7.13: SA2 - Task 2: User Privileges for Millie's Musical Emporium Database

Mina R.R. Ghabrial (239758130)

University of Sunderland

CETM75 - Secure Database Systems

Randa Almadhoun

December 13, 2024

Table of Contents

This document outlines the user privileges for Millie's Musical Emporium database as part of Task 2 of CETM75 - Secure Database Systems. Two user roles were defined:

Admin: Responsible for full database management, including creating, updating, and deleting records.

Customer: Limited access to view and modify specific information related to their profile and purchases.

The privileges were designed to ensure system functionality while maintaining data security and preventing unauthorised access. The following sections detail the assigned privileges, SQL GRANT commands, and the rationale for each table.

Customers Table

Privileges

Admin
  - ➔ Full control (SELECT, INSERT, UPDATE, DELETE).
  - ➔ **Explanation:** Admin needs to manage all customer data, including creating, updating, and deleting customer records.

Customer
  - ➔ **SELECT:** View their own details (general privilege to view the table).
  - ➔ **UPDATE:** Modify specific fields like address and telephone.
  - ➔ **Explanation:** Customers should be able to view their own records and update their personal information but should not have access to other users' data or full table control.

Explanation

  - ➔ Admin can fully manage the customers table, necessary for overall system administration.
  - ➔ Customers can only view the table (SELECT) and update their address and telephone fields.

Commands

```
Unset
-- Admin privileges for the customers table
GRANT ALL PRIVILEGES ON TABLE customers TO admin;

-- Customer privileges for the customers table
GRANT SELECT, UPDATE (address, telephone) ON TABLE customers TO
customer;
```

Products Table

Privileges

<u>Admin</u>

➔ Full control (SELECT, INSERT, UPDATE, DELETE).

➔ **Explanation:** Admin manages product inventory, adding and removing products, and updating stock levels.

<u>Customer</u>

➔ **SELECT:** View available products.

➔ **Explanation:** Customers only need to view product details to make purchases. No modification rights.

Explanation

➔ Admin can fully manage the products table, required for inventory control.

➔ Customers only have SELECT access to browse available products.

Commands

```
Unset
-- Admin privileges for the products table
GRANT ALL PRIVILEGES ON TABLE products TO admin;

-- Customer privileges for the products table
GRANT SELECT ON TABLE products TO customer;
```

Stores Table

Privileges

Admin

➔ Full control (SELECT, INSERT, UPDATE, DELETE).

➔ **Explanation:** Admin can manage store details and add/remove stores.

Customer

➔ **SELECT:** View store information (e.g., store locations).

➔ **Explanation:** Customers can only view store information.

Explanation

➔ Admin can manage all store-related data.

➔ Customers only need SELECT to view store details like locations.

Commands

```
Unset
-- Admin privileges for the stores table
GRANT ALL PRIVILEGES ON TABLE stores TO admin;

-- Customer privileges for the stores table
GRANT SELECT ON TABLE stores TO customer;
```

Purchases Table

Privileges

Admin
→ Full control (SELECT, INSERT, UPDATE, DELETE).
→ **Explanation:** Admin needs to manage all purchase records, including adding and modifying purchase entries.

Customer
→ **SELECT:** View their purchase history.
→ **INSERT:** Make a new purchase.
→ **Explanation:** Customers should be able to view their own purchase records and add new purchases.

Explanation

→ Admin has full access to manage purchases.
→ Customers have SELECT to view their purchase history and INSERT to make new purchases.

Commands

```
Unset
-- Admin privileges for the purchases table
GRANT ALL PRIVILEGES ON TABLE purchases TO admin;

-- Customer privileges for the purchases table
GRANT SELECT, INSERT ON TABLE purchases TO customer;
```

In conclusion, the privileges were carefully designed to meet the functional and security requirements of Millie's Musical Emporium. Admin users have full control over all tables, enabling effective database management. Customer privileges are restricted to viewing and modifying their own data, ensuring data security and integrity. The SQL GRANT commands and explanations provided demonstrate a clear and logical approach to privilege assignment.