Akash Prabhakar

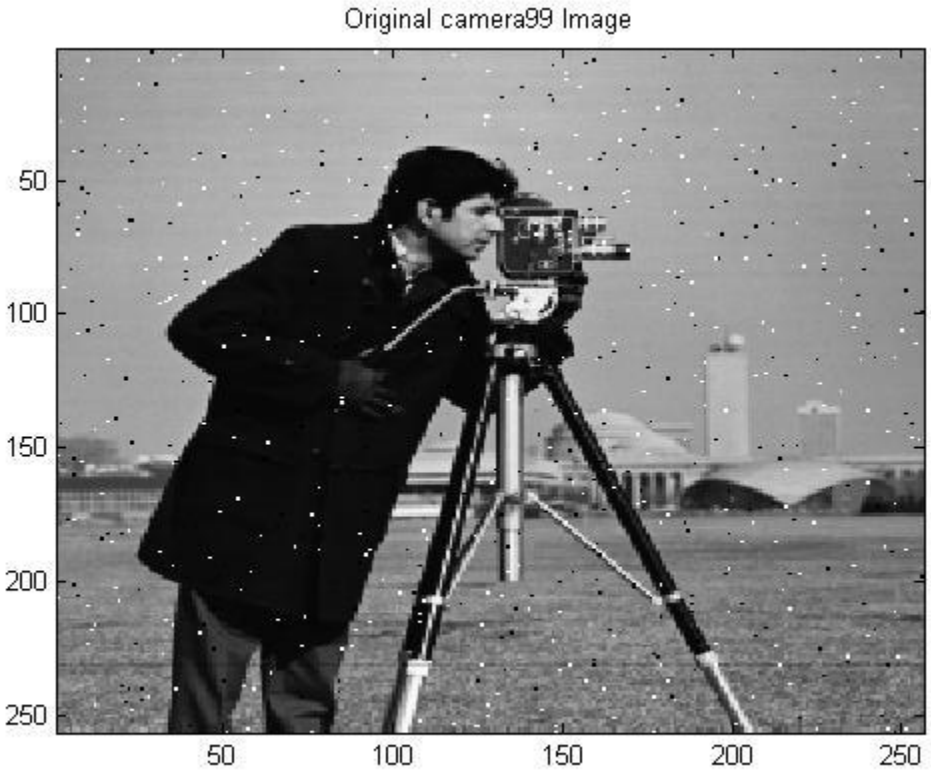
113388552

Camera99 Image Program:

```
clc;
closeall;
clearall;
fidcamera99 = fopen('camera99.bin','r');
[camera99,junk] = fread(fidcamera99,[256,256],'uchar');

camera99 = camera99' ;% for trasnpose of the image
figure(1);colormap(gray(256));
image(camera99);
title('Original camera99 Image');

I=camera99;

%Selecting the size for window
size=256;
windowsize=3;
%windowsize2=floor(windowsize/2);
Window=zeros(windowsize);
Median=zeros(size);
Erode=zeros(size);
Dilate=zeros(size);
Open=zeros(size);
Close=zeros(size);
%Performing Erode, Medain and Dilate
fori=2:255
for j=2:255
        Window=I(i-1:i+1,j-1:j+1);
Median(i,j)=median(median(Window));
Erode(i,j)=min(min(Window));
Dilate(i,j)=max(max(Window));
end
end


%Performing Open and Close
fori=3:254
for j=3:254
        Window=Erode(i-1:i+1,j-1:j+1);
Open(i,j)=max(max(Window));
        Window=Dilate(i-1:i+1,j-1:j+1);
Close(i,j)=min(min(Window));
end
end
%Displaying the Results
figure(2);
colormap(gray(256));
image(Median);
title('Median filtered Camera 99 Image');
```

```
figure(3);
colormap(gray(256));
image(Open);
title('Open Camera 99 Image');

figure(4);
colormap(gray(256));
image(Close);
title('Close Camera 99 Image');
```

Output:



Median filtered Camera 99 Image

Open Camera 99 Image

Results: The Camera99.bin Image contains salt and pepper noise.

Median Filter: After applying the median filter we can see that the salt and pepper noise is removed from the image but the image appears to be little bit noisy i.e. the image is not as clear and lost some details. Although, there is some loss in details of the image, the image is acceptable as the salt and pepper noise is removed completely.

Open: The result of applying the open operation to camera99.bin can be seen. After applying the open operation we can see that white spots are removed from the image, but still there are black spots on the image.

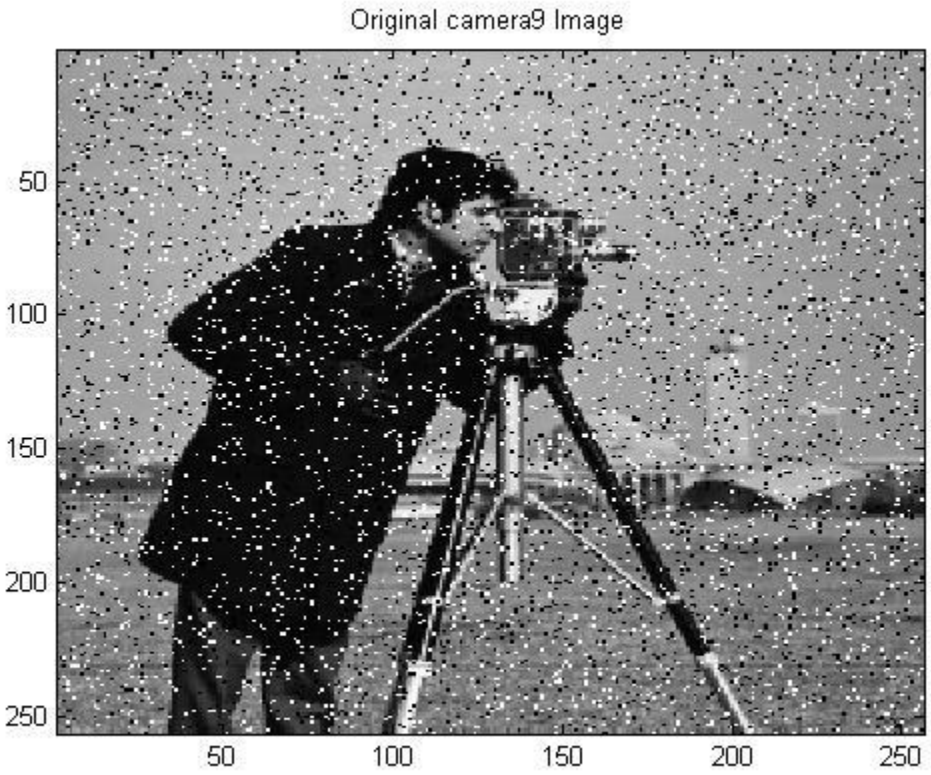
Close: The result of applying the close operation to camera99.bin can be seen. After applying the operation we can see that the result is complementary as to that of Open. In close operation the white spots are preserved and the black spots are removed from the image.

Camera9 Image Program:

```
clc;
closeall;
clearall;
fidcamera9 = fopen('camera9.bin','r');
[camera9,junk] = fread(fidcamera9,[256,256],'uchar');

camera9 = camera9' ;% for trasnpose of the image
figure(1);colormap(gray(256));
image(camera9);
title('Original camera9 Image');

I=camera9;

%Selecting the size for window
size=256;
windowsize=3;
%windowsize2=floor(windowsize/2);
Window=zeros(windowsize);
Median=zeros(size);
Erode=zeros(size);
Dilate=zeros(size);
Open=zeros(size);
Close=zeros(size);
%Performing Erode, Medain and Dilate
fori=2:255
for j=2:255
        Window=I(i-1:i+1,j-1:j+1);
Median(i,j)=median(median(Window));
Erode(i,j)=min(min(Window));
Dilate(i,j)=max(max(Window));
end
end


%Performing Open and Close
fori=3:254
for j=3:254
        Window=Erode(i-1:i+1,j-1:j+1);
Open(i,j)=max(max(Window));
        Window=Dilate(i-1:i+1,j-1:j+1);
Close(i,j)=min(min(Window));
end
end
%Displaying the Results
figure(2);
colormap(gray(256));
image(Median);
title('Median filtered Camera 9 Image');

figure(3);
colormap(gray(256));
image(Open);
title('Open Camera 9 Image');
```

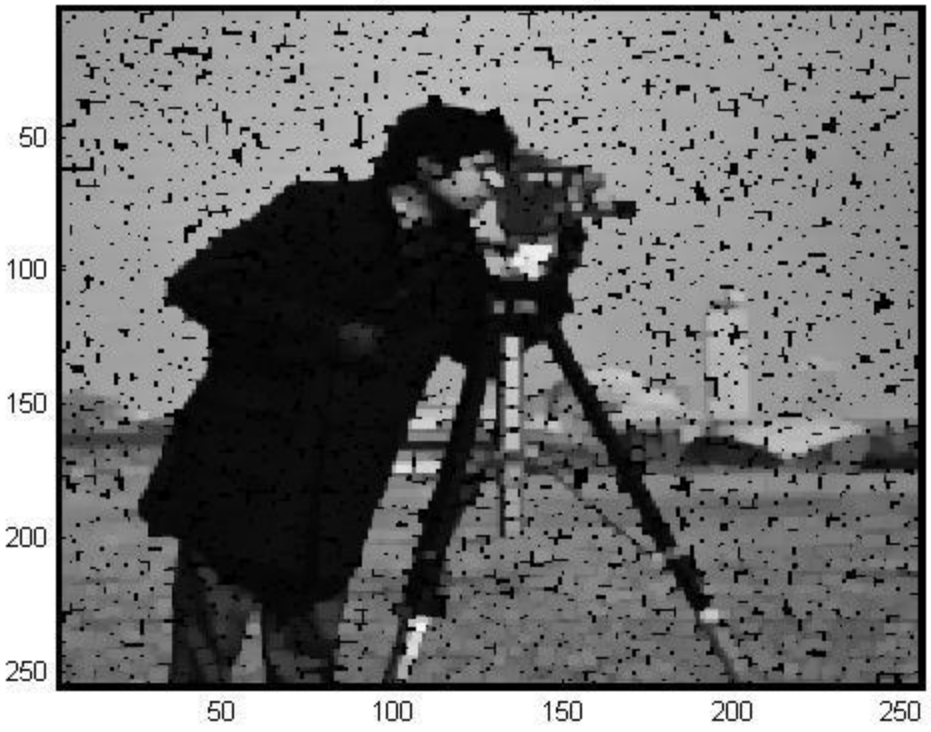
```
figure(4);
colormap(gray(256));
image(Close);
title('Close Camera 9 Image');
```

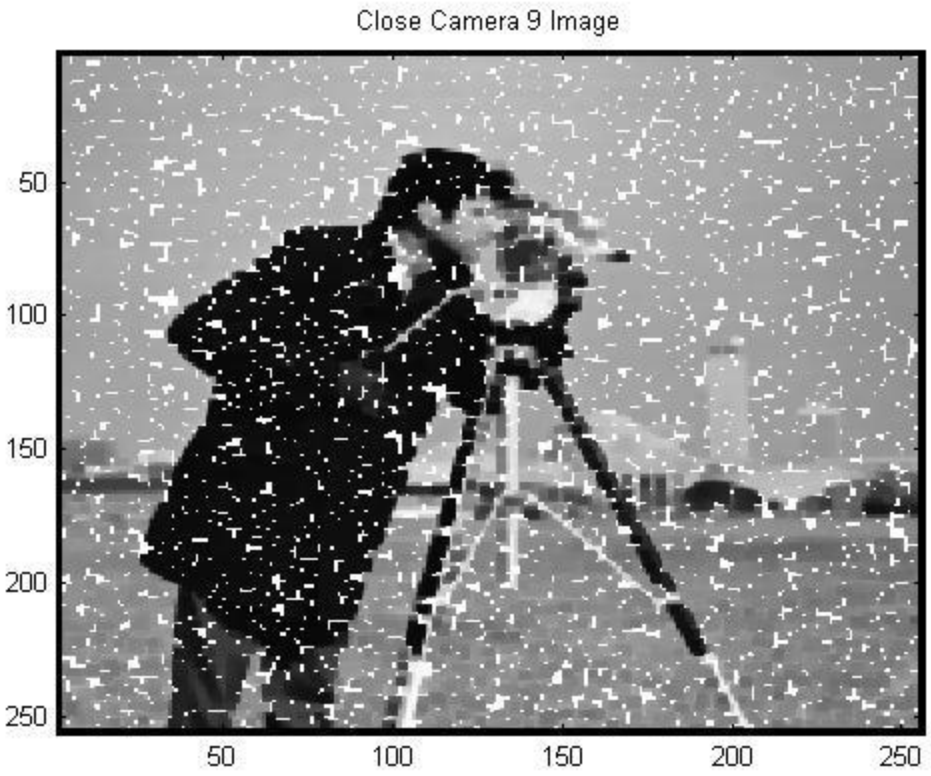
OUTPUT -



Median filtered Camera 9 Image

Open Camera 9 Image





Results: The Camera9.bin Image contains salt and pepper noise.

Median Filter: After applying the median filter we can see that the salt and pepper noise is removed from the image but the image appears to be little bit noisy i.e. the image is not as clear and lost some details. Although, there is some loss in details of the image, the image is acceptable as the salt and pepper noise is removed completely.

Open: The result of applying the open operation to camera9.bin can be seen. After applying the open operation we can see that white spots (positive spikes) are removed from the image, but still there are black spots on the image.

Close: The result of applying the close operation to camera9.bin can be seen. After applying the operation we can see that the result is complementary as to that of Open. In close operation the white spots are preserved and the black spots (negative spikes) are removed from the image.