Ttk Styles

Summary: in this tutorial, you'll learn about the ttk styles, how to use and customize the widget's styles, and how to change the appearance of a widget by extending the built-in styles.

Introduction to the ttk styles

A theme (https://www.pythontutorial.net/tkinter/tkinter-theme/) of a collection of styles that determine the appearances of ttk widgets (https://www.pythontutorial.net/tkinter/tkinter-ttk/) .

A style is a description of the appearance of a widget class. Typically, a theme comes with a predefined set of styles.

Therefore, to change the appearance of ttk widgets, you can:

- Modify the built-in styles
- Create new styles

Generally, the style name of a ttk widget starts with the letter `'T'` followed by the widget name, for example, `TLabel` and `TButton` .

In Tkinter, every widget has a default widget class. A widget class defines the default style for a widget.

The following table shows the style names of the common ttk widget classes:

Widget class	Style name
Button (https://www.pythontutorial.net/tkinter/tkinter-	TButton

Widget class	Style name
button/)	
Checkbutton (https://www.pythontutorial.net/tkinter/tkinter-checkbox/)	TCheckbutton
Combobox (https://www.pythontutorial.net/tkinter/tkinter-combobox/)	TCombobox
Entry (https://www.pythontutorial.net/tkinter/tkinter-entry/)	TEntry
Frame (https://www.pythontutorial.net/tkinter/tkinter-frame/)	TFrame
Label (https://www.pythontutorial.net/tkinter/tkinter-label/)	TLabel
LabelFrame (https://www.pythontutorial.net/tkinter/tkinter-labelframe/)	TLabelFrame
Menubutton (https://www.pythontutorial.net/tkinter/tkinter-menubutton/)	TMenubutton
Notebook (https://www.pythontutorial.net/tkinter/tkinter-notebook/)	TNotebook
PanedWindow (https://www.pythontutorial.net/tkinter/tkinter-panedwindow/)	TPanedwindow
Progressbar (https://www.pythontutorial.net/tkinter/tkinter-	Horizontal.TProgressbar or Vertical.TProgressbar, depending on the orient option.

Widget class	Style name
progressbar/) *	
Radiobutton (https://www.pythontutorial.net/tkinter/tkinter-radio-button/)	TRadiobutton
Scale (https://www.pythontutorial.net/tkinter/tkinter-slider/) *	Horizontal.TScale or Vertical.TScale, depending on the orient option.
Scrollbar (https://www.pythontutorial.net/tkinter/tkinter-scrollbar/) *	Horizontal.TScrollbar or Vertical.TScrollbar, depending on the orient option
Separator (https://www.pythontutorial.net/tkinter/tkinter-separator/)	TSeparator
Sizegrip (https://www.pythontutorial.net/tkinter/tkinter-sizegrip/)	TSizegrip
Treeview (https://www.pythontutorial.net/tkinter/tkinter-treeview/) *	Treeview

(*) The style names of the `Progressbar`, `Scale`, `Scrollbar`, and `Treeview` widgets don't start with the letter `T`.

At runtime, you can get the widget class of a widget by calling the `winfo_class()` method of the widget instance.

The following example uses the `winfo_class()` method to get the widget class of a button widget:

```
button = ttk.Button(root, text='Click Me')
print(button.winfo_class())
```

Output:

```
TButton
```

Modifying built-in ttk styles

Every style has a set of options that define the widget's appearance.

To modify the appearance of a style, you use the `configure()` method of the `Style` class:

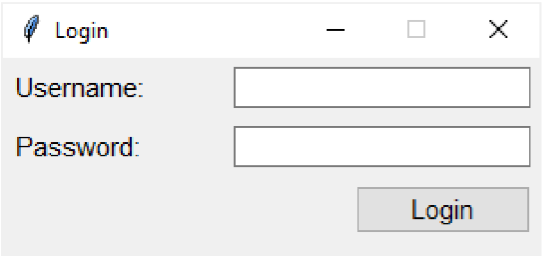
```
style = ttk.Style(root)
style.configure(style_name, **options)
```

The following program shows how to change the font of all the `Label` and `Button` widgets by modifying the `TLabel` and `TButton` 's styles:

```
import tkinter as tk
from tkinter import ttk


class App(tk.Tk):
    def __init__(self):
        super().__init__()

        self.geometry('300x110')
        self.resizable(0, 0)
        self.title('Login')

        # UI options
        paddings = {'padx': 5, 'pady': 5}
        entry_font = {'font': ('Helvetica', 11)}

        # configure the grid
        self.columnconfigure(0, weight=1)
        self.columnconfigure(1, weight=3)

        username = tk.StringVar()
        password = tk.StringVar()

        # username
        username_label = ttk.Label(self, text="Username:")
        username_label.grid(column=0, row=0, sticky=tk.W, **paddings)

        username_entry = ttk.Entry(self, textvariable=username, **entry_font)
```

```
        username_entry.grid(column=1, row=0, sticky=tk.E, **paddings)

        # password
        password_label = ttk.Label(self, text="Password:")
        password_label.grid(column=0, row=1, sticky=tk.W, **paddings)

        password_entry = ttk.Entry(
            self, textvariable=password, show="*", **entry_font)
        password_entry.grid(column=1, row=1, sticky=tk.E, **paddings)

        # login button
        login_button = ttk.Button(self, text="Login")
        login_button.grid(column=1, row=3, sticky=tk.E, **paddings)

        # configure style
        self.style = ttk.Style(self)
        self.style.configure('TLabel', font=('Helvetica', 11))
        self.style.configure('TButton', font=('Helvetica', 11))


if __name__ == "__main__":
    app = App()
    app.mainloop()
```

Output:



How it works.

First, create a new instance of the ttk.Style class:

```
self.style = ttk.Style(self)
```

Second, change the font of the `TLabel` and `TButton` 's styles using the `configure()` method of the `Style` object:

```
self.style.configure('TLabel', font=('Helvetica', 12))
self.style.configure('TButton', font=('Helvetica', 12))
```

Extending built-in ttk styles

To create a new style that is derived from a built-in style, you use the style name like this:

```
new_style.builtin_style
```

For example, to create a new style of the `Label` widget used for displaying a heading, you can name it as follows:

```
Heading.TLabel
```

The `Heading.TLabel` style inherits all options from the built-in `TLabel` style.

To override a specific option, you also use the `configure()` method of the `Style` class:

```
style = ttk.Style(self)
style.configure(custom_style, **options)
```

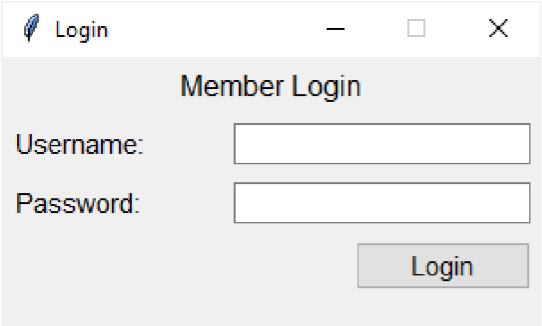
The following example adds a heading to the login window. The heading has the style derived from the `TLabel` style:

```
import tkinter as tk
from tkinter import ttk


class App(tk.Tk):
    def __init__(self):
        super().__init__()

        self.geometry('300x150')
        self.resizable(0, 0)
        self.title('Login')

        # UI options
        paddings = {'padx': 5, 'pady': 5}
        entry_font = {'font': ('Helvetica', 11)}
```

```
        # configure the grid
        self.columnconfigure(0, weight=1)
        self.columnconfigure(1, weight=3)

        username = tk.StringVar()
        password = tk.StringVar()

        # heading
        heading = ttk.Label(self, text='Member Login', style='Heading.TLabel')
        heading.grid(column=0, row=0, columnspan=2, pady=5, sticky=tk.N)

        # username
        username_label = ttk.Label(self, text="Username:")
        username_label.grid(column=0, row=1, sticky=tk.W, **paddings)

        username_entry = ttk.Entry(self, textvariable=username, **entry_font)
        username_entry.grid(column=1, row=1, sticky=tk.E, **paddings)

        # password
        password_label = ttk.Label(self, text="Password:")
        password_label.grid(column=0, row=2, sticky=tk.W, **paddings)

        password_entry = ttk.Entry(
            self, textvariable=password, show="*", **entry_font)
        password_entry.grid(column=1, row=2, sticky=tk.E, **paddings)

        # login button
        login_button = ttk.Button(self, text="Login")
        login_button.grid(column=1, row=3, sticky=tk.E, **paddings)

        # configure style
        self.style = ttk.Style(self)
        self.style.configure('TLabel', font=('Helvetica', 11))
        self.style.configure('TButton', font=('Helvetica', 11))

        # heading style
        self.style.configure('Heading.TLabel', font=('Helvetica', 12))
```

```
if __name__ == "__main__":
    app = App()
    app.mainloop()
```

Output:



How it works.

First, add a heading to the window and assign the style `Heading.TLabel` to the `style` option of the `Label` widget:

```
heading = ttk.Label(self, text='Member Login', style='Heading.TLabel')
```

Then, change the font of the `Heading.TLabel` style to Helvetica, 12 pixels:

```
self.style.configure('Heading.TLabel', font=('Helvetica', 12))
```

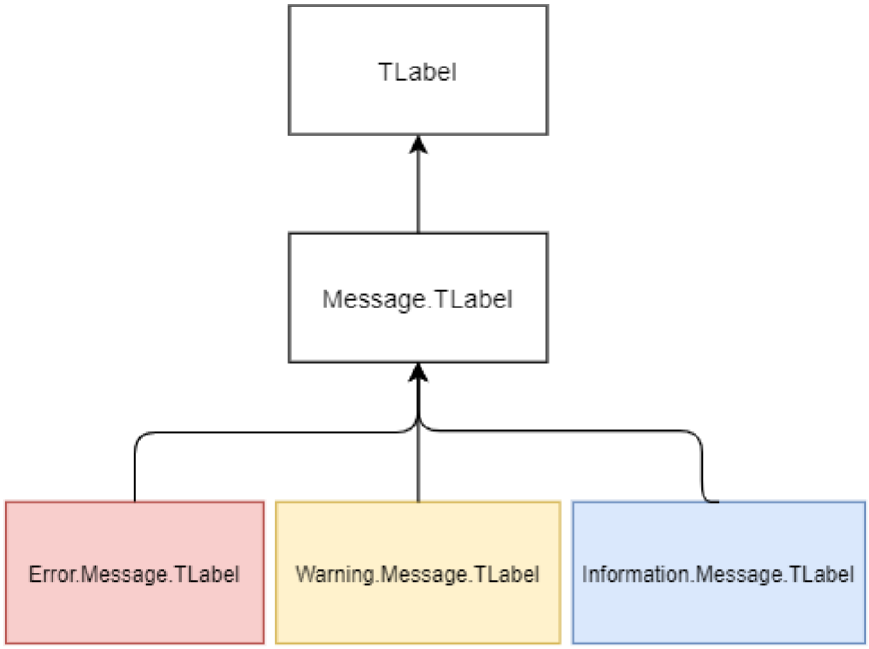
Hierarchies of styles

It's possible to create your own entire hierarchies of styles. For example, you can have a `Message.TLabel` style that inherits from the built-in `TLabel` style.

And then you can create styles that inherit from the `Message.TLabel` style like `Error.Message.TLabel`, `Warning.Message.TLabel`, and `Information.Message.TLabel`.

When you use a particular style e.g., `Error.Message.TLabel`, `ttk` looks for options in the `Error.Message.TLabel` style first. If it doesn't find the options, it'll search in the `Message.TLabel` style. And it continues searching for the options in the `TLabel` style.

The following picture illustrates the example of the style hierarchy:



The *root* style determines the appearance of all widgets. The name of the *root* style is `'.'` .

For example, if you want to change the text to a 12-pixel Helvetica font for all widgets, you can configure it as follows:

```
style = ttk.Style(root)
style.configure('.', font=('Helvetica', 12))
```

Summary

- A theme of a collection of styles. A style is a description of the appearance of a widget.
- Use the `widget.winfo_class()` method to get the widget class of a widget. The widget class defines the default style for the widget.
- Use the `style.configure()` method to modify the style of the widget.
- To customize the built-in style, you can extend it using the style name `new_style.builtin_style` .