⌄ Task - 1

```
import cv2
import matplotlib.pyplot as plt

image = cv2.imread('face.jpg')

center = (image.shape[1] // 2, image.shape[0] // 2)
rotation_matrix = cv2.getRotationMatrix2D(center, angle=45, scale=1.0)
rotated_image = cv2.warpAffine(image, rotation_matrix, (image.shape[1], image.shape[0]))

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

orb = cv2.ORB_create()
keypoints_image, _ = orb.detectAndCompute(gray_image, None)
keypoints_rotated_image, _ = orb.detectAndCompute(gray_rotated_image, None)

image_with_keypoints = cv2.drawKeypoints(image, keypoints_image, None, color=(0, 255, 0))
rotated_image_with_keypoints = cv2.drawKeypoints(rotated_image, keypoints_rotated_image, None, color=(0, 255, 0))

plt.figure(figsize=(10, 5))
plt.subplot(1, 2, 1)
plt.imshow(cv2.cvtColor(image_with_keypoints, cv2.COLOR_BGR2RGB))
plt.title('Original with Keypoints')
plt.axis('off')
plt.subplot(1, 2, 2)
plt.imshow(cv2.cvtColor(rotated_image_with_keypoints, cv2.COLOR_BGR2RGB))
plt.title('Rotated with Keypoints')
plt.axis('off')
plt.show()
```
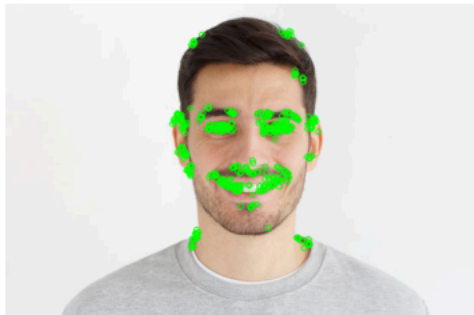

⌄ Task - 2

```
import cv2
import matplotlib.pyplot as plt

image = cv2.imread('hamza.jpg')
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

orb = cv2.ORB_create()
keypoints, _ = orb.detectAndCompute(gray_image, None)

image_with_keypoints = cv2.drawKeypoints(image, keypoints, None, color=(0, 255, 0))

plt.subplot(1, 2, 1)
plt.imshow(cv2.cvtColor(image, cv2.COLOR_BGR2RGB))
plt.title('Original')
plt.axis('off')

plt.subplot(1, 2, 2)
plt.imshow(cv2.cvtColor(image_with_keypoints, cv2.COLOR_BGR2RGB))
plt.title('Keypoints')
```
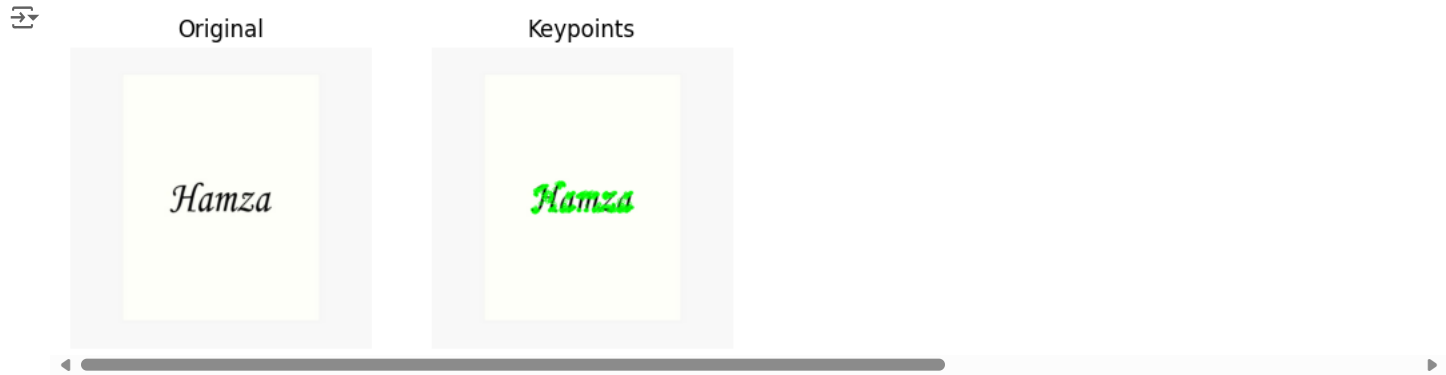
```
plt.axis('off')

plt.show()
```

Original	Keypoints
Hamza	Hamza

Start coding or generate with AI.