AYUSH VERMA -2016CS10374
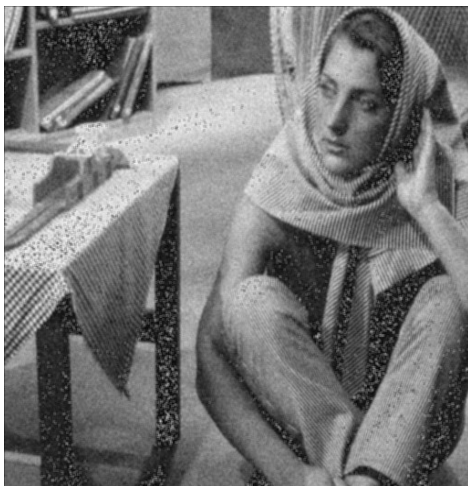
Basic Denoising:

Normal image

Image with gaussian noise

Mean filter over gaussian noise

**Kernel size = 3
psnr = 28.57**

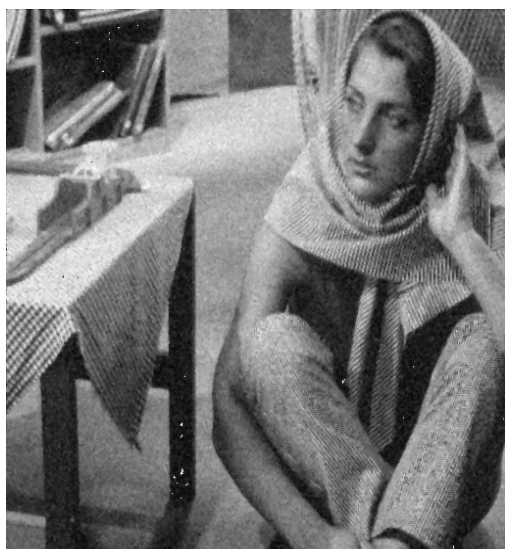**kernel size = 5
psnr = 28.44**
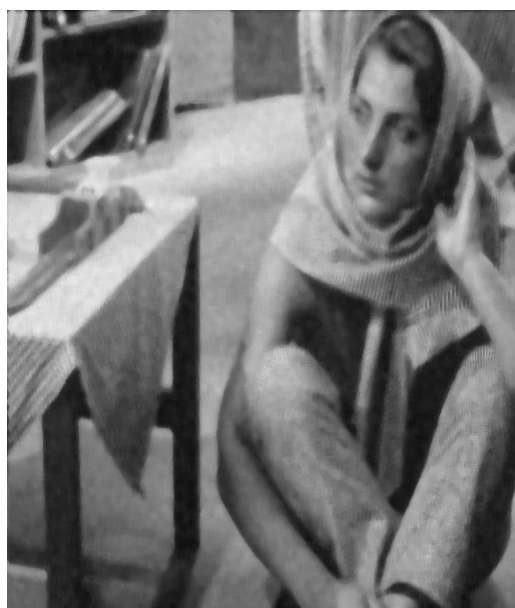

**kernel size = 7
psnr = 28.38**

**kernel size = 9
psnr = 28.35**

Median filter over gaussian noise

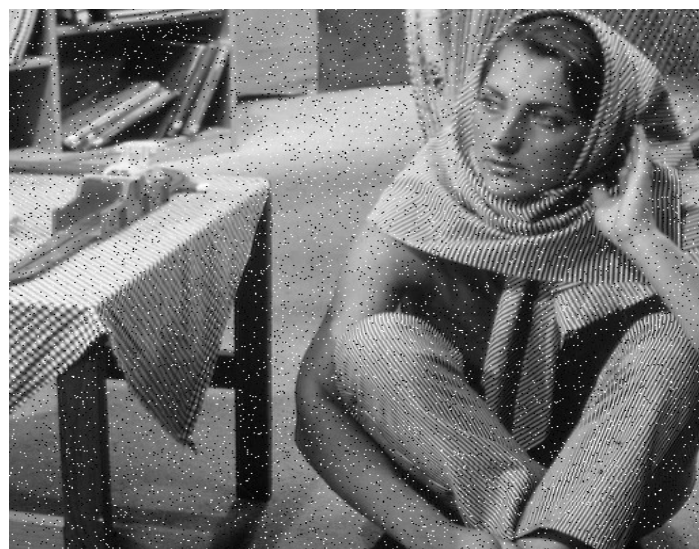kernel size = 3
psnr = 19.19

kernel size = 5
psnr = 28.71

kernel size = 7
psnr = 28.60

kernel size = 9
psnr = 28.54

original image

Image with salt and pepper noise

Mean filter over salt and pepper noise

kernel size =3
psnr = 30.50

kernel size = 5
psnr = 29.88

kernel size =7
psnr = 29.71

kernel size = 9
psnr = 29.52

Median filter over salt and pepper noise

kernel size = 3
psnr = 32.67

kernel size =5
psnr = 31.4

kernel size =7
psnr = 31.07

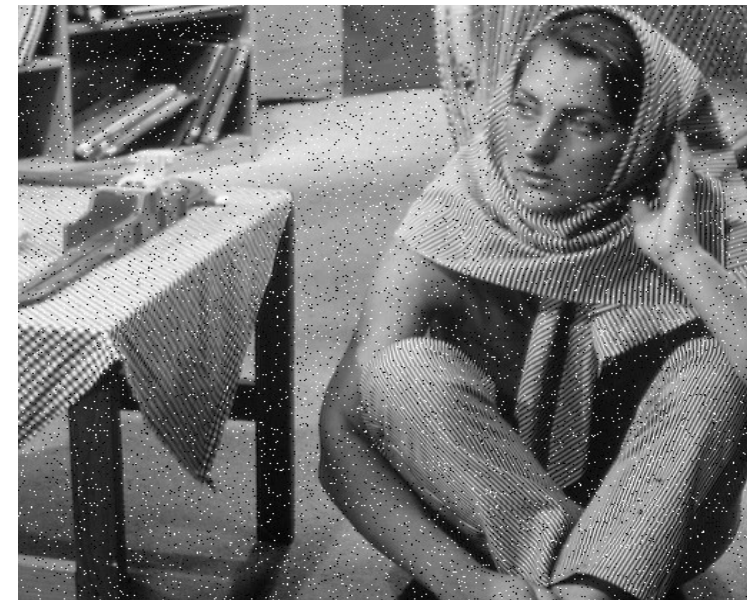kernel size =9
psnr = 30.78

Anisotropic diffusion edge-preserving smoothing
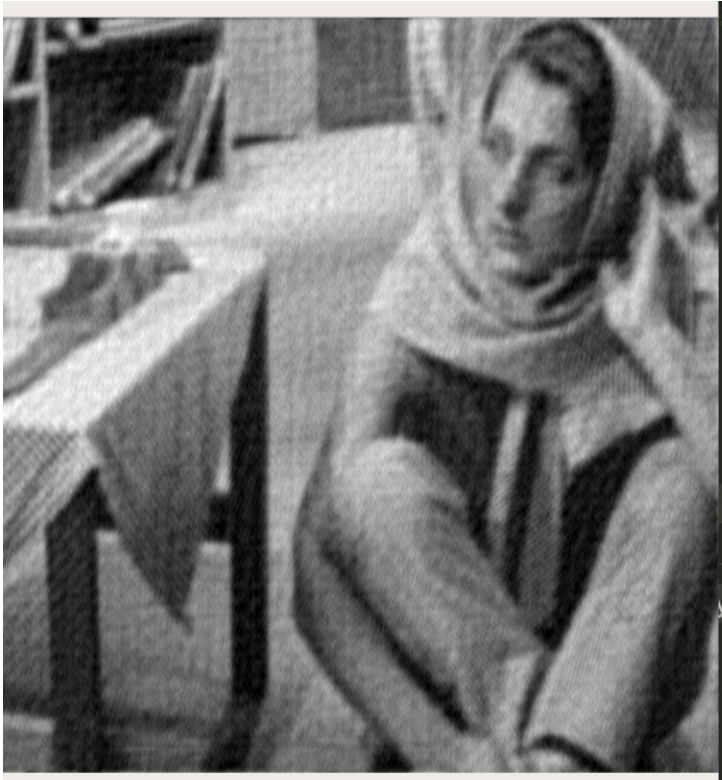

Gaussian noise image

Anisotropic diffusion

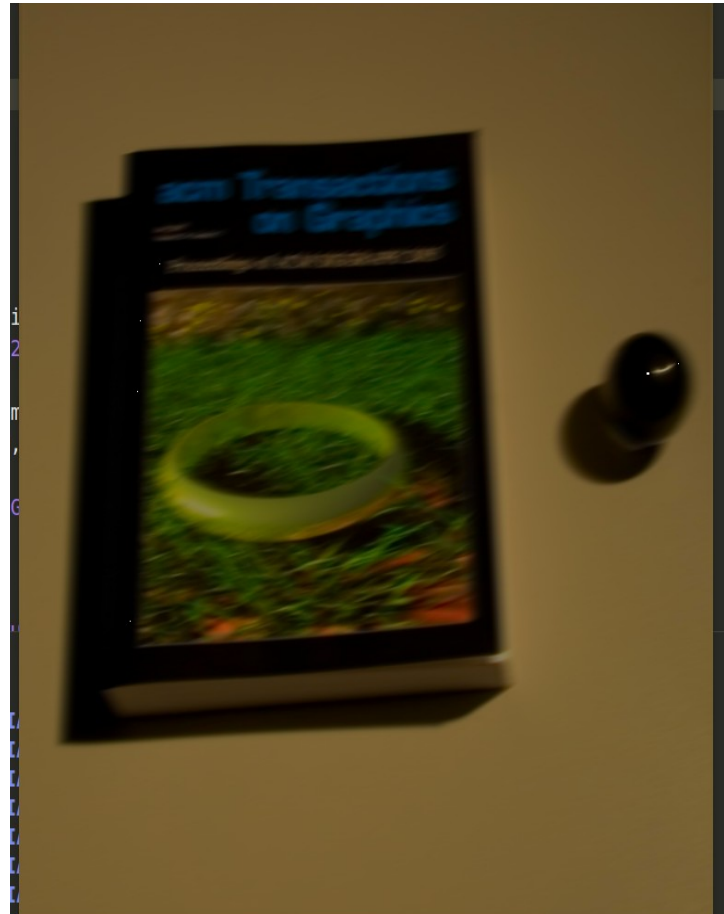Salt and pepper noise

Anisotropic diffusion

Using this technique we try to preseve edge and smooth across boundaries. As number of iterartions in this method increase we start to get oil painting like effect. This method works better for gaussian noise rather than salt and pepper.

Wiener filter :

Real World images :

1)

I use motion blur psf function and wiener filter to get de-motion blurred image. With len =10 and theta = 50 to reduce motion blur.

2)

Gray blurred image image

Image after defocus blur & wiener filter

RGB corrected