

Group 32: Arhaan, Josh, Holly, Nooreen, Shafia

UML Class Diagram Description:

This UML class diagram shows the overall structure of the glucose monitoring and insulin bolus application (t:slim Insulin Pump). The MainWindow class is the main user interface and extends QMainWindow, which is part of the Qt framework. It connects directly to the key control classes: BolusManager, CGMManager, and SafetyController. These classes manage the logic for insulin delivery, continuous glucose monitoring, and system safety (like checking battery and insulin levels). The User class stores different Profile objects, each of which holds settings like the user's insulin-to-carb ratio and target blood sugar levels. This allows for personalized insulin calculations. CGMManager also uses a GlucoseReading class to track sensor data over time. At the bottom of the diagram, the UI part shows that QWidget owns many UI elements like QPushButton, QSpinBox, and QLabel, based on the real counts from the user interface from QT. This is shown using composition arrows (solid diamond), meaning these widgets are part of the interface and are deleted when the window closes. Overall, the design is clean and follows good object-oriented principles. Logic is separated from the interface, and the Qt widgets are connected to the layout. This makes the program easier to maintain and expand.

