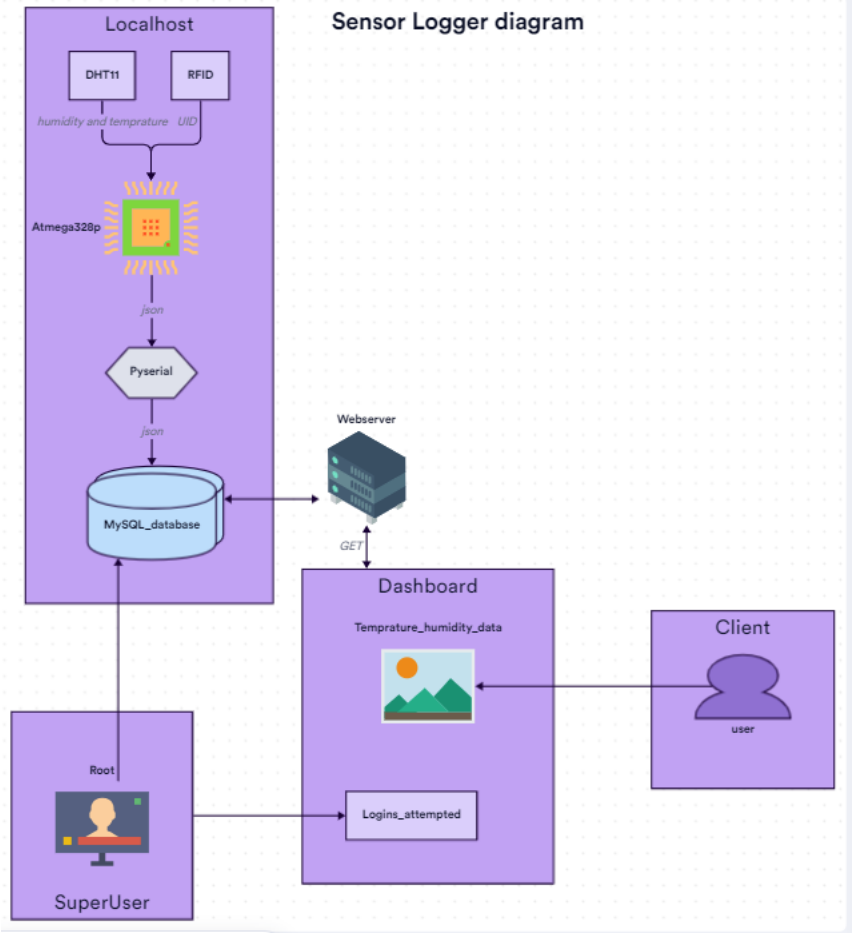
SENSOR DATA LOGGER MVP SPECIFICATION

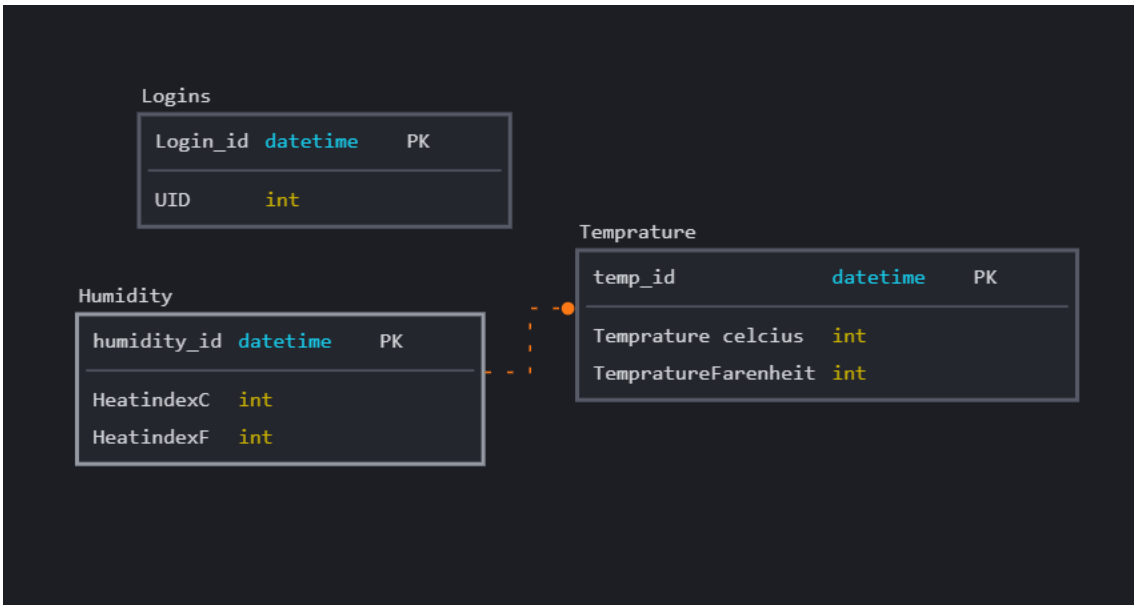
1. ARCHITECTURE



Data flows through the system as follows:

1. Sensors: The DHT11 and RFID sensors collect data from the physical environment.
2. Atmega328p Microcontroller: The Atmega328p is the central hub where sensor data is collected and processed.
3. Data Transmission: Data is transmitted from the Atmega328p to the local host, where the MySQL database is hosted.
4. MySQL Database: The MySQL database on your local host stores the data collected from sensors.
5. Web Dashboard: The Flask-based web dashboard, hosted on a web server, serves as the user interface. It connects to the MySQL database on the local host to retrieve and visualize the data.
6. User: End users interact with the web dashboard to view and analyse the sensor data.
7. Superuser: Only a superuser can access the database directly and as well check how many logins were made on the system.

2. DATA FLOW



1. Login Table: This table stores data related to RFID card logins. Each entry in this table represents a unique login event and includes information such as the RFID UID and a timestamp.
2. Humidity Table: The Humidity table stores humidity data collected by the DHT11 sensor. It records the humidity percentage and a timestamp, providing a historical record of humidity levels over time.
3. Temperature Table: The Temperature table is dedicated to storing temperature data collected by the DHT11 sensor. It captures temperature values in Celsius and Fahrenheit, accompanied by a timestamp, enabling tracking temperature variations.

3. USER STORY

a. **User Story 1:** Sensor Data Visualization

As a user, I want to view real-time sensor data on the dashboard.
Acceptance Criteria:
The dashboard should display temperature, humidity, and RFID data.
Sensor data should update automatically every 5 seconds.
Data should be presented in an easy-to-read format, such as charts and tables.

b. **User Story 2:** Historical Data Access

As a user, I want to access historical sensor data for analysis and reference.
Acceptance Criteria:
The dashboard should provide a date picker for selecting a specific date or time range.
Users should be able to retrieve past sensor data for any selected date or time period.
Historical data should be presented visually and in tabular format.

c. **User Story 3**: Data Export

As a user, I want to export sensor data for further analysis.
Acceptance Criteria:
The dashboard should offer an option to export sensor data.
Exported data should include timestamps, temperature, humidity, and RFID information.
Users should have access to download options.

4. MOCKUPS