1. **Dilation**:
   * Dilation is a morphological operation that increases the white region in an image while decreasing the black region. It works by adding pixels to the boundaries of objects in an image.
   * The basic idea is to slide a structuring element (kernel) over the image. For each pixel under the kernel, if at least one pixel in the kernel is white (has a value greater than 0), the center pixel becomes white.
   * Dilation is useful for joining broken parts of an object, filling small gaps, and smoothing the boundaries of objects.
   * It's commonly used to enhance features in binary images and to prepare images for further processing steps like contour detection.
2. **Erosion**:
   * Erosion is the opposite of dilation. It decreases the white region and increases the black region in an image.
   * Erosion is useful for removing small white noise, detaching connected objects, and shrinking the boundaries of objects.
   * It's commonly used to remove small objects or details from binary images and to separate objects that are too close to each other.
3. **Opening**:
   * Opening is a combination of erosion followed by dilation. It's useful for removing noise and small objects while preserving the shape and size of larger objects.
   * The opening operation is performed by applying an erosion operation followed by a dilation operation with the same structuring element.
   * It's effective in removing small islands of noise while keeping the main body of objects intact.
   * Opening is commonly used in image preprocessing to prepare images for segmentation or feature extraction.
4. **Closing**:
   * Closing is the opposite of opening. It's a combination of dilation followed by erosion.
   * Closing is useful for closing small gaps between objects or connecting nearby objects.
   * The closing operation is performed by applying a dilation operation followed by an erosion operation with the same structuring element.
   * It's commonly used to fill small holes in objects, to connect broken parts of objects, and to smooth the boundaries of objects.
   * Closing is often employed in tasks like object detection, image restoration, and morphological image processing.

In summary, dilation and erosion are basic morphological operations used for feature enhancement and noise removal, while opening and closing are more advanced operations that combine dilation and erosion to achieve specific goals like noise reduction or object joining. These operations are fundamental in image processing and computer vision for preprocessing and enhancing images before further analysis or manipulation.