



The first filter is an edge detection or ridge. Which detects shift changes in intensity like edges by giving the central pixel a higher weight compared to its neighbors. Negative values around the center subtract from the total value, which emphasizes areas where pixel intensity changes rapidly, like edges or boundaries. Amplifies the color contrasts, which leads to colorful edges along the butterfly's wings and background. The edge detection is more structured than filter 2, revealing large-scale edges (such as the shape of the butterfly wing and the surrounding shapes)

The second filter is also an edge detection filter, but it is structured to detect diagonal edges more strongly than horizontal or vertical ones. The zeros in the middle row and column mean the filter is less sensitive to vertical and horizontal features, focusing more on diagonal intensity variations. filter 2 has the ability to detect more subtle gradients, creating a noisier, more detailed image with a lot of tiny color variations and patterns. Less structured than filter 1, with many small patterns across the image, emphasizing fine textures and diagonal features.