SOEN 342 - Sections H and II:
Software Requirements and Specifications

Project

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1 OCL specification

1. Each sensor deployed by the system must have a unique id.

   context Sensor

   inv: TempMonitor.deployed $\rightarrow$ forAll(s1, s2: Sensor | s1 <> s2 **implies** s1.id <> s2.id)

   pre: There are at least two sensors deployed in the system.

   post: All sensors in the `deployed` set have unique IDs.

2. All sensors deployed in the system are sensors that are maintained by the system. (In other words, the system does not deploy a sensor which is not registered.)

   context TempMonitor

   inv: self.sensors **forAll** (d: deployedSensor | self.SensorList $\rightarrow$ includes(d))

   pre: The `TempMonitor` class has at least one deployed sensor.

   post: All sensors in the `deployed` set are instances of the `Sensor` class.

3. Every deployed sensor must be associated with a location that exists in the corresponding location registry.

   context Sensor

   inv: self.location $\neq$ null $\wedge$ LocationRegistry.allInstances() $\rightarrow$ exists(l | l.locations $\rightarrow$ includes(self.location))

   pre: The sensor is being deployed.

   post: The sensor is associated with a location that exists in the location registry.

4. Every location maintained by the system is associated with a unique sensor.

   context Location

   inv: self.sensors $\rightarrow$ size() = self.sensors $\rightarrow$ asSet() $\rightarrow$ size()

   pre: A new sensor is being associated with the location.

   post: The location is associated with a unique sensor.