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Student record system using Python Tkinter

Aim:

To design and develop a simple and elegant GUI application using Python's Tkinter module that allows users to maintain student records (Name, Age, Subject, and Marks) with basic animation effects for a visually appealing interface.

Procedure:

1. Import `tkinter`, `ttk`, `messagebox`, and `itertools` modules.

2. Create the main window using Tkinter and set its title, size, and background.

3. Add an animated title that moves and changes color using the `after()` function.

4. Create entry fields for Name, Age, Subject, and Marks.

5. Add a button to store entered data in a list and display it in a `Treeview` table.

6. Run the main loop to keep the GUI active and animations running.

Program:

```
import tkinter as tk

from tkinter import ttk, messagebox

import itertools


root = tk.Tk()

root.title("Student Record System")

root.geometry("550x400")

root.config(bg="#eef")
```

```python
# ---------- Animation Setup ----------
colors = itertools.cycle(["#eef", "#e0f7fa", "#ffe4e1", "#e6e6fa"])
direction = 1


def animate():
    global direction
    # Move title
    x, y = title.winfo_x(), title.winfo_y()
    if x > 250: direction = -1
    elif x < 40: direction = 1
    title.place(x=x + direction * 5, y=y)
    # Change background color
    root.config(bg=next(colors))
    frame.config(bg=root["bg"])
    for w in frame.winfo_children():
        if isinstance(w, tk.Label): w.config(bg=root["bg"])
    root.after(300, animate)


# ---------- Title ----------
title = tk.Label(root, text="🎓 Student Record System 🎓",
            font=("Arial", 16, "bold"), bg="#eef", fg="blue")
title.place(x=80, y=10)


# ---------- Data ----------
students = []


def add_student():
    n, a, s, m = name.get(), age.get(), subj.get(), marks.get()
    if not (n and a and s and m):
        messagebox.showwarning("Warning", "Fill all fields!")
        return
```

```python
        students.append((n, a, s, m))
        tree.insert("", "end", values=(n, a, s, m))
        for e in (name, age, subj, marks): e.delete(0, tk.END)


# ---------- Form ----------
frame = tk.Frame(root, bg="#eef")
frame.place(x=50, y=60)


tk.Label(frame, text="Name:", bg="#eef").grid(row=0, column=0)

tk.Label(frame, text="Age:", bg="#eef").grid(row=1, column=0)

tk.Label(frame, text="Subject:", bg="#eef").grid(row=2, column=0)

tk.Label(frame, text="Marks:", bg="#eef").grid(row=3, column=0)


name, age, subj, marks = tk.Entry(frame), tk.Entry(frame), tk.Entry(frame), tk.Entry(frame)

name.grid(row=0, column=1); age.grid(row=1, column=1)

subj.grid(row=2, column=1); marks.grid(row=3, column=1)


tk.Button(frame, text="Add Student", bg="#4CAF50", fg="white", command=add_student).grid(row=4, columnspan=2,
pady=5)


# ---------- Table ----------
tree = ttk.Treeview(root, columns=("Name", "Age", "Subject", "Marks"), show="headings", height=7)
for col in ("Name", "Age", "Subject", "Marks"):
    tree.heading(col, text=col)
    tree.column(col, width=120)
tree.place(x=50, y=220)


# ---------- Start Animation ----------
animate()


root.mainloop()
```
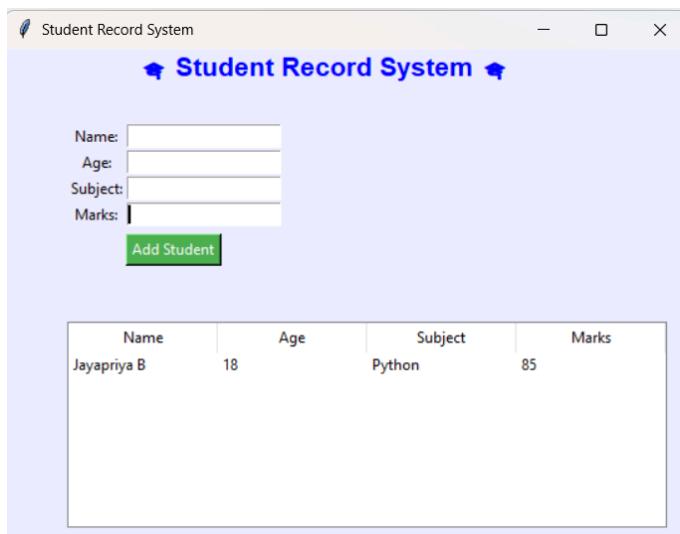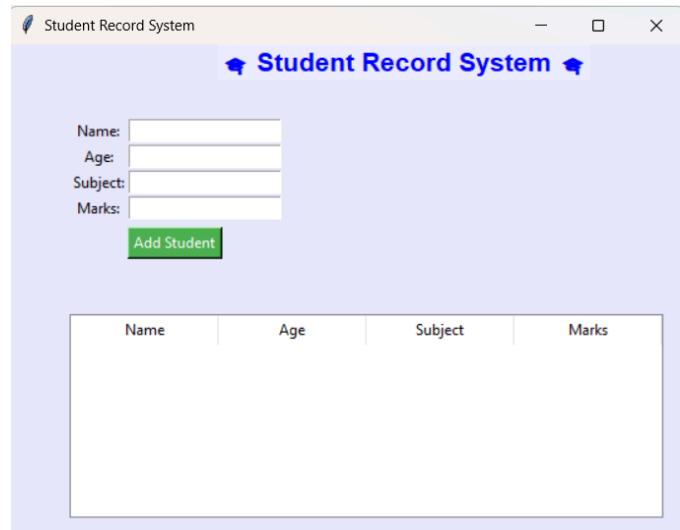
Result :

The program successfully creates an animated GUI that records and displays student details with a moving title and changing background colors.