

Image Editor Project

Our team was faced with the question of developing software that would allow us to modify photographs. To develop this software we decided to use the Adapter pattern, because the program contained classes that could not interact directly due to the peculiarities of the implementation.

Problem:

The peculiarities of the implementation are as follows, classes of actions, which are located in the package actions (i.e. AdjustBrightness, GammaCorrection, Rotate and others) can only process images in PNG format. The ImageEditor class, on the other hand, must handle any picture format represented in the ExtensionType enumerator.

Solution:

In our solution, the Adapter class is the intermediate link between the ImageEditor class and the Actions class. Using the convertToPng and convertFromPng methods, it converts the image into the PNG format, triggers the necessary action on the image and returns the image in its original format.

More about details:

All elements, our solution contains: Action interface, enumerators ActionType, ExtensionType and classes ImageEditor, Adapter, Image, menuBar, Triple, AdjustBrightness, GammaCorrection, AdjustContrast, Rotate, Crop, Effect, Reddish, Greenish, Bluish.

What parts of the program are used for:

- The ImageEditor class - the main class representing the application, all changes to the images are made using it
- The menuBar class - part of the ImageEditor class representing the opening, closing and application buttons (methods).
- Class Adapter – link used to connect ImageEditor and Actions.
- The Action interface and classes AdjustBrightness, GammaCorrection, AdjustContrast, Rotate, Crop, Effect, Reddish, Greenish, Bluish - represent the available transformations of the image, as well as they are divided into packages based on the changes. Classes Reddish, Greenish, Bluish are inherited from the class Effect as they perform similar actions, with different parameters
- Enumerator ActionType - list of all available actions on an image, makes it easy to switch the adapter between different actions
- Enumerator ExtensionType - list of all image formats handled, used in the Image class to denote the format
- Class Image – representation of an image, containing all the image parameters we need
- Class Triple – color settings used to simulate an image(work as RGB)

