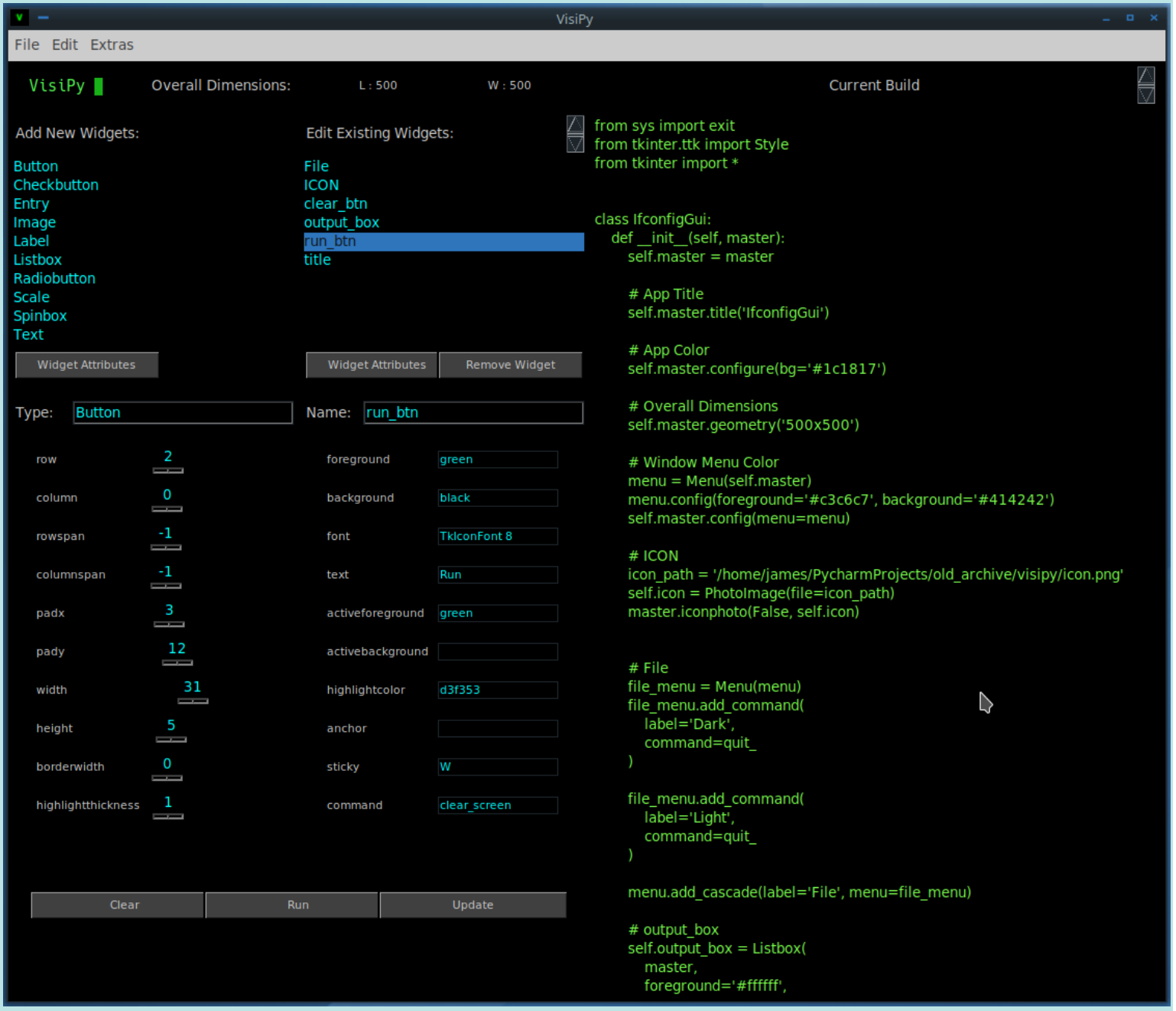
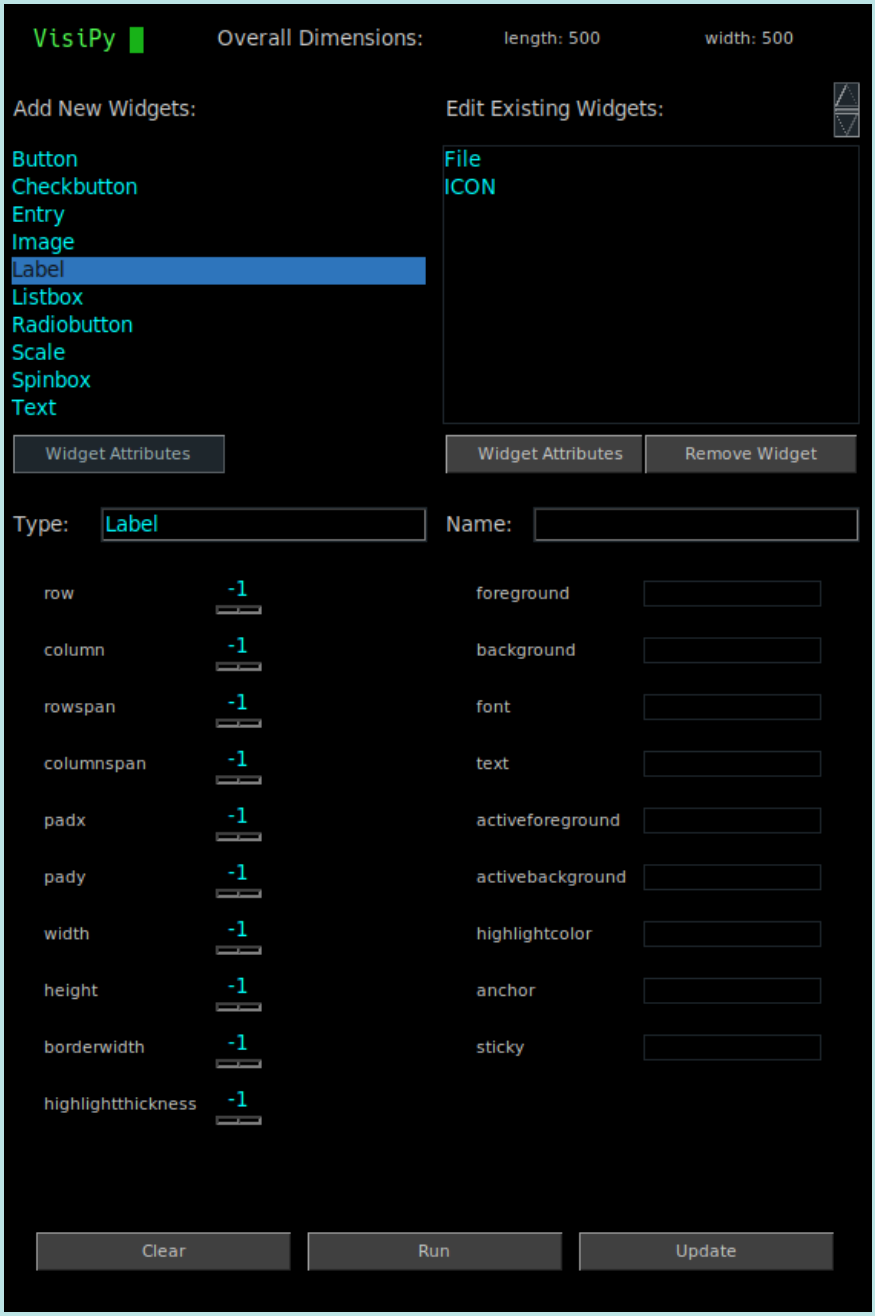
VisiPy Tutorial



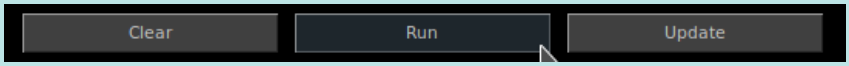
Directly under the *Add New Widgets* label there is a listbox containing all default widgets.
Any of these may be selected for editing by selecting the widget, and pressing *Widget Attributes* (left).
The selected widget's available attributes will appear in the area below.
Attributes vary per widget. To add a new attribute, *adjust a slider above -1 or enter a value in a text box.*
Fields that are empty or contain -1 will be ignored when *Update* is pressed.



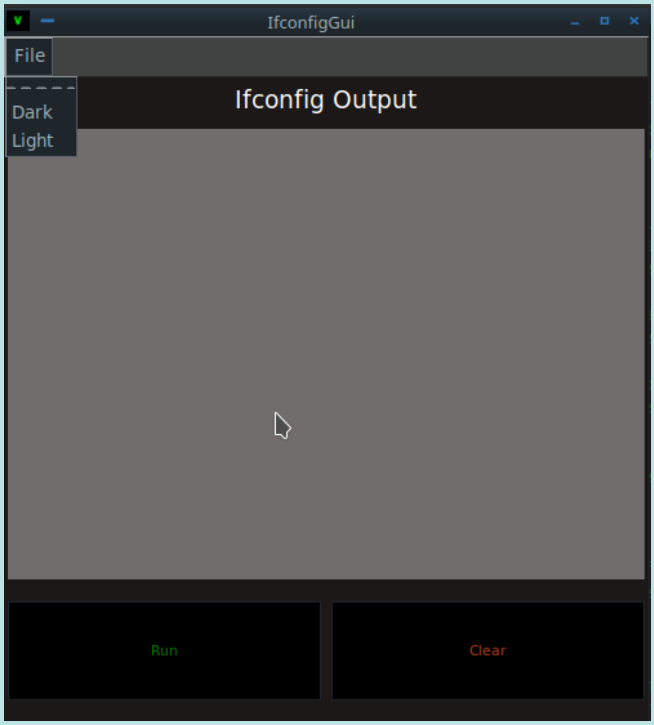
The current code build (right side of VisiPy) will be updated each time the *Update* button is pressed. This is the main build window that will change when a widget is created, updated, or removed:

```
from sys import exit
from tkinter.ttk import Style
from tkinter import *


class IfconfigGui:
    def __init__(self, master):
        self.master = master

        # App Title
        self.master.title('IfconfigGui')

        # App Color
        self.master.configure(bg='#1c1817')

        # Overall Dimensions
        self.master.geometry('500x500')

        # Window Menu Color
        menu = Menu(self.master)
        menu.config(foreground='#c3c6c7', background='#414242')
        self.master.config(menu=menu)

        # ICON
        icon_path = '/home/james/PycharmProjects/old_archive/visipy/icon.png'
        self.icon = PhotoImage(file=icon_path)
        master.iconphoto(False, self.icon)


        # File
        file_menu = Menu(menu)
        file_menu.add_command(
            label='Dark',
            command=quit_
        )

        file_menu.add_command(
            label='Light',
            command=quit_
        )

        menu.add_cascade(label='File', menu=file_menu)

        # title
        self.title = Label(
            master,
            foreground='white',
```

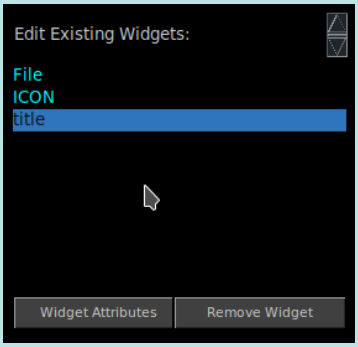
Any time that the *Run* button is pressed, the current build/code-base will be executed.
The *Update* button should be pressed to update the current build after selecting a widget (under *Add New Widgets or Edit New Widgets)* and then filling out all of the associated widget attributes. The current code base will update in the build window and reflect the new changes.



Pressing *Run* will run the current code build, and the current state of the GUI can be examined. (Example app to be built in this tutorial after pressing *Run*):

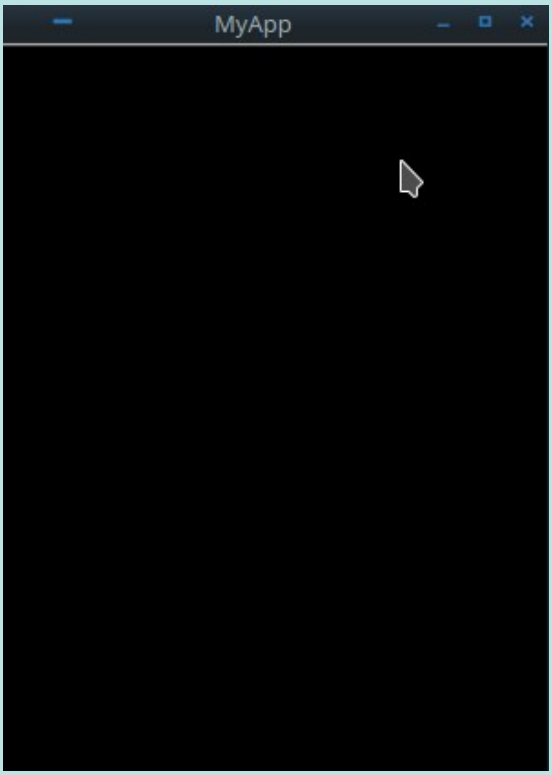


The listbox under *Edit Existing Widgets* contains widgets that have been added as well as the items added from the *Extras* window menu. Selecting an existing widget under *Edit Existing Widgets* and pressing "Widget Attributes" will load the highlighted widget's details for editing.

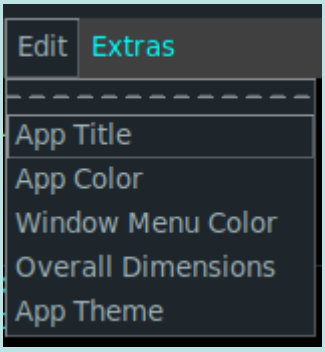


Building an application:

An example app that displays IP information will be built.
When Visipy first opens, try pressing the *Run* button.
The default application should appear:



Select the *Edit* Menu, and then select *Overall Dimensions* (enter 500x500):

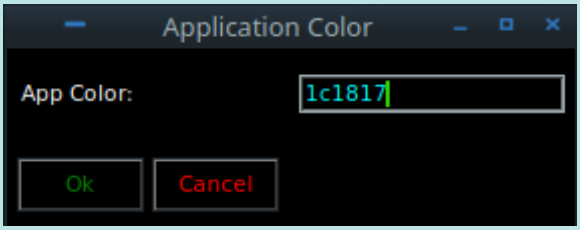


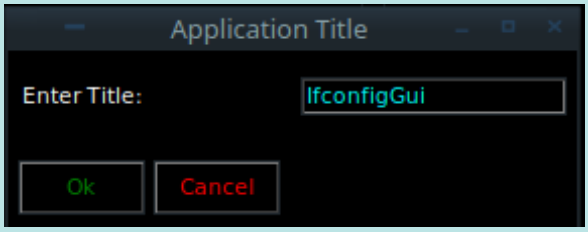
The build window should update as soon as *Ok* is pressed. Note the change made inside of the build box:

```
# Overall Dimensions
self.master.geometry('500x500')
```

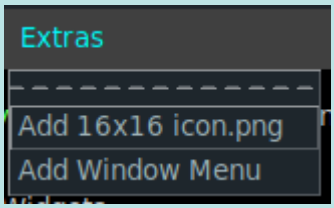
Note: The *Update* button does not need to be pressed for any of the entries in the *Edit* or *Extras* menus. It only needs to be pressed when finished filling out and/or editing a widget in the *Add New Widgets* listbox or the *Edit Existing Widgets* listbox.

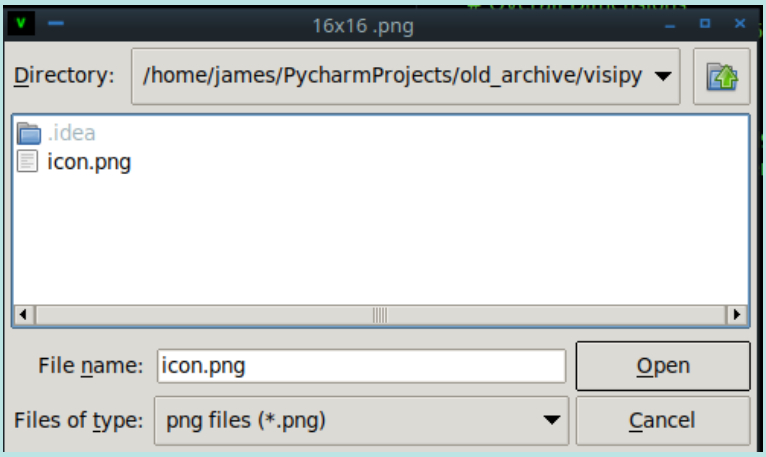
Next set the *App Color* and *App Title,* also found in the *Edit* menu:





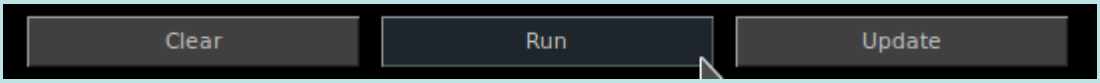
Select *Add 16x16 icon* in the Extras menu.
For demonstration purposes, the same icon used by Visipy will be loaded.
Note: The icon file **does not** have to be in your project directory.



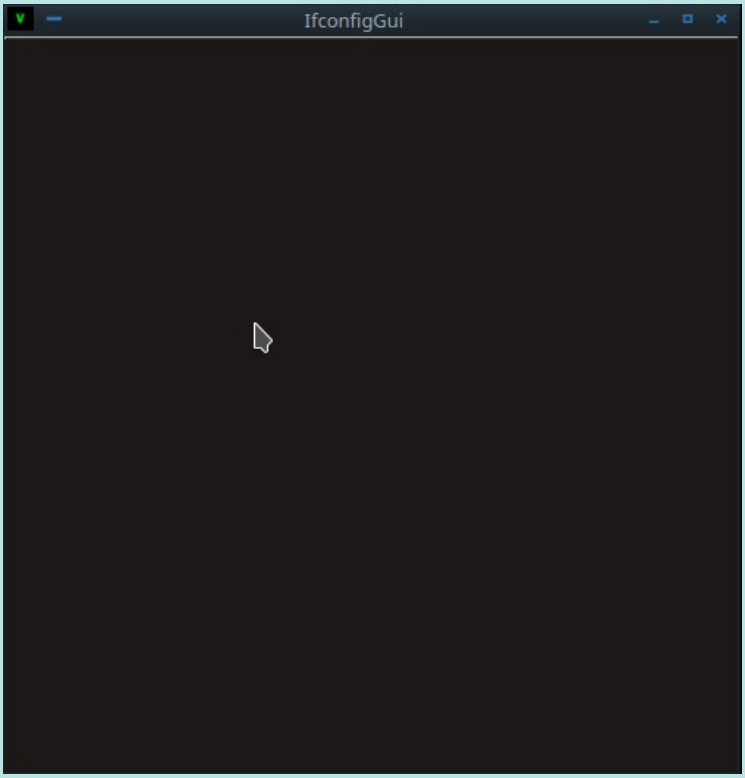


If you do not have a 16x16 icon.png, skip this step for now.

Press the *Run* button if you haven't already done so:

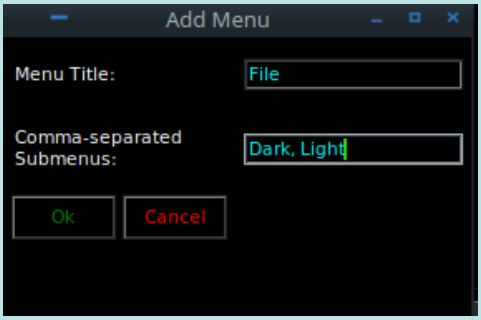


The current build/GUI should open:

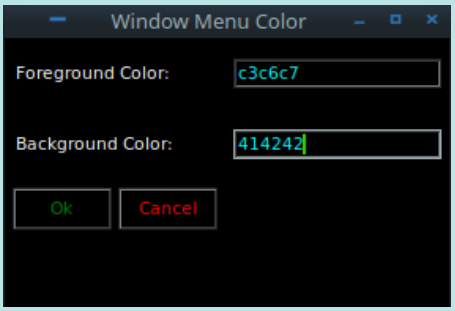


Now add a menu to the window menu bar by selecting *Extras* and then *Add Window Menu*:

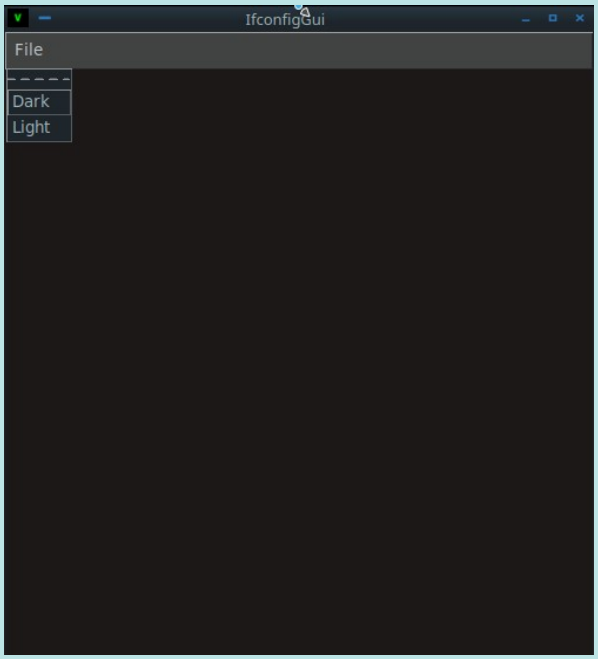
The values inside of *Comma-separated Submenus* should be a comma separated string of submenu names. Notice how ICON and File menu additions from the *Extras* menu appear in *Edit Existing Widgets a*fter pressing the Ok button. The code build will also show new entries for the menu and submenus.



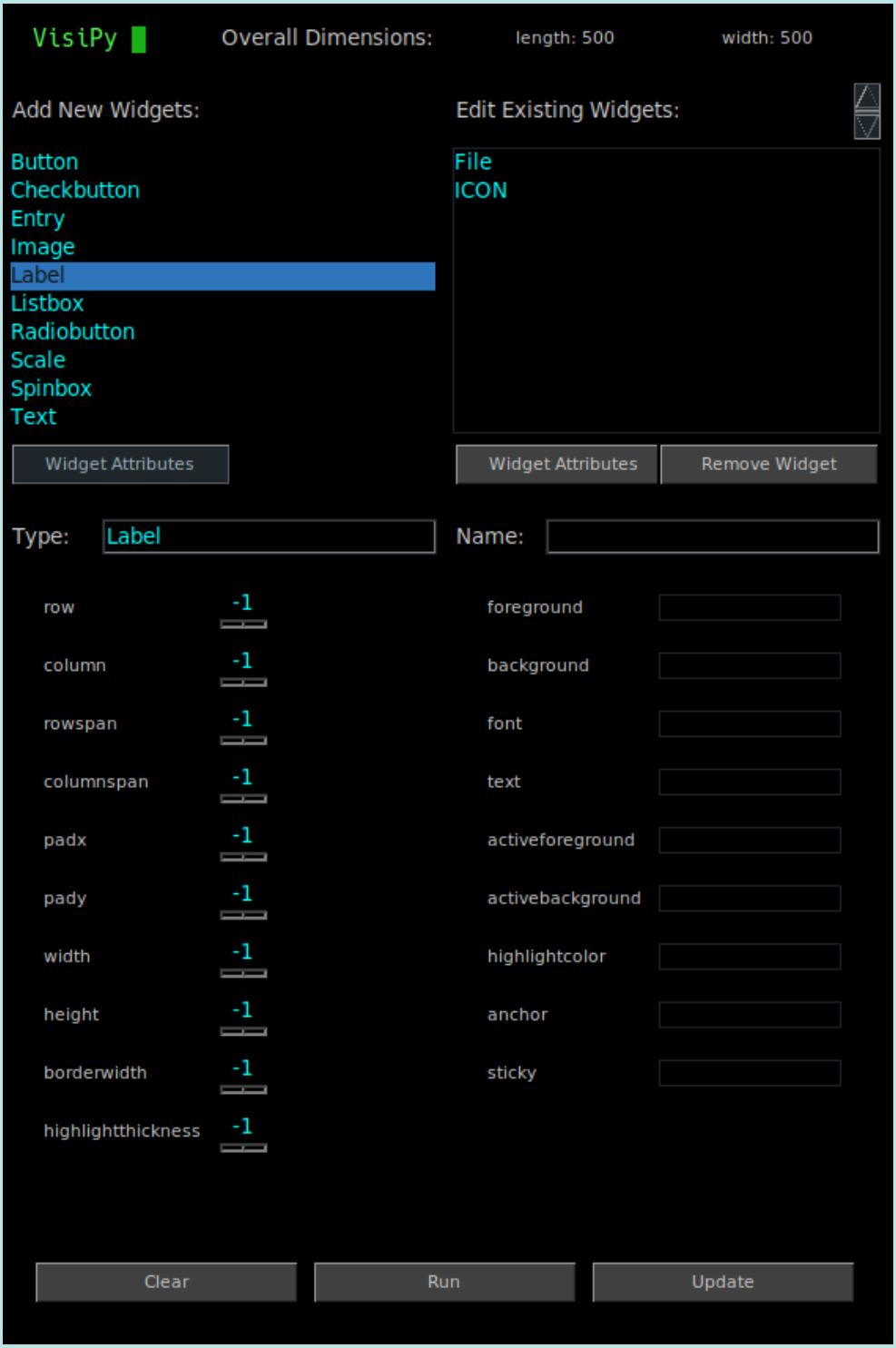
Add some color to the window menu bar and the menu text. Select *Edit* and then *Window Menu Color*:



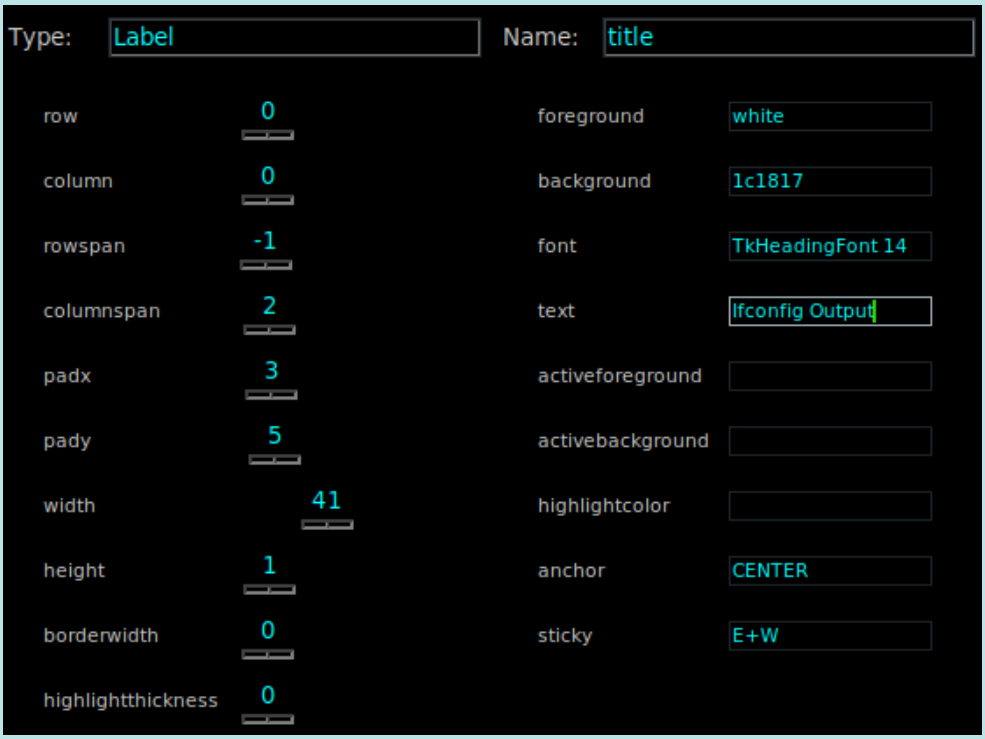
Pressing Run should show the new additions:



Now lets add some real widgets.

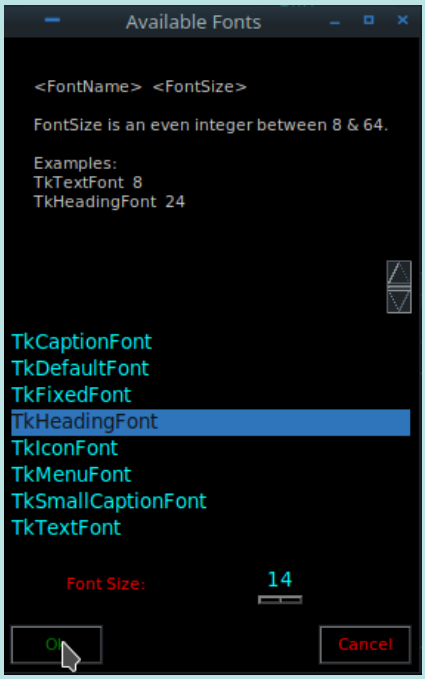


Select the *Label* widget under *Add New Widgets* and then press the *Widget Attributes* button (left). Make the following adjustments:

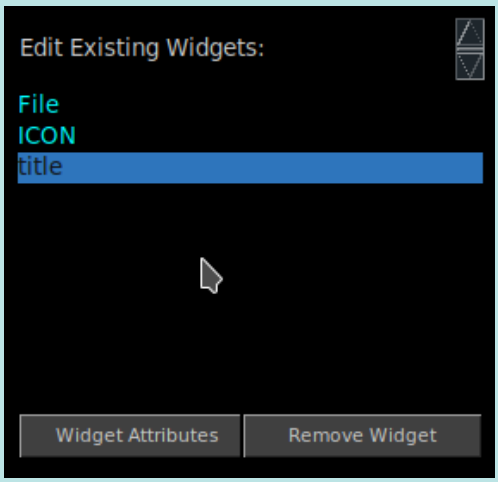


Note: Clicking *File* and *Available Fonts* will display a popup window and autofill the *font* field.

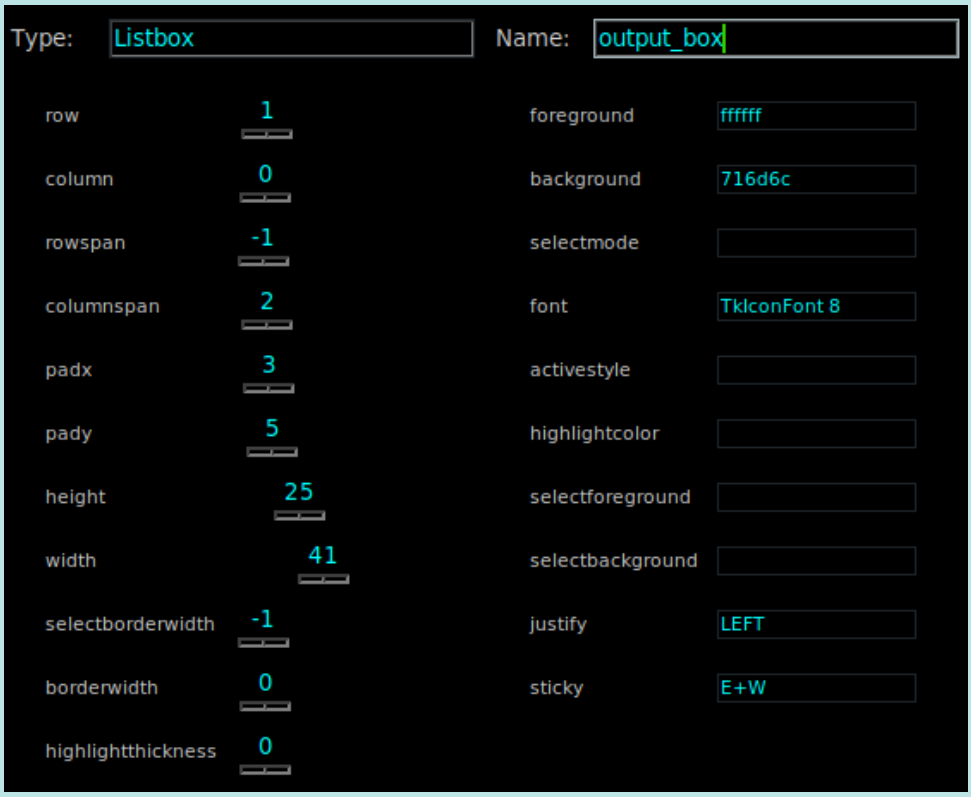
Note: Visipy only allows the system fonts when working.
After templating you may change the fonts to any style.



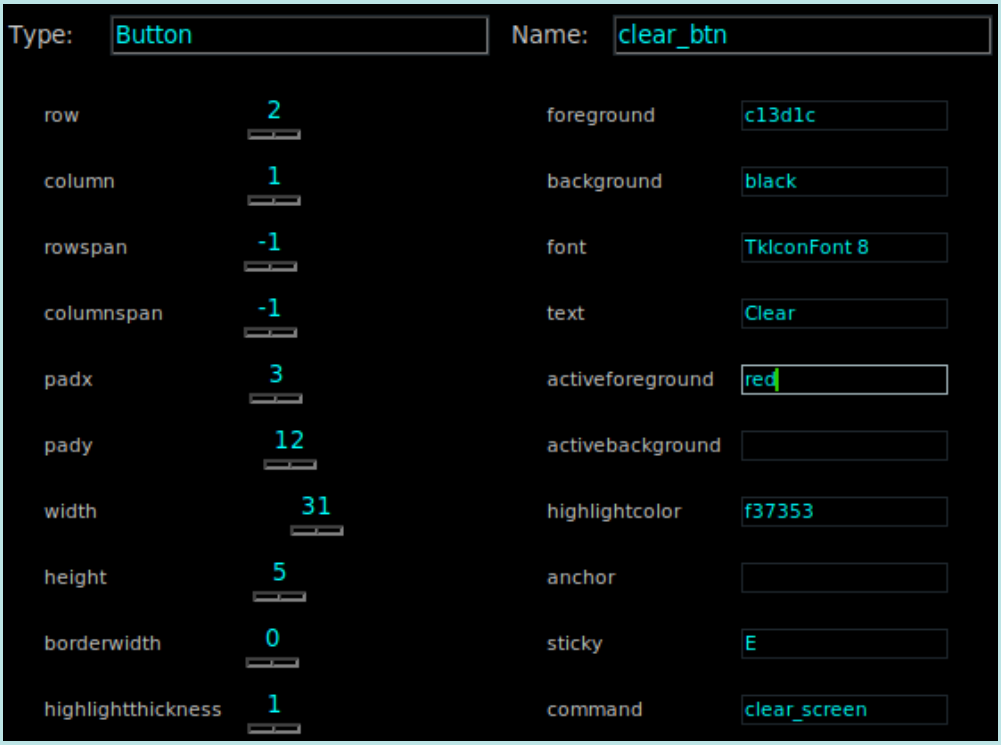
After pressing the *Update* button, the code build window will update, and a new widget will appear in the existing widgets listbox reflecting the chosen settings. Press the *Run* button if desired to check the GUI.

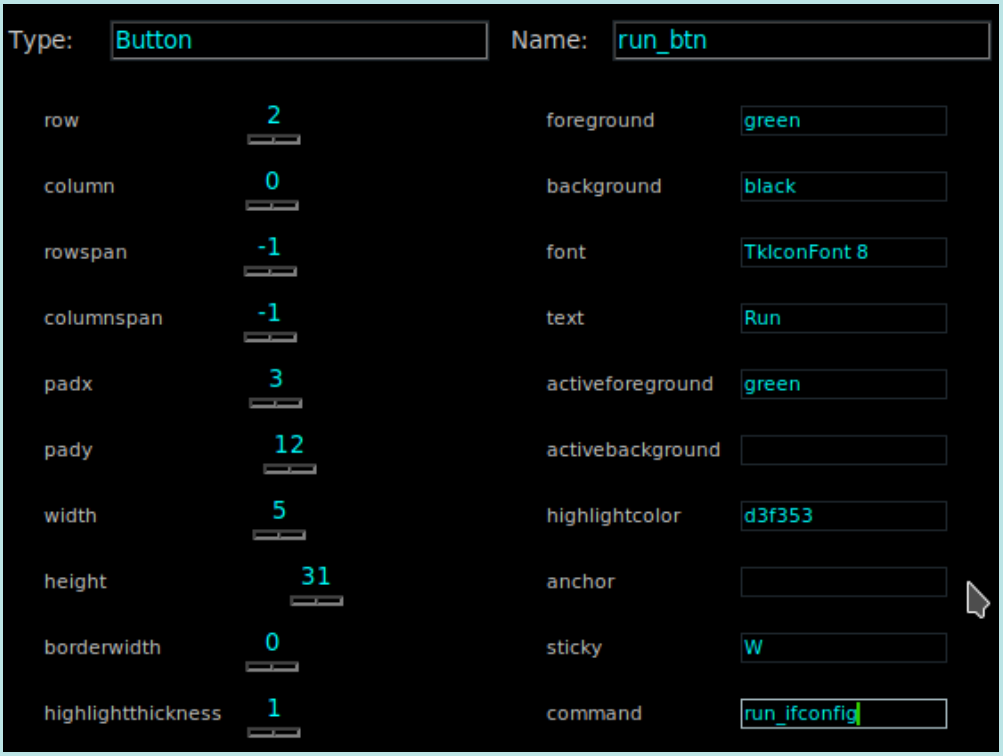


Now add a *Listbox* with the following attributes in the same manner:

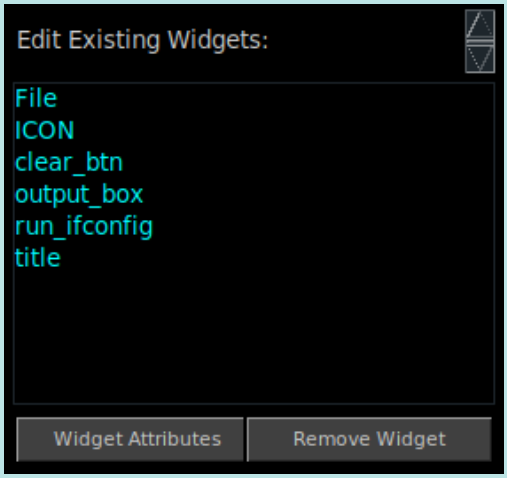


Now add a Clear button and a Run button:



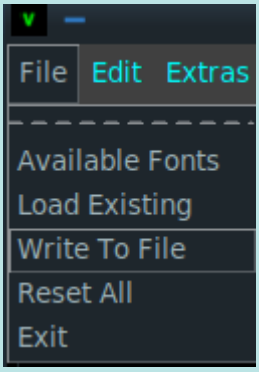

Type:
Button
Name:
run_btn
row
2
column
0
rowspan
-1
columnspan
-1
padx
3
pady
12
width
5
height
31
borderwidth
0
highlightthickness
1
foreground
green
background
black
font
TkIconFont 8
text
Run
activeforeground
green
activebackground
highlightcolor
d3f353
anchor
sticky
W
command
run_ifconfig

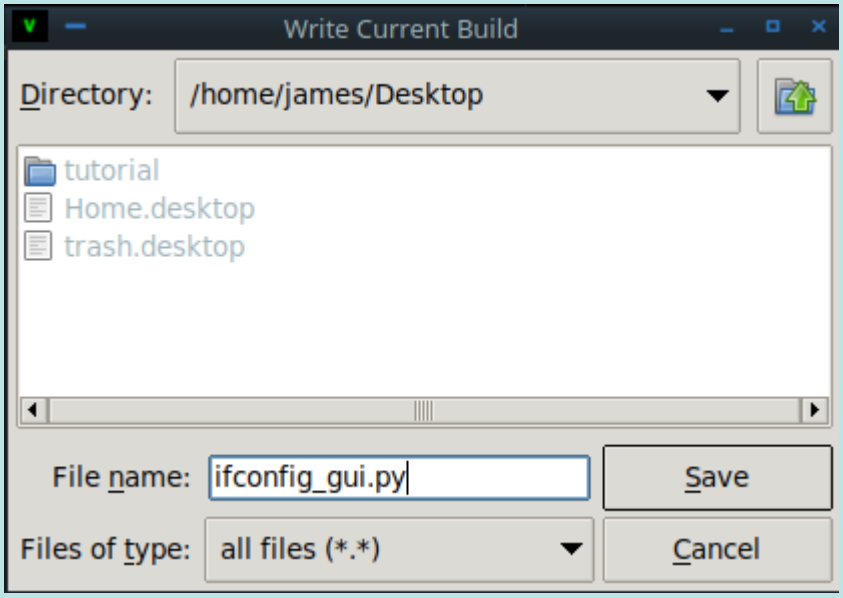
Once finished, the *Edit Existing Widgets* listbox should have the following contents:



The app should build as shown:

Your current build can be written to a *.py* file at any time.
Simply select *File* and *Write To File.*





A *.py* file will be created along with a *.project* file. The project file will contain valid JSON, and represents the current state of your app whenever *Write To File* was used.

The *project* file may be discarded or used to load your project at a later date.

To load a an existing project, select *File* and *Load Existing.* Provide a path to a *.project* JSON file.

The final code should resemble the below code once written to a file.
It's up to you the developer to replace the *command* placeholders with your own methods.

Note: The quit_() function is placed just below the class by default.

Any window bar menus' *command* attributes will be linked to the quit_() function by default (to be replaced by the developer after templating).

Any widgets other than the window bar menus that include a *command* attribute, will also have their corresponding methods templated to a placeholder function signifying TODO/action handling (also to be replaced by the developer after templating).

Here is the example code after writing the Ifconfig project to a file:

```
from sys import platform
from tkinter.ttk import Style
from tkinter import *


class IfconfigGui:
    def __init__(self, master):
        self.master = master

        # App Title
        self.master.title('IfconfigGui')

        # App Color
        self.master.configure(bg='#1c1817')

        # Overall Dimensions
        self.master.geometry('500x500')

        # Window Menu Color
        menu = Menu(self.master)
        menu.config(foreground='#c3c6c7', background='#414242')
        self.master.config(menu=menu)

        # ICON
        icon_path = '/home/james/PycharmProjects/old_archive/visipy/icon.png'
        self.icon = PhotoImage(file=icon_path)
        master.iconphoto(False, self.icon)

        # File
        file_menu = Menu(menu)
        file_menu.add_command(
            label='Dark',
            command=quit_
        )
```

```
    file_menu.add_command(
        label='Light',
        command=quit_
    )

    menu.add_cascade(label='File', menu=file_menu)

    # title
    self.title = Label(
        master,
        foreground='white',
        background='#1c1817',
        font='TkHeadingFont 14',
        text='Ifconfig Output',
        anchor=CENTER,
        width=41,
        height=1,
        borderwidth=0,
        highlightthickness=0
    )

    self.title.grid(
        row=0,
        column=0,
        columnspan=2,
        padx=3,
        pady=5,
        sticky=E+W
    )

    # output_box
    self.output_box = Listbox(
        master,
        foreground='#ffffff',
        background='#716d6c',
        font='TkIconFont 8',
        justify=LEFT,
        width=41,
        height=25,
        borderwidth=0,
        highlightthickness=0
    )

    self.output_box.grid(
        row=1,
        column=0,
        columnspan=2,
        padx=3,
        pady=5,
        sticky=E+W
    )
```

```
        # clear_btn
        self.clear_btn = Button(
            master,
            foreground='#c13d1c',
            background='black',
            font='TkIconFont 8',
            text='Clear',
            activeforeground='red',
            command=self.clear_screen,
            highlightcolor='#f37353',
            width=31,
            height=5,
            borderwidth=0,
            highlightthickness=1
        )

        self.clear_btn.grid(
            row=2,
            column=1,
            padx=3,
            pady=12,
            sticky=E
        )

        # run_btn
        self.run_btn = Button(
            master,
            foreground='green',
            background='black',
            font='TkIconFont 8',
            text='Run',
            activeforeground='green',
            command=self.run_ifconfig,
            highlightcolor='#d3f353',
            width=31,
            height=5,
            borderwidth=0,
            highlightthickness=1
        )

        self.run_btn.grid(
            row=2,
            column=0,
            padx=3,
            pady=12,
            sticky=W
        )

    def run_ifconfig(self):
        """ TODO: Add handling code here """
        print('Handle ifconfig here')

    def clear_screen(self):
        """ TODO: Add handling code here """
        print('Handle clear_screen here')


def quit_():
    exit()
```

```
# App Theme
def run_gui():
    root = Tk()
    root.style = Style()
    root.style.theme_use('default')
    IfconfigGui(root)
    root.mainloop()


if __name__ == '__main__':
    run_gui()
```

Now that the code is templated, the project can be finished in any editor.

The below code is just an example of capturing stdout from ifconfig and loading into a listbox:

(additions are highlighted)

```
from subprocess import Popen, PIPE
from sys import platform
from tkinter.ttk import Style
from tkinter import *


class IfconfigGui:
    def __init__(self, master):
        self.master = master

        # App Title
        self.master.title('IfconfigGui')

        # App Color
        self.master.configure(bg='#1c1817')

        # Overall Dimensions
        self.master.geometry('500x500')

        # Window Menu Color
        menu = Menu(self.master)
        menu.config(foreground='#c3c6c7', background='#414242')
        self.master.config(menu=menu)

        # ICON
        icon_path = '/home/james/PycharmProjects/old_archive/visipy/icon.png'
        self.icon = PhotoImage(file=icon_path)
        master.iconphoto(False, self.icon)

        # File
        file_menu = Menu(menu)
        file_menu.add_command(
            label='Dark',
            command=self.change_dark
        )

        file_menu.add_command(
            label='Light',
            command=self.change_light
        )
```

```
menu.add_cascade(label='File', menu=file_menu)

# clear_btn
self.clear_btn = Button(
    master,
    foreground='#c13d1c',
    background='black',
    font='TkIconFont 8',
    text='Clear',
    activeforeground='red',
    command=self.clear_screen,
    highlightcolor='#f37353',
    width=31,
    height=5,
    borderwidth=0,
    highlightthickness=1
)

self.clear_btn.grid(
    row=2,
    column=1,
    padx=3,
    pady=12,
    sticky=E
)

# run_btn
self.run_btn = Button(
    master,
    foreground='green',
    background='black',
    font='TkIconFont 8',
    text='Run',
    activeforeground='green',
    highlightcolor='#d3f353',
    width=31,
    height=5,
    borderwidth=0,
    highlightthickness=1,
    command=self.run_ifconfig
)

self.run_btn.grid(
    row=2,
    column=0,
    padx=3,
    pady=12,
    sticky=W
)

# title
self.title = Label(
    master,
    foreground='white',
    background='#1c1817',
    font='TkHeadingFont 14',
    text='Ifconfig Output',
    anchor=CENTER,
    width=41,
    height=1,
    borderwidth=0,
    highlightthickness=0
)
```

```
        self.title.grid(
            row=0,
            column=0,
            columnspan=2,
            padx=3,
            pady=5,
            sticky=E+W
        )

        # output_box
        self.output_box = Listbox(
            master,
            foreground='#ffffff',
            background='#716d6c',
            font='TkIconFont 8',
            justify=LEFT,
            width=41,
            height=25,
            borderwidth=0,
            highlightthickness=0
        )

        self.output_box.grid(
            row=1,
            column=0,
            columnspan=2,
            padx=3,
            pady=5,
            sticky=E+W
        )

    def run_ifconfig(self):
        self.output_box.delete(0, 'end')
        try:
            out = Popen(['ifconfig'], stdout=PIPE, stderr=PIPE).communicate()
            stdout = out[0].strip().decode('utf-8').split('\n')
            self.output_box.insert('end', *stdout)
        except Exception as err:
            self.output_box.insert('end', *['ERROR', str(err)])

    def clear_screen(self):
        self.output_box.delete(0, 'end')


    def change_dark(self):
        self.master.configure(
            background='#1c1817'
        )
        self.title.configure(
            background='#1c1817',
            foreground='white'
        )
        self.output_box.configure(
            background='#716d6c',
            foreground='#ffffff'
        )
        self.clear_btn.config(
            background='black'
        )
        self.run_btn.config(
            background='black'
        )
```

```
    def change_light(self):
        self.master.configure(
            background='#c7cbcd'
        )
        self.title.configure(
            background='#d4dcdf',
            foreground='black'
        )
        self.output_box.configure(
            background='#edf0f1',
            foreground='black'
        )
        self.clear_btn.config(
            background='#ececec'
        )
        self.run_btn.config(
            background='#ececec'
        )


def quit_():
    exit()


# App Theme
def run_gui():
    root = Tk()
    root.style = Style()
    root.style.theme_use('default')
    IfconfigGui(root)
    root.mainloop()


if __name__ == '__main__':
    run_gui()
```