

Interview Test: Modular Healthcare Billing System

Objective

Design and implement a multi-tenant healthcare billing system that supports:

- Business-specific pricing
- Patient-specific billing sessions
- Custom rules for invoice generation
- OHIP integration (simulated)
- Audit logging and role-based access

System Requirements

Mandatory Features

1. Multi-Tenant Setup

- Each clinic (tenant) has its own configuration and service catalog.
- Example: Clinic A offers 'Physio Visit', Clinic B offers 'Eye Exam', each with different prices.

2. Patient Billing Session

- A clinic staff initiates a billing session for a patient.
- Selects services provided, optionally modifies the price.

3. Pricing Rules Engine

- Apply discounts or overrides with justification.

4. Invoice Generator

- Generate a JSON invoice showing base price, final price, and discount reasons.

5. OHIP Mapping (Simulated)

- Attach simulated OHIP codes based on service from a config JSON.

6. Audit Log

- Log all significant billing events and overrides.

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7. CRUD APIs

- Full API support for clinics, patients, billing sessions, invoices, and OHIP codes.

Optional (Bonus)

- Role-based access
- Daily invoice export (CSV or JSON)
- Revenue dashboard (API only)

Tech Stack

- Backend: NestJS (TypeScript)
- DB: PostgreSQL (patients, sessions, invoices), MongoDB (configs, OHIP codes)
- Auth: Email/password login with JWT
- Infra: Dockerized services
- Docs: Swagger (OpenAPI)

Time Allotted

8-12 hours. Focus on core workflows and logic completeness.

Submission

- GitHub repo with source code
- README with setup instructions
- Swagger at /api/docs
- Postman collection (optional)
- Sample seed data

Evaluation Criteria

Area	Weight
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| Modular architecture | 30% |

| Code readability | 20% |

| Functional completeness | 20% |

| API design + Swagger | 15% |

| OHIP config logic | 10% |

| Bonus features | 5% |