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420-411-VA Ecommerce Section 03

VANIER
CÉGEP/COLLEGE

Faculty of Science and Technology

420-436-VA | System Development

Store Management Program Report

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Feature Suite

Our store management program serves as an intuitive tool to track and manage several aspects of the stores' day-to-day workflow. We offer utilities for tracking stock, employee shift scheduling, order tracking, earnings and profit margins, as well as account management. Despite being designed for business-to-business use, all actions are tied to user access level and are split between administrator and employee users. Admins are permitted unlimited access among all program features, while sensitive information and actions are blocked for employee users.

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Features:

Login:

The login makes sure that the credentials match with the database, to proceed with the 2FA. After 2FA checks if the OTP is correct, the user creates a token and a session.

Two-Factor-Authentication:

Using Google Authenticator, the user can protect their account with OTP's that refresh every 30 seconds.

General Features:

Theme Change:

To ensure a good user experience at night, we made sure to add a dark theme. This helps people who work the night shift.

Dual-Language System:

To ensure that all citizens of Canada can use our application, we've made sure that our project can handle the two official languages of Canada (French and English).

Side bar & Top bar:

These two bars are designed to enhance the flow and experience of our project. The side bar being there to facilitate the flow and the top bar to enhance the experience by having our language options and our theme choice.

Search, Filter, Sorting:

Throughout the website lies filters. These filters help our users find what they need without scrolling endlessly through pages of logs. The different types of filters are: Searching, Ascending & Descending and for some Category filtering. These features help easily locate items and facilitate app use.

Products use Search, Category, Ascending and Descending.

Categories use Search, Category, Ascending and Descending.

Orders use Search, Category, Ascending and Descending.

Suppliers use Search, Ascending and Descending.

Users use Search, Ascending and Descending.

Reports use Ascending and Descending.

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User Guides:

Guides are set throughout the project to help our users navigate the application easily. They are located at the login and in the sidebar. These can help new users and old users who forgot how to use our application. The people can view the guide based on their role and on their current language.

Products

Admin: Full CRUD, restore, order

Employees: read, update, delete, restore, order

The products table is a display for managing product stock, which comes in the form of individual product entries which are generated by the admin. It shows the general users stock quantity, but also details important to admins, such as individual from suppliers, the selling price in store, as well as selling price with tax (calculated based on the category of a given item). Additionally, each item entry will display a certain depending on the stock remaining, which is dependent on the current stock compared to expected stock amount. Items which have less than half the expected amount in store will display yellow, and items which are completely out will show red. All store items will have edit and add to cart icons. Adding an item to the cart will create an entry in the Orders table. Each field header has the option to sort all items in ascending or descending order of the given field. Selecting the same option on a different field will override the current sort and apply the newly selected one.

Above the table, there is an array of options: A search bar that allows users to find items by name, a category filter for searching items among a specified category, an add entry option (only for admins), and a delete option which will hide all items which have been selected. Apon hiding an item from the view, it can be restored through the “View deleted” menu.

Orders

Admin: Full CRUD

Employees: create

The orders table acts as a shopping cart for tracking items that need to have stock replenished. Adding entries from this table is done through the cart icon in products view. Entries in this table consist of the same product name and category from their counterpart in the product table, as well as order date and quantity to order. Adding an entry into orders will auto-generate a quantity based on the amount missing to reach the desired stock amount. The quantity can be edited by simply clicking on the amount number. All changes made must be saved by clicking the save icon on the options array above the table.

The options are similar to the ones in products view, featuring the search bar and category filter, as well as the option to delete a selection of items, but with the addition of the save changes icon to save adjustments made to all items in the quantity field. Another thing to mention is that instead of

hiding entries that are deleted, the ones in order are all permanently deleted, since there is no need to hold on to items which will be flushed out and replaced so often.

Categories

Admin: Full CRUD, restore

Employees: No access

Categories table is used primarily to organize and filter products when searching. Categories each have a field to represent tax, which is used to calculate the price including tax for product entries.

The option array above the table features the same options as products but without the filter for categories. Those being the search bar, add new, and hide selection. Hidden items can be accessed through the “View Deleted” option and restored.

Suppliers:

Admin: CRUD, Restore

Employee: No Access

This page serves as a reminder to the admins of who they get their supplies from. Here they can add new suppliers, delete suppliers they don’t need and edit their information. This helps our admins keep track of supply and demand easily by being able to find a supplier and calling them.

Shift:

Admin: CRUD

Employee: Read only

The shift table is used to keep track of employees’ shifts. The page itself is simple, it’s a table divided vertically by the days of the week, and horizontally by shift time. The admins can delete, update, read and add people on the schedule. While the employees can only see the schedule itself and cannot interact with it whatsoever.

User:

Admin: CRUD

Employee: No Access

Here the administrators can view their employees. They can see who has access to the program and monitor their access either by changing their role or deleting the user permanently. The admins cannot change their own role, nor change their fellow administrators without the other admin’s password. Here the admins can create users, edit their roles, delete them and see them.

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Report:

Admin: CRUD, export to PDF, restore

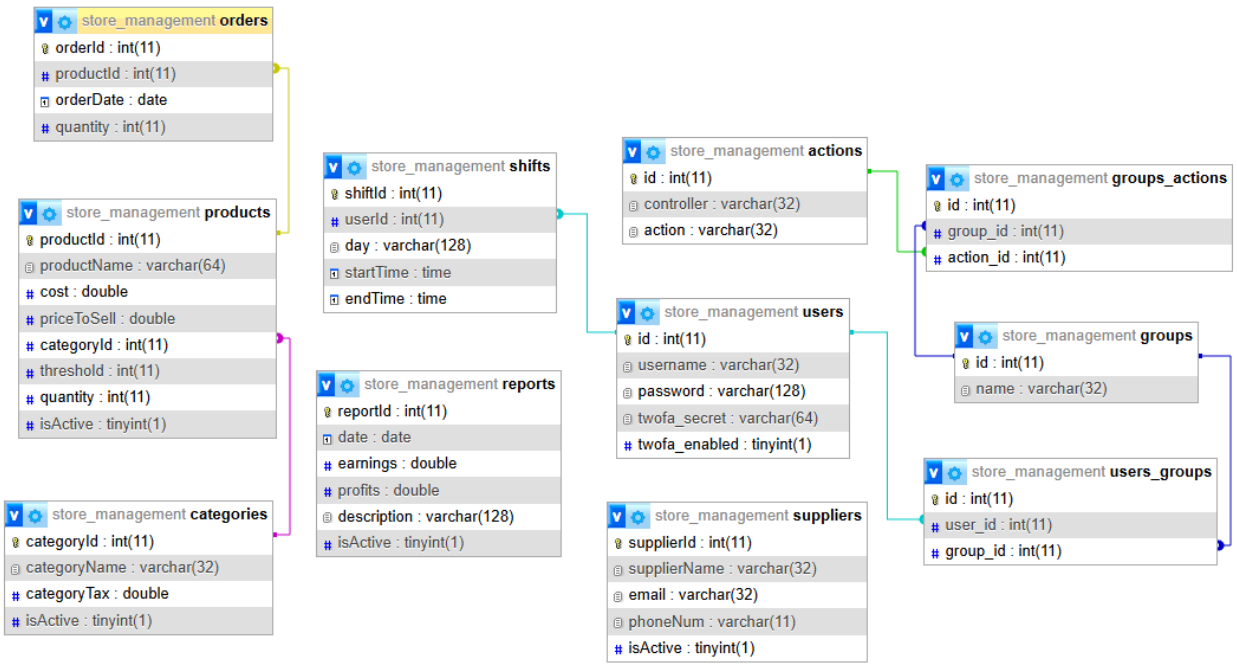
Employee: No Access

The reports table is strictly for admin to transcript their earnings from the register. The admin can add, update, read and delete reports. When the user wants, they can export the reports to a pdf file. This helps our users to save a certain number of reports for specific reports like daily, weekly or yearly. If the user wants, they can delete reports, if by luck they delete the wrong one, they can go to the view deleted reports and restore a report.

Settings:

The setting page is a page that allows to update your user credentials. Every user has access to this page regardless of if you are an Employee or an Admin. You can also logout from your account from Settings.

ERD Diagram



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The StoreManagementSystem has a database of 11 tables. The database allows the system to make Inventory management, user management, shift management and user rights management.

Product Table:

To start off, the product table has 9 fields,

- productId (int, Primary Key)
- productName (varchar)
- cost (double)
- priceToSell (double)
- categoryId (int)
- threshold (int)
- quantity (int)
- isActive (tinyint(1))

In the Product table, the categoryId is a foreign key to the Category table because each product will have a category. The isActive column is for the delete function which won't delete. The threshold field is an amount needed to be considered in full stock.

Orders Table:

The Orders table has 4 fields,

- categoryId (int, Primary Key)
- categoryName (varchar)
- categoryTax (double)
- isActive (tinyint(1))

In the Orders table, the productId is a foreign key to the Products table because each order contains a specific product. This allows the user to track which products are being ordered like a shopping list.

Categories Table:

The Categories table has 4 fields,

- categoryId (int, Primary Key)
- categoryName (varchar(32))
- categoryTax (double)
- isActive (tinyint(1))

The Categories table uses `isActive` for soft delete functionality, like the Products table. The `categoryTax` field allows for category-specific tax rates to be applied to products, since some

categories have different or no taxes. For example, there is no tax on eggs since it is a food item, so the categoryTax will allow to specify the amount of tax on a product.

Users Table:

The User table has 5 fields,

- id (int, Primary Key)
- username (varchar(32))
- password (varchar(128))
- twofa_secret (varchar(64))
- twofa_enabled (tinyint(1))

The Users table includes two-factor authentication support with `twofa_secret` to store the authentication key and `twofa_enabled` to indicate whether 2FA is active for the user account.

Shifts Table:

The Shift table has 5 fields,

- shiftId (int, Primary Key)
- userId (int)
- day (varchar(128))
- startTime (time)
- endTime (time)

In the Shifts table, the `userId` is a foreign key to the Users table, associating each work shift with a specific employee.

Actions Table:

The actions table has 3 fields,

- id (int, Primary Key)
- controller (varchar(32))
- action (varchar(32))

The Actions table appears to follow an MVC pattern, storing controller-action pairs that represent system operations or permissions that can be assigned to user groups.

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Groups Table:

The groups table has 2 fields,

- id (int, Primary Key)
- name (varchar(32))

The Groups table defines user roles or permission groups that can be assigned to users.

Groups_Actions Table:

The groups_actions table has 3 fields,

- id (int, Primary Key)
- group_id (int)
- action_id (int)

This is a junction table implementing a many-to-many relationship between groups and actions. The `group_id` is a foreign key to the Groups table, and the `action_id` is a foreign key to the Actions table. This allows specific permissions (actions) to be assigned to different user groups.

Users_Groups Table:

The users_groups table has 3 fields,

- id (int, Primary Key)
- user_id (int)
- group_id (int)

This is another junction table implementing a many-to-many relationship between users and groups. The `user_id` is a foreign key to the Users table, and the `group_id` is a foreign key to the Groups table. This allows users to be assigned to multiple groups, each with different permissions.

Reports Table:

The reports table has 5 fields,

- reportId (int, Primary Key)
- date (date)
- earnings (double)
- profits (double)
- description (varchar(128))
- isActive (tinyint(1))

The Reports table tracks financial data with timestamps, allowing the system to generate periodic financial reports. The `isActive` field enables soft deletion of reports.

Suppliers Table:

The suppliers table has 5 fields,

- supplierId (int, Primary Key)
- supplierName (varchar(32))
- email (varchar(32))
- phoneNum (varchar(11))
- isActive (tinyint(1))

The Suppliers table maintains contact information for product suppliers. The `isActive` field enables soft deletion of supplier records when they are no longer active.

The Relationships in ERD:

- Products to Categories: One-to-many relationship where each product belongs to a category (categoryId).
- Orders to Products: One-to-many relationship where each order contains a specific product (productId).
- Users to Shifts: One-to-many relationship where each shift is assigned to a user (userId).
- Users to Users_Groups: One-to-many relationship mapping users to their assigned groups.
- Groups to Users_Groups: One-to-many relationship mapping groups to their assigned users.
- Groups to Groups_Actions: One-to-many relationship defining what actions each group can perform.
- Actions to Groups_Actions: One-to-many relationship mapping actions to different groups.