



ASSIGNMENT 02 – **Fast API** in Data Engineering

Title: Building a Supply Chain Management REST API.

Objective:

Design and implement a RESTful API for managing various aspects of a supply chain, including inventory management, order processing, and shipment tracking.

By the end of this lab, you should be able to:

- How to create API endpoints for various CRUD operations
- Define product, order management and shipment tracking data
- Handle Errors

Duration: 2 hours

Prerequisites:

Basic understanding of Python programming language.

Familiarity with FAST API library.

Materials:

Jupyter Notebook environment with Python , Fast API, Uvicorn installed (VS Code).

Lab Exercises:

1. Product Management:

Implement endpoints to:

- Add a new product to the inventory.
- Retrieve a list of all products.

- Retrieve details of a specific product by its ID.
- Update product details (e.g., name, description, price).
- Delete a product from the inventory.

2.Inventory Management:

Track inventory levels for each product.

Implement endpoints to:

- Update inventory levels (e.g., increase/decrease quantity).
- Retrieve current inventory levels for all products or a specific product.

3.Order Processing:

Implement endpoints to:

- Create a new order.
- Retrieve a list of all orders.
- Retrieve details of a specific order by its ID.
- Update order status (e.g., processing, shipped, delivered).
- Cancel an order.

4.Shipment Tracking:

Integrate with a shipment tracking service (e.g., FedEx, UPS) or simulate shipment tracking internally.

Implement endpoints to:

- Track the status of a shipment by providing the order ID.
- Update shipment status (e.g., shipped, in transit, delivered).

5.Validation and Error Handling:

- Validate input data for creating and updating products, orders, and inventory levels.
- Implement error handling and return appropriate HTTP status codes and error messages.