API Security Requirements

These code samples demonstrate how to integrate external data sources (OpenWeather, Pôle Emploi, and the World Air Quality Index) within a Node.js application using MongoDB as a data store. Each snippet showcases how to structure database schemas, interact with third-party APIs, and manage secure access tokens and credentials. From a high-level perspective, this approach centralizes environmental data in a single backend, allowing for unified storage, analysis, and potential redistribution of important metrics.

Security begins with proper handling of secrets and tokens. Using dotenv and environment variables is critical for keeping API credentials out of version control systems, and all API calls rely on HTTPS to prevent exposure of these credentials. Any user-supplied input (such as city names or postal codes) must be validated or sanitized before being sent to external APIs, helping prevent unauthorized access or malformed requests. In each snippet, the application carefully extracts only the necessary information—like lat/long coordinates, air quality readings, and job data—from the third-party service responses.

In the second snippet, which interacts with Pôle Emploi, OAuth tokens are obtained and refreshed as needed. By checking the token's expiration and only requesting a new token when close to expiry, the code reduces unnecessary overhead while still protecting against unauthorized use. Detailed error handling and logging occur throughout, but log messages must avoid leaking credentials, internal stack traces, or other sensitive data.

The final snippet works similarly for air quality data from WAQI, confirming that each city is properly queried and ensuring a stable, secure connection. Once again, WAQI_API_KEY is read from an environment variable rather than being hard-coded. These patterns—securing credentials, validating external inputs, using HTTPS for data in transit, and employing robust error handling—are fundamental to building safe and resilient applications that can integrate smoothly with multiple data sources.