

Medical Images Course 2022-2023

Lab session 2 The class RImage

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Let's apply the concepts of raster images and start Lab1 project

Clone your new project ...

The class RImage

The class `RImage` is specified at right.

It is a container class that represents raster images. It has a public attribute “title” and a private attribute that stores the pixel values as a numpy ndarray. Look at its partial specification and implement it within your git project. Create the issue: “first version of rimage”, make the merge request. Implement, pass the doctests, commit and when done, merge the branch to the master

The class RImage

The class `RImage` image represents raster images. You will have to implement it step by step along the lab sessions. The specification of the class will evolve along the course with new methods.

```
class rimage.RImage(name, width=0, height=0, color=None, data=None)
```

Creates an instance of the class with the given name. If color is not none, the image has the given width and height and is uniformly filled with the given color. Otherwise, if data is not None, it is a pixel_array and the image is filled with it.

Class methods

```
procedural(name, procedure)
```

Returns an image created procedurally with the given procedure and the given name.

```
read(filename)
```

Returns the image of the filename. The name of the image is the file basename.

Instance attributes:

name

Name of the image (**str**)

Instance methods:

```
width()
```

Returns the width of the image

```
height()
```

Returns the height of the image

```
nchannels()
```

Returns the number of channels of the image

```
render_matplotlib(ax, params)
```

Renders the image with [matplotlib](#) in the given subplot with the given parameters.

Supported operations

Operation	Result
<code>ima[i, j]</code>	Returns the color of the pixel (i, j) $0 \leq i < \text{ima.width}()$ $0 \leq j < \text{ima.height}()$
<code>ima[i, j] = color</code>	Assigns the color to the pixel (i, j) $0 \leq i < \text{ima.width}()$ $0 \leq j < \text{ima.height}()$

The class supports the **slicing** mechanism and the functions: **str**.

The class RImage

In the cloned directory, in a terminal, use the class

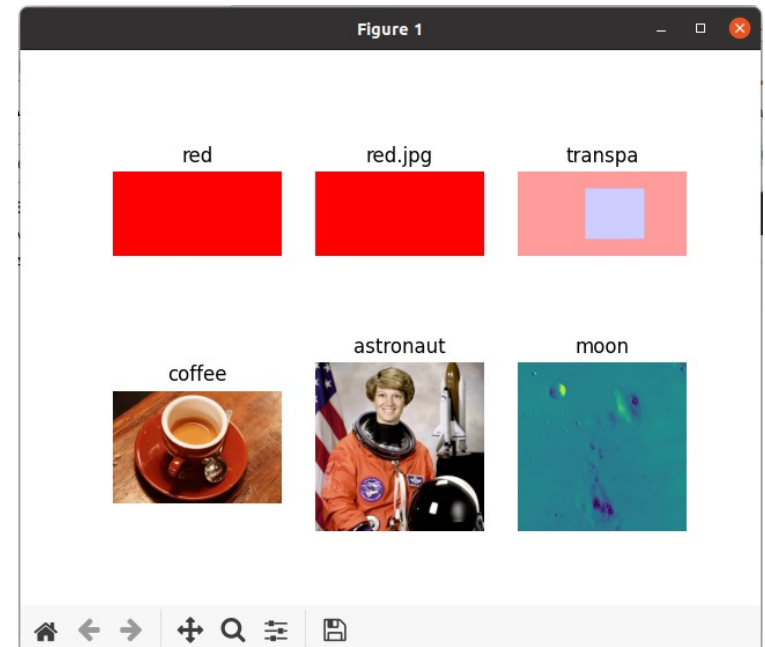
Try to pass the doctest:

```
python3 -m doctest tests/tests-rimage.txt -v |more
```

Use the program test-render.py to show some rendered images:

```
python3 test-render.py
```

Analyze the code and try to understand it. You will have to add new functionalities



Homework

You have two issues assigned. Start with the first one (very simple).

Create a merge request

Checkout in the new branch

Solve the issue.

Commit the changes

Push the changes.

Then do the second one (some groups will have it available tomorrow)