Database Design

Jesse Lindahl

Database Overview

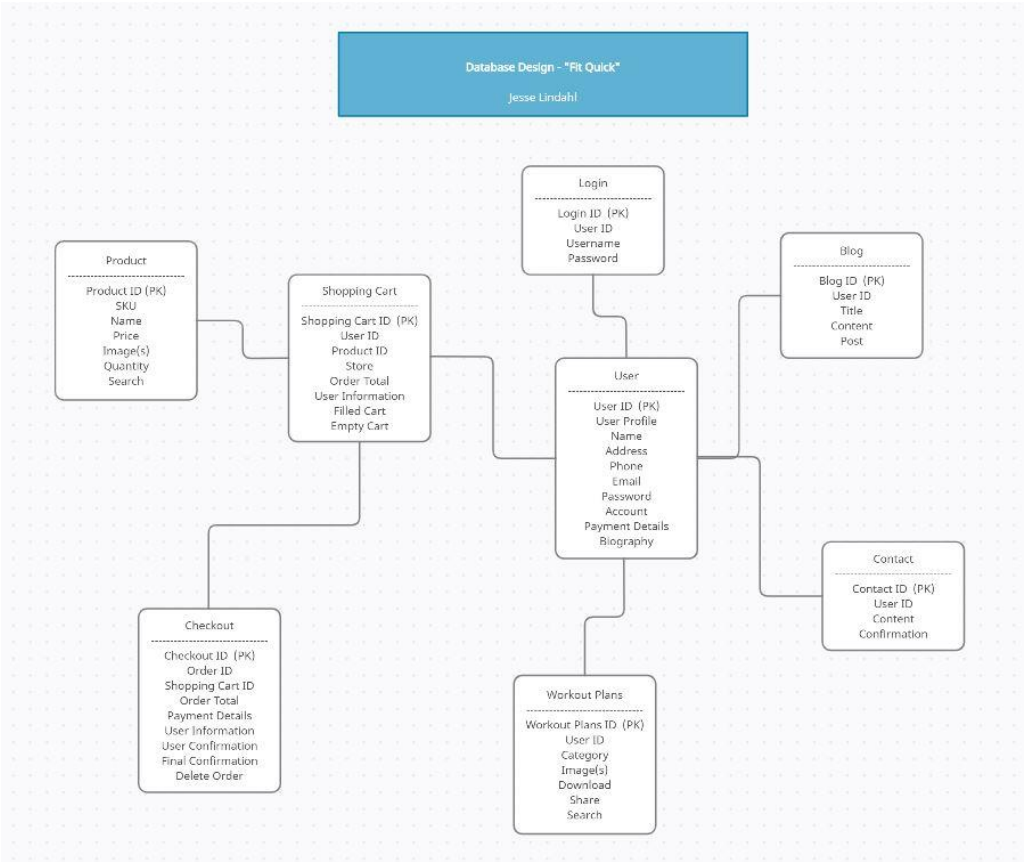
I am currently planning to incorporate a PostgreSQL database for my “Fit Quick” capstone web application. My plan for this application is for it to have a number of many-to-many relationships, so it made sense to me to look at utilizing a relational database like PostgreSQL for this project. The application will include a number of features that will rely on incorporating a handful of many-to-many relationships (i.e. ecommerce storefront, blog posting, account creation, search functionality, etc.) to give the users a connected experience across the application. My hope is that these features will play off of each other in a way that is very easy to use from a user perspective and take full advantage of the many-to-many relationships I will set up with a PostgreSQL database.

I am planning on connecting the frontend of my web application to the PostgreSQL database using the ‘pgAdmin 4’ application. pgAdmin 4 is a web-based application designed for PostgreSQL databases that will allow me to set up the connections within my applications backend freatures through a non-terminal-based UI. The pgAdmin 4 application seems like it will take a lot of the guess

work out of getting my database set up and forming the relationships between the various features/tables I will be looking to set up.

Entity-Relationship Diagram

Pictured below is the Entity-Relationship Diagram for the PostgreSQL relational database I will be implementing into my web application. This project will have a number of many-to-many relationships between the user/user account and the various features that make up the application to allow key data points to be recalled when needed. The various columns in the diagram all center around the user in this instance and should allow for a very seamless experience while logged into the application.



User

The ‘User’ column will be a key function for the application to provide additional connectivity across the other features. The ‘User’ column will primarily be used to store the user’s personal data so it can be called back on later and used to execute tasks for other features within the application. The users’ full capabilities will be utilized once they have created personal account and logged into the application. They will be able to store their personal data in a user account and be able to utilize this information when it will be needed for key functions within the application. An example of this columns purpose would be having a user’s name and email stored for whenever they create a blog and have these details preloaded into their post.

Login

The ‘Login’ column will serve as a starting point for the application user and will provide access to the various other features that make up “Fit Quick”. The user will be prompted when the application is first deployed to either login to an existing account that they previously created or create a new one by entering in their user credentials.

If a user is logging into an existing account, they will be prompted to provide their username and password. If both the username and password match an existing account, the user will be granted access to the application. If the username and password do not match an existing account an error message will be displayed to the user.

For user’s looking to create a new account, they will be given the option to ‘Create a new account’ from the login screen. When this option is selected the user will be taken the portal where they will be prompted to provide their personal account information (i.e. username, password, name, phone

number, email address, etc.). Once all these credentials have been established and confirmed a new account will be created for this user to access the application with.

Product

The 'Product' column will serve as hub for any item or service a user is looking to purchase through the application. The user will be able to access and search for the products listed on the application from the 'Store' tab listed on the "Fit Quick" dashboard. Items and services will be listed in rows/categories. Each item will have a list price and description on the services that it provides as well as a thumbnail image to provide users with a visual aid. The users will be able to add each list item to a new or existing order and adjust the quantities for however many units they would like to purchase.

Shopping Cart

The 'Shopping Cart column will serve as the storage area or hub for all the order details a user has compiled prior to checkout. The shopping cart will store all the inputted product selections a user is looking to order and provide details like the quantity and pricing for each item that has been added to this column. When viewing the shopping cart that has an order loaded into it, the user will be able to update quantities and add/remove products that they may no longer wish to purchase at this time. The 'Shopping Cart' column will also pull in the user's personal data that is relevant to the checkout process to provide transparency on these details prior to checking out (i.e. payment method, address, email address, etc.). Additionally, if the user has added no products to an order the shopping cart will simply provide a message letting them know no products have been selected for purchase.

Checkout

The ‘Checkout’ column will serve as the final step in the ordering process for the ecommerce portion of the application. Once the user has confirmed all of their order details within the shopping cart, they will be taken to a final confirmation window with all of there pricing, product and personal information displayed. The user will be given the choice to proceed with the checkout from here or return back to the shopping cart to make additional changes prior to providing a final confirmation. Once the order has been confirmed by the user, they will receive a confirmation message from the application that the order has been processed.

Workout Plans

The ‘Workout Plan’ column will serve as an entry point for users looking to download, search and view specialized workout plans that have been uploaded to the application. Based on whatever muscle group or exercise type a user is looking to find a plan for, they will be able to utilize a search bar to find walkthroughs with matching key words and either view or download them directly from the application. Each plan will include a thumbnail, title on what functions it primarily serves and options to either download or view the workout. This column will work similar to the ‘Store’ tab in this instance, but without any of the ecommerce/checkout features included for this process.

Blog

The ‘Blog column will serve as the primary means for the users to share messages and posts on the home page of the application. From the home page of the application, there will be a bracketed notepad section where users will be able to create their own blog post content and share it directly with other users. Users will be able to add titles, attachments, write-ups, links and similar content to their

blog posts and share them directly on the home page for other user accounts to see when logged in to the application. Users will also be able to comment on each other's posts to provide additional content or answer questions that may have been asked.

Contact

The 'Contact column will serve as a means for application users to send direct messages to the administrator (myself) incase there are any issues that need to be resolved. This column will likely resemble the blog posting feature as it will be a bracketed notepad where the user can enter in a message and provide their name and email address they can be reached at for a resolution. The intention for this column is the have any message that is inputted in the 'Contact' tab to be sent directly to a personal admin email address that can be responded to at a later date. This column will be likely be more straightforward when compared to its counterparts.