Component specification

BaseUIComponent is the base class in the Pygame-UI component framework. This class handles component initialization, rendering, handling and queuing of client events as well as changes in the component’s state. Custom components inherit from this class and implement the necessary for them methods.

BaseUIComponent

# Vision

BaseUIComponent class implements all of the base functionality of components in the Pygame-UI component framework. The BaseUIComponent class initializes a component as a pygame.Surface object relative to a parent pygame.Surface object. All common properties such as position, asbsolute position, dimensions, styling, component surface, etc. are defined in the base component. The surface rendering is defined in the base component as a pygame.Surface.blit method of the component surface inside the parent surface. Click, hover, drag and resize detections are also done in the BaseUIComponent class and these actions can be enabled/disable using properties of this class. The base component takes away from developers the need to detect user interaction by handling the calculations internally and leaves the developer to only react to end-product user events resulting from certain actions being taken.

# Architecture

BaseUIComponent is implemented as a wrapper for a pygame.Surface object. The purposes of the BaseUIComponent are to abstract user interaction and to implement state for the surface that is dynamically changing according to how the user interacts with the environment. Collision detection is done through extracting the pygame.Surface rectangle and using the collide methods defined for the pygame.Rect object. The base component implements the queuing of corresponding user events for each user-component interaction. The BaseUIComponent implements properties to make each part of the component accessible. Important thing to note is that the focus for the Pygame-UI components is not handled through the BaseUIComponent. It is done through the UIComponentCollection class. The MouseDown method of the BaseUIComponent returns a Boolean being true if the MouseDown event is inside the components dimensions and false if not. The UIComponentCollection then puts the component on focus if true is returned thus rendering it on top of other components in the collection.

# Implementation