

## Take-Home Task: Simple Marketplace API

### Objective

Build a backend API for a basic product marketplace where:

- Users can register/login
- Sellers can list products
- Buyers can browse & place orders
- Include pagination, filtering, rate-limiting, and request logging

### Core Requirements

#### Authentication & Authorization

- Register / Login (JWT-based)
- Only sellers can add products
- Only buyers can place orders

#### Limited CRUD

- Sellers can create and list their own products
- Buyers can browse all products
- No product updates or deletes required

#### Place Order

- Buyers can place an order for a product
- Reduce stock atomically when order is placed
- Order data should include buyer, product, and totalPrice

#### Pagination & Filtering

- Products can be listed with pagination (page, limit)
- Support filtering by:
  - Price range (minPrice, maxPrice)
  - Seller ID (optional)

#### Rate Limiting

- Apply a rate limiter (e.g., 100 requests/hour per IP or token)

#### Request Logging

- Log all incoming requests: method, URL, timestamp, and status code

### Bonus (Optional)

- Docker support
- Tests for services or endpoints
- Swagger docs or Postman collection
- Password complexity checks

### Tech Stack

You can choose:

- Framework: NestJS / Express (TypeScript)
- ORM: Drizzle / TypeORM / Sequelize
- DB: PostgreSQL/ MySQL

### Deliverables

- GitHub repo with:
  - Code
  - README with:
    - Setup instructions (yarn install && yarn dev)
    - .env.example
    - API overview
- Optional: Postman collection or Swagger docs

### Time Estimate

This task is expected to be submitted **as soon as possible**.