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| Module Code | M33147 |
| Module Title | INTELLIGENT DATA AND TEXT ANALYTICS |

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# Introduction

## Project Overview

FM Clothing Store, a boutique retailer with branches across six locations in Hampshire, is transitioning from a manual system to a digitalized database management system. This project involves designing and implementing a NoSQL database using MongoDB to address the organization's growing data management needs. The new system ensures centralized storage of product, customer, and order information while enabling web-based access for employees and customers.

## Objectives

The primary objectives of this project are:

1. To develop a MongoDB-based NoSQL database that efficiently stores and manages data for FM Clothing Store.
2. To create collections and populate them with data, ensuring proper structure and relationships between entities.
3. To write meaningful queries that facilitate data retrieval for key business use cases, such as product availability and order tracking.
4. To demonstrate the functionality of the database in a live session, showcasing its usability and robustness.
5. To reflect on the project development process and learning outcomes.

## Scope

The scope of this project includes:

* Development of collections for products, branches, customers, orders, inventory, and related data.
* Implementation of scripts to generate and insert sample data into these collections.
* Writing and executing queries to handle typical user requirements.
* Exclusion of front-end development and networking infrastructure, as they are handled by separate teams.

# Database Development

## Collection Design

The database for FM Clothing Store is organized into multiple collections to manage various entities effectively. Below are the key collections and their structures:

### 1. Products Collection

Stores information about the products sold by FM Clothing Store.

* **Fields**:
  + productId: Unique identifier for each product.
  + name: Name of the product.
  + description: Detailed description of the product.
  + composition: Material composition of the product.
  + category: Product category (e.g., Women, Men, Kids).
  + sizes: Available sizes for the product.
  + price: Price of the product.
  + availability: Boolean indicating stock availability.
  + branch: List of branches where the product is available.

### 2. Branches Collection

Manages details of the store locations.

* **Fields**:
  + branchId: Unique identifier for each branch.
  + name: Branch name.
  + location: Physical address of the branch.
  + manager: Manager's name.
  + staffCount: Number of staff at the branch.

### 3. Customers Collection

Contains customer details.

* **Fields**:
  + fmClothStore\_customersId: Unique identifier for each customer.
  + name: Customer's name.
  + email: Email address.
  + phone: Contact number.
  + address: Residential address.

### 4. Orders Collection

Tracks customer orders.

* **Fields**:
  + orderId: Unique identifier for each order.
  + fmClothStore\_customersId: ID of the customer who placed the order.
  + orderDate: Date when the order was placed.
  + deliveryDate: Expected or actual delivery date.
  + fmClothStore\_products: List of products in the order with quantities.
  + branch: Branch responsible for fulfilling the order.
  + status: Order status (e.g., Pending, Delivered, Cancelled).

### 5. Wishlist Collection

Stores customer wishlists for desired products.

* **Fields**:
  + fmClothStore\_wishlistId: Unique identifier for each wishlist.
  + fmClothStore\_customersId: ID of the customer who created the wishlist.
  + fmClothStore\_products: List of products in the wishlist, with:
    - productId: ID of the product.
    - addedDate: Date when the product was added to the wishlist.

### 6. Inventory Collection

Manages stock levels of products at different branches.

* **Fields**:
  + productId: ID of the product.
  + branch: Branch where the product is stocked.
  + stock: Quantity of the product in stock.
  + lastUpdated: Date when the stock was last updated.

### 7. Reviews Collection

Stores customer feedback for products.

* **Fields**:
  + reviewId: Unique identifier for each review.
  + productId: ID of the reviewed product.
  + fmClothStore\_customersId: ID of the customer who wrote the review.
  + rating: Rating given by the customer (0-5).
  + reviewText: Textual feedback.
  + reviewDate: Date of the review.

### 8. Discounts Collection

Manages promotional discounts for products.

* **Fields**:
  + discountId: Unique identifier for each discount.
  + productId: ID of the product associated with the discount.
  + productName: Name of the product receiving the discount.
  + discountPercentage: Percentage discount applied to the product.
  + startDate: Start date of the discount period.
  + endDate: End date of the discount period.
  + description: Text describing the discount offer.