3. Computer Vision – Load & work with images

Contents

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1. Loading the images in different ways

- ✓ Pillow is open-source python library.
- ✓ By using this we can load and manipulate images.

```
pip install Pillow
```

Program Name: Loading image by using pillow
demo1.py

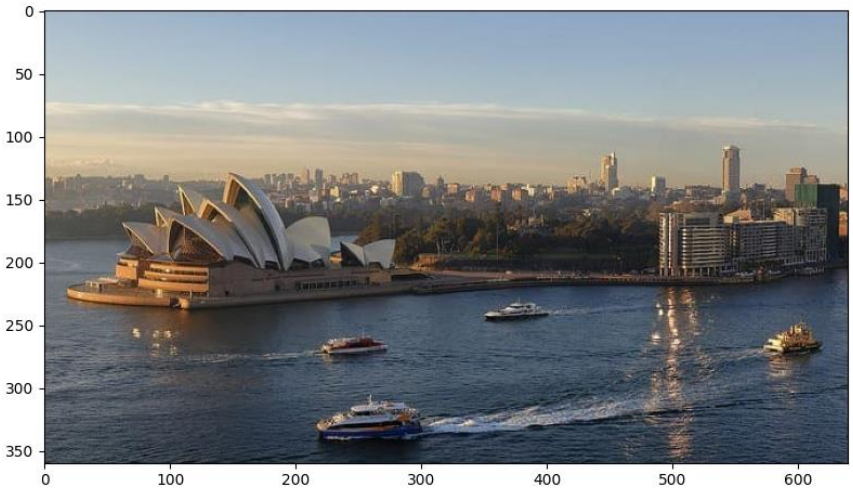
```
from PIL import Image

image = Image.open("opera_house.jpg")

image.show()
```

output

Program Name: Loading image by using matplotlib
demo2.py

```
from matplotlib import image
from matplotlib import pyplot

data = image.imread("opera_house.jpg")

pyplot.imshow(data)
pyplot.show()
```

output



Program Name: Converting normal images to grayscale
demo3.py

```
from PIL import Image

image = Image.open("opera_house.jpg")

gs_image = image.convert(mode = "L")

image.show()
gs_image.show()
```

output

Program Name: Converting normal images to grayscale, save image

demo4.py

```
from PIL import Image

image = Image.open("opera_house.jpg")

gs_image = image.convert(mode = "L")

gs_image.save("opera_house_grayscale.jpg")

image2 = Image.open("opera_house_grayscale.jpg")

image2.show()
```

output

Program Name: Resize the images
demo5.py

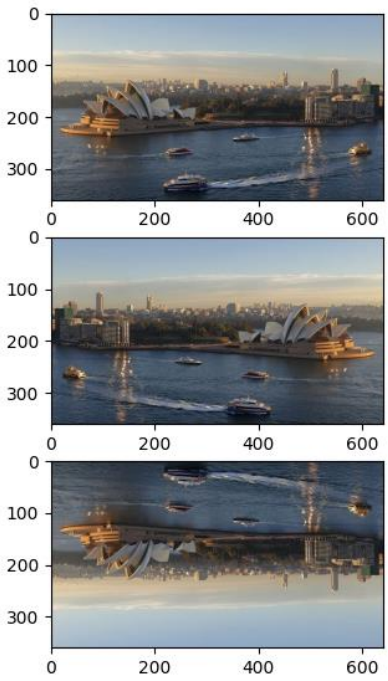
```
from PIL import Image

image = Image.open("opera_house.jpg")

image.thumbnail((100,100))

image.show()
```

output

Program Name: Flipping the image
demo6.py

```
from PIL import Image
from matplotlib import pyplot

image = Image.open("opera_house.jpg")

hoz_flip = image.transpose(Image.FLIP_LEFT_RIGHT)
ver_flip = image.transpose(Image.FLIP_TOP_BOTTOM)

pyplot.subplot(311)
pyplot.imshow(image)

pyplot.subplot(312)
pyplot.imshow(hoz_flip)

pyplot.subplot(313)
pyplot.imshow(ver_flip)

pyplot.show()
```

output


0
100
200
300
0
200
400
600
0
100
200
300
0
200
400
600
0
100
200
300
0
200
400
600

Program Name: Rotate the images
demo7.py

```
from PIL import Image
from matplotlib import pyplot

image = Image.open("opera_house.jpg")

pyplot.subplot(311)
pyplot.imshow(image)

pyplot.subplot(312)
pyplot.imshow(image.rotate(45))

pyplot.subplot(313)
pyplot.imshow(image.rotate(90))

pyplot.show()
```

output