

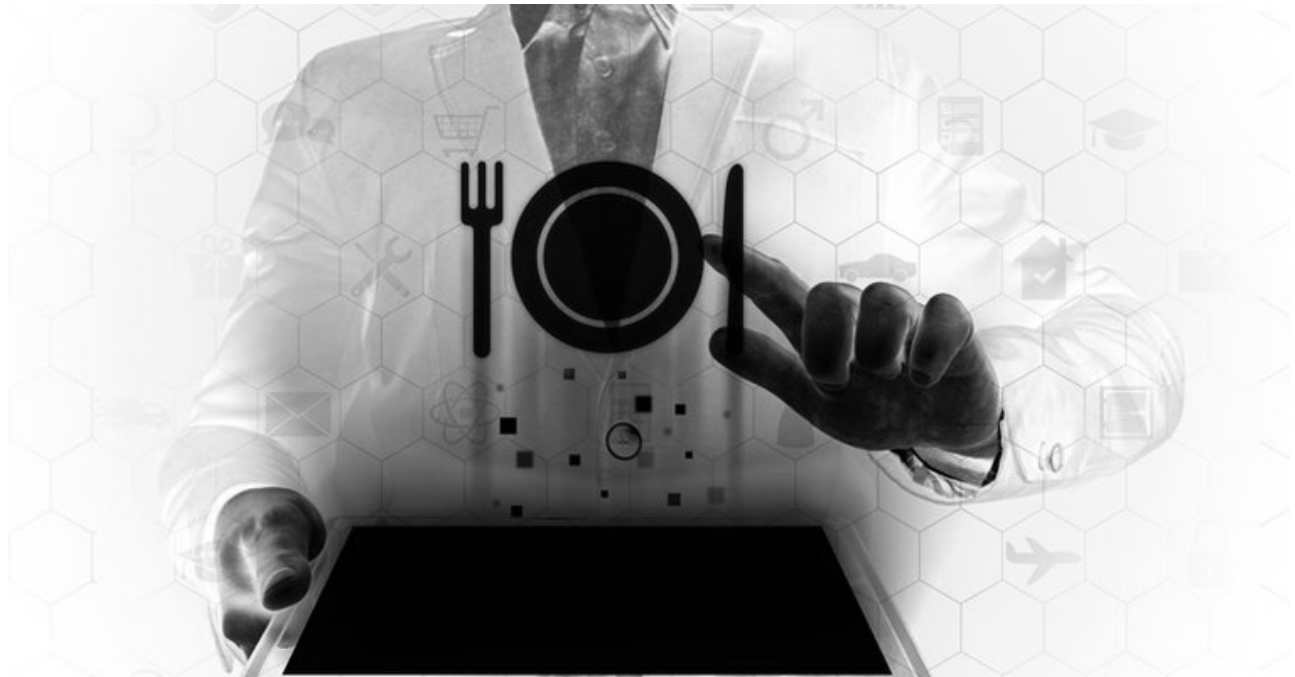
Click & Eat Application

Design Document



30th April 2021

Bachelor Of Science (Honours) Software Development



(Student) - Ana Griga
(Student Number) - C00231441
(Tutor) - Dr. Chris Meudec

Institiúid Teicneolaíochta Cheatharlach



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Declaration

I declare that this design document titled “Click & Eat” has been written by me under the supervision of Dr. Christophe Meudec.

This work was not presented in any previous research for the award of bachelor degree to the best of my knowledge.

The work is entirely mine and I accept the full responsibility for any errors that might be found in the work, while the reference to publish materials have been duly acknowledged.

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Signature: *Ana Griga*
Ana Griga (Student)
C00231441 (Student Number)

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Abstract

Technological progress has led to the consolidation of information systems into everyone's daily activities. Computerized systems are improving the lifestyle by simplifying the execution of activities in all aspects.

This technological change can also be seen in the restaurant industry through computerized ordering, bookings or payment methods.

In the effort to enhance and optimize the ordering, payment and restaurant's management process used in this industry, Click & Eat application was developed to allow customers to order and pay while at the table, easier, faster and safer using their own devices without waiting for a waiter and with less human interaction required in these times of pandemic.

This application will allow restaurants to expand the scope of operation by reducing the labor costs involved. The staff will only be in charge of delivering the orders to the tables and offering great hospitality.

This document describes the design elements of the Click & Eat application and includes diagrams of the systems architecture, design of the screens, class diagram for the functionality of the application, database schema and sequence diagrams showing the object interactions arranged in time sequence.

Table of Contents

1. Introduction	9
2. Application Architecture	10
2.1 Front-End, Back-End, Database Architecture	10
2.2 ReactJs, Web Api, Database Architecture	12
2.3 The Web API with Swagger	13
3. Design Pattern	15
4. UI/UX Design	17
4.1 Login Screen	17
4.2 Administrator / Waiter Home Screen	18
4.3 Administrator / Waiter Analytics Screen	19
4.4 Administrator Accounts Screens	20
4.4.1 Administrator Create Account Screen	20
4.5 Administrator Management Dropdown Menu	21
4.5.1 Menu Category Screen	21
4.5.2 Delete Menu Category	22
4.5.3 Create New Menu Category Screen	22
4.5.4 Menu Item Screen	23
4.5.5 Add Menu Item Screen	23
4.5.6 Delete Menu Item Screen	24
4.5.7 Administrator / Waiter Orders Screen	25
4.6 Waiter Navigation Bar	25
4.7 Log Out Screen	26

4.7 Customer Menu Screen	27
4.8 Customer Your Order Screen	28
4.9 Customer Checkout Screen	30
4.10 Customer Current Orders Screen	31
4.11 Customer Place Order and Pay Later Screen	32
4.12 Customer Menu Item Feedback Screen	33
4.13 Customer Your Feedback Screen	34
4.14 Sign In or Create Account Screen	34
4.15 Customer Sign In and Create Account Screen	36
4.17 Customer, Administrator, Waiter View Feedback Screen	37
5. System Flowchart	38
5.1 Customer Module Flowchart	38
5.2 Waiter Module Flowchart	39
5.3 Administrator Module Flowchart	40
6. System Sequence Diagrams	41
6.1 Customer Module Use Cases	41
6.1.1 Order System Sequence Diagram	42
6.1.2 Pay System Sequence Diagram	43
6.1.3 Create Account System Sequence Diagram	44
6.1.4 Send Feedback System Sequence Diagram	45
6.2 Administrator Module Use Cases	46
6.2.1 CRUD Account System Sequence Diagram	47
6.2.2 Login System Sequence Diagram	48
6.2.3 View Order System Sequence Diagram	49

6.2.4 CRUD Menu System Sequence Diagram	50
6.2.5 View Feedback System Sequence Diagram	51
6.2.6 View Payment System Sequence Diagram	52
6.2.7 View Customer System Sequence Diagram	53
7. Database Schema	54
8. Class Diagram	57
8.1 Visual Studio Generated Class Diagram	57
8.2 UMLet Class Diagram	59
9. Conclusion	60
10. Bibliography	61

Table of Figures

Figure 1- Application Architecture	14
Figure 2- Application Architecture ReactJs, Web API, Sql Database	15
Figure 3 - Swagger Web API documentation	17
Figure 4 - Design Pattern	18
Figure 5 - Login Screen	20
Figure 6 - Administrator / Waiter Home Screen	21
Figure 7 - Administrator / Waiter Analytics Screen	22
Figure 8.1 - Administrator Accounts Screen	23
Figure 8.2 - Administrator Create Accounts Screen	23
Figure 9 - Administrator Management Dropdown Menu	24
Figure 10 - Administrator Menu Category Screen	24
Figure 11 - Administrator Delete Menu Category Screen	25
Figure 12 - Create New Menu Category Screen	25
Figure 13 - Menu Item Screen	26
Figure 14 - Create New Menu Item Screen	26
Figure 15 - Delete Menu Item Screen	27
Figure 16 - Administrator / Waiter Orders Screen	28
Figure 17 - Waiter Navigation Bar	28
Figure 18 - Logout Screen	29
Figure 19 - Customer Menu Screen Desktop	30
Figure 20 - Customer Menu Screen Mobile Device	31
Figure 21 - Customer Your Order Screen Mobile Device	32

Figure 22 - Customer Checkout Screen Mobile Device	33
Figure 23 - Customer Orders Screen Mobile Device	34
Figure 24 - Customer Place Order and Pay Later Screen Mobile Device	35
Figure 25 - Customer Order Feedback Screen Mobile Device	36
Figure 26 - Customer Feedback Screen Mobile Device	37
Figure 27 - Customer Sign In or Create Account Screen Mobile Device	38
Figure 28 - Customer Sign In Screen Mobile Device	39
Figure 29 - Customer Create Account Screen Mobile Device	39
Figure 30 - Users View Feedback Screen Mobile Device	40
Figure 31 - Customer Module Flowchart	41
Figure 32 - Waiter Module Flowchart	42
Figure 33 - Administrator Module Flowchart	43
Figure 34 - Customer Module Use Cases	44
Figure 35 - Order System Sequence Diagram	45
Figure 36 - Pay System Sequence Diagram	46
Figure 37 - Create Account System Sequence Diagram	47
Figure 38 - Send Feedback System Sequence Diagram	48
Figure 39 - Administrator Module Use Cases	49
Figure 40 - CRUD Account System Sequence Diagram	50
Figure 41 - Login System Sequence Diagram	51
Figure 42 - View Order System Sequence Diagram	52
Figure 43 - CRUD Menu System Sequence Diagram	53
Figure 44 - View Feedback System Sequence Diagram	54
Figure 45 - View Payment System Sequence Diagram	55

Figure 46 - View Payment System Sequence Diagram	56
Figure 47 - Database Schema	57
Figure 48 - Database Authentication and Authorization Tables	58
Figure 49 - Controllers Class Diagram	60
Figure 50 - Models Class Diagram	61
Figure 51 - UMLet Class Diagram	62

1. Introduction

Customers and restaurateurs alike are benefiting greatly from the use of technology in the restaurant industry.

Automatization of the ordering and payment process provides immense savings in terms of time and effort for both the customers and the businesses.

The presence of these types of applications has become such a great complement to the restaurants and helps to boost their profits and sales.

Click & Eat is a web application developed for the restaurant industry that significantly simplifies the ordering and payment of meals for both customers and the restaurant.

The Click & Eat application varies from a Just Eat form of application since this would be used for customers to order and pay for their meals while having their meal in the restaurant and not for take away purposes.

This project aims to provide a web application that offers customers a safer dinner experience with less interaction with the restaurant's staff, given the COVID19 constraints and social distance.

The customer will be able to browse the menu, place their order and pay for their meal using their device.

Using this application, the restaurant will increase the turnover times of the tables and reduce the staff costs and allow the waiters more time for providing great hospitality.

The document includes the architecture and the user interface of the application. The database architecture of the application will also be shown in this paper, explaining how the data will be processed and accessed.

2. Application Architecture

The structure of Click & Eat application can be divided into two main logical components:

- The Customer Component which provides the functionality for customers to place their order, pay for their order, create an account and send feedback.
- The Restaurant Component which implements the CRUD menu, CRUD account, view customer's orders, view customer's feedback, view customer, accessible to the administrator and also the login for both the administrator and the waiter

2.1 Front-End, Back-End, Database Architecture

Building the Click & Eat application to be supported by a back-end SQL server database, three moving parts will be used: Front-End, Web API Back-End and the Database.

- Front-End is the load delivered to the browser using ReactJS rendered on the Index html page that allows the web browser to make calls to the web APIs. The Front-End does not communicate directly with the database as this will amount to substantial security issues
- The Web API is the Back-End that resides on the web server and can be queried in real time. This was created using C# and Asp Net Core framework
- SQL (Structured Query Language) is used to communicate to the SQL server in the data layer. This part addresses the data that the web application would access

All the requests from the Customer, Waiter and Administrator will be made using computer devices to the web server and all the data that needs to be saved or fetched from the requests and responses will be stored into the SQL Database as shown in Figure 1 below.

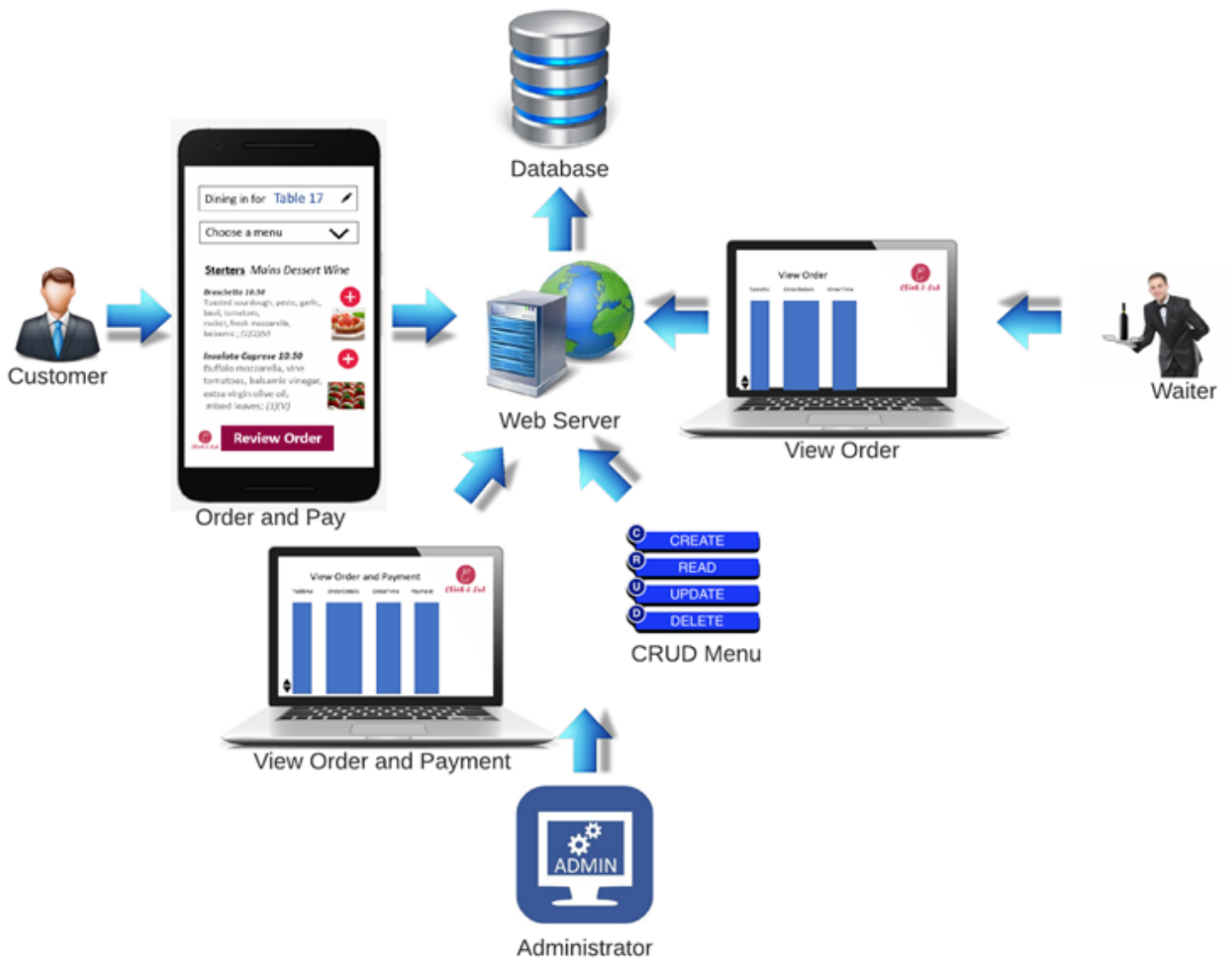


Figure 1- Application Architecture
 Source: Ana Griga, 2020

2.2 ReactJs, Web Api, Database Architecture

The UI of Click & Eat was developed as a single page application using ReactJs library.

ReactJS aided in developing the application through the reusability of its component system.

As a single page does not incorporate page refreshes, an Api server was needed to be developed, that could be queried in real time. This was created using C# and Asp Net Core framework.

To store the data, the API server uses an SQL database.

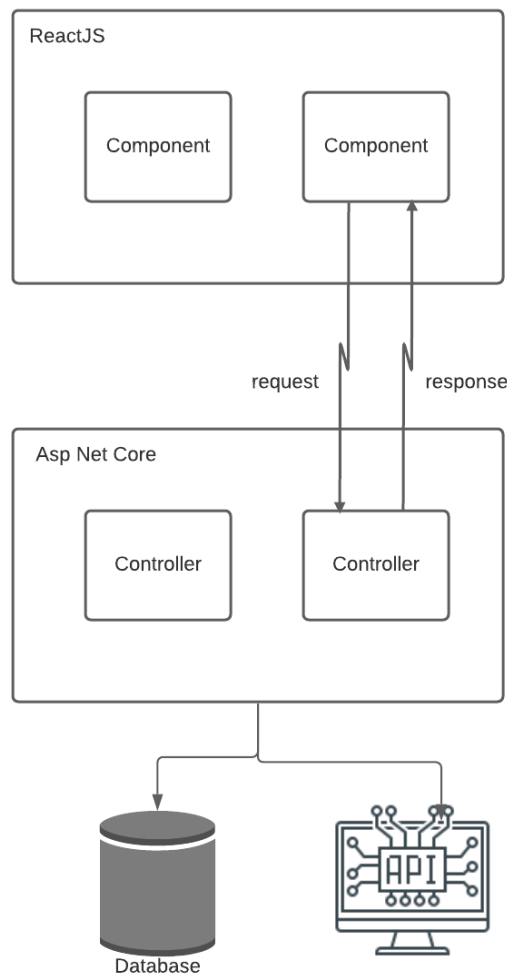


Figure 2- Application Architecture ReactJs, Web API, Sql Database
Source: Ana Griga, 2021

2.3 The Web API with Swagger

The APIs developed for this application were documented using Swagger which is a language-agnostic specification tool. The web Swagger UI looks like this:

The screenshot displays the Swagger UI for the 'Click & Eat API V1'. The header includes the Swagger logo and a dropdown menu for selecting a definition, currently set to 'Click & Eat API V1'. Below the header, the API title 'Click & Eat API v1' is shown with 'OAS3' in a green badge. A link to the Swagger JSON file is provided, along with a note that the API is for test purposes. An 'Authorize' button is visible on the right. The main content is organized into three sections: 'Authentication', 'Braintree', and 'ItemReviews'. Each section contains a list of endpoints with their respective HTTP methods and paths.

Method	Path	Lock
POST	/api/Authentication/register/user	🔒
POST	/api/Authentication/register/waiter	🔒
POST	/api/Authentication/login	🔒
POST	/api/Authentication/register/admin	🔒
GET	/api/Authentication/users	🔒
GET	/api/Authentication/users/waiters	🔒
DELETE	/api/Authentication/user/{username}	🔒
GET	/api/Braintree	🔒
POST	/api/Braintree	🔒
GET	/api/ItemReviews	🔒
POST	/api/ItemReviews	🔒
GET	/api/ItemReviews/MenuItem/{menuItemid}	🔒
GET	/api/ItemReviews/{id}	🔒
PUT	/api/ItemReviews/{id}	🔒
DELETE	/api/ItemReviews/{id}	🔒

MenuCategories		▼
GET	/api/MenuCategories	🔒
POST	/api/MenuCategories	🔒
GET	/api/MenuCategories/{id}	🔒
PUT	/api/MenuCategories/{id}	🔒
DELETE	/api/MenuCategories/{id}	🔒
MenuItems		▼
GET	/api/MenuItems	🔒
POST	/api/MenuItems	🔒
GET	/api/MenuItems/{id}	🔒
PUT	/api/MenuItems/{id}	🔒
DELETE	/api/MenuItems/{id}	🔒
POST	/api/fileupload	🔒
OrderItems		▼
GET	/api/OrderItems	🔒
POST	/api/OrderItems	🔒
GET	/api/OrderItems/{id}	🔒
PUT	/api/OrderItems/{id}	🔒
DELETE	/api/OrderItems/{id}	🔒
Orders		▼
GET	/api/Orders	🔒
POST	/api/Orders	🔒
POST	/api/Orders/userOrders/ids	🔒
GET	/api/Orders/{id}	🔒
PUT	/api/Orders/{id}	🔒
DELETE	/api/Orders/{id}	🔒
PUT	/api/Orders/{id}/addItem	🔒
Payments		▼
GET	/api/Payments/period/{period}	🔒
GET	/api/Payments	🔒
POST	/api/Payments	🔒
GET	/api/Payments/{id}	🔒
PUT	/api/Payments/{id}	🔒
DELETE	/api/Payments/{id}	🔒
POST	/api/Payments/DuePayment	🔒

Figure 3 - Swagger Web API documentation
Source: Ana Griga, 2020

3. Design Pattern

The Click & Eat application is designed to be available over the Internet and supports access from multiple users. The client-server architecture, as shown in Figure 4, is therefore the most suitable and appropriate architecture for this application.

This architecture consists of the server-side that hosts business logic and processing and the client-side that accesses and communicates with the server.

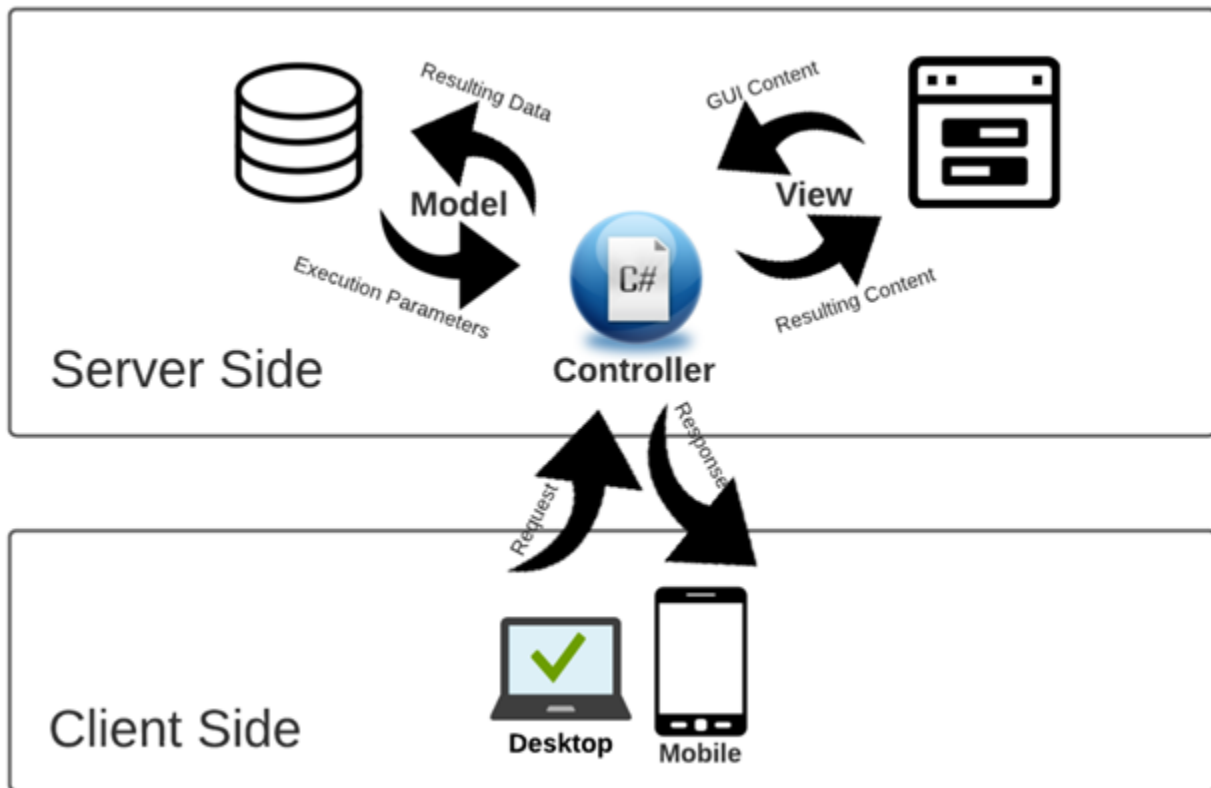


Figure 4 - Design Pattern
Source: Ana Griga, 2020

This application adapts the design pattern of the model-view-controller (MVC) by splitting the code into three main parts. One component is called the controller that governs the interaction between the application and the client. The client invokes the controller by submitting HTTP requests for specific activities to be performed.

The controller is a series of C# files that contain the applications logic. The controller sends execution parameters such as SQL queries to the model part of the system, which is the database that contains all the applications data.

The application uses ReactJS for the Front-End and this is designed as the View layer in the MVC framework and works well with the other services.

Before passing to the view part of the application responsible for creating user interfaces, the resulting data is sent back to the controller.

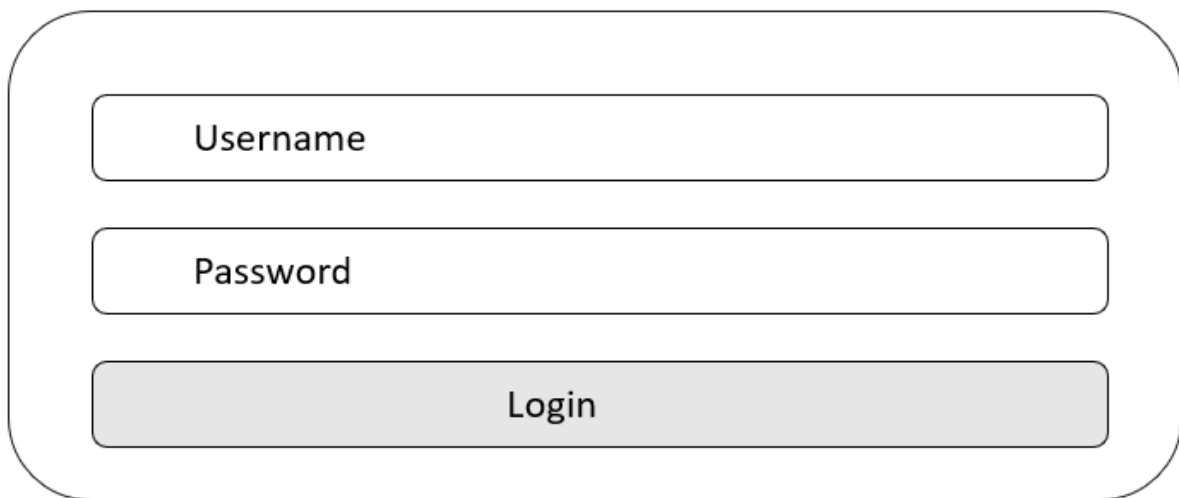
The information from the resulting data is shown. Then, the controller sends back the result of the operation performed as an HTTP response to the client.

4. UI/UX Design

Click & Eat application consists of two main components, one for the Restaurant, which is split into a module for the administrator and one module for the waiter and the customer component, as mentioned above in the document. The screen will be presented per user, and some of the screens will be used for both the waiter and the administrator. Since the customer module will be accessed on a mobile phone, the customer's screens will be presented as mobile devices.

4.1 Login Screen

All the users, except for the customer who has the login optional, will log in with the use of the following screen:



The diagram illustrates a login screen layout. It consists of three vertically stacked rounded rectangular input fields within a larger rounded rectangular container. The top field is labeled 'Username', the middle field is labeled 'Password', and the bottom field is a shaded button labeled 'Login'.

Figure 5 - Login Screen
Source: Ana Griga, 2021

4.2 Administrator / Waiter Home Screen

The first page on the navigation bar for the administrator and the waiter will be the Home page, where they can see all the menu items containing the name, the price, the information of the item in the form of an info icon as seen on the screen below. On the menu items, they can also see all the reviews left by the customer for each item in the form of a star with the rating and the number of reviews. When clicking on the star, the administrator and the waiter can see all the reviews, which will help adjust the menu according to the customer's preferences.

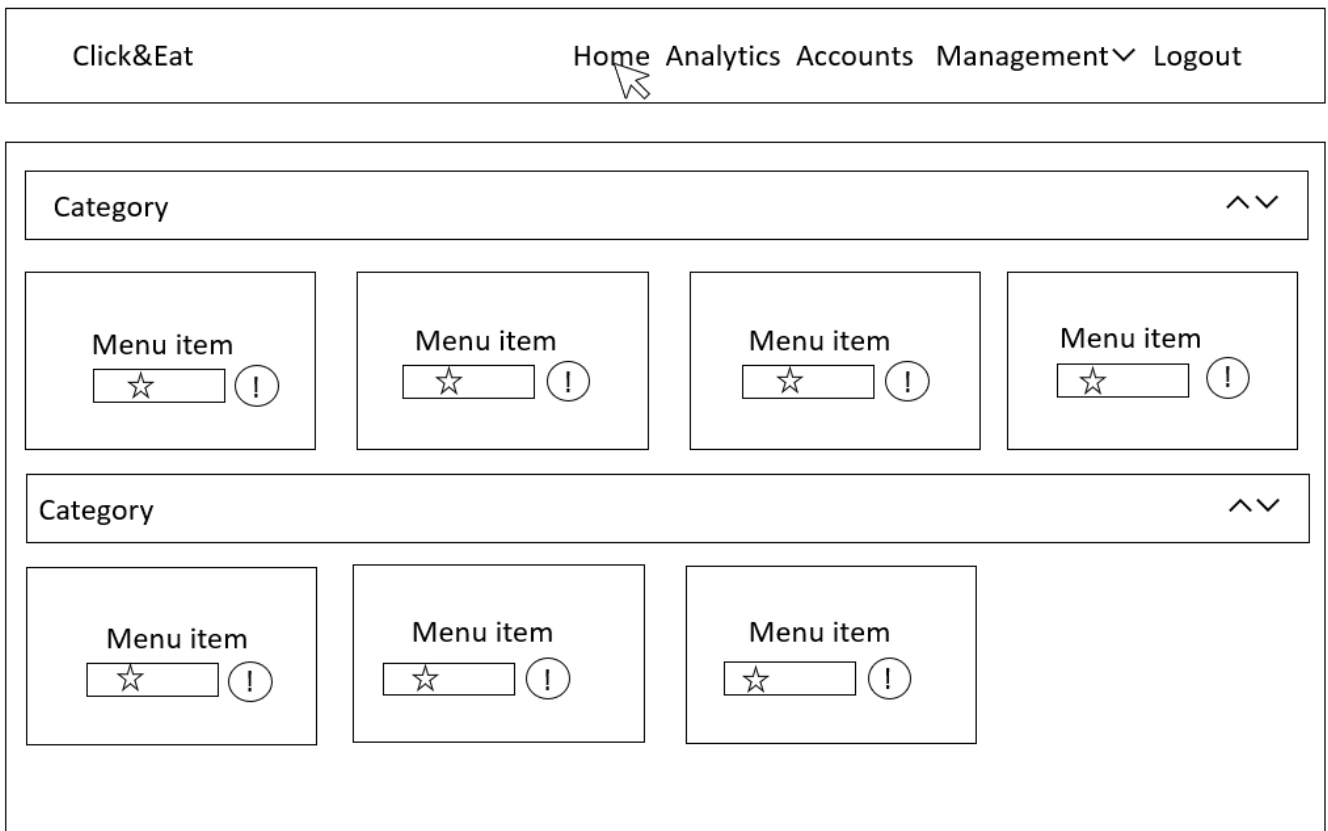


Figure 6 - Administrator / Waiter Home Screen
Source: Ana Griga, 2021

4.3 Administrator / Waiter Analytics Screen

On this page, the administrator and the waiter can see the weekly, monthly and yearly sales by items, category and price, and they will have the option to print the sales statements in a pdf format.

Click&Eat Home Analytics Accounts Management Logout

Sales

Today's sales
Last 7 day's sales
Last 30 day's sales
This year's sales

Item	Category	Total	Status
Menu Item	Category	22	Paid
Menu Item	Category	12	Paid
Menu Item	Category	20	Paid
Menu Item	Category	30	Paid
Total Sales		84	

Figure 7 - Administrator / Waiter Analytics Screen
Source: Ana Griga, 2021

4.4 Administrator Accounts Screens

The Accounts page shows all the waiters accounts created by the administrator with their name, username, phone number and email. The administrator has the option to delete any account or to create a new account.

Click&Eat Home Analytics Accounts Management▼ Logout

Waiter Accounts Add New Account

Name: name
Username: username
Phone: phone number
Email: email address
Delete

Name: name
Username: username
Phone: phone number
Email: email address
Delete

Figure 8.1 - Administrator Accounts Screen
Source: Ana Griga, 2021

4.4.1 Administrator Create Account Screen

To create a new account, the administrator will be presented with the following form:

Click&Eat Home Analytics Accounts Management▼ Logout

Username Phone no.

First Name

Password Confirm Password

Email Address

Register Waiter

Figure 8.2 - Administrator Create Accounts Screen
Source: Ana Griga, 2021

4.5 Administrator Management Dropdown Menu

In the Management dropdown menu, the administrator is presented with three options, Menu Category, Menu Item and Order, shown below.

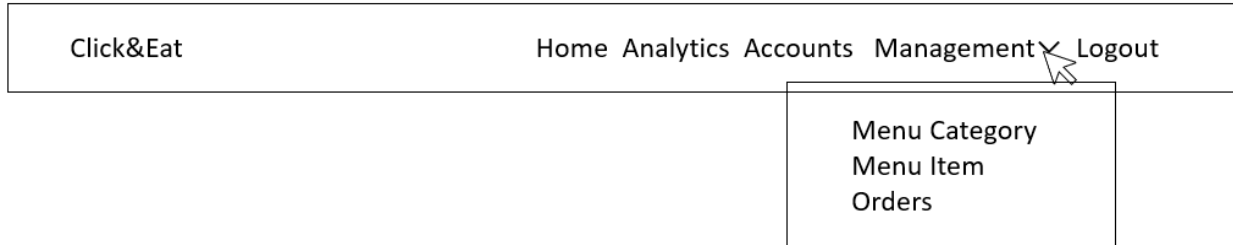


Figure 9 - Administrator Management Dropdown Menu
Source: Ana Griga, 2021

4.5.1 Menu Category Screen

The menu category screen will show the existing categories with a button for edit and a button for delete, and an option to create a new category.

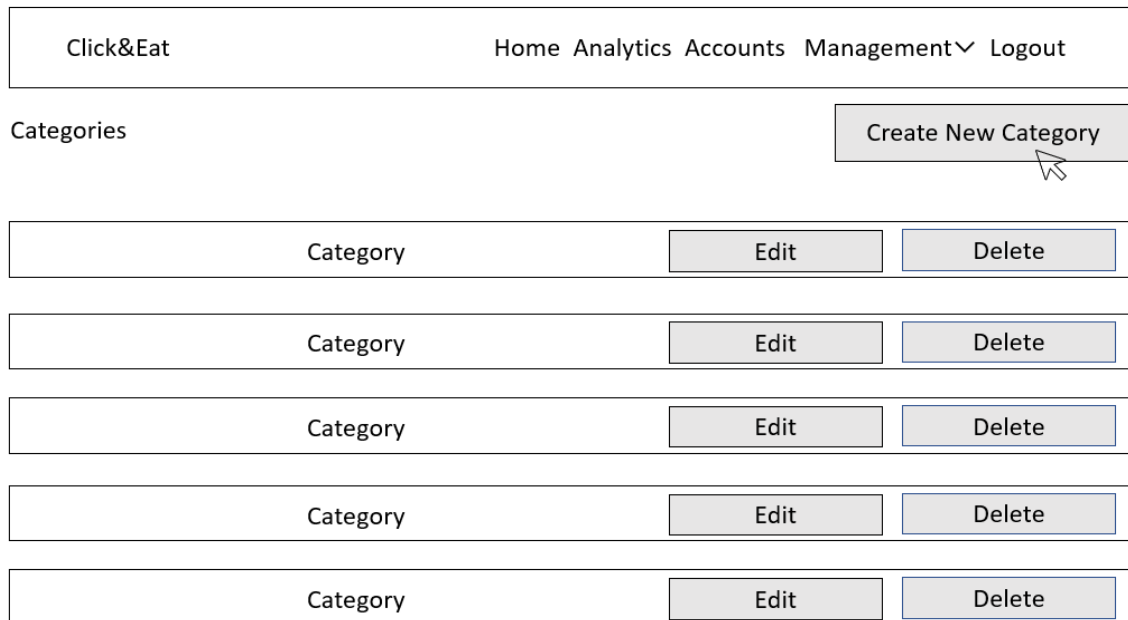


Figure 10 - Administrator Menu Category Screen
Source: Ana Griga, 2021

4.5.2 Delete Menu Category

If the administrator wishes to delete an existing menu category, they will be presented with the following confirmation form.

Click&Eat Home Analytics Accounts Management ▾ Logout

! Are you sure you want to delete this category?

Category Name : Category

Yes No

Figure 11 - Administrator Delete Menu Category Screen
Source: Ana Griga, 2021

4.5.3 Create New Menu Category Screen

To create a new menu category, the administrator will be presented with the following form.

Click&Eat Home Analytics Accounts Management ▾ Logout

Category Name

Save Category

Figure 12 - Create New Menu Category Screen
Source: Ana Griga, 2021

4.5.4 Menu Item Screen

On this page, the administrator is able to see, edit and delete the existing menu items and can add new menu items.

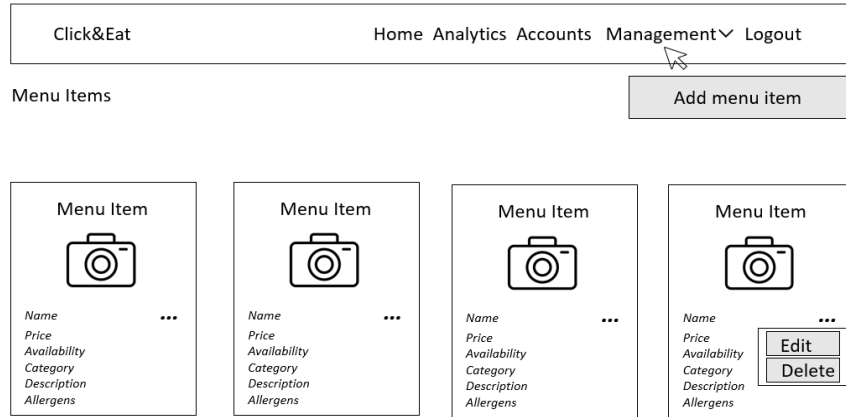


Figure 13 - Menu Item Screen
Source: Ana Griga, 2021

4.5.5 Add Menu Item Screen


When the administrator wishes to create a new menu item, they will be presented with the following form.

The screenshot shows a web application interface for creating a new menu item. At the top, there is a navigation bar with the text 'Click&Eat' on the left and 'Home Analytics Accounts Management Logout' on the right. Below the navigation bar, there is a form for creating a new menu item. The form contains the following fields and controls: a text input for 'Name', a text input for 'Description', a text input for 'Price', an image upload area with a camera icon and the text 'Upload Image', two radio buttons labeled 'Not Available' and 'Available', a text input for 'Allergens', a text input for 'Select Category', and a 'Save Menu Item' button at the bottom.

Figure 14 - Create New Menu Item Screen
Source: Ana Griga, 2021

4.5.6 Delete Menu Item Screen

At deletion of any menu item, the administrator will be presented with the following confirmation form.

Click&Eat	Home Analytics Accounts Management  Logout
-----------	---

 Are you sure you want to delete this menu item?

Menu Item



Name
Price
Availability
Category
Description
Allergens

Figure 15 - Delete Menu Item Screen
Source: Ana Griga, 2021

4.5.7 Administrator / Waiter Orders Screen

On this page, the administrator and the waiter can see all the current orders with information like table number, special instructions, payment status, and all the items ordered. Here, the administrator and the waiter can mark the order as served as soon as the order is filled.

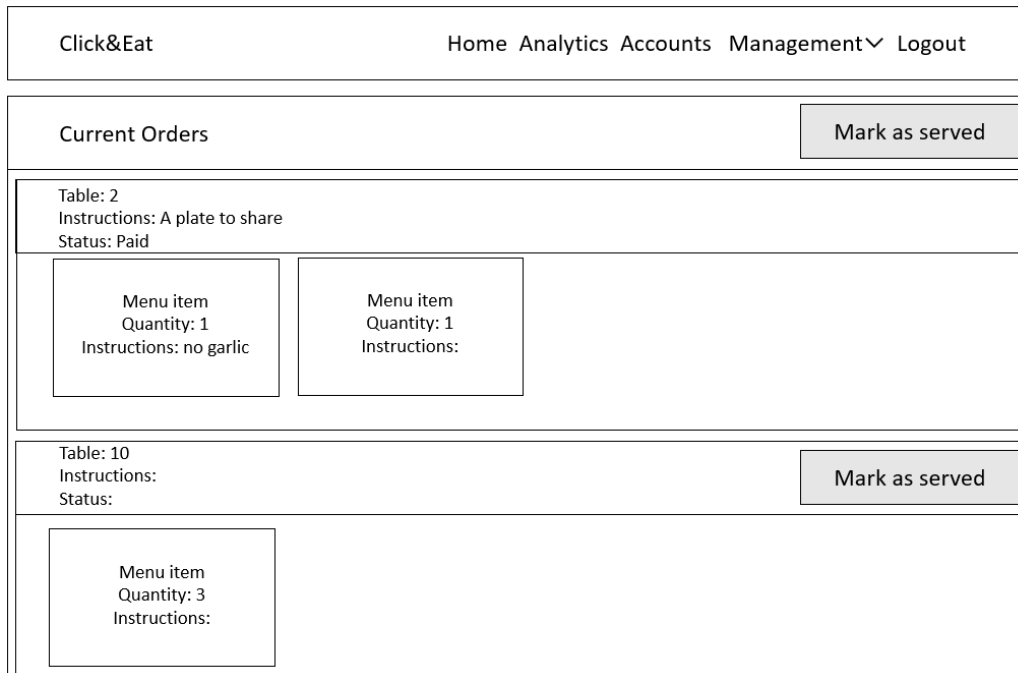


Figure 16 - Administrator / Waiter Orders Screen
Source: Ana Griga, 2021

4.6 Waiter Navigation Bar

The waiter will only have permission to view the home screen with the menu items information, the analytics page, the orders, and log out, as seen in the Figure below.



Figure 17 - Waiter Navigation Bar
Source: Ana Griga, 2021

4.7 Log Out Screen

The logout screen will appear to all users every time they leave the system, and it will be presented as a message on the screen saying they will be logged out.

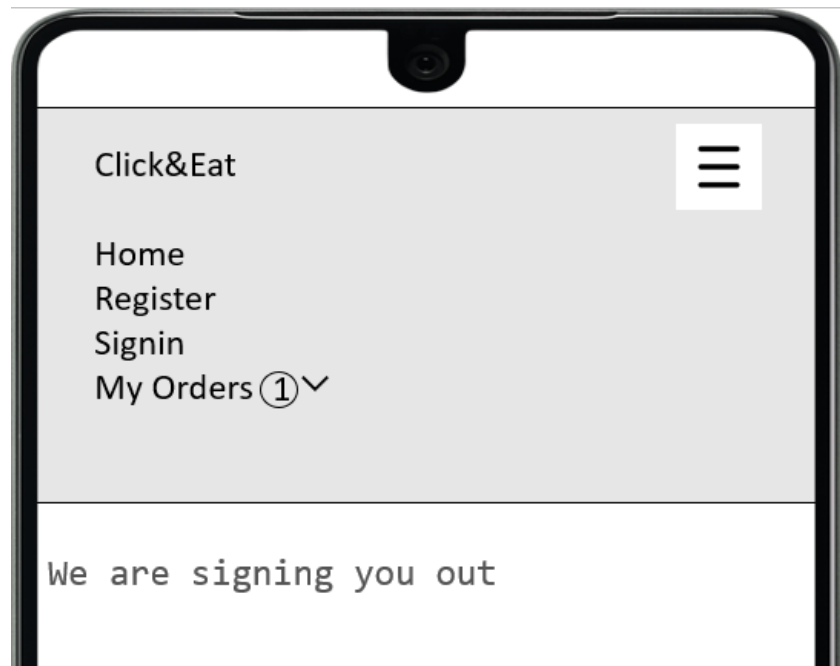


Figure 18 - Logout Screen
Source: Ana Griga, 2021

4.7 Customer Menu Screen

This is the first page the customer will be presented with after scanning the QR code available at the table. The customer will see all the menu items arranged under categories that can be open and closed using a caret up and down style.

Each menu item contains all the information the customer needs to create and order. To create an order, the customer will click on the Select Item option, which will add the item to the order. The progress of adding the items to the order will be shown to the customer on top of the page in a bar that indicates the number of the items ordered and a message to View the order. The menu items also include the reviews left by other customers. The customer module of the application will be used primarily on mobile devices, so the screens will also be presented as seen on mobile phones.

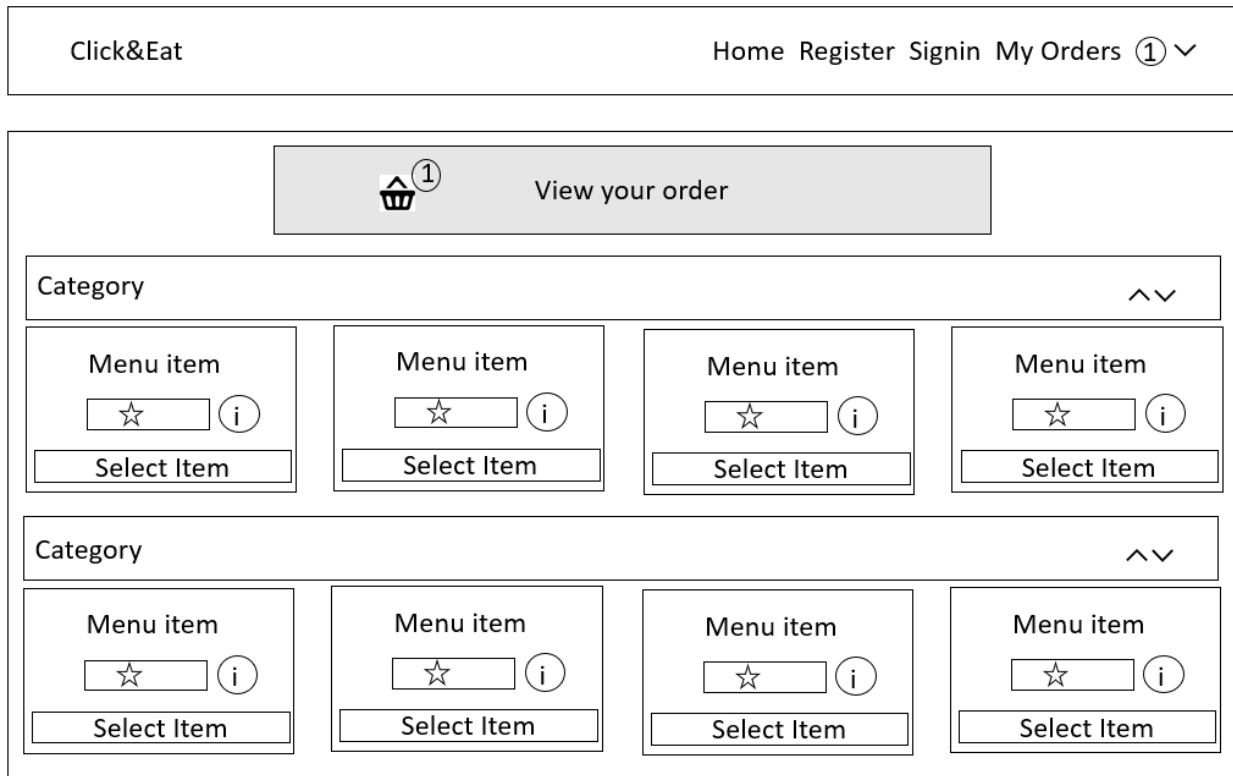


Figure 19 - Customer Menu Screen Desktop
Source: Ana Griga, 2021

Figure 14 belows shows the customer menu and the navigation dropdown menu on a mobile phone.

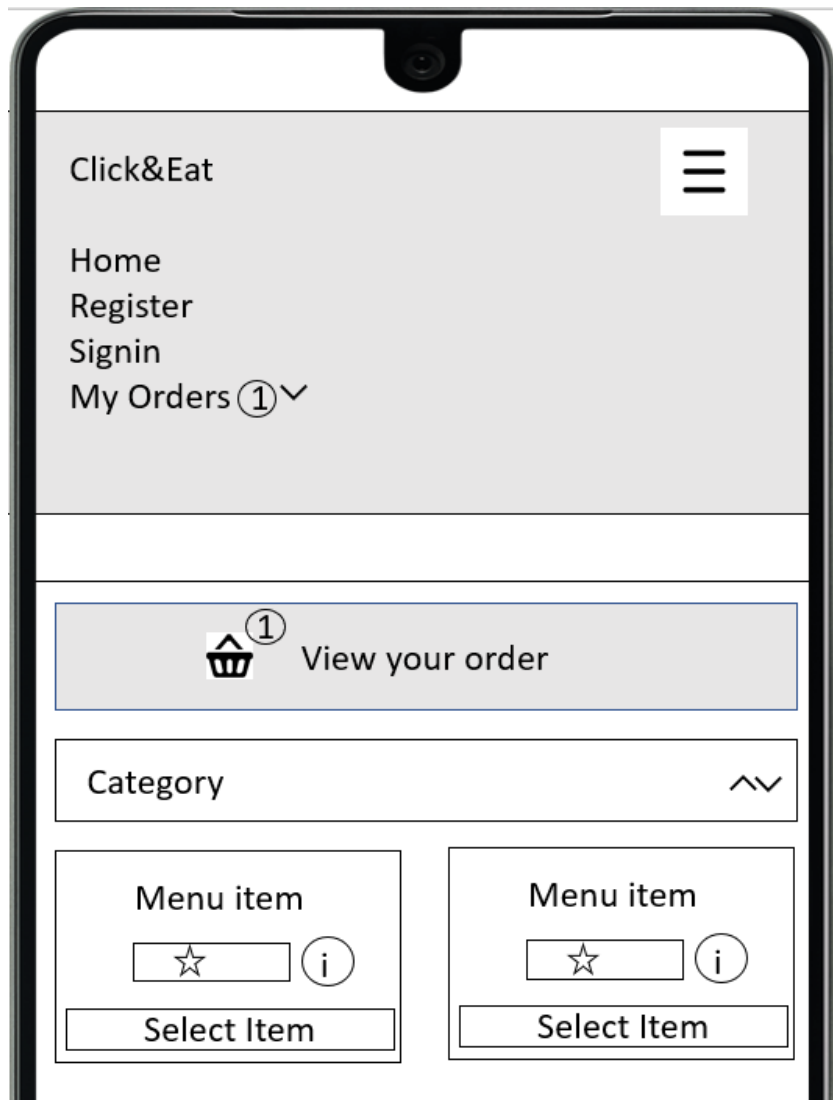


Figure 20 - Customer Menu Screen Mobile Device
Source: Ana Griga, 2021

4.8 Customer Your Order Screen

After the customer selects the item they wish to order, they can view the order by clicking on either My Orders on the navigation bar's top corner or View your order below the navigation bar. Clicking on any of these options, the customer will be

presented with the Your Order page on which they can see all the items in the order, the total they need to pay, the option to add instructions per item or special instructions per order. They can also change or delete the quantity of any item ordered. When satisfied with the order, they can check out or place the order and pay for it later if they want to order more.

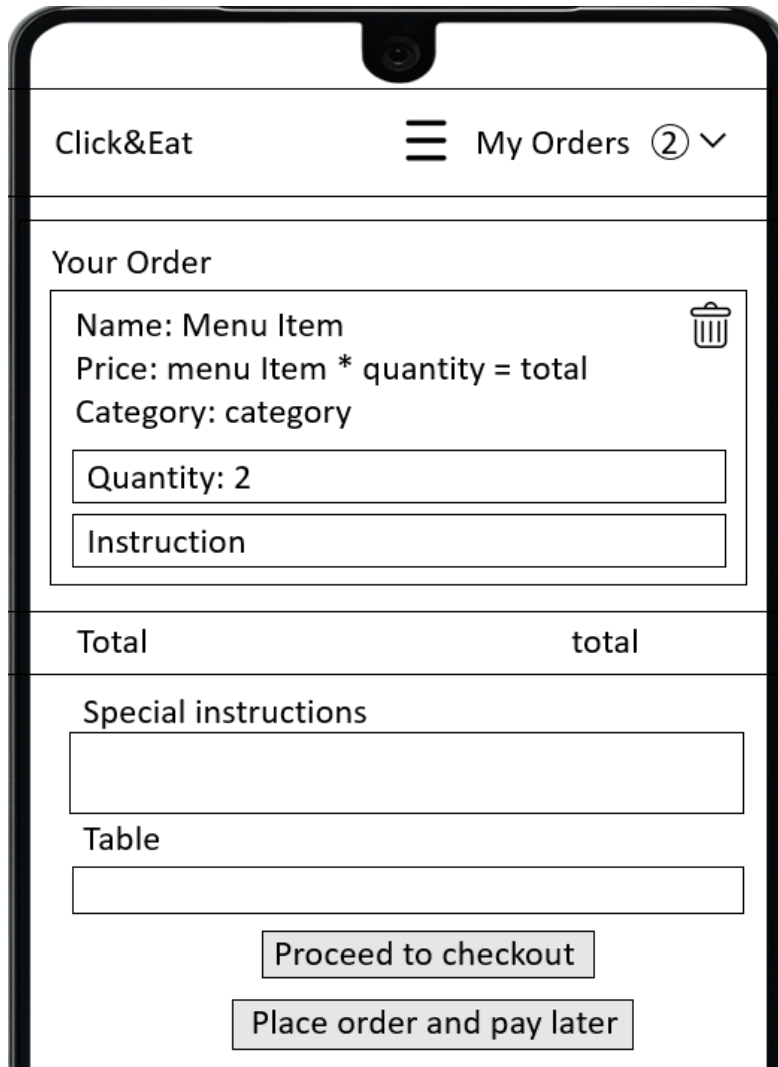
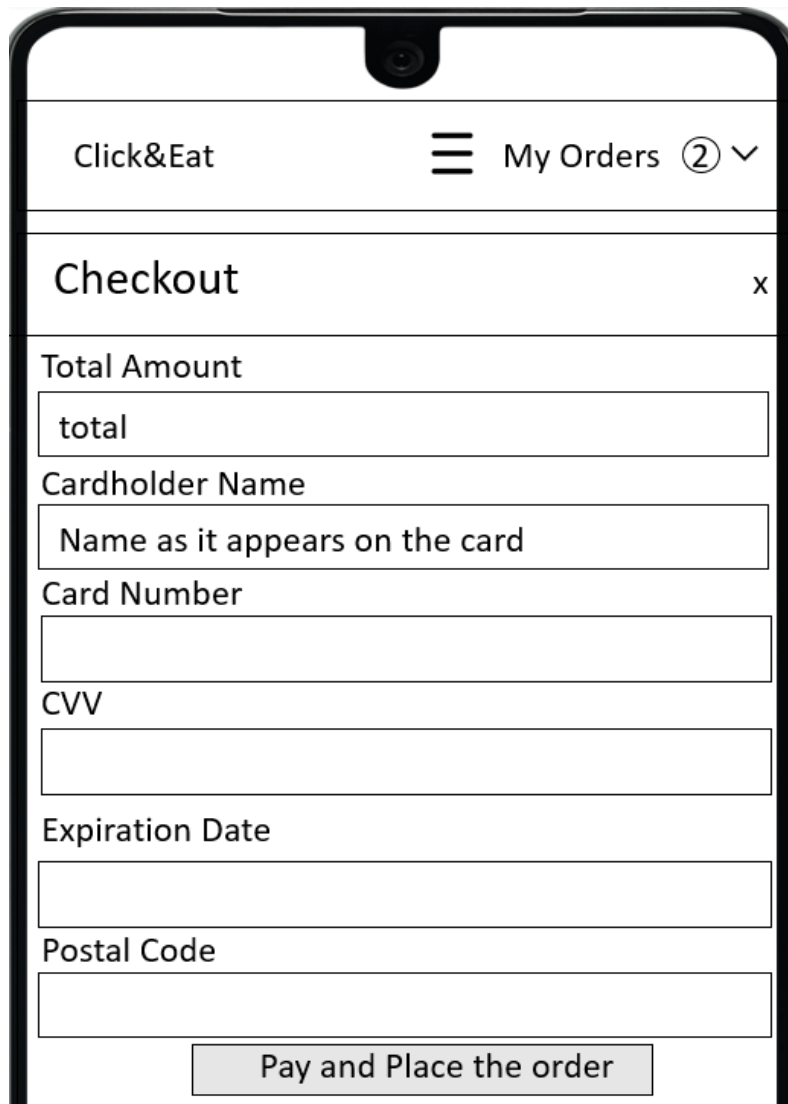


Figure 21 - Customer Your Order Screen Mobile Device
Source: Ana Griga, 2021

4.9 Customer Checkout Screen

At checkout, the customer is presented with a form where they enter all the payment information as seen in Figure 16 below.



The image shows a mobile application checkout screen. At the top, the brand name 'Click&Eat' is on the left, and a menu icon followed by 'My Orders' with a notification badge containing the number '2' and a dropdown arrow is on the right. Below this is a 'Checkout' header with a close icon 'x' on the right. The form contains several input fields: 'Total Amount' with a text box containing 'total'; 'Cardholder Name' with a text box containing 'Name as it appears on the card'; 'Card Number' with an empty text box; 'CVV' with an empty text box; 'Expiration Date' with an empty text box; and 'Postal Code' with an empty text box. At the bottom of the form is a large button labeled 'Pay and Place the order'.

Figure 22 - Customer Checkout Screen Mobile Device
Source: Ana Griga, 2021

4.10 Customer Current Orders Screen

After successful checkout, the customer will be redirected to the order history and presented with the Current Orders page. This page can also be accessed by clicking on My Orders dropdown menu in the navigation bar, which will open two option Selected Items and Previous Orders. The Previous Orders will show the customers their orders, as seen below.

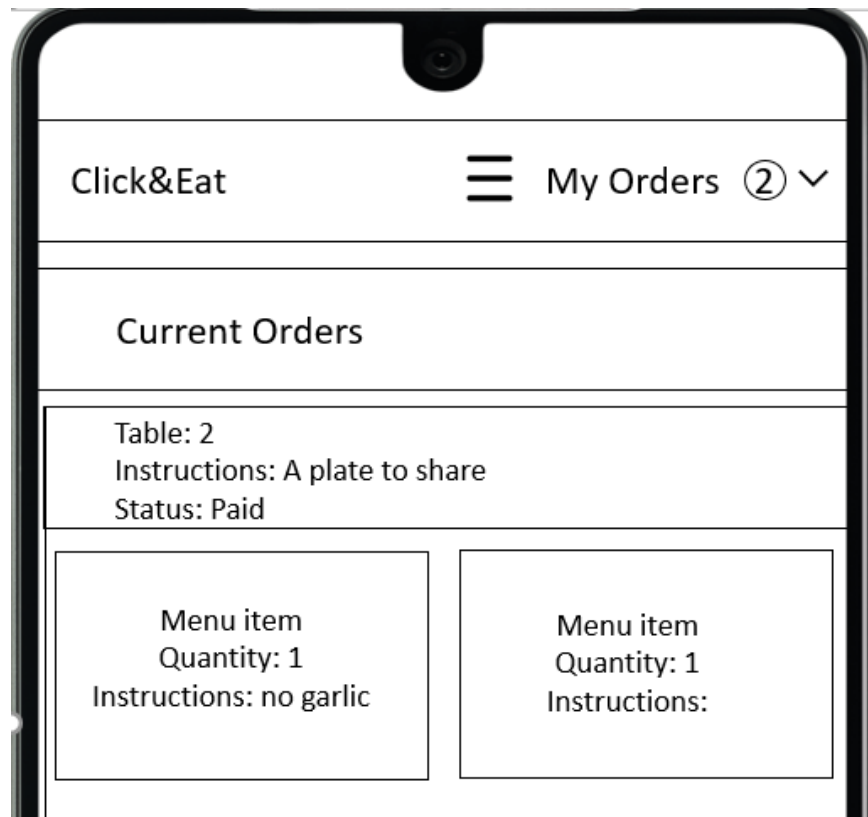


Figure 23 - Customer Orders Screen Mobile Device
Source: Ana Griga, 2021

4.11 Customer Place Order and Pay Later Screen

This option will send the customer to the current orders where they have the possibility to add more items, showing the status of the order as unpaid and an option to pay whenever they are ready.

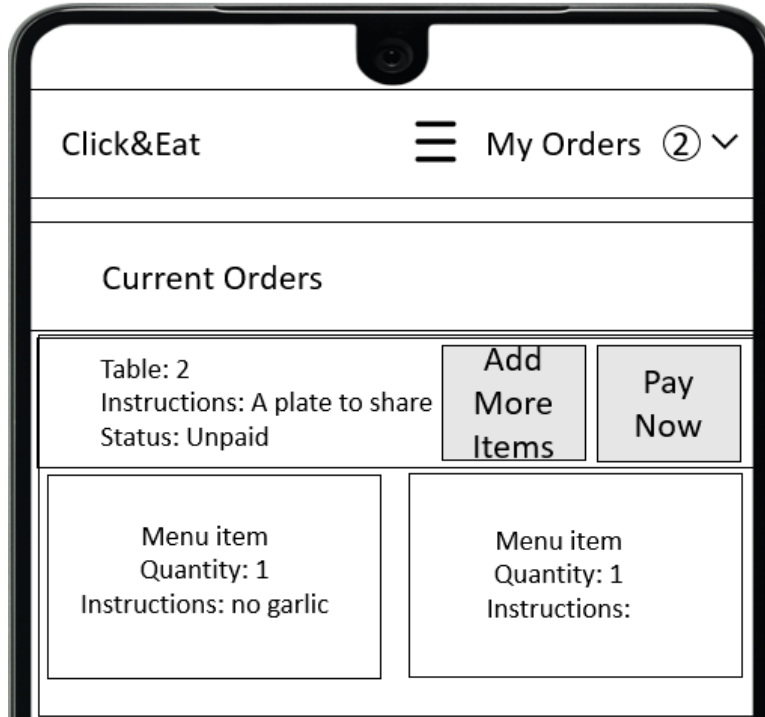


Figure 24 - Customer Place Order and Pay Later Screen Mobile Device
Source: Ana Griga, 2021

4.12 Customer Menu Item Feedback Screen

After the order is marked as served by the administrator or waiter, the customer is presented in the order history with all the items of their order and the option to leave feedback for any of them.

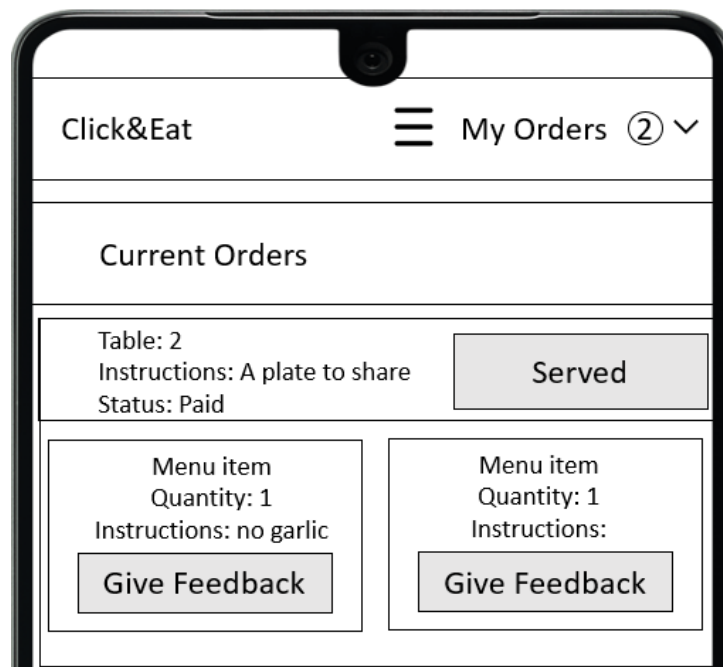


Figure 25 - Customer Order Feedback Screen Mobile Device
Source: Ana Griga, 2021

4.13 Customer Your Feedback Screen

Clicking on the Give Feedback option seen above, the customer will be presented with a pop up that contains a form that allows them to rate the menu item, enter their name, write and submit their feedback.

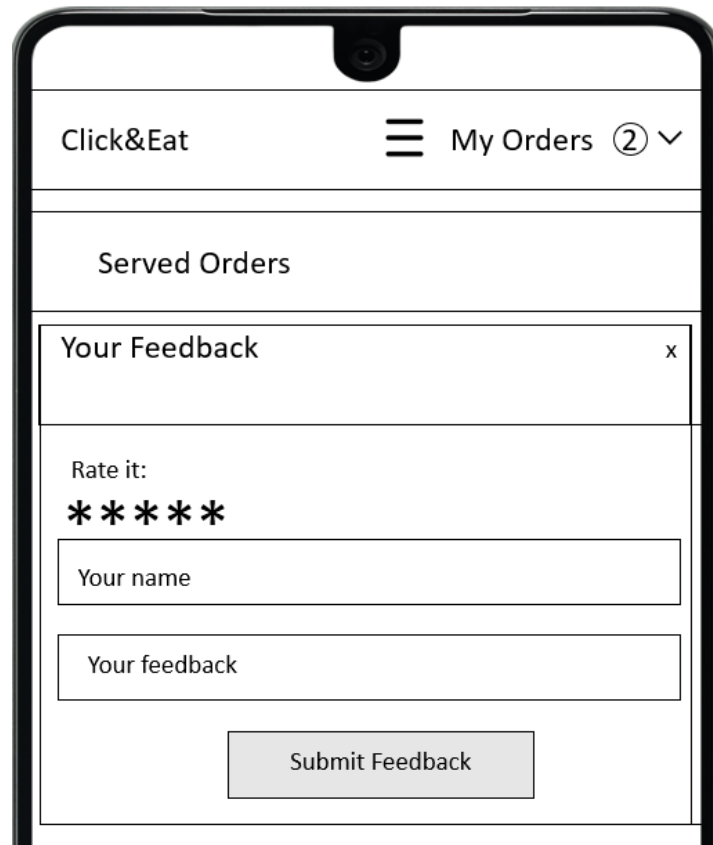


Figure 26 - Customer Feedback Screen Mobile Device
Source: Ana Griga, 2021

4.14 Sign In or Create Account Screen

After submitting feedback for any items in their order, the customer can sign in or create an account for future visits at the end of their meal. This is presented as a pop-up box shown in the Figure below. Having an account will allow the customers to get information about events in the restaurant, special offers, or discounts. Also, the

administrator, gathering as many customers as possible, will have the possibility to promote their restaurant by informing them of upcoming events, offers or giving discounts to the regular customers, which will return with more enthusiasm.

The customer module has the option to register or sign-in on the navigation bar also. The sign in and registration for customers is only an optional feature. They can avail of all the functionality of the application even if they do not have an account.

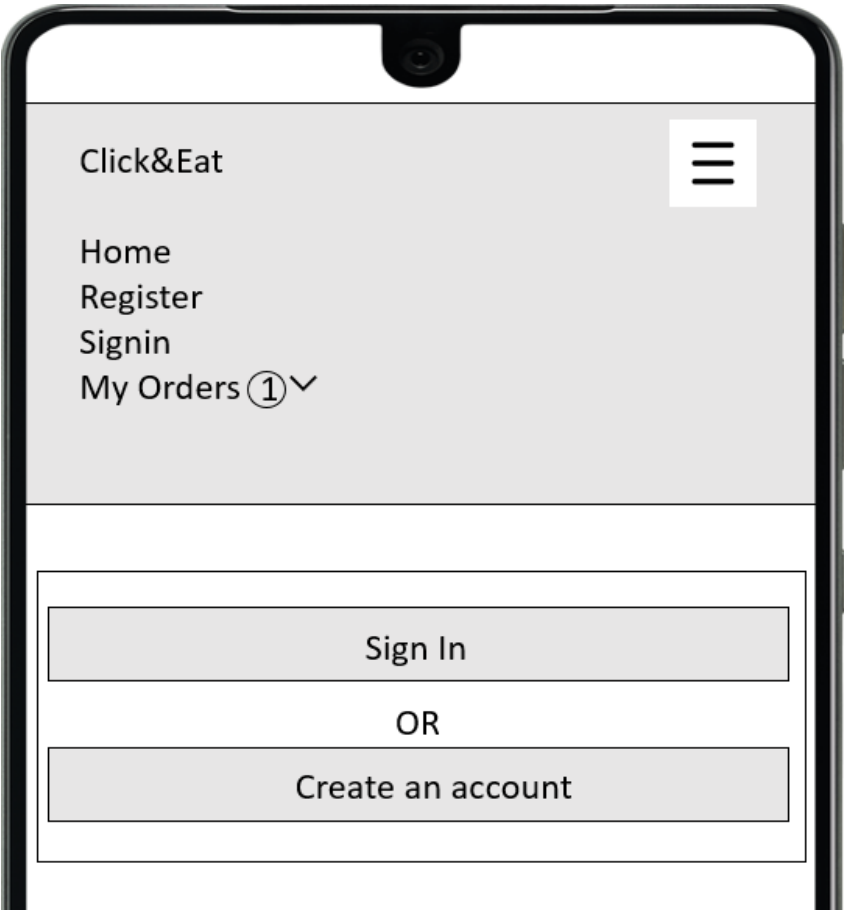
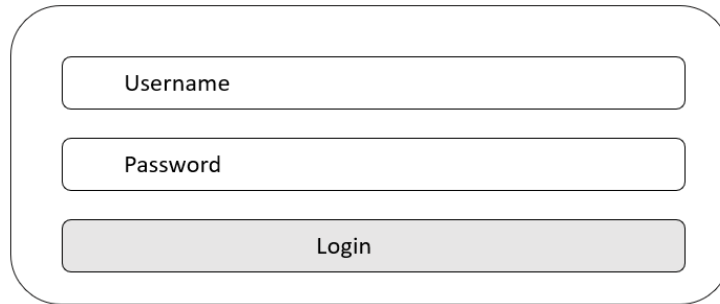


Figure 27 - Customer Sign In or Create Account Screen Mobile Device
Source: Ana Griga, 2021

4.15 Customer Sign In and Create Account Screen

As mentioned above in the document, all users will have the same login screen and the same registration screen form.



A wireframe of a mobile sign-in screen. It features three rounded rectangular input fields stacked vertically. The top field is labeled 'Username', the middle field is labeled 'Password', and the bottom field is a button labeled 'Login' with a light gray background.

Figure 28 - Customer Sign In Screen Mobile Device
Source: Ana Griga, 2021



A wireframe of a mobile create account screen. At the top, it shows the app name 'Click&Eat' on the left and a navigation menu icon followed by 'My Orders' and a notification badge with the number '2' and a dropdown arrow. Below the header, there are several input fields: 'Username' and 'Phone no.' in the first row; 'First Name' and an empty field in the second row; 'Password' and 'Confirm Password' in the third row; and 'Email Address' in a wider field in the fourth row. At the bottom, there is a 'Sign Up' button with a light gray background.

Figure 29 - Customer Create Account Screen Mobile Device
Source: Ana Griga, 2021

4.17 Customer, Administrator, Waiter View Feedback Screen

All users can see any menu item feedback by clicking on the star displayed on each of the menu items. This will open a pop up shown below, which contains the stars, the feedback, the name of the reviewer and the date the feedback was submitted.



Figure 30 - Users View Feedback Screen Mobile Device
Source: Ana Griga, 2021

5. System Flowchart

5.1 Customer Module Flowchart

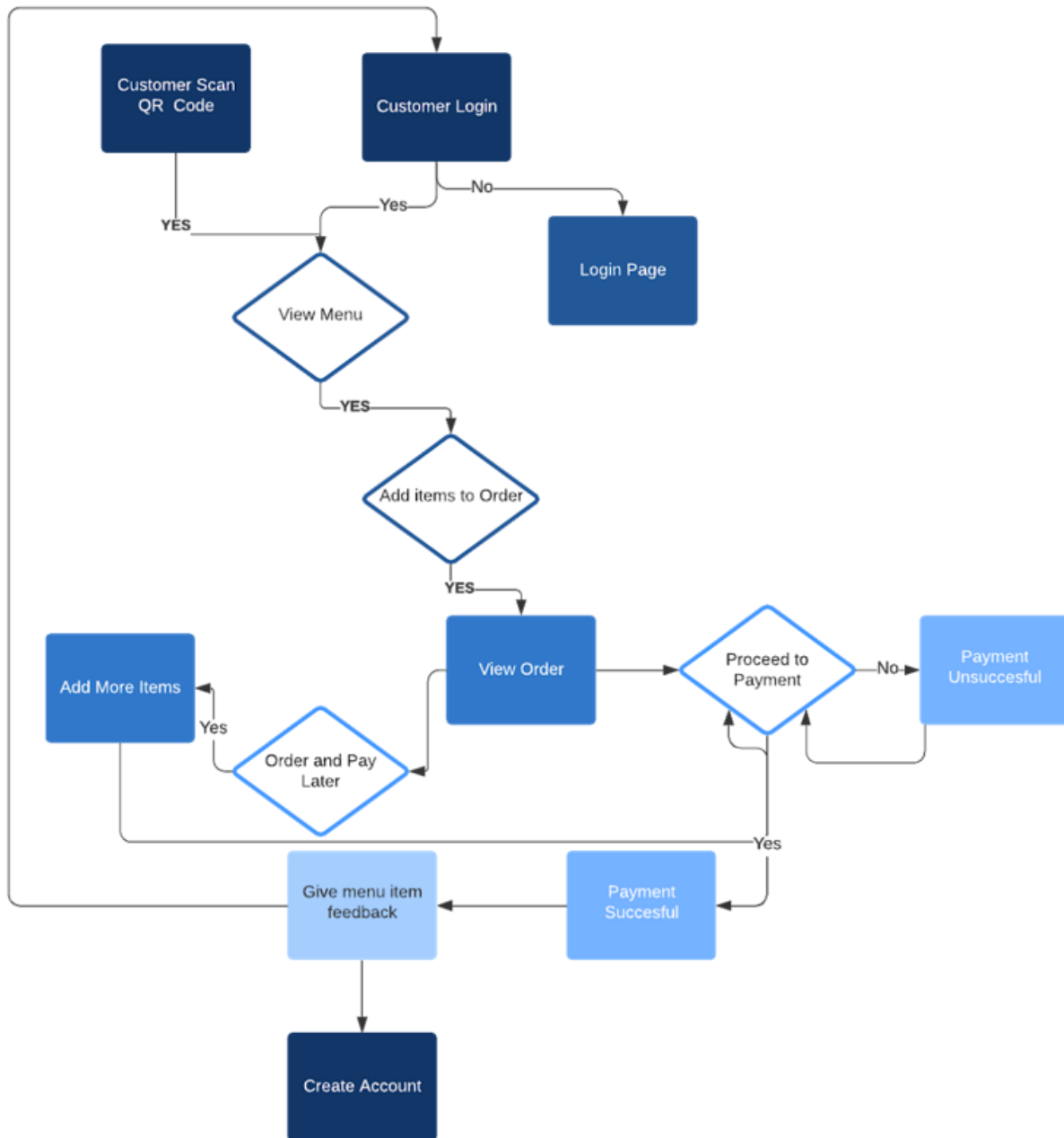


Figure 31 - Customer Module Flowchart
Source: Ana Griga, 2021

5.2 Waiter Module Flowchart

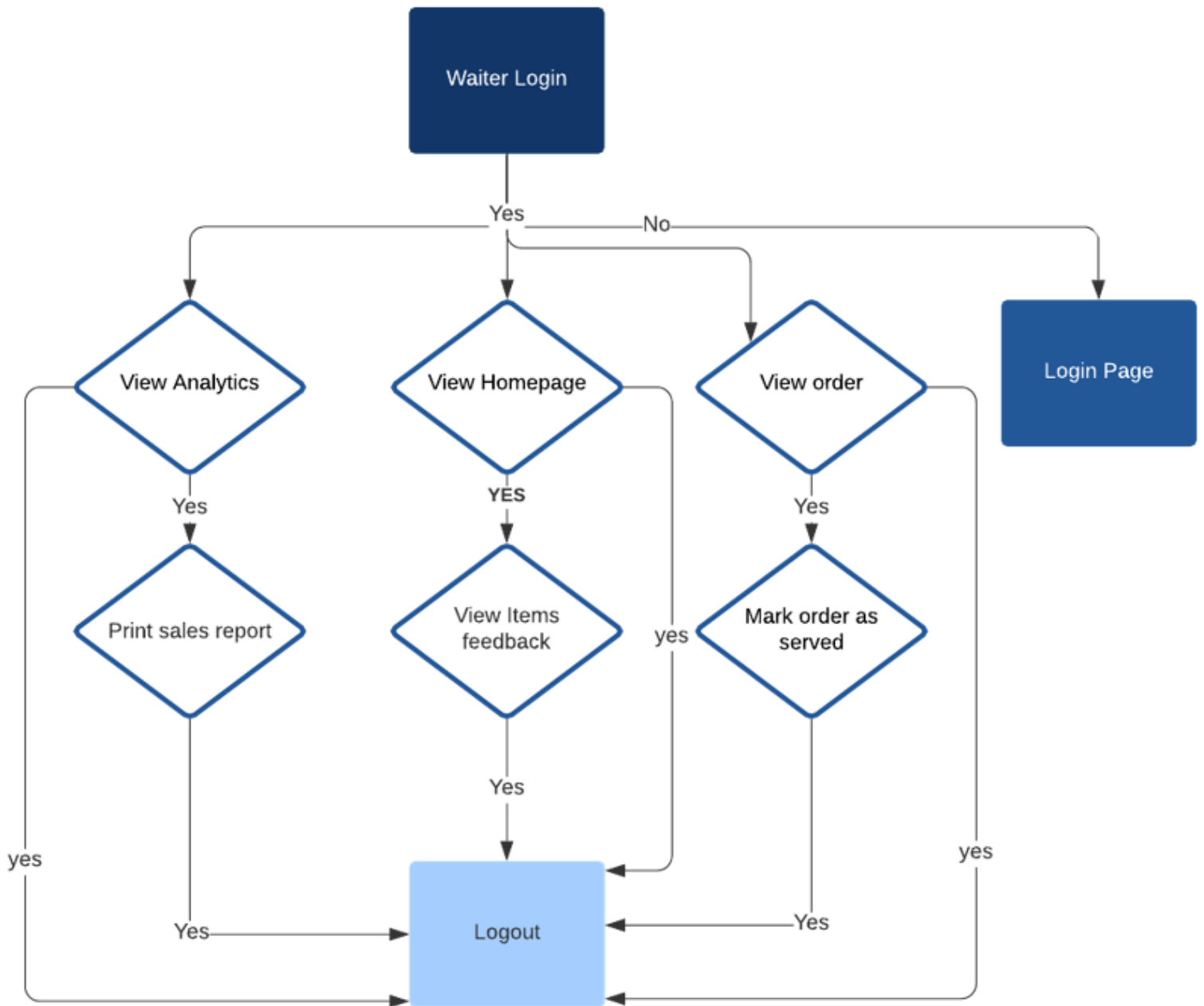


Figure 32 - Waiter Module Flowchart
Source: Ana Griga, 2021

5.3 Administrator Module Flowchart

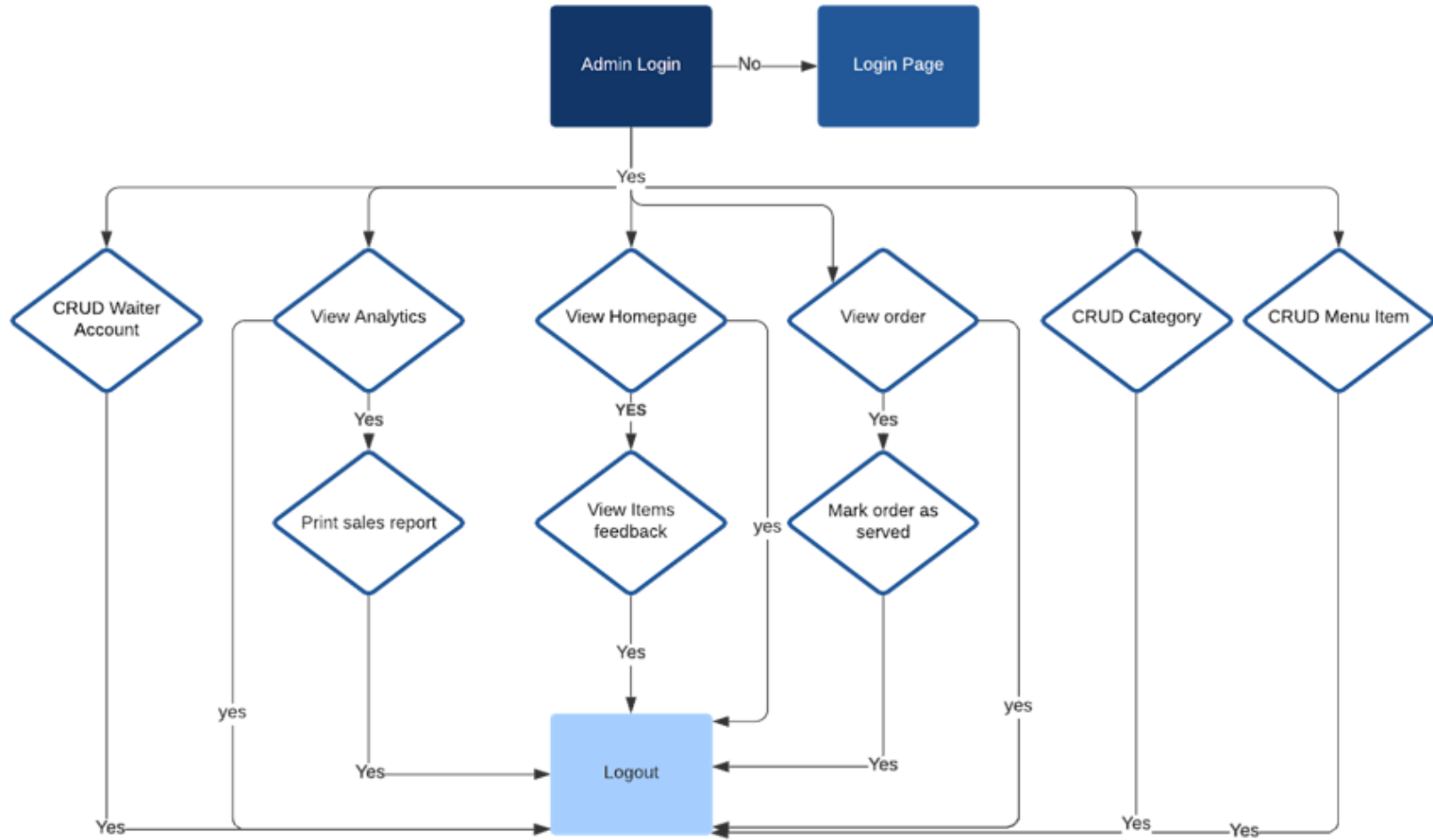


Figure 33 - Administrator Module Flowchart
Source: Ana Griga, 2021

6. System Sequence Diagrams

In the Specification document, there are presented the primary use cases for Click & Eat Application. Below will be created the system sequence diagrams, which shows the events that the actors generate, the order of events and the interaction with the system for the features represented by each use case scenario.

6.1 Customer Module Use Cases

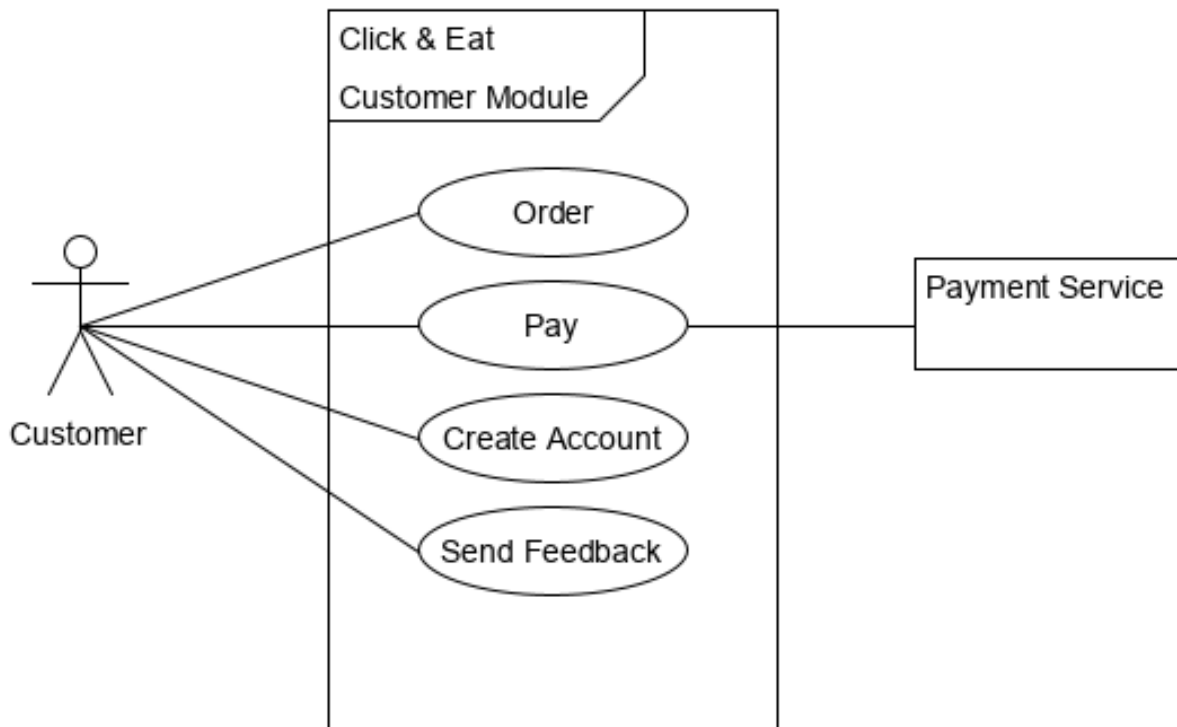


Figure 34 - Customer Module Use Cases
Source: Ana Griga, 2021

6.1.1 Order System Sequence Diagram

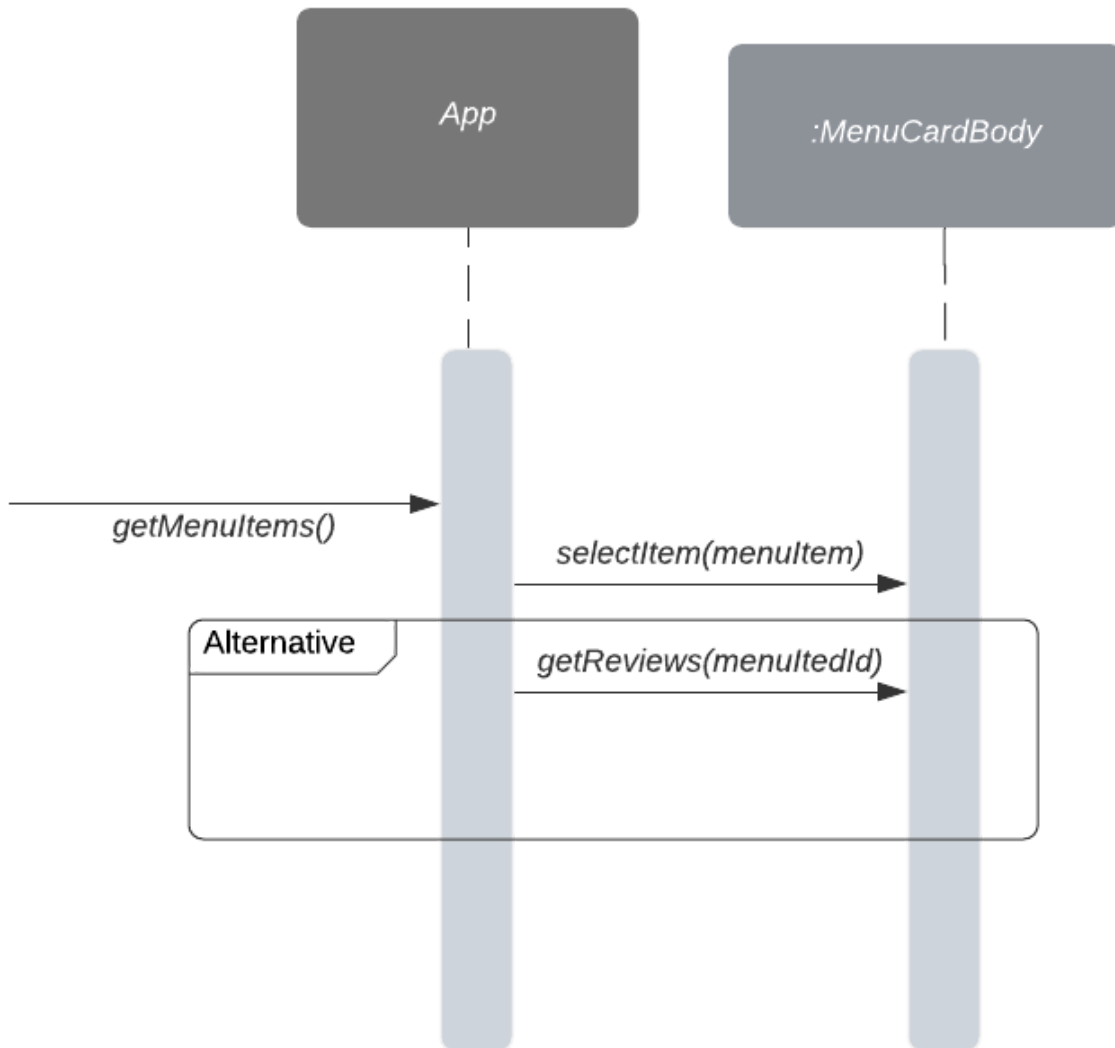


Figure 35 - Order System Sequence Diagram
Source: Ana Griga, 2021

6.1.2 Pay System Sequence Diagram

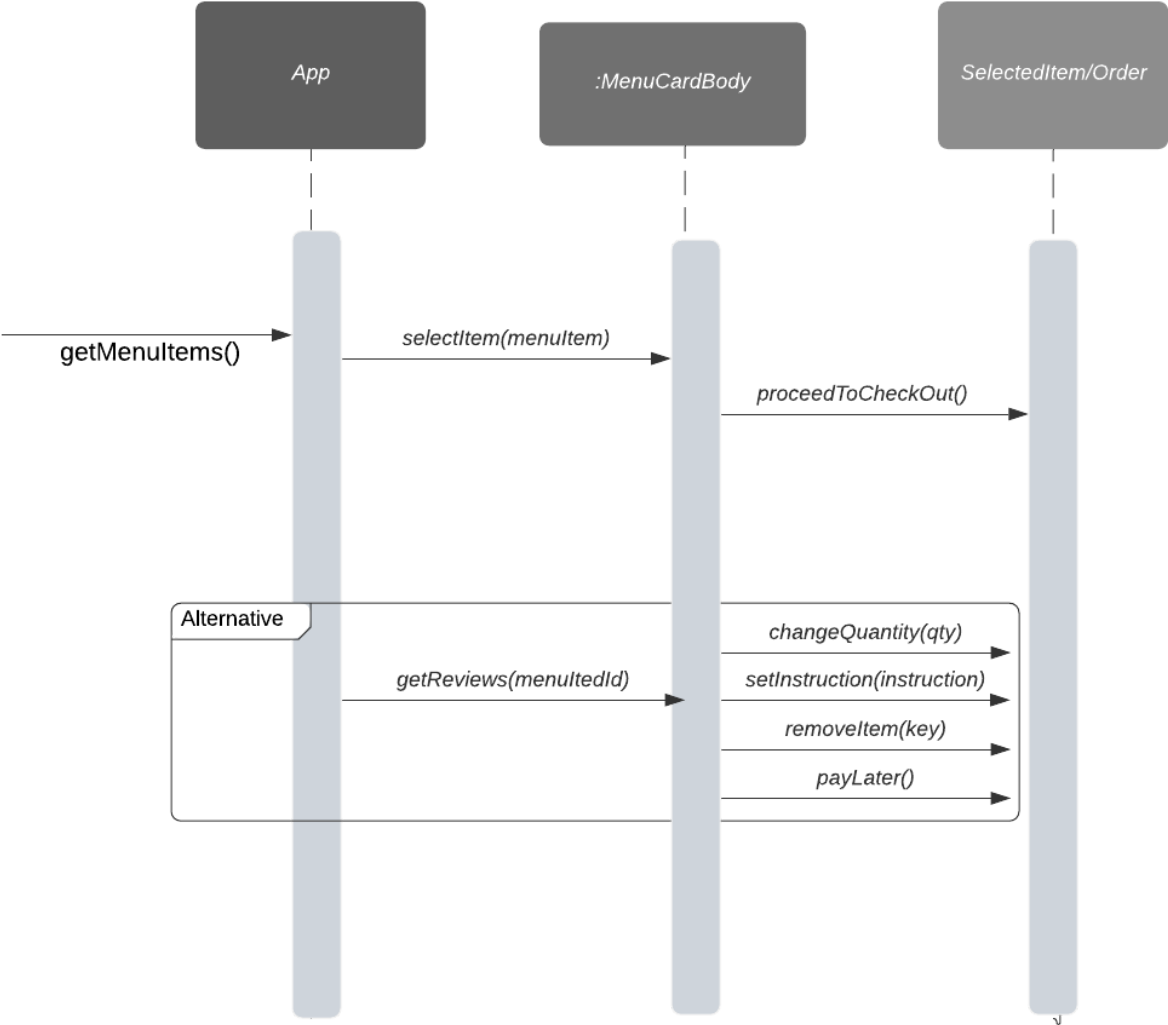


Figure 36 - Pay System Sequence Diagram
Source: Ana Griga, 2021

6.1.3 Create Account System Sequence Diagram

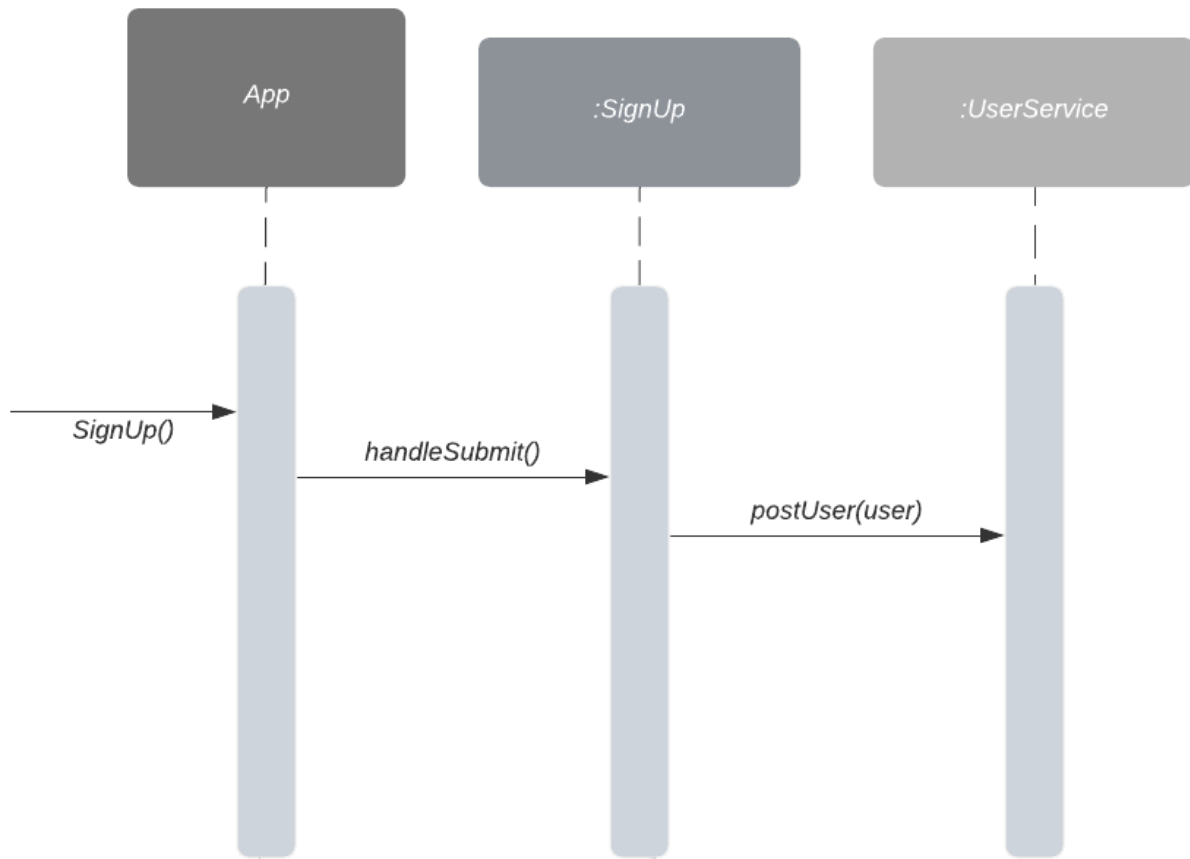


Figure 37 - Create Account System Sequence Diagram
Source: Ana Griga, 2021

6.1.4 Send Feedback System Sequence Diagram

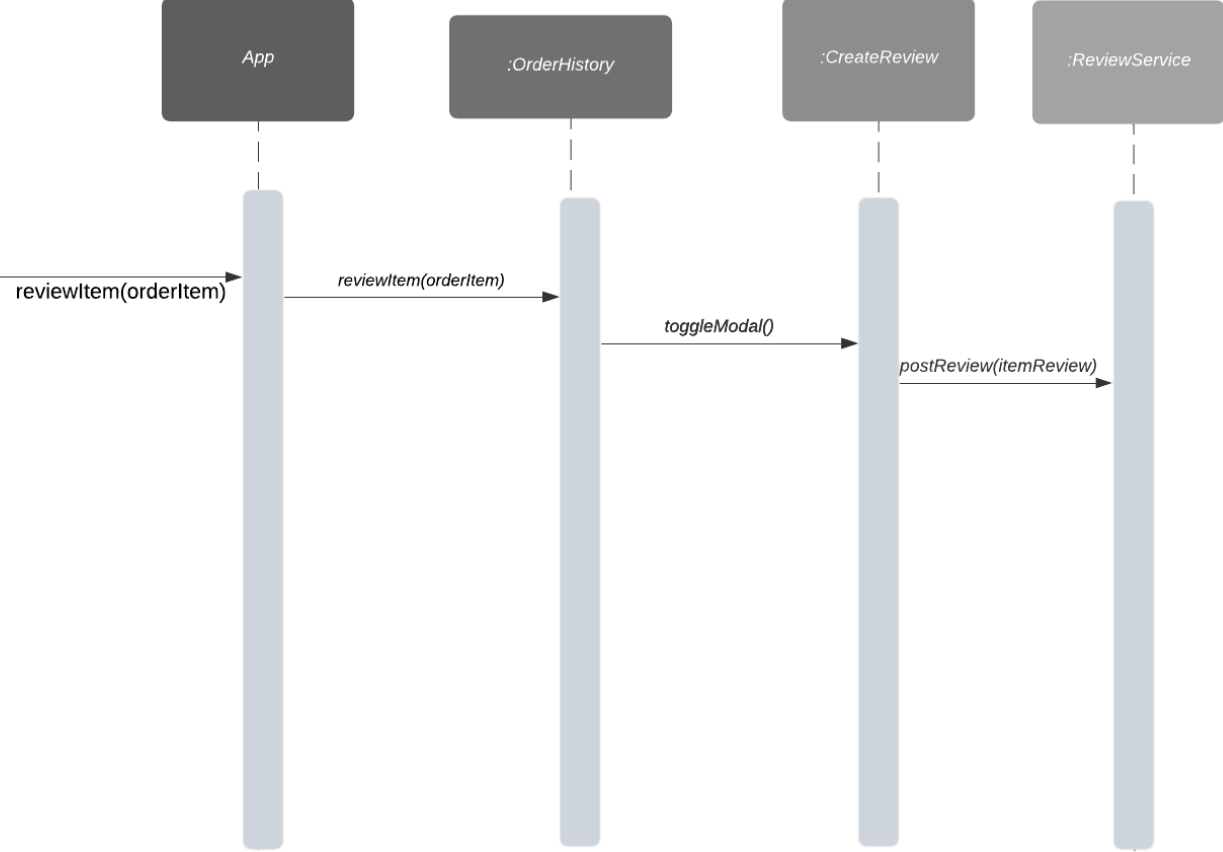


Figure 38 - Send Feedback System Sequence Diagram
Source: Ana Griga, 2021

6.2 Administrator Module Use Cases

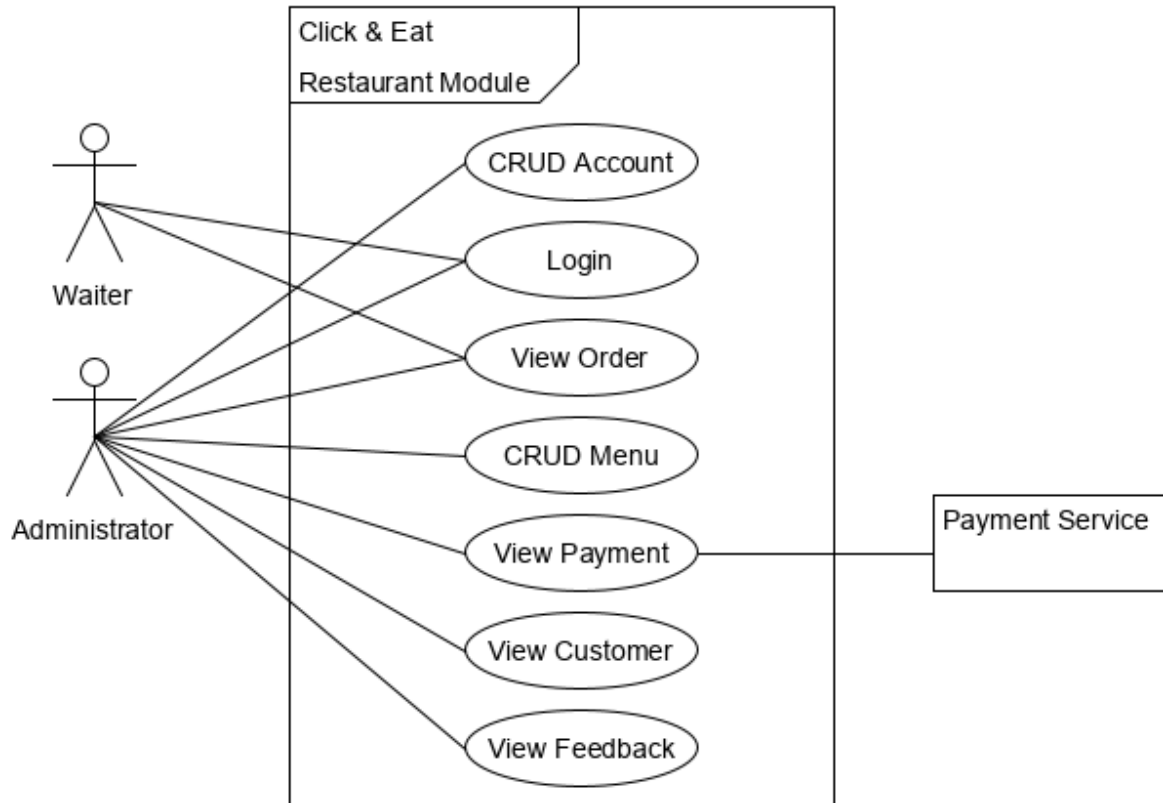


Figure 39 - Administrator Module Use Cases
Source: Ana Griga, 2021

6.2.1 CRUD Account System Sequence Diagram

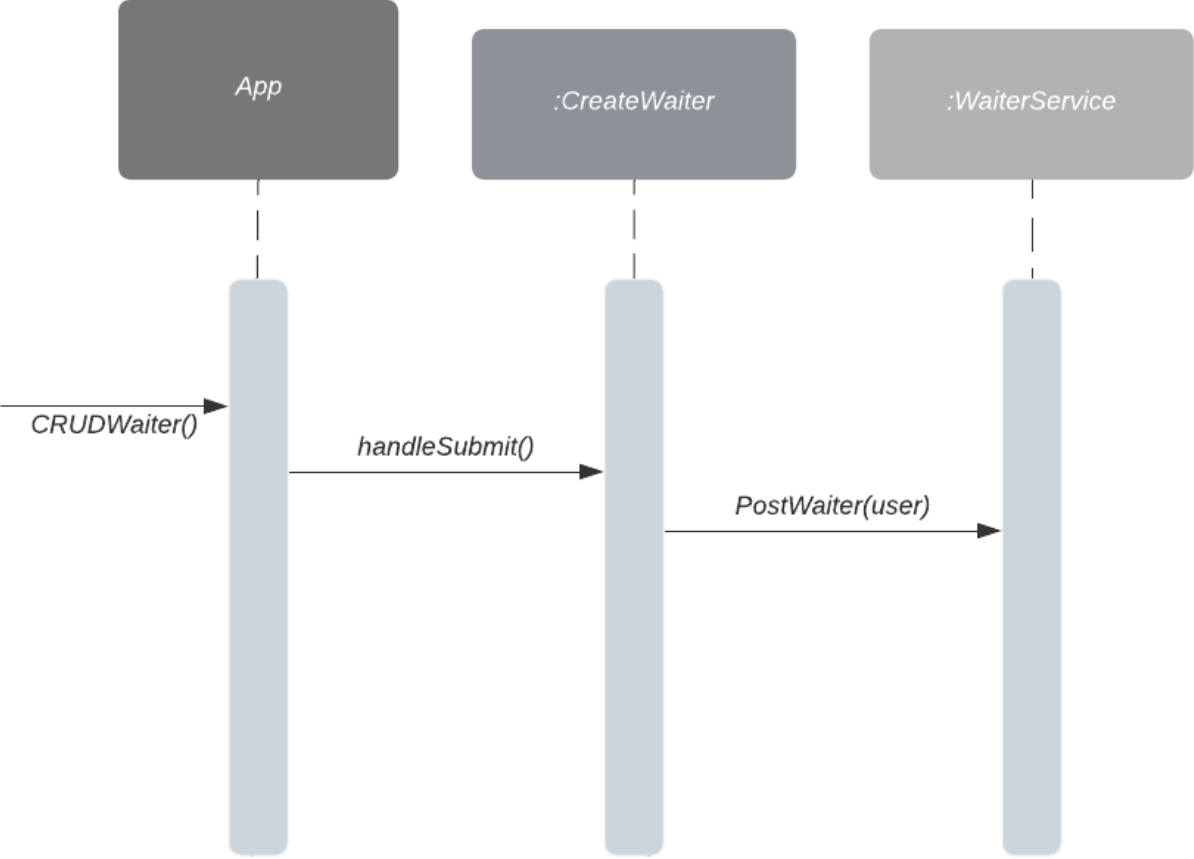


Figure 40 - CRUD Account System Sequence Diagram
Source: Ana Griga, 2021

6.2.2 Login System Sequence Diagram

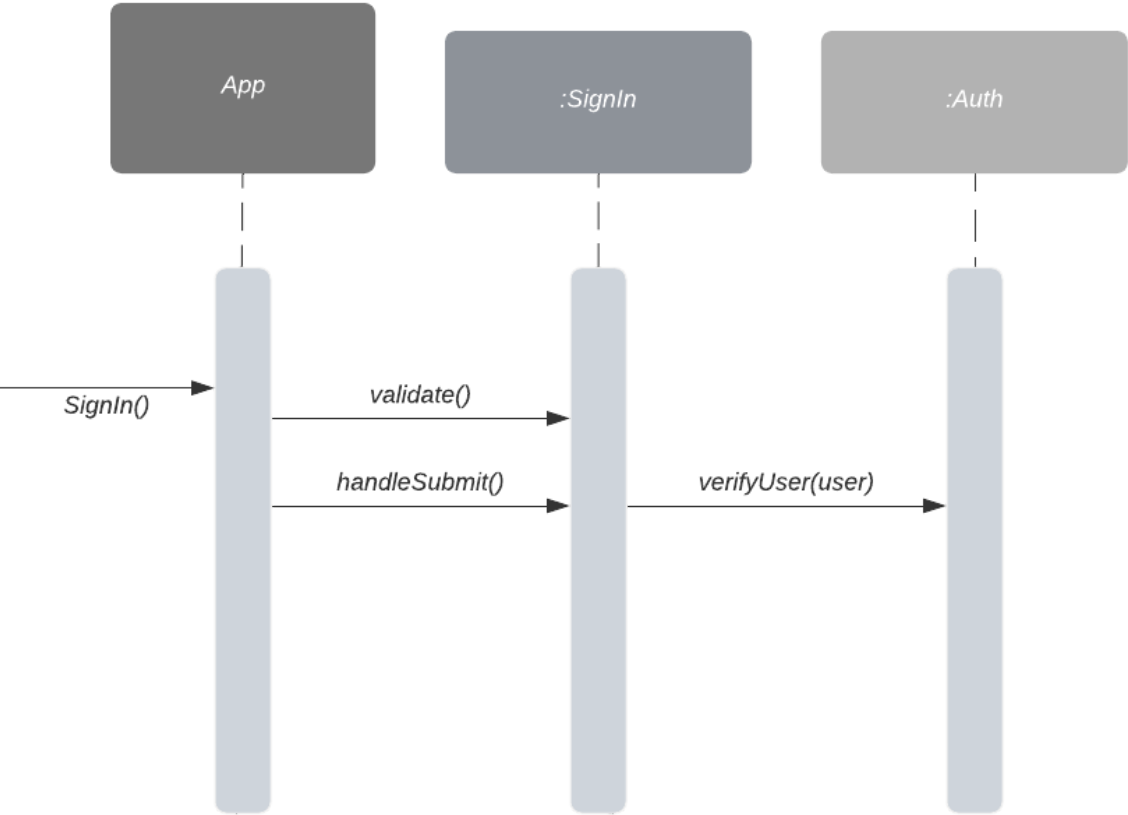


Figure 41 - Login System Sequence Diagram
Source: Ana Griga, 2021

6.2.3 View Order System Sequence Diagram

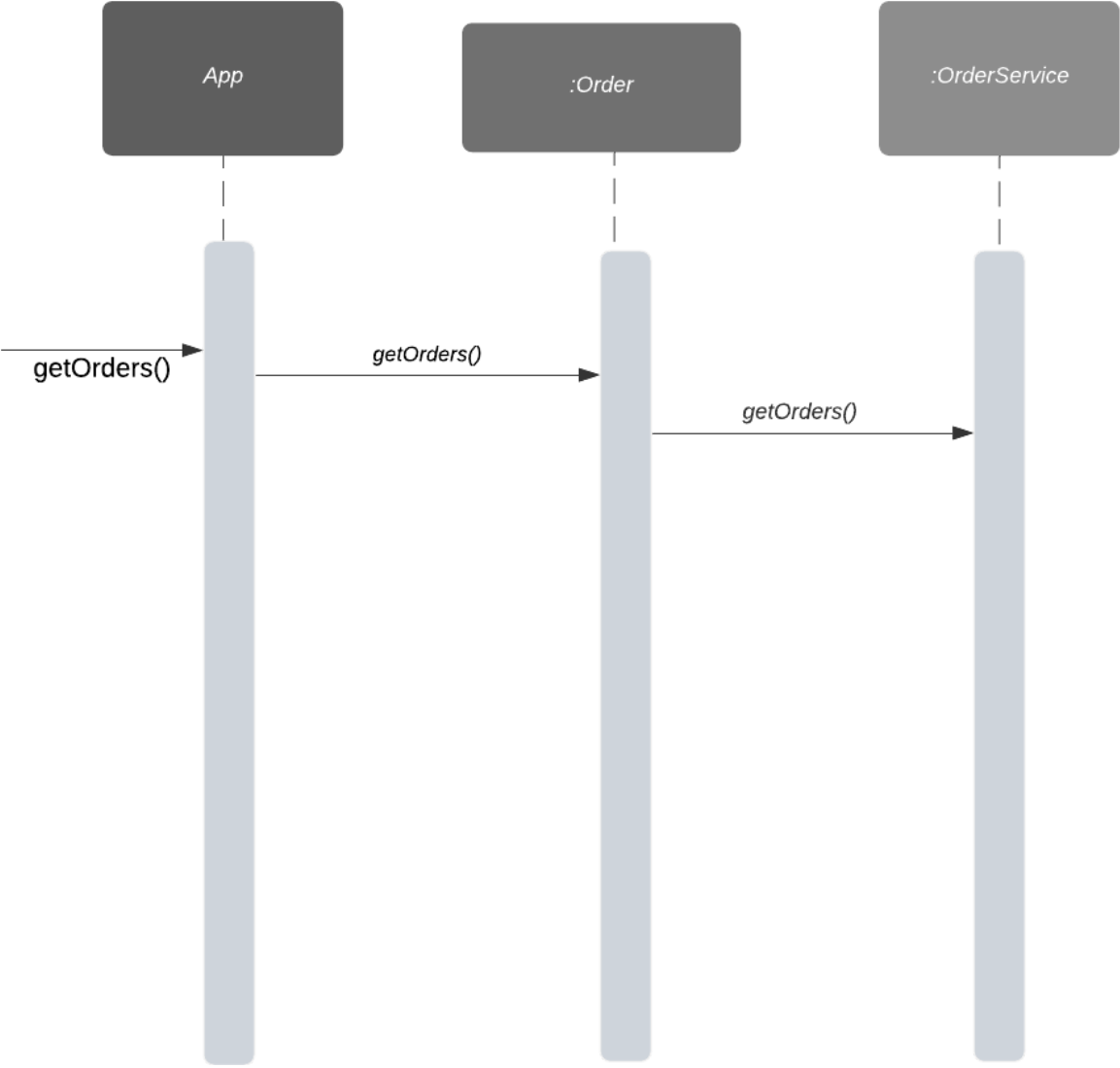


Figure 42 - View Order System Sequence Diagram
Source: Ana Griga, 2021

6.2.4 CRUD Menu System Sequence Diagram

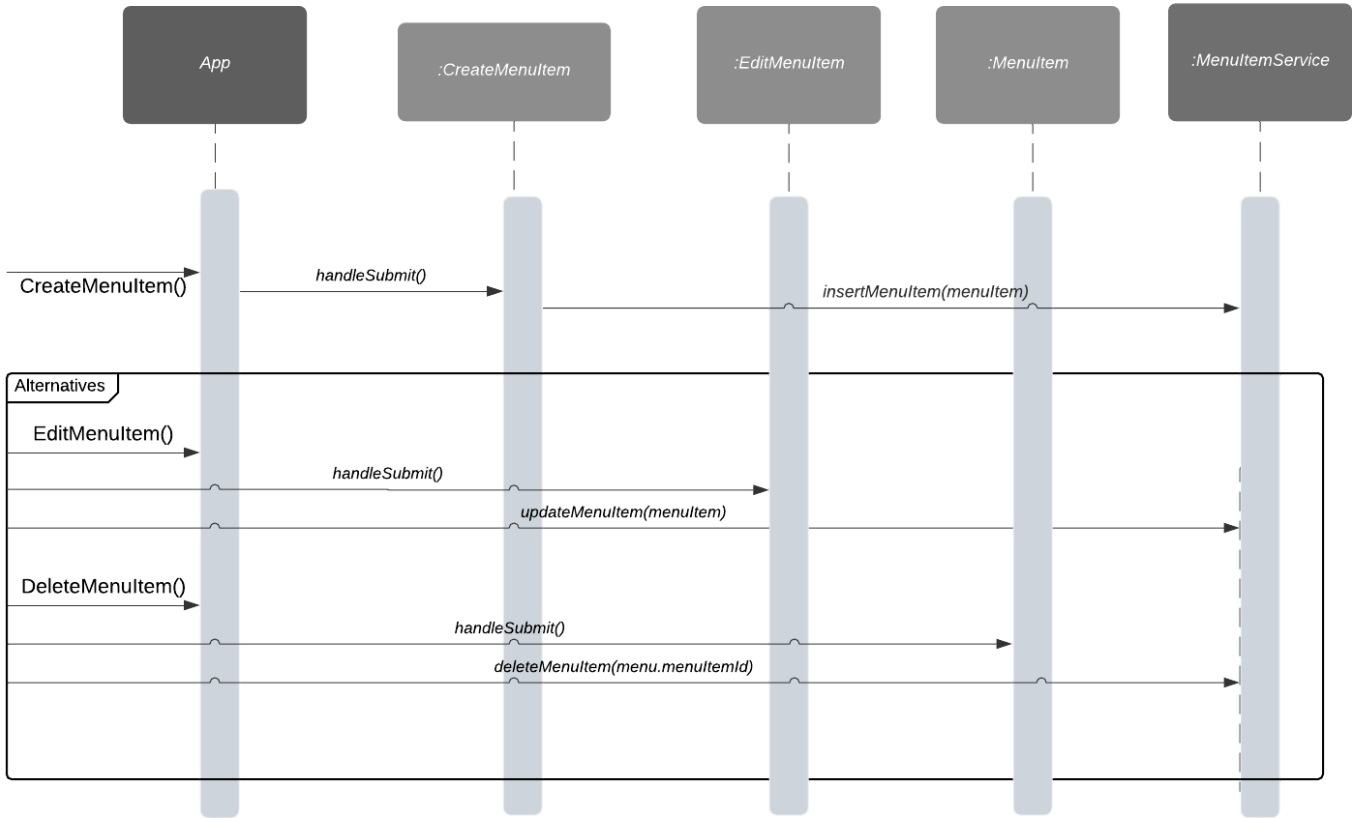


Figure 43 - CRUD Menu System Sequence Diagram
Source: Ana Griga, 2021

6.2.5 View Feedback System Sequence Diagram

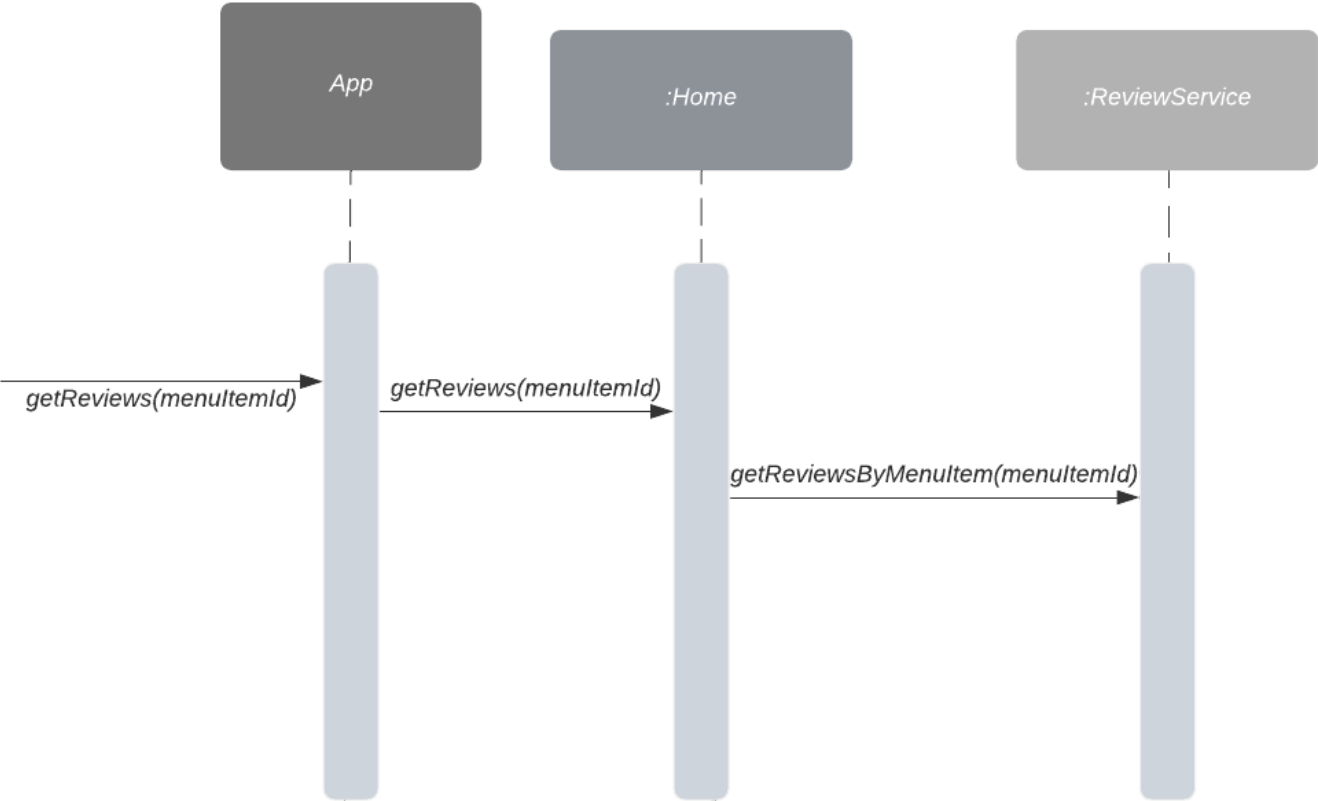


Figure 44 - View Feedback System Sequence Diagram
Source: Ana Griga, 2021

6.2.6 View Payment System Sequence Diagram

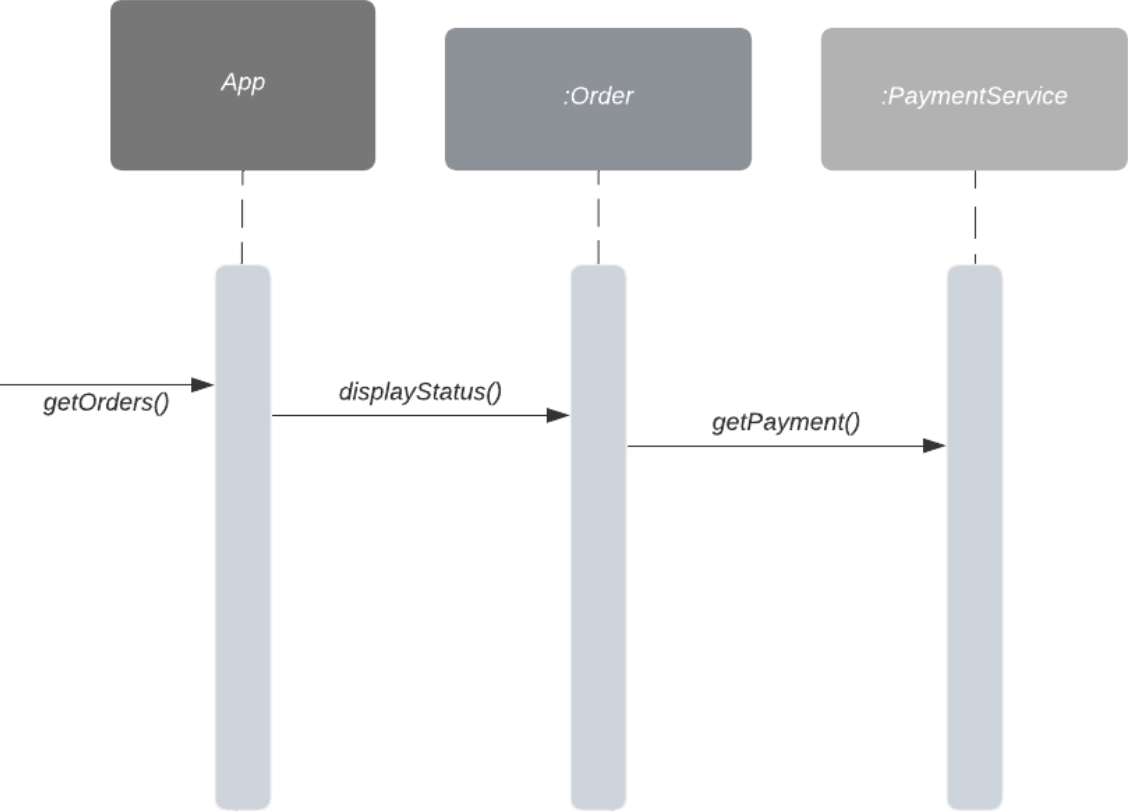


Figure 45 - View Payment System Sequence Diagram
Source: Ana Griga, 2021

6.2.7 View Customer System Sequence Diagram

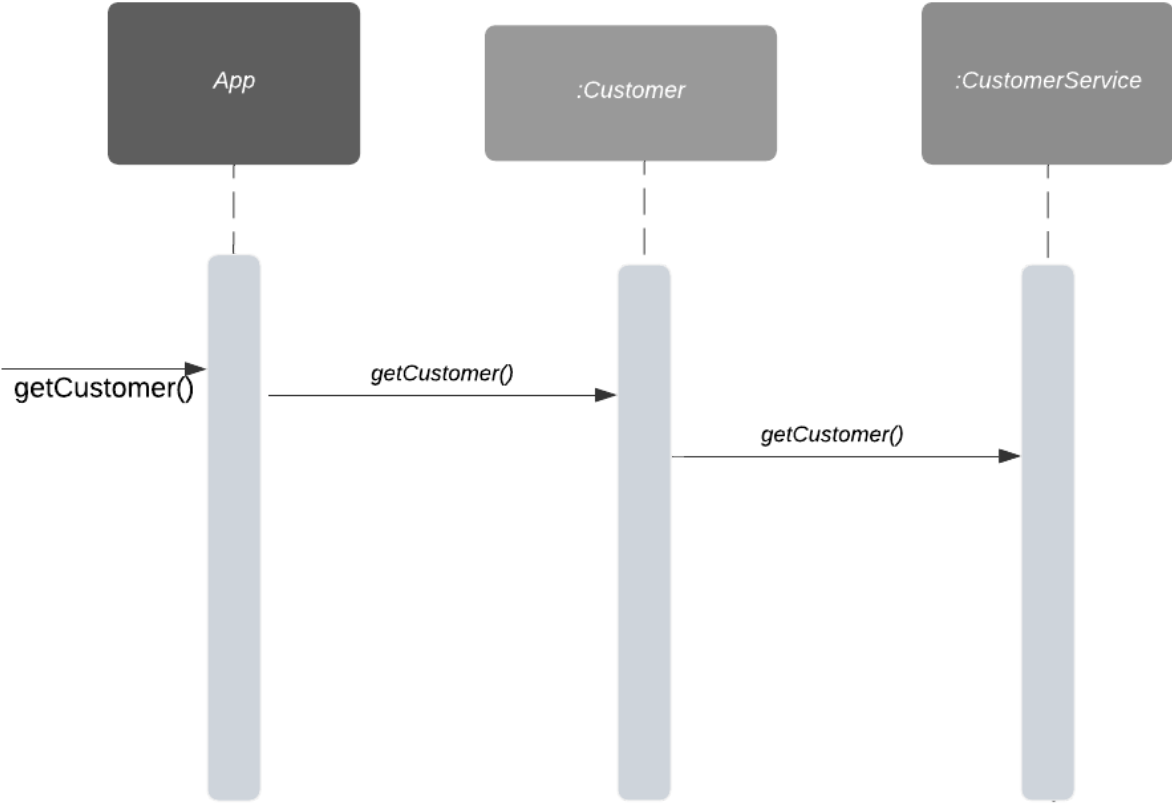


Figure 46 - View Payment System Sequence Diagram
Source: Ana Griga, 2021

7. Database Schema

To store the data, Click & Eat application's API server uses an SQL database. The following Figure shows the design that represents the storage of the data in the SQL database. The relationship the data forms led to the construction of this database schema. This schema describes the organization of the data and also the relationship between the tables presented in the database.

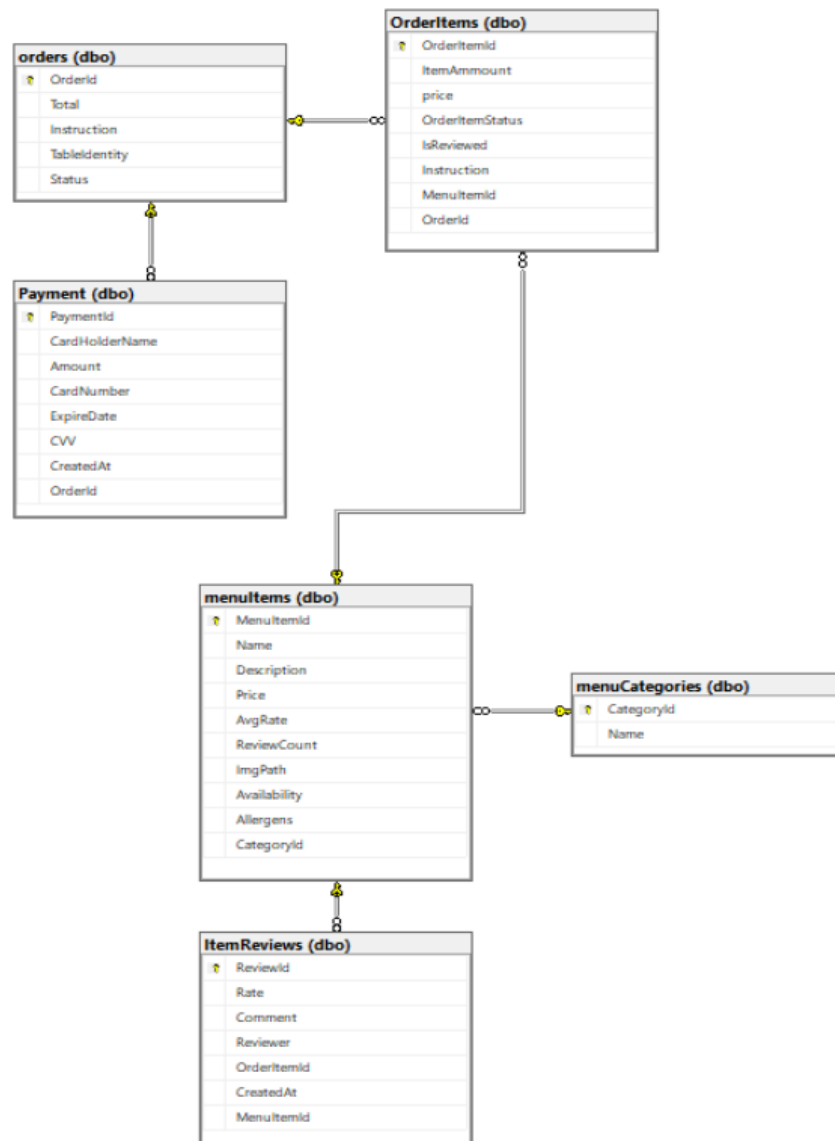


Figure 47 - Database Schema
Source: MSSMS, 2021

The authentication and authorization database tables.

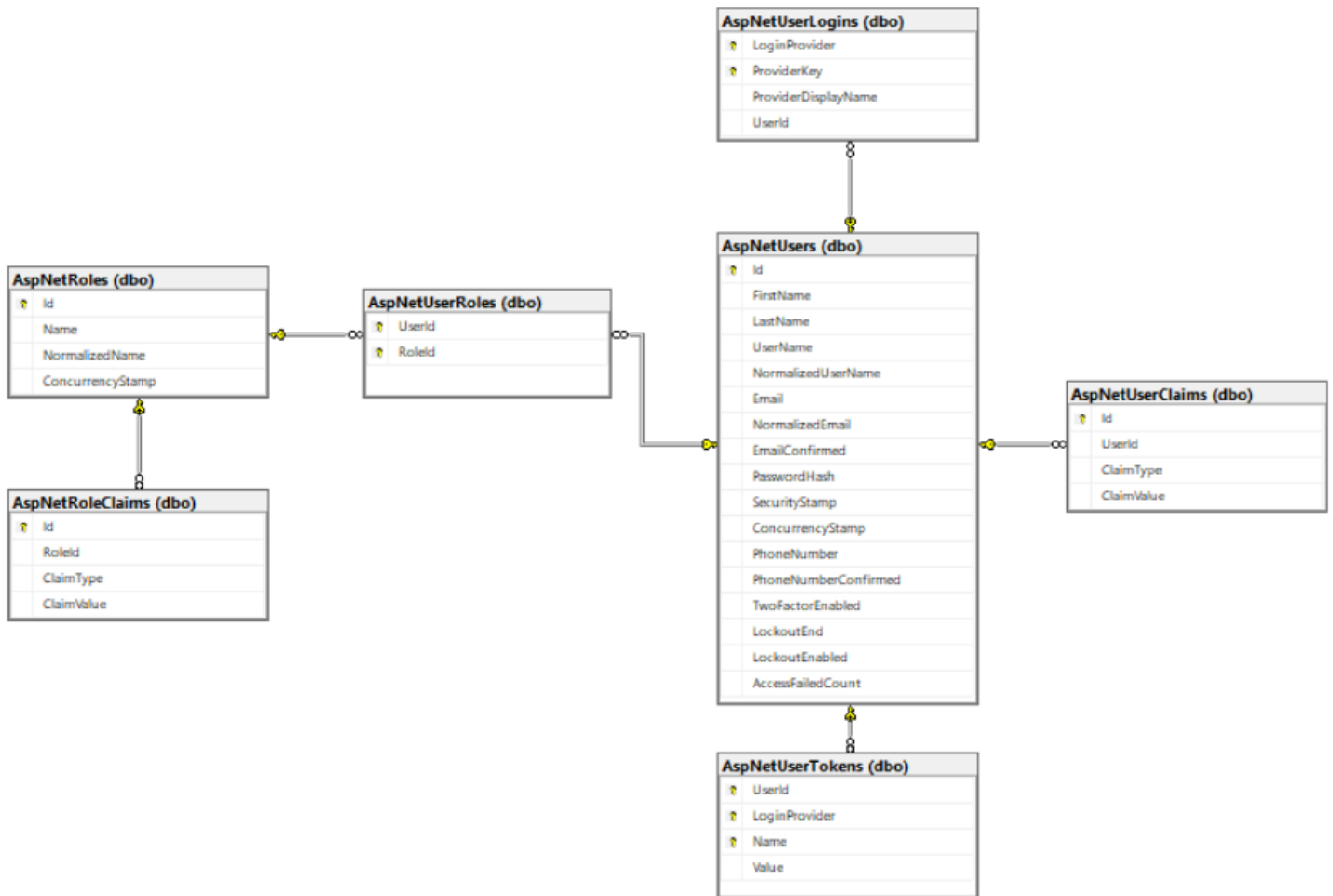


Figure 48 - Database Authentication and Authorization Tables
Source: MSSMS, 2021

Click & Eat application is a web API application that is secure through authentication and authorization using JWT. The API needs to be protected so that only specific users can use that API. To achieve this, the application will make sure that only authenticated users can access a specific API.

The application needs to find out who the user is, and then it needs to find out if that user is allowed to use the application or access a resource, an API.

This modern authentication and authorization do not do the authentication itself. It contracts that out to the identity provider, in this case, Microsoft Identity.

The application will first request an ID token from Microsoft Identity to authenticate the user, and then it will request an access token to get authorization to call a protected API on behalf of that user. In the first place, it will authenticate the user, which means finding out who the user is and in the second place gets authorization which means getting permission to call that protected API.

The tables seen above were generated using database migration for Asp Net Core Identity.

Seven tables that start with the AspNet prefix are the Asp Net Core Identity tables that hold users, claims, roles, logins and user tokens and which are explained as follow:

- AspNetRoleClaims table holds claims assigned to a specific role
- AspNetRoles table holds a list of roles that can be assigned to a user
- AspNetUserRoles is a many to many relationship table that connects users with assigned roles
- AspNetUserLogins is connecting external users to local users. The users presented in the AspNetUsers table are local users. If a user wants to login in with a Google, Facebook account, this table holds the link, so once the user is linked, they do not need to go through the linking process again
- AspNetUsers table is holding the users with all their information like username, email, password
- AspNetUserTokens table is holding the external authentication tokens
- AspNetUserClaims is holding the claims assigned to a user. A claim differs from a role as it is a key-value pair, and it represents an optional property assigned to a user (deblokt, 2019)

8. Class Diagram

8.1 Visual Studio Generated Class Diagram

The Figure below shows the controller classes with properties and methods. All controllers inherit the ControllerBase Abstract Class.

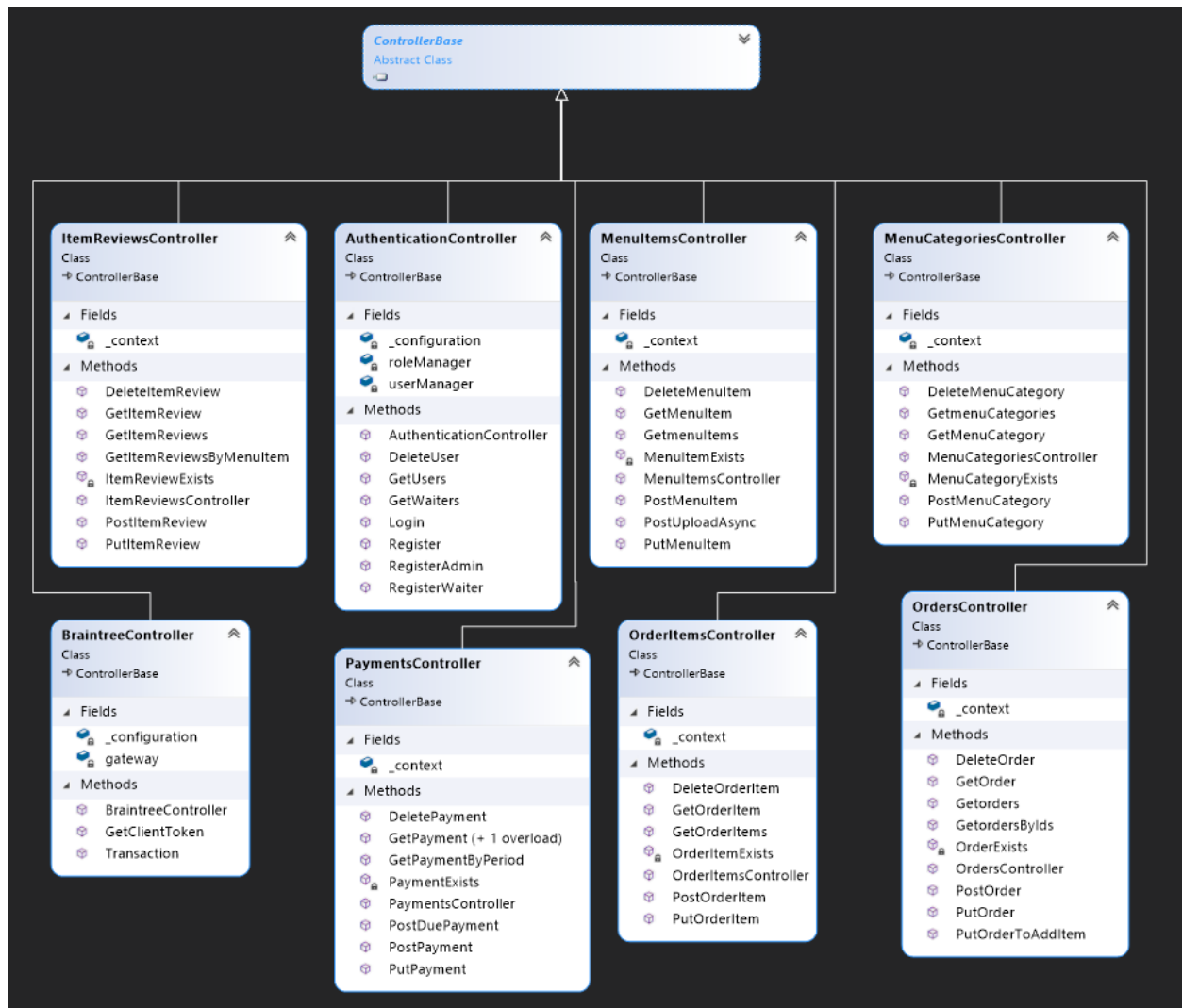


Figure 49 - Controllers Class Diagram
Source: Visual Studio, 2021

Figure 50 shows the Model classes which represent the tables where the data will be saved. All models inherit from the Migration Abstract Class.



Figure 50 - Models Class Diagram
 Source: Visual Studio, 2021

8.2 UMLet Class Diagram

The diagram below was created using UMLet tool and shows more in depth all the variables and the methods for each class as well as the connection between them.

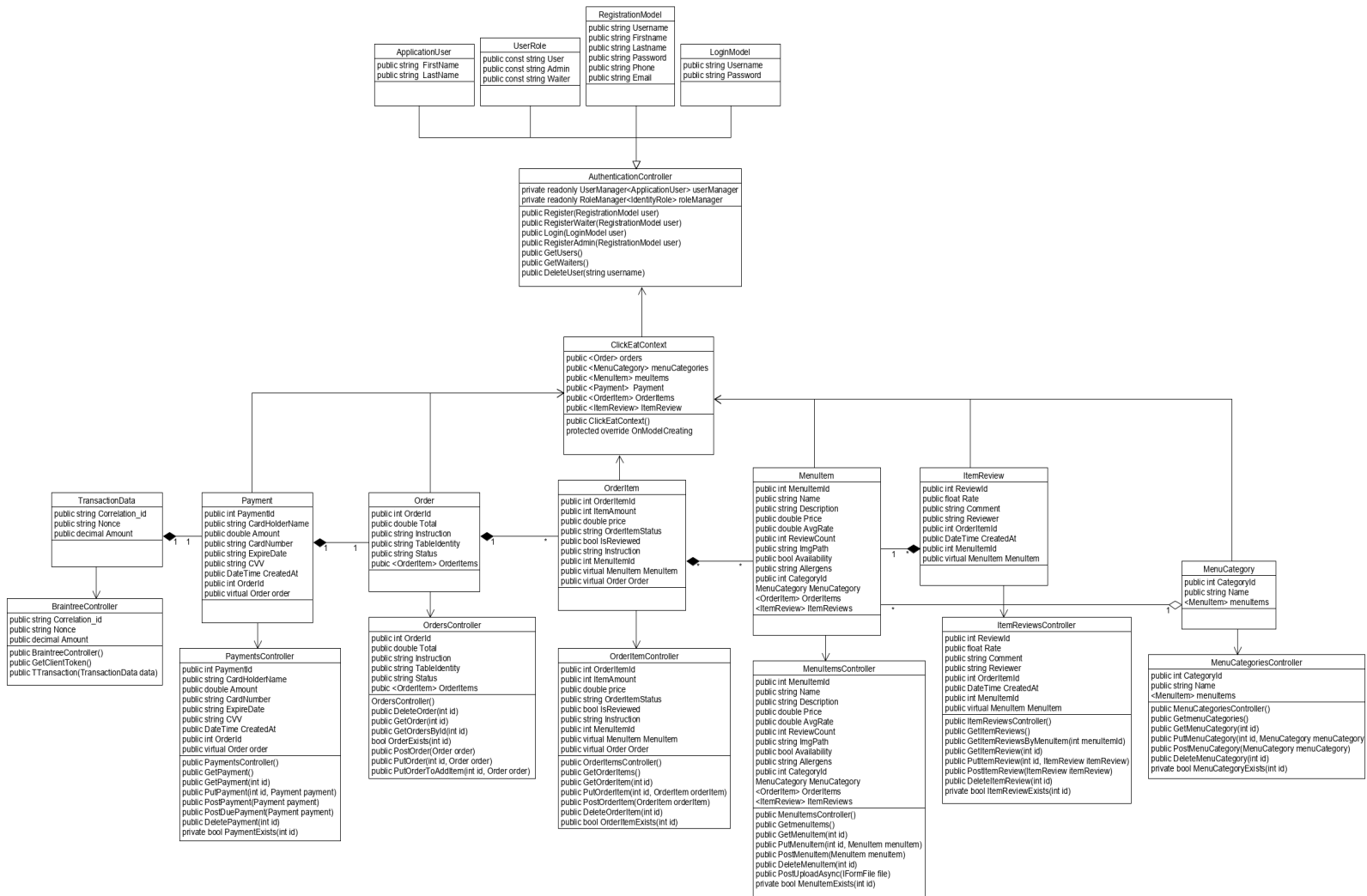


Figure 51 - UMLet Class Diagram
Source: Ana Griga, 2021

9. Conclusion

This document outlined the programmatic structure through the use of UML diagrams of the proposed platform. Wireframes were shown to showcase the layout and the functionality of the application. The database schema was also described. The flowcharts for all the features have been included.

10. Bibliography

deblokt, 2019. IdentityServer4 ASP.NET Core Identity. [Online]

Available

at:

<https://deblokt.com/2019/09/24/04-part-2-identityserver4-asp-net-core-identity/>

[Accessed 31 March 2021]