

Window class

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1 Window Class

1.1 Description

The window class represents a window application. It is powered by pygame. The window has a tree of window elements which it uses to render the window elements each frame. The tree is traversed with each element receiving events occurring and are tagged to be rerendered when their state has changed.

1.2 Class fields

| Field name | Type | Description |
|-----------------|----------------|--|
| width | int | Defines the width of the window in pixels |
| height | int | Defines the height of the window in pixels |
| windowtitle | str | The title of the window(show in the bar) |
| event_loop | function | Event loop of the window application. If not specified differently just calls render on its window elements. |
| screen | surface object | Surface object(PyGame object) which window elements are drawn on |
| window_elements | window_element | Tree of window elements which is traversed whenever the new frame starts. |

1.3 Class methods

| Method name | Parameters | Description |
|-------------|------------|--|
| __init__ | | Initializes the class and pygame |
| __str__ | | String representation of the window class object |
| __repr__ | | String representation of the window class object in iterable objects |
| run | | Runs the event loop of the application. |

2 Window elements

2.1 Description

Window elements is an abstract class of elements which are drawn onto the surface of the window application. They have a render method and an event handler, the event handler is called whenever a frame is done and a new frame is starting to be drawn. Each Window elements has an array of children which are rendered from first element to last. Events are handled from last to first. Event handler can return True if event should not be passed to other nodes(like mouse events that has been already handled, allowing for stacked elements without stacked events).

2.2 Class fields

| Field name | Type | Description |
|---------------|------------------------|--|
| width | int | Defines the width of the window element in pixels |
| height | int | Defines the height of the window element in pixels |
| x | int | absolute x-Position of the element |
| y | int | absolut y-Position of the element |
| children | list of window_element | Children window elements of itself. Elements that are out of the drawing field of itself are clipped. |
| state_changed | Bool | True if the inner state of window element has changed. Redraws itself and all its children on next render if set True. |

2.3 Class methods

| Method name | Parameters | Description |
|---------------|--------------|--|
| __init__ | | Initializes the class |
| __str__ | | String representation of the window class object |
| __repr__ | | String representation of the window class object in iterable objects |
| handle_events | event | Handles incoming input events. event is a list of pygame events or single pygame event |
| render | | renders itself and its children |
| update | force_update | Rerenders the component if state.chaged or force_update is set to True |