assignment_4_task3.py

Assignment 4 and task 3

First decrease the size of an image then create blurred and sharpen images from flower.jpg image. Save resulted images.

ID: U1610131 Name: Madiyor Abdukhashimov

importing opencv library - to be able to import opencv you need to install it using pip. The process of installation is provided in README.md

```
import cv2
```

importing numpy as np - which helps to generate matrices

```
import numpy as np
```

defining kernel for bluring image

```
kernel_size = 5
kernel = np.ones((kernel_size, kernel_size), np.float32) / \
    (kernel_size*kernel_size)
```

end of kernel for bluring image

defining kernel for sharpening

```
kernel_sharpen = np.array([
    [-1, -1, -1, ],
    [-1, 9, -1],
    [-1, -1, -1]
])
```

read the image from the `images/ directory`

```
image = cv2.imread('images/flower.jpg')
```

getting the dimensions of the image horizonta, width, and dimension

```
h, w, d = image.shape
```

resizing the image

```
resized_image = cv2.resize(image, (int(w/4), int(h/4)))
```

bluring the image using filtering

```
blured_image = cv2.filter2D(resized_image, -1, kernel)
```

end of sharpening the image

```
sharpened_image = cv2.filter2D(resized_image, -1, kernel_sharp
```

save it to the file

```
cv2.imwrite('results/task3/resized_image.jpeg', resized_image)
cv2.imwrite('results/task3/blured_image.jpeg', blured_image)
cv2.imwrite('results/task3/sharpened_image.jpeg', sharpened_im
```

end of the saving to the file

displaying the results of images

```
cv2.imshow('resized_image.jpeg', resized_image)
cv2.imshow('blured_image.jpeg', blured_image)
cv2.imshow('sharpened_image.jpeg', sharpened_image)
cv2.waitKey(5000)
```

end of the displaying results of images