

9 question

```
import cv2
```

```
# Step 1: Read the image
```

```
image_path = r"C:\Users\SAIL\Downloads\CV\watch.jpg" # Replace with your image path
```

```
image = cv2.imread(image_path)
```

```
# Check if the image is loaded successfully
```

```
if image is None:
```

```
    print("Error: Could not load image.")
```

```
    exit()
```

```
# Step 2: Get the image dimensions
```

```
height, width = image.shape[:2]
```

```
# Step 3: Define the rotation matrix to perform a 90-degree clockwise rotation
```

```
# Rotation matrix for 90 degrees clockwise is:
```

```
# (0, -1), (1, 0)
```

```
rotation_matrix = cv2.getRotationMatrix2D((width // 2, height // 2), -90, 1)
```

```
# Step 4: Apply the rotation to the image
```

```
rotated_image = cv2.warpAffine(image, rotation_matrix, (width, height))
```

```
# Step 5: Display the original and rotated images
```

```
cv2.imshow("Original Image", image)
```

```
cv2.imshow("90-degree Rotated Image (Clockwise)", rotated_image)
```

```
# Wait for a key press and close all windows
```

```
cv2.waitKey(0)
```

```
cv2.destroyAllWindows()
```

aa

