Event-driven programming is a software architecture paradigm where the flow of the program is determined by external occurrences known as events (such as user interactions, sensor outputs, or system messages). Unlike traditional procedural programs that run sequentially from top to bottom, an event-driven GUI application runs an infinite loop that sits in a "wait and react" state, idling until an event is triggered.

```
import tkinter as tk


def on_button_click():
    # The Event Handler (Callback)
    print("Button was clicked!")


# Initialize the main window
root = tk.Tk()
root.title("Event-Driven Demo")


# Create a Widget (Event Source)
button = tk.Button(root, text="Click Me",
command=on_button_click)
button.pack(pady=20)


# Start the Event Loop (The application halts here, waiting for events)
root.mainloop()
```