Use Case U1S3: Time Events
Scope: Timer
Level: User Goal
Primary Actor: User
Scenario: Lap Timing
Related Use Cases: Use Case 1 Scenario 1: *Start the Timing*
Stakeholders and Interests:

- User: Wants to measure the measure the interval of a given timing event.
- User: Wants to record the interval of a given timing event.

Preconditions: The Timer started at some previous point by the User.
Success Guaranties: (Postconditions) The Timer records the lap (interval), indicates that to the User, while continuing to meausure the complete event time.

Main Success Scenario:

User	**System**
1. Indicates to lap a timing interval.	
	2. Records the lap time
	3. Stops the previous lap time if there is one
	4. Calculatate the elapsed time from the previous lap time to the current lap time if there is one.
	5. Displays the previous lap times in mill-second resolution.
	6. At a 1-Hz rate, Calculate the total elapsed time.
	7. At a 1-Hz rate, Calculate the elapsed time for the current lap.
	8. Displays the current running lap elapsed time in seconds resolution.
	9. Displays the elapsed time in seconds resolution. (See *Use Case 1S1: Start Timing*)

Alternative Flows:
*a. If at any time, the System cannot measure the time for the elapsed time, then the System informs the User the Timer has stopped working properly.
*b. The User has the option to perform as many lap intervals as desired, to the limits of the System. The System will calculate the interval from the previous lap interval, not the start of the timing event (See *Step 3*).

Technology and Variations List:

2c-5c. The Actual accuracy of the timer is dependant and will vary based on the task schedulers of both the Operating System and the language used for implementation.
Frequency of Occurrence: System should be able to record as many lap events as needed, or until the System runs out of memory.

Open Issues:

- Is the accuracy dependant on the Operating System?
- Is the accuracy dependant on the Hardware?
- How does language affect the accuracy of the Timer?
- How does a "fully loaded System" affect the accuracy of the Timer?
- Consider lapping from the start of the timing event?
- The number of lapping events a system can handle is not infinite and may not be able to handle as many as the User desires.