In [16]:
```python
import cv2
import numpy as np
from PIL import Image, ImageDraw, ImageFont
import matplotlib.pyplot as plt

def show_image(img, title="Image", cmap_type=None):
    plt.figure(figsize=(6, 6))
    plt.imshow(img, cmap=cmap_type)
    plt.title(title)
    plt.axis('off')
    plt.show()
```

Bài 1: Đọc và Hiển thị Ảnh

In [ ]:
```python
image_path = "Images/image_1.jpg"
img_cv = cv2.imread(image_path)

img_rgb = cv2.cvtColor(img_cv, cv2.COLOR_BGR2RGB)

show_image(img_rgb, "Original Image (OpenCV read)")

img_pil = Image.open(image_path)
show_image(np.array(img_pil), "Original Image (Pillow read)")

cv2.imwrite("output_image.jpg", cv2.cvtColor(img_rgb, cv2.COLOR_RGB2BGR))
```

Out[ ]: True

Bài 2: Chuyển đổi Không gian màu

In [18]:
```
img_gray = cv2.cvtColor(img_cv, cv2.COLOR_BGR2GRAY)
show_image(img_gray, "Grayscale Image", cmap_type='gray')

img_hsv = cv2.cvtColor(img_cv, cv2.COLOR_BGR2HSV)
show_image(img_hsv, "HSV Image")

img_lab = cv2.cvtColor(img_cv, cv2.COLOR_BGR2LAB)
show_image(img_lab, "LAB Image")
```

Grayscale Image

HSV Image

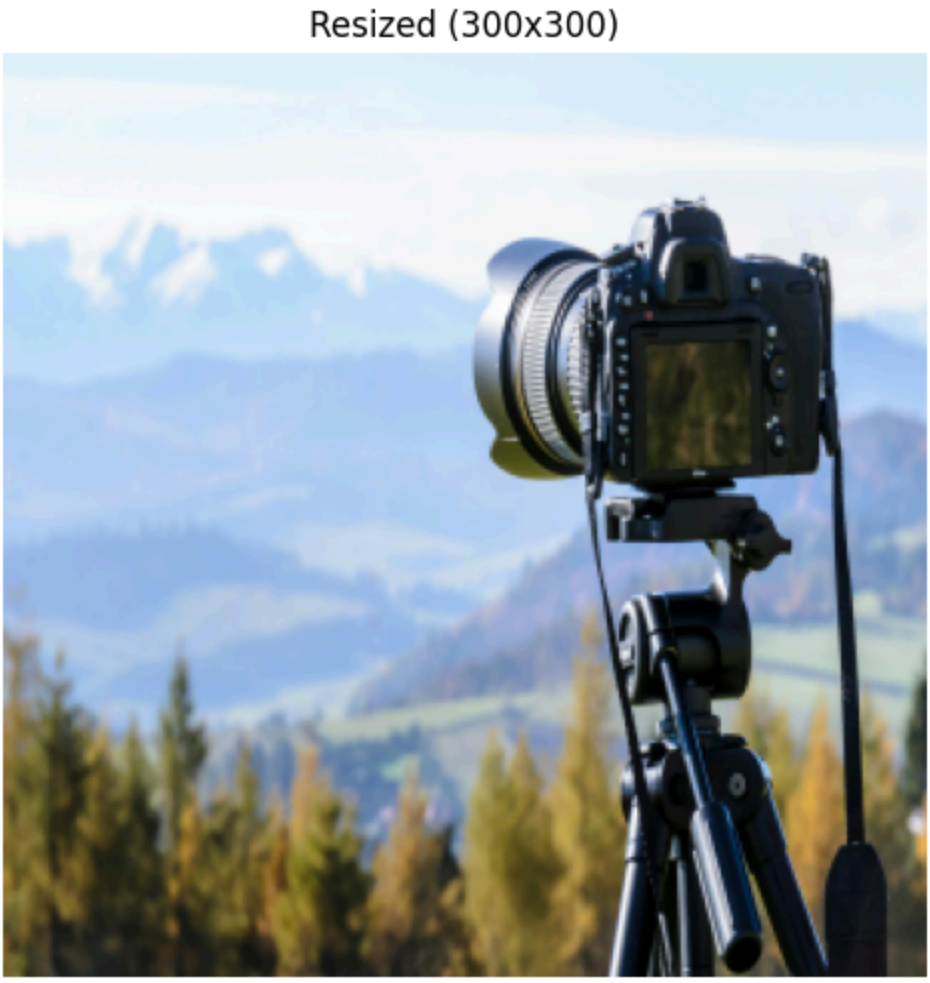
LAB Image

Bài 3: Cắt và Thay đổi kích thước

In [19]:
```
h, w, c = img_rgb.shape
start_row, start_col = int(h * 0.25), int(w * 0.25)
end_row, end_col = int(h * 0.75), int(w * 0.75)

cropped_img = img_rgb[start_row:end_row, start_col:end_col]
show_image(cropped_img, "Cropped Image")

scale_percent = 50
width = int(img_rgb.shape[1] * scale_percent / 100)
height = int(img_rgb.shape[0] * scale_percent / 100)
dim = (width, height)
resized_scale = cv2.resize(img_rgb, dim, interpolation = cv2.INTER_AREA)
show_image(resized_scale, "Resized (50%)")

fixed_dim = (300, 300)
resized_fixed = cv2.resize(img_rgb, fixed_dim, interpolation = cv2.INTER_AREA)
show_image(resized_fixed, "Resized (300x300)")
```

Cropped Image

Resized (50%)



Bài 4: Vẽ và Viết chữ

In [20]:
```
draw_img = img_rgb.copy()

cv2.line(draw_img, (50, 50), (300, 50), (255, 0, 0), 5)

cv2.circle(draw_img, (200, 200), 50, (0, 255, 0), 3)

cv2.rectangle(draw_img, (350, 100), (500, 300), (0, 0, 255), -1)

font = cv2.FONT_HERSHEY_SIMPLEX
cv2.putText(draw_img, 'OpenCV Task Test', (10, 450), font, 2, (0, 0, 00), 2, cv2.LI

show_image(draw_img, "Drawing and Text")
```

Drawing and Text