DAY 03

GUIs with tkinter

ENGINEER's POINT

INTRODUCTION

- Tkinter is the standard GUI library for Python.
- Python when combined with Tkinter provides a fast and easy way to create GUI applications.
- Tkinter provides a powerful object-oriented interface to the Tk GUI toolkit.
- Alternatives:
    1. **wxPython** – This is an open-source Python interface for wxWindows
    2. **JPython** – JPython is a Python port for Java which gives Python scripts seamless access to Java class libraries on the local machine

Creating a GUI application using Tkinter

1. Import the *Tkinter* module.
2. Create the GUI application main window.
3. Add one or more of the above-mentioned widgets to the GUI application.
4. Enter the main event loop to take action against each event triggered by the user.

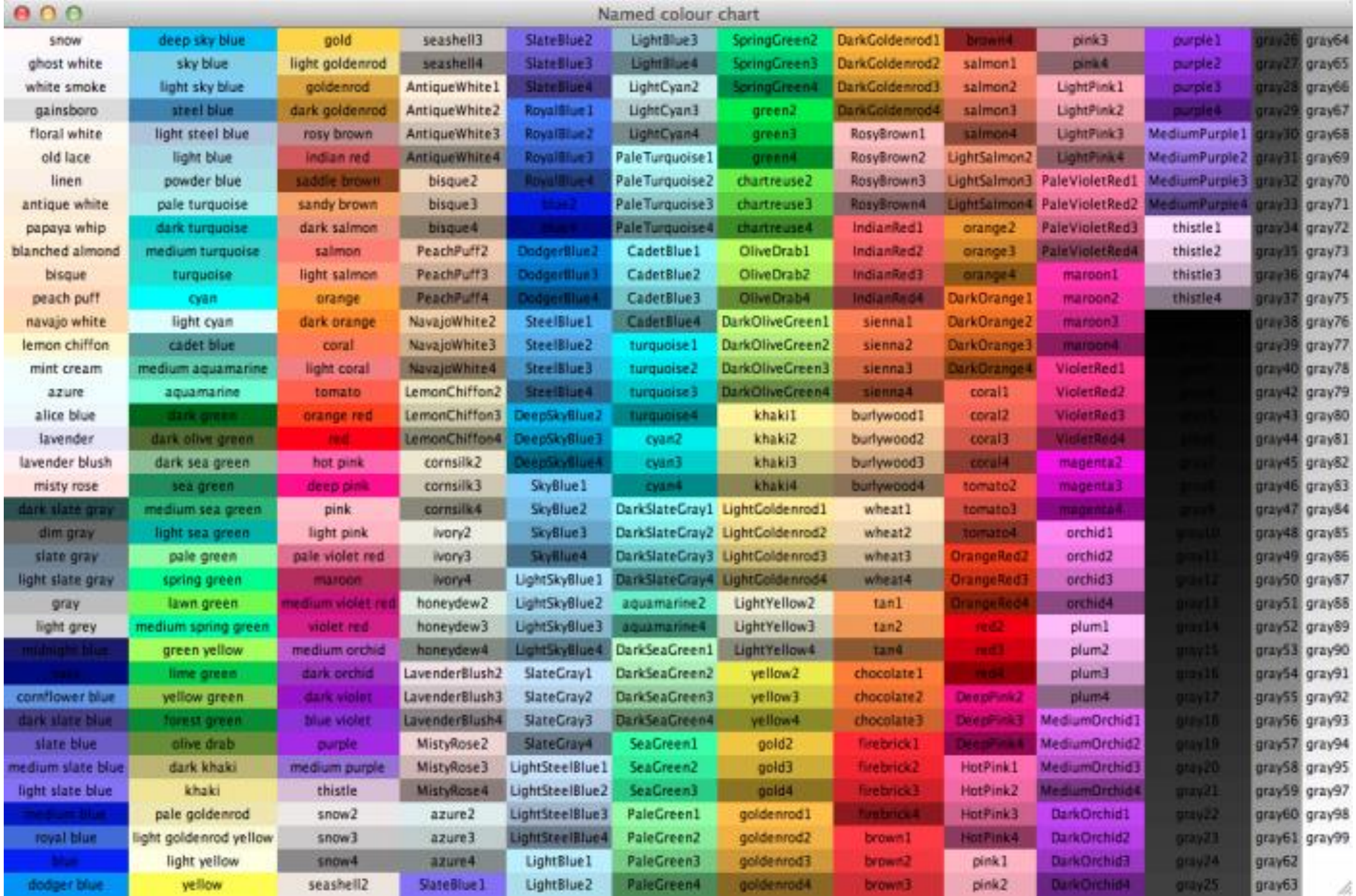
Tkinter Widgets

- Tkinter provides various controls, such as buttons, labels and text boxes used in a GUI application. These controls are commonly called widgets.
- There are currently 15 types of widgets in Tkinter.

Operator & Description
ButtonThe Button widget is used to display buttons in your application.
CanvasThe Canvas widget is used to draw shapes, such as lines, ovals, polygons and rectangles, in your application.
CheckbuttonThe Checkbutton widget is used to display a number of options as checkboxes. The user can select multiple options at a time.
EntryThe Entry widget is used to display a single-line text field for accepting values from a user.
FrameThe Frame widget is used as a container widget to organize other widgets.
LabelThe Label widget is used to provide a single-line caption for other widgets. It can also contain images.
ListboxThe Listbox widget is used to provide a list of options to a user.
MenubuttonThe Menubutton widget is used to display menus in your application.
MenuThe Menu widget is used to provide various commands to a user. These commands are contained inside Menubutton.
MessageThe Message widget is used to display multiline text fields for accepting values from a user.
RadiobuttonThe Radiobutton widget is used to display a number of options as radio buttons. The user can select only one option at a time.
ScaleThe Scale widget is used to provide a slider widget.
ScrollbarThe Scrollbar widget is used to add scrolling capability to various widgets, such as list boxes.
TextThe Text widget is used to display text in multiple lines.
ToplevelThe Toplevel widget is used to provide a separate window container.
SpinboxThe Spinbox widget is a variant of the standard Tkinter Entry widget, which can be used to select from a fixed number of values.
PanedWindowA PanedWindow is a container widget that may contain any number of panes, arranged horizontally or vertically.
LabelFrameA labelframe is a simple container widget. Its primary purpose is to act as a spacer or container for complex window layouts.
tkMessageBoxThis module is used to display message boxes in your applications.

Label

- Used to display text or an image. The label is a widget that the user just views but not interact with.
- Labels can contain text and images


Named colour chart
snow ghost white white smoke gainsboro floral white old lace linen antique white papaya whip blanched almond bisque peach puff navajo white lemon chiffon mint cream azure alice blue lavender lavender blush misty rose dark slate gray dim gray slate gray light slate gray gray light grey midnight blue navy cornflower blue dark slate blue slate blue medium slate blue light slate blue medium blue royal blue blue dodger blue
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brown4 salmon1 salmon2 salmon3 salmon4 LightSalmon2 LightSalmon3 LightSalmon4 orange2 orange3 orange4 DarkOrange1 DarkOrange2 DarkOrange3 DarkOrange4 coral1 coral2 coral3 coral4 tomato2 tomato3 tomato4 OrangeRed2 OrangeRed3 OrangeRed4 red2 red3 red4 DeepPink2 DeepPink3 DeepPink4 HotPink1 HotPink2 HotPink3 HotPink4 pink1 pink2
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Tkinter supported fonts

```
from tkinter import Tk,
font root = Tk()

font.families()
```

Layout Managers / Geometry Manager

- Tkinter possess three layout managers:
  1. pack
  2. grid
  3. Place
- The three layout managers pack, grid, and place should never be mixed in the same master window! Geometry managers serve various functions. They:
  1. arrange widgets on the screen
  2. register widgets with the underlying windowing system
  3. manage the display of widgets on the screen