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CNIT 25501 - Lab 7 Part B
4/2/2025

1. Provide a Java example demonstrating how encapsulation can be used to protect and manage sensor data with appropriate getter and setter methods.
2. Create a Java class hierarchy for different types of sensors (e.g., TemperatureSensor, PressureSensor) using inheritance and polymorphism. Include methods for data acquisition and display.
3. Demonstrate how exception handling can be used in Java to manage errors in sensor data acquisition, such as invalid readings or connection failures.
4. Write a Java program that records sensor data to a text file. Include functionality for logging timestamps and error messages using proper file handling.
5. Create a Java simulation of an embedded alarm system using event-driven programming. Implement listeners and handlers for events like temperature threshold breaches.
6. **Student Management System “** Generate Java OOP code for a student management system that includes student registration, course enrollment, and grade tracking using encapsulation and inheritance**.”**
7. **Library Management System “** Create a Java class structure for a library management system with book borrowing, returning, and user authentication using OOP principles."
8. **Bank Account Management System “** Generate Java code for a bank account system with different account types (savings, checking) using polymorphism and abstract classes”
9. **Hospital Management System “** Provide a Java OOP implementation for a hospital management system that manages patient records, doctor appointments, and medical billing “
10. **Online Shopping Cart “** Develop a Java-based shopping cart system using object-oriented programming, including product categories, discounts, and a checkout system**”**