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For this assignment, I used SensorManager in Android Studio to build a basic app that reads sensor data from the accelerometer. The main goal of SensorManager is to connect the Android system to the hardware sensors that come built into the device, like the accelerometer, gyroscope, or light sensor. These sensors give live data from the phone's environment or movement, and SensorManager is what lets the app use that movement data. And this is Vital so that these data can be used in different ways to interact with apps that require them to fully function.

In my case, I used it to grab the three values needed, the X, Y, and Z values from the accelerometer, and show them on the screen. I had to register the sensor in onResume() and unregister it in onPause() to avoid wasting battery. I also tested it with breakpoints in onSensorChanged() to make sure it was working, and I could see the app was picking up the sensor data every time the device moved.

There are a lot of different ways SensorManager gets used in real apps. For example, step tracking in health apps uses the accelerometer to count steps and speed, tilt-based controls in games use the gyroscope as the main control for the game, and compass apps rely on the magnetometer. After doing this project, I can see how SensorManager is a key part of apps that need real-time physical interaction to enable the app to work. The setup wasn’t too complicated either, once I understood the process of the lifecycle and how the sensors update.