

lightwait

Final Report

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lightwait

Product

lightwait is an ordering solution for SMU Dining at Mac's Place. It allows the customers of Mac's Place to order through a mobile app, on their own computers, or through a local kiosk in Mac's Place. However, mobile users are notified when their order is complete. Mac's Place chefs can view a digital queue of orders, bumping orders from the queue as they are finished. Administrators of Mac's Place have access to all the information from the digital orders, giving them access to valuable analytics.

Team

We are Jimmy and the Dragons, and we believe that we can make the Mac's Place experience more enjoyable for everyone. We want to make a product that is comfortable, consistent, and highly usable for all. Here is our team:

Adrian Hernandez - Database Management

Patrick Leopard II - Primary iOS Developer

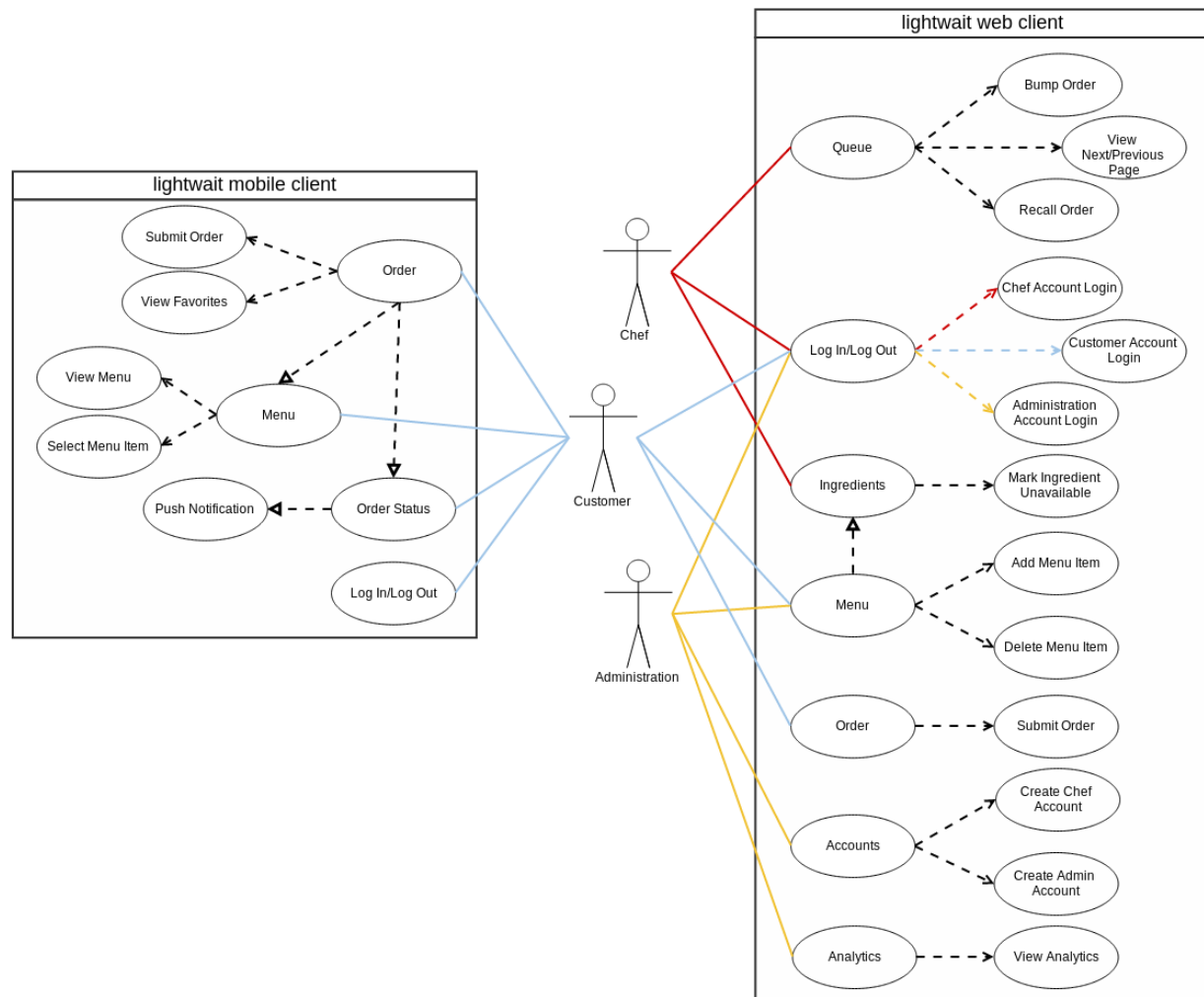
Luke Oglesbee - Primary Web Stylist

Ryan Sligh - Layout and Javascript Developer

Joe St. Angelo - Javascript and JQuery Manager

Alec Siems - Middleware Development

Use Case Diagram



Features

Customer

lightwait customers can place an order through either our web or mobile app. Our mobile app will alert you when your order is bumped, and you can save your favorite orders on the mobile device.

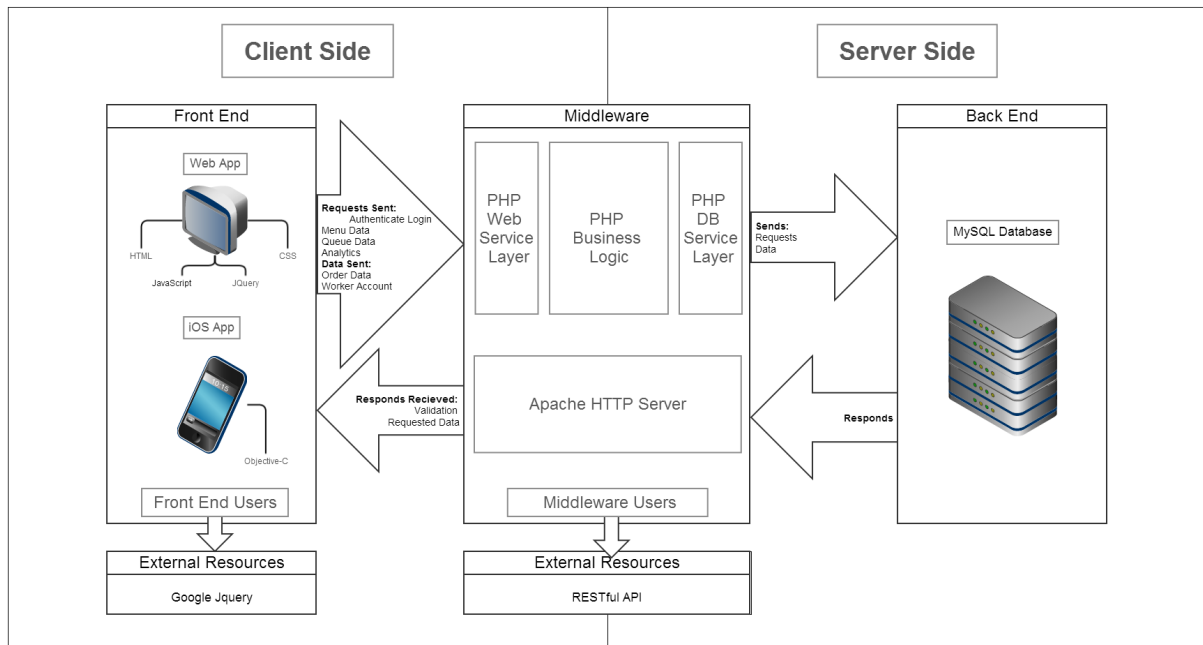
Chef

Orders sent by the customers are displayed neatly in a queue with a sidebar showing the total number of bases ordered to allow the chefs to quickly see what needs to be placed on the grill. When the chefs finish an order, they can bump order off the queue, and *lightwait* will automatically notify the customer that their order is finished. If the kitchen runs out of, or restocks, an item, the chefs can easily make that item unavailable or available on the menu. The chef's interface is designed to minimize the input needed to perform any action to the bare minimum to allow for more efficiency in busy work environments.

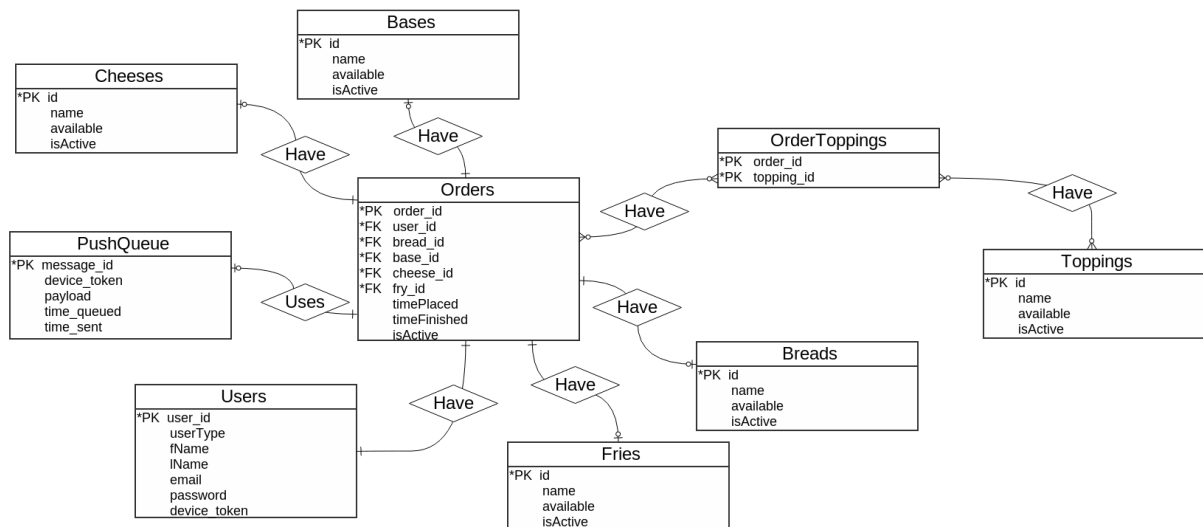
Administrator

Administrators have the capability to manage both the menu and personnel in *lightwait*. They can add or delete items as well as make an item temporarily unavailable for customers to order. They can also make new chef or administrator accounts, and view analytics for orders.

Software Architecture



Database



Database Model (for Data Dictionary see Appendix)

User Interface

lightwait

Email

Password

Login

First Name


Last Name

Email

Password

Confirm Password

Create Account



Are you tired of waiting around in Mac's Place just to pick up a burger and some fries? Are you exhausted from having to be in a public place for longer than 2 minutes? Are you a professor who is examining a website made by some students in order to judge whether they are competent in the field that you are teaching? Then we have the product for you!

Lightwait is the premier ordering service for both customers and managers of Mac's Place! We bring you the greatest part about Mac's Place, without the literal worst thing in the world! Waiting and doing nothing! Now you can wait and do nothing in the comfort of your own residence! Just place an order and be on your merry way!

Home - Users can login or create an account.

lightwait

orderlogout

Current Email

New Email

Confirm Email

Edit Email

Current password

New password

Confirm password

Edit Password

Edit Account - Users can change email or password.

| lightwait | | | | availability | logout |
|--|---|---|--|--|--------|
| John Pinkerton Black Bean Texas Toast American Lettuce, Jalapeno, Tomato, Bacon, Pico de Gallo, Pineapple click to bump | John Pinkerton Hamburger White Pepper Jack Lettuce, Jalapeno, Tomato, Bacon click to bump | John Pinkerton Hamburger White Pepper Jack Lettuce, Jalapeno click to bump | John Pinkerton Turkey Wheat Swiss Lettuce, Jalapeno, Tomato, Bacon, Pico de Gallo, Pineapple, Pickle, Onion, Avocado Mayo click to bump | Hamburger 5 Grilled Cheese 2 Veggie 2 Black Bean 3 Chicken 3 Turkey 5 | |
| John Pinkerton Turkey Texas Toast No Cheese Lettuce, Jalapeno click to bump | John Pinkerton Turkey White Pepper Jack Lettuce, Jalapeno, Tomato, Bacon, Pico de Gallo, Pineapple, Pickle click to bump | John Pinkerton Turkey Wheat Pepper Jack Lettuce, Jalapeno click to bump | John Pinkerton Veggie Texas Toast Swiss Lettuce, Jalapeno, Tomato, Bacon, Pico de Gallo click to bump | Recall 2/3 | |

Chef Queue - Chefs can view, bump and recall orders. The sidebar contains a quick view, showing the bases of all active orders.

| lightwait | | queue | logout |
|----------------|-------------------------------------|--------------|-------------------------------------|
| American | <input checked="" type="checkbox"/> | Pineapple | <input checked="" type="checkbox"/> |
| Avocado Mayo | <input checked="" type="checkbox"/> | Regular | <input checked="" type="checkbox"/> |
| Bacon | <input checked="" type="checkbox"/> | Sweet Potato | <input checked="" type="checkbox"/> |
| Bistro Sauce | <input checked="" type="checkbox"/> | Swiss | <input checked="" type="checkbox"/> |
| Chipotle Ranch | <input checked="" type="checkbox"/> | Texas Toast | <input checked="" type="checkbox"/> |
| Hamburger | <input checked="" type="checkbox"/> | Tomato | <input checked="" type="checkbox"/> |
| Jalapeno | <input checked="" type="checkbox"/> | Turkey | <input checked="" type="checkbox"/> |
| Lettuce | <input checked="" type="checkbox"/> | Veggie | <input checked="" type="checkbox"/> |
| Onion | <input checked="" type="checkbox"/> | Wheat | <input checked="" type="checkbox"/> |
| Pepper Jack | <input checked="" type="checkbox"/> | White | <input checked="" type="checkbox"/> |
| Pickle | <input checked="" type="checkbox"/> | | |
| Pico de Gallo | <input checked="" type="checkbox"/> | | |

Chef Availability - Chefs can make ingredients unavailable for customers to order.

The screenshot shows a web application interface for 'lightwait'. At the top, there is a blue header bar with the 'lightwait' logo on the left and 'users', 'menu', and 'logout' links on the right. Below the header, the main content area is titled 'Create an administrator or chef account'. This area contains a form with the following fields: 'Email', 'Password', 'First Name', and 'Last Name'. Below these fields are two radio buttons labeled 'Chef' and 'Administrator'. At the bottom of the form is a blue button labeled 'Create Account'.

Administrator Create Account - Administrators can create chef or administrator accounts.

The screenshot shows the 'Administrator Create Account' interface in the 'lightwait' application. The top blue header bar contains the 'lightwait' logo and 'users', 'menu', and 'logout' links. On the left side, there is a vertical sidebar menu with the following items: 'Bases', 'Breads', 'Cheeses', 'Toppings' (which is highlighted with a blue bar), and 'Fries'. The main content area is divided into two sections. The left section is a list of toppings with their availability status:

| | |
|----------------|--|
| Avocado Mayo | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Bacon | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Bistro Sauce | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Chipotle Ranch | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Jalapeno | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Lettuce | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| No Toppings | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Onion | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Pickle | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Pico de Gallo | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Pineapple | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |
| Tomato | <input checked="" type="checkbox"/> Available <input type="checkbox"/> |

 The right section contains a form with a 'Name' input field, a row of tabs labeled 'Base', 'Bread', 'Cheese', 'Topping', and 'Fry', and a blue 'Add Item' button.

Administrator Menu - Here administrators make changes to the menu, including adding items, deleting items, and making items unavailable for customers to order.

Carrier 10:10 AM

< Home Create Account

lightwait

First Name

Last Name

Email

Password

Confirm Password

Create Account

Create Account - Users can create an account.

Carrier 10:10 AM

< Home Custom Order

lightwait

Base

Hamburger

Turkey

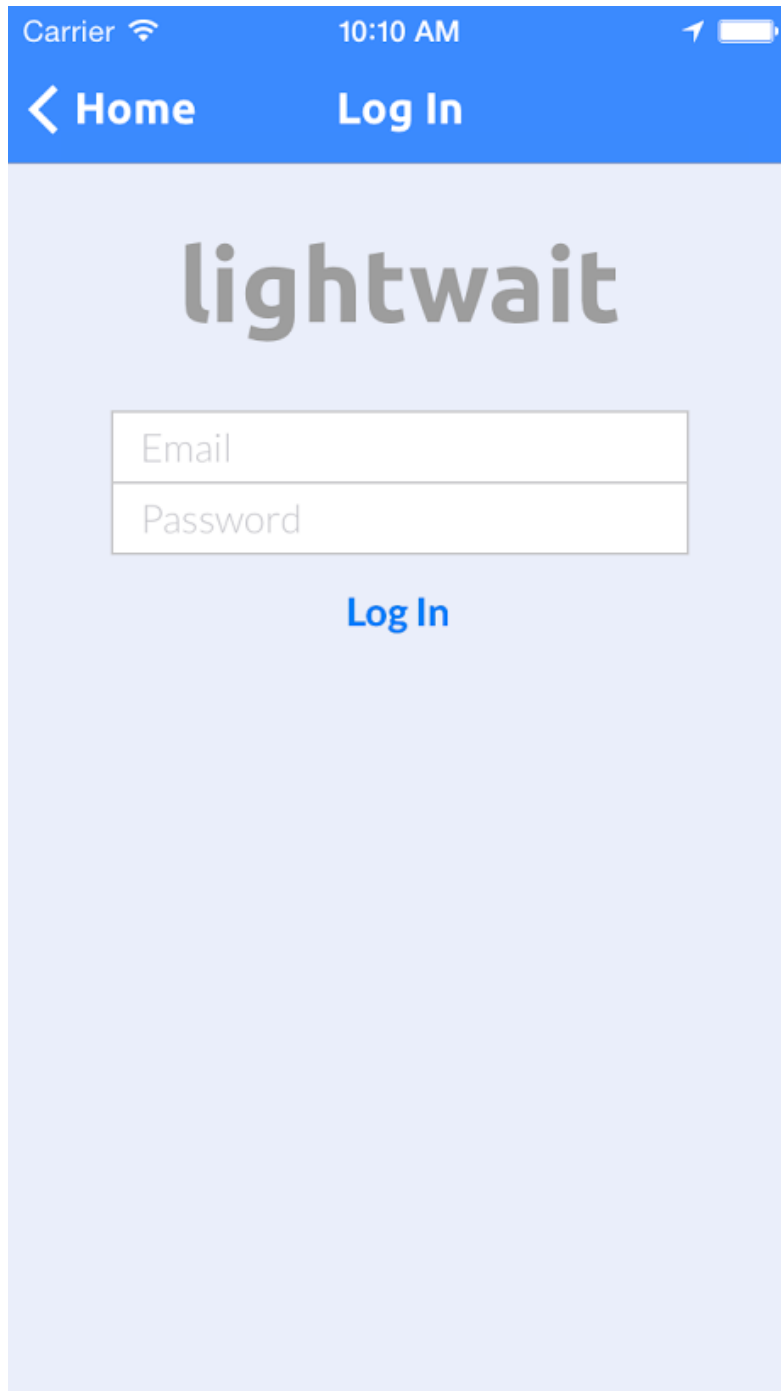
Chicken

Veggie

Black Bean

Previous • • • • Next

Custom Order - Users can create a custom order and then save the order should they choose to.



The image shows a mobile application interface for 'lightwait'. At the top, there is a blue header bar with a back arrow and the text 'Home' on the left, and 'Log In' on the right. Below the header, the word 'lightwait' is displayed in a large, bold, sans-serif font. Underneath the logo, there are two white input fields with thin grey borders. The first field is labeled 'Email' and the second is labeled 'Password'. Below these fields is a blue button with the text 'Log In' in white. The background of the screen is a light blue-grey color.

Log In - Users can log in with their username and password.

Testing

Testing Methods

We had the pleasure of having Team 5 test two iterations of *lightwait*. We gave them access to our source code via github so they could stress test our system and find problems. For each iteration, we provided them with a list a functional features so they knew what to test. When a member of Team 5 found a problem they would file an issue in github's integrated issue tracking application. While Team 5 was our largest group of testers, we also had several other students test our product.

Members of Team 5 are Taylor Bishop, Bruce George, Kenneth Politz, Hector Curi, Matthew Morris.

Testing Results

- Recall bumped more than one order
- Our input validation was not complete enough
- Long orders were overflowing off the visible order content area
- Session problem when using the back button
- Multiple accounts with the same email were allowed

Our Testing

While testing Team 5's applications, we reported 35 issues out of their total of 78. We notified them that you could hack into accounts using a SQL injection, which is a major security flaw. We also flagged issues relating to the functionality of loading and displaying the presentations. Lastly, we gave design and usability advice and condoned their industrial design, which they have since modified.

Team Reflection

Technical Challenges

This greatest challenge of creating *lightwait* was figuring out how to use Slim, which none of us had used before. There were many small roadblocks, but the rest of production was relatively straightforward after we understood Slim.

Outside Knowledge

Several sources of outside knowledge assisted in the development of our product. First, prior

knowledge of iOS development helped lead to the decision to develop an iPhone app. Also, several members had previous experience working with databases that helped lead to the development of our API. Additionally, we acquired a common sense of design through studying outside websites such as *Facebook* and *The Noun Project* in order to provide a consistent web and mobile experience. We also used *proto.io* to make flip switches.

Advice to Future Semesters

The Taco Truck assignment is a solid testing ground for design and team dynamic ideas, so put full effort into it. We met very often and got a lot of work done during our meetings, but we often didn't do work outside of our meetings. Future students of this class should find a good balance between working in a group and working individually. If team members do their individual work, group meetings can be concise and productive instead of long and laborious. Team meetings can be time to touch base with team members and tackle technical roadblocks. We believe this will allow meetings to be shorter if they arrive ready with a new set of problems to get help with.

Retrospection

Looking back, we may have picked a different PHP framework to create our RESTful API. After figuring out the finer details of Slim, we had few problems implementing it. Though finding other, more feature-rich frameworks, we could have added additional functionality to our product. We also would have been more open to changing the database design instead of working with what was already created. Finally, as stated above, we would have worked more individually in addition to our group meetings.

Wrap Up

A Next Set of Features

- Data - provide an advanced query functionality
- Provide estimated order completion time
- Color coded queue windows corresponding to certain base types
- Promotions and sales
- Mobile application for administrators

Appendix

Design Sources

Proto.io - <http://proto.io/freebies/onoff/>

Facebook - www.facebook.com

The Noun Project - www.thenounproject.com

Users - Customer, chef, and administrator accounts

- **user_id** is an INT(30) that is a NOT NULL, a PRIMARY KEY and AUTO_INCREMENTED. This number uniquely identifies each user.
- **userType** is an INT(1) that is NOT NULL and DEFAULT 1. This number identifies the user as either customer, chef, or administrator.
- **fName** is a VARCHAR(255). This is the user's first name.
- **lName** is a VARCHAR(255). This is the user's last name.
- **email** is a VARCHAR(255). This is what user logs in with.
- **password** is a VARCHAR(255) that is hashed. This is what the user logs in with.
- **device_token** is a VARCHAR(64). It is a hex number that is a unique identification number for each iPhone and the *lightwait* app used to send out messages from the Apple Push Notification Service.

Fries - The types of fries on the menu

- **id** is an INT(30) that is NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It is used to uniquely identify the type of fry.
- **name** is a VARCHAR(30). It is the name of the type of fry.
- **available** is a BOOLEAN that is DEFAULT TRUE. This determines whether customers are able to order that particular type of fry.
- **isActive** is a BOOLEAN that is DEFAULT TRUE. This determines whether or not an order has been deleted.

Breads - The types of breads on the menu

- **id** is an INT(30) that is NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It is used to uniquely identify the type of bread.
- **name** is a VARCHAR(30). It is the name of the type of bread.
- **available** is a BOOLEAN that is DEFAULT TRUE. This determines whether customers are able to order that particular type of bread.
- **isActive** is a BOOLEAN that is DEFAULT TRUE. This determines whether or not an order has been deleted.

Bases - The types of breads on the menu

- **id** is an INT(30) that is NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It is used to uniquely identify the type of base.
- **name** is a VARCHAR(30). It is the name of the type of base.

- **available** is a BOOLEAN that is DEFAULT TRUE. This determines whether customers are able to order that particular type of base.
- **isActive** is a BOOLEAN that is DEFAULT TRUE. This determines whether or not an order has been deleted.

Cheeses - The types of cheeses on the menu

- **id** is an INT(30) that is NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It is used to uniquely identify the type of cheese.
- **name** is a VARCHAR(30). It is the name of the type of cheese.
- **available** is a BOOLEAN that is DEFAULT TRUE. This determines whether customers are able to order that particular type of cheese.
- **isActive** is a BOOLEAN that is DEFAULT TRUE. This determines whether or not an order has been deleted.

Toppings - The types of toppings on the menu

- **id** is an INT(30) that is NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It is used to uniquely identify the type of topping.
- **name** is a VARCHAR(30). It is the name of the type of topping.
- **available** is a BOOLEAN that is DEFAULT TRUE. This determines whether customers are able to order that particular type of topping.
- **isActive** is a BOOLEAN that is DEFAULT TRUE. This determines whether or not an order has been deleted.

OrderToppings - Matches the toppings to orders

- **order_id** is an INT(30) and PRIMARY KEY. It represents the order that a particular topping relates to.
- **topping_id** is an INT(30) and PRIMARY KEY. It represents the toppings that a particular order relates to.

Orders - Meals that customers order

- **order_id** is an INT(30) that is NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It uniquely identifies every order placed.
- **user_id** is an INT(30) that is NOT NULL and a FOREIGN KEY that references user_id in the Users table.
- **bread_id** is an INT(30) that is NOT NULL and a FOREIGN KEY that references id in the Breads table.
- **base_id** is an INT(30) that is NOT NULL and a FOREIGN KEY that references id in the Bases table.

- **cheese_id** is an INT(30) that is NOT NULL, a FOREIGN KEY, and DEFAULT 0 that references id in the Cheeses table.
- **fry_id** is an INT(30) that is NOT NULL, a FOREIGN KEY, and DEFAULT 0 that references id in the Fries table.
- **timePlaced** is a TIMESTAMP that is NOT NULL and DEFAULT 0. It represents when the order was placed.
- **timeFinished** is a TIMESTAMP that is ON UPDATE CURRENT_TIMESTAMP. It is the time that isActive was set to FALSE.
- **isActive** is a BOOLEAN that is DEFAULT TRUE. It represents whether an order is in the order queue.

PushQueue - Information for push notifications

- **message_id** is an INT(11), NOT NULL, a PRIMARY KEY, and AUTO_INCREMENTED. It uniquely identifies that table's row.
- **device_token** is a VARCHAR(64) and NOT NULL. It is a hex number that is a unique identification number for each iPhone and the lightwait app used to send out messages from the Apple Push Notification Service.
- **payload** is a VARCHAR(256) that is NOT NULL. It is the JSON that contains the notification information.
- **time_queued** is DATETIME and NOT NULL. It represents the time when it was added to the queue
- **time_sent** is DATETIME and DEFAULT NULL. It represents when the notification was sent from the Apple Push Notification Service.