Introduction

FanC is a hypothetical restaurant booking and management app for both restaurant-goers and restaurant owners. For regular users, the app serves as a tool to find local restaurants, view their menus and photos, leave reviews, and make bookings all within the application. The app also allows Managers to organise and manage their restaurant through publishing and editing rosters, updating seating plans, and adding / removing staff from the restaurant. Restaurant staff can use the application to view their work roster, confirm bookings, assign seats and sign in guests into the restaurant.

The app is designed to be integrated within a restaurant's workplace, and so both desktop and mobile versions of the app are to be developed. This means that both staff users and customer users can use the app on their desktop and while on the go.

Research

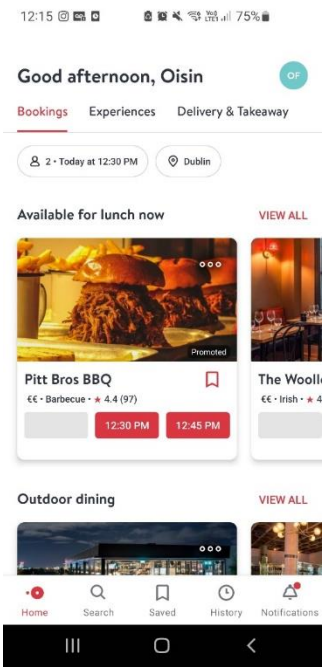
There are three main-competitor apps that I have chosen to research and take functional inspiration from. These are OpenTable, Yelp, and Zomato. All three apps offer search services for users looking to find local restaurants based on ratings, pricing, and distance.

Open Table

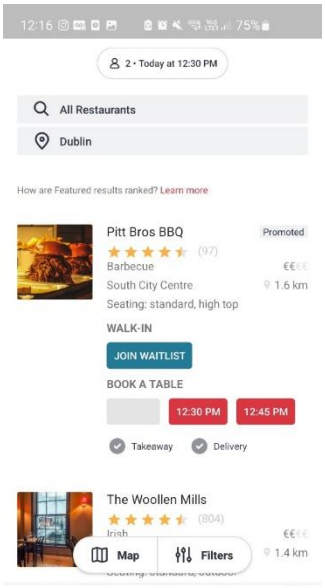
Firstly, we shall discuss OpenTable. OpenTable is a restaurant search and booking tool. It features the ability to search through restaurants based on location and allows the user to view the locations of the restaurants on a map view. The search offers a variety of filters, allowing the user to refine their search based on cuisine, seating options, amenities, price, distance, and rating.

The user can select a restaurant from the results and view its page. On this page, the user can view the establishments' website, view reviews, see photos from the restaurant, and make bookings for seats based on available timeslots and number of seats needed. In the event that a restaurant has not uploaded their menu to the app, or utilises its own booking system, the page will instead link to the restaurants external site or display their contact information such as email or phone number. Another caveat is that in order to review a restaurant, a visitor has to have booked and visited the restaurant. This prevents non-visitors to leave unsubstantiated reviews on a restaurant page. It is important to note that some restaurants require deposits for booking, which OpenTable facilitates. This functionality will not be featured in the FanC application, as it would require a good deal of work that only some restaurants will use, insofar that a minority of restaurants may require this functionality. Therefore, restaurants that require deposits for booking should only allow booking from their own website instead. This feature may be added somewhere down the line.

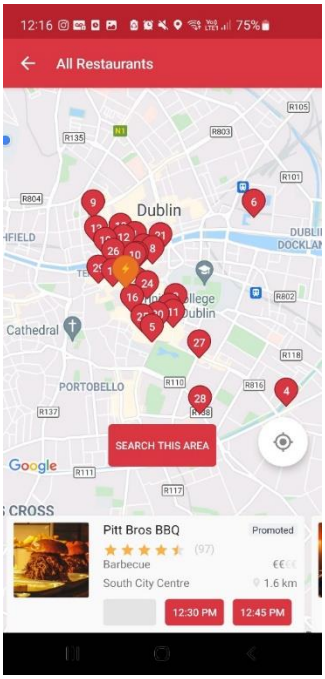
The regular app has its counterpart in the OpenTable: Restaurant Management Platform. This application allows restaurant managers to manage bookings, seating plans, marketing, and even staff roster management. It is sold in two packages: core and professional, with the professional package offering additional services above core. It would be very convenient to offer the services of both apps in a single application, however, it should be kept in mind that it is beneficial to a regular user (who will represent the majority of application users) to reduce the download size of the app, so it may prove useful to allow the app to install extra packages in order to upgrade from the base app (lacking the restaurant management tools) to one that includes the restaurant management tools. Unfortunately, due to the premium pricing of the management software I was unable to gather in person screenshots, however, here is a link to an overview of the features in the management software.



A The homepage of the app, options listed on bottom bar, and curated restaurant recommendations on the main display.

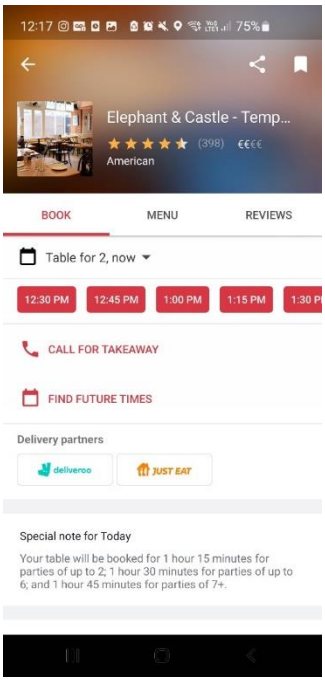


B The default search mode, note the buttons for the map view and additional filters.

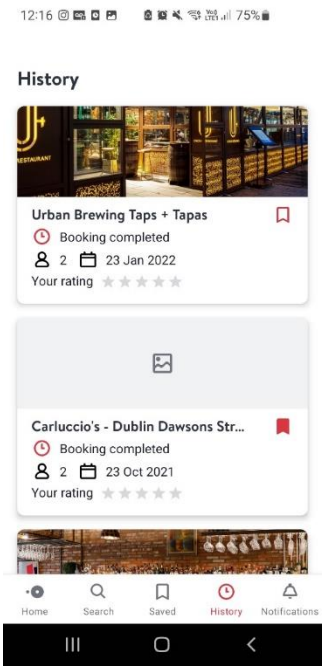


C The map view allows users to select restaurants based on their physical location.

E An example of an uploaded menu. Menus can be further broken down into categories and special menus.



D Example of a restaurant page, with time relevant booking slots highlighted under the title in red.



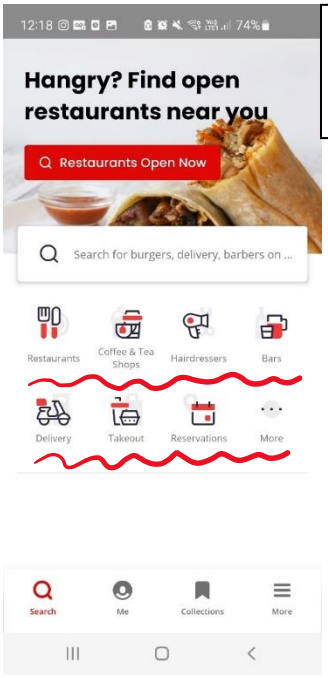
F The app also allows users to view previously visited restaurants and add them to a 'favourites' list.

G The user can view the reviews of other users within the app.

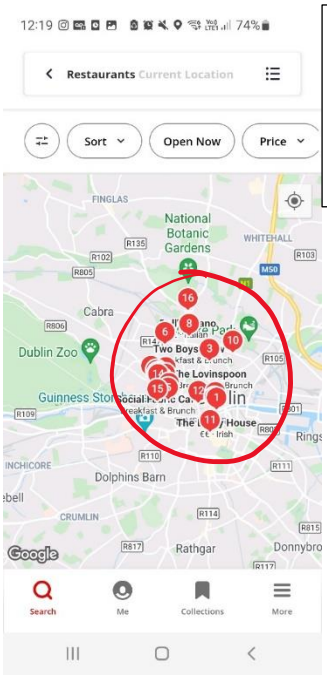
Yelp

The next app to be examined is the Yelp app. Yelp could be considered a 'services' search and review application, as it does not just only list restaurants but allows the user to search for hairdressers, cinemas, medical, and other types of service. Essentially, if a business offers a service, they have a page on Yelp. The features of importance are the features available to restaurant and other food services. Like OpenTable, Yelp offers a variety of search options using Filters and a Map View of local services. Additional filters can be altered so the user is able to refine their desired location. When viewing the page of a restaurant, users can upload photos, read reviews, view the location on a map, view the menu on an external website and visit direct links to the restaurant's website. Unfortunately, just about anyone is able to leave a review, which could be vulnerable to spam or harassment. This is because Yelp does not handle bookings on its application, only displaying contact details for the user to book from, and so cannot verify a user's visit to a restaurant through booking tracking. The app does not display availability of seats for the restaurant either.

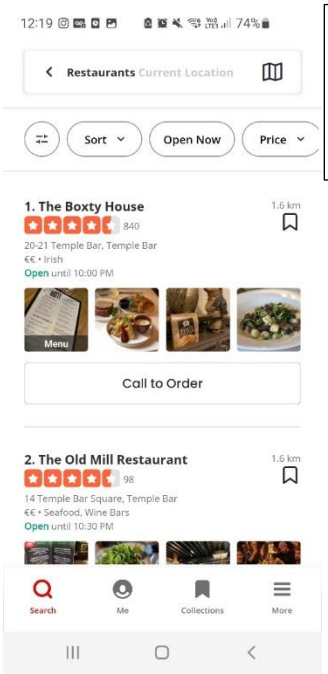
Users can create profiles and add specific restaurants to 'Collections'. These collections can be featured and made public. These collections allow users to recommend restaurant experiences, such as 'Great Korean Restaurants in Dublin City', or 'Great Places for a First Date'. This is a useful feature in the application, one which could be implemented into FanC.



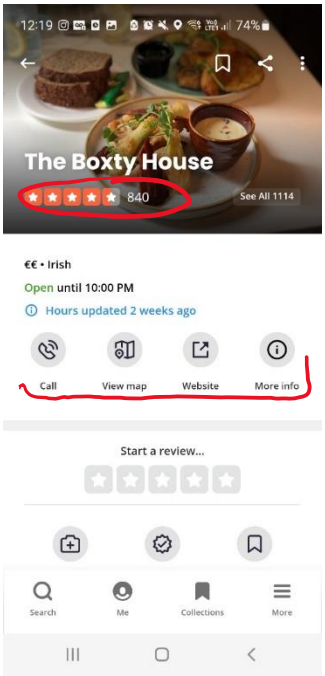
Yelp offers browsing for many services.



Each numbered pin represents a restaurant on the map. Selecting one opens up that restaurants page.



Alternatively, users can view all restaurants of search result in list format.



A restaurant page features the crucial functionality of:

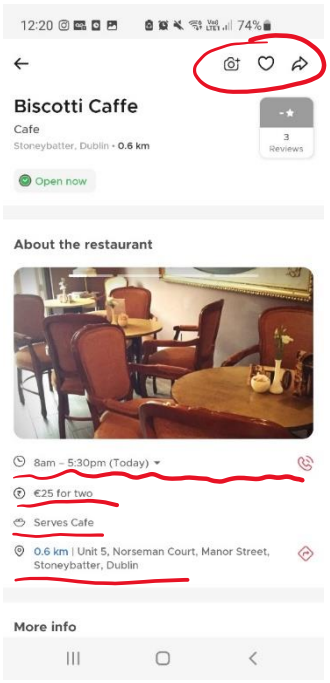
- ➔ Contact
- ➔ Map Location
- ➔ Link to Website
- ➔ More info

Additionally, it displays the average review score of website.

Zomato

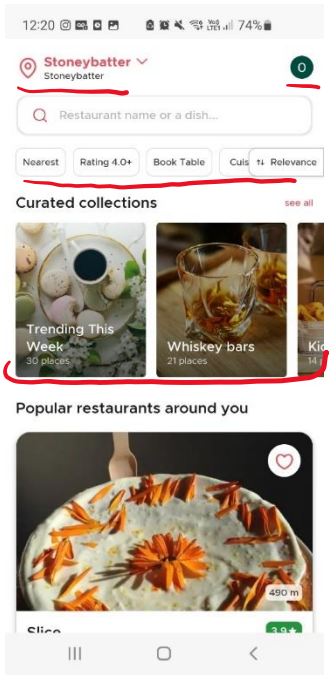
The final application is Zomato. Zomato is a condensed and less refined restaurant application. Similarly, to Yelp and OpenTable, it allows users to search through local restaurants via search filters. However, it lacks the map view feature of the previous applications and is a little less refined in its user interface. Users can choose their location via a google maps search, which will display options based on the user's text input. It doesn't have a visual representation of the location being chosen, or even visual representation of the locations of restaurants listed in the search results.

It does, however, offer the ability for the user to book a restaurant through the application in a similar way to OpenTable. Its user curation system features prominently on the homepage, prompting the user to explore different cuisines, palettes and experiences. Restaurant pages on the app allow users to view and write reviews, view and upload photos, favourite and add the restaurant to their curations. In addition, the menu can be uploaded in picture scan format to the restaurant page.



Basic Restaurant page with ‘favourite’, ‘upload photo’, and ‘sharing’ functionality.

- ➔ Opening Hours
- ➔ Estimate Price
- ➔ Cuisine Style
- ➔ Distance



- ➔ Location and Account
- ➔ Search Filters
- ➔ Curated Restaurant Lists

Non-Functional Requirements:

For FanC, the following non-functional requirements have been identified as important to growing and maintaining a large user-base. These requirements are general guidelines to work towards, and do not have direct influence over the implementation details and decisions that will be made to achieve them.

- ➔ Clear distinction between management/staff functions and regular user functions:

  The app will be a one-stop-shop for all people in or out of a restaurant. The app must be able to display the relevant information and functions for each user without confusing or getting in the way of others user types. We shouldn’t present a regular user the same options as a restaurant manager, as they will not be able to use them.

- ➔ Fast and responsive:

  Restaurants must be able to rapidly manage user booking requests and update their restaurant seating plans. Delays in booking applications being accepted will cause errors. With fast and responsive application, delays and stalls will not cause these issues and the app will be more reliable. Being fast and responsive also prevents the user from becoming impatient, encouraging them to keep using the FanC application.

- ➔ Easy to use interface:

  We want our restaurant application to be easier to use than a phone number, or the current management software for restaurants. If it isn’t easier to use, then users will stop using our software and switch back to using their phone or other apps. It must be usable and accessible for all user groups that will be looking to book places to eat. By being accessible, it prevents staff members from making errors in the application, which may lead to booking conflicts and communication errors.

➔ Safe and Secure Application for Restaurant Details:

When applying for restaurant status, our admin team must verify all relevant documentation to ensure the restaurant 1. Exists and 2. Is actually owned by the user setting up the restaurant. A suitably secure and efficient application procedure must be developed, in which sensitive documentation such as payment information, restaurant documentation, health and safety certifications, and tax information etc., may be gathered and safely guaranteed to not be vulnerable to cyber-attacks or hackers. It is important to ensure that this information cannot be intercepted or accessed by third parties.

➔ GDPR and Regional Data Protection Law Compliance:

If the app is to be used globally, the features available must adhere to the laws of various countries. This includes consumer data protection rights which define what for which purposes user data may be legally stored. Ensuring that the user is able to clearly read through their rights and explain what data will be stored and for which purposes is important in order to get their explicit and informed consent.

➔ Easy to integrate with current restaurant workflow:

Most modern restaurants already have their own websites and system software. In order to grow a suitable paying user-base (i.e., Restaurants with a subscription to our management service), FanC must be easy to integrate with existing restaurant management software. While the main goal should be to supplant and fully deprecate the previous software, some owners may not wish to make such a transition all at once. By making FanC easy to integrate, those users will not be put off from subscribing their restaurant to the FanC service.

FanC Functionality

For FanC, we will combine the OpenTable, Yelp, and Zomato consumer functions with the OpenTable Restaurant Management tools into one convenient application. The app will have multiple user types, including a system administrator that acts through the app on behalf of the FanC Company.

There exists 4 main users for the application: User (Base), Staff Member, Restaurant Owner, and Administrator. The first three exist in hierarchy, with Staff Members being a specialization of the Base user, and with Restaurant owners being a further Specialization. Administrators for the app are not part of this hierarchy and have access to separate functions and permissions.

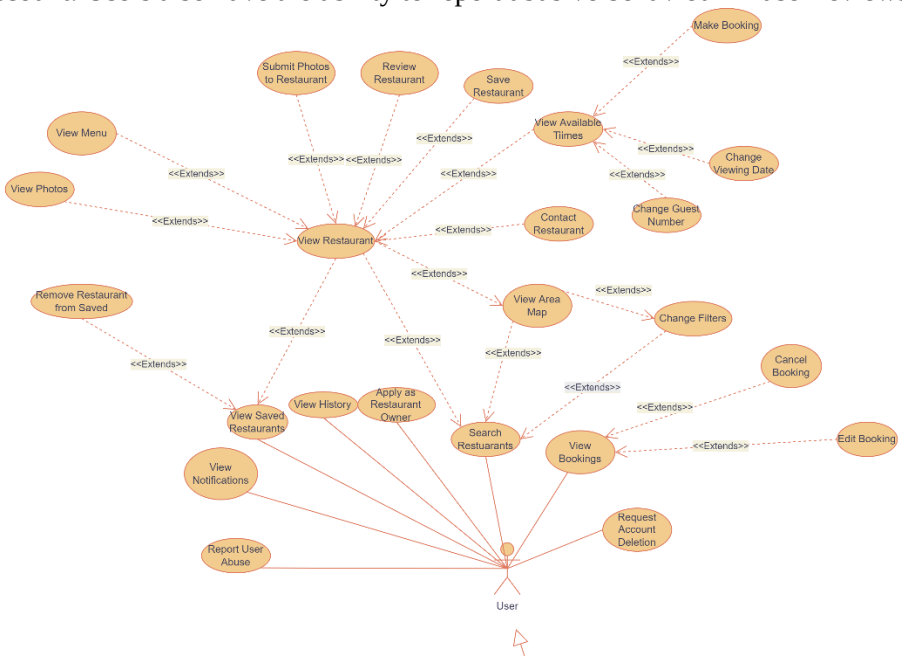
One crucial detail to explain is that in order for a restaurant page to be created, its owner must make a base User account, and then file an application to become a restaurant owner within the app. Only Administrators can upgrade a base user to a restaurant owner. Staff members can be created only by the Restaurant Owner.

Base User

A base user is a regular user of the app. Users of this classification are able to search for local restaurants using various filters to finely tune which restaurants they are shown. User can also view the restaurants local to an area and select them based on physical location. Users can save restaurants that they like and view their booking history to see which restaurants they have been to.

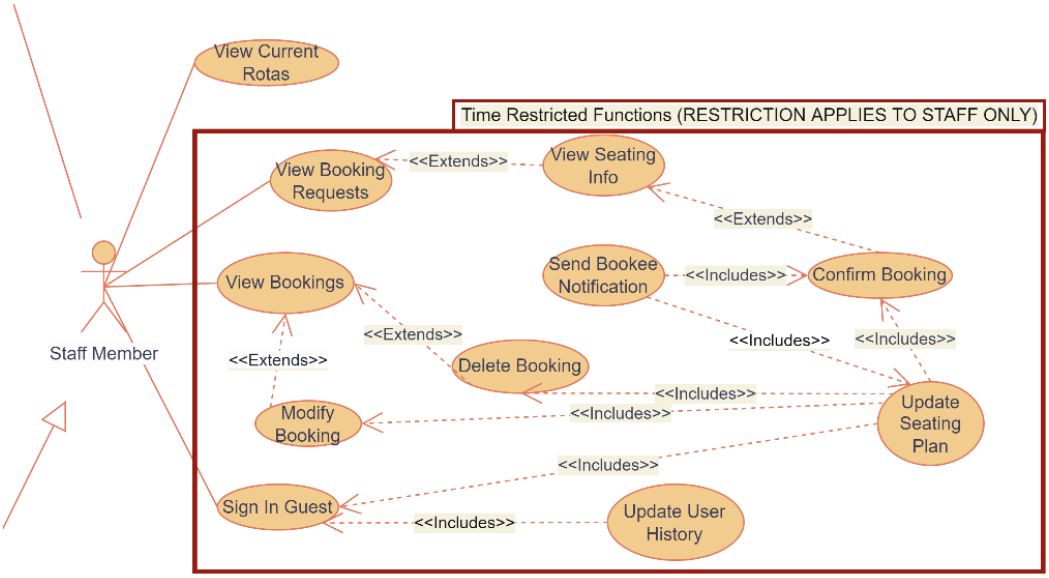
When viewing a restaurant, users can submit and view photos to upload, view and create reviews, and make bookings. These bookings can later be modified and even cancelled. The user also has access to a notification feed, which gives them updates on bookings and notices from the restaurant.

Additionally, users can apply as restaurant owners, which leads into the verification process. For each restaurant, a user can be added as a member of staff by the restaurant owner user. Note that this is not a substitute for a dedicated personnel hiring system. It is assumed that the restaurant owner will instruct the staff member to create a base user account when hired externally to the app, and then will add that user to the staff when they lodge a request from their account. Users also have the ability to report abusive behaviour in user reviews or photo uploads.



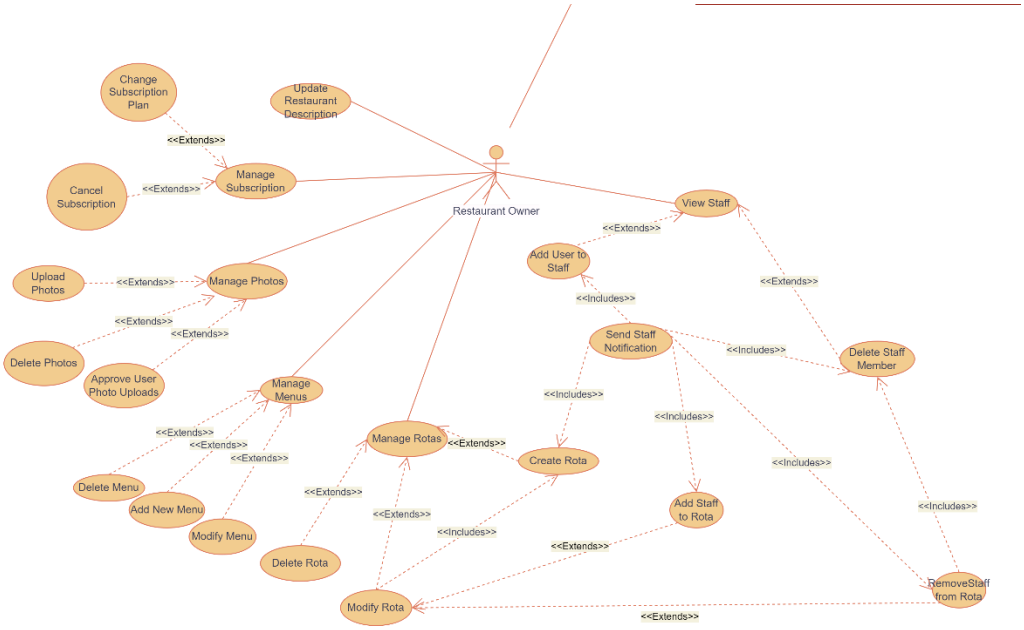
Staff Member

Once a user has been added as a staff member for a restaurant by the Restaurant Owner, they are given additional abilities within the application. This user still has access to the base user abilities for their own personal use; however, these added features are utilised for their professional functions outside of this. The staff user is able to view their upcoming rotas. The rest of the features are for while they are utilizing the app in the workplace, these include functionality such as booking confirmation, signing in guests, and updating seating plan. These workplace features are only unlocked during the time they are rostered in for according to the rotas uploaded by the restaurant owner to the application, i.e., a staff member will only have access to these features while they are working, with the only exemption being the view current rota ability.



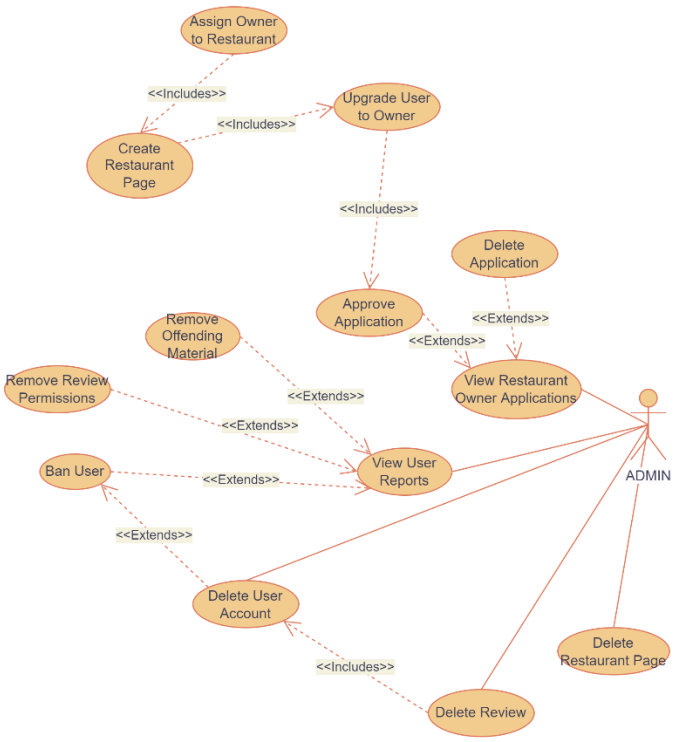
Restaurant Owner

Restaurant Owners have the most abilities and are the highest order of specialization within the application. They have access to all staff functionality, without the time sensitivity constraint. The main functions of the restaurant owner are subscription management (to the FanC service), managing the photos and menus visible on the restaurant's FanC page, adding users to the staff user list and managing and creating rotas for the staff (including themselves).

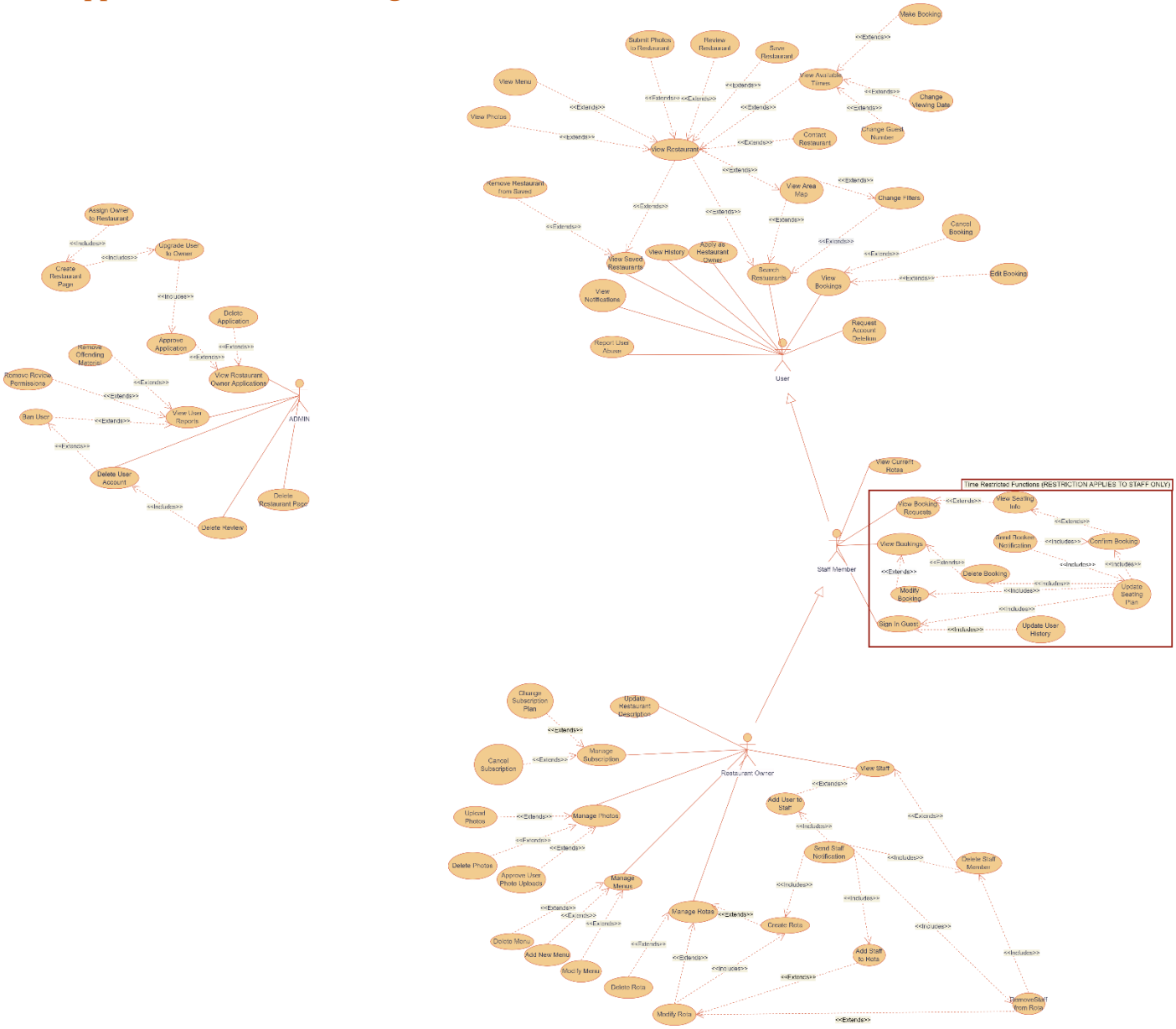


Administrator

Administrator users work on behalf of the FanC Company. Admin users are primarily focused on verifying users as restaurant owners and creating basic pages for restaurants on the FanC app and assigning the page an owner user. The admin is also able to view user conduct reports and is given the option to remove offending review/photo, ban the user. In the event a Restaurant Owner cancels a subscription to the service, the Admin account manually deletes the restaurant page. In addition, account deletion requests are managed by the administrator account.



Full Application Use Case Diagram



Use Case Narrative: Booking a Restaurant

A user will open the application to search through local restaurants. If they do not yet have an account on FanC, they will be prompted to create an account before continuing into the app. When the User reaches the homepage of the app, they will select the search option to begin their search. By default, the search filters will be set to filter by distance from the users current location (or last saved location if their phone location information is turned off), with a default distance of 5km. The user may wish to adjust their search filter, in which case, they will open up the 'Filters' option in the search. The user will then adjust filters such as location, cuisine type, distance, price range, etc. If the user wishes to reset, they may do so with a reset button. After adjusting their filters, the user will hit the 'Search' button, and be presented with listings of restaurants that fall within the search parameters. Users can select resulting restaurants and view their 'pages'. The user can also choose to search and view restaurants by location in a map view, in which case restaurants will be selected via a pin icon over the representation of their physical location on the map, which can then be selected to view the restaurants page. When viewing the restaurants page, there are a few tabs through which a user can look. In this case, the user wishes to

Ideal Path

- User Opens App.
    - **Exception 1: No Internet**
- User Logs In.
    - **Exception 2: No User Account**
    - **Exception 3: Invalid Credentials**
- User Selects the 'Search' Option.
- User Selects 'View Area Map' Option.
- User changes their location.
    - **Exception 4: Invalid Location Name**
- User selects Italian cuisine in search 'Filters'.
- User selects a restaurant from 'Area Map' to view.
    - **Exception 5: No Restaurants found**
- User opens 'Menu' tab on restaurant page.
    - **Exception 6: Menu not uploaded by owner**
- User opens 'Booking' tab on restaurant page.
    - **Exception 7: booking through app not enabled.**
- User selects a booking slot from available times.
    - **Exception 8: No available times**
- User completes booking.

Exceptions

Exception 1: No Internet

If the user tries to open the app without an internet connection, the app will prompt the user to find an internet connection. The user will not be able to progress without an active internet connection.

Exception 2: User Doesn’t Have an Account

In this scenario, upon opening the app, the user will be unable to log into an account. In this case the user will be prompted to create an account via the FanC website using a button prompt.

Exception 3: Log in Credentials Are Invalid

Should the user attempt to log in, and their username or password are incorrect, the app will allow the user 3 attempts before they are prompted to reset their password using a link sent to their recovery email.

Exception 4: Location Name Invalid

When the user is changing their location settings while searching for a restaurant, the user will input a new location name. If the location name is invalid, no matching location names will show up in the location search. In this case the user will have to pick another location or use another keyword.

Exception 5: No Matching Restaurants Found

Should the user’s filter settings not return any matching restaurant results that fit within those search filters, the user will be prompted to widen their search parameters.

Exception 6: Restaurant Owner has not uploaded a Menu

After selecting the restaurants view menu button, and the restaurant owner has neglected to upload the menu to the restaurant page, the user will be prompted to view the menu on the restaurants website or alternatively to get in contact with the restaurant via telephone.

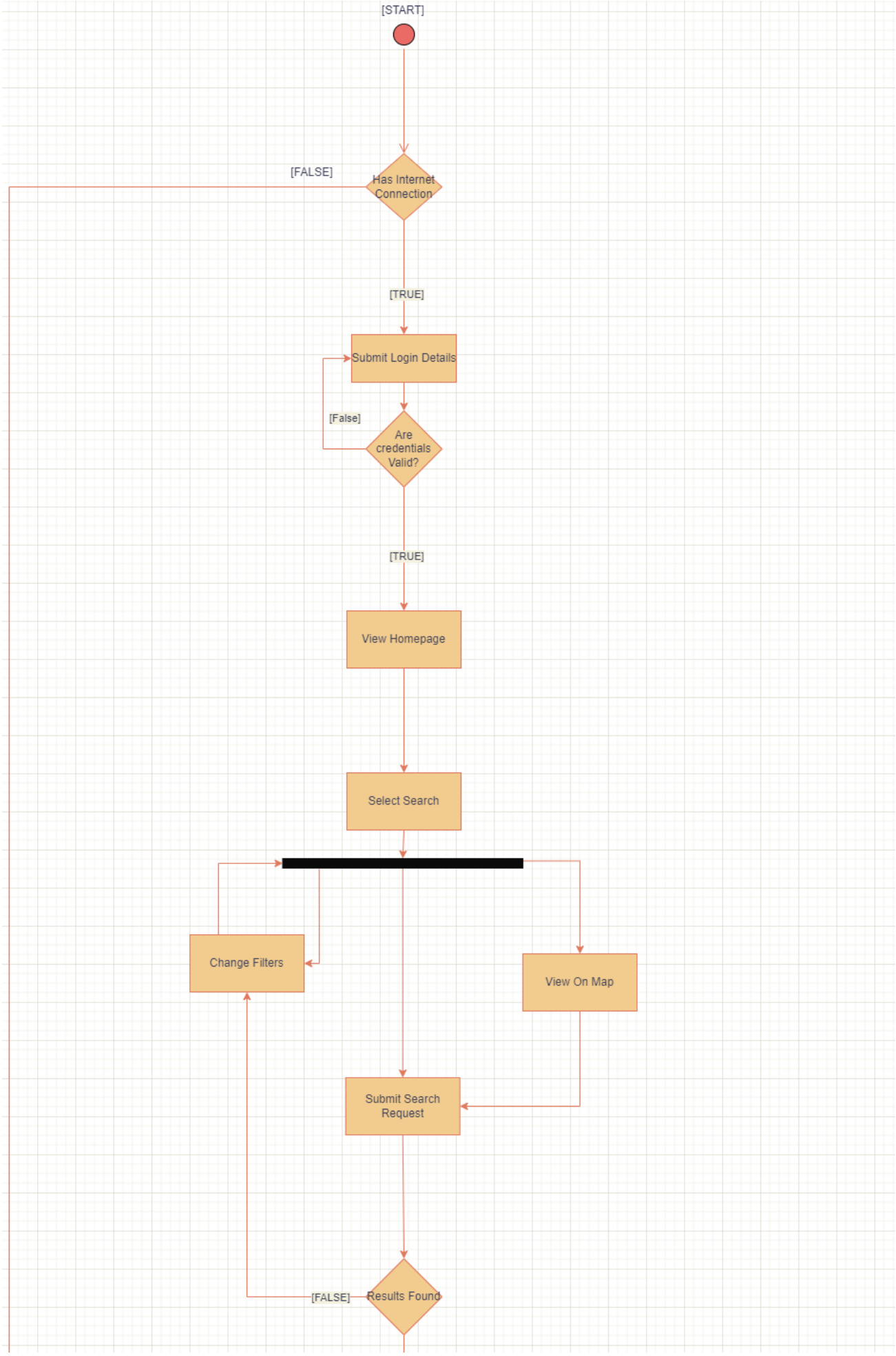
Exception 7: Restaurant Owner has not enabled Booking Mode

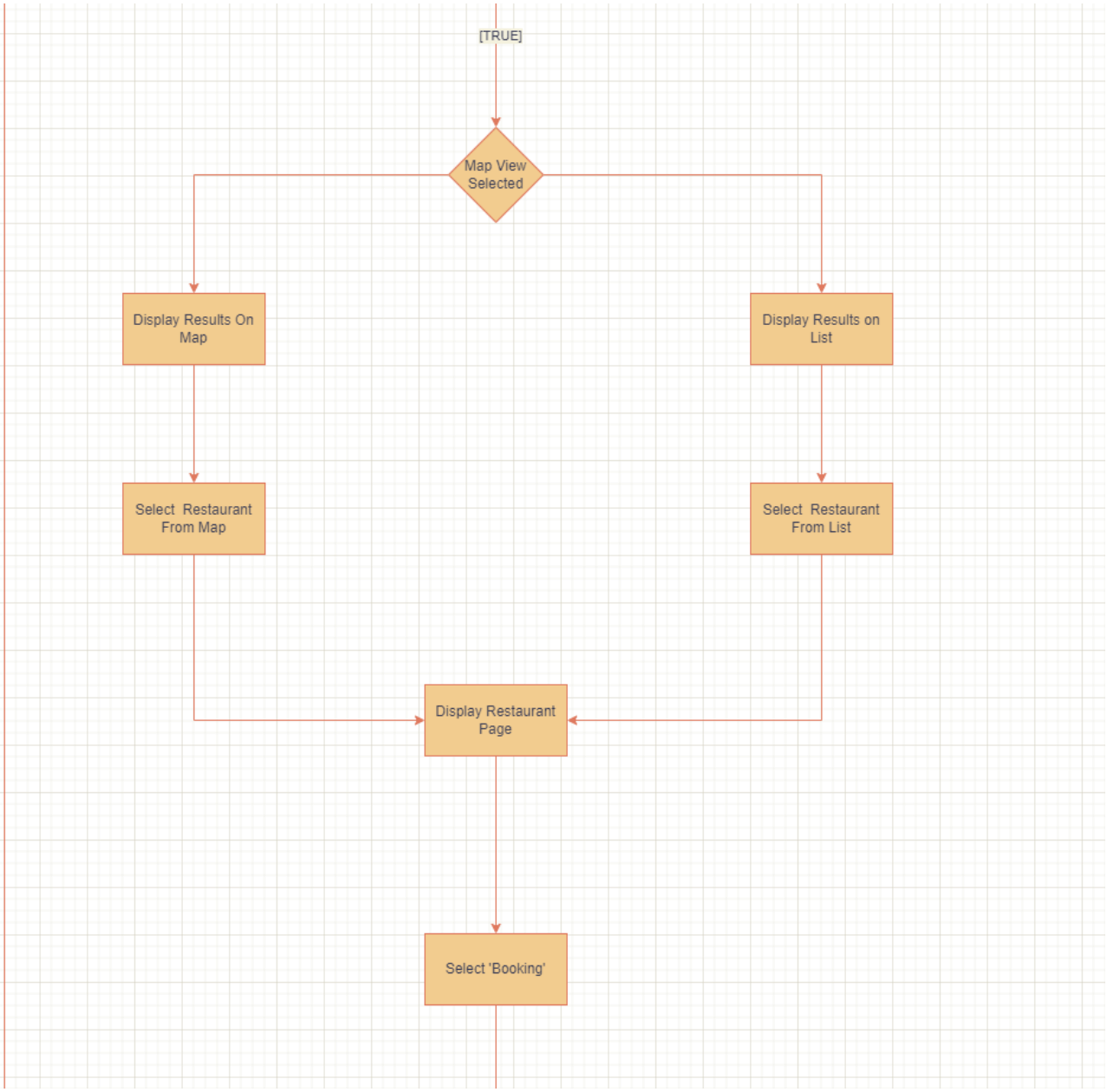
If the restaurant owner has decided that they do not wish to handle bookings through the website, when the user selects the ‘booking’ option on the restaurant page, they will be unable to view any available seating and will instead be given the contact information or website booking link of the website and prompted to book through these methods.

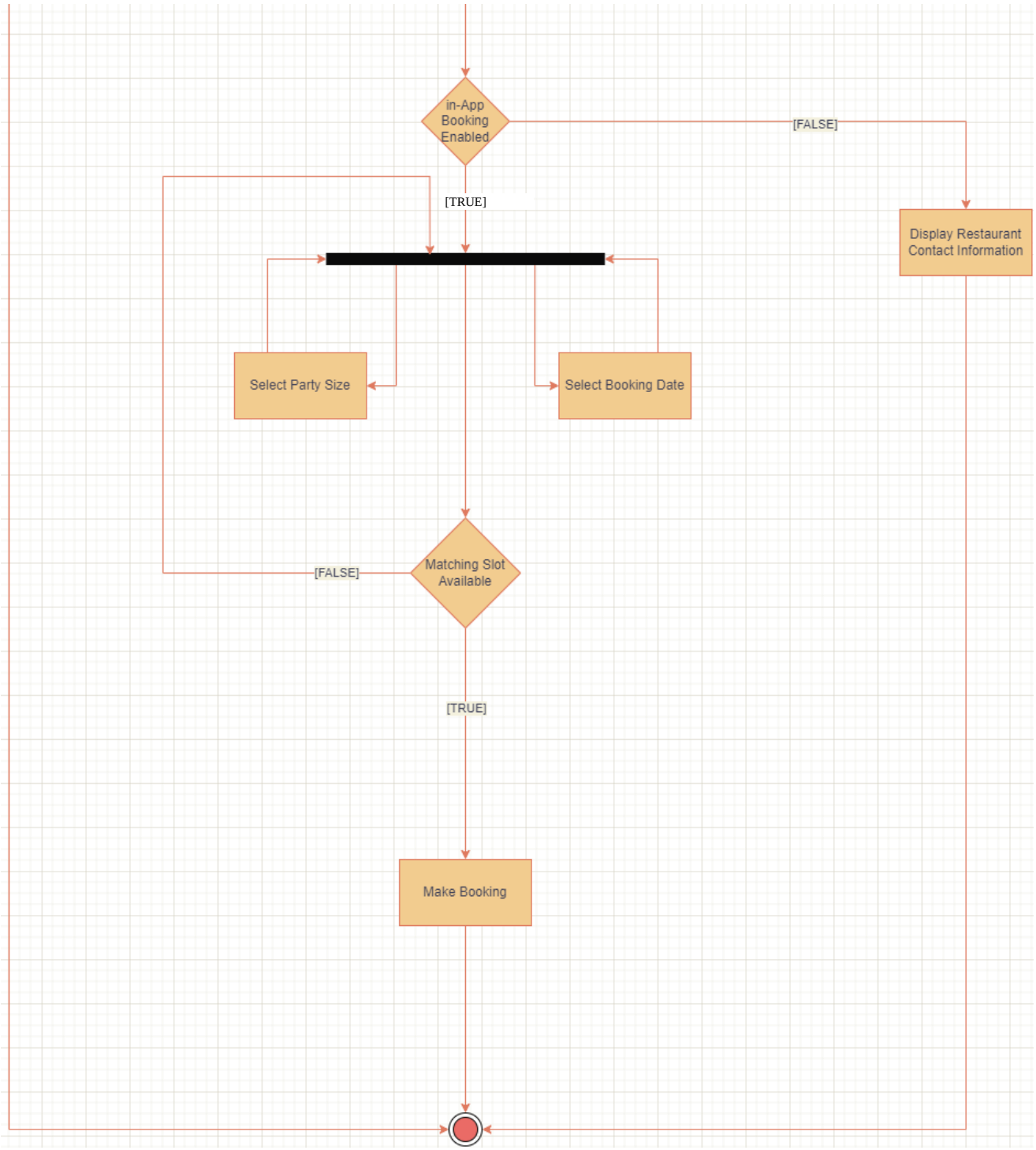
Exception 8: No available Booking Times

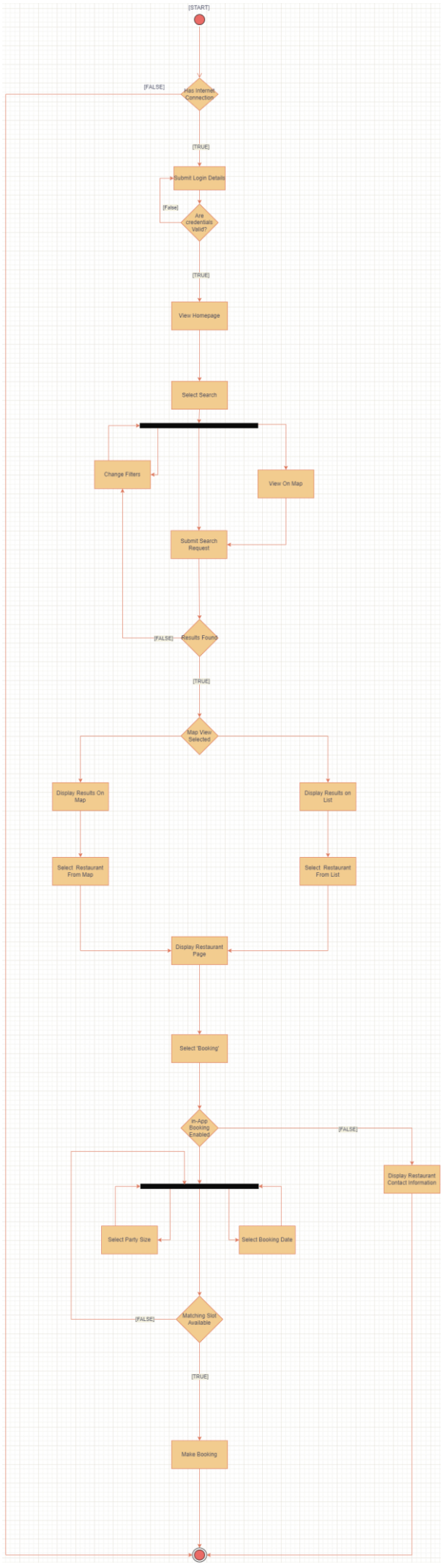
After selecting the ‘booking’ section, and no available times are present, the user will be prompted to change the size of their party, or their selected booking date. Additionally, the user will also be given the restaurant telephone number should they wish to negotiate a time.

Activity Diagram: Making a Booking




[TRUE]
Map View Selected
Display Results On Map
Display Results on List
Select Restaurant From Map
Select Restaurant From List
Display Restaurant Page
Select 'Booking'


in-App Booking Enabled
[FALSE]
Display Restaurant Contact Information
[TRUE]
Select Party Size
Select Booking Date
Matching Slot Available
[FALSE]
[TRUE]
Make Booking


[START]
Has Internet Connection
[FALSE]
[TRUE]
Submit Login Details
Are credentials Valid?
[False]
[TRUE]
View Homepage
Select Search
Change Filters
View On Map
Submit Search Request
Results Found
[FALSE]
[TRUE]
Map View Selected
Display Results On Map
Display Results on List
Select Restaurant From Map
Select Restaurant From List
Display Restaurant Page
Select 'Booking'
In-App Booking Enabled
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Display Restaurant Contact Information
Select Party Size
Select Booking Date
Matching Slot Available
[FALSE]
[TRUE]
Make Booking