

CSE 40232  
Software Engineering  
Professor Blake  
Spring 2011

**In-Class Quiz:**     *Create a Use Case Diagram, a Class Diagram, and one Sequence Diagram (pick a common scenario) for the Problem Statement below.*

A person having diabetes has to continually check sugar levels throughout the day and take breaks to make necessary injections. New telemedicine applications can automate this process and allow monitoring and injections to happen automatically. A diabetes patient will now have a hardware/software application (called MyDiaManager) that will consist of an injection instrument that will be inserted once early in the day. The injection instrument will have a probe that can check sugar levels. In addition, this instrument will be capable of delivering insulin injections. MyDiaManager will a main hardware component that is about the size of a mobile phone. The main component will be connected to a small container/compartment with a repository of insulin. Specialized insulin vials can be plugged into this compartment. The main component (via a wireless module) will be able to connect to a database at the hospital that has software to control the monitoring and injection commands for the MyDiaManager. The main user component will have a visual display that will allow the patient to view latest injections, the sugar levels, and the insulin level. MyDiaManager will have to connect to the hospital server each hour and the interaction should begin and complete within 3 minutes. If a connection sequence is not completed successfully, the module should vibrate as well as emit a tone to alert the patient (speaker module). MyDiaManager should have buttons that both allow the user to cycle through information. These buttons should also allow manual operation of the injection control of MyDiaManager. Any manual operations should be reported to the hospitals server via an immediate connection and update. The module should cost much less than the average mobile phone and any development company should be able to complete design and development within the FY11 fiscal year.



