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 Python and FastAPI.

Core Features:

1. **Sales Status:**
    - Endpoints to retrieve, filter, and analyze sales data.
    - Endpoints to analyze revenue on a daily, weekly, monthly, and annual basis.
    - Ability to compare revenue across different periods and categories.
    - Provide sales data by date range, product, and category.
2. **Inventory Management:**
    - Endpoints to view current inventory status, including low stock alerts.
    - Functionality to update inventory levels, and track changes over time.

Technical Requirements:

1. API Development:
    - Design and implement API endpoints using Python and FastAPI to handle operations like retrieving sales data, analyzing revenue, managing inventory, and registering new products.
2. Database Modeling and Design:

- Design a database schema to support the required functionalities.
- Implement the database using a relational database management system like MySQL.

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 setup instructions, dependencies, and a brief explanation of the endpoints provided by the API.
2. **Database Documentation:**
    - Document the database schema, explaining the purpose of each table and its relationships.