**Project Idea**

**Overview**

The project is a production grade web application that will power a backend and a front end involving both restaurateurs and patrons. The application will be linked to a restaurant website, where customers can sit at the table and place orders and pay via their phone without needing to order at the counter. Customers can scan QR codes or visit the main website to place an order, once the order has been placed the order is then sent to the restaurant’s dashboard which will be linked to the docket printer. This system’s backend will also integrate to the restaurants’ POS(Point of Sale) system. When orders are ready and passed out of the kitchen, the staff will have the ability to send a push/sms notification to the customers allowing them to collect the food from the serving area. The customer will also be able to leave real time feedback about the quality of food and services received right on the platform allowing business to strengthen their weakness. Since this platform is a web application built with mobile first approach, the user experience will be very intuitive. This project aims to provide exceptional service to both customers and the business by reducing human errors that may otherwise occur in taking orders.

**Motivation**

The motivation behind the project is to help the family business in the technological side. I look for ideas to improve the shop and find ways to fix problems. Recently we have been struggling at busy times with some customers taking too long to order. As customers take longer the wait time increases for others and there are lines of customers while one staff is busy just taking orders and not able to help others.

There are apps out there, but all comes at a premium fee, and they lack certain features. There are also multiple online food delivery companies, but they all charge hefty fees which forces restaurants to increase food prices to be able to profit from their sales.

**Description**

The project will be a web app linked to the restaurant's main website. Customers can place an order for takeaway from anywhere through the web app but can only order dine-in if they are seated at a table. Ordering from the app helps restaurants a great deal as it will reduce the amount of staff needed to take orders instead, they can use that extra force in the kitchen, this will be especially helpful in busy times. The reduced customer interaction means the restaurant can focus more on the quality of food.

There is a seat reservation function where customers must sign in to book a table, and the booked table will be displayed as Reserved before a certain time from reserved time. When the table is Reserved customers will not be able to place an order from that table unless the person that booked orders from their account.

In the app each table's QR code will be linked to a table in the POS System. Once a customer enters the shop, they will take a seat at the table of their choosing. To view the menu customers will need to scan the QR code at the table or visit the restaurant website then go to order.

Ordering from the table, the customer has access to the full menu and what is being served, can place each item to cart and to place the order they must pay. Once payment is received, the order is then sent to the kitchen printer. Then after the order is ready the chef can send notification to customers that placed the order via Admin App to let them know that their food is ready and they should pick it up from the counter.

Review System - customers can give feedback and rating on their food once they are done, they can choose to leave review as anonymous, this review will go directly to the restaurant which will help them improve. This will help in keeping a good track record of satisfied customers which will work in favour of the restaurant. This will ensure that the restaurant's food and service is always excellent quality.

Loyalty System - customers can place orders as guests or register an account which will track how many visits they have had and will be given loyal customer offers(could be monthly specials or discounts after certain amount of orders etc.). Owners can set up loyalty offers via the admin panel, they can run monthly offers or run offers based on orders where after customers have placed orders a certain amount of times on different occasions they will receive a reward.

The admin/owner features will let them access the admin panel where they can make a variety of changes to the menu - they can add new items, remove items, take an item off for the day, add daily specials. They can also view all orders in detail, they can see the customers details which includes name, number, table number they are seated at, and their order.

## **Tools and Technologies**

Since the project is a large-scale application, in order to divide the workload of the application amongst all the team members evenly, we decided to break down the whole application stack into multiple manageable modules. Each team member will be given a module to work on and research with regards to jobs they are interested in. The modules will be broken down into the following:

* UI and UX design and development module
* Customer sign in and sign out module - Designing and developing sign in and sign out system
* Restaurant menu holding module - Database of restaurant menu
* Ordering module - Design and developing of an ordering system which will have cart function, payment gateway, and send orders to the restaurant
* Admin panel - Basic admin panel to override all the modules if needed, and will have management features for staff, so that staff at the shop can change easily, will have features such as putting items off the menu for the day, adding specials, changing prices, editing menu, add photos etc.
* Application testing, review, and feedback module - testing for bugs and overall use, and extensive feedback as an end user on the application’s pro’s and con’s for further improvement.
* Branding module - promoting and marketing the app to the end users, so shops can receive orders online, this module will also include deployment of the application.

We will look at each members ideal job and will assign tasks accordingly, we all have different interests which will link up well with the modules, Amer will handle the project management, Roshan and Simon will handle the development of Software, Joanna will handle the testing and Mason will assist Joanna on application testing and also handle support after the deployment of project.

Github will be used for group collaboration, as it is a great platform and packed with features, it has seamless collaboration and version control. Trello is a great way to assign tasks and set a due date for tasks to each member of the group, it can also be used for progress tracking through comments.

To use the service, the customers will need a smartphone that can access the internet. The shop will need a Wi-Fi printer, POS System, and a device that can access the web application admin panel for order management.

For technical skills, knowledge and ideas on different programming languages is required. Knowledge of visual language such as HTML, CSS, JavaScript is needed for front end development and to learn other helpful languages like NodeJS. To make the app work and connect to the server it will require knowledge of server sided languages such as Php, Ruby, Python etc. For databases, we will be using MongoDB because of its flexibility and ease of use, MongoDB will not require extensive knowledge like MySQL. We are planning to use NodeJS as a back-end for the application as this provides flexibility of using JavaScript on both front and back end. Angular and React for front-end. We are looking at researching these functionalities for ease of use.

For Application hosting, we will research on Netlify as they provide a free tier for hosting, easy deployment of the project, as you can just Git push to deploy worldwide, this can link up well with GitHub. As Application hosting is a downside of our group because we do not have knowledge on this, so this will provide simplified hosting.

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## **Skills Required**

There are various skills necessary for the project including design, management, coding, testing and problem-solving skills, these are the soft skills needed.

Will need to learn how to use Github and Trello for collaboration with others working in the project. Github to share codes and merge all the codes and Trello to assign tasks and keep organised.

For technical skills, The project will require general knowledge on Front-end technologies and how to code HTML, CSS, JavaScript, jQuery, Ajax, Bootstrap. This is required to make the front-end of the web app and make it visually appealing.

As the project technology is heavily reliant on JavaScript, it will need extensive knowledge of JavaScript in order to use NodeJS, jQuery etc.

Knowledge of server sided scripts such as Php, python, Ruby on Rails and NodeJS to connect the app with the shop and send data from customers device to restaurant. Will also require knowledge of MongoDB for database management and inputting all the restaurant data in.

**Outcome**

Mobile phones have become an integral part of our daily life. With seamless internet connectivity, these devices have become a utility with immense possibility. Among several applications users engage in their daily life, with this web application, we aim to provide a very comfortable, secure, and reliable way for people to experience dining in at a restaurant. Not only that, this application will also allow restaurants to manage their menu online, collect orders and feedback from customers in real time. This project aims to provide exceptional service to both customers and the business by reducing human errors that may otherwise occur in taking orders.