FORSIT

CONFIDENTIAL

TAKE HOME TASK

POSITION: Back-end Developer

*Your submission must be in **PDF format**

<Back-end Development Task: E-commerce Admin API>

The objective of this task is to design and implement a back-end API that can power a web admin dashboard for e-commerce managers.

This API should provide detailed insights into sales, revenue, and inventory status, as well as allow new product registration.

The implementation should be done using **Node.js (Express.js/Nuxt.js)** or **Python (FastAPI)**.

Core Features:

1. **Sales Status:**
    - Create endpoints to retrieve, filter, and analyze sales data.
    - Analyze revenue on a daily, weekly, monthly, and annual basis.
    - Provide comparisons of revenue across different periods and categories.
    - Enable retrieval of sales data by date range, product, and category.
2. **Inventory Management:**
    - Create endpoints to view current inventory status, including low stock alerts.
    - Implement functionality to update inventory levels and track changes over time.

Technical Requirements:

1. API Development:
    - Design and implement API endpoints using either Node.js (Express.js/Nuxt.js) or Python (FastAPI).
    - Develop APIs using RESTful standards. You may also incorporate GraphQL if appropriate for some queries.

2. Database Modeling and Design:
    - Design a database schema to support the required functionalities.
    - Implement the database using MySQL, PostgreSQL, or MongoDB.
    - Ensure proper indexing for optimized query performance.
    - Ensure the database is normalized to prevent redundancy and maintain consistency.

Database Specifics:

- The database should have tables for products, sales, inventory, and other relevant entities.
- Ensure proper indexing for optimized query performance.
- Ensure the database design supports the requirements of the API and is normalized to prevent redundancy and maintain consistency.

Demo Data:

- Provide a script to populate the database with demo data to help evaluate the functionality of the API.
- You may use sample data (of your own) regarding sales and inventory for the products sold on Amazon & Walmart.

Submission Instructions:

1. **Source Code:**
    - Host the source code on a public repository on GitHub.
    - Include a README file with the following:
        - Setup instructions and dependency installation.
        - The programming language and framework used (e.g., Node.js with Express.js, Python with FastAPI).
        - The type of API implemented (RESTful, GraphQL, or a combination).
        - The database used (MySQL, PostgreSQL, or MongoDB).
        - A brief explanation of the provided endpoints.

2. **Database Documentation:**
    - Document the database schema clearly.

- Explain the purpose of each table (for relational DBs) or collection (for MongoDB), and describe the relationships between entities if applicable.