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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.