

Python Programming

Unit 04 – Lecture 02: Layout Managers, Menus, Dialogs, Message Boxes

Tofik Ali

School of Computer Science, UPES Dehradun

February 14, 2026

Repository: <https://github.com/tali7c/Python-Programming>

Core Concepts
oooooo

Demo
o

Interactive
ooo

Summary
oo

Quick Links

Core Concepts

Demo

Interactive

Summary

Agenda

1 Core Concepts

2 Demo

3 Interactive

4 Summary

Learning Outcomes

- Use pack and grid layout managers correctly

Learning Outcomes

- Use pack and grid layout managers correctly
- Organize widgets using Frames

Learning Outcomes

- Use pack and grid layout managers correctly
- Organize widgets using Frames
- Create menu bars and menu commands

Learning Outcomes

- Use pack and grid layout managers correctly
- Organize widgets using Frames
- Create menu bars and menu commands
- Show message boxes and open file dialogs

Layout Managers: pack vs grid

- pack: simple vertical/horizontal stacking

Layout Managers: pack vs grid

- pack: simple vertical/horizontal stacking
- grid: table-like rows and columns (forms)

Layout Managers: pack vs grid

- pack: simple vertical/horizontal stacking
- grid: table-like rows and columns (forms)
- Rule: do not mix pack and grid in the same container

Example: Simple grid Form

```
tk.Label(root, text="Name").grid(row=0, column=0)
tk.Entry(root).grid(row=0, column=1)

tk.Label(root, text="Age").grid(row=1, column=0)
tk.Entry(root).grid(row=1, column=1)
```

Frames for Better Structure

- Frame = container widget

Frames for Better Structure

- Frame = container widget
- Helps grouping widgets (header, form, buttons, etc.)

Frames for Better Structure

- Frame = container widget
- Helps grouping widgets (header, form, buttons, etc.)
- Makes layout easier and code more readable

Menus

- A menu bar contains drop-down menus (File/Edit/Help)

```
menubar = tk.Menu(root)
file_menu = tk.Menu(menubar, tearoff=0)
file_menu.add_command(label="Exit", command=root.destroy)
menubar.add_cascade(label="File", menu=file_menu)
root.config(menu=menubar)
```

Menus

- A menu bar contains drop-down menus (File/Edit/Help)
- Each menu contains commands (Open, Save, Exit)

```
menubar = tk.Menu(root)
file_menu = tk.Menu(menubar, tearoff=0)
file_menu.add_command(label="Exit", command=root.destroy)
menubar.add_cascade(label="File", menu=file_menu)
root.config(menu=menubar)
```

Dialogs and Message Boxes

- Message boxes: info/warning/error/askyesno

```
from tkinter import messagebox, filedialog
messagebox.showinfo("Done", "Saved successfully!")
path = filedialog.askopenfilename()
```

Dialogs and Message Boxes

- Message boxes: info/warning/error/askyesno
- File dialogs: open/save file selection

```
from tkinter import messagebox, filedialog
messagebox.showinfo("Done", "Saved successfully!")
path = filedialog.askopenfilename()
```

Demo: Layout + Menu + Dialogs

- File: demo/layout_menus_dialogs_demo.py

Demo: Layout + Menu + Dialogs

- File: `demo/layout_menus_dialogs_demo.py`
- Builds a small form using `grid`

Demo: Layout + Menu + Dialogs

- File: `demo/layout_menus_dialogs_demo.py`
- Builds a small form using `grid`
- Adds a menu bar and message boxes

Demo: Layout + Menu + Dialogs

- File: `demo/layout_menus_dialogs_demo.py`
- Builds a small form using `grid`
- Adds a menu bar and message boxes
- Uses file dialog to select a file

Checkpoint 1

Question: Why should you not mix pack and grid in the same container?

Checkpoint 2

Question: What is the purpose of a Frame in Tkinter?

Think-Pair-Share

You are building a Student Registration form. Discuss:

- Which layout manager is better: pack or grid?
- How would you use Frames to structure the UI?

Key Takeaways

- pack is good for simple stacking; grid is good for forms

Key Takeaways

- pack is good for simple stacking; grid is good for forms
- Frames improve structure and maintainability

Key Takeaways

- pack is good for simple stacking; grid is good for forms
- Frames improve structure and maintainability
- Menus provide standard UI navigation (File/Help)

Key Takeaways

- pack is good for simple stacking; grid is good for forms
- Frames improve structure and maintainability
- Menus provide standard UI navigation (File/Help)
- Message boxes and dialogs provide user feedback and file selection

Exit Question

Write the code line that shows an information message box with title "Saved" and message "Done".