



Because the Point of Sale system helps stores and employees manage inventory and transaction history, a well-structured and organized database is the main priority. Three different databases are implemented, all including two tables.

Accounts Database

The secure login service is linked to an account database that holds sensitive information about employees. The two tables include:

employees

This table holds all information regarding an employee's account. Inside is a username variable and a hashed version of the employee's password for extra security.

It also holds the employee's unique identification number, as well as their position in the store.

role_permissions

Because certain positions have different levels of access in the system, this table manages and prevents employees abusing permissions. Each employee role is represented by an integer (i.e. cashiers are 1, store managers are 2) stored in the *role_id* variable. Based on the *role_id*, the employee gains permission to various functions stored inside the *permissions* variable (i.e. *view_inventory*, *view_transaction*).

Transaction Database

Since transaction processing is one of the most important functions of our system, customer privacy is being handled hence why transaction data is stored separately in its own databases and tables. The two tables include:

transactions_history

The employee handling the transaction will be stored in this table using their identification number. This also holds information like the exact date and time the transaction took place, the total amount and what payment method is used.

transaction_items

This table focuses on the individual items of the transaction. The transaction and specific item's identification number is stored along with the price of one quantity. The quantity of items bought in the same transaction is stored which easily transfers to the inventory database for updating and management.

Inventory Database

Another main function of the Point of Sale system is organization and management of the store's inventory. The two tables include:

items

This table also focuses on the individual item. Each item is represented by a unique identification number, and descriptions of the items are held in this table like the name, short description, price and which category it falls under for filtering purposes.

store_stock

Different stores will have different items in stock so stores are distinguished by identification number. This is stored in the database for specification. Inside will be the

quantity of each item and the corresponding identification number, as well as the last time the quantity was updated for accuracy purposes.

The database management strategy chosen for the database will be SQL. SQL is the preferred method as structured data is being worked with. SQL is also easy for maintenance and is used universally. Lastly, SQL has better performance with large data growth overtime, which is key for the numerous items being added to the inventory. Although SQL seems optimal, there is a loss of data type flexibility because of our structured data.

Three databases were chosen based on the system's different functions. This is useful for organization, at the cost of time management as managing a single database would be quicker than three.