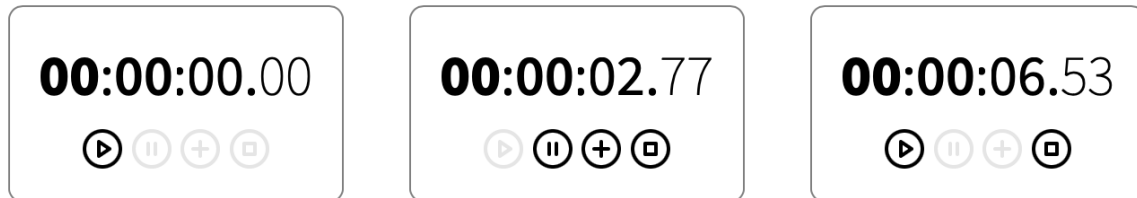


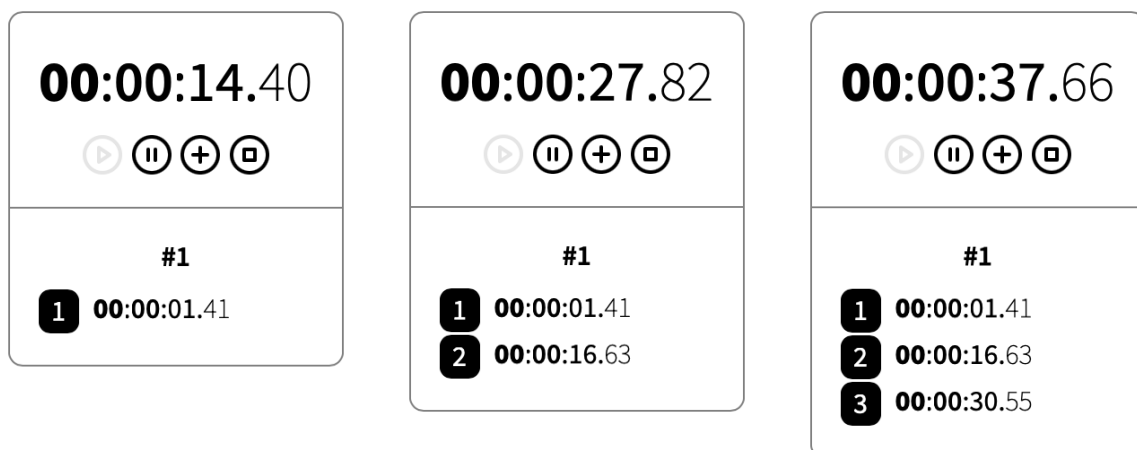
CMPS 350 · Web Development Fundamentals

Tutorial 07 · Lap Timer

Develop a lap timer that can track multiple runs and laps using React and Next.



1. Create a **Timer** component that is composed of a **Panel** component and a **Runs** component. The **Panel** component comprises a **Display** and a **Controls** component. The **Runs** component is composed of multiple **Run** components, tracking multiple laps.
2. The **Display** component renders the elapsed time. It receives a single prop, **time**, that contains the time elapsed in milliseconds, and renders the hours, minutes, seconds, and centiseconds.
3. The **Controls** component renders buttons to control these actions: Start/Resume, Pause, Lap, and Stop/Reset. Each of these actions will have an associated callback to handle its **click** event.
4. The **Run** component renders the laps that have been tracked for a certain run using a **Laps** component. Each **Laps** component is comprised of multiple **Lap** components.



5. Create the required state variables using the **useState** hook. How many are needed?
6. Create a reference, using the **useRef** hook, to be able to clear a set interval. When should the reference hook be used instead of the state hook?
7. ~~Defer the value of the displayed time using the **useDeferredValue** hook.~~
8. Serialize the **Timer** component and save its state in local storage so it can be reloaded between sessions. How can an effect be used to automate the serialization using the **useEffect** hook?

9. Update your `Timer` component so that multiple timers can be created and serialized.
10. An interactive demo of this tutorial is available at <https://cmps350-lap-timer.vercel.app>.

