TEKNIK
INFORMARTIKA

MODUL PRAKTIKUM

PEMROGRAMAN BERBASIS OBJEK

Pertemuan 5
Tkinter

A. Pengenalan

Tk itu toolkit GUI (Graphical User Interface) yang bisa jalan di Windows, Mac, dan Unix.

Tkinter sendiri adalah "jembatan" dari Python ke Tk. Udah include di Python standar, jadi nggak perlu install lagi.

Dengan Tkinter, program CLI (Command Line Interface) bisa jadi program GUI yang lebih ramah pengguna.

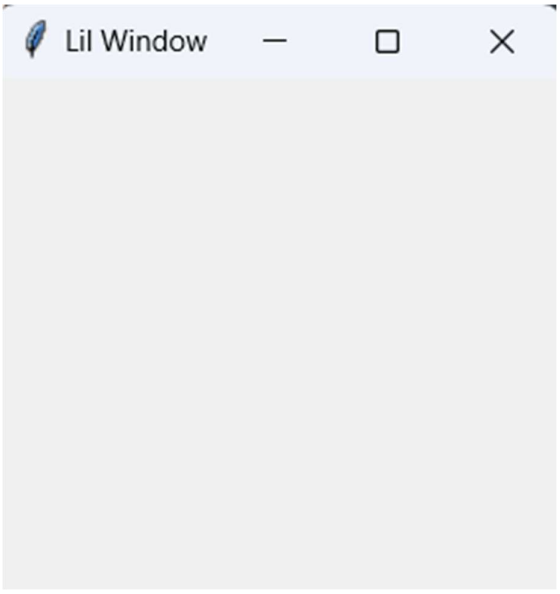
B. Basic Syntax

Contoh simpel buat munculin window kosong:

```
1  import tkinter as tk
2  from tkinter import ttk
3
4  window = tk.Tk()
5  window.title('Lil Window')
6  ''' Widgets here... '''
7  window.mainloop()
```

Penjelasan langkahnya:

- Import tkinter dan ttk.
- Bikin instance Tk() buat window utama.
- Set judul window pake title().
- Jalankan event loop pake mainloop() biar program nggak langsung nutup.



C. Struktur Dasar Program Tkinter

1. Import module Tkinter
2. Bikin main window
3. Tambahin widgets
4. Masuk ke main event loop

D. Widgets di Tkinter

Widgets itu elemen GUI buat interaksi user. Contohnya:

Widget	Fungsi
Frame	Container buat widget lain
Label	Tampil teks atau gambar
Button	Tombol yang bisa diklik
RadioButton	Pilihan satu dari banyak
CheckButton	Pilihan banyak sekaligus
SpinBox	Milih angka dari rentang tertentu
ComboBox	Dropdown pilihan
Menu	Bikin menu di aplikasi

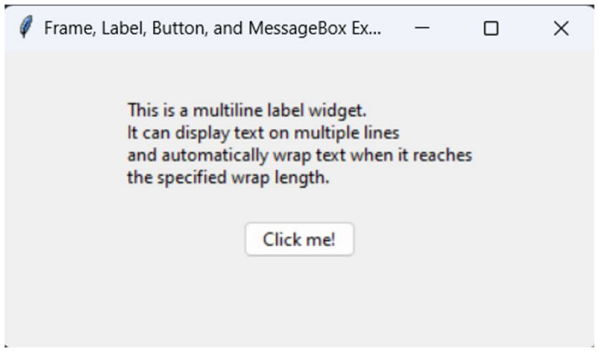
E. Mengatur Tata Letak (Geometry Management)

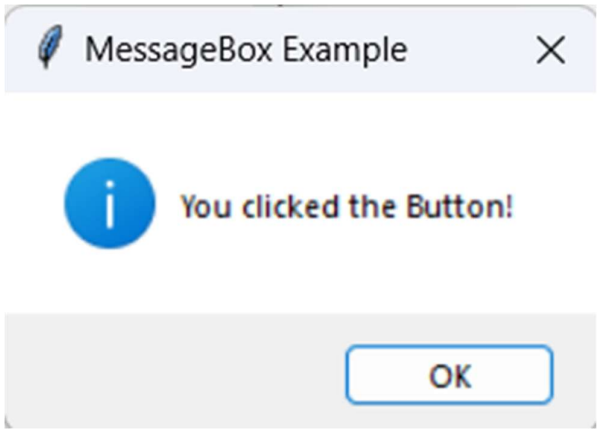
Cara buat naro widgets di window:

Method	Fungsi
grid()	Naro widget kayak tabel (baris-kolom)
pack()	Naro widget kiri, kanan, atas, bawah
place()	Naro widget spesifik pake koordinat x,y

F. Frame, Label, Button, dan MessageBox

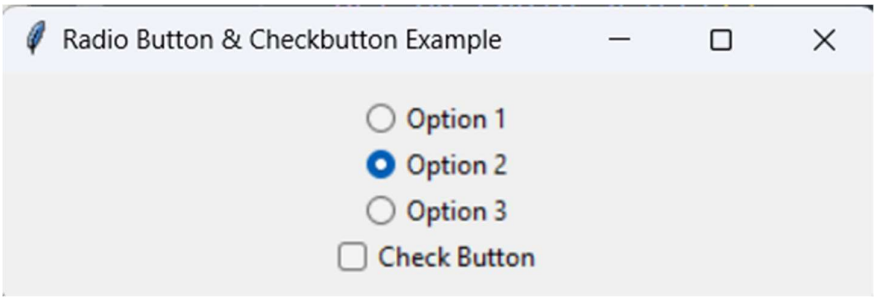
```python
import tkinter as tk
from tkinter import ttk
from tkinter import messagebox

def show_messagebox():
    messagebox.showinfo("MessageBox Example", "You clicked the Button!")

window = tk.Tk()
window.title("Frame, Multiline Label, Button, and MessageBox Example")
window.minsize(400, 200)

frame = ttk.Frame(window)
frame.pack(padx=20, pady=20)

text = """This is a multiline label widget.
It can display text on multiple lines
and automatically wrap text when it reaches
the specified wrap length."""

label = ttk.Label(frame, text=text, wraplength=300)
label.pack(pady=10)

button = ttk.Button(frame, text="Click me!", command=show_messagebox)
button.pack(pady=10)

window.mainloop()
```

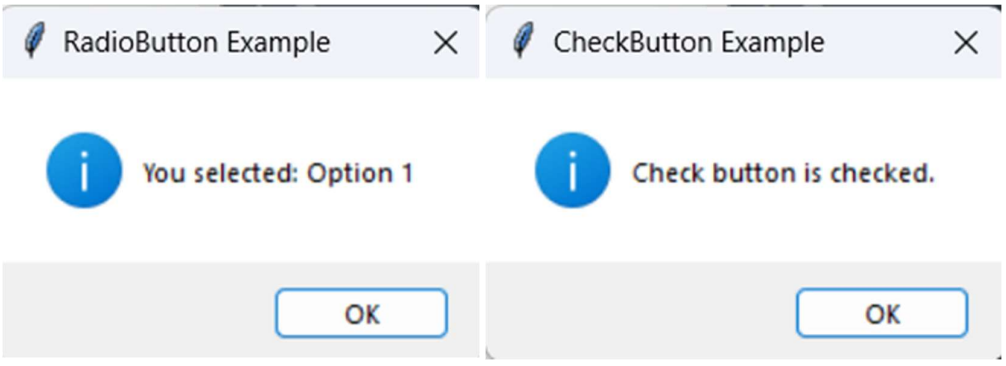




G. RadioButton dan CheckButton

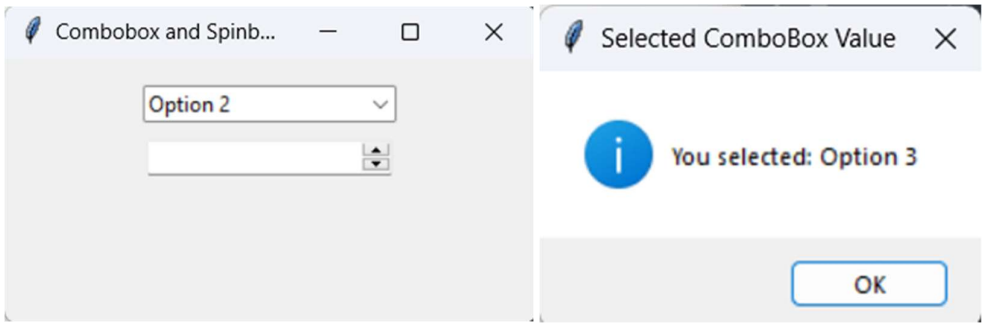
```python
import tkinter as tk
from tkinter import messagebox
from tkinter import ttk

def on_radio_select():
    selected_value = radio_var.get()
    messagebox.showinfo("RadioButton Example", f"You selected: {selected_value}")

def on_checkbutton_select():
    if check_var.get() == 1:
        messagebox.showinfo("CheckButton Example", "Check button is checked.")
    else:
        messagebox.showinfo("CheckButton Example", "Check button is unchecked.")

window = tk.Tk()
window.title("Radio Button & Checkbutton Example")
window.minsize(400, 100)

frame = ttk.Frame(window)
frame.pack(pady=10)

radio_var = tk.StringVar()
radio_var.set("Option 2")

radio_button1 = ttk.Radiobutton(frame, text="Option 1", variable=radio_var, value="Option 1", command=on_radio_select)
radio_button1.pack()

radio_button2 = ttk.Radiobutton(frame, text="Option 2", variable=radio_var, value="Option 2", command=on_radio_select)
radio_button2.pack()

radio_button3 = ttk.Radiobutton(frame, text="Option 3", variable=radio_var, value="Option 3", command=on_radio_select)
radio_button3.pack()

check_var = tk.IntVar()
check_button = ttk.Checkbutton(frame, text="Check Button", variable=check_var, command=on_checkbutton_select)
check_button.pack()

window.mainloop()
```





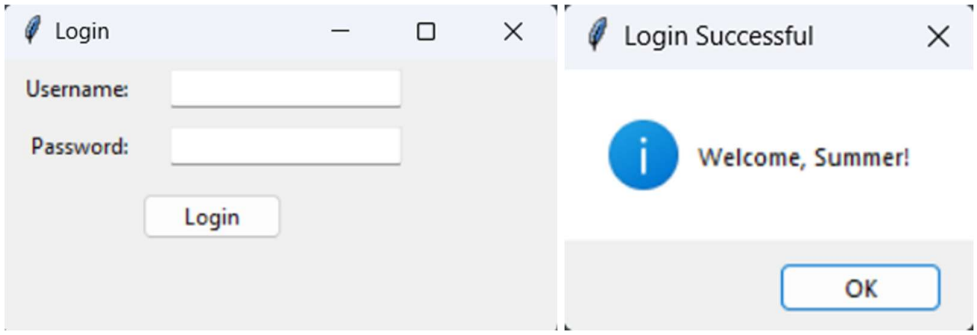
H. ComboBox dan SpinBox

```python
import tkinter as tk
from tkinter import messagebox
from tkinter import ttk

def on_combobox_select(event=None):
    selected_value = combobox.get()
    messagebox.showinfo("Selected ComboBox Value", f"You selected:{selected_value}")

def on_spinbox_select():
    selected_value = spinbox.get()
    messagebox.showinfo("Selected SpinBox Value", f"You selected: {selected_value}")

window = tk.Tk()
window.title("Combobox and Spinbox Example")
window.minsize(300, 150)

frame = ttk.Frame(window)
frame.pack(pady=10)

combobox = ttk.Combobox(frame, values=["Option 1", "Option 2", "Option 3"])
combobox.current(1)
combobox.bind("<<ComboboxSelected>>", on_combobox_select)
combobox.pack(pady=5)

spinbox = ttk.Spinbox(frame, from_=0, to=10, increment=1, command=on_spinbox_select)
spinbox.pack(pady=5)

window.mainloop()
```



I. Problem Set – Login

Bikin program Login simpel pake Tkinter + **OOP**.

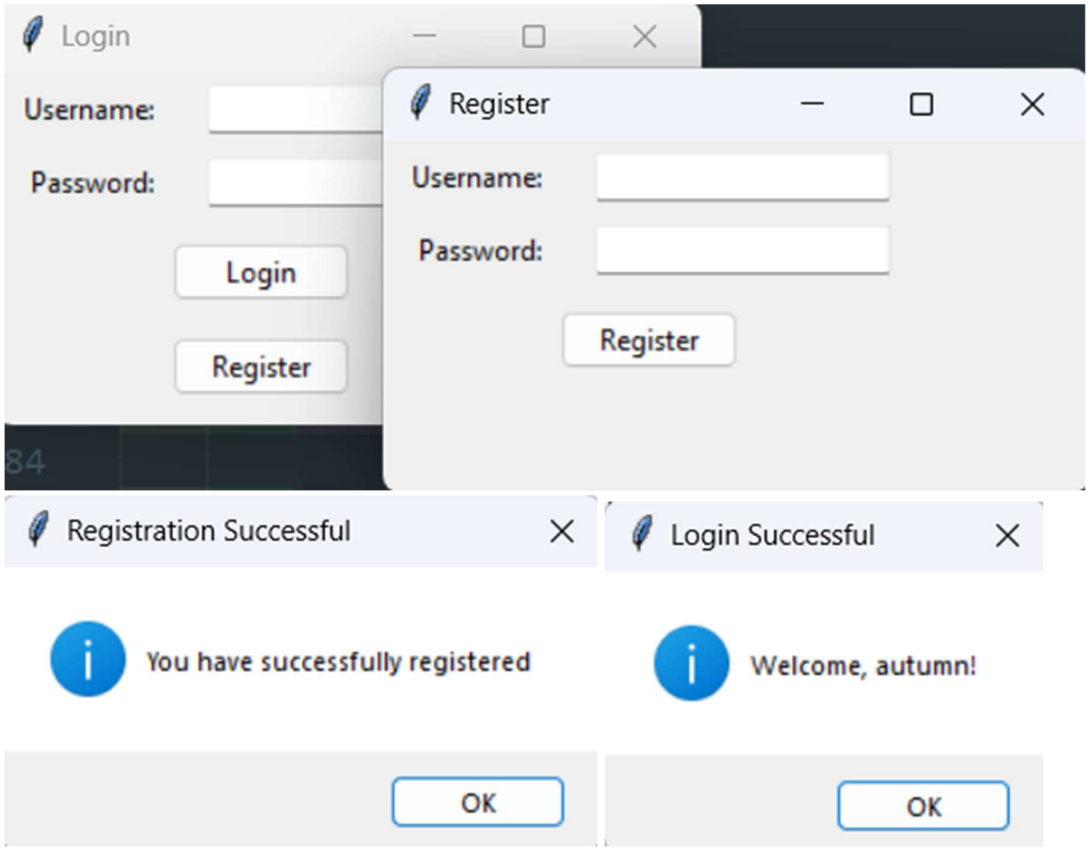


Hint:

- Gunain Entry buat username dan password (text inputnya).
- Validasi seadanya aja gapapa buat sekarang.

J. Problem Set – Register

Modifikasi studi kasus login tadi biar ada fitur Register.



Hint:

- Pake Toplevel untuk buat window baru.
- User info ga harus disimpen.
- Mau nyimpen user info ke file atau dictionary? Boleh, dapet **bonus**.
- Validasi tambahan (kayak confirm password) dapet **nilai ekstra**.