

IS52018C Software Projects: Project Proposal

[example of 70+ work]

IS52018C Software Projects

A web application for restaurants to bring customers together through translation and imagery

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Concept Introduction

The main concept of this project is to provide a web application-based system to enhance the dining experience, order processing and administrative aspect of most culinary businesses, with specific focus on hotel-restaurants. The customers would mainly interact with this system through a tablet¹ device placed on their table, the kitchen is able to process the incoming order through a screen at their service, and finally the manager or administrator can query and print incoming sales data for business intelligence. The web app interface on the customer side offers exclusive features such as translation² and social media interaction. The inspiration for this concept derives from the will to reduce real-life business issues such as communication issues between kitchen staff and foreign customers, waste of logistics and inventory and usage of paper that is susceptible to be misplaced by chefs.

Stakeholder & User Needs:

All the team members acknowledged that our concept is in line with the interest of a lot of businesses that handle food related services. There has been a scouting process to identify and contact potential stakeholders, which ended up being very successful. Frankenstein Hotel in Feltham, West London has agreed a professional-academic relationship to assist during the phases of this project, which so far included concept discussions, prototyping discussions and could potentially include testing and piloting. Here is a brief summary of some initial concept consultations with the manager:

- Given the business is close to Heathrow Airport, the clientele has varying nationalities – this reinforced the translation aspect.
- Waiters and waitresses are often asked further details about dishes during breakfast and lunch sessions
- Need for an administrative feature – this aspect has not been included in the initial concept document (M1), but it has been included and approved by the team as part of this report, so will be proceeding into the next stages of the project
- The manager expressed that the inclusion of payment into the system could potentially add an extra layer of productivity.

International Food Bloggers (stakeholders) have also expressed very positive views for our initial concept to create an interactive system where the menu is illustrative with photos and videos of the dishes, with translation options and extra features like “popular dishes of the day”, “what people around them are eating” and social media feeds of the dishes. The bloggers felt that this product was needed and overdue. They have struggled with not knowing languages and was hindering them from trying certain dishes.

Prior Knowledge & Market Survey:

One competitor of ours is McDonalds. They have self-ordering machines which customers can choose between 5 languages, see photos of the food available and pay using card payments. After speaking to a Manager at McDonald's; she really liked the idea and felt that when McDonald's first introduced their self-ordering machines (kiosks) it really helped increase the amount of orders specifically amongst tourists that may not understand or speak English as their machines allows translations to 5 different languages. The problems with this tech and system at McDonalds- "sometimes customers love and miss the interaction with humans, some people are not willing to use the tech offered. In the beginning the investment needed for this tech and system cost a lot of money however in the longer run it is benefitting our company. A main aim is to also make our system be more illustrative so customers can see photos and videos of each item on the menu.

We also started our online research on google, firstly searching what articles recommend the top apps for any restaurant owner. This brought us to many great site listings a minimal of 10 different apps.³ From there we were able to see what restaurant owners are already using and how the market is shaped for apps. We narrowed it down to only looking at apps that was more for customers and less about the restaurant's backend (inventory or staff schedule). With the select apps we thought were relevant we searched through app store and the google store to see reviews from customers online. Then we searched for tablets that are being used at restaurants already, not a lot of these had many online reviews as the product is very new but we were able to find their features and what awards they had won.⁴

Amburapp[5]	Pourmybeer[6]
<p>While this app is for the waiters only and not for the customers, they do have some similar features like:</p> <ul style="list-style-type: none">- Sending the orders straight to the kitchen- Allow the meal to be unique and for customers to change items on the menu with ease- Live sales	<p>A similar concept but with a bar:</p> <ul style="list-style-type: none">- Customers select what they want and the system gives them the beer they want- They have all the info about different beers and the inside ingredients

Ziosk[7]	Ordamo[8]
<p>This would be our competition, a table program which:</p> <ul style="list-style-type: none"> - Order from table from tablet - See a menu - Allows feedback - Allows payment - Allows loyalty 	<p>This is another competition, a tablet program which:</p> <ul style="list-style-type: none"> - Giving customers tablets as menus - Diners can order straight from menu - Diners can alter menu - Has recommended dishes - Diners can leave feedback

This affects our concept as a standard has been set by these already established apps, so we have to make sure that as a minimal we make our app look just as good as theirs with how the UI is used. Our features that we want to implement such as translation feature have not been found in the research, we have done so we know we have a good angle and what makes us stand out from the others.

Design

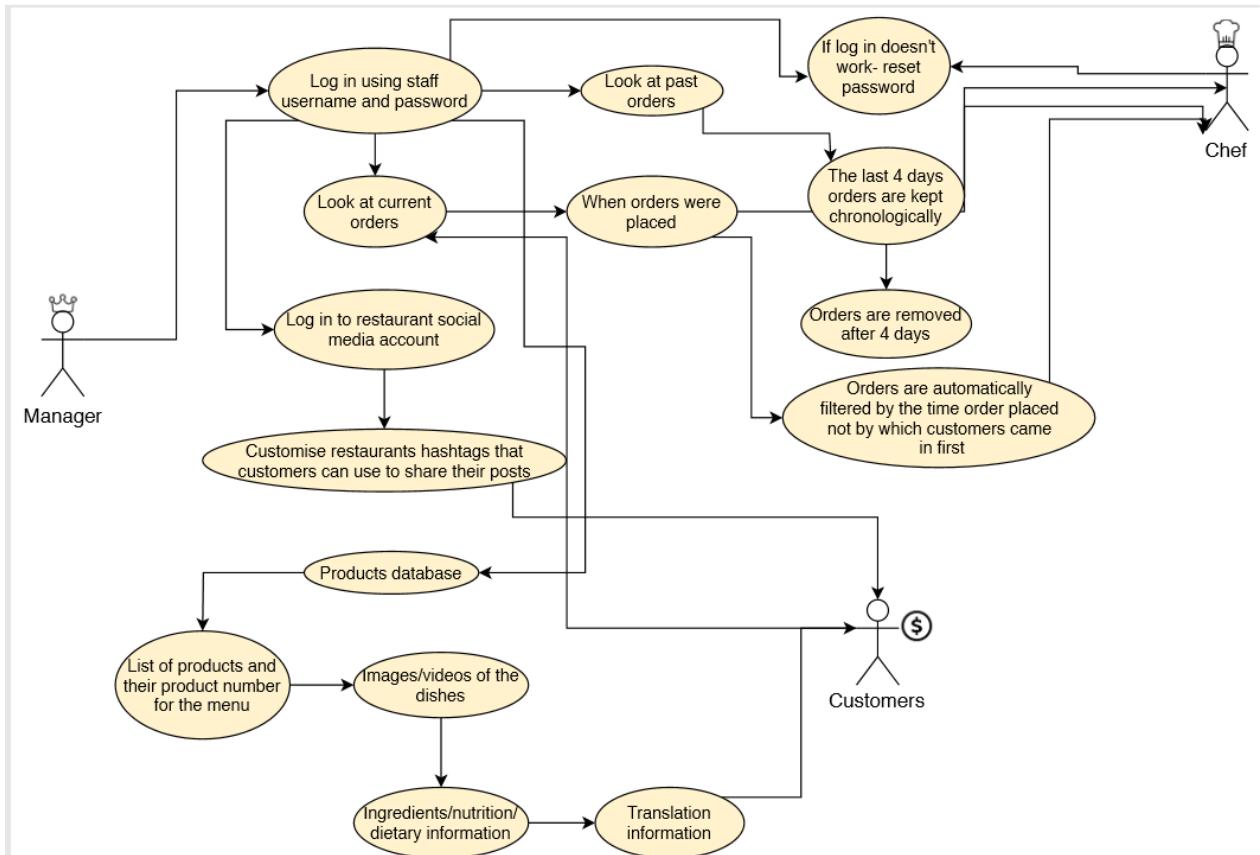


Figure 1: Old Use Case diagram for admin/managers side

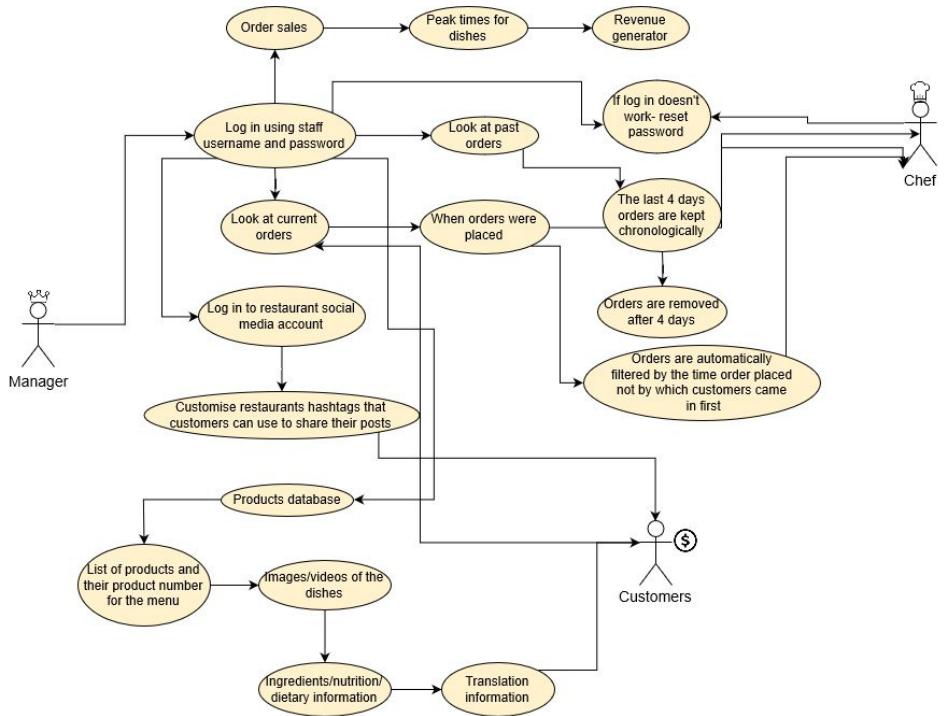


Figure 2: New Use Case diagram for admin/managers side

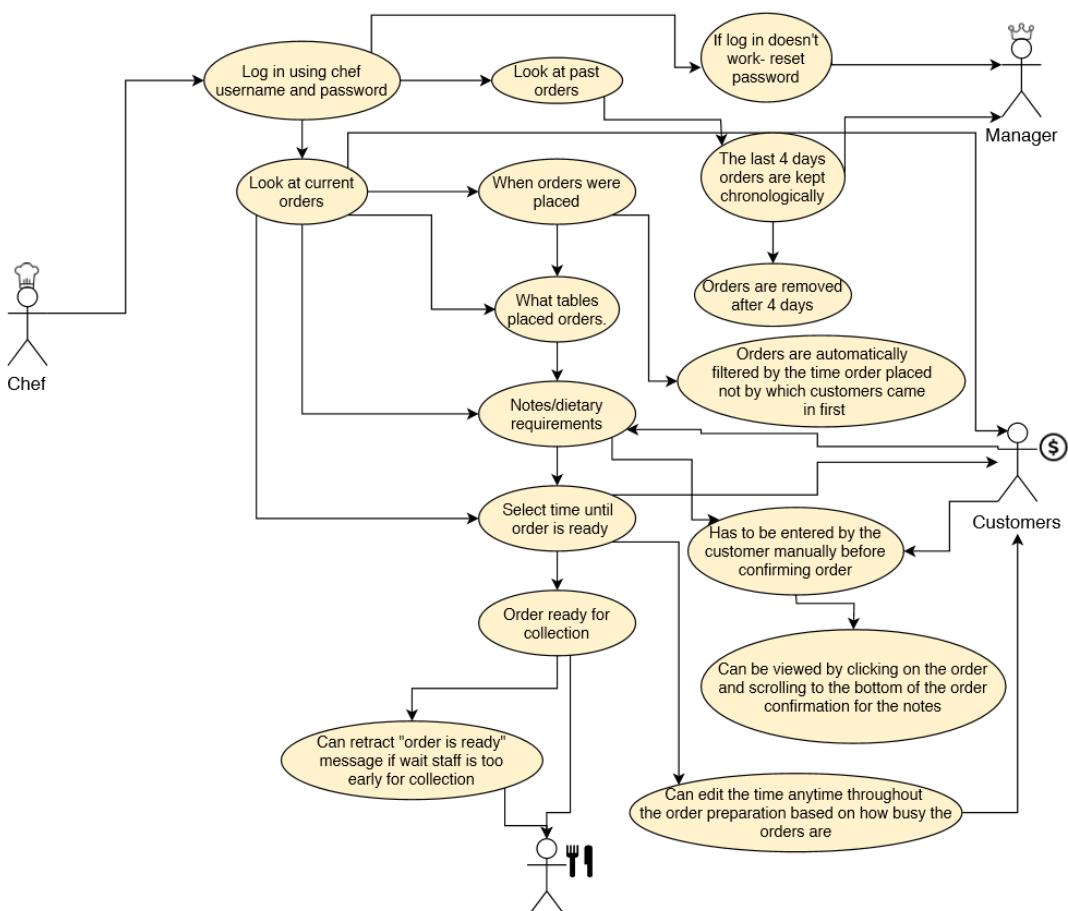


Figure 3: Use Case diagram for chef side

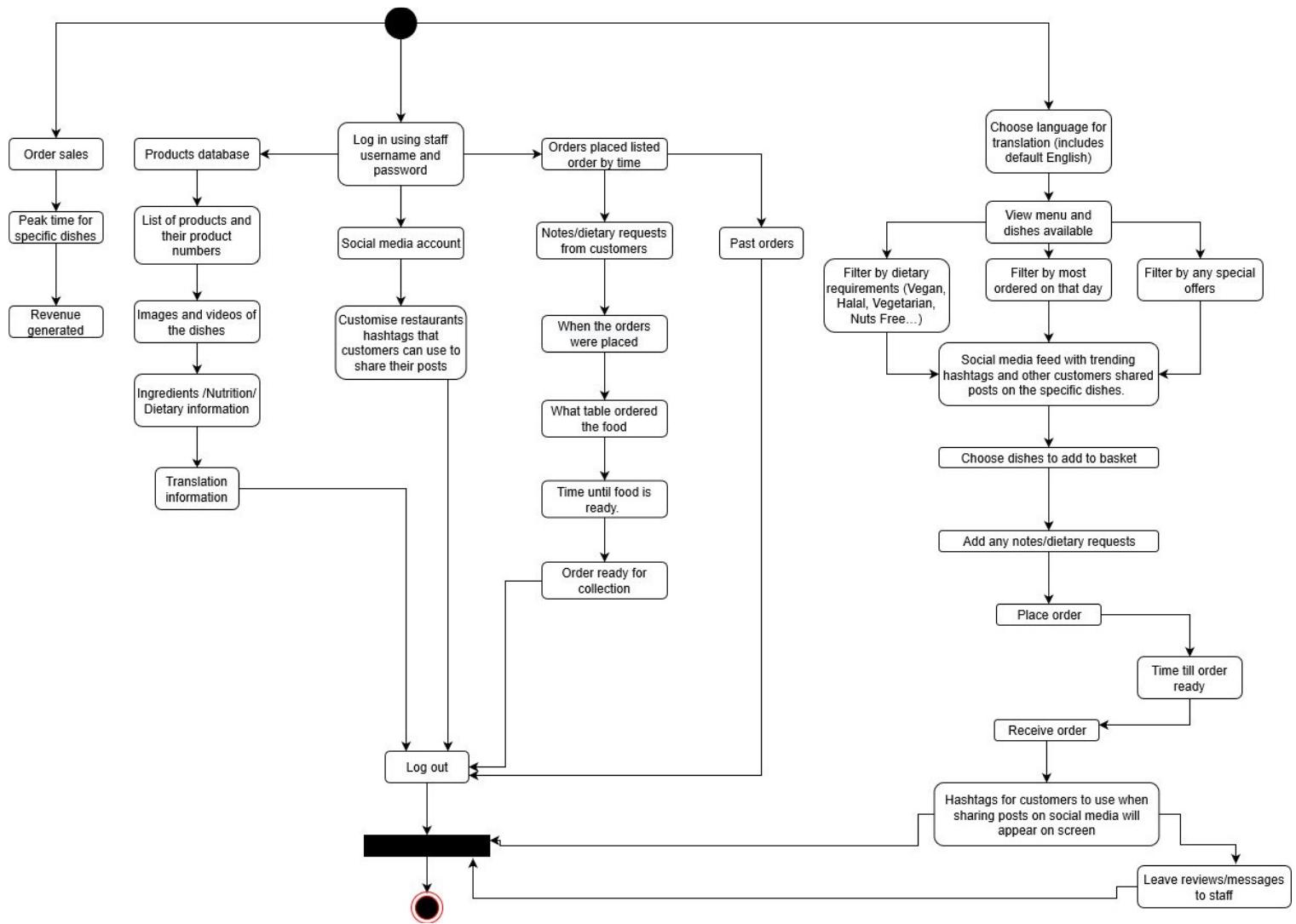


Figure 4 Activity Diagram with updates enabling login system, which was not present before

UML Diagram updated

This section will consist of the changes applied to the first version of the Unified Model Diagram against the original version created during the M3 (Design) milestone creation period.⁹

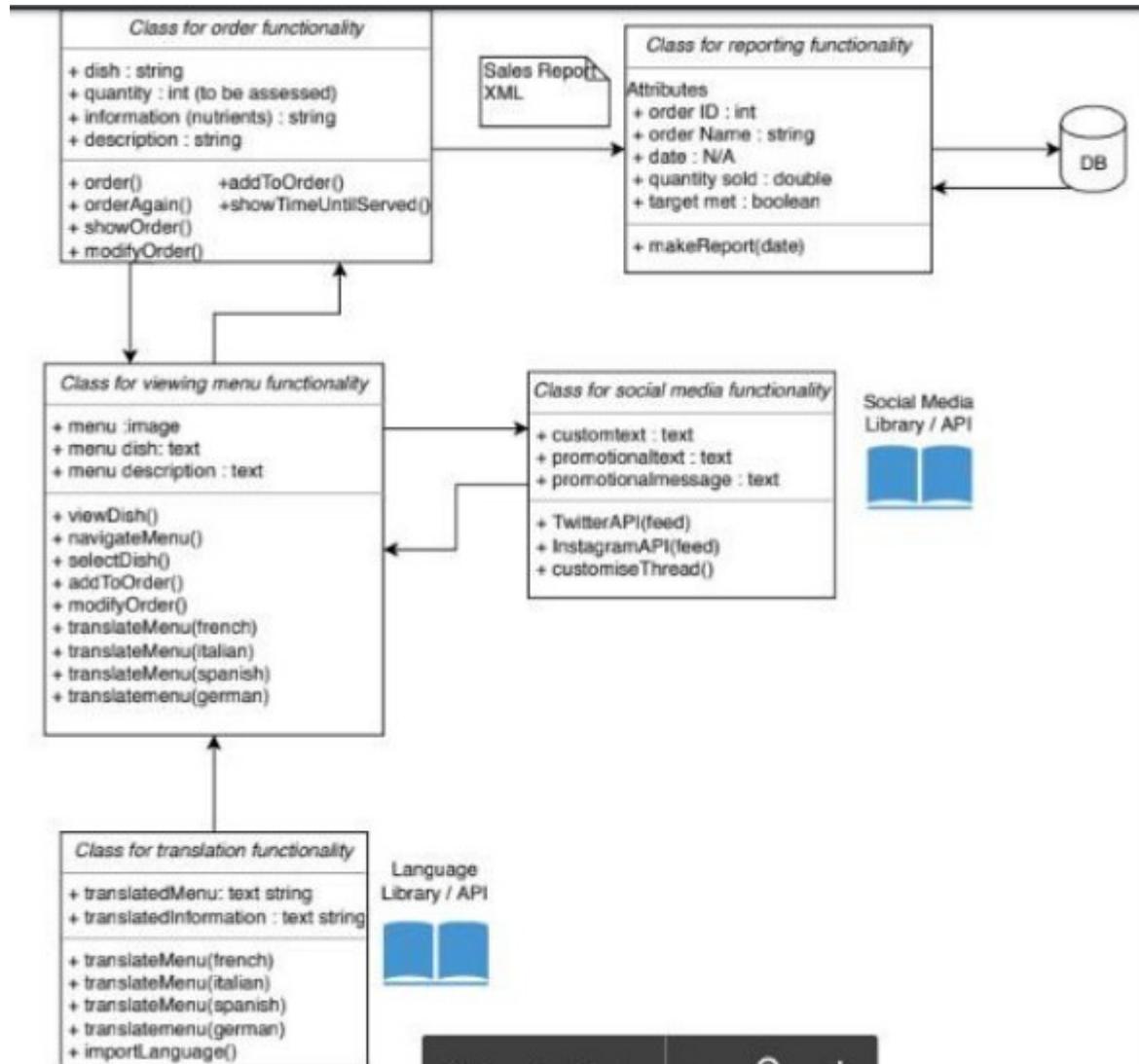


Figure 5 First UML of the project

Updated UML Diagram
Group 106

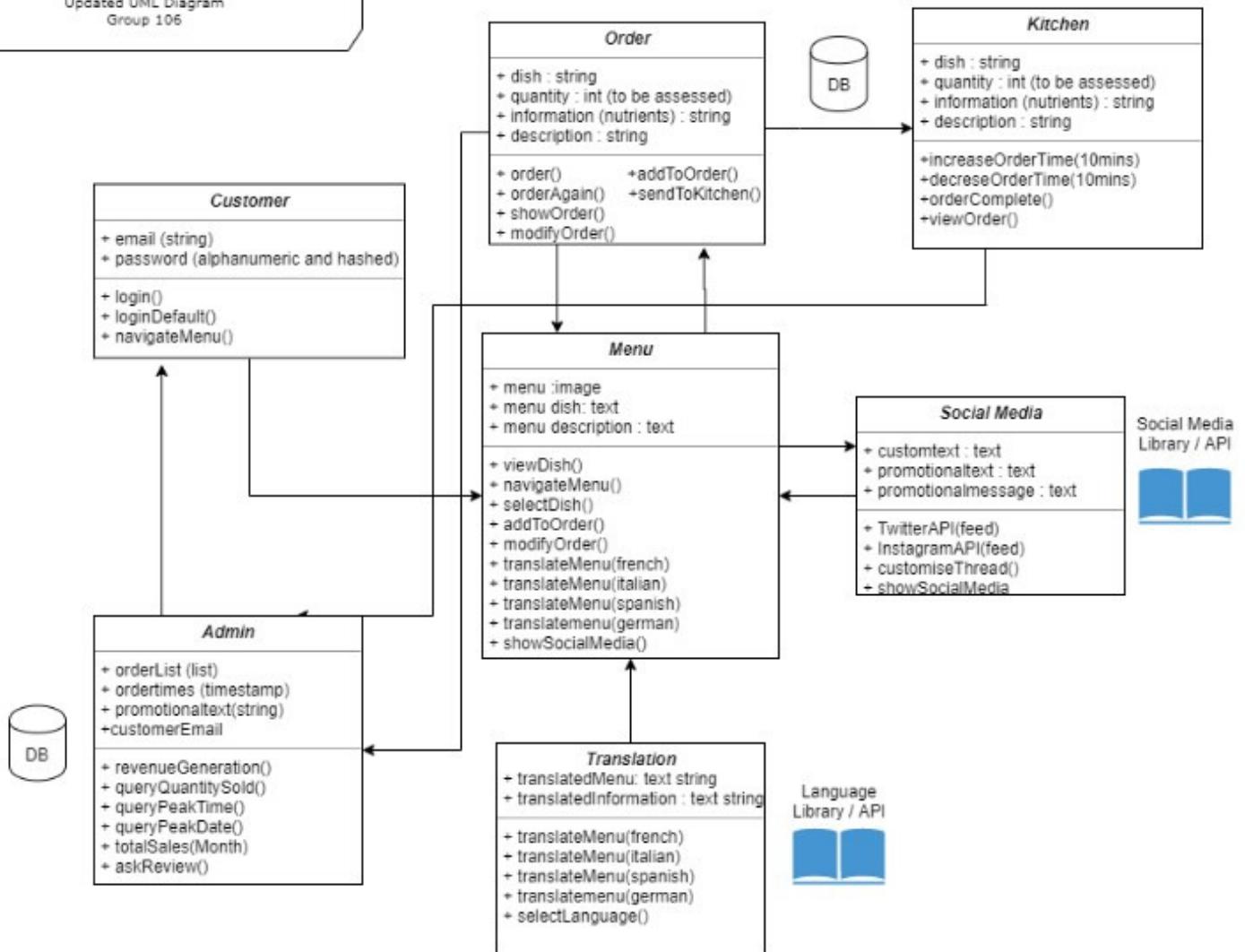


Figure 6 shows the new version of the UML with more clarified entities

Use case diagram for customer

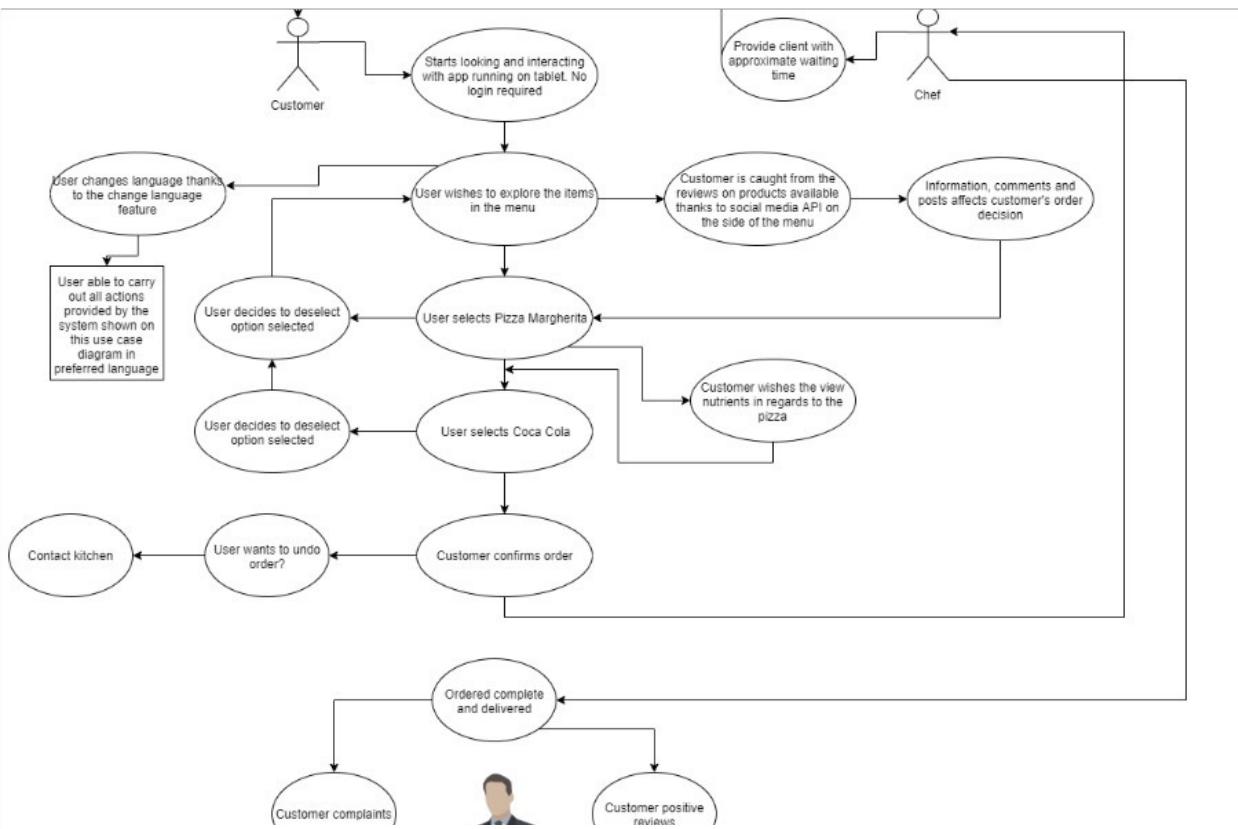


Figure 7 shows old customer use case

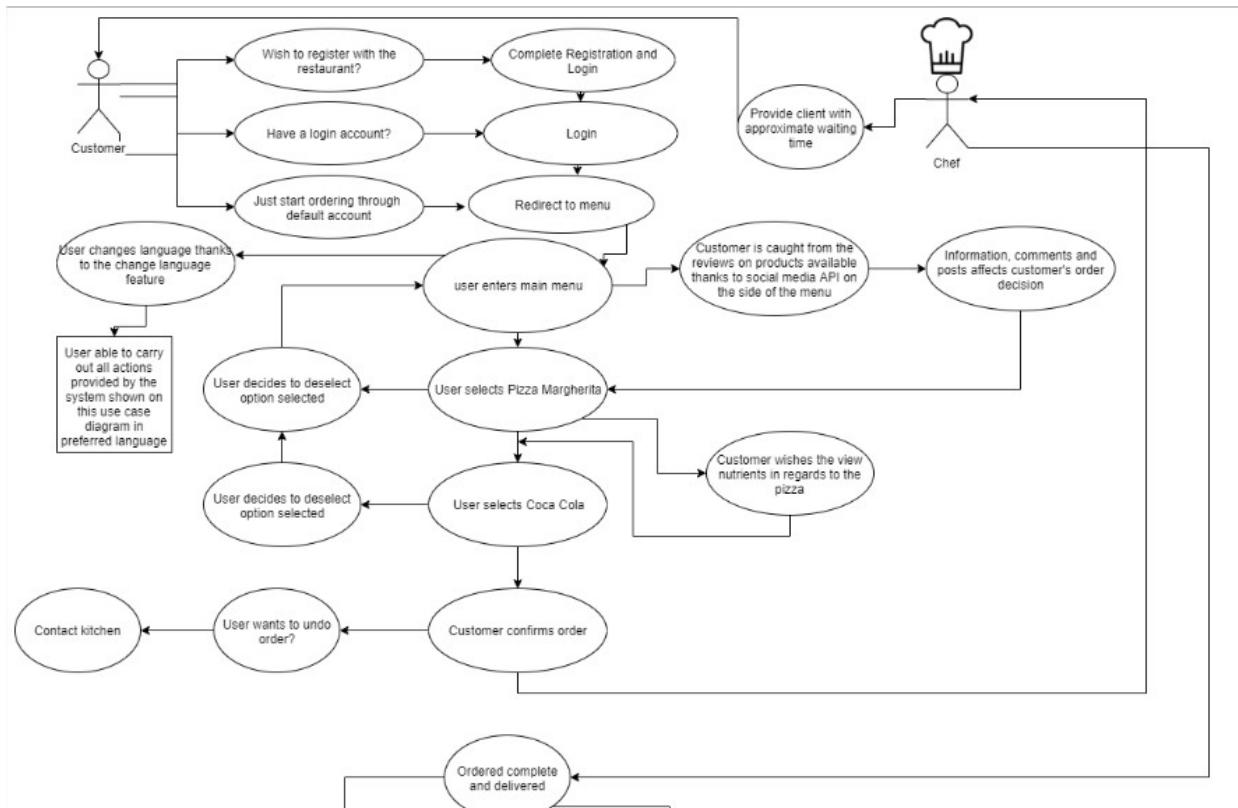


Figure 8 shows updated customer use case

Sequence Diagrams

Sequence diagram customer

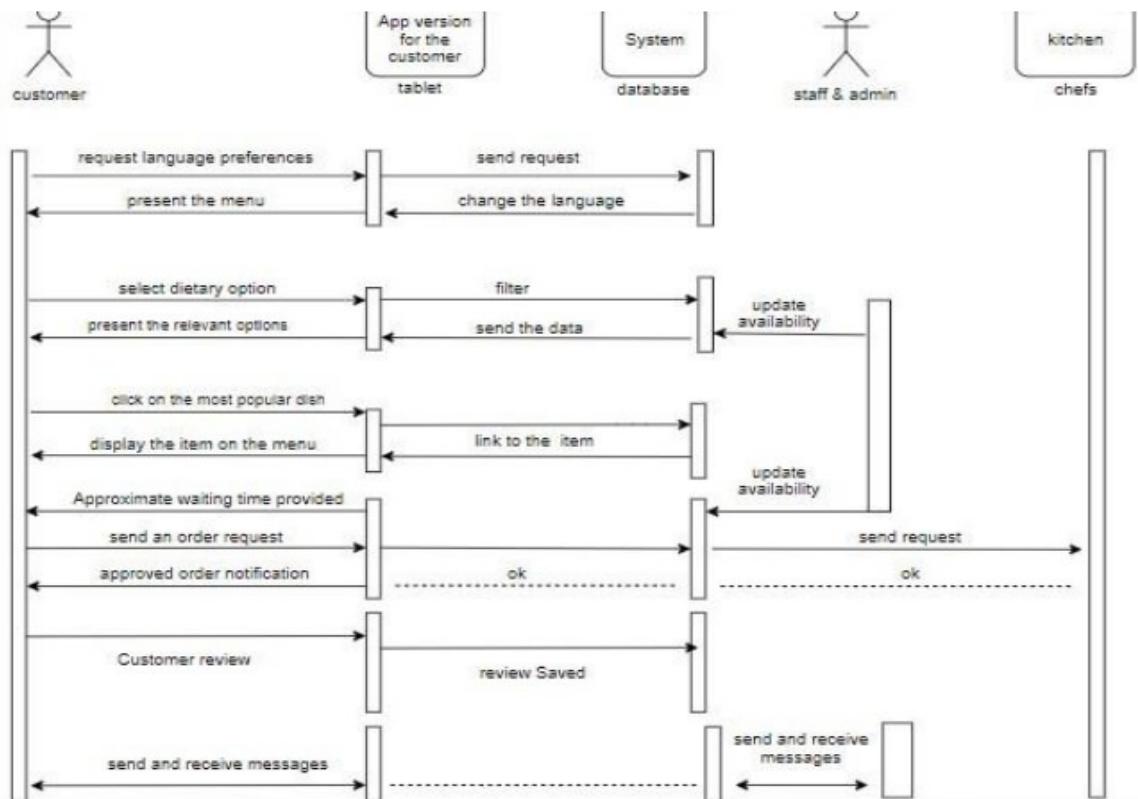


Figure 9 shows old customer sequencing diagram

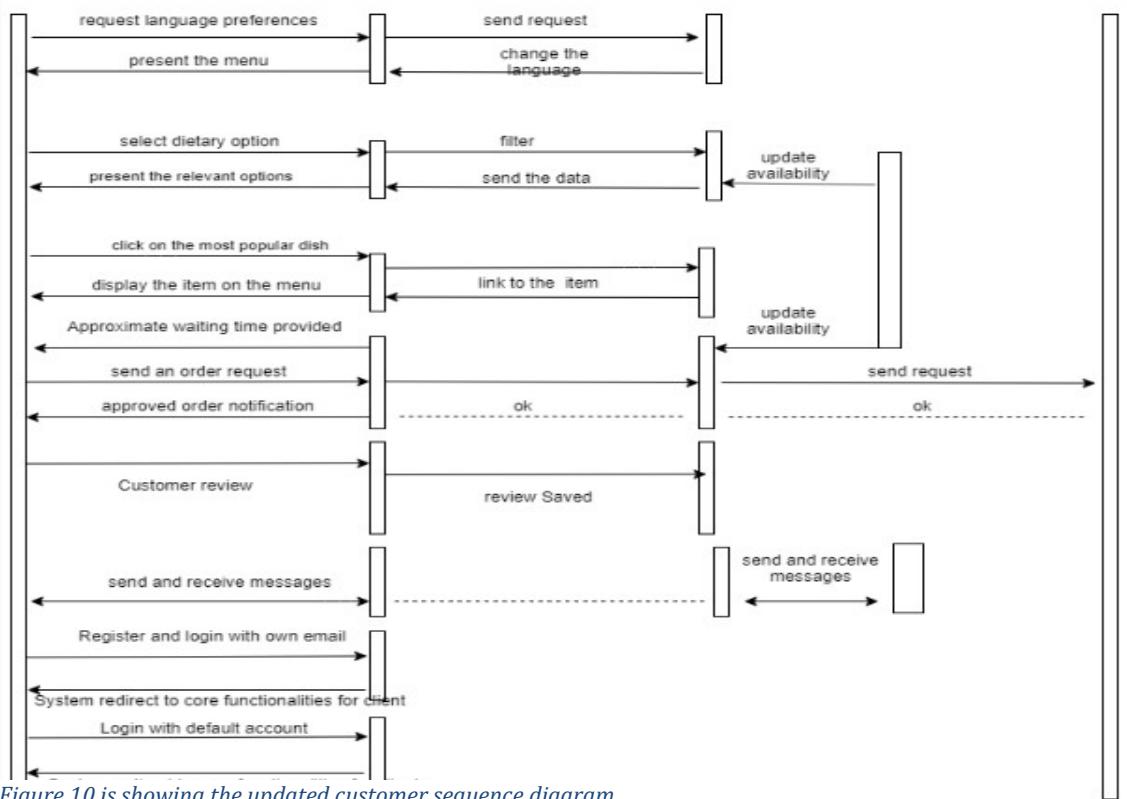


Figure 10 is showing the updated customer sequence diagram

Sequence diagram chef

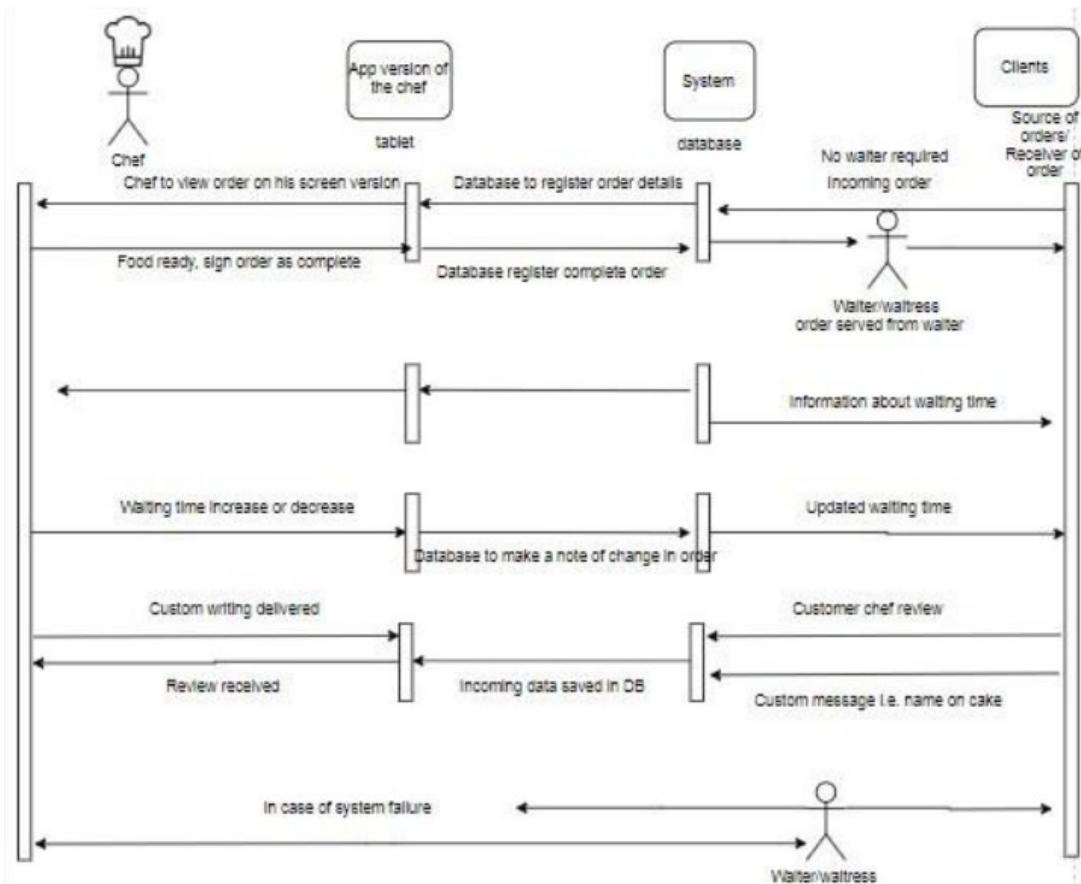


Figure 11 is the original chef sequence diagram

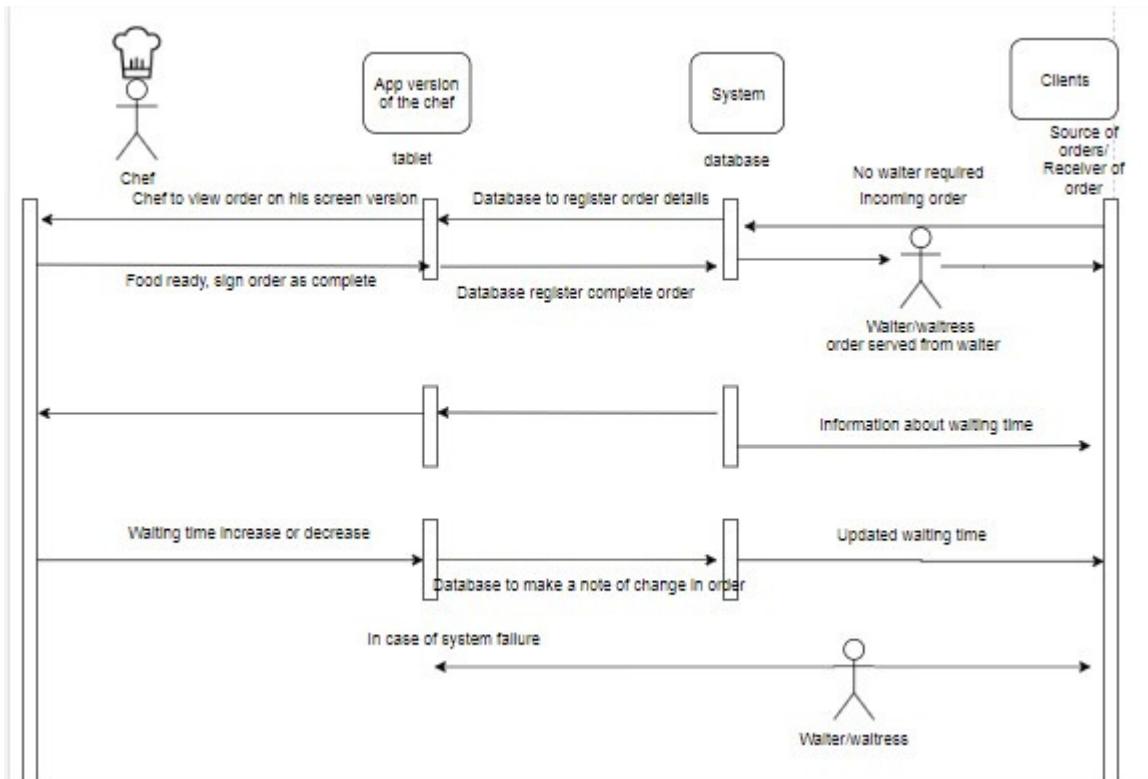


Figure 12 shows updated chef sequence diagram

Sequence diagram admin

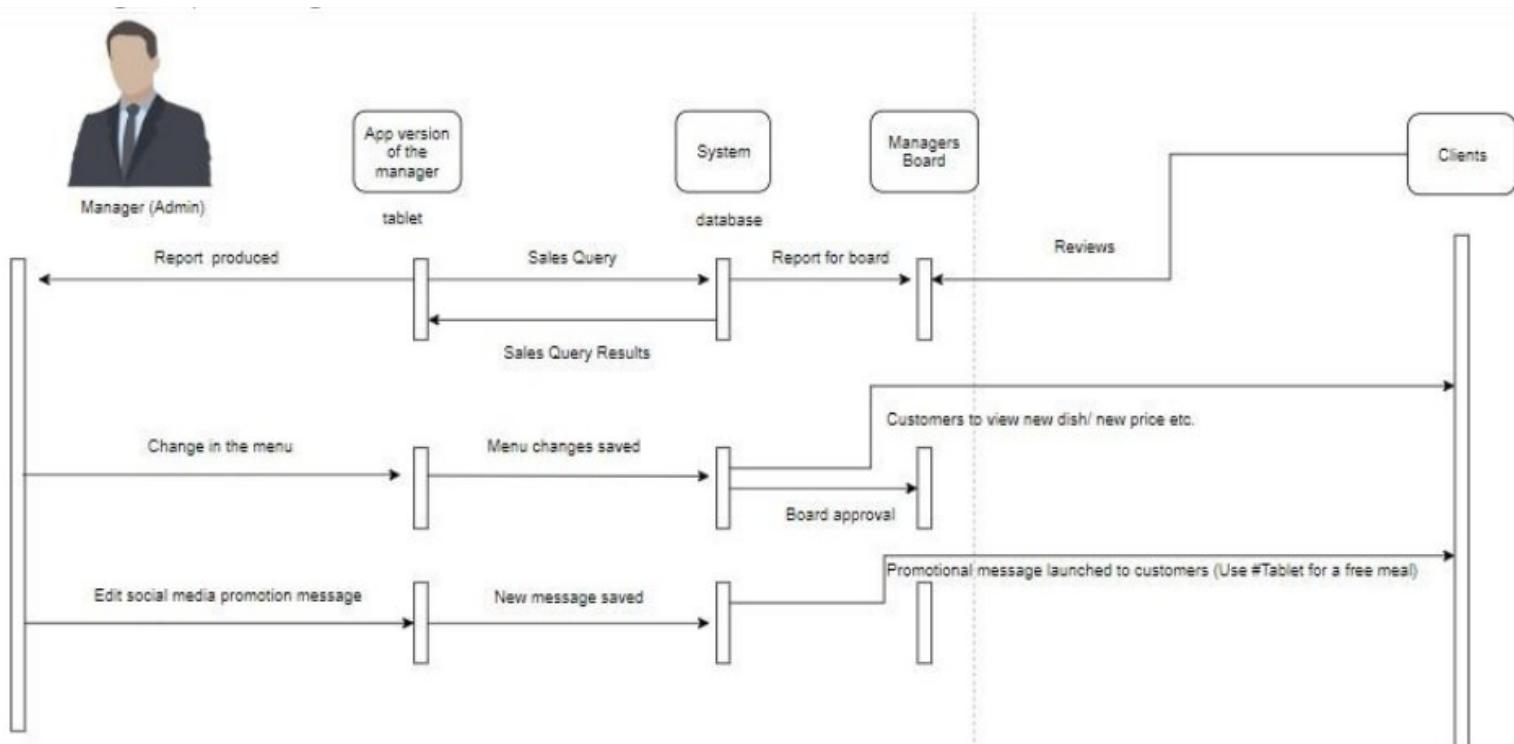


Figure 13 is the original admin sequence diagram

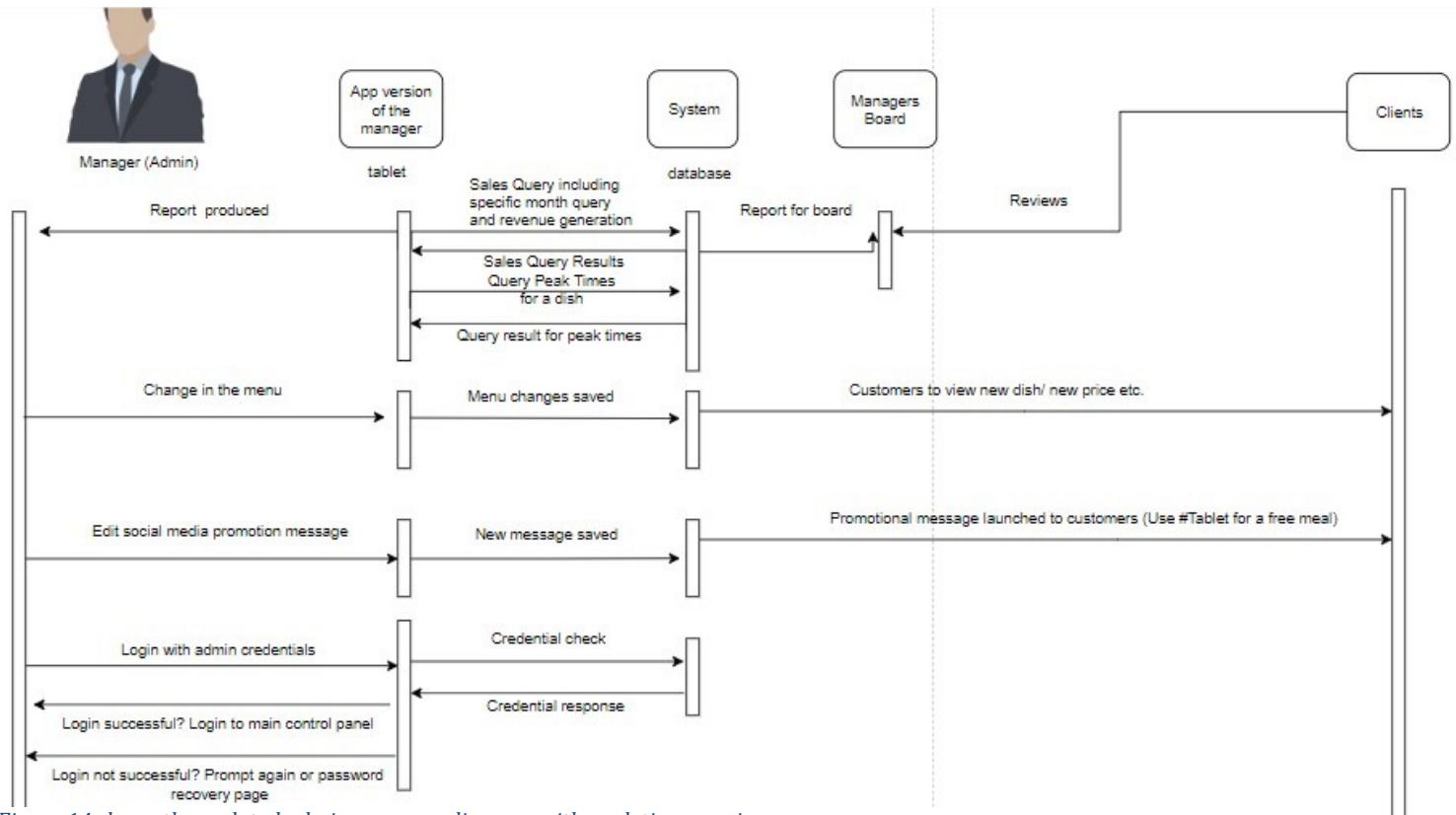


Figure 14 shows the updated admin sequence diagram with peak time queries

Prototyping:

Low Fidelity prototyping contributed to a better idea of the wireframe. We explained our vision and showed them these sketches. (Sketches are shown in the appendices).

Figure – Feedback from client 1

Positive feedback	Negative feedback
The menu was very illustrative for the customers.	The translations opening page should have some flags to link to the language options.
Loved the idea of having the translations options as the opening page.	The social media page should have a place for the client's own personalised hashtags.
Social media feed is a perfect addition for our customers to explore.	The reviews need to be kept private, the customers can leave reviews that go straight to the Admin.
The layout is simple and easy to use.	

Figure 13 prototyping feedback

Changes are incorporated into High Fidelity

The functioning high fidelity prototype can be seen and tested on Marvel.¹⁰

This functioning prototype was shown to the client, she used and tested the prototype. The feedback was:

Positive feedback	Negative feedback
The client loved the automatic timer on the order confirmed page which is decided by the chef for how long until the order is ready.	The system at that stage asks for reviews on the same page when the customer receives their order, but the customers can't form their opinions without finishing their dishes. So, the reviews really should be asked after they leave the restaurant and after they finished their experience. The client suggested we add a sign-up page for any customers to leave their full name and email which the restaurant can then send a link to leave a review. And a sign in option for repeat customers and a guest option if the customer does not want to sign up/sign in.
The client loved the easy to use system.	Social media can be integrated as an optional choice into a separate screen, there are business reasons behind this choice as it looks like you are trying to promote the brand more than getting the customer to order. So, to combat this I will add an option on the dish page to show social media posts of the dish's images.

Figure 14 additional prototyping feedback

The high-fidelity prototype has been reviewed by international food bloggers who particularly emphasised on the translation functionality and expressed a positive view.¹¹

Positive feedback
They loved the translation opening page.
Easy to use.
They love the feature of shopping from the social media posts. As users of social media they always use social media for advice on what food to order and what restaurants to go to, so a system which allows you to order straight from a social media feed was a very exciting feature for them.
The love how illustrative the menu was and though it will help them make their dishes choices quicker.

Figure 15 additional prototyping feedback

High Fidelity Prototypes for Customer Side

Welcome To
St. Giles

English FLAG

French FLAG

St. Giles

Menu Social Media

Table Number- 017

BEST DEAL

POPULAR TODAY

A smartphone screen showing the welcome page for St. Giles. It features a large title "Welcome To St. Giles" at the top. Below it are two language options: "English" with a flag icon and "French" with a flag icon. At the bottom right is a small logo of a fork and knife inside a circle. The background is white.

St. Giles

Menu Social Media

Table Number- 017

Thank you for your order!

Margherita Pizza Product code: MPVEG001
#PIZZAPARTY
Extra: Cheese
Notes: Halal, not spicy.
QTY: 2 £9

St. Giles

Menu Social Media

Table Number- 017

Enjoy your food!

Margherita Pizza Product code: MPVEG001
#PIZZAPARTY
Extra: Cheese
Notes: Halal, not spicy.
QTY: 2 £9

A smartphone screen showing an order confirmation for a Margherita Pizza. It includes the restaurant name "St. Giles", the table number "017", a message "Thank you for your order!", and the pizza details: product code MPVEG001, hashtag #PIZZAPARTY, extra cheese, halal note, quantity 2, and price £9. The layout is identical to the welcome screen but with different content.

Margherita Pizza Product code: MPVEG001
#PIZZAPARTY
Extra: Cheese
Notes: Halal, not spicy.
£9

★★★★★

Leave a review...

A smartphone screen showing a review section for a Margherita Pizza. It displays the same pizza details as the previous screen. Below the details is a five-star rating icon. At the bottom is a text input field with placeholder text "Leave a review..." and a standard iOS-style keyboard.

St. Giles

Menu Social Media

Sort By

Price Calories Name Popular

Table Number- 017

Starters Main Desserts

Gluten Free Halal Vegan

Burger £10 Burger £10 Burger £10 Burger £10

A smartphone screen showing a burger menu for St. Giles. It includes a "Sort By" dropdown with options: Price, Calories, Name, and Popular. Below the dropdown are buttons for "Starters", "Main", and "Desserts", and filters for "Gluten Free", "Halal", and "Vegan". At the bottom are four images of burgers labeled "Burger £10" and their corresponding prices.

St. Giles

Menu Social Media

Table Number- 017

St Giles INSTAGRAM TRENDS @stgiles_london

Click image to expand and click again to go straight to the dish page and order!

Sort By ▾

- Most liked
- Most posted
- Popular hashtag
- Best offer

St. Giles

Menu Social Media

Basket

Margherita Pizza Product code: MPVEG001

#PIZZAPARTY

Extra: Cheese

Notes: Halal, not spicy.

QTY: 2 £9

St. Giles

Menu Social Media

Table Number- 017

Margherita Pizza Product code: MPVEG001

#PIZZAPARTY Share on Instagram using #PIZZAPARTY and #TUESDAYTREATS

1 2 3 ...

Changes made as a result of client/stakeholder feedback

Welcome To St. Giles

Sign in

Full name

Email

Welcome To St. Giles

Sign up

Full name

Email

St. Giles

Menu Social Media

Table Number- 017 Margherita Pizza Product code: MPVEG001

Social media 1 2 3 ...

St. Giles

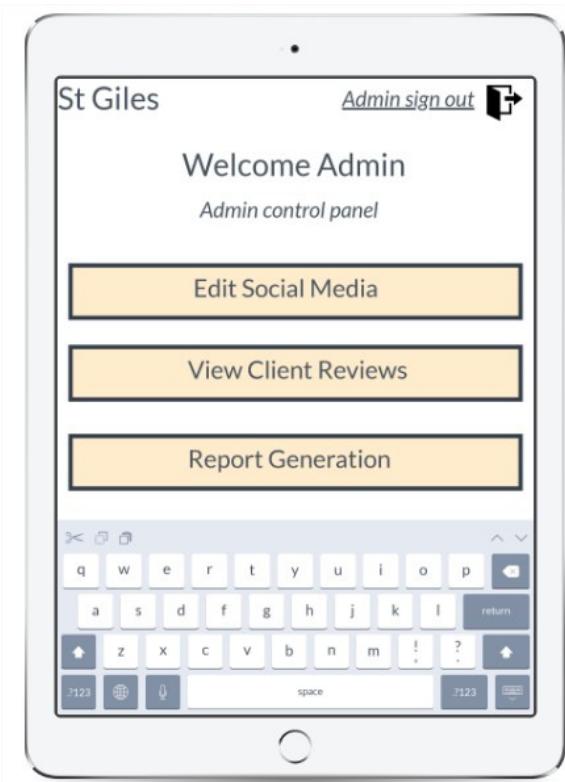
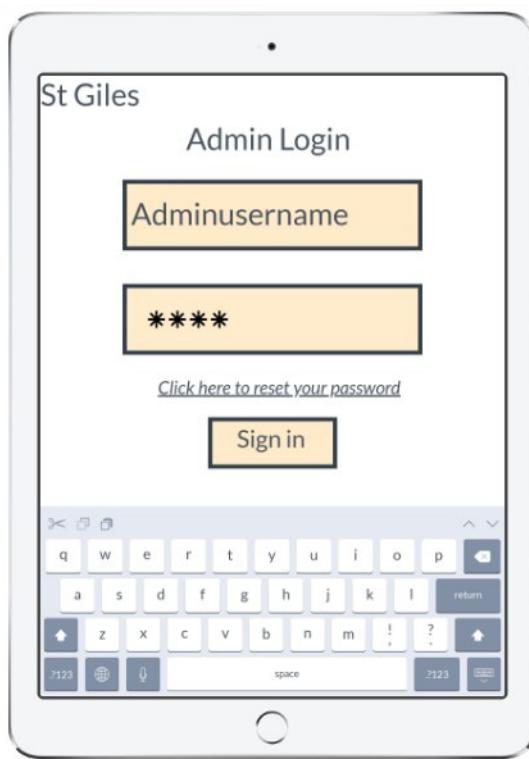
Menu Social Media

Table Number- 017 Margherita Pizza Product code: MPVEG001

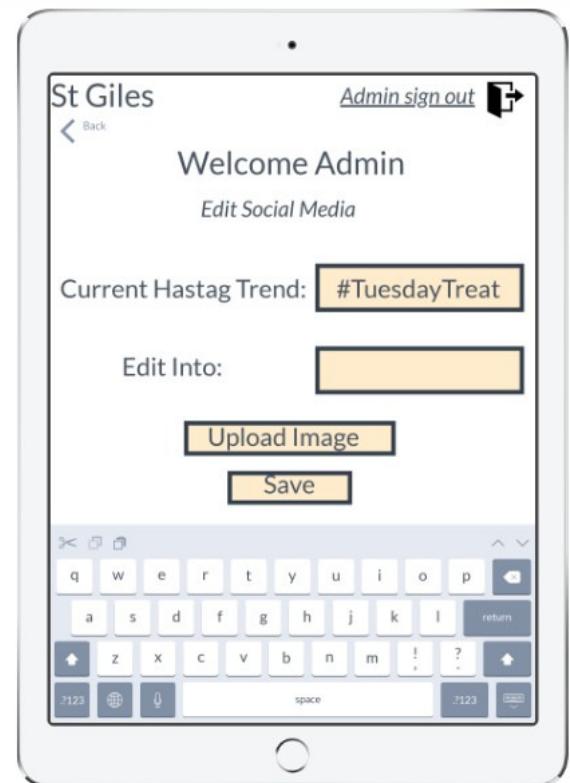
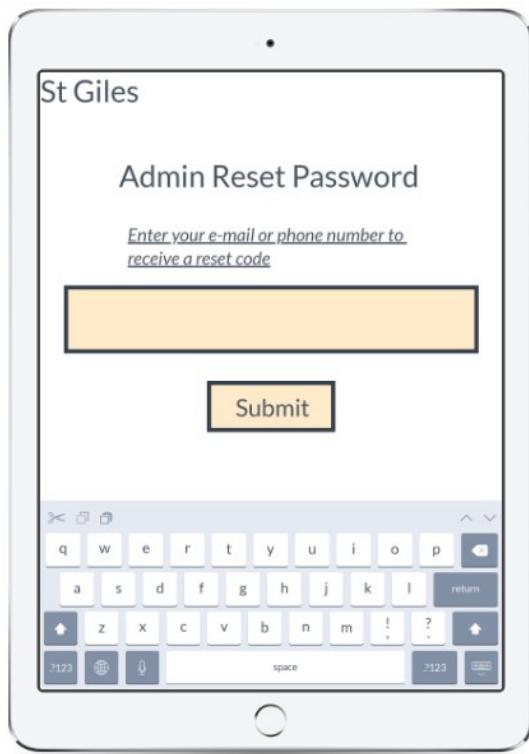
#PIZZAPARTY Share on Instagram using #PIZZAPARTY and #TUESDAYTREATS

Social media 1 2 3 ...

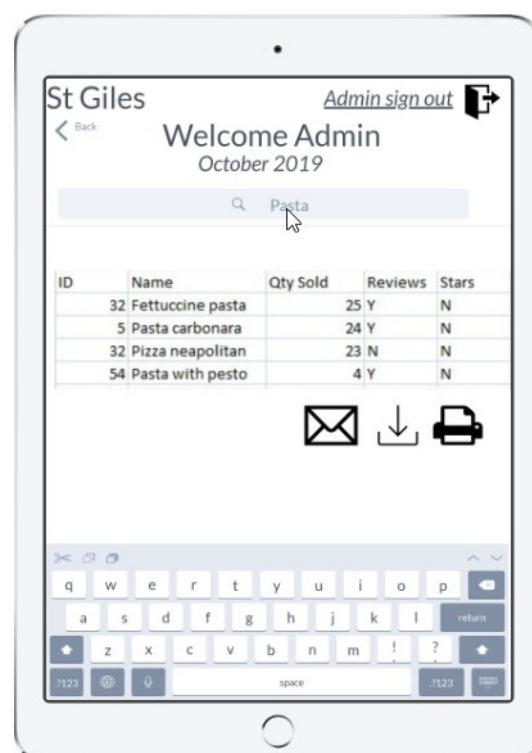
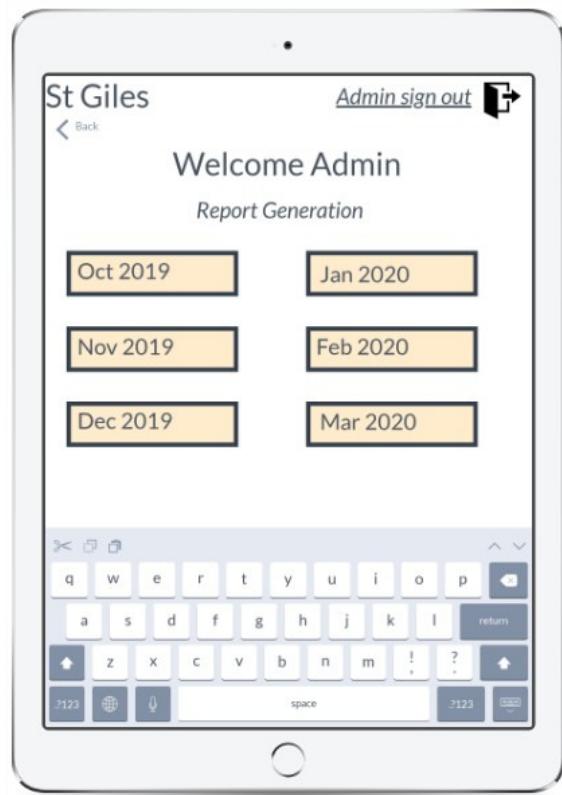
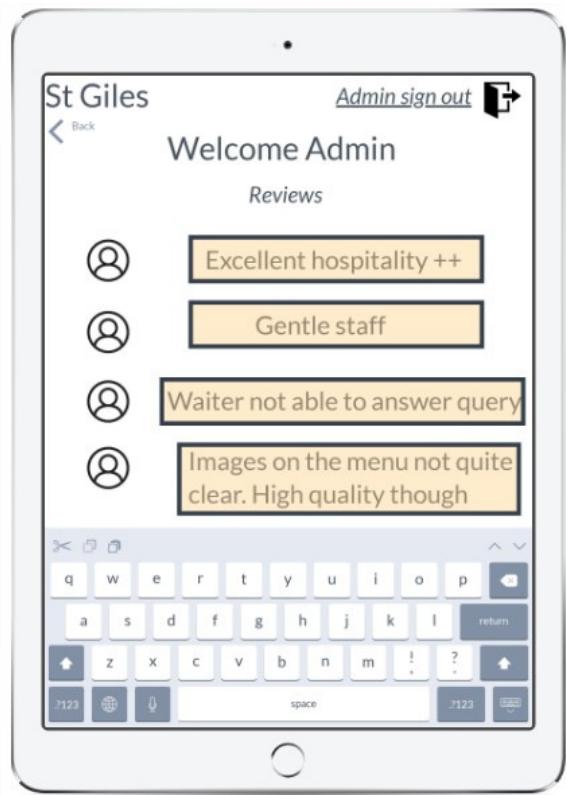
High-Fidelity Prototype for Admin



1



¹ For further Design Decision information refer to the Low Fidelity and High-Fidelity meeting script and feedback in the Appendix



Reflection and changes from admin point of view on the feedback

- More features need to be added on the control panel of the admin
- Think more about the tables and the fields of information provided
- Monthly sales should have the quantity of reviews not a Y or a N

Response to feedback

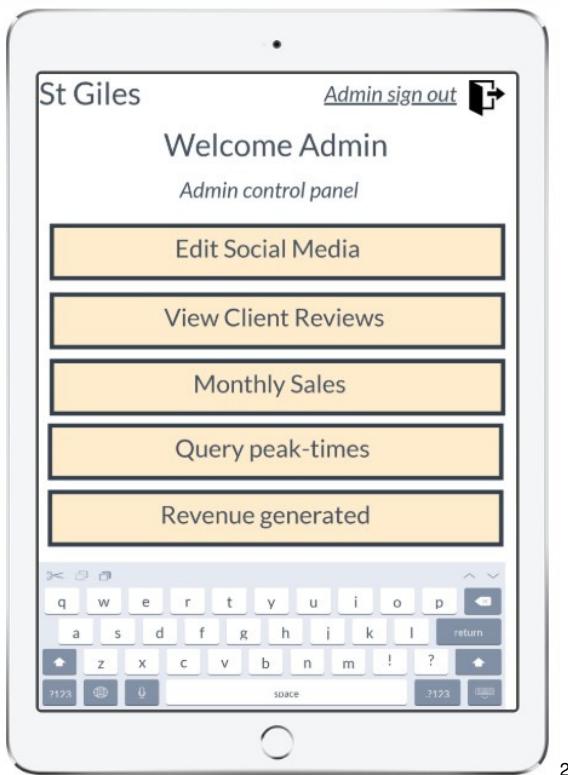


Figure 16

Figure 18 shows the changes that have been made to the control panel of the admin side. The new features that have been added to add an extra layer of complexity in the prototype are Query peak times and revenue generated.¹²

Possible tables for revenue generated

Item ID	Item name	Price	Quantity Sold	Income	
32	Fish fillet	10.99	16	175.84	
12	Lasagna	13.14	20	262.8	
43	Cod and chips	10.5	30	315	
54	Spaghetti Pomodoro	7.5	12	90	
67	Pasta Carbonara	10.75	32	344	
				£	1187.64

² For further Design Decision information refer to the Low Fidelity and High-Fidelity meeting script and feedback in the Appendix

The table above is representing potential data to represent the revenue generated. Suitable for MySQL implementation.

Possible table for peak-time queries

Item ID	Date	Time	Quantity
12	01/10/2019	13:10	2
12	03/10/2019	12:47	4
12	08/10/2019	14:34	1
12	08/10/2019	14:30	2
12	09/10/2019	12:32	3
12	10/10/2019	12:45	2
12	10/10/2019	14:01	1
12	11/10/2019	13:03	1
12	11/10/2019	12:36	1
12	15/10/2019	13:14	2
12	18/10/2019	12:40	3
12	22/10/2019	14:38	3
12	25/10/2019	13:43	4
12	28/10/2019	12:04	2
12	31/10/2019	14:19	1

Figure 17

Figure 19 is a representation of the possible table structure that can be adopted for querying peak times. The redundancy aspect will be revisited in later phases

High Fidelity for Chef Side

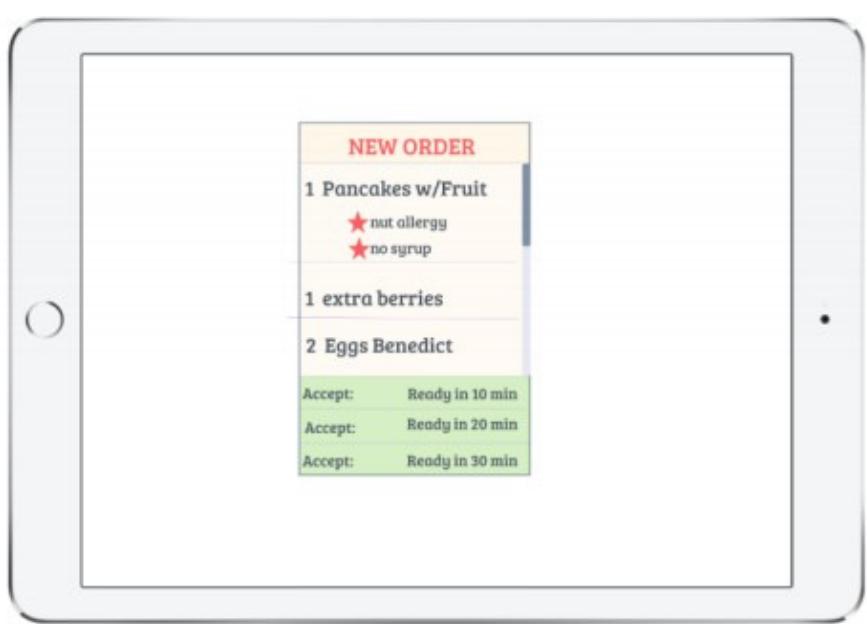
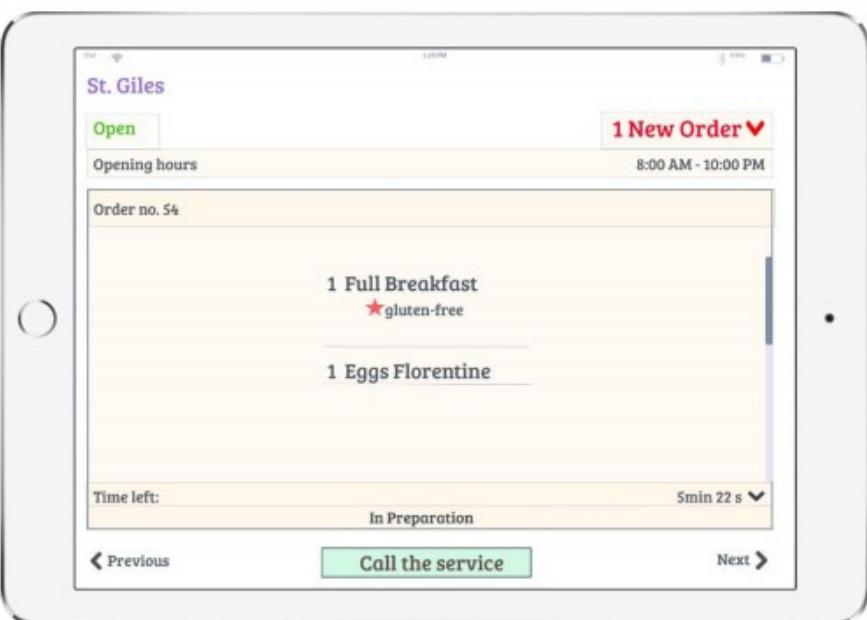


Figure 18 is showing the high-fidelity for kitchen side before the feedback changes were applied

Changes applied for kitchen side:³



³ For further Design Decision information refer to the Low Fidelity and High-Fidelity meeting script and feedback in the Appendix



Technical prototypes

```
mysql> show Databases;
+-----+
| Database |
+-----+
| information_schema |
| myBookshop |
| myRestaurant |
| mysql |
| performance_schema |
| sys |
+-----+
```

Figure 19 is showing the myRestaurant Database

Field	Type	Null	Key	Default	Extra
id	int(11)	NO	PRI	NULL	auto_increment
name	varchar(50)	YES		NULL	

Figure 20 constructing fields

```
//Software Project Technical Prototyping

app.get('/technical',function(req,res){
  res.render("techpro.html");
});

app.post('/ordered',function(req,res) {
let sqlquery = "INSERT INTO orders (name) VALUES (?)";
let newrecord = [req.body.dishes];
db.query(sqlquery, newrecord, (err,result) => {
  if(err) {
    return console.error(err.message);
  }
  else
    res.send('The order you made' + req.body.dishes + 'has been made');
});
});
```

Figure 23 SQL code

```
host: 'localhost',
user: 'root',
password: 'Stoneisland23',
database: 'myRestaurant'
);

//connect to database

db.connect((err) => {
if (err) {
  throw err;
}
console.log('Connected to database');
});
global.db = db;
```

Figure 24 shows DB connection

This is the order page

Select your dish

```
Pasta carbonara, price 10.99
Lasagna, price 13.00
Fish and chips, price 12.00
Pizza margherita, price 11.00
```

Figure 25 shows simple example of Order page that stores data in relational table

Functional Specification:

The functional specification will be defined into a table format in the upcoming sections. They have been organised into the three main entities of this system: customer, kitchen and admin. The specification table in the next section does not mention any specific technologies, rather actions users are expected to accomplish.

Technical Architecture:

Our team has decided to develop a web application (HTML, **CSS** & JavaScript) for the system over making a platform specific system such as **Android** or **IOS**. API's can also be implemented.

Having to consider database and server-side technologies such as Node.JS, Express and MySQL for relational and structured databases.

Also, the underlying engines are designed to adapt to any operating systems including Android, IOS and even on the Windows Phone Operating System.¹³ Hence **Android Studio** and IOS have been discarded. CSS can particularly work well with jQuery and JSON or **Globalize**.

In terms of **middleware** and server-side technology, we opted for Node JS along with Express. Node JS is a very easy to use door to the servers that we have been provided as part of this project.¹⁴ Lastly some other technologies under consideration are Bootstrap, which a well-tested styling library which enables responsiveness.

System Requirements & Technical Specification

Purpose

1. Purpose: The purpose of the concept is to provide a service that consists into implementing a system between the clients and the kitchen of hotel-restaurants. The idea is to place a tablet device on each table of the dining area where clients are served. Through a web application subject to development, the clients can visualise in a more creative and illustrative manner the dish that they are interested in, change the language to what most suits them, as well as order directly from their table through the application. This will ping an order message to the kitchen, which will then process and deliver their order.

Stakeholders:

2. Can expect to increase orders especially with tourists.
3. Stakeholders such as McDonalds think it is a good idea, especially with smaller businesses as large kiosks like the ones in McDonalds are very expensive to install
4. They would expect this to be useful, especially if they are short staffed
5. Stakeholders are always looking for ways to make things more innovative and trying to find new and easier ways for customers and staff
6. From St Giles hotel. Good idea to help chefs in the task of reading the orders.

Scope

Functional requirements

The App will enable <u>the customer</u> to:	
1. Choose the language of the menu	<ul style="list-style-type: none">• click on the drop-down menu to select the preferred language
2. View the full menu (menu button at the top of every page)	<ul style="list-style-type: none">• sort by chosen option (calories, name, popular, price)• filter by specific categories, tick chosen category dishes (starters, mains, desserts, gluten-free, vegan, vegetarian, halal)
3. View the social media page (social media button at the top of every page)	<ul style="list-style-type: none">• click on the image/ name of the dish to see the dish page• see the feed of posts posted by customers on Instagram• sort the feed by: most liked, most posted, popular hashtag, best offer• click on the post to see caption, hashtag, the number of likes
4. View the trolley page (plate and cutlery icon at the top of every page)	<ul style="list-style-type: none">• add extra notes to the dishes already saved• see the prices and the total amount

	<ul style="list-style-type: none"> • see the images and names of the dishes saved – click on the image/name to view the dish page
5. View the confirmation page	<ul style="list-style-type: none"> • confirm the order –click “confirm” button
	<ul style="list-style-type: none"> • see how long it takes for the order to be ready
	<ul style="list-style-type: none"> • see the order summary – pictures and information
6. View the “Thank You For Your Order” page	<ul style="list-style-type: none"> • see the order details
	<ul style="list-style-type: none"> • be reminded to pay
	<ul style="list-style-type: none"> • leave a review
	<ul style="list-style-type: none"> • click on hashtags to the social media page
7. Write a review	<ul style="list-style-type: none"> • alter the stars for the dish
	<ul style="list-style-type: none"> • view the dish page/ social media page through a link
	<ul style="list-style-type: none"> • add text
	<ul style="list-style-type: none"> • go to the next dish to be reviewed – by clicking the bold arrow
8. View the last visited page (back arrow at the bottom of every page)	
9. See the customer's table number	

10. See the top 4 popular dishes: “best deal”, “popular today”, “most popular”, “trending on social media” linked to their pages	<ul style="list-style-type: none"> • click on the image/ dish name to view the dish page
11. View the dish page	<ul style="list-style-type: none"> • see the picture/ slideshow of the pictures & videos of the dish • see the full information about the dish • click on the hashtag/ image of the dish to see the social media page of the dish • choose the quantity of the dish from a dropdown menu • type in extras, notes to the kitchen about the diet requirements • click on the add button to see the trolley

The App will enable <u>the chef</u> to:	
1. Log in/ log out/ reset password	
2. View 3 current orders	<ul style="list-style-type: none"> • see the 3 current orders displayed in reverse chronological order, the last received order is placed on the left, the order that was first accepted (and has not been collected yet) is displayed on the right

	<ul style="list-style-type: none"> • see the battery status and time, the status (whether the kitchen is open for new orders) and the opening hours are placed at the top of the screen
	<ul style="list-style-type: none"> • view the new order that has been made (click on the “New Order” button in the top-right corner)
	<ul style="list-style-type: none"> • view an order as a separate page (double click on a particular order)
	<ul style="list-style-type: none"> • manually change the time left for the dish to be ready (click on the “Time Left” button at the bottom of the order)
	<ul style="list-style-type: none"> • view previous and next orders (click on “Previous” or “Next” buttons)
	<ul style="list-style-type: none"> • change the status of the order from In Preparation to Ready and vice-versa in case of a mistake (click on the “In Preparation” or “Ready” buttons)
	<ul style="list-style-type: none"> • give a signal to the waiting staff that the dish is ready to collect (click on “Call the service” button)
3. View 1 order on a page	<ul style="list-style-type: none"> • see the battery status and time, the status (whether the kitchen is open for new orders) and the

	<p>opening hours are placed at the top of the screen</p> <ul style="list-style-type: none"> • view the new order that has been made (click on the “New Order” button in the top-right corner)
	<ul style="list-style-type: none"> • view 3 current orders (double click on the order)
	<ul style="list-style-type: none"> • manually change the time left for the dish to be ready (click on the “Time Left” button at the bottom of the order)
	<ul style="list-style-type: none"> • view previous and next orders (click on “Previous” or “Next” buttons)
	<ul style="list-style-type: none"> • change the status of the order from In Preparation to Ready and vice-versa in case of a mistake (click on the “In Preparation” or "Ready" buttons)
4. Accept new orders	<ul style="list-style-type: none"> • give a signal to the waiting staff that the dish is ready to collect (click on “Call the service” button)
	<ul style="list-style-type: none"> • accept the order to be ready in 10, 20 or 30 minutes (Click on “Accept: Ready in 10 min/20min/30min”) and go back to the previous page.

5. Update the preparation time	<ul style="list-style-type: none"> ● manually change the preparation time (min. 0min 0s -max. 60min 0s) using the slider ● update the preparation time (click on “Update”) and go back to the order page.
--------------------------------	---

The App will enable the admin to:

1. Log in/ log out/ reset password	
2. View the control panel	<ul style="list-style-type: none"> ● edit social media
	<ul style="list-style-type: none"> ● view the client reviews
	<ul style="list-style-type: none"> ● view monthly sales
	<ul style="list-style-type: none"> ● query peak times
	<ul style="list-style-type: none"> ● view revenue generated
3. Edit social media	<ul style="list-style-type: none"> ● edit the current hashtag trend
	<ul style="list-style-type: none"> ● upload an image
4. View revenue generated table	<ul style="list-style-type: none"> ● click on the button with a particular month of the year
	<ul style="list-style-type: none"> ● view the item ID, name, quantity sold and the income
5. Query specific dish in the tables using keywords	<ul style="list-style-type: none"> ● click on the “E-mail” icon to send a report via email
	<ul style="list-style-type: none"> ● click on the “save” icon to save the report

	<ul style="list-style-type: none">• click on the “print” icon to print the report out
6. Query peak times	

Figure 26 Functional Requirements Table

Non-Functional Requirements

Non-functional requirements Performance- The loading time should be quicker.	What is it? The loading time for each web page should be quicker as we want to use more CSS rather than images when possible.
Scalability- This system allows admin to alter the hashtags for customers and edit and add to their menu.	This allows the client to expand their menu.
Capacity	Allow for large number of dishes with photos and videos to be added.
Reliability	As a web application it should be reliable with strong internet access.
Recoverability	The admin can add the dishes details and images and videos to the database to be stored. This database can then be accessed through admin login.
Maintainability	The database can be altered.
Security	Admin, Chef and customer side has a login aspect which allows for better security for this system.
Data integrity- SQL for dishes and menu databases	The database will be accurate and consistent in the format of data- dish name, product code, images, videos, ingredients and description. When allowing admin to add or alter the database of the menu will only allow specific fields to be inputted into and specific data types to be inputted (for example in the Dish name field, admin will not be allowed to add numbers, only strings of characters).
Accessibility	We will have alt text for all our images, we will avoid using table format for our data to allow

System Overview & Technical Architecture

The adoption of Model-View-Controller architecture as a strategy for web application to guarantee high usability is strongly suggested¹⁵

“The big idea behind MVC is that each section of your code has a purpose, and those purposes are different. Some of your code holds the data of your app, some of your code makes your app look nice, and some of your code controls how your app functions.”¹⁶

The MVC Architecture enables the separation of concerns that suits for this project, with appropriate separation of presentation, logic and backend layers fit for this purpose.

The **Repository Architecture** has been considered to fit the purpose, however the idea of having centralised data all in one place, and therefore the use of one database is not ideal for the Interactive Order System.

The data flow of our system needs to be relational and well-structured and needs to facilitate the reporting aspect.

We have also democratically rejected **Pipe and Filter** since our system will not be including a transactional or payment aspect.

Here is a tailored representation of how Model View Controller could fit our purpose.

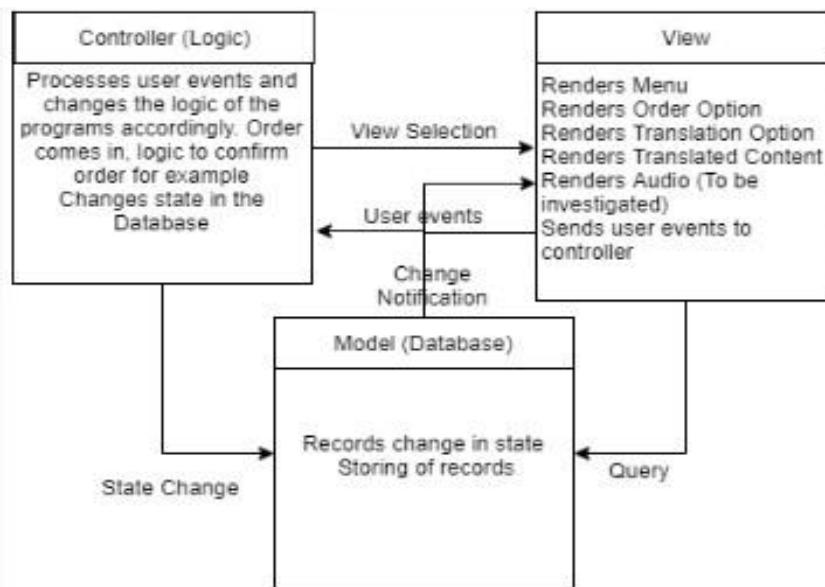


Figure 27 Model View Controller

References

Voice over API – Text to speech API ¹⁷

jQuery – JavaScript library used for rendering animations and other dynamic functionalities including translation.¹⁸

Bootstrap – Widely used CSS framework for mobile responsiveness¹⁹

JSON – Example of semi-structured data for exchange of data between client-side and server-side²⁰

Node JS – JavaScript Runtime Environment ideal for building dynamic web applications

Express – Express is the part of Node JS that manages the middleware software for server connection²¹

Globalize – JavaScript library for translation functionalities

Definitions

Android: Android is a mobile operating system based on a modified version of the Linux kernel and other open source software.²²

Android Studio: **Android Studio** is the official integrated development environment for Google's Android operating system,²³

API: An application program interface (**API**) is a set of routines, protocols, and tools for building software applications. components.²⁴

CSS: Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML.²⁵

iOS: iOS is a mobile operating system created and developed by Apple Inc. exclusively for its hardware.²⁶

Middleware: Middleware is computer software that provides services to software applications beyond those available from the operating system. It can be described as "software glue".²⁷

Minimum viable product: A **minimum viable product** (MVP) is a version of a **product** with just enough features to satisfy early stages.²⁸

Pipe and Filter Architecture: **Pipe and Filter** is another architectural pattern, which has independent entities called **filters** (components) which perform transformations. Filters.²⁹

Repository Architecture: A **repository architecture** is a system that will allow several interfacing components to share the same data component.³⁰

SQL: SQL (pronounced "ess-que-el") stands for Structured Query Language. **SQL** is used to communicate with a database.³¹

Virtual DOM: The **virtual DOM** (VDOM) is a programming concept where an ideal, or “**virtual**” representation of a UI is kept in memory and synced with the “real” **DOM** by a library such as React DOM. This process is called reconciliation.³²

Ethical audit

With our software project being a web application³³, we believe we can avoid the use of data collection from the clients who use the application at the restaurants. This maximises problems for clients entering a restaurant and not feeling comfortable with sharing their details in a common setting like a restaurant, which you wouldn’t expect to share such information.

Data in our application is only on the admin side, which will include items on the menu. Log in details will be needed for this side of our application so privacy and security are highly needed. With our research into databases and we found that MySQL was our best option due to its easy maintained and tight security. Data being leaked could be very damaging to a restaurant and researching first into how to avoid any problems was our top priority.

We are not working individually with people with disabilities or children but being a restaurant application, which could still be used by anyone we needed to think through to minimise any problems. To minimise any problems to these groups of people we have made sure that our buttons for selecting on the iPad are of the appropriate size. Our biggest feature is our translation, we want all to be able to read the menu without difficulty. Restaurants attract tourism and the biggest problem we found is a lot of translation barriers between staff and clients. With bringing in this feature, the clients will not feel let down and frustrated and can order their meal without worrying about what they may or may not have ordered.

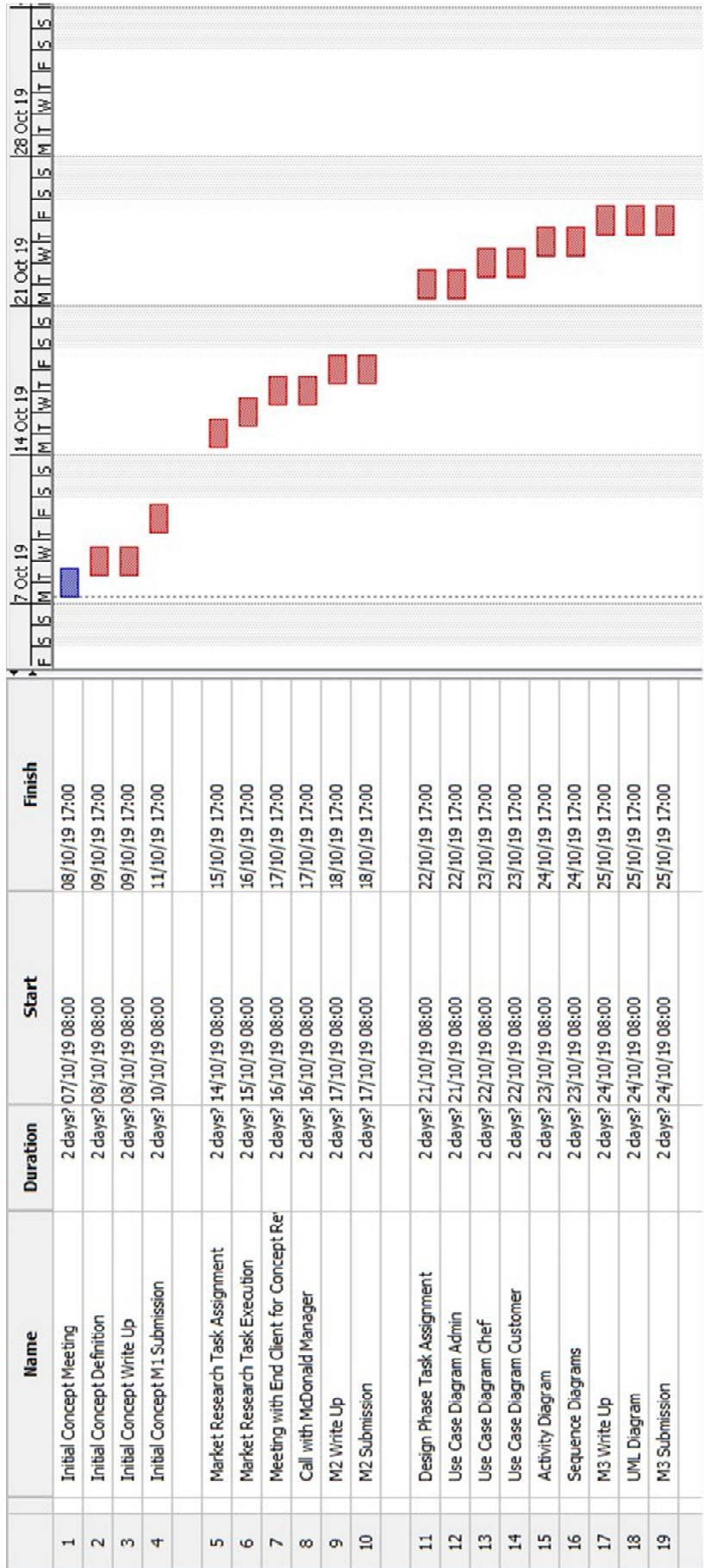
Evaluation Plan

Functional or non-functional testing?	Name of testing	What is this test?	Test cases-during development	Test cases-after development	Measurement during development	Measurement after development
Functional	Unit testing	Verifying every small piece of testable code against our purpose. Carried out by the programmer.	Test small lines of code to see if it works the way we intended it to. Testing the ordering button look and placement.	Test bigger lines of code. Example of testing the order button to see the order is placed.	Does it carry out the right purpose. Eg: the order button is the right shape, colour and in the right place.	Does it carry out the main purpose. Order button places the order correctly.
Functional	User acceptance	Performed by the client and decides whether the end to end flow of the system is as per the business requirements or not.	Allow clients to test smaller parts of the specs.	Allow clients to test the whole system.	Does it match their specifications so far?	Does it match the whole aim?
Functional	System testing	The entire system is tested based on our requirements. It is compared with our overall specification.	Test large parts of codes based on our technical specs. The user navigates through the menu and view dishes.	Go through the system and check all the features.	Are the smaller specs met?	Are the system specs met?
Non-functional	Usability testing	Ease with which the user can operate, prepare inputs and outputs through interaction with our system.	Test the ease of use for specific functions.	Test the ease of use for the whole system.	Are the groups of features too complicated?	Can different levels of IT skills users navigate through the system?
Non-functional	Accessibility	The system must consider different features that are suitable for different disabilities and users.	Different users to test different features based on accessibility requirements. Test a couple features at a time.	Different users to test different features based on accessibility requirements. Test the whole system.	Is it accessible for different needs?	Is it accessible for different needs and people?
Non-functional	Stress testing	Test the system when it is stressed beyond the specifications to see how and when it fails.	Place multiple small orders at the same time.	Multiple people navigate through the system and place large orders.	When does the orders not place through properly?	When does the system not work the way we expect?

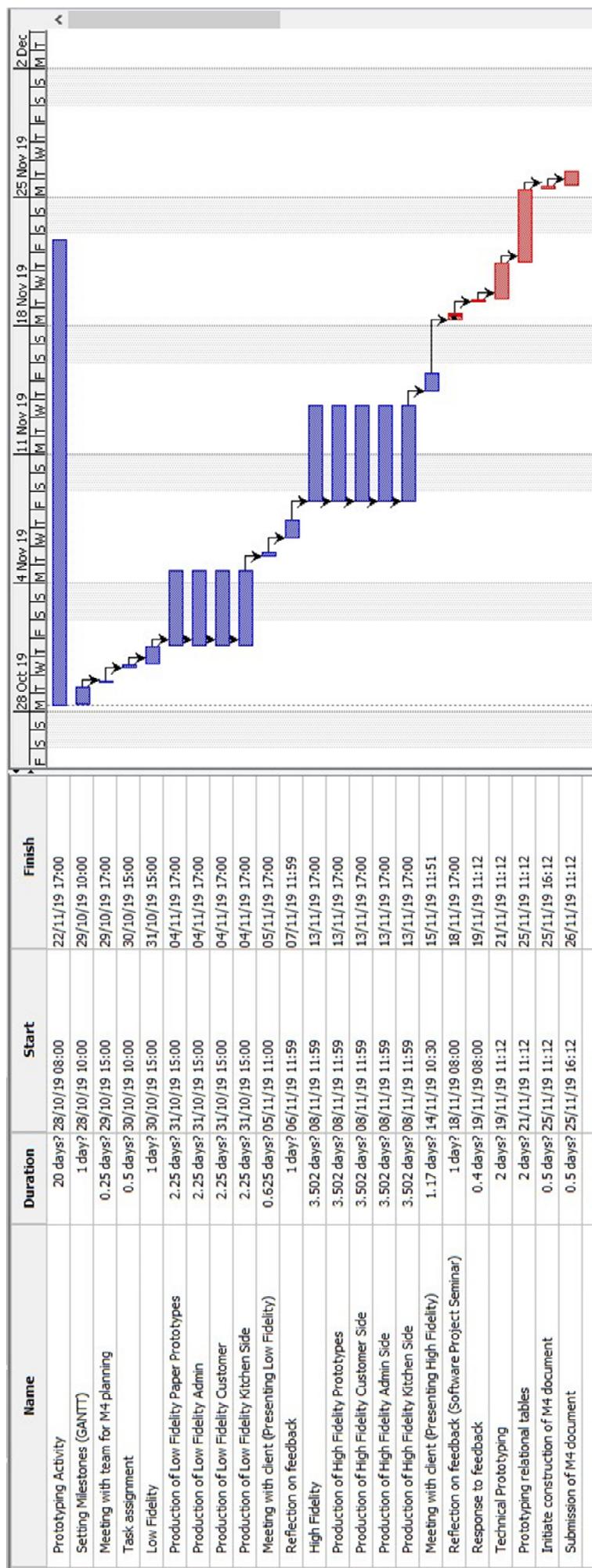
Project management

Overall team performance has been positive. The team has allocated Fred Flintstone to be Project Manager from M1 to M4, the current project manager is Wilma Flintstone. The team uses regularly Trello for task management and GANTT charts for timescales, progress trackers also show correct timing breakdown. The upcoming sections will include project management evidence:

Main GANTT Chart for larger task management (M1, M2, M3)



Sub-GANTT subdivision of M4 milestones



Trello for task management

Noshin Completed

- Report: Market research - how you gathered relevant information for credible sources, summarised and analysed that data and how that information altered the proposed concept. - include evidence that you gathered about competing products and the market and the influence that it had your concept
- Report: Ethics audit - You should detail any issues of privacy, data protection or intellectual property rights that may arise, and how you will manage them. You should confirm that you will not be working with minors or vulnerable adults.
- Report: Project manager
- Report: Bibliography - A list of published sources referenced in the proposal.

Katie Tasks

- Start looking through the report that is due before Christmas. There are a lot of sections that can be easily covered thanks to previously submitted milestones. Others require some research. Can you start considering the research that those points require?

Katie Ongoing

- Working in parallel with Marta for the improvements for the kitchen prototypes for the changes made
- After changes log, open the M4 template and insert all of your low fidelity and high fidelity into the document. Make sure you put there the pictures of your papers as well (under the section of low fidelity). After which pass the working documents to Marta
- Once finished making the changes, log changes made for customer side.
- Making the appropriate changes to customers to respond to client meeting feedback
- Build high fidelity prototypes for customers

Katie Completed

- Definitions: glossary
- Katie to put together research in the template under M2 on learn gold
- Katie and Mohima to work out features to build a template for the requirements choices - make sure you then put this up on the drive
- Katie and Mohima to work out features to build a template for the requirements choices
- Doc 2 meeting transcript that we attended to take this decision

Task Importance

- Priority
- Medium priority
- Low priority

Report: Prototyping - Describe the prototyping you did and what you learned from this particularly the low fidelity interaction prototypes and any technical prototypes to explore technical feasibility of the solution and the functional digital prototypes that you used with users to validate that what you are developing meets the expectations of users.

Report: Evaluation plan - How you intend to test and evaluate your software during and after development. It may be useful to specify individual test cases.

Report: Appendix - The appendix or ~~appendix~~ should contain your

Project Backlog

- Revise features spreadsheet as supervisor suggested to

Noshin Tasks

- + Add a card

Noshin Ongoing

- + Add a card

Noshin Completed

- Report: Market research - how you gathered relevant information for credible sources, summarised and analysed that data and how that information altered the proposed concept. - include evidence that you gathered about competing products and the market and the influence that it had your concept
- Report: Ethics audit - You should detail any issues of privacy, data protection or intellectual property rights that may arise, and how you will manage them. You should confirm that you will not be working with minors or vulnerable adults.
- Report: Project manager
- Report: Bibliography - A list of published sources referenced in the proposal.

Katie Tasks

- Start looking through the report that is due before Christmas. There are a lot of sections that can be easily covered thanks to previously submitted milestones. Others require some research. Can you start considering the research that those points require?

Development Methodology: Agile

The screenshot shows an Agile Sprint Board interface for an 'Interactive Order System For Hotel-Restaurants'. The board is divided into four main columns: 'Priority Colour Coding', 'System "sides" key', 'Backlog', 'Active', 'Development Active', and 'Development Completed'. The 'Priority Colour Coding' column includes 'High Priority' (red), 'Medium Priority' (yellow), and 'Low Priority' (green). The 'System "sides" key' column lists 'Customers side of the system', 'Admin side of the system', and 'Chef side of the system'. The 'Backlog' column contains several items under the 'Customers' key:

- Customers 1.0- Construct basic HTML DOM for Customer Main Menu
- Customers 1.01 Add dishes name for main menu page
- Customers 1.02 Add images into placeholders for main menu
- Customers 1.03 Add dishes prices for main menu
- Customers 1.04 Add "sort by" button on top of main menu page
- Customers 1.05 Add the functionality to allow users to sort the 'main menu'
- Customers 1.1 Create the dish pages template with place for images, videos, name, description sections

Each backlog item has a 'Priority' indicator (red, yellow, green) and a 'Status' indicator (purple). Buttons for '+ Add another card' and a trash icon are visible at the bottom of each column.

Figure 28 Kanban Backlog

Conclusion

As a conclusion, Team 6 has explored in depth the viability of the project, both under technical and commercial aspects. The design stage expanded our understanding of the interactions between different parts and the prototyping improved our visual understanding. The constant influence of our stakeholder keeps us into the Agile methodology as we are acting upon most feedback received. The system overview, functional and non-functional requirement is already guiding this project towards the development, those are fundamental elements to follow. We are looking forward to applying the technologies and the development methods mentioned in the best of our abilities for the next stages.

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Appendices

Concept Meeting with Frankenstein Feltham Hotel

Attendees:

Fred Flintstone

Dr Bunsen Honeydew (Manager at Frankenstein Feltham)

Date: 17/10/2019

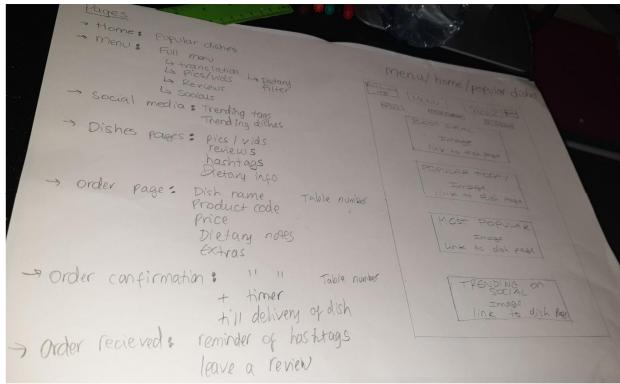
Start time: 11:00

End time: 11:34

Points covered:

- Client has a payment counter which includes a high-end card reader and a physical cash desk that has been in place for a long period of time, for the entirety of this time, the current transaction method at the till has been successful, the admin manager does not wish to replace such system.
- Given the fact that the location of the selected client for this project is near the Heathrow, London area – host of one of the largest airports in the world, the clientele varies from nationality to nationality.
- The admin manager confirmed that various cabin crews work in partnership with their business for hospitality. Predominant cabin crews include Air France KML, Lufthansa German Airline, Iberia airline (Spain), Alitalia (Italy) and of course British Airways.
- The admin manager has confirmed that in various occasions waiters and waitresses, in all meal sessions including breakfast, lunch and dinner must frequently consult the kitchen about queries that they have about meals (Ingredients etc.)
- The manager can foresee some potential improvement in the efficiency for the kitchen with a new order system in place. She likes the idea to help the chefs in the task of reading the orders but has shown some hesitations about some financial implications.
- In rare occasions, when the restaurant is completely full, it has happened that some client showed - interest in another table's orders. This point was debated with the admin manager, she said that in occasions in which the restaurant is full, the clients usually book the space as a large group i.e. for wedding or celebrations.
- Manager expressed interest to see payment inclusion within the system for it to be a competitive and complete package.

Low fidelity prototypes - customers side



Pages

- Home: Popular dishes
- Menu: Full menu
 - ↳ translation
 - ↳ Pics/vids
 - ↳ Reviews
 - ↳ Socials
 - ↳ Dietary filter
- Social media: Trending tags, Trending dishes
- Dishes pages: pics / vids, reviews, hashtags, Dietary info
- Order Page: Dish name, Product code, Price, Dietary notes, Extras
- Order confirmation: " " + timer till delivery of dish
- Order received: reminder of hashtags leave a review

Popular dishes

Full menu

translation

Pics/vids

Reviews

Socials

Dietary filter

Trending tags

Trending dishes

pics / vids

reviews

hashtags

Dietary info

Dish name

Product code

Price

Dietary notes

Extras

" "

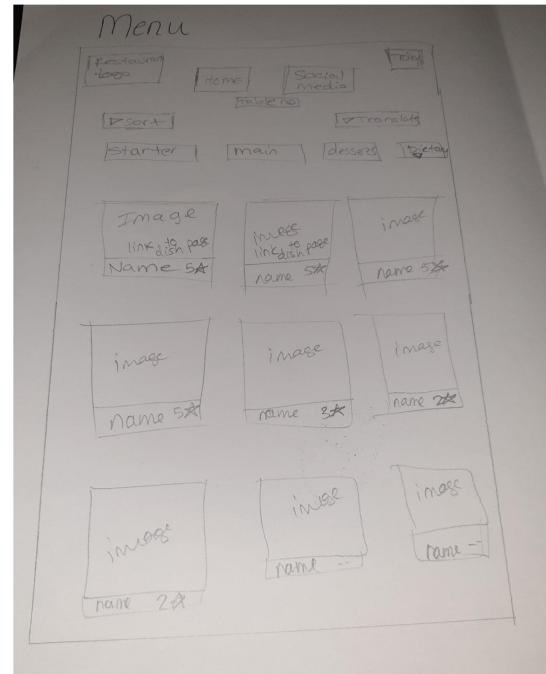
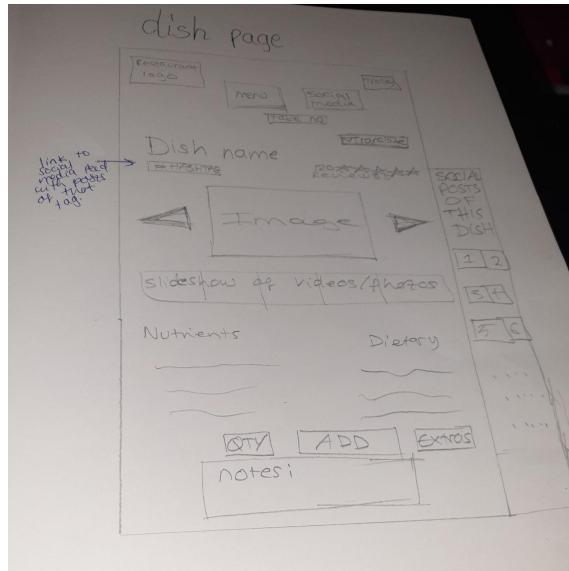
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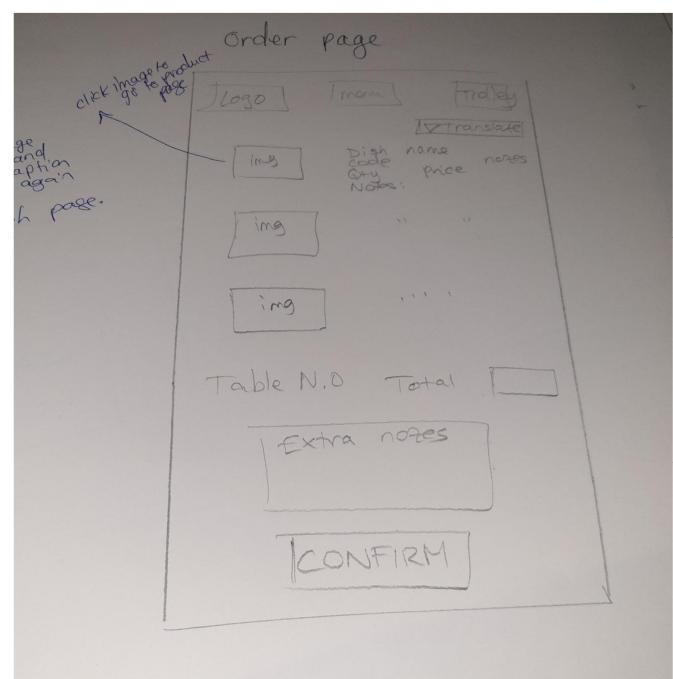
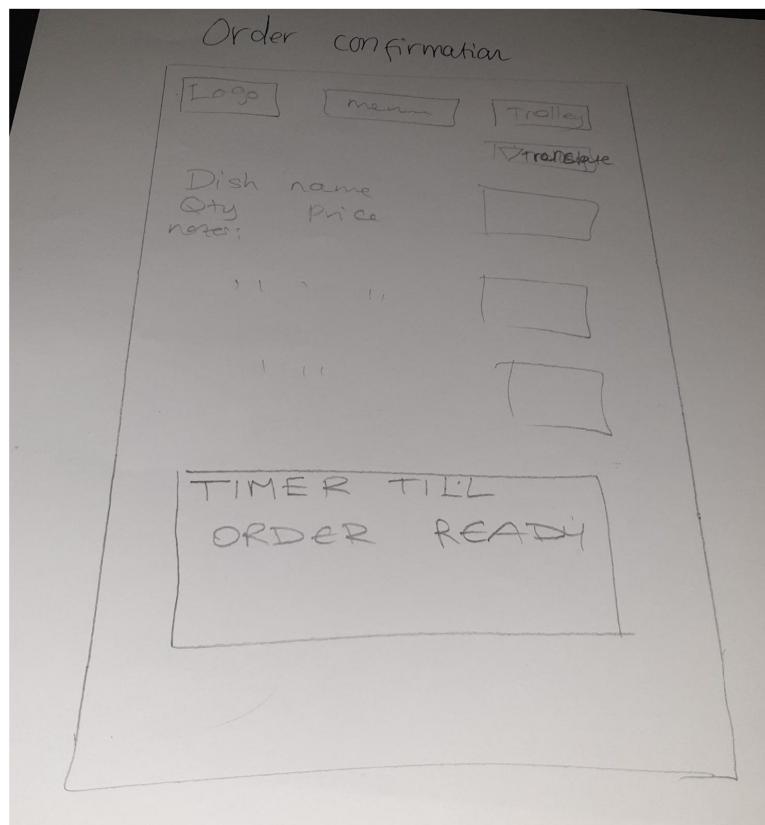
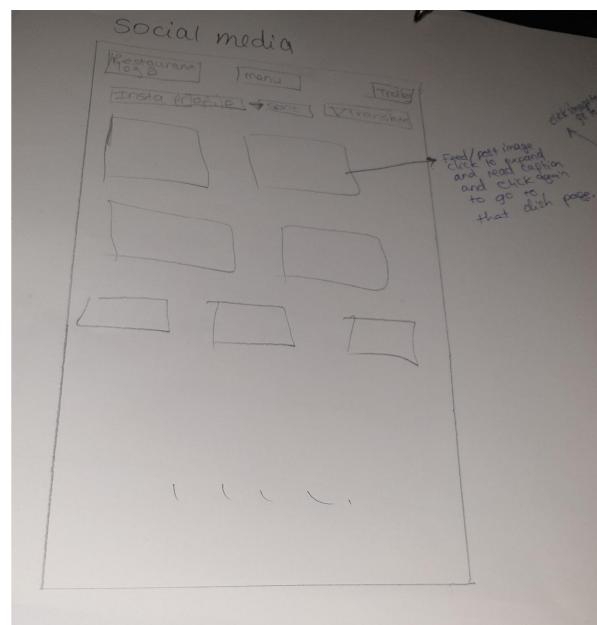
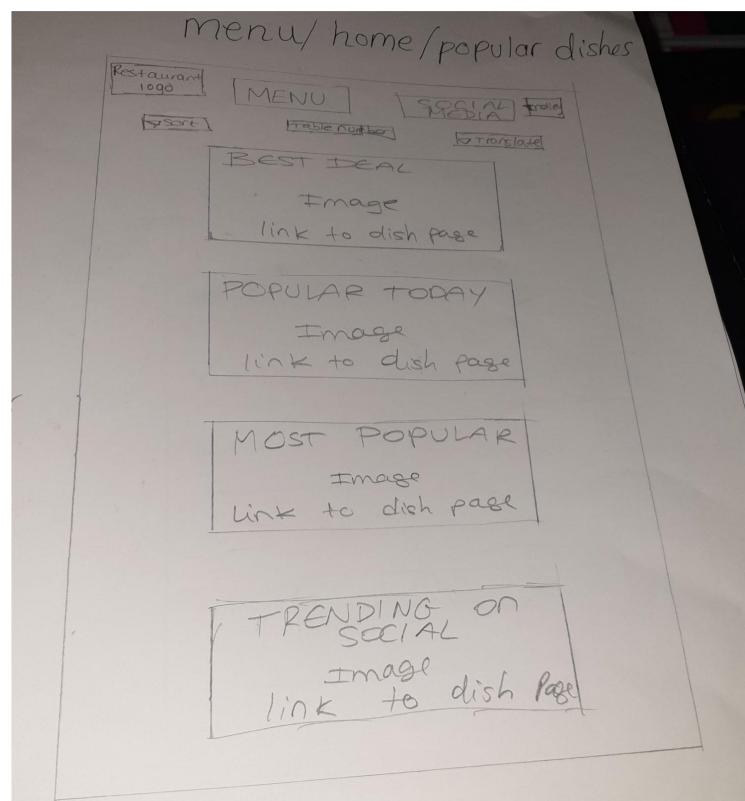
+ timer

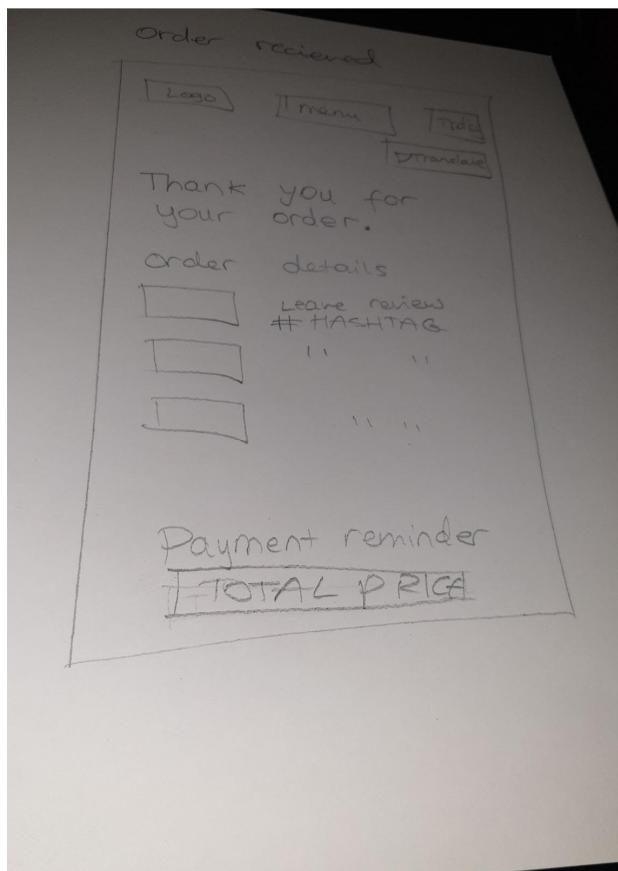
till delivery of dish

reminder of hashtags

leave a review







Low fidelity prototypes - chef side

LOG IN

USER NAME / EMAIL

PASSWORD

LOG IN

OPEN

Opening hours

Current orders **▼**

Order no. 52	Order no. 53	Order no. 54
1 x Full Breakfast 2 x Eggs Benedict ★ gluten-free	1 x Pancakes /n fruits ★ nut allergy 1 x French Toast /n Bacon ★ no syrup 1 x extra berries	1x Eggs Florentine 2 x Eggs Florentine ★ gluten allergy 1 x Granola /n Yoghurt ★ nut allergy + 3 More ⏮ time left: 0min 20sec
IN PREPARATION	READY ◀	READY

Call the service

OPEN

Opening hours

Current orders **▼**

Order no. 53	Order no. 54
Show 4/page 2/page 3/page 5/page 6/page 4 x Pancakes ★ nut aller 2 x French Toast /n Bacon ★ no syrup	1x Full Breakfast 2 x Waffles /n chocolate Accept 5min wait Accept 20min wait Reject ◀ ▶ left: 0min 00s
time left: 2min 20sec	eggs Florentine amola /n Yoghurt left: 0min 00s
IN PREPARATION	READY

Call the service

Low fidelity prototypes- customers side

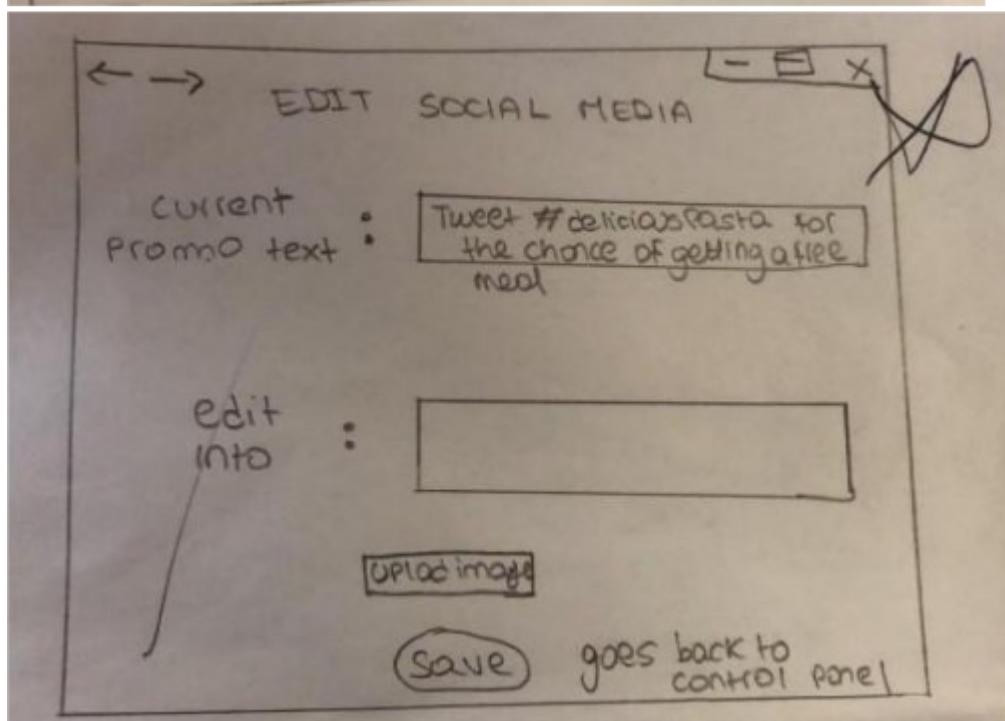
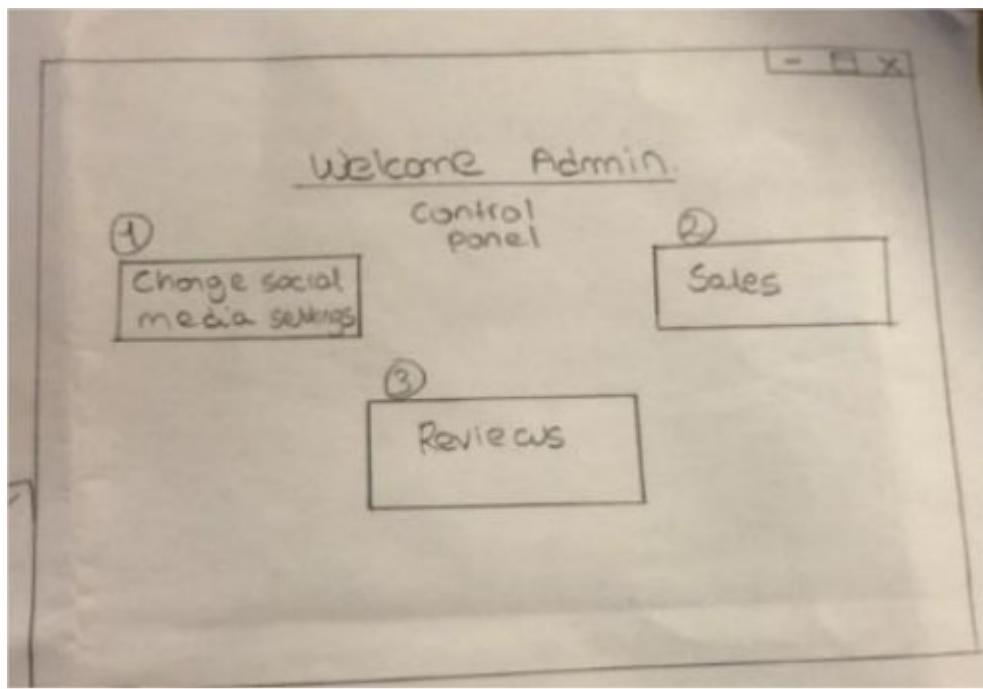
The image displays two hand-drawn prototypes on lined paper, representing a customer login process.

Top Prototype: Log In Page

- Header:** LOGO (with arrows pointing left and right) and Order at St. Giles.
- Form Fields:** A text input field containing "ADMIN" and a password input field showing five asterisks ("*****").
- Buttons:** A "login" button and a "forgot your login?" link.
- Link:** An arrow points from the "forgot your login?" link to an "SMS" button.

Bottom Prototype: Recovery Page

- Header:** ← → Recovery Page
- Text:** enter your e-mail, you will receive a link to reset your pass
- Form Field:** A text input field with a dashed line inside.

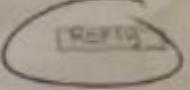


③ ← → Reviews [- □ ×]

Client review :

+ _____

- _____

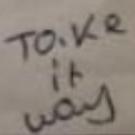


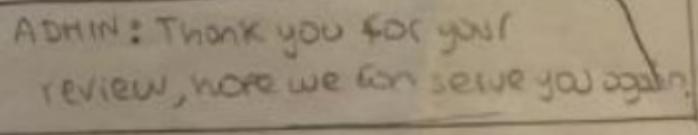
Stars

Client2 review :

+ _____

- _____

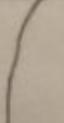




SALES

Select month

October 2019	January 2020
November 2019	February 2020
December 2019	March 2020



7.7. How to structure
HTML 10.10.2019

← → Sales : December 2019 -BX

ID	DISH	QTY. SOLD	DATE
3	Pasta carbonara	23	5.12.19
13	Steak lamb	25	13.12.19
20	Lasagna	13	22.12.19
14	Ravioli pasta	7	27.12.19
31	Salmon Fillet	26	30.12.19

[Save as PDF](#) [PRINT](#)

Low Fidelity Meeting with Frankenstein

Low Fidelity Prototyping Meeting & Feedback – Admin side

Meeting Script with Frankenstein Feltham

Date: Monday 4th of November 2019

Meeting start time: 11:00

Meeting end time: 11:47

Subject: Low Fidelity prototype testing

Attendees: Fred Flintstone (PM), Bugs Bunny, Bart Simpson and Dr Bunsen Honeydew (Manager from Frankenstein Feltham)

The team has prepared low fidelity paper prototypes displaying in a visual manner for the first time how the screens of the application can potentially look like.

Recap:

The interactive order system is composed of three main elements.

The client: a client can browse a menu, consult social media, order a dish and leave reviews, visualise waiting time

The chef: the kitchen employers can visualise orders, increase order time, process the order.

Main feedback:

- + The client sees fit the ability of using simple reporting, client has suggested some improvements for the tables and columns (to discuss further during high-fidelity meeting)
- + Admins encourage simple interface for managing data
- + The menu was very illustrative for the customers.
- + Social media feed is a perfect addition for our customers to explore.

Figure 7

- Admin concerned about password recovery with only Email, would like an SMS text to be prompted password if Email is forgotten as well.

- The system initially had an option on the admin to respond to the reviews left by the users, the client does not see fit this functionality, as clients are not likely in her long manager experience to come back to revisit the response to a comment they made.

- The admin wishes to use reviews in this case only for internal business intelligence use. This is also since they already implement Google's review system to get external reviews, therefore, not efficient to have two different methods of gathering reviews.

- The translations opening page should have some flags to link to the language options.

- Some aspects are unclear now and can be judged only with high-fidelity prototyping with some more functionality, the admin is curious to see how we can deal with reviews with an extra layer of functionality

- The admin wishes to see how the social media aspect could benefit the ordering features. This could potentially be revisited when the high-fidelity meeting will take place.

Reflection on feedback:

The potential changes from the paper prototype meeting held on the 4th of November will be incorporated into the high-fidelity subject to development and that will be logged in upcoming section of this document. The process of feedback can potentially carry on even after the meeting of high-fidelity prototypes with the client, in which case changes will be

made directly into high-fidelity.

The technical extent to which it is possible to incorporate SMS for password recovery will be analysed in later stages by taking consideration of scope, timescale and budget.

High Fidelity Meeting with Frankenstein

Attendees: Fred Flintstone, Wilma Flintstone

Dr Bunsen Honeydew (Manager from Frankenstein)

Meeting Start: 11:00

Meeting End Time: 12:29

Main point to consider in the agenda: High Fidelity Meeting with Frankenstein

Main Feedback:

- [] Make the chef screen more clear
- [] The reviews should be left after they finished their experience
- [] Implementing an account, which in case they would be emailed the option of leaving a review. Is it the first time for you here? Waiter helps them to build an account. Don't want it? Then there should be a general account
- [] Social media can be integrated as an optional choice into a separate screen, there are business reasons behind this choice as it looks like you are trying to promote the brand more than getting the customer to order
- [] Admin side needs a couple more features such as total revenue generation and some sort of peak time data generation
- [] The current table in the admin sales shows if reviews are left or not, a more useful information is to count the number of reviews in that field instead of Y or N.

(Not-technical) Open questions answered:

As a business are you afraid of negative reviews?

The manager is not afraid of negative reviews, they would see receiving negative reviews as an opportunity as making things right and contact the customer through the review left. This would give both the business and the customer to rectify any issues that might have happened.

How close do you want your relationship with clients to be?

The business does wish to have a close relationship with the customers, but they do not have the power to do it. Citing her words: 'What would be the equivalent of Amazon cookies for our business model?'

Decision making: technologies relevant for the Interactive Order System

Technologies involved in the creation of the Interactive Order System

Version 1

Our team has decided to use a web application for our app over making a software application, due to the nature of our app being streamlined, smooth and client based. We want to make the web application easy for restaurant owners as there is no downloading needed so the web application can be up and running as soon as the page is loaded and easy for them to check all updates on their personal computers. We want to make the ultimate user experience for the clients, and we believe that HTML, CSS, JavaScript and MySQL will help us achieve this.

Our main function will be user experience and functionality. We want the clients to experience an easy to use web application with all the items on the menu easy to access from page to page. “JavaScript is very fast because it can be run immediately within the client-side browser. Unless outside resources are required, JavaScript is unhindered by network calls to a backend server. It also has no need to be compiled on the client side which gives it certain speed advantages (granted, adding some risk dependent on that quality of the code developed).ⁱ”

With this in mind, JavaScript was our top option for our web application, with its “predominant factor to shape highly interactive and dynamic web structures such as most celebrated Facebook, Twitter, YouTube and Gmail.

Developers can find it easy to develop apps using a range of JavaScript libraries and frameworks like Angular, Node, jQuery, and React.ⁱⁱ”

JavaScript is also platform free, so business owners do not have to buy a certain piece of hardware for the web application to work. “Any JavaScript-enabled browser can understand and interpret JavaScript code. Any JavaScript code can be executed on different types of hardware a JavaScript program written for.ⁱⁱⁱ” We believed this was a big advantage especially for small business owners or for business owners just starting out.

JavaScript has been known for its huge libraries which will help us to pick and choose for our design, we are not limited to just one or two frameworks.

Our idea to have the application use social media as well means we must use back-end software as well. Our decision to use MySQL came from us handling relational data instead of dynamic data coming from all different sources.

From further research into back end databases, we wanted to also keep with our fast and efficient experience with our web application. MySQL showed us that it was able to provide all that.

“For web application, speed is critical, your user wouldn't wait your page to load, they just leave if your application don't responsive fast. The most common performance bottleneck is in database, select a high-performance database is very important.

Performance is vital for any database management system, under so many years of development, you can trust the performance of MySQL. The core philosophy of the design of MySQL is make it quickly get data in and quickly get it out, even it sacrifices some other important features, but if you are not very sensitive to those fancy features, the performance gain is worth it.

MySQL generally has better performance on simple queries we use every day, such as primary key lookups, range queries, etc.

MySQL performs well as the data size grows, from GB to several TB of data. The newest storage engine InnoDB, now the default engine for new tables, has been re-architected to take the advantage of multi-core systems.

MySQL also provides query cache and main memory table to take advantage of today's hardware with large amount of memory resources.

Guide.freecodecamp.org. (2019). *Advantages and Disadvantages of JavaScript*. [online] Available at: <https://guide.freecodecamp.org/javascript/advantages-and-disadvantages-of-javascript/> [Accessed 11 Dec. 2019].

² Redbytes: Custom Mobile Application Development Company [iOS, Android, Windows]. (2019). *15 Best Programming Languages For Mobile Apps 2019* | Redbytes. [online] Available at: <https://www.redbytes.in/best-programming-language-for-mobile-apps/> [Accessed 12 Dec. 2019].

³ Spencer, J. (2019). *Top 9 Advantages of JavaScript*. [online] MarkupBox. Available at: <https://www.markupbox.com/blog/advantages-of-javascript/> [Accessed 12 Dec. 2019]

Impactful supervisor meetings

Supervisor 12/11/2019

Attendees:

Fred Flintstone

Lisa Simpson

Wilma Flintstone

Beginning: 11:27

End: 12:01

Points covered:

- The supervisor has received a preview of low fidelity prototypes and high-fidelity prototypes
- The supervisor expressed some opinions about how a promotional code could be used separately for a discount
- Talks about the marking and the feedback of M3
- Attendance to be reinforced
- Reinforced the importance of e-mails. Emails can be used for all sorts of marketing purposes. This relates to the fact that the client wishes to have phone numbers as well as a way of recovering passwords.

11:27 - 11:37

Discussion about customer prototyping (high fidelity and low fidelity)

11:37 - 11:45

Discussion about both chef and admin aspects

11:45 - 12:00

Supervisor checking potential arising issues and team commitment.

Supervisor meeting 15/10/2019

- Admin
 - Progress tracker, no deadline, we are ahead with prog 1 and working on 2
 - Trello done - 3 tabs for tasks
 - Backlog is being maintained
 - Moving from google drive to Igor and using a physical copy
 - Moving to Moodle chat
- Market research
 - Stories have been developed
 - Called restaurants, i.e. McDonalds
 - Competitor apps with pros and cons list
 - Will be visiting sushi restaurant which has tablet in table
 - Talk to clients, managers and google answers
 - Scaling
 - Define features from competition and then decide which you need or want
 - Each feature will need a budget time
 - Start a table on how to do features, clear instructions
 - Atomic, testable, realist
 - Phase features in non-tech talk

Try by the end of this week to define features

To-do list:

- Calls need to be arranged
- New stories need to be found
- Template for features
- Template asking questions

Supervisor meeting 29/10/2019

Attendees:

Fred Flintstone
Bart Simpson
Lisa Simpson
Donald Duck
Bugs Bunny

Beginning: 11:36
End: 12:00

Points discussed

- Decision making for prioritising technologies involved
- Production of spread-sheet document to ID features and to update as the project progresses.
- Discussion on how to implement different milestones to manage the 4 weeks long milestone to deliver M4
- Decision on how to split the design aspects and role assignment.

