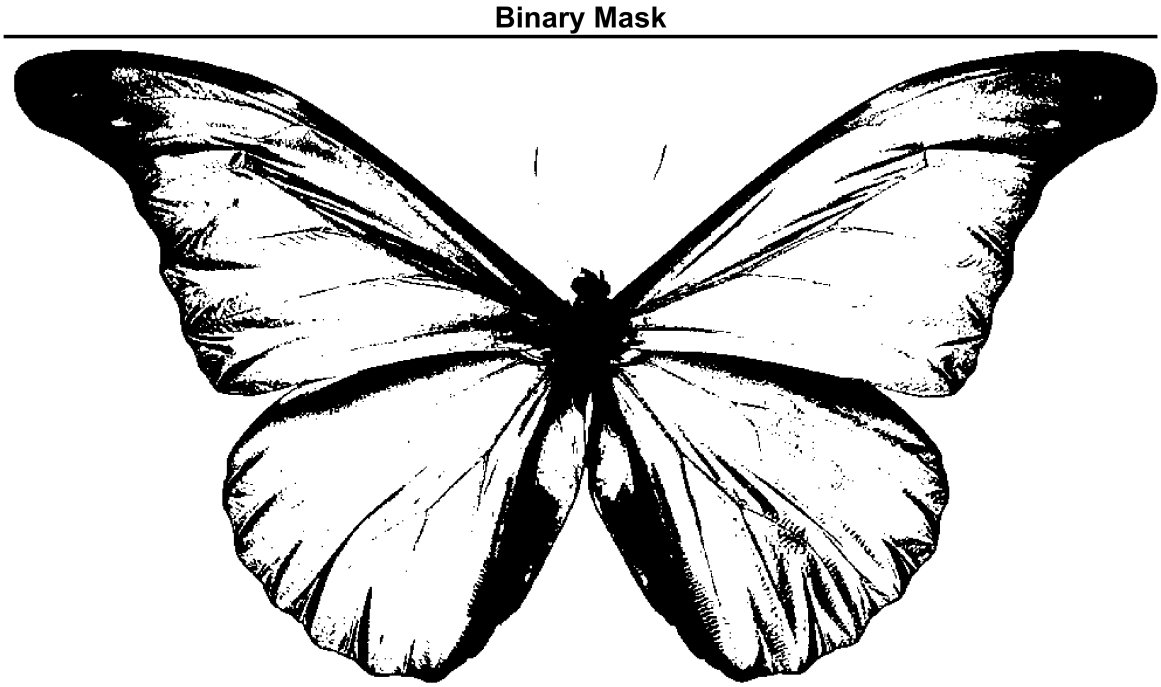
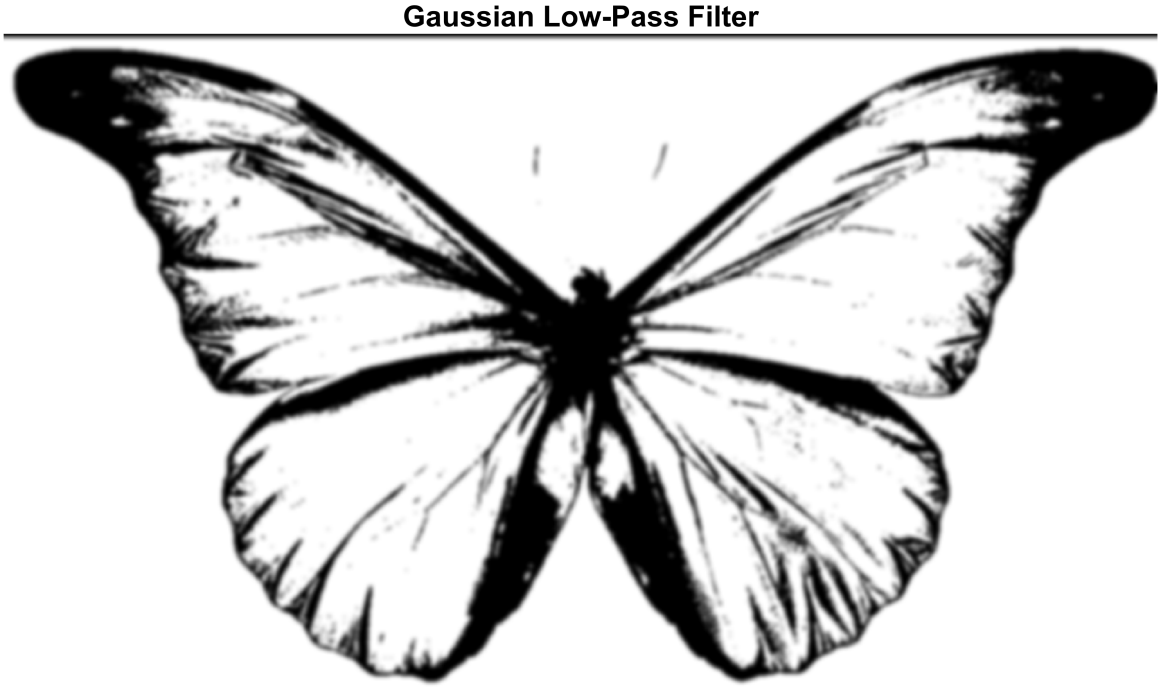
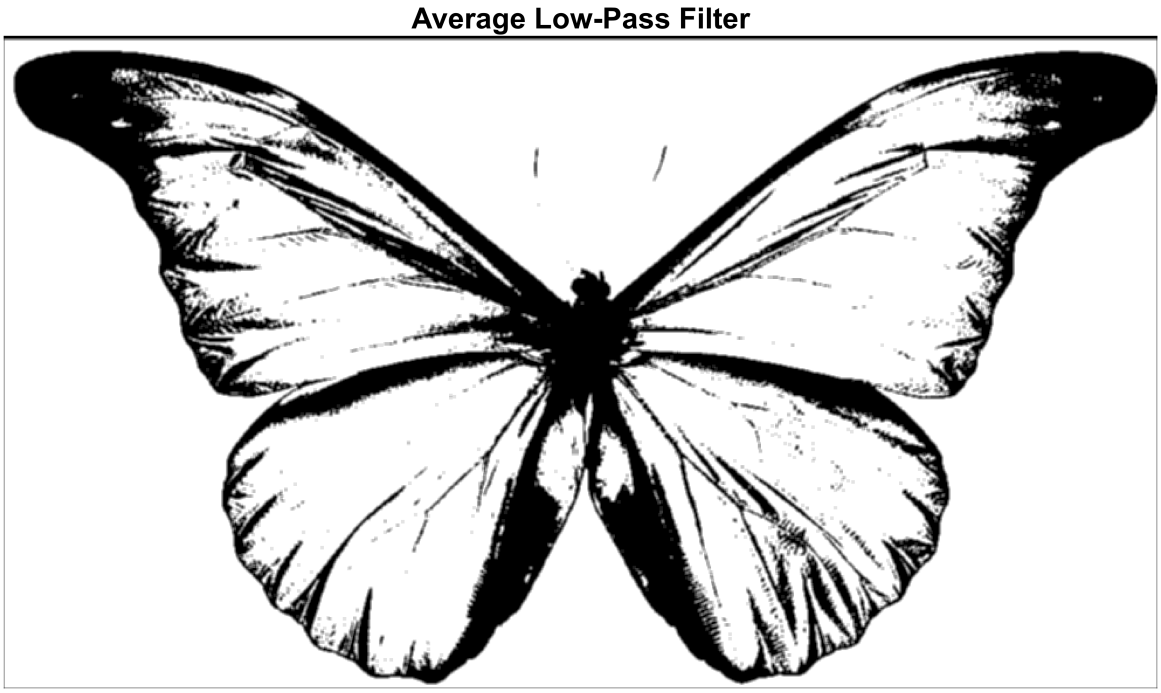
```
image_path = 'C:\Users\pbsjy\Downloads\butterfly_image.png'; % Adjust the path as
necessary
image = imread(image_path);

% Convert to grayscale
gray_image = rgb2gray(image);

%  binary mask
threshold = 105;
binary_mask = gray_image > threshold;
figure, imshow(binary_mask), title('Binary Mask');
```



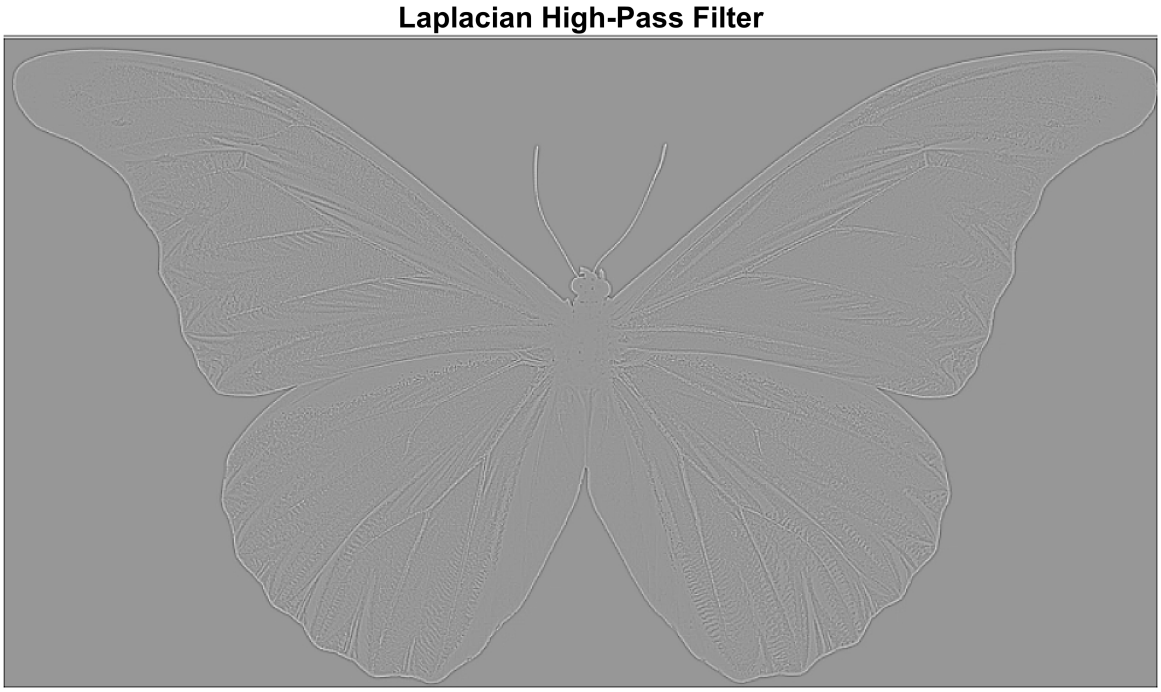

```
%  Gaussian low-pass filter
gaussian_filtered = imgaussfilt(double(binary_mask), 2);
figure, imshow(gaussian_filtered, []), title('Gaussian Low-Pass Filter');
```




```
% Average low-pass filter
avg_filter = fspecial('average', [3 3]);
avg_filtered = imfilter(double(binary_mask), avg_filter);
figure, imshow(avg_filtered, []), title('Average Low-Pass Filter');
```



```
% Laplacian high-pass filter
laplacian_filter = fspecial('laplacian', 0.2);
laplacian_filtered = imfilter(double(gray_image), laplacian_filter); % Change
binary_mask to gray_image for Laplacian
figure, imshow(laplacian_filtered, []), title('Laplacian High-Pass Filter');
```




```
% Prewitt high-pass filter
prewitt_filter = fspecial('prewitt');
prewitt_filtered = imfilter(double(gray_image), prewitt_filter); % Change
binary_mask to gray_image for Prewitt
figure, imshow(prewitt_filtered, []), title('Prewitt High-Pass Filter');
```

Prewitt High-Pass Filter