

Project : Stop Watch / Clock

```
import tkinter as tk
```

```
from datetime import datetime
```

```
import time
```

```
import threading
```

```
class ClockStopwatchApp:
```

```
    def __init__(self, root):
```

```
        self.root = root
```

```
        self.root.title("Clock & Stopwatch")
```

```
        self.root.geometry("400x300")
```

```
        self.clock_label = tk.Label(root, text="", font=("Helvetica", 16))
```

```
        self.clock_label.pack(pady=10)
```

```
        self.stopwatch_label = tk.Label(root, text="00:00:00", font=("Helvetica", 24))
```

```
        self.stopwatch_label.pack(pady=10)
```

```
        button_frame = tk.Frame(root)
```

```
        button_frame.pack(pady=5)
```

```
        self.start_button = tk.Button(button_frame, text="Start", width=8, command=self.start)
```

```
        self.start_button.grid(row=0, column=0, padx=5)
```

```
        self.stop_button = tk.Button(button_frame, text="Stop", width=8, command=self.stop)
```

```
self.stop_button.grid(row=0, column=1, padx=5)
```

```
self.reset_button = tk.Button(button_frame, text="Reset", width=8,  
command=self.reset)
```

```
self.reset_button.grid(row=0, column=2, padx=5)
```

```
self.running = False
```

```
self.counter = 0
```

```
self.update_clock()
```

```
def update_clock(self):
```

```
    now = datetime.now().strftime("%H:%M:%S")
```

```
    self.clock_label.config(text="Clock: " + now)
```

```
    self.root.after(1000, self.update_clock)
```

```
def update_stopwatch(self):
```

```
    if self.running:
```

```
        self.counter += 1
```

```
        time_str = time.strftime('%H:%M:%S', time.gmtime(self.counter))
```

```
        self.stopwatch_label.config(text=time_str)
```

```
        self.root.after(1000, self.update_stopwatch)
```

```
def start(self):
```

```
    if not self.running:
```

```
        self.running = True
```

```
self.update_stopwatch()
```

```
def stop(self):
```

```
    self.running = False
```

```
def reset(self):
```

```
    self.running = False
```

```
    self.counter = 0
```

```
    self.stopwatch_label.config(text="00:00:00")
```

```
if __name__ == "__main__":
```

```
    root = tk.Tk()
```

```
    app = ClockStopwatchApp(root)
```

```
    root.mainloop()
```