Help on module GCPictureTools:

NAME
    GCPictureTools

DESCRIPTION
    File Name: GCPictureTools.py
    Date: 2024-08-01
    Description: provide functions to work with pictures based on
pygame package
    Improvement Log
    2024-10-3: add display method to show the picture until user
closes the window.
    2024-10-27: add Pixel class; add save method in Picture class to
save image into a file

CLASSES
    builtins.object
        Picture
        Pixel
        autoUpdate

    class Picture(builtins.object)
     | Picture(*args, **kwargs)
     |
     | Methods defined here:
     |
     | __init__(self, *args, **kwargs)
     | Initializer
     | Args:
     | If none, then make screen with default size (100 x 100)
and color (white)
     | If one string parameter - filename or path to a file
     | then make a picture made from this file
     | If one image parameter - pre-existing image to clone
     | make a copy of the input picture
     | If two integer parameters - assume these are width and
height
     | make a screen with the given size
     | If third parameter - a color as string (default: "white")
     | Returns:
     | Nothing
     |
     | addLine(self, acolor, x1, y1, x2, y2, width=1)
     | Draws a line onto a given surface
     |
     | Args:
     | acolor (Color) - color of the line
     | x1 (int) - beginning x position of the line
     | y1 (int) - beginning y position of the line

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|            x2 (int) - ending x position of the line
|            y2 (int) - ending y position of the line
|            width (int) - thickness of the line
|
|        Returns:
|            Nothing
|
|    addOval(self, width, height, x, y, acolor='red', linew=1)
|        Draws an oval onto a given surface
|
|        Args:
|            width (int) - width of the oval (in pixels)
|            height (int) - height of the oval (in pixels)
|            x (int) - the x position of the oval
|            y (int) - the y position of the oval
|            acolor (Color, int, str, tuple) - the color of the oval
|            linew (int) - width of the outline of the oval
|
|        Returns:
|            Nothing
|
|    addOvalFilled(self, width, height, x, y, acolor='red')
|        Draws a filled oval onto a given surface
|
|        Args:
|            width (int) - width of the oval (in pixels)
|            height (int) - height of the oval (in pixels)
|            x (int) - the x position of the oval
|            y (int) - the y position of the oval
|            acolor (Color, int, str, tuple) - the color of the oval
|
|        Returns:
|            Nothing
|
|    addRect(self, width, height, x, y, acolor='red', linew=1)
|        Draws a rectangle onto a given surface
|
|        Args:
|            width (int) - width of the rectangle (in pixels)
|            height (int) - height of the rectangle (in pixels)
|            x (int) - the x position of the top left corner of the
rectangle
|            y (int) - the y position of the top left corner of the
rectangle
|            acolor (Color, int, str, tuple) - the color of the
rectangle
|            linew (int) - width of the outline of the rectangle
|
|        Returns:
|            Nothing
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 |
 |  addRectFilled(self, width, height, x, y, acolor='red')
 |      Draws a filled rectangle onto a given surface
 |
 |      Args:
 |        width (int) - width of the rectangle (in pixels)
 |        height (int) - height of the rectangle (in pixels)
 |        x (int) - the x position of the top left corner of the
rectangle
 |        y (int) - the y position of the top left corner of the
rectangle
 |        acolor (Color, int, str, tuple) - the color of the
rectangle
 |
 |      Returns:
 |        Nothing
 |
 |  close(self)
 |      Closes image
 |
 |  copyInto(self, dest, x, y)
 |      Copies a given image onto another image
 |
 |      Args:
 |        dest (Picture) - picture where the image is to be copied
 |        x (int) - x position of the image
 |        y (int) - y position of the image
 |
 |      Returns:
 |        nothing
 |
 |  display(self, title=None)
 |      Display the given image until user close the window
 |
 |      Args:
 |        title (string) - title of the image
 |
 |      Returns:
 |        Nothing
 |
 |  getAllLocations(self)
 |      Returns a list of coordinates of all the pixels in a
picture
 |      (moving up to down, left to right)
 |
 |  getBlue(self, x, y)
 |      Returns the blue value of a pixel
 |
 |      Args:
 |        x (int) - the x position of the pixel
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|           y (int) - the y position of the pixel
|
|       Returns:
|         value of blue
|
|   getColor(self, x, y)
|       Gets the color of a pixel
|
|       Args:
|         x (int) - the x position of the pixel
|         y (int) - the y position of the pixel
|
|       Returns:
|         color of the pixel
|
|   getGreen(self, x, y)
|       Returns the green value of a pixel
|
|       Args:
|         x (int) - the x position of the pixel
|         y (int) - the y position of the pixel
|
|       Returns:
|         value of green
|
|   getHeight(self)
|       Returns the height of an image
|
|   getMagnification(self)
|       Returns the magnification of an image
|
|   getPixel(self, x, y)
|       Returns the pixel at (x, y) in a picture
|
|   getPixels(self)
|       Returns a list with all the pixels in a picture
|       (moving up to down, left to right)
|
|   getRed(self, x, y)
|       Returns the red value of a pixel
|
|       Args:
|         x (int) - the x position of the pixel
|         y (int) - the y position of the pixel
|
|       Returns:
|         value of red
|
|   getWidth(self)
|       Returns the width of an image
```

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 |
 |   magnify(self, title=None)
 |       Magnifies a given image
 |
 |       Args:
 |         title (string) — title of the image
 |
 |       Returns:
 |         Nothing
 |
 |   repaint(self)
 |       Updates an image
 |
 |   save(self, filename)
 |       save this image into a file
 |
 |       Args:
 |         filename — the name of the file where the image is to be
saved
 |
 |       Returns:
 |         nothing
 |
 |   setBlue(self, x, y, blue)
 |       Sets the blue value of a pixel
 |
 |       Args:
 |         x (int) — the x position of the pixel
 |         y (int) — the y position of the pixel
 |         blue (int) — the blue value to be set
 |
 |       Returns:
 |         Nothing
 |
 |   setColor(self, x, y, color)
 |       Sets the color of a pixel
 |
 |       Args:
 |         x (int) — the x position of the pixel
 |         y (int) — the y position of the pixel
 |         color (Color) — the color the pixel will be set
 |
 |       Returns:
 |         Nothing
 |
 |   setGreen(self, x, y, green)
 |       Sets the green value of a pixel
 |
 |       Args:
 |         x (int) — the x position of the pixel
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 |          y (int) - the y position of the pixel
 |          green (int) - the green value to be set
 |
 |      Returns:
 |        Nothing
 |
 |  setMagnification(self, magnification)
 |      Sets the magnification for an image
 |
 |      Args:
 |        magnification (int, float) - magnification to be set
 |
 |      Returns:
 |        Nothing
 |
 |  setRed(self, x, y, red)
 |      Sets the red value of a pixel
 |
 |      Args:
 |        x (int) - the x position of the pixel
 |        y (int) - the y position of the pixel
 |        red (int) - the red value to be set
 |
 |      Returns:
 |        Nothing
 |
 |  show(self, title=None)
 |      Shows the given image
 |
 |      Args:
 |        title (string) - title of the image
 |
 |      Returns:
 |        Nothing
 |
 |
 ----------------------------------------------------------------------
 |  Data descriptors defined here:
 |
 |  __dict__
 |      dictionary for instance variables (if defined)
 |
 |  __weakref__
 |      list of weak references to the object (if defined)
 |
 |
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 |  Data and other attributes defined here:
 |
 |  autoUpdate = <GCPictureTools.autoUpdate object>
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 |
 |  image = None
 |
 |  magnification = 1
 |
 |  size = None
 |
 |  title = ''
 |
 |  window = None

class Pixel(builtins.object)
 |  Pixel(picture, x, y)
 |
 |  Methods defined here:
 |
 |  __init__(self, picture, x, y)
 |      Initializer
 |      Args:
 |        picture: picture thay contains this pixel
 |        x: column index
 |        y: raw index
 |      Returns:
 |        a pixel instance at (x, y) in pic
 |
 |  getBlue(self)
 |
 |  getColor(self)
 |
 |  getGreen(self)
 |
 |  getPicture(self)
 |
 |  getRed(self)
 |
 |  getX(self)
 |
 |  getY(self)
 |
 |  setBlue(self, blue)
 |
 |  setColor(self, color)
 |
 |  setGreen(self, green)
 |
 |  setRed(self, red)
 |
 |
 ----------------------------------------------------------------------
 |  Data descriptors defined here:
```

```
        |
        |  __dict__
        |      dictionary for instance variables (if defined)
        |
        |  __weakref__
        |      list of weak references to the object (if defined)

    class autoUpdate(builtins.object)
        |  #boolean for if changes should update automatically or not
        |
        |  Methods defined here:
        |
        |  __init__(self)
        |      Initializer function
        |
        |  getAutoUpdate(self)
        |      Getter
        |
        |  setAutoUpdate(self, status)
        |      Setter
        |
        |
 ----------------------------------------------------------------------
        |  Data descriptors defined here:
        |
        |  __dict__
        |      dictionary for instance variables (if defined)
        |
        |  __weakref__
        |      list of weak references to the object (if defined)
        |
        |
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        |  Data and other attributes defined here:
        |
        |  autoUpdateBool = False

FUNCTIONS
    demo()
        Demo the basic usgae of these tools.
        Dispay 4 differnt graphic images
        Hit enter key to change to the next

    makeLighter(color: pygame.color.Color, f: float = 1.15)

FILE
    /Users/shelley.zhang/Library/Mobile Documents/com~apple~CloudDocs/
GordonCollege/CPS121_F24_Cloud/Labs-121-Now/Lab09-Picture-More/
GCPictureTools.py
```