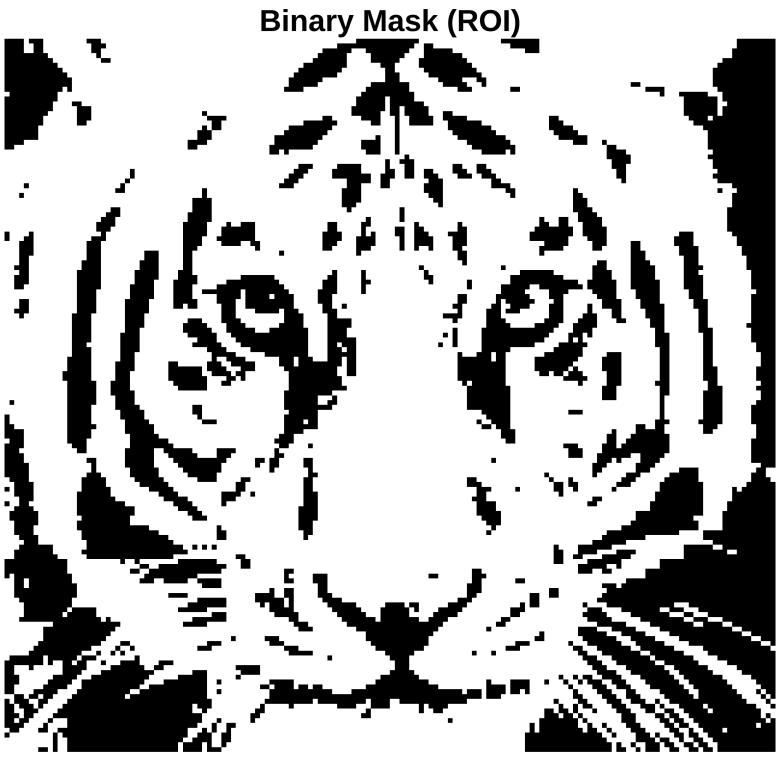
```
% Read the given image
img = imread('tiger.jpeg');

% Convert the given image to grayscale if it's not
if size(img, 3) == 3
    img_gray = rgb2gray(img);
else
    img_gray = img;
end

% Show original image
figure, imshow(img_gray), title('Original Image');
```


```
threshold = 100;
binary_mask = img_gray > threshold;

% Show the binary mask
figure, imshow(binary_mask), title('Binary Mask (ROI)');
```




```
% Apply Low-Pass Filters
% Gaussian Low-Pass Filter
h_gaussian = fspecial('gaussian', [5 5], 2);
img_gaussian = imfilter(img_gray, h_gaussian);

% Average Low-Pass Filter
h_average = fspecial('average', [5 5]); % 5x5 kernel
img_average = imfilter(img_gray, h_average);

% Show Low-Pass Filter Results
figure, imshow(img_gaussian), title('Gaussian Filter ');
```

Gaussian Filter

```
figure, imshow(img_average), title('Average Filter ');
```

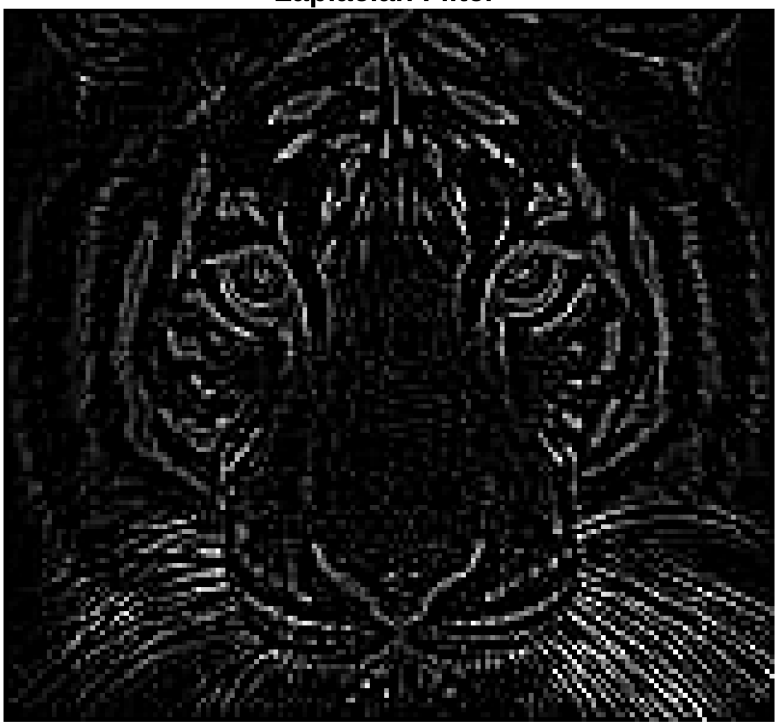
Average Filter

```
% Apply High-Pass Filters
% Laplacian High-Pass Filter
h_laplacian = fspecial('laplacian', 0.2); % Sensitivity factor 0.2
img_laplacian = imfilter(img_gray, h_laplacian);

% Prewitt High-Pass Filter
img_prewitt = edge(img_gray, 'prewitt');

% Show High-Pass Filter Results
figure, imshow(img_laplacian), title('Laplacian Filter ');
```

Laplacian Filter



```
figure, imshow(img_prewitt), title('Prewitt Filter ');
```

Prewitt Filter