

# Python Module - Tkinter

## 1. Tkinter Window Functions

Function	Description
Tk()	Creates the main application window where all your widgets will go
mainloop()	Starts the GUI and keeps the window open until the user closes it.
title("Title")	Displays a title in the window's title bar.
geometry("WidthxHeight")	Sets the size of the window (e.g., "400x300").
resizable(width, height)	Enables or disables window resizing. Use True or False.
iconbitmap("icon.ico")	Sets a custom icon for the application window.
configure(bg="color")	Sets background color

## 2. Tkinter Widgets (UI Components)

Widget	Description
Label()	Used to display static text or an image.
Button()	A clickable button that can trigger a function.
Entry()	A single-line text box for user input.
Text()	A multi-line text area for input or output.
Checkbutton()	A box that can be checked or unchecked (boolean).
Radiobutton()	Allows selection of one option from multiple choices.
Scale()	A slider to select a numeric value.
Listbox()	A list from which one or more items can be selected.
Spinbox()	Lets users choose a value from a range
Canvas()	A space to draw shapes, lines, or images.
Frame()	A container to group related widgets together.
Toplevel()	Opens a new window on top of the main one.
Message()	Like Label, but better for displaying long messages.

## 3. Layout Managers

Function	Description
pack()	Automatically arranges widgets vertically or horizontally.
grid(row, column)	Places widgets in a grid (row/column).
place(x=..., y=...)	Precisely positions widgets using x/y coordinates.

## 4. Event Handling and Binding

Method	Description
widget.bind("<Event>", handler)	Bind an event like <Button-1> (click), <Key> (key press)
command=func	Calls function on click (for Button, etc.)

## 5. Tkinter Variable Classes

Class	Purpose
StringVar()	For string variables
IntVar()	For integer variables
DoubleVar()	For float variables
BooleanVar()	For boolean variables

## 6. Common Widget Methods

Method	Description
config() or configure()	Modify widget properties
insert(index, text)	Insert text (Entry, Text)
delete(start, end)	Delete text
get()	Get value (Entry, Text)
pack_forget()	Hide widget
destroy()	Remove widget
focus_set()	Set focus
after(ms, func)	Call function after ms milliseconds

# 7. Canvas Drawing Functions

Method	Description
create_line(x1, y1, x2, y2)	Draw line
create_rectangle()	Draw rectangle
create_oval()	Draw circle/ellipse
create_text()	Draw text
create_polygon()	Draw polygon
delete(id)	Delete item

# 10. MessageBox

Method	Description
showinfo(title, msg)	Info box
showwarning(title, msg)	Warning box
showerror(title, msg)	Error box
askquestion(title, msg)	Ask Yes/No
askokcancel(title, msg)	Ask OK/Cancel

# Tkinter Common Widget Attributes

Attribute	Description	Example Usage
text	Text shown on widget	Label(text="Hello")
bg / background	Background color	Button(bg="blue")
fg / foreground	Text (foreground) color	Label(fg="white")
font	Font style and size	Label(font=("Arial", 12))
width	Width in characters or pixels	Entry(width=20)
height	Height in lines or pixels	Text(height=5)
padx	Horizontal internal padding	Button(padx=10)
pady	Vertical internal padding	Button(pady=5)
relief	Border style (flat, raised, sunken, ridge, groove)	Label(relief="sunken")
bd / borderwidth	Border thickness	Frame(bd=2)
anchor	Position text (n, ne, e, se, etc.)	Label(anchor="w")
justify	Multiline text alignment (left, center, right)	Label(justify="center")
command	Function to run on click (for buttons)	Button(command=myfunc)
state	Widget state: normal, disabled, active	Button(state="disabled")
cursor	Mouse pointer type (arrow, hand2, etc.)	Button(cursor="hand2")
image	Set an image on widget	Label(image=my_img)
textvariable	Link to a Tkinter variable (StringVar, etc.)	Entry(textvariable=var)
show	Hide actual characters (for password input)	Entry(show="*")