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package gettingstarted2;
import com.phidget22.*;
public class thermostat {
    public static void main(String[] args) throws Exception {
        double setTemp = 21;
        // Create objects for Phidget devices

        TemperatureSensor temperatureSensor = new
TemperatureSensor();
        DigitalInput greenButton = new DigitalInput();
        DigitalInput redButton = new DigitalInput();
        DigitalOutput greenLED = new DigitalOutput();
        DigitalOutput redLED = new DigitalOutput();
        // Set up the default set temperature

        // Configure Phidget ports
        temperatureSensor.setChannel(3);
        redButton.setHubPort(0);
        redButton.setIsHubPortDevice(true);
        redLED.setHubPort(1);
        redLED.setIsHubPortDevice(true);
        greenButton.setHubPort(5);
        greenButton.setIsHubPortDevice(true);
        greenLED.setHubPort(4);
        greenLED.setIsHubPortDevice(true);
    }
}
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// Open Phidget connections
temperatureSensor.open(1000);
redButton.open(1000);
redLED.open(1000);
greenButton.open(1000);
greenLED.open(1000);
double previousSetT = setTemp;
System.out.println("Thermostat Simulation Started");
while (true) {
    // Read current temperature
    double currentTemperature =
temperatureSensor.getTemperature();
    // Check button presses to adjust set temperature
    if (greenButton.getState()) {
        setTemp++;
        System.out.println("Green button pressed: Set
temperature increased to " + setTemp + "°C");
        Thread.sleep(500); // Debounce delay
    }
    if (redButton.getState()) {
        setTemp--;
        System.out.println("Red button pressed: Set
temperature decreased to " + setTemp + "°C");
        Thread.sleep(500); // Debounce delay
    }
    // Print the current and set temperatures every 10
seconds
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        System.out.println("Current Temperature: " +
currentTemperature + "°C");
        System.out.println("Set Temperature: " + setTemp +
"°C");
        // Control LEDs based on temperature comparison
        if (Math.abs(currentTemperature - setTemp) <= 2) {
            greenLED.setState(true);
            redLED.setState(false);
        } else {
            greenLED.setState(false);
            redLED.setState(true);
        }
        // Wait for 10 seconds before the next update
        Thread.sleep(10000);
    }
}
}

```

I first initiated my phiget and assigned physical connections to the program then I declared what the set temp is which is 21 then I temp sensor to retrieve the current temp from the device and then this will be outputted as a double and then I had a case where each time the green button is pressed the temperature will increase by 1 and when red button is pressed the temp will decrease by 1 set state checks to see if the button is pressed correctly, and then I have a system.out.print which will print out the current temperature and then my math ABS indicates if the current temp is close to the set temperature of 21 and it calculates if the difference is 2 c or less then the green LED will turn on if not then the red Led will appear and thread sleep of 10000 will show the current temp each 10 s