Creates the GUI Component

__init__
- ● Creates an app_state variable
- ● Calls **setup_window**
- ● Creates an object for running PCA Analysis
- ● Declares all the GUI component variable
- ● Calls **create_components**
- ● Calls **setup_layout**

setup_window
- ● Creates a title for the application
- ● Sets the size of the application based using OS type
- ● Sets a background color
- ● Sets a minimum Size

create_widgets
- ● Initializes all of the GUI component variables
- ● Adds bindings to required GUI components
- ● Adds the styling arguments to GUI components

setup_layout
- ● Creates a row and column configuration for the GUI
- ● Adds all of the GUI components to itself

Data Handeling Methods

run_analysis
- ● Determines if the application data is ready to run PCA analysis and if PCA needs to be run again on the data
- ● Runs PCA analysis
- ● Calls **update_results_display**
- ● Sets df_updated variable to False

select_output_directory
- ● Prompts user to select an output directory
- ● IShows an error if no directory was selected and exits
- ● Sets the output directory in app_state to the selected directory
- ● Updates the output directory label on the GUI
- ● Shows a confirmation with the selected directory

UI Update Methods

update_data_info
- ● Exits if the df does not exist
- ● Creates info_text with the header, "Data Information"
- ● Adds the Dataset shape to the info_text
- ● Adds the list of column names to the info_text
- ● Insert the new info_text into the data_insight_summary GUI object
- ● Calls **update_figure**

update_results_display
- ● Creates a summary with the header, "PCA Analysis Results"
- ● Adds the number of components, original shape, and prepared shape to the summary
- ● Adds the explained Variance Ratios for each PCA component to the summary
- ● Inserts the new summary into the data_insight_summary GUI object

update_figure
- ● Destroys the Canvas for the current plot
- ● Sets the figure to use tight layout
- ● Generates a new plot_canvas using the app_state figure
- ● Draws the plot_canvas
- ● Creates a figure with the plot_canvas and adds it to the widget

create_blank_fig
- ● Creates a new figure using the figure size in app_state
- ● Creates a new ax on the figure
- ● Sets the grid value of the new ax

Event Handlers

on_close
- ● Destroys the plot_canvas if it exists
- ● Closes all plt objects
- ● Destroys self

_bind_mousewheel
- ● Binds the mousewheel to the scrollable options canvas

_unbind_mouswheel
- ● Unbinds the mousewheel from the scrollable options canvas

_on_mousewheel
- ● Scrolls the scrollable options canvas in the direction of the mousewheel