Module 12:   Python GUI

tkinter:

❑ The tkinter is the package for building GUI in Python.

❑ To use tkinter we need to import Tkinter module:

- o import tkinter
- o Or
- o from tkinter import *

❑ It is part of the core Python modules and hence no installation required.

❑ Its is simple and cross-platform.

❑ It is also used in Ruby and Perl.

Method	Description
Tk()	To initialize Tkinter we need to create Tk root widget. It is an ordinary window with title bar and min. max and close button. We should have one root and it must be created before any other widgets.
mainloop()	The program will stay in the event loop until we close the window.
title()	It sets the title of the window.
geometry()	Its specifies the dimension and the placement of the window. width ✖ height ✚ x ✚ y

Geometry Manager:

- It is the manager used for organizing the widgets before placing them in the parent widget.

  - **pack()** ➜ It organizes widgets in blocks.
  - **place()** ➜ It organizes widgets by placing them in a specific position.

The **Pack** geometry manager packs widgets in rows or columns.

fill:	It specifies whether the widget should occupy all the space provided by the master. If NONE (default) then keep the widgets original size. If X then fill horizontally If Y then fill vertically
width:	width of the button in letters.
height:	height of the button in text lines.
side:	it specifies which side to pack the widget. To pack widgets vertically use TOP(default.) To pack widgets horizontally use LEFT. We can also pack the widgets along BOTTOM and RIGHT edges.
padx:	→ It is for specifying the external padding of the x axis components. Similarly we have pady also. ipadx and ipady for internal padding.

The **Place** geometry managers allows us to explicitly set the position and size of the widgets.

x and y position of the X and Y Axis respectively.

width and height of the button respectively.

Widgets:

❑ Button:
  o Button is a widget to implements buttons that contain text or images and we can associate a Python function with button which is called when button is pressed.

❑ messagebox:
  o It is used to display message boxes in applications.
  o 1) showinfo(windowtitle, text)
  o 2) showwarning(windowtitle, text)
  o 3) showerror(windowtitle, text)

tkinter Callbacks:

• Callback is Python code that is called by Tk when something happens.

• Button provides a command callback which is called when user clicks the button.

• For each function object, the Tkinter interface layer registers a Tk command with unique name. when that Tk command is called by the Button implementation, the command calls the corresponding python function.