assignment_4_task4.py

Assignment 4 and task 4

Convert the image to the grayscale and using histogram equalization increase the brightness of the dark.jpg image. Save resulted images

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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
import numpy as np
```

the value of brightness, which is in the range of 0 to 100

```
value = 80    # brightness control in range [0 - 100]
```

we are reading the image from the `images` directory

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

getting the dimensions of the image

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

just resizing it to the half

```
resized_image = cv2.resize(image, (int(w/2), int(h/2)))
```

converting the image to the grey color

```
grey = cv2.cvtColor(resized_image, cv2.COLOR_BGR2GRAY)
```

equalizing the grey scale image color distribution

```
grey_equalized_image = cv2.equalizeHist(grey)
```

we are substracing the grey matrix elements from 255 and making them 100, 255, and adding the birghtness

```
bright_image = np.where((255 - grey) < 100, 255, grey + value)
```

saving

```
cv2.imwrite('results/task4/original_grey.jpeg', grey)
cv2.imwrite('results/task4/grey_equalized_image.jpeg', grey_eq
cv2.imwrite('results/task4/bright_image.jpeg', bright_image)
```

end of the saving process

displaying

```
cv2.imshow('original', grey)
cv2.imshow('gray_equalized_image', grey_equalized_image)
cv2.imshow('bright', bright_image)
cv2.waitKey(5000)
```

end of the displaying