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GitHub Link: https://github.com/VedasriNakka/Image-Processsing-Assignment

Description:

- 1st step Imported the Image file [from PIL import Image]
- Ara1 = Image.open('Ara.png')
  Loaded the image
- Ara1
  Displayed the image
- def horizontal_flipping(image):
  width, height = image.size
  pixels = image.load()
  for x in range(width // 2):
  for y in range(height):
  pixel_original = pixels[x, y]
  pixel_result = pixels[width - 1 - x, y]
  pixels[x, y] = pixel_result
  pixels[width - 1 - x, y] = pixel_original
  return image

  Extracted the width and height of the input image using the .size attribute of the Image object. Then created a pixels object, for accessing and manipulating the individual pixels of the image. For horizontal flipping iterated over half of the images width because we need to flip half of the image horizontally and in the inner loop iterated all the rows of the image. Current position of the image stores in the pixel_original variable and calculated the corresponding right-handd sside pixel usin pixels[width - 1 - x, y] stored in pixel_result variable. Swapping right hand side color of the pixel. This is exactly like mirroring the left side onto the right side, creating a horizontal flip effect. This process continues until it has processed half of the image's width, resulting in the entire image being flipped horizontally. Finally the function returns the modified image with the horizontal flip applied.

- horizontal_image = horizontal_flipping(Ara1)
  horizontal_image
  Displayed horizontal flipped image

- def vertical_flipping(image):
  width, height = image.size
  pixels = image.load()
  for x in range(width):
  for y in range(height // 2):
  pixel_original = pixels[x, y]
  pixel_result = pixels[x, height - 1 - y]
  pixels[x, y] = pixel_result
  pixels[x, height - 1 - y] = pixel_original
  return image

The vertical_flipping(image) function is works same as horizontal_flipping(image) function. But it swaps the upper part of the image in on the bottom. Finally function is returned

- vertical_image = vertical_flipping(Ara2)
  vertical_image
  Vertically swapped image is displayed.

- horizontal_vertical_image = horizontal_flipping(vertical_flipping(Ara3))
  horizontal_vertical_image
  The above Horizontal vertical flipped image stored in the horizontal_vertical_image variable.