
# Kabul_University_Afghanistan
# Team Project for our final exam
# Project name (TO-DO-LIST)
# Submission day: 2025/11/19

Team members: Ali Sher Rezaie, Enayatullah Habibi
Mohammad Hassani, Mohebullah Sarwari

# To Do List

First of all I am going to say who are we that made this To Do List.
We are students of Kabul University at ISE(Information and Science Engineering) field, 2025 is our first year at university. Our teacher has given us job to make a To Do List for our final project. Now it is time to say the most important points of our project.

Key Features:

1. Modern user interface with dark theme
2. Persistent storage using JSON files
3. Full task management (add, delete, mark as done)
4. Visual representation of task status
5. Security confirmations for sensitive actions

Technical Components:

· customtkinter – for advanced GUI
· JSON – for data storage
· Event Handling – to manage user interactions
· Lambda Functions – for dynamic bindings
· List Comprehensions – for data filtering

This program offers a complete and user-friendly solution for managing daily tasks.

Here is our code:

```
# ============================================================
#  TO-DO LIST PRO - GUI VERSION 💻
#  Author: Levi / Streamlined by AI Assistant
# ============================================================

import customtkinter as ctk
from tkinter import messagebox
import json, os

DATA_FILE = "tasks.json"

# --- Helper Functions ---
def generate_new_id(tasks):
    """Generates a unique ID."""
    if not tasks: return 1
    max_id = max(task.get('id', 0) for task in tasks)
    return max_id + 1

def load_tasks():
    """Loads tasks safely."""
    if os.path.exists(DATA_FILE):
        try:
```

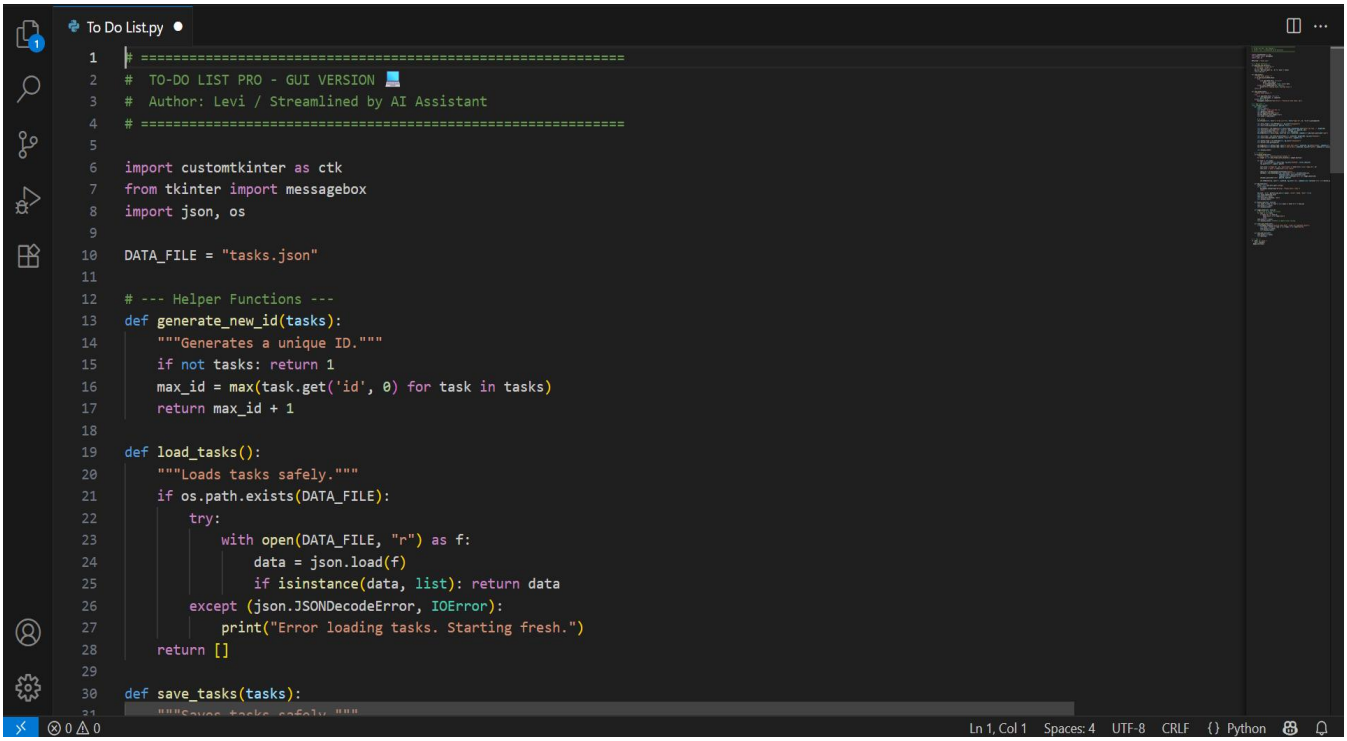
```
            with open(DATA_FILE, "r") as f:
                data = json.load(f)
                if isinstance(data, list): return data
        except (json.JSONDecodeError, IOError):
            print("Error loading tasks. Starting fresh.")
    return []

def save_tasks(tasks):
    """Saves tasks safely."""
    try:
        with open(DATA_FILE, "w") as f:
            json.dump(tasks, f, indent=4)
    except IOError as e:
        messagebox.showerror("Save Error", f"Could not save tasks: {e}")

# --- App Class ---
class ToDoApp(ctk.CTk):
    def _init_(self):
        super()._init_()
        self.title("✨ To-Do List Pro ✨")
        self.geometry("500x600")
        ctk.set_appearance_mode("dark")
        ctk.set_default_color_theme("blue")
        self.tasks = load_tasks()
```

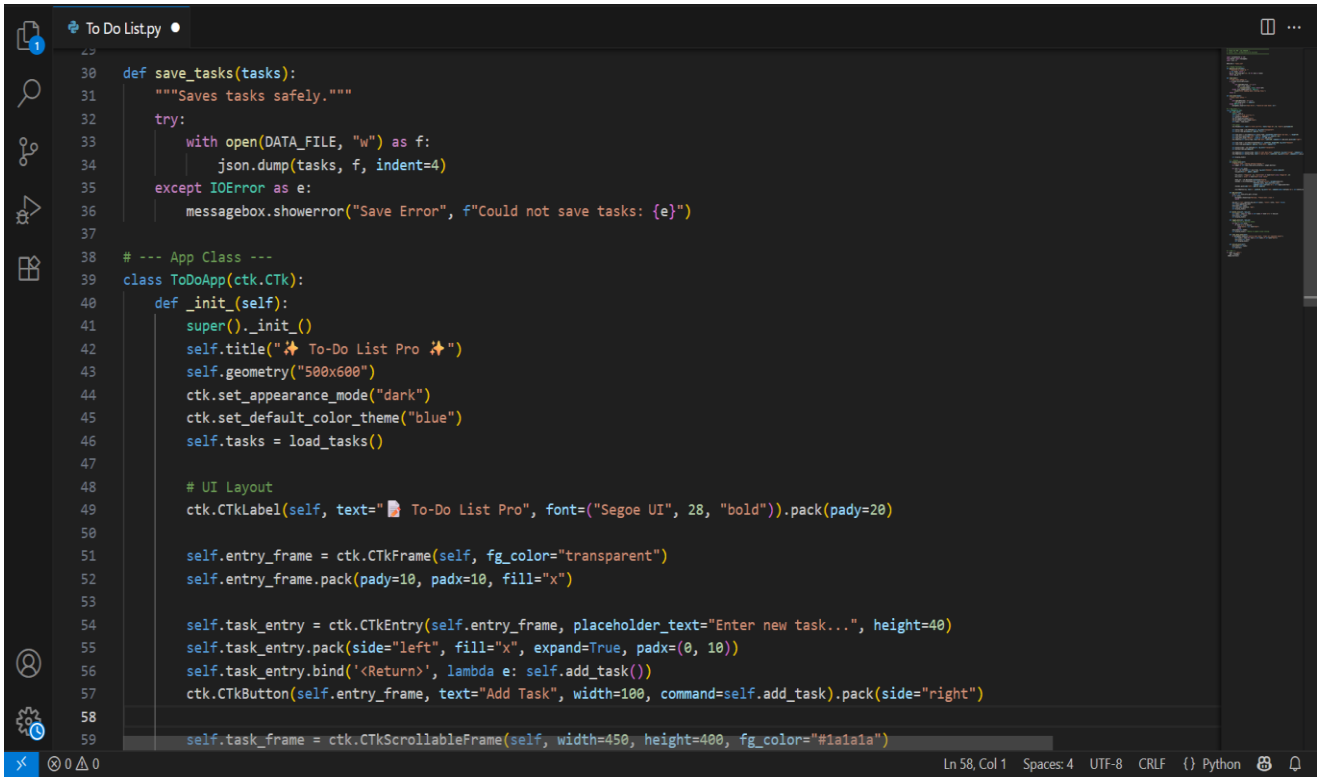
```
        # UI Layout
        ctk.CTkLabel(self, text="📝 To-Do List Pro", font=("Segoe UI", 28, "bold")).pack(pady=20)

        self.entry_frame = ctk.CTkFrame(self, fg_color="transparent")
        self.entry_frame.pack(pady=10, padx=10, fill="x")

        self.task_entry = ctk.CTkEntry(self.entry_frame, placeholder_text="Enter new task...", height=40)
        self.task_entry.pack(side="left", fill="x", expand=True, padx=(0, 10))
        self.task_entry.bind('<Return>', lambda e: self.add_task())
        ctk.CTkButton(self.entry_frame, text="Add Task", width=100, command=self.add_task).pack(side="right")

        self.task_frame = ctk.CTkScrollableFrame(self, width=450, height=400, fg_color="#1a1a1a")
        self.task_frame.pack(pady=15, padx=10, fill="both", expand=True)

        self.bottom_frame = ctk.CTkFrame(self, fg_color="transparent")
        self.bottom_frame.pack(pady=10)

        ctk.CTkButton(self.bottom_frame, text="🧹 Clear Done Tasks", width=120, fg_color="orange", command=self.clear_done_tasks).grid(row=0, column=0, padx=10)
        ctk.CTkButton(self.bottom_frame, text="💾 Save & Exit", width=120, fg_color="green", command=self.save_and_exit).grid(row=0, column=1, padx=10)
```

```
        self.display_tasks()

    # --- Methods ---
    def display_tasks(self):
        """Renders tasks, clearing previous display."""
        for widget in self.task_frame.winfo_children(): widget.destroy()

        for task in self.tasks:
            row = ctk.CTkFrame(self.task_frame, fg_color="#333333",
corner_radius=8)
            row.pack(fill="x", pady=4, padx=5)

            font_style = ("Segoe UI", 14, "overstrike") if task["done"] else ("Segoe
UI", 14)
            text_color = "gray" if task["done"] else "white"

            check_var = ctk.BooleanVar(value=task["done"])
            checkbox = ctk.CTkCheckBox(row, text=task["title"], variable=check_var,
                                       font=font_style, text_color=text_color,
                                       command=lambda tid=task['id']: self.toggle_done(tid))
            checkbox.pack(side="left", padx=10, pady=10)

            ctk.CTkButton(row, text="❌", width=30, fg_color="red",
command=lambda tid=task['id']: self.delete_task(tid)).pack(side="right", padx=10)

    def add_task(self):
```

```
    title = self.task_entry.get().strip()
    if not title:
        messagebox.showwarning("Warning", "Please enter a task.")
        return

    new_task = {"id": generate_new_id(self.tasks), "title": title, "done": False}
    self.tasks.append(new_task)
    save_tasks(self.tasks)
    self.task_entry.delete(0, "end")
    self.display_tasks()

def delete_task(self, task_id):
    self.tasks = [task for task in self.tasks if task['id'] != task_id]
    save_tasks(self.tasks)
    self.display_tasks()

def toggle_done(self, task_id):
    # Find task by ID and flip status
    for task in self.tasks:
        if task['id'] == task_id:
            task["done"] = not task["done"]
            break
    save_tasks(self.tasks)
    self.display_tasks() # Redraw to update visual styling
```

```
    def clear_done_tasks(self):
        if messagebox.askyesno("Confirm Clear Done", "Clear all completed tasks?"):
            self.tasks = [task for task in self.tasks if not task["done"]]
            save_tasks(self.tasks)
            self.display_tasks()

    def save_and_exit(self):
        save_tasks(self.tasks)
        self.destroy()

# --- Run ---
if _name_ == "_main_":
    app = ToDoApp()
    app.mainloop()
```




To Do List.py
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ctk.set_appearance_mode("dark")
ctk.set_default_color_theme("blue")
self.tasks = load_tasks()
# UI Layout
ctk.CTkLabel(self, text="📝 To-Do List Pro", font=("Segoe UI", 28, "bold")).pack(pady=20)
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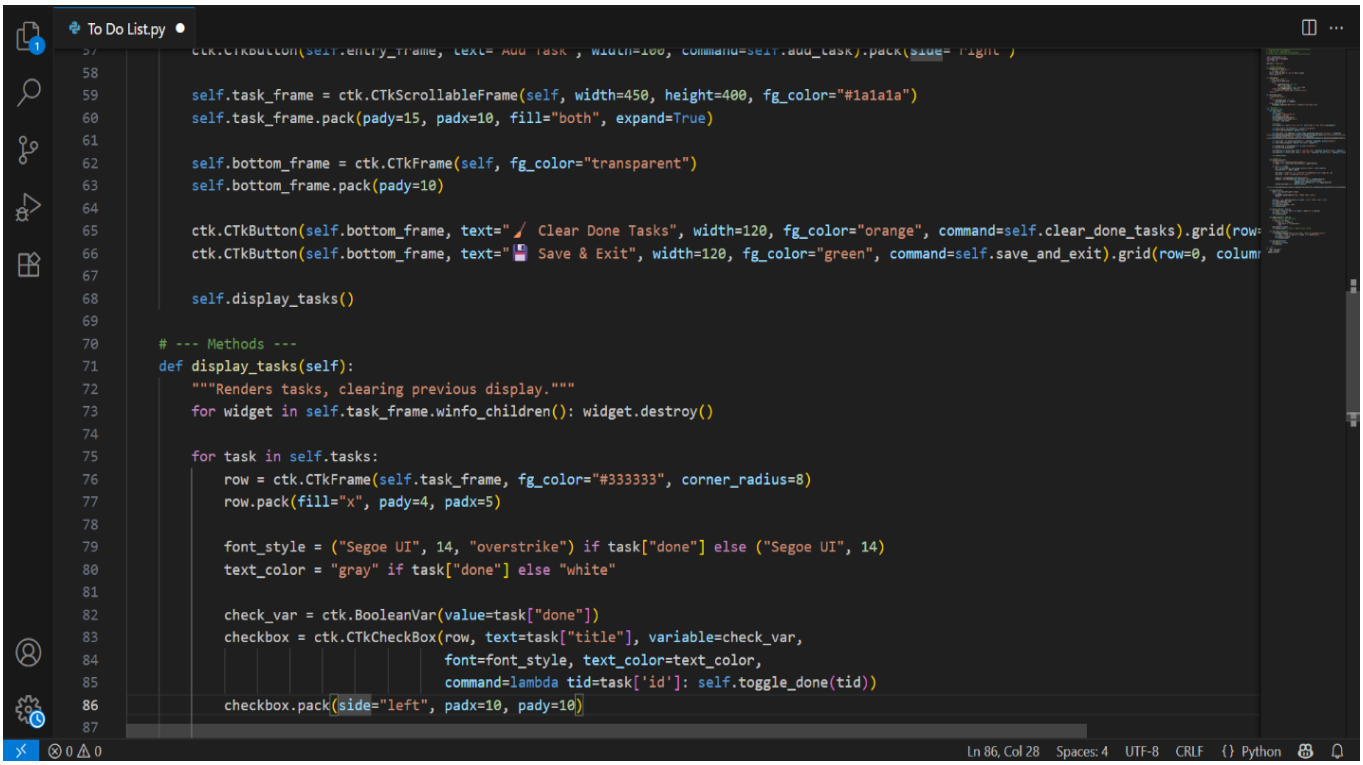
self.task_entry.bind('<Return>', lambda e: self.add_task())
ctk.CTkButton(self.entry_frame, text="Add Task", width=100, command=self.add_task).pack(side="right")
self.task_frame = ctk.CTkScrollableFrame(self, width=450, height=400, fg_color="#1a1a1a")
Ln 58, Col 1
Spaces: 4
UTF-8
CRLF
{} Python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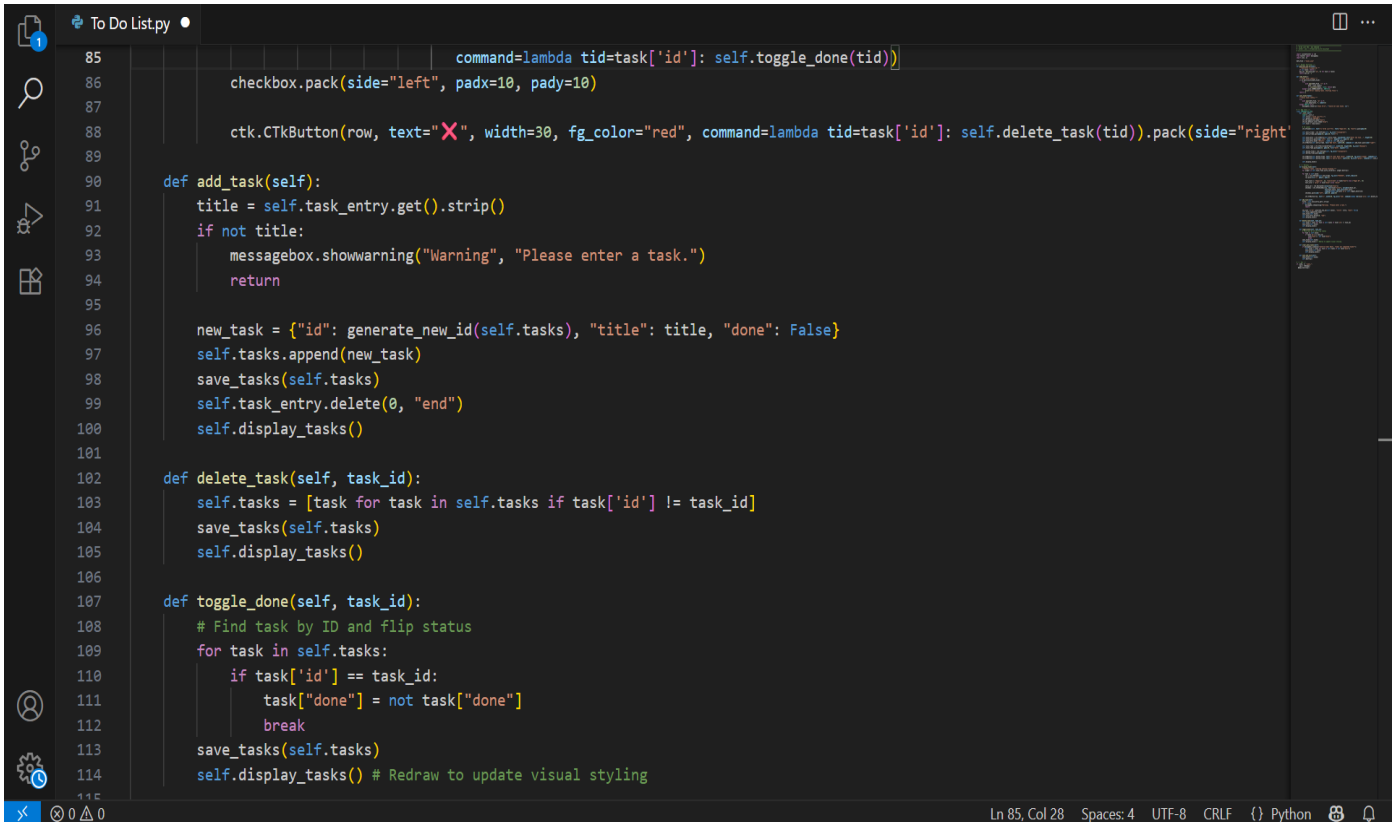
font_style = ("Segoe UI", 14, "overstrike") if task["done"] else ("Segoe UI", 14)
text_color = "gray" if task["done"] else "white"
check_var = ctk.BooleanVar(value=task["done"])
checkbox = ctk.CTkCheckBox(row, text=task["title"], variable=check_var,
font=font_style, text_color=text_color,
command=lambda tid=task['id']: self.toggle_done(tid))
checkbox.pack(side="left", padx=10, pady=10)
Ln 86, Col 28
Spaces: 4
UTF-8
CRLF
{} Python


To Do List.py
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86 checkbox.pack(side="left", padx=10, pady=10)
87
88 ctk.CTkButton(row, text="❌", width=30, fg_color="red", command=lambda tid=task['id']: self.delete_task(tid)).pack(side="right"
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90 def add_task(self):
91 title = self.task_entry.get().strip()
92 if not title:
93 messagebox.showwarning("Warning", "Please enter a task.")
94 return
95
96 new_task = {"id": generate_new_id(self.tasks), "title": title, "done": False}
97 self.tasks.append(new_task)
98 save_tasks(self.tasks)
99 self.task_entry.delete(0, "end")
100 self.display_tasks()
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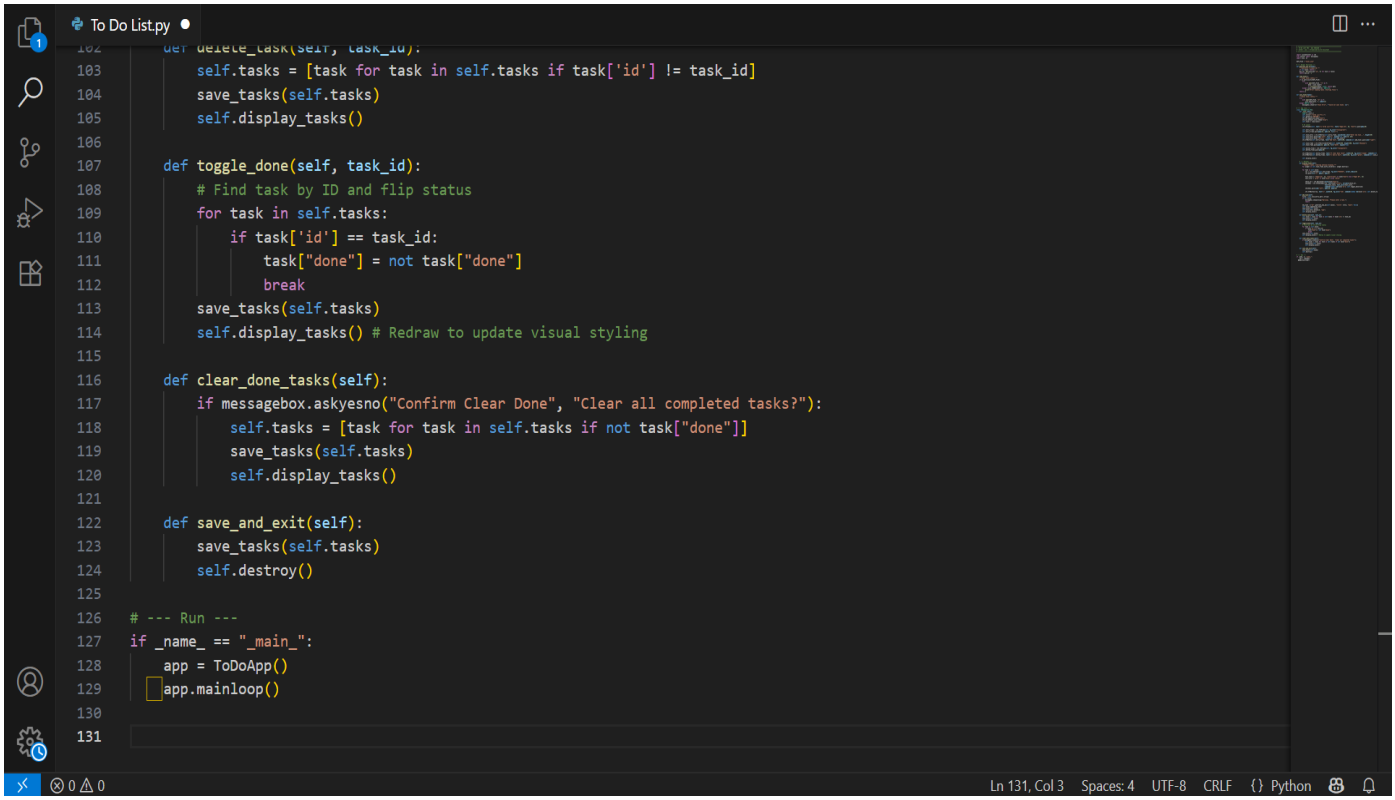
102 def delete_task(self, task_id):
103 self.tasks = [task for task in self.tasks if task['id'] != task_id]
104 save_tasks(self.tasks)
105 self.display_tasks()
106
107 def toggle_done(self, task_id):
108 # Find task by ID and flip status
109 for task in self.tasks:
110 if task['id'] == task_id:
111 task["done"] = not task["done"]
112 break
113 save_tasks(self.tasks)
114 self.display_tasks() # Redraw to update visual styling
Ln 85, Col 28 Spaces: 4 UTF-8 CRLF {} Python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109 for task in self.tasks:
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112 break
113 save_tasks(self.tasks)
114 self.display_tasks() # Redraw to update visual styling
115
116 def clear_done_tasks(self):
117 if messagebox.askyesno("Confirm Clear Done", "Clear all completed tasks?"):
118 self.tasks = [task for task in self.tasks if not task["done"]]
119 save_tasks(self.tasks)
120 self.display_tasks()
121
122 def save_and_exit(self):
123 save_tasks(self.tasks)
124 self.destroy()
125
126 # --- Run ---
127 if _name_ == "_main_":
128 app = ToDoApp()
129 app.mainloop()
130
131
Ln 131, Col 3 Spaces: 4 UTF-8 CRLF {} Python

Here the main and graphical page of To Do List.