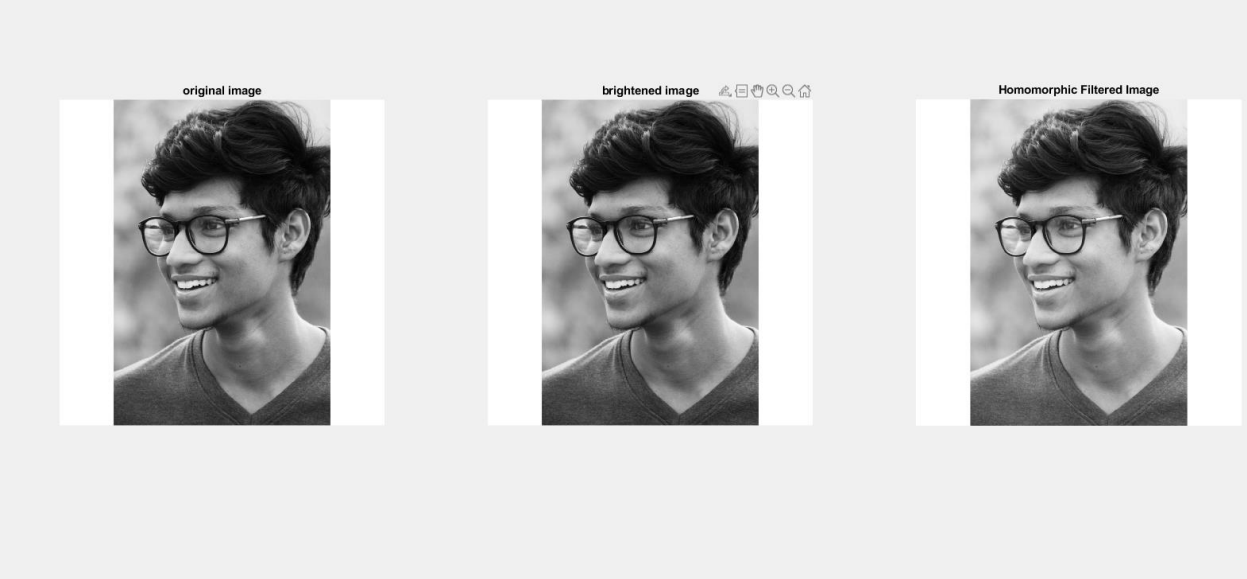
CODE:

```
clc;
close all;
clear all;
d = 10;  % Cutoff frequency
d2 = d^2;  % Square of cutoff frequency
f1 = double(rgb2gray(imread("D:\21bec1051\im1.jpeg")));
f=f1+400;
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(1,3,1)
imshow(f1, [])
title("original image")
subplot(1, 3, 2);
imshow(f, []);
title('brightened image');
subplot(1, 3, 3);
imshow(e, []);
title('Homomorphic Filtered Image');
```

OUTPUT:

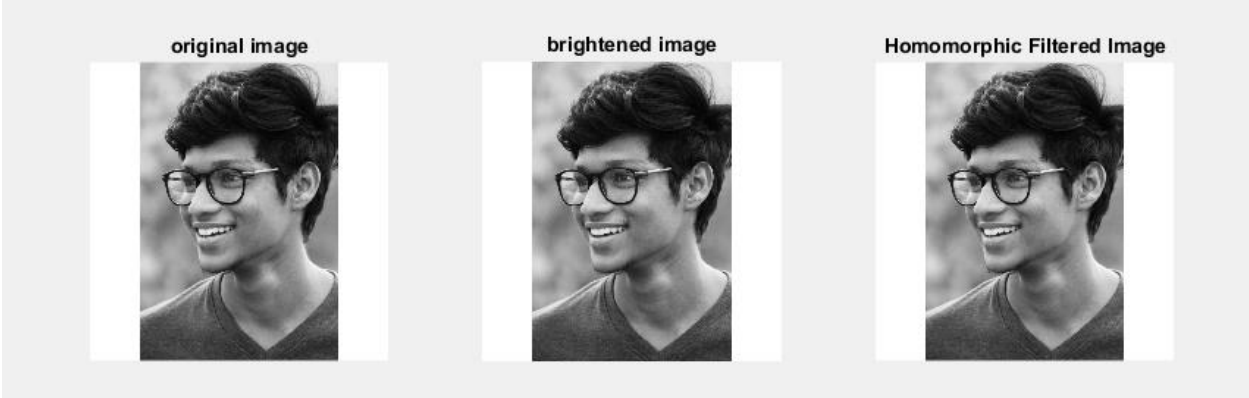


BRIGHTNESS+50:



BRIGHTNESS+200:

BRIGHTNESS+1500:



BRIGHTNESS+40000: