Abstract Art Generator

Generated by Doxygen 1.8.17

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 4

Class Documentation

4.1 canvas.canvas Class Reference

The canvas class.

Public Member Functions

- def __init__ (self, x, y, width, height, display_width, display_height, window)

  Initializes the canvas.
- def draw (self)

  Draws the canvas to the ui.
- def draw_layers (self)

  Calls various widgets to draw to their layers.
- def draw_to_canvas (self)

  Blits layers to the canvas.
- def generate_bg (self, color)

  Fill the canvas background with a color.
- def get_canvas (self)

  Gets the pygame surface the canvas draws on.
- def get_height (self)

  Gets the height of the canvas.
- def get_width (self)

  Gets the width of the canvas.

Public Attributes

- bg_layer

  The single color, background layer of the canvas.
- canvas

  The surface the art is drawn to.
- display_canvas

  The surface that is drawn to the ui as a display port.

4.1.1 Detailed Description

The canvas class.

Provides the canvas the program draws on along with functions for drawing layers to the canvas and drawing the canvas to the ui.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 __init__()

```
def canvas.canvas.__init__ (
              self,
              x,
              y,
              width,
              height,
              display_width,
              display_height,
              window )
```

Initializes the canvas.

Parameters

x	Horizontal position to draw the canvas at on the ui.
y	Vertical position to draw the canvas at on the ui.
width	Width of the canvas surface.
height	Height of the canvas surface.
display_width	Width of the ui's canvas display port.
display_height	Height of the ui's canvas display port.
window	Ui window to draw the canvas to.

4.1.3 Member Function Documentation

4.1.3.1 draw_layers()

```
def canvas.canvas.draw_layers (
              self )
```

Calls various widgets to draw to their layers.

Calls draw_canvas in all the drawing widgets.

4.1.3.2 draw_to_canvas()

```
def canvas.canvas.draw_to_canvas (
              self )
```

Blits layers to the canvas.

Combines the currently drawn layers into the canvas.

4.1.3.3 generate_bg()

```
def canvas.canvas.generate_bg (
              self,
              color )
```

Fill the canvas background with a color.

Parameters

color	Color to fill the background with.

4.1.3.4 get_canvas()

```
def canvas.canvas.get_canvas (
              self )
```

Gets the pygame surface the canvas draws on.

Returns

The pygame surface the canvas draws on.

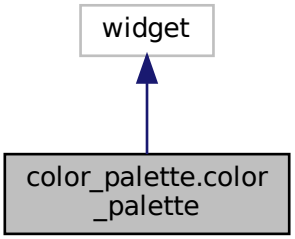
The documentation for this class was generated from the following file:

- canvas.py

4.2 color_palette.color_palette Class Reference

The color palette widget class.

Inheritance diagram for color_palette.color_palette:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager)

  Initializes the color palette widget.
- def change_colors (self)

  Change the theme colors.
- def draw_ui_dynamic (self)

  Draws the dynamic ui elements for the color palette widget.
- def draw_ui_static (self)

  Draws the static ui elements for the color palette widget.
- def events (self, event)

  Processes pygame events for the color palette widget.
- def get_background_color (self)

  Get the background color in hex form.
- def get_colors_from_palette (self)

  Get the list of colors for the current palette in hex form.
- def get_foreground_colors (self)

  Get the list of foreground colors in hex form.
- def get_name_of_palette (self)

  Get the name of the current palette.
- def randomize (self)

  Randomize the current color palette and background color.
- def refresh_ui_static (self)

  Refreshes the static ui elements for the color palette widget.

Public Attributes

- background_index

  The palette color selected as the background.
- **background_index_buttons**
- background_lock

  1 if radomization of the background color is locked, 0 otherwise
- color

Theme color for background.

- palette_colors

  Colors of currently selected palette.

- palette_lock

  1 if radomization of the palette is locked, 0 otherwise

- palette_name

  Name of currently selected palette.

- ui_h1_color

  Theme color for text.

4.2.1 Detailed Description

The color palette widget class.

Provides a ui and functionality to specify the current color palette and the background color.

4.2.2 Constructor & Destructor Documentation

4.2.2.1 __init__()

```
def color_palette.color_palette.__init__ (
              self,
              x,
              y,
              window,
              ui_manager )
```

Initializes the color palette widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.2.3 Member Function Documentation

4.2.3.1 draw_ui_dynamic()

```
def color_palette.color_palette.draw_ui_dynamic (
              self )
```

Draws the dynamic ui elements for the color palette widget.

Draws the text, lock icons, and color swatches.

4.2.3.2 draw_ui_static()

```
def color_palette.color_palette.draw_ui_static (
              self )
```

Draws the static ui elements for the color palette widget.

Draws the palette dropdown, lock buttons, and color swatch buttons.

4.2.3.3 events()

```
def color_palette.color_palette.events (
              self,
              event )
```

Processes pygame events for the color palette widget.

Handles the palette dropdown, lock buttons, and background color buttons.

Parameters

event	The pygame event being processed.

4.2.3.4 get_background_color()

```
def color_palette.color_palette.get_background_color (
              self )
```

Get the background color in hex form.

Returns

The background color.

4.2.3.5 get_colors_from_palette()

```
def color_palette.color_palette.get_colors_from_palette (
              self )
```

Get the list of colors for the current palette in hex form.

Returns

A list of the palette colors.

4.2.3.6 get_foreground_colors()

```
def color_palette.color_palette.get_foreground_colors (
              self )
```

Get the list of foreground colors in hex form.

Returns

A list of the palette colors excluding the background color.

4.2.3.7 get_name_of_palette()

```
def color_palette.color_palette.get_name_of_palette (
              self )
```

Get the name of the current palette.

Returns

The palette name.

4.2.3.8 refresh_ui_static()

```
def color_palette.color_palette.refresh_ui_static (
              self )
```

Refreshes the static ui elements for the color palette widget.

Changes how many color swatch buttons display based on the length of the color palette.

The documentation for this class was generated from the following file:

- color_palette.py

4.3 generators.generators Class Reference

Generators class that provides layer generation functionality to the layer module.

Public Member Functions

- def __init__ (self, width, height)

  Initializes the generators utility.
- def draw_circles (self, layer, complexity, cp, style, magnitude)

  Draws cirlces to a layer.
- def draw_curves (self, layer, complexity, cp, style, magnitude)

  Draws curves to a layer.
- def draw_dots (self, layer, complexity, cp, style, magnitude)

  Draws dots to a layer.
- def draw_fpolygons (self, layer, complexity, cp, style, magnitude)

  Draws filled polygons to a layer.
- def draw_hpolygons (self, layer, complexity, cp, style, magnitude)

  Draws hollow polygons to a layer.
- def draw_lines (self, layer, complexity, cp, style, magnitude)

  Draws lines to a layer.
- def draw_rings (self, layer, complexity, cp, style, magnitude)

  Draws rings to a layer.
- def draw_squares (self, layer, complexity, cp, style, magnitude)

  Draws squares to a layer.

Public Attributes

- **height**
- **width**

4.3.1 Detailed Description

Generators class that provides layer generation functionality to the layer module.

4.3.2 Constructor & Destructor Documentation

4.3.2.1 __init__()

```
def generators.generators.__init__ (
            self,
            width,
            height )
```

Initializes the generators utility.

Parameters

width	Width of the canvas.
height	Height of the canvas.

4.3.3 Member Function Documentation

4.3.3.1 draw_circles()

```
def generators.generators.draw_circles (
              self,
              layer,
              complexity,
              cp,
              style,
              magnitude )
```

Draws cirlces to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.2 draw_curves()

```
def generators.generators.draw_curves (
              self,
              layer,
              complexity,
              cp,
              style,
              magnitude )
```

Draws curves to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.3 draw_dots()

```
def generators.generators.draw_dots (
              self,
              layer,
              complexity,
              cp,
              style,
              magnitude )
```

Draws dots to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.4 draw_fpolygons()

```
def generators.generators.draw_fpolygons (
              self,
              layer,
              complexity,
              cp,
              style,
              magnitude )
```

Draws filled polygons to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.5 draw_hpolygons()

```
def generators.generators.draw_hpolygons (
              self,
              layer,
```

```
                complexity,
                cp,
                style,
                magnitude )
```

Draws hollow polygons to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.6 draw_lines()

```
def generators.generators.draw_lines (
                self,
                layer,
                complexity,
                cp,
                style,
                magnitude )
```

Draws lines to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.7 draw_rings()

```
def generators.generators.draw_rings (
                self,
                layer,
                complexity,
                cp,
                style,
                magnitude )
```

Draws rings to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

4.3.3.8 draw_squares()

```
def generators.generators.draw_squares (
              self,
              layer,
              complexity,
              cp,
              style,
              magnitude )
```

Draws squares to a layer.

Parameters

layer	The layer to draw to.
complexity	The complexity of the layer.
cp	The color palette to draw with.
style	The style of the layer.
magnitude	The magnitude of the layer.

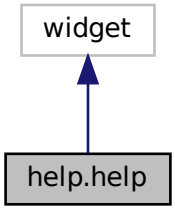
The documentation for this class was generated from the following file:

- generators.py

4.4 help.help Class Reference

The help widget class.

Inheritance diagram for help.help:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager)

  Initializes the help widget.
- def change_colors (self)

  Change the theme colors.
- def draw_ui_dynamic (self)

  Draws the dynamic ui elements for the help widget.
- def draw_ui_static (self)

  Draws the static ui elements for the help widget.
- def events (self, event)

  Processes pygame events for the help widget.

Public Attributes

- bg_color

  Theme color for background.
- font_color

  Theme color for normal font.
- font_color_emph

  Theme color for emphasized font.
- help_opt

  Whether the help dialogue should be displayed or not.

4.4.1 Detailed Description

The help widget class.

Displays a ui help button that displays the program instructions when clicked.

4.4.2 Constructor & Destructor Documentation

4.4.2.1 __init__()

```
def help.help.__init__ (
              self,
              x,
              y,
              window,
              ui_manager )
```

Initializes the help widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.4.3 Member Function Documentation

4.4.3.1 draw_ui_dynamic()

```
def help.help.draw_ui_dynamic (
              self )
```

Draws the dynamic ui elements for the help widget.

Draws a dialog with the instructions for using the program.

4.4.3.2 draw_ui_static()

```
def help.help.draw_ui_static (
              self )
```

Draws the static ui elements for the help widget.

Draws a button with "help" written on it.

4.4.3.3 events()

```
def help.help.events (
              self,
              event )
```

Processes pygame events for the help widget.

If event in the help button being pressed display the instructions dialog.

Parameters

event	The pygame event being processed.

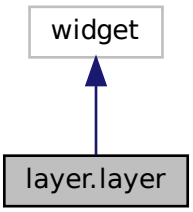
The documentation for this class was generated from the following file:

- help.py

4.5 layer.layer Class Reference

The layer widget class.

Inheritance diagram for layer.layer:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager, layer_num)

  Initializes the layer widget.
- def change_colors (self)

  Change the theme colors.
- def clean_layer (self)

  Clean the layer by setting it to be blank and see-through.
- def draw_canvas (self)

  Draw the layer to self.layer based on the current widget settings.
- def draw_ui_dynamic (self)

  Draws the dynamic ui elements for the layer widget.
- def draw_ui_static (self)

  Draws the static ui elements for the layer widget.
- def events (self, event)

  Processes pygame events for the layer widget.
- def get_layer_complexity (self)
- def get_layer_shape (self)
- def get_layer_size (self)
- def get_layer_style (self)
- def get_layer_transparency (self)
- def randomize (self)

  Randomize the shape, style, complexity, and size of the layer drawing algorithm.

Public Attributes

- color
  Theme color for background.
- complexity
  The complexity of the layer's drawing.
- complexity_lock
  1 if radomization of the complexity is locked, 0 otherwise
- layer
  The pygame surface the layer draws to.
- shape
  The shape the layer draws.
- shape_lock
  1 if radomization of the shape is locked, 0 otherwise
- size
  The size of the drawn shapes.
- size_lock
  1 if radomization of the size is locked, 0 otherwise
- style
  The style or pattern the layer draws in.
- style_lock
  1 if radomization of the style is locked, 0 otherwise
- transparency
  The transparency of the layer.
- transparency_lock
  1 if radomization of the transparency is locked, 0 otherwise
- u1_h1_color
  Theme color for text.

4.5.1 Detailed Description

The layer widget class.

Provides a ui and functionality to specify a drawing algorithm and draw to a pygame surface.

4.5.2 Constructor & Destructor Documentation

4.5.2.1 __init__()

```
def layer.layer.__init__ (
              self,
              x,
              y,
              window,
              ui_manager,
              layer_num )
```

Initializes the layer widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.5.3 Member Function Documentation

4.5.3.1 draw_ui_dynamic()

```
def layer.layer.draw_ui_dynamic (
              self )
```

Draws the dynamic ui elements for the layer widget.

Draws the text and lock icons.

4.5.3.2 draw_ui_static()

```
def layer.layer.draw_ui_static (
              self )
```

Draws the static ui elements for the layer widget.

Draws the shape and style dropdowns, the complexity and size sliders, and lock button.

4.5.3.3 events()

```
def layer.layer.events (
              self,
              event )
```

Processes pygame events for the layer widget.

Handles the shape and style dropdowns, the complexity and size sliders, and lock button.

Parameters

event	The pygame event being processed.

4.5.3.4 get_layer_complexity()

```
def layer.layer.get_layer_complexity (
              self )
```

Returns

The layer complexity.

4.5.3.5 get_layer_shape()

```
def layer.layer.get_layer_shape (
              self )
```

Returns

The layer shape.

4.5.3.6 get_layer_size()

```
def layer.layer.get_layer_size (
              self )
```

Returns

The layer size.

4.5.3.7 get_layer_style()

```
def layer.layer.get_layer_style (
              self )
```

Returns

The layer style.

4.5.3.8 get_layer_transparency()

```
def layer.layer.get_layer_transparency (
              self )
```

Returns

The layer transparency

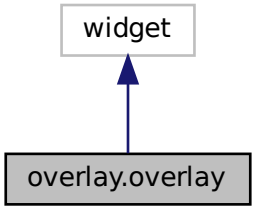
The documentation for this class was generated from the following file:

- layer.py

4.6 overlay.overlay Class Reference

The overlay widget class.

Inheritance diagram for overlay.overlay:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager)

  Initializes the overlay widget.
- def change_colors (self)

  Change the theme colors.
- def clean_layer (self)

  Clean the overlay by setting it to be blank and see-through.
- def draw_canvas (self)

  Draw the currently selected overlay image to self.overlay_layer.
- def draw_ui_dynamic (self)

  Draws the dynamic ui elements for the overlay widget.
- def draw_ui_static (self)

  Draws the static ui elements for the overlay widget.
- def events (self, event)

  Processes pygame events for the overlay widget.
- def get_active_overlay (self)

Public Attributes

- active_overlay

  The currently selected overlay.
- color

  Theme color for background.
- overlay_layer

  The pygame surface the overlay draws to.
- ui_h1_color

  Theme color for text.

4.6.1 Detailed Description

The overlay widget class.

Provides a ui and functionality to specify an overlay and draw to a pygame surface.

4.6.2 Constructor & Destructor Documentation

4.6.2.1 __init__()

```
def overlay.overlay.__init__ (
              self,
              x,
              y,
              window,
              ui_manager )
```

Initializes the overlay widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.6.3 Member Function Documentation

4.6.3.1 draw_ui_dynamic()

```
def overlay.overlay.draw_ui_dynamic (
              self )
```

Draws the dynamic ui elements for the overlay widget.

Draws the text and overlay thumbnails.

4.6.3.2 draw_ui_static()

```
def overlay.overlay.draw_ui_static (
              self )
```

Draws the static ui elements for the overlay widget.

Draws the overlay selection buttons.

4.6.3.3 events()

```
def overlay.overlay.events (
              self,
              event )
```

Processes pygame events for the overlay widget.

Handles the overlay selection buttons.

Parameters

event	The pygame event being processed.

4.6.3.4 get_active_overlay()

```
def overlay.overlay.get_active_overlay (
              self )
```

Returns

The active overlay.

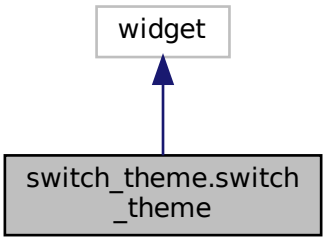
The documentation for this class was generated from the following file:

- overlay.py

4.7 switch_theme.switch_theme Class Reference

The theme switch widget class.

Inheritance diagram for switch_theme.switch_theme:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager)
  Initializes the theme widget.
- def draw_ui_static (self)
  Draws the static ui elements for the theme widget.
- def events (self, event)
  Processes pygame events for the theme widget.
- def getDarkMode (self)

Public Attributes

- switch_theme_dark
  True if in dark mode, False if in light.

4.7.1 Detailed Description

The theme switch widget class.

Displays a ui switch theme button that changes the interface theme when clicked.

4.7.2 Constructor & Destructor Documentation

4.7.2.1 __init__()

```
def switch_theme.switch_theme.__init__ (
              self,
              x,
              y,
              window,
              ui_manager )
```

Initializes the theme widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.7.3 Member Function Documentation

4.7.3.1 draw_ui_static()

```
def switch_theme.switch_theme.draw_ui_static (
              self )
```

Draws the static ui elements for the theme widget.

Draws a button with "theme" written on it.

4.7.3.2 events()

```
def switch_theme.switch_theme.events (
              self,
              event )
```

Processes pygame events for the theme widget.

If event is the switch theme button being pressed change the interface theme.

Parameters

event	The pygame event being processed.

4.7.3.3 getDarkMode()

```
def switch_theme.switch_theme.getDarkMode (
              self )
```

Returns

True if in dark mode, False if in light mode.

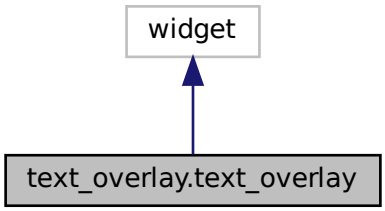
The documentation for this class was generated from the following file:

- switch_theme.py

4.8 text_overlay.text_overlay Class Reference

The text overlay widget class.

Inheritance diagram for text_overlay.text_overlay:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager)
  Initializes the text overlay widget.
- def change_colors (self)
  Change the theme colors.
- def clean_layer (self)
  Clean the layer by setting it to be blank and see-through.
- def draw_canvas (self)
  Randomizes the text color and draws text to self.layer based on the current widget settings.
- def draw_ui_dynamic (self)
  Draws the dynamic ui elements for the text overlay widget.
- def draw_ui_static (self)
  Draws the static ui elements for the text overlay widget.
- def events (self, event)
  Processes pygame events for the text overlay widget.
- def text_to_canvas (self)
  Draws text to self.layer based on the current widget settings.

Public Attributes

- bg_color
  Theme color for background.
- color
  The color to draw the text with.
- font
  The font used to draw text.
- layer
  The pygame surface the text overlay draws to.
- pos

The x and y position of the text on the canvas.

- size

  The size of the text.

- text

  The text to draw.

- ui_color

  Theme color for smaller text.

- ui_h1_color

  Theme color for text.

4.8.1 Detailed Description

The text overlay widget class.

Provides a ui and functionality to specify text to be drawn to a pygame surface.

4.8.2 Constructor & Destructor Documentation

4.8.2.1 __init__()

```
def text_overlay.text_overlay.__init__ (
              self,
              x,
              y,
              window,
              ui_manager )
```

Initializes the text overlay widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.8.3 Member Function Documentation

4.8.3.1 draw_ui_dynamic()

```
def text_overlay.text_overlay.draw_ui_dynamic (
              self )
```

Draws the dynamic ui elements for the text overlay widget.

Draws the text.

4.8.3.2 draw_ui_static()

```
def text_overlay.text_overlay.draw_ui_static (
              self )
```

Draws the static ui elements for the text overlay widget.

Draws the font dropdown, size and position sliders, and the text entry box.

4.8.3.3 events()

```
def text_overlay.text_overlay.events (
              self,
              event )
```

Processes pygame events for the text overlay widget.

Handles the font dropdown, size and position sliders, and the text entry box.

Parameters

event	The pygame event being processed.

The documentation for this class was generated from the following file:

- text_overlay.py

4.9 ui_controller.ui_controller Class Reference

The ui_controller class.

Public Member Functions

- def __init__ (self)
  Initializes ui_controller.
- def draw_ui_dynamic (self)
  Draws the dynamic ui.
- def draw_ui_static (self)
  Draws the static ui.
- def export_art (self)
  Exports the canvas to a png image.
- def process_events (self)
  Processes pygame events.
- def run (self)
  Main loop.

Public Attributes

- canvas

  The canvas to draw the generated art on.
- export_resolution

  Current canvas export resolution.
- isrunning

  A boolean that specifies if the program is running, program terminates if False.
- ui_manager

  Manages pygame_gui elements and events.
- window

  The program window.

Static Public Attributes

- tuple canvas_display_size = (int(SW//1.8), int(SH//1.8))

  Canvas ui display port size.
- tuple canvas_pos = ((SW - canvas_display_size[0])//2, (SH - canvas_display_size[1])//2)

  Position of the canvas on the ui.
- tuple canvas_size = (3840, 2160)

  Canvas internal size.
- tuple help_pos = (284, 60)

  Position of the help widget.
- tuple layer_one_pos = (_ui_menus_left, 30)

  Position of the layer one widget.
- tuple layer_three_pos = (_ui_menus_left, layer_two_pos[1]+230)

  Position of the layer three widget.
- tuple layer_two_pos = (_ui_menus_left, layer_one_pos[1]+230)

  Position of the layer two widget.
- tuple overlay_pos = (palette_pos[0], palette_pos[1]+145)

  Position of the overlay widget.
- tuple palette_pos = (_ui_menus_right, 15)

  Position of the color palette widget.
- list resolutions_list

  Possible canvas export resolutions.
- int SH = 720

  Application window height.
- int SW = 1280

  Application window width.
- tuple switch_theme_pos = (284, 90)

  Position of the switch theme widget.
- tuple text_overlay_pos = (_ui_menus_right, overlay_pos[1]+360)

  Position of the text overlay widget.

4.9.1 Detailed Description

The ui_controller class.

A high level class that calls all other modules. Orchestrates pygame event handling, ui drawing, art generation, randomization, and art exporting.

4.9.2 Constructor & Destructor Documentation

4.9.2.1 __init__()

```
def ui_controller.ui_controller.__init__ (
              self )
```

Initializes ui_controller.

Initializes pygame, the application window, the canvas, and all widgets.

4.9.3 Member Function Documentation

4.9.3.1 draw_ui_dynamic()

```
def ui_controller.ui_controller.draw_ui_dynamic (
              self )
```

Draws the dynamic ui.

Draws the background color and some text itself and calls canvas and widgets for all other drawing.

4.9.3.2 draw_ui_static()

```
def ui_controller.ui_controller.draw_ui_static (
              self )
```

Draws the static ui.

Draws generation and export controls itself and calls widgets for all other drawing.

4.9.3.3 process_events()

```
def ui_controller.ui_controller.process_events (
              self )
```

Processes pygame events.

Handles generation and export controls itself and calls events() in widgets for all other event processing.

4.9.3.4 run()

```
def ui_controller.ui_controller.run (
              self )
```

Main loop.

Draws static ui then enters loop where it processes events and draws the dynamic ui.

4.9.4 Member Data Documentation

4.9.4.1 resolutions_list

```
list ui_controller.ui_controller.resolutions_list  [static]
```

Initial value:

```
=  [
        "4K: 3840x2160",
        "Full HD: 1920x1080",
        "HD: 1280x720"
    ]
```

Possible canvas export resolutions.

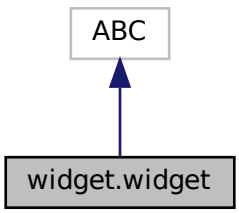
The documentation for this class was generated from the following file:

- ui_controller.py

4.10 widget.widget Class Reference

An abstract class for widgets to extend.

Inheritance diagram for widget.widget:



Public Member Functions

- def __init__ (self, x, y, window, ui_manager)

  Initializes the widget.
- def draw_canvas (self)

  Draw to the canvas.
- def draw_ui_dynamic (self)

  Draw ui elements that need to be refreshed each frame.
- def draw_ui_static (self)

  Draw ui elements that only need to be drawn once.
- def events (self, event)

  Handle pygame events for the widget.
- def randomize (self)

  Randomize the widget settings.
- def refresh_ui_static (self)

  Refresh the static ui elements.

4.10.1 Detailed Description

An abstract class for widgets to extend.

Provides an interface widgets typically use.

4.10.2 Constructor & Destructor Documentation

4.10.2.1 __init__()

```
def widget.widget.__init__ (
                self,
                x,
                y,
                window,
                ui_manager )
```

Initializes the widget.

Parameters

x	Horizontal position to draw the widget at on the ui.
y	Vertical position to draw the widget at on the ui.
window	Ui window to draw the widget to.
ui_manager	Pygame_gui element manager to tie pygame_gui elements to.

4.10.3 Member Function Documentation

4.10.3.1 draw_ui_dynamic()

```
def widget.widget.draw_ui_dynamic (
              self )
```

Draw ui elements that need to be refreshed each frame.

For our purposes draws everything that isn't a pygame_gui element.

4.10.3.2 draw_ui_static()

```
def widget.widget.draw_ui_static (
              self )
```

Draw ui elements that only need to be drawn once.

For our purposes draws pygame_gui elements.

4.10.3.3 events()

```
def widget.widget.events (
              self,
              event )
```

Handle pygame events for the widget.

Parameters

event	The event to be processed.

The documentation for this class was generated from the following file:

- widget.py

4.11 widget_storage.widget_storage Class Reference

Storage for program widgets.

Public Member Functions

- def **__init__** (self)

Public Attributes

- color_palette
  The color palette widget.
- generators
  The generators utility.
- help
  The help button widget.
- layer_one
  The layer one widget.
- layer_three
  The layer three widget.
- layer_two
  The layer two widget.
- overlay
  The overlay widget.
- switch_theme
  The theme switch widget.
- text_overlay
  The text overlay widget.

4.11.1 Detailed Description

Storage for program widgets.

Allows all other modules to access program widgets.

The documentation for this class was generated from the following file:

- widget_storage.py

Chapter 5

File Documentation

5.1 assets.py File Reference

Stores various assets useful to other modules.

Functions

- def assets.text_to_screen (window, text, color, pos, font_size)

  Draws text to ui.

Variables

- tuple assets.active_color = (90, 90, 90)

  Color used to indicate active settings.
- assets.background_color = pg.Color("#322f3d")

  Background_color of ui.
- list assets.font_sizes = [12, 14, 18, 24, 30, 40]

  Font size numbers that correspond with defined font sizes.
- list assets.fonts = [xs_font, small_font, medium_font, large_font, xl_font, xxl_font]

  List of font sizes.
- tuple assets.inactive_color = (20, 20, 20)

  Color used to indicate inactive settings.
- assets.large_font = pg.freetype.Font("fonts/Basic.ttf", 24)

  Large font.
- assets.lock_disabled = pg.transform.scale(pg.image.load("assets/lock_disabled.png"), (20, 20))

  Lock disabled graphic.
- assets.lock_enabled = pg.transform.scale(pg.image.load("assets/lock_enabled.png"), (20, 20))

  Lock enabled graphic.
- assets.logo = pg.image.load("assets/logo.png")

  Program logo.
- assets.medium_font = pg.freetype.Font("fonts/Basic.ttf", 18)

  Medium font.
- assets.small_font = pg.freetype.Font("fonts/Basic.ttf", 14)

  Small font.

- assets.ui_color = pg.Color("#DFD6FF")

  Color used for smaller text elements.
- tuple assets.ui_h1_color = (250, 250, 250)

  Color used for larger text elements.
- assets.xl_font = pg.freetype.Font("fonts/Basic.ttf", 30)

  Extra large font.
- assets.xs_font = pg.freetype.Font("fonts/Basic.ttf", 12)

  Extra small font.
- assets.xxl_font = pg.freetype.Font("fonts/Basic.ttf", 40)

  Extra extra large font.

5.1.1 Detailed Description

Stores various assets useful to other modules.

5.1.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.

5.1.3 Function Documentation

5.1.3.1 text_to_screen()

```
def assets.text_to_screen (
              window,
              text,
              color,
              pos,
              font_size )
```

Draws text to ui.

Parameters

window	Ui window to draw to.
text	Text to draw.
color	Color of text.
pos	Position of text.
font_size	Size of text.

5.2 canvas.py File Reference

Defines the canvas class.

Classes

- class canvas.canvas
  The canvas class.

5.2.1 Detailed Description

Defines the canvas class.

5.2.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.

5.3 color_palette.py File Reference

Defines the color_palette class.

Classes

- class color_palette.color_palette
  The color palette widget class.

5.3.1 Detailed Description

Defines the color_palette class.

5.3.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.

5.4 generators.py File Reference

Defines the generator class which houses the various layer generation algorithms.

Classes

- class generators.generators
  Generators class that provides layer generation functionality to the layer module.

Variables

- list **generators.art_styles_list**

5.4.1 Detailed Description

Defines the generator class which houses the various layer generation algorithms.

5.4.2 Author(s)

- Created by Jessica Dawson on 03/17/2022.

5.4.3 Variable Documentation

5.4.3.1 art_styles_list

```
list generators.art_styles_list
```

Initial value:

```
1 =  [
2     "Chaotic",
3     "Striped Horizontal",
4     "Striped Vertical",
5     "Mosaic",
6     "Cornered",
7     "Centered",
8     "Empty"
9 ]
```

5.5 help.py File Reference

Defines the help class.

Classes

- class help.help

  The help widget class.

5.5.1 Detailed Description

Defines the help class.

5.5.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.

5.6 layer.py File Reference

Defines the layer class.

Classes

- class layer.layer
  The layer widget class.

5.6.1 Detailed Description

Defines the layer class.

5.6.2 Author(s)

- Created by Aamina Hussain on 03/17/2022.

5.7 overlay.py File Reference

Defines the overlay class.

Classes

- class overlay.overlay
  The overlay widget class.

5.7.1 Detailed Description

Defines the overlay class.

5.7.2 Author(s)

- Created by Jessica Dawson on 03/17/2022.
- Modified by Aamina Hussain on 04/05/2022.

5.8 switch_theme.py File Reference

Defines the switch theme class.

Classes

- class switch_theme.switch_theme
  The theme switch widget class.

5.8.1 Detailed Description

Defines the switch theme class.

5.8.2 Author(s)

- Created by Fady Morcos on 04/04/2022.

5.9 text_overlay.py File Reference

Defines the text_overlay class.

Classes

- class text_overlay.text_overlay
  The text overlay widget class.

5.9.1 Detailed Description

Defines the text_overlay class.

5.9.2 Author(s)

- Created by Jessica Dawson on 03/22/2022.

5.10 ui_controller.py File Reference

Defines and initializes the ui_controller class.

Classes

- class ui_controller.ui_controller
  The ui_controller class.

Variables

- ui_controller.controller = ui_controller()

  The ui_controller instance that initializes the program.

5.10.1 Detailed Description

Defines and initializes the ui_controller class.

5.10.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.
- Modified by Aamina Hussain on 03/17/2022.

5.11 widget.py File Reference

Defines the widget abstract class.

Classes

- class widget.widget

  An abstract class for widgets to extend.

5.11.1 Detailed Description

Defines the widget abstract class.

5.11.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.

5.12 widget_storage.py File Reference

Defines and initializes the widget_storage class.

Classes

- class widget_storage.widget_storage

  Storage for program widgets.

Variables

- widget_storage.widgets = None

  Instance of widget_storage to access widgets through.

5.12.1 Detailed Description

Defines and initializes the widget_storage class.

5.12.2 Author(s)

- Created by Jessica Dawson on 03/16/2022.
- Modified by Aamina Hussain on 03/17/2022.

5.12.3 Variable Documentation

5.12.3.1 widgets

```
widget_storage.widgets = None
```

Instance of widget_storage to access widgets through.

Import this instance and access widgets with widgets.widget_name

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