

## Code Explanation for Converting an image to GrayScale

```
import cv2
import matplotlib.pyplot as plt

# Read the image
image = cv2.imread('C:/Users/asus/Desktop/Tuwaiq Academy/Dr.
Afshan/horse.jpg') # Give the path to your image

# Convert the image to grayscale
gray_image = cv2.cvtColor(image, cv2.COLOR_BGR2GRAY)

# Display the grayscale image using Matplotlib
plt.figure(figsize=(6, 6))
plt.imshow(gray_image, cmap='gray')
plt.title('Grayscale Image')
plt.axis('off') # Hide axes for better visualization
plt.show()
```

### Output

Grayscale Image



### 1. **Importing Libraries:**

cv2 (OpenCV) is used to read and process the image.

matplotlib.pyplot (as plt) is used for displaying the image.

2. **Reading the Image:** The image is loaded using `cv2.imread('C:/Users/asus/Desktop/Tuwaiq Academy/Dr. Afshan/horse.jpg')`. It is important to provide the correct path to the image file.

3. **Converting to Grayscale:** The code converts the original image to grayscale using:

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

This reduces the image to a single channel representing the intensity (brightness) of each pixel.

### 4. **Displaying the Grayscale Image:**

`plt.figure(figsize=(6, 6))` sets the size of the displayed figure (6x6 inches).

`plt.imshow(gray_image, cmap='gray')` displays the grayscale image with the colormap set to 'gray'.

`plt.title('Grayscale Image')` adds a title to the image.

`plt.axis('off')` hides the axes for a cleaner view.

`plt.show()` displays the image.