Use Case 1: Monitor Pre-launch
Scope: Launch Simulator
Level: Flight Controller Goal
Primary Actor: Flight Controller
Secondary Actors: Astronaught, Engineer/Technician
Related Use Cases: *Use Case 2: the Flight Controller Shall Monitor the Countdown*
Stakeholders & Interrests:

- Flight Controller: wants to control the Pre-Launch Activities
  - Control the Countdown Time *See Use Case 2: the Flght Controller Shall Monitor the Countdown*
  - Monitor the Rocket
  - Monitor all the Stages in the Rocket
  - Monitor the Engines for each Stage
  - Monitor the Fuel System for each Stage
  - Monitor the Launching Mechanism
- Flight Controller: wants to monitor the Pre-Launch Activities
- Engineer/Technician: wants to monitor Pre-Launch Data
- Astronaut: wanst to monitor Pre-Launch Data

Pre-Conditions: The System is ready to start the Couutdown
Post-Conditions: The Launch is Initiated

Flow of Events:

Flight Controller	**System**
1. Starts the Pre-Launch Sequence	
	2. Requests Countdown Time *See Monitor Countdown Use Case*
	3. Periodically Monitors Pre-Launch Data
	4. Returns Pre-Launch Data
	5. Countdown equals zero *See Monitor Countdown Use Case*
6. Initiate Launch Sequence	
	7. Transitions to Launch Initiation
	8. Initiate Launch State

Alternative Flows:

3a. If the System detects an anamoly in the Pre-Launch Data, then the System alerts the Flight Controller of the anomoly

4a. If there System alerts the Flight Controller of a Pre- Launch anomaly *(See Alternative Flow 3a.)*, then the Flight Controller can choose to hold the Countdown

4b. If there is a hold in the Countdown and the anomaly is resolved, then the Flight Controller can choose to resume the Countdown, the Countdown continues at the stopped time *See Use Case 2: The Flight Controller shall Monitor the Coundown*

4c. If there is a hold in the Countdown, then the Flight Controller can choose to abort the launch: the System indicates an aborted launch

Special Requirements:

- There is only one decision point for the Abort: the Flight Controller

Technology & Variations List:

4a. The Pre-Launch Data is Rocket Model Dependent–hence, the monitoring data and anomalies is Rocket Model Dependent

Frequency of Occurence: Almost continuously: based on the number of desired Launches and Countdowns

Open Issues:

- What is considered "anomalous" Countdown data?
- Is "anoalous" Countdown data depend upon the type of Launch Vehicle and System (Launching Mechanism)?