2703ICT Web Application Development

Foodies – Documentation

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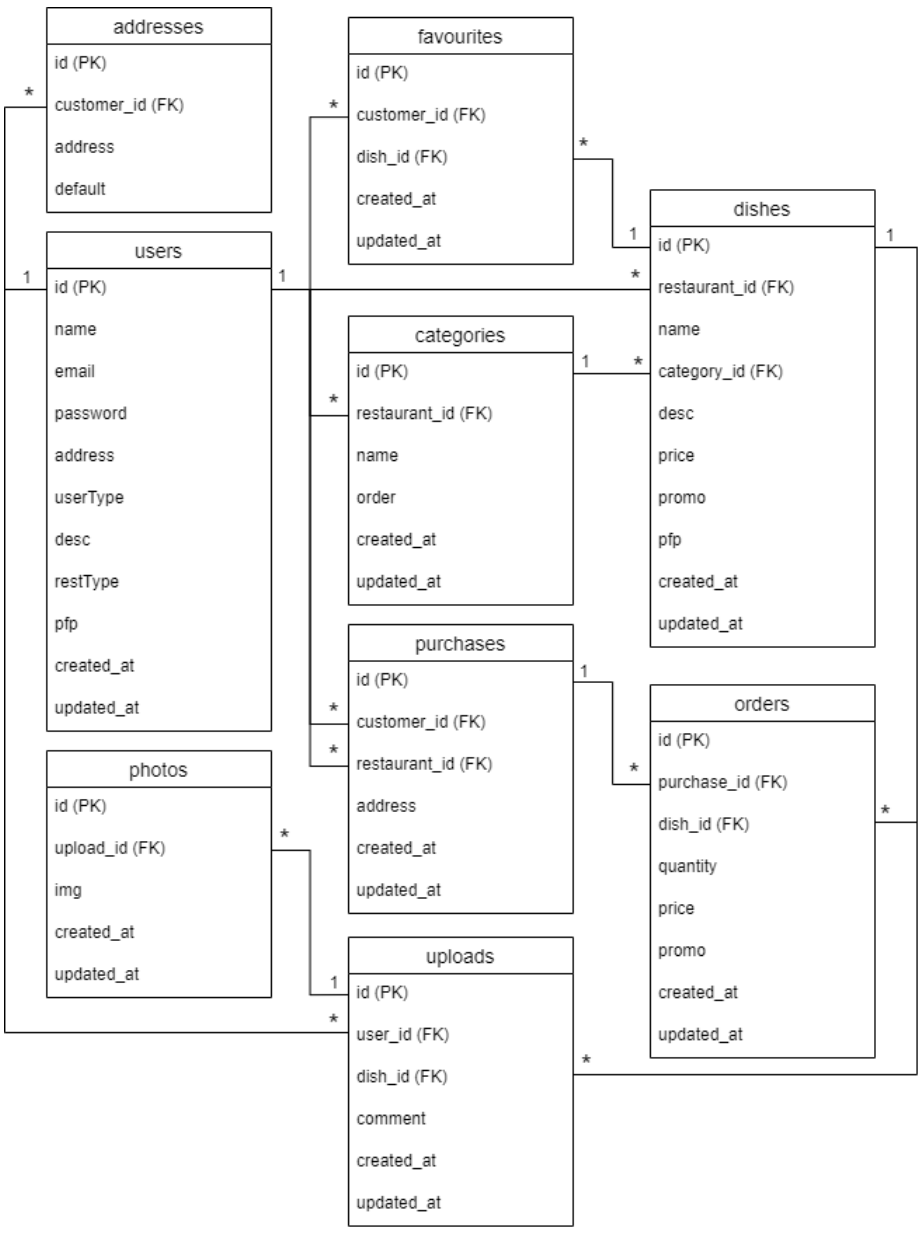
Database Design



Reflection

Foodies is the name of the food ordering website I developed for this assignment. After jotting down the features and requirements of the website, I constructed an ER diagram to outline the structure of the database and the relationships between the tables. I also designed and sketched the website interface layout. After the planning, I began to build the website. Although it seemed easier to develop the website as we are now allowed to apply the Laravel's features into the assignment, there were a lots more criteria and factors to consider as most of these features are related to each other, and also due the challenging advanced requirements.

I had decided to work on the basic requirements first as they could be considered as my foundation to work on the advanced requirements. It was a lot of work to tackle the route protection since I had quite a number of routes and each of them was only accessible to a particular user types, which made it confusing when working on the accessibility of the buttons and forms for each user type. To solve the problem, I made a list of accessible features for each user type and implement them accordingly.

Next, the feature of recommending dishes to customer was also a challenging problem. Though it wasn't easy, I actually enjoyed working on the implementation. I figured out I had to find the similarities between the favourite dishes and the other dishes. The more similarities they had, the higher the probability of the dish being chosen to recommend to the customer. Beside similarities, I also thought that dishes on discount were good choices for recommendation. And this was how I made my conclusion and implemented the feature.

Compared to the previous assignment, I feel that this assignment is the kind of projects that are more common and more likely to be developed in general, which is a good experience for me as I somehow get to learn about the implementations. I will then be able to apply all the knowledge in similar projects in the future.

Features & Requirements

Features/Requirements	Description
Migration & Seeder	Migration is implemented for creating database tables. Seeder is implemented to insert sufficient test data for functionality testing.
Navigation Bar	Allow user to navigate pages in website easily.
Register Button (User Registration)	User can register either as a restaurant owner or a customer via the Register button on the right hand side of the navigation bar from any page. Name, email, password must be provided for registration. Registering as a restaurant owner must also upload a photo as a profile picture. Restaurant owner is encouraged to provide type and description of restaurant but these are optional.
Login/Logout Button (User Login & Logout)	Registered users can login via the Login button on the right hand side of the navigation bar from any page. Once user successfully logged in, the Register and Login buttons will be replaced by the username and the user type. Clicking on the username will trigger a dropdown menu to appear. User can log out via the Logout button in the dropdown menu.
Cart Button (Trolley Icon)	Only for logged in customer. Customer can show and hide the off-canvas that contains the contents of the cart by clicking on the button.
Favourite Button (Heart Icon)	Only for logged in customer. Clicking on the button redirects customer to the Favourite Dish Page.
Order List Button (List Icon)	For restaurant owner and customer. Clicking on the button brings user to the Order List Page.
Home Page	All users, logged in or not, are able to access this page. Display a list of registered restaurants. Pagination implemented on this page. User can click into any restaurant to see their menu. Display a list of recommended lists only for logged in customers who have five or more dishes added into their Favourite Dish List.
Restaurant Details Page	Display the information and the menu of the restaurants. The name, price and description for each dish is also displayed. Clicking on one of the dishes will bring user to the Dish Details Page. New Dish button available for approved restaurant owner to add new dish to the menu. An alert message box will be displayed only for the registered restaurants that are yet to be approved by the admin.
Add Dish	Only approved restaurants are able to add new dish to their menu via the New Dish button. User must provide a name and price where the name must be unique only for the restaurant's menu whereas the price must be a positive value. A dish must also have description but it can be left empty. At least one image must be uploaded for the new dish.
Dish Details Page	Display the information (name, price and description) of selected dish. A Review Section under the dish's details to display all reviews and uploaded photos for the dish. The name of uploader of each review is also displayed. Edit and Delete buttons available for restaurant owner to update or delete the dish. Favourite, Order Now and Add to Cart buttons available for customers to add or remove dish from Favourite Dish List, place order, or add dish into cart. Post Review button available for any logged in user to post reviews and upload photos for the dish.
Update Dish	Approved restaurants can update existing dishes via the Edit button. Everything except the name of dish is editable.
Delete Dish	Approved restaurants can delete existing dishes via the Delete button.
Purchase	Only logged in customers can purchase dishes either via the Order Now button in the Dish Details Page or the Check Out button in the cart off-canvas.
Single Dish Purchase	Customer can choose to purchase a dish immediately. Clicking on the Order Now button will bring user to the Order Confirmation Page. This page displays the order details. Customer can change the delivery address or add a new delivery address via the Home Icon button. Clicking on the Place Order button will confirm the purchase and tells customer that the purchase is successful.

	Clicking on the Add More Dishes button will not process the purchase but add the dish into cart. Customer can browse the menu and add more dish later.
Multiple Dishes Purchase	Customer can add multiple dishes from the same restaurant into a cart. Any attempts to add dish from different restaurant or add the same dish twice will trigger warning message. Every time a dish is added to the cart, the cart off-canvas will show up and display the restaurant details, list of dishes added, the quantity and price of each dish, and the total price. Customer is able to remove unwanted fishes from the cart by clicking on the cross button beside each fish. Customer can empty the cart by clicking on the Empty Cart button or place order via the Check Out button.
Order List Page	Restaurant Owner: Display list of orders placed by customers on their restaurants. Customer: Display list of orders that the customer has placed.
Favourite Dish Page	Only accessible for those who logged in as a customer. Display all dishes in the customer's Favourite Dish List. Pagination implemented on this page. Clicking on the dish will bring customer to the Dish Details Page of the selected dish.
Top 5 Popular Page	Display the top five most popular (most ordered) dishes in the last 30 days. The number of orders for each dish are also displayed. Clicking on the dish will redirect user to the Dish Details Page for that particular dish.
New Restaurants Page (Administrator)	Only accessible for user who logged in as admin. Display a list of newly registered restaurant. Admin can approve these new restaurants via the Approve button.
Promotion	Restaurant can choose to run promotion for on dishes by specifying the percentage of discount when creating a new dish or updating the details of the selected dish. The discount will only applied to the dish if the percentage of the discount is greater than zero. The original price, price after discount and percentage of discount will displayed in the dish details.
Recommendation Feature	A list of recommended dishes is generated and displayed to any logged in customers who have five or more dishes added into their Favourite Dish List. **<u>Implementation</u>** 1. Retrieve the list of favourite dishes of the customer from the database 2. Summarize the number of times each restaurant type and dish category appears in the list and set these numbers as their respective points. For example, if there are two dishes sharing the same restaurant type, that particular restaurant type will then get two points. 3. Calculate the points for every dish that is not in the list: a. If the restaurant type of the dish matches one of the restaurant types in the Favourite List Dish, the dish get points corresponding to the restaurant type. b. Same applies to the its dish category. However, dish category has a lower point weight since different restaurants may have the same dish category name. c. Compare the name and description of the dish to the names and descriptions of dishes in the list. The dish gets point whenever a matching word is found. The point is determined by the number of times the matching word appears in the dish's description. d. Dish gets extra points if it is in promotion. e. The points are summed up. 4. Sort the dish in descending order bases on the points they get. The top 5 dishes that have the most points are selected to be recommended to the customer.
Input Validation	Implemented for all input on the server side. Once invalid input detected, appropriate error message is displayed, along with the previously entered value.
Security & Route Protection	Authentication middleware applied to the whole website. Only the routes to Home Page, Restaurant Page and Dish Page are accessible for all users, logged in or not. The rest of them required login authentication and are only open for certain users based on their user type. Input sanitization implemented in client-side and also through Eloquent when performing database operations.
ORM/Eloquent	Implemented to perform database operations.