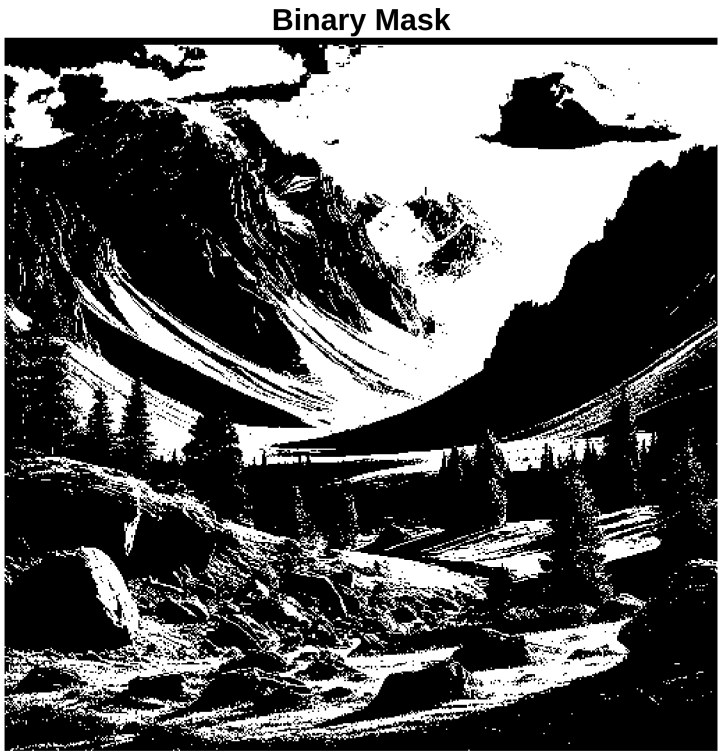
```
% Task 1: Binary Mask
clc; clear; close all;

% Read the image
img = imread('image.jpg');
gray_img = rgb2gray(img);

% Create a binary mask (thresholding)
binary_mask = gray_img > 128;

% Display the binary mask
figure;
imshow(binary_mask);
title('Binary Mask');
```




```
% Apply Low-pass and high-pass filter

% Apply Gaussian Low-pass Filter
gaussian_filter = fspecial('gaussian', [5 5], 2);
low_pass_img = imfilter(gray_img, gaussian_filter);

% Apply Average Low-pass Filter
average_filter = fspecial('average', [5 5]);
low_pass_avg_img = imfilter(gray_img, average_filter);
```

```
% Apply Laplacian High-pass Filter
laplacian_filter = fspecial('laplacian', 0.2);
high_pass_img = imfilter(gray_img, laplacian_filter);

% Apply Prewitt High-pass Filter
prewitt_filter = fspecial('prewitt');
high_pass_img_prewitt = imfilter(gray_img, prewitt_filter);

% Display the results
figure;
subplot(2,2,1), imshow(low_pass_img), title('Gaussian Low-pass Filter');
subplot(2,2,2), imshow(low_pass_avg_img), title('Average Low-pass Filter');
subplot(2,2,3), imshow(high_pass_img), title('Laplacian High-pass Filter');
subplot(2,2,4), imshow(high_pass_img_prewitt), title('Prewitt High-pass
Filter');
```