E-commerce Inventory Management Service

# **1. Purpose**

This PRD defines the requirements for a simple e-commerce inventory management service. Use coding assistants like GitHub Copilot, Cursor OR Windsurf and your preferred framework to build it.

We are **not focusing on authentication or authorization** in this assignment.   
You can assume that the system is being used by an Admin, who has full access to manage products, categories, and SKUs.

# **2. Entities & Relationships**

* Entities
  + Category: Used to group products (e.g., Electronics, Apparel).
  + Product: Represents a general product concept (e.g., "iPhone 15").
  + SKU: Represents a sellable variant of a product (e.g., "iPhone 15 - 128GB - Black").
* Relationships
  + A Product belongs to one Category.
  + A Product can have many SKUs.
  + A SKU belongs to one Product.

# **3. Requirements**

## **3.1 Build Rest APIs for**

* Category
  + Create, Read, Update, Delete Categories
  + List all categories
* Product
  + Create, Read, Update, Delete Products
  + List Products with:
    - Search by product name
    - Filter by category
    - Pagination (page & pageSize params)
  + Each Product must belong to an existing Category
* SKU
  + Add, Update, Delete SKUs for a Product
  + Each SKU must belong to a valid Product
  + Return all SKUs of a product

## **3.2 Expectation**

* The code should be of production grade.
* Handle all the necessary validations, relationships, edge cases.
* Write Unit tests and share the coverage report.
* For I3 and above ensure code-quality, code-structure, API documentation, complete test coverage.

# **4. Deliverables**

* Create a new GitHub **PRIVATE** Repo using your Talentica email
* Push the entire new solution to the repo
* Share the GitHub repo with the below users:
  + dmistryTal
  + nileshmallick1606
  + Sachin-Salunke-Talentica
* **The repo should contain**:
  + Entire source code.
  + README.md — project overview, setup, run instructions
  + Project-structure.md file
  + **Copilot Chat Export.md**
    - Export of the entire chat history.
    - If you have used multiple chat windows that extract all and stitch in a single file