**Creates GUI Component**

\_\_init\_\_

* Initialize component and store app\_state
* Declares all the GUI component variables
* Calls create\_components
* Calls setup\_layout

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

**Creates heatmap figure**

create\_heatmap\_fig

* Shows an error message if the df has not been cleaned
* Calls **main.run\_analysis**
* Calls **main.create\_blank\_fig(grid=False)**
* Adds a title and x and y label
* Sets the tick label sizes to fit the plot
* Gets the user heatmap\_mode input
* Gets the pca\_results loadings from app\_state
* Calls **get\_focus\_cols**
* Calls **display\_loadings\_heatmap**
* Calls **main.update\_figure**

get\_focus\_cols

* Gets the df column names
* Gets the loadings for the first principle component
* Converts the first principal component loadings into a pd.Series and sorts values
* If top 10 or 20 features are selected
  + Return top 10 or 20 features
* If custom features is selected
  + Get the columns from the focus\_entry
    - Raise an error if focus\_entry doesn’t exist
  + Raise an error if no cols are provided in the focus\_entry
  + Raise an error if some of the selected columns are not in the df
  + Return the custom features
* If an exception occurs show an error and return None

display\_loadings\_heatmap

* Select all data\_columns if no focus columns are provided
* Get the loadings for the selected columns
* Create a new figure using the fig\_size in app\_state
* Generate a heatmap
* Sets title and x and y labels
* Sets tick\_parameter sizing

on\_heatmap\_mode\_change

* Disables and enables the focus column entry