

Backend Homework — Node.js / TypeScript / SQL

Build a small usage-based billing system with products, customers, wallets, usage events, and a cron job that updates balances.

Requirements — Tech

- Node.js
- TypeScript
- SQLite
- Prisma
- A cron job running at least every minute

Endpoints

1. **Submit usage**
This endpoint receives a customer, a product, and a number of units, and records the usage event in the system.
2. **Credit wallet**
This endpoint adds funds to a customer.
3. **Get balance**
This endpoint returns the customer's wallet balance as maintained by the cron, returns the customer's usage details, and indicates whether the customer still has available funds.
4. **List products**
This endpoint returns all products with their unit prices.

Cron

The cron must run every minute and update customer balances based on the recorded usage events.

Data

The system must be seeded with around ten customers with different balances and usage patterns, and scripts or tests must be provided to populate the database easily.

Tests (required)

Automated tests must cover the main flows including submitting usage, adding funds, retrieving the balance, and verifying that the cron updates customer balances correctly.

Quality Expectations

The solution must show clean and maintainable code, good architectural practices, proper input validations, and high-quality reliable tests.