# SIT314 – Week 5 Technical Task Report

## Task 5a: Storing IoT Data

In this task, I developed a Node.js script named 'iotsensor.js' that simulates an IoT temperature sensor. The sensor data is structured in JSON format and contains an ID, sensor name, address, timestamp, and a randomly generated temperature value.

I used MongoDB Atlas to store the sensor data online. A Mongoose schema was created in 'models/sensor.js' to define the structure of the sensor documents. The script successfully connects to MongoDB Atlas using a connection string and uploads the sensor data into a collection.

Evidence provided:

* • iotsensor.js code file
* • models/sensor.js code file
* • Screenshot of MongoDB Atlas showing stored data

## Task 5b: Scalability of IoT Data Storage

To test the scalability and performance of the database, I modified 'iotsensor.js' to use setInterval(), which simulates the behavior of a live IoT device. The function 'sensortest()' is called every 1 second, each time creating and saving a new random sensor reading.

I used Date.now() to measure the time taken for each save operation. The average time for saving to MongoDB Atlas was observed to be between 180–250ms per write. This test confirms MongoDB Atlas can handle frequent data uploads for small-scale IoT applications.

Evidence provided:

* • Modified iotsensor.js file with setInterval and timer
* • Screenshot of terminal output showing timing results
* • Screenshot of MongoDB Atlas showing multiple stored documents

## Reflection

Through this task, I learned how to structure and store IoT sensor data in JSON format and persist it using MongoDB Atlas. I also practiced real-time data simulation with Node.js and evaluated the performance of cloud-based data storage.