

Group: git-ignore

CS 361

#### Lab 4 - Use Case Scenarios

<i>Use case name</i>	TimeIndEvent
<i>Participating actors</i>	Initiated by <b>User</b> Communicates with <b>Racer(s), Sensor(s)</b>
<i>Main flow</i>	<ol style="list-style-type: none"><li>1. <b>User</b> initiates <i>StartNewRun</i> use case</li><li>2. Set event type to IND</li><li>3. <b>User</b> toggles state of one channel to START</li><li>4. <b>User</b> toggles state of another channel to FINISH</li><li>5. <b>Racer</b> activates start Sensor</li><li>6. <b>Sensor</b> triggers start channel</li><li>7. <b>Racer</b> activates finish Sensor</li><li>8. <b>Sensor</b> triggers finish channel</li><li>9. <b>User</b> initiates <i>EndRun</i> use case</li></ol>
<i>Alternate flows</i>	<p>E1. If a <b>Racer</b> has a false start, the <b>User</b> initiates the <i>CancelRacer</i> use case.</p> <p>E2. If a <b>Racer</b> does not finish the race, the <b>User</b> initiates the <i>DNFRacer</i> use case.</p>
<i>Preconditions</i>	<ul style="list-style-type: none"><li>• <b>ChronoTimer</b> must be turned on.</li><li>• A current time must be set in <b>ChronoTimer</b>.</li><li>• One or more <b>Racers</b> must be queued to run the individual event.</li><li>• Two <b>Sensors</b> (gates/electric eye/pads) must be armed, one at the starting location, and one at the finish location.</li><li>• Two channels must be enabled.</li><li>• Each <b>Sensor</b> must be connected to a <b>Channel</b>.</li></ul>
<i>Postconditions</i>	<ul style="list-style-type: none"><li>• Race results are stored in <b>ChronoTimer</b> machine event log</li></ul>
<i>Exceptions</i>	I/O exceptions

<i>Use case name</i>	StartNewRun
<i>Participating actors</i>	Initiated by <b>User</b>
<i>Main flow</i>	<ol style="list-style-type: none"><li>1. <b>User</b> enters NEWRUN command</li><li>2. The default event type is set to IND</li></ol>
<i>Alternate Flow</i>	E1. If previous run did not end, initiate <i>DNFRacer</i> use case for all previous racers and clear racer queue.
<i>Preconditions</i>	<ul style="list-style-type: none"><li>• <b>ChronoTimer</b> is powered on.</li></ul>

	<ul style="list-style-type: none"> <li>• Previous run is finished.</li> <li>• Race queue is empty.</li> </ul>
<i>Postconditions</i>	<ul style="list-style-type: none"> <li>• Event type is set to IND</li> </ul>
<i>Exceptions</i>	

<i>Use case name</i>	EndRun
<i>Participating actors</i>	Initiated by <b>User</b>
<i>Main flow</i>	<ol style="list-style-type: none"> <li>1. <b>User</b> enters ENDRUN command</li> <li>2. <b>ChronoTimer</b> clears race queue</li> </ol>
<i>Alternate Flow</i>	E1. If a new run was not started, do nothing.
<i>Preconditions</i>	<ul style="list-style-type: none"> <li>• ChronoTimer is powered on.</li> <li>• A new run was started.</li> </ul>
<i>Postconditions</i>	<ul style="list-style-type: none"> <li>• Race queue is empty</li> </ul>
<i>Exceptions</i>	

<i>Use case name</i>	MarkRacerDNF
<i>Participating actors</i>	Initiated by <b>User</b>
<i>Main flow</i>	<ol style="list-style-type: none"> <li>1. The <b>User</b> inputs the DNF command into <b>ChronoTimer</b>.</li> <li>2. <b>ChronoTimer</b> marks the <b>Racer</b>'s start as DNF and acknowledges that the next <b>Racer</b> to finish will not finish.</li> </ol>
<i>Preconditions</i>	<ul style="list-style-type: none"> <li>• A new run was started.</li> <li>• A <b>Racer</b> activated a start sensor and the start sensor triggered a start channel.</li> <li>• A <b>Racer</b> did not finish the race.</li> </ul>
<i>Postconditions</i>	The <b>Racer</b> 's start is marked as DNF.

<i>Use case name</i>	MarkRacerCancel
<i>Participating actors</i>	Initiated by <b>User</b>
<i>Flow of events</i>	<ol style="list-style-type: none"> <li>1. The <b>User</b> inputs the CANCEL command into <b>ChronoTimer</b>.</li> <li>2. <b>ChronoTimer</b> marks the <b>Racer</b>'s start as CANCEL.</li> <li>3. <b>Racer</b> is placed back at the start of the race queue</li> </ol>
<i>Entry condition</i>	<ul style="list-style-type: none"> <li>• A new run was started.</li> </ul>

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	<ul style="list-style-type: none"><li>• A <b>Racer</b> activated a start sensor and the start sensor triggered a start channel.</li><li>• The <b>Racer</b> had a false start.</li></ul>
<i>Exit condition</i>	<ul style="list-style-type: none"><li>• The <b>Racer</b>'s start is marked as CANCEL.</li><li>• The <b>Racer</b> is still in queue to start.</li></ul>

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