**PROJECT IDEA: Dine-In: Restaurant Booker**

**OVERVIEW: (***Summary of Project)*

*‘Dine in: restaurant booker’,* is an android and iOS application which allows users to book tables at restaurants effortlessly. The highlight of the app is its ability to locate restaurants with available tables near you. Users can filter a search result to their liking, based on time, data, location, menu preference, age rating and more; and then sift through results which correspond to their search. Dine in makes it simple to browse possible dining options rather than the hassle of having to call restaurants individually with several google search results. The general purpose of the app is to eradicate the stress in making restaurant decisions, and having to find information about each place, instead it is all packaged into a simple and easy to use app.

**MOTIVATION:** *(Why is the project interesting or useful? Can include statistics and other evidence)*

‘Dine in: Restaurant Booker’ is very useful as the aim of the project is to decrease the time it takes to find a place to eat, while increasing the convenience aspect of booking a restaurant. This is done by only showing the restaurants near you, in your specific search field, that have available tables for booking. The project will allow users to sort their restaurant search by allowing the user to pick their own cuisine, their location and when they would like to come, to show them all possibilities of where they can go in their suggested time frame and cuisine. This significantly increases the ease of use of finding a place to eat, while also decreasing the hassle of having to search for many restaurants, only to find out that they have no tables available, despite them being open. We believe as a group that this would benefit customers daily life, while also becoming a game changer when it comes to finding a nice place to eat. ‘A whopping 45% of diners go out to eat multiple times a week, with another 20% going out to eat once a week.’ (Restaurant Success Report, pos.toasttab.com, 2022). This report shows that the 45% of people that go out more than once a week, likely must go through the negative experience of creating a booking or finding an available table at a restaurant they’d like to visit. With our concept, they would be able to significantly reduce their search time and have a list of restaurants that can cater for them, one search away.

**DESCRIPTION:** *(software or hardware needed, other equipment needed, include open-source tools as appropriate)*

*Search bar*

Upon opening the app, the main page you are greeted with includes a large visible search box, the search bar has a list of drop-down menu buttons which allow the user to customize and filter the restaurant to their liking. The buttons include a date and time calendar to specify date, a number of people button; to specify how many people will be at the table, a menu preference button; which opens a check list to tick and untick what menu items should be available at a restaurant; and lastly a text search box which allows you to type a location, a restaurant, or a specific menu item (e.g.: pizza). The heading on top of the search bar reads ‘Find your table!’ in bold italics, and the bar is positioned in a manner which makes it the first thing a user will see. Upon each search, restaurants based on the filters will appear, additionally on the left-hand side more customizability options will also appear. These include price ($, $$, $$$), accessibility amenities (e.g.: for wheelchairs or for the elderly), vaccination requirement box, seating options (e.g.: bar, outdoor, rooftop, indoor, buffet, counter), as well as a map option which allows the user to see the resulted restaurants on a map with directions.

*Reservations:*

Of course, the primary purpose of the app is reservations, this can be done after searching and locating a restaurant, under each restaurant there are small icons which are labelled with the time available for booking (e.g.: 6:45 pm, 7:15 pm etc), clicking each box takes the user to a menu based on whether they have an account or not, if they have an account, they will be given extra information about the restaurant (e.g.: price, amount of time they have at table, return polices, minimum spend requirements, dress code). If a user does not have an account, they will instead be guided to the create an account/sign in screen, where they can enter their First name, Last name, phone number, email, credit card information, menu preferences, ID (if restaurant is 18+). Each booking screen has a timer depending on the demand for the table, if a user is unable to make the booking in the allotted time the next person user will be able to book, this is displayed with a ‘we are holding this table for you, you have \_\_ minutes’ message on the top of the details screen. Once a booking has been made, the user can view its details (a receipt of sorts) in the account page, after arriving at the restaurant the user is required to press the arrive button (available after the app detects you are at restaurant) under the receipt, which in turn notifies the restaurant.

*Direct restaurant messenger*

All restaurants have contact information when booking a table from them this includes email, and phone number. However, ‘dine in’ has an inbuilt chat feature which restaurants can enable when building their account. This feature allows users to directly communicate with the restaurant with real time chat, to inquire about further information, make emergency changes, make requests, ask about specifics (e.g.: if the restaurant is halal) and more. Upon the booking page, a small pop-up bubble on the bottom left of the screen with a ‘chat’ icon is available to press, after pressing the user sends a request to chat and the restaurant can directly press accept or decline. If the accept button is pressed, a live chat is started between restaurant and customers.

*Account creator*

*‘Dine in’* uses accounts to save information about the user so that they can book tables easier, as well as allow for restaurants to setup their accounts on the app and advertise themselves. If the user is not signed in, 2 buttons will be available on the top right labelled, ‘sign up’, and ‘sign in’. Sign in allows the user to sign into an account they have created previously, taking them to a screen where they can input their username/email and password, if they forget their password a ‘forgot password’ link is available under password input which sends them a link to their email to reset password. If a user is signing up, they have the option to choose from a customer account or a manager account. A customer account takes them to a page where they can enter their email, password, payment information, a valid id (for 18+ restaurants), once entered a verification email will be sent to their chosen email address, after confirmation they will have the option to manage their account details rather than the sign up/sign in button on the top right. Managing their account includes, updating/changing details, viewing bookings (each booking is saved on account history), adding preferences (app privacy, menu preferences, information the app can access etc). If a user chooses a manager account, they can upload details relating to the restaurant, this includes, name of restaurant, banner, profile image, menu upload, address, dining category, payment options, parking details, accessibility details, dress code, hours of operations, and a tag option (allows them to add tags which can make them appear more to customers, tag e.g.: buffet, rooftop, wine, gluten free, halal, bar, etc). Once an account is made, they can manage information, including updating menus, updating tags, updating contact information as well as other details about the restaurant, manage chat requests (live chat with customer). Every time a customer makes a booking the restaurant is notified, so that they can update information on their systems, the restaurant is able to manage each booking directly, they receive customer information and any specific requests they made, and are able to phone customers, as well as cancel their bookings.

*Wait list*

During the booking menu, if a table is not available, there is an option to opt in a waiting list for the next available table, restaurants can update once a table is available, the next user in line is able to accept the table within a certain time limit before they are skipped and the next user in line is given the table. Rather than icons available for booking, they are replaced by an icon which indicates that the user is in a wait list, once a table is available, they are notified and a green accept button, and a red reject button are presented, along with a timer so that they know how long they have left to accept.

*Design*

The general theme of the app is a sleek minimal UI, with minimal easy to read text that is not overbearing to the user. The starting screen has a search bar at the top, with restaurants near the user that have open tables, below the search bar. Each search switches to the search tab, which is indicated by icons at the bottom of the app, each icon is highlighted depending on whether the user is currently on that page or not. The pages are labelled in order, ‘home’ (where search bar and nearby restaurants are located), ‘browse’ (which includes search results, where bookings are made, as well as the map), and ‘account’ (where you can view/edit personal or business details). The app will use a Roboto font, has an off-white background, with grey highlights, colourful icons, and rounded images for each restaurant/location. Manager accounts will instead have a ‘bookings’ page where they can manage their booking, reply to messages, see the status of their tables, etc, a ‘profile’ page where they can edit restaurant profile details, and an ‘account’ page where they can edit specific account related information.

*Interactive map*

The interactive map is visible through a small ‘map’ icon after each search results next to the filters options, upon clicking the map, a zoomed in view of the users nearby restaurants which adhere to their specified filters is available, icons with available tables are only displayed, however if a restaurant is booked out while the user is using the maps, they icon changes from green to red. Clicking each icon will a pop up of details about the restaurant, the details include quick booking, address, price range, type of menu, and dress code, a button is available which opens the menus page so that the user can have full details about the place, directions are also available within the pop up. The user can also remain in map view while being able to change the different filter options without having to constantly exit the map.

*Notifications*

Dine in uses notifications for quick information to the restaurant as well as the customer. For customers they are notified when a table is available at a restaurant they are on a waitlist for, for when a restaurant replies to a direct message, for when a restaurant has to cancel their booking, when they are using the map directions, if they are in the middle of booking and exit the app, and if they have arrived at their booking at the restaurant. As for restaurants, they are notified when a booking is placed, when they receive a message or request, when a booking is cancelled, and when a customer arrives at the restaurant (checked through location).

**TOOLS AND TECHNOLOGIES:** *(software or hardware needed, other equipment needed, include open-source tools as appropriate)*

We would require an android and iOS device to test out the application and check for bugs and errors, a computer for the development of the app, an internet connection, and a GitHub repository to collaboratively work on the programming aspect of the app. The project will be completed using the React Native Framework to develop the code and interface of the app. A benefit of react is its use of JavaScript components, which are built on both iOS and android components, meaning the app can be translated on both platforms. There is also large community support which can be helpful when faced with developmental challenges. The project will also require Google Maps API, which would allow for the app to collect user location which is needed for certain features of the app.

**SKILLS REQUIRED:** *List the skills that are required for your project, including software that needs to be written, and special hardware (if any). How feasible will it to find the skills, software and hardware required?)*

Various skills are needed to complete the project, from technical skills, communication skills, and collaborative skills all play a key role.

Technical skills involved in the development of the project can include programming in various languages, knowledge of app development, and managing user data and database knowledge. Because the project is using React Native to develop code, the knowledge of JavaScript programming will be needed. The hardware required for the project are quite easily feasible, the software on the other hand is more challenging but still attainable. Since React has a large community of fellow developers, help will be easy to find, additionally the way react creates app interfaces is fast and responsive, and also simple to grasp; which is beneficial to the project.

**OUTCOME:** *(If the project is successful what will the outcome? How will the original problem be solved? What impact will this development have?)*

If the project is successful, customers all around the world will be able to search for restaurants with available tables with a simple search, which will significantly revolutionise the restaurant business. Customers will have significantly less stress when trying to find a restaurant, as all the information will be provided to them, eliminating the hassle of having to call multiple places, just to find out that they are all booked up, often leading to disappointment and sometimes ruining plans due to losing hope. The original problem of not being able to find a restaurant will be solved as most restaurants will shift towards this booking system, rather than their old one without this functionality, and restaurants will be able to manually update the app, for whenever tables are freed up, causing there to be no downtime on the website, or delay in making reservations. We strongly believe this will revolutionise the whole booking process and will in future apply this technology to other applications, such as booking a parking space at a car park or reserving stock at a store. This technology has the potential to change the way that businesses operate and can be built onto the click and collect model as well as the booking model to increase customer and business owners’ daily lives.