231501037

EXP NO: 01
DATE: 08-07-2025

BASIC IMAGE PROCESSING OPERATIONS

Aim: To Implement various basic image processing operations like Reading image, writing image and conversion of images.

Algorithm:

1. Import required libraries (OpenCV, NumPy).
2. Read the input image using cv2.imread().
3. Display the image using cv2.imshow().
4. Convert colour spaces (RGB ↔ Grayscale ↔ HSV) using cv2.cvtColor().
5. Write the output image using cv2.imwrite().
6. Close windows using cv2.destroyAllWindows().

Code:

```
import cv2

image = cv2.imread("hello.jpg")

cv2_imshow(image)

cv2.waitKey(0)

cv2.destroyAllWindows()


cv2.imwrite('output.jpg', image)

print("Image saved as output.jpg")


gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

cv2_imshow(gray_image)

cv2.waitKey(0)

cv2.destroyAllWindows()

hsv_image = cv2.cvtColor(image, cv2.COLOR_BGR2HSV)
```

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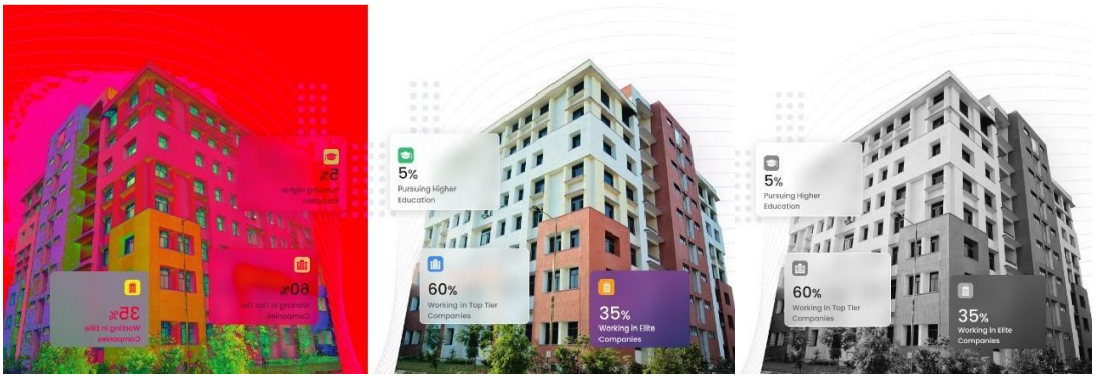
```
cv2_imshow(hsv_image)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

```
_, binary_image = cv2.threshold(gray_image, 127, 255, cv2.THRESH_BINARY)
cv2_imshow(binary_image)
cv2.waitKey(0)
cv2.destroyAllWindows()
```

Output:



Result: various basic image processing operations like Reading image, writing image and conversion of images were implemented successfully.