**IFT 530 - Advanced Database Management Systems**

**Final Project Summary**

**Topic: Nike Sports Database Management System**

**Group 13**

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**1. Project Summary**

The Nike Sports Database Management System is designed to streamline and organize the operations of a Nike retail and logistics network. It facilitates efficient storage, retrieval, and management of data related to customers, vendors, product inventories, orders, and membership details.

This system ensures operational efficiency by:

* Tracking customer interactions and purchases,
* Managing supplier relationships,
* Maintaining real-time inventory,
* Processing orders accurately,
* And running Nike’s loyalty program effectively.

This system is especially useful for decision-making, demand forecasting, customer relationship management, and performance optimization across Nike's e-commerce and brick-and-mortar infrastructure.

**2. Table Descriptions and Structures**

**CUSTOMER**

The CUSTOMER table stores all relevant information about Nike customers. It includes unique identifiers, personal details, and login credentials. This table is vital for personalized services, order tracking, and communication. Proper customer data management improves customer satisfaction and loyalty.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Null/NOT Null** | **Constraint** | **PK** | **Purpose of the Column** |
| customerid | varchar | 20 | NOT Null | Unique | Yes | Stores the unique customer ID |
| password | varchar | 20 | Null |  | No | Stores customer password for login |
| firstname | varchar | 15 | NOT Null |  | No | First name of the customer |
| lastname | varchar | 15 | NOT Null |  | No | Last name of the customer |
| email | varchar | 30 | Null |  | No | Customer's email address |
| address | varchar | 150 | Null |  | No | Residential or shipping address |
| phone | varchar | 50 | Null |  | No | Customer's contact number |

**VENDOR**

The VENDOR table holds details about the product suppliers for Nike merchandise. This includes identification, location, and contact information. It supports traceability and effective communication for restocking and logistics.

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| --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Null/NOT Null** | **Constraint** | **PK** | **Purpose of the Column** |
| vendorid | varchar | 15 | NOT Null | Unique | Yes | Unique ID for each vendor |
| vendorname | varchar | 20 | NOT Null |  | No | Vendor name |
| password | varchar | 20 | Null |  | No | Vendor login password |
| address | varchar | 150 | Null |  | No | Vendor address |
| phone | varchar | 50 | Null |  | No | Vendor contact number |

**PRODUCT**

The PRODUCT table captures all merchandise information, including SKU, size, color, release date, and pricing. It enables tracking of new launches, product variations, and pricing strategies.

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| --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Null/NOT Null** | **Constraint** | **PK** | **Purpose of the Column** |
| productid | varchar | 15 | NOT Null | Unique | Yes | Product identifier |
| productname | varchar | 20 | NOT Null | Unique | No | Product name |
| category | varchar | 30 | Null |  | No | Product category (e.g., shoes, apparel) |
| size | varchar | 10 | Null |  | No | Product size variant |
| color | varchar | 20 | Null |  | No | Product color variant |
| release\_date | date |  | Null |  | No | Product release date |
| price | money |  | Null |  | No | Product price |

**INVENTORY**

The INVENTORY table monitors product stock across all Nike outlets and warehouses. It links each product with its vendor and tracks real-time availability.

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| --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Null/NOT Null** | **Constraint** | **PK** | **Purpose of the Column** |
| productid | varchar | 15 | NOT Null | FK | Yes | References product table |
| productname | varchar | 20 | NOT Null | FK | No | Product name reference |
| quantity | int |  | Null |  | No | Number of items in stock |
| vendorid | varchar | 15 | NOT Null | FK | Yes | Vendor who supplies the product |

**ORDERS**

The ORDERS table logs all purchase transactions, linking products, customers, vendors, and quantities ordered. It is essential for sales tracking and inventory forecasting.

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| --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Null/NOT Null** | **Constraint** | **PK** | **Purpose of the Column** |
| orderid | varchar | 15 | NOT Null | Auto increment | Yes | Unique order ID |
| productid | varchar | 15 | NOT Null | FK | No | Product ordered |
| vendorid | varchar | 15 | NOT Null | FK | No | Vendor fulfilling the order |
| customerid | varchar | 15 | NOT Null | FK | No | Customer placing the order |
| orderdate | datetime |  | Null |  | No | Date and time of order |
| quantity | int |  | Null |  | No | Quantity ordered |
| totalprice | money |  | Null |  | No | Total price of the order |

**MEMBERSHIP**

The MEMBERSHIP table supports Nike's loyalty program, tracking membership levels, earned points, and validity. This enhances customer engagement and reward systems.

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| --- | --- | --- | --- | --- | --- | --- |
| **Column Name** | **Data Type** | **Size** | **Null/NOT Null** | **Constraint** | **PK** | **Purpose of the Column** |
| membershipid | varchar | 15 | NOT Null | Auto increment | Yes | Unique membership ID |
| customerid | varchar | 15 | NOT Null | FK | No | Customer associated with membership |
| level | varchar | 20 | NOT Null |  | No | Membership tier (e.g., Silver, Gold) |
| points | int |  | NOT Null |  | No | Reward points earned |
| expdate | date |  | NOT Null |  | No | Membership expiration date |

**ER Diagram**

The Entity-Relationship (ER) diagram of the Nike Sports Database Management System includes the following relationships:

* **CUSTOMER**S have one-to-many relationships with **ORDERS** and **MEMBERSHIP**.
* **VENDOR** has one-to-many relationships with **INVENTORY** and **ORDERS**.
* **PRODUCT** has one-to-many relationships with **INVENTORY** and **ORDERS**.
* **INVENTORY** references **PRODUCT** and **VENDOR**.
* **MEMBERSHIP** references **CUSTOMER**.
* **ORDERS** references **CUSTOMER**, **PRODUCT**, and **VENDOR**.

