

## IMAGE MASKING USING OPENCV

### **Introduction to Image Masking:**

Image masking is a technique used in image processing to focus on specific parts of an image while ignoring the rest. It allows you to extract, hide, or highlight specific regions by defining areas of interest using a mask.

- **White pixels (255)** represent areas to keep (visible).
- **Black pixels (0)** represent areas to hide (invisible).

### **Applications of Masking:**

**Object Detection:** Isolating specific objects based on shape or color.

**Face or Feature Extraction:** Identifying and masking faces from images.

**Background Removal:** Hiding or isolating the foreground for image segmentation.

### **Programs:**

1. Write a program to detect and highlight only blue regions in an image using masking.
2. Modify the previous program to detect and highlight red and green areas simultaneously.
3. Create a program to extract a circular region (e.g., the car wheel) from an image.
4. Write a program to mask and display a rectangular area (e.g., a car's license plate).
5. Create a program to apply a mask that blurs everything except a selected object (e.g., a face or a car) in an image.
6. Use Haar cascades to detect a face in an image and isolate it using a mask.

7. Create a program to highlight yellow objects in an image (e.g., traffic signs).
8. Write a program to generate an inverted mask, where the selected region is hidden, and everything else is visible.
9. Create a program to mask and extract a specific color (e.g., orange) from an image and convert the rest of the image to grayscale.
10. Write a program to save the masked image as a new image file.