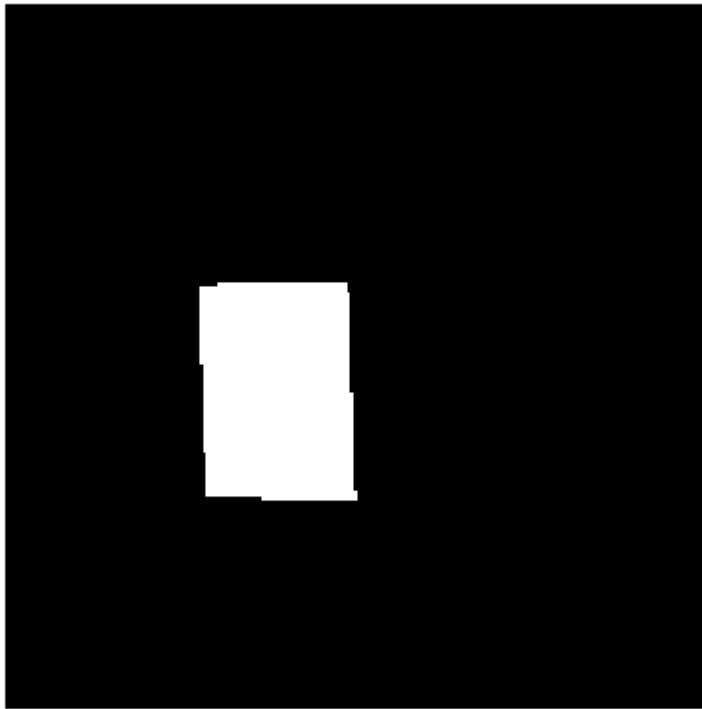


```
%Homework 2 - Q1  
% Read and convert the image to grayscale  
m = imread('tint1.jpg');  
m = rgb2gray(m);
```

```
% Create a binary mask using roipoly (Ensure the mask has the same size as  
the image)  
roi = roipoly(m); % Use the image size as the input for the mask
```



```
% Display the binary mask (ROI)  
imshow(roi)
```



```
% Apply filters
```

```
% Average Filter (Low-Pass)
```

```
a = fspecial('average', 15); % 15x15 average filter  
ma = roifilt2(a, m, roi);
```

```
% Unsharp Filter (High-Pass)
```

```
u = fspecial('unsharp'); % Unsharp filter for sharpening  
mu = roifilt2(u, m, roi);
```

```
% Laplacian Filter (High-Pass)
```

```
l = fspecial('laplacian', 0.2); % Laplacian filter with alpha = 0.2  
ml = roifilt2(l, m, roi);
```

```
% Gaussian Filter (Low-Pass)
```

```
gaussianFilter = fspecial('gaussian', 15, 2); % Gaussian filter with 15x15  
size and sigma = 2  
mgaussian = roifilt2(gaussianFilter, m, roi);
```

```
% Prewitt Filter (High-Pass)
```

```
prewittFilter = fspecial('prewitt'); % Prewitt filter for edge detection
```

```
mprewitt = roifilt2(rewittFilter, m, roi);
```

```
% Displaying all results  
figure, imshow(ma), title('Average Filter');
```

Average Filter



```
figure, imshow(mu), title('Unsharp Filter');
```

Unsharp Filter



```
figure, imshow(ml), title('Laplacian Filter');
```

Laplacian Filter



```
figure, imshow(mgaussian), title('Gaussian Filter');
```

Gaussian Filter



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

Prewitt Filter

