# Schedule & Notes

Phase 1

* project requirement specification & digital prototypess (doing)
* evaluation (after finalised digital prototype)

Phase 2

* coding (after evaluation)
* test driven development (during coding)

v1 = bullet point v2 = essay v3 = refinement v4 = proofread v5 = final/ ready to publish

p = priority

# Argumentation Patterns

General

* argument – logical reasoning (what, why, describe how)
* reference – background sources
* experiment – using results you found

Evaluation

* define a problem/ hypothesis
* define general question
* specific question
* narrow a problem to implementable
* implement it
* evidence of experiment

# Abstract

Motivate, Set Aims, Describe, Explain results, Contact email

# Project Proposal v4

// what is the idea?

Laser Mate is a £3.75-billion-yearly-profit software empire with the primary goal to enable restaurant customers to order and pay for food and drinks using a mobile phone.

// why the idea works?

The unique feature of the restaurant ordering platform is the lower waitering cost (50\%) and transaction fee (1\%). Restaurants that employ two waiters will attract a saving of half the waitering cost - £16,800 each year. Using this app, restaurant waiters will save around 50\% time and effort as they will no longer need to take, record, and deliver orders, and also give and take payment. Restaurant owners will also save additional workloads on dealing with staff rota, training and supervision and salary payment.

Another prospect of the mobile web comes from the transaction fees. Online web payment (0.39\%+2p per transaction) is more cost-effective than card machine payment (1.75\% per transaction).

// cost of business deployment and ongoing scaling

The cost of business deployment and ongoing scaling is comparatively lower than the revenue potential. The operation of the company is mainly composed of the software, post advertisement and the menu update. Since post advertisement may only take a few days, assuming that each employee can register 15 restaurants a day, we will reach 5500 restaurants (£27 millions) in a year at a low cost. Another advantage of this business model is that we do not need to spend much time to maintain the operation of each restaurant owner after they have signed up to the system - we only need to update their menus and answer their enquiries.

// what is the annual profit estimation?

The projected profit estimation is composed of the service charge and the difference in transaction fee. Upon taking 1\% service charge per customer transaction, we will obtain £3,000 for each £300,000 restaurant sit-in annual revenue. The cost, £3,000, is reasonable compared to the waitering cost of around £16,800. Furthermore, the fact that online web transaction is 1\% lower than card machine transaction means that our business will take another 1\% revenue. Accounting this 1\% service charge with the difference in transaction cost (1\%), we will have 2\% revenue for each restaurant (£6,000). Consequently, assuming that we will earn £5,000 for each restaurant (due to tax and other negligible costs), given that there are around 1.5 million restaurants in the EU and U.S, it is estimated that with 50\% market penetration, we will have a profit of £3.75 billion per year (750,000 restaurants x £5,000).

# Final Software Product – care after coding

* link of software product demo
* diagrams for final product

# Business Executive Blueprint v1 p2 (Doing)

## Phase 1 - Pre-Launch Groundwork

Once this software is sufficiently programmed and tested, we will crowdsource the system components that we cannot develop. The primary reason we don’t develop these software parts ourselves is because we don’t want to be legally liable in the case of failure. The software components we want to outsource include the software security, payment portal and legal and accounting [?] responsibilities. Please note that our graphic design (the motorcycle design) is copied from UpLab.com, however, we can legally use that as our final design because the developer states that we can use this design for commercial purposes[?]. We must also set up a company type [?] and business name (trademark). We may want to limit our liability so that company debts cannot affect our personal assets. We also need to set up the terms and conditions, tax protocols, insurance and recruitment policies, employment contract terms and legal protections. We may need legal consultations because our project involves a large-scale systematic monitoring and processing financial transaction activities. We may want to seek business funding and advice to scale the business internationally.

<https://www.accountingweb.com/practice/clients/where-do-accountants-fit-in-with-startups>

https://www.uplabs.com/posts/food-delivery-app-design-ui

<https://www.netlawman.co.uk/ia/types-uk-company>

https://www.termsfeed.com/blog/5-reasons-need-terms-conditions/

Furthermore, we may want to establish a company support manual to ensure that all employees follow the same set of organisational protocols for every action taken.

## Phase 2 – Software Product Marketing & Commercialisation

Once all the pre-launch groundwork is setup, we will start to promote and establish the client base. First, we want to write a marketing post template (see Appendix -> Software Post Marketing) so that we can mass advertise our service in a few days. The reason we use post is that it guarantees that the restaurant owner will at least read it. The cost of a post (colour-printing, papers, envelopes, stamps) is around £1 per restaurant owner.

If a restaurant owner receives the mail and want to become our member, they will go onto our home page and can finish our registration process in less than 1 minute. We will then receive a member request.

* print 3x more QR codes menu because owners may lost it

Implementation

* business owner receives the mail, read it and want to join
* they type in the link into YouTube and watch our product demo videos
* if they are interested, they will confirm their legal consent (T&C) and provide register data, such as their name, restaurant weblink, personal telephone contact, username, password, number of tables, business bank card details (card, type, card number, expire date, security number, card holder name), menu upload option if no website.
* the system will automatically generate a confirmation email with instruction of registration process.
* the business will register these data into the database.
* Use the restaurant website to find the menu and add all the items
* The company employee will send the tablets and stands and QR codes
* Owner start using the software
* user referral us to new clients and benefit from discount code

Weekly Progress Report

I want to oversee the number of new clients I have added and removed each week so that I can compare and track my progress on client number; I want to understand why clients leaves the company so that we can improve upon the existing service. I want to describe the total projected profit each week so that I can aggregate the profit summary and form a long-term progress report. I want to document new problems and solutions not in the staff manual so that we can develop a central documentation for all the staff and CEO to follow. I want to submit a report to the CEO weekly regarding new innovative suggestions so that the company can improve its products and services. I want to refer to company staff manual every time I do something so that I can strictly follow company executive procedures without missing some important steps and can improve upon the existing documentation

## Phase 3 – Business Scaling

### Further Legal and Accounting Consultations

Hire more salespersons and expand the geographical territory (English speaking countries because the platform is written in English) – what countries are viable

More countries

Repeat phase 2-3

### Business Strategic Consultations

Business operations oversea

Cultural and business operation difference

Marketing research for demand and supply

### Human Resource Organisations

Interview and survey local people to investigate whether % similar software system exists in restaurants

Find job sites for description templates

Write descriptions here

Distributed workload for different people across location

### Business Executions

Follow phase 2 – software product marketing and commercialisation

# Design Principles v3

<https://razorware.wordpress.com/2012/01/04/task-3-the-fundamental-principles-of-hci/>

GU HCI course notes

Checklist of design principle to ensure that every page adhere to that

Online Heuristic evaluation

## Captivating Design Principles

Web design is an essential software component because users will only want to reuse an app if it is comfortable and engaging to use. Our software design considers the importance of images over texts and the overall information representations (shape, spacing, colour, font). In our customer meal ordering page, we use circles rather than rectangles for the image frame because with rectangles, it feels that all the information is crammed together with insufficient spacing. We display four different types of food per screen and use the minimal textual descriptions for information understanding. We take Fitts’ Law [?] into considerations (spacing between software components and their sizes) so that the users will not feel overwhelming with the amount of text and image on the screen.

We adapted the colour palette [?] and ensure that all the colours are complementary with each other pleasantly. In our CEO interface page, all the different colours in the database rectangle headings are compliant with the principles in the colour palette. We use both professional and warmth colour to contrast the visual effects and enhance information memory. For example, for the company staff interface, we use competence colour at the top and the back of the rest of the web pages and warmth colours for the database rectangular headings. Another design criterion we followed is the consistency and the predictability of the information hierarchy structure. Information with higher importance are placed at a more outer areas of the mobile web and they will have a larger font size, to guide users understanding the app.

## Device Options

Our project idea considers the use of different types of devices (phone, laptop, phone) for the type of software users. The customer interface will use the mobile phone because almost everyone has a phone in their pocket. We will use the tablet layout for the chef & waiter and the restaurant owner interfaces because we want to have a larger screen size. We want to use a tablet stand for each tablet so that the chefs and waiters don’t need to lean down to see the orders and to prevent the contact between the tablet and the table. The restaurant owner interface is also designed in the tablet form so that they can use the tablets for the chefs and waiters and they don’t need to purchase an additional laptop (due to cost issue).

The CEO and the company employee platform will be in the laptop interface. Laptop is portable and it is easier to work with a laptop that has a keyword.

## Dynamic Information Management

Our databases adapt a click-to-change approach. Traditionally, to alter information in the database, you must click an add button and fill in a form to change it. To enable minimal effort and completion time in this data-driven system, we customise our database so that users can change the database contents by just clicking the data.

## Ethical Design

We rigorously follow the ethical principles set out by the University to protect the wellbeing and the rights of our evaluation participants and app users. You can see that in our ethical consent form for our second phase semi-structured interview evaluation.

We also obtain informed consent through our terms and conditions and legal policies to set out mutual agreement through our liability limiting statements.

Our company also abide to strict regulatory requirements to ensure the duty of care to our employees. These include health and safety practice to ensure that our staff are protected under long term screen exposure and the long number of working hours.

## Multimodal Interaction

The chef and waiter interface will have a sound notification every time a customer successfully pay for their meals. Restaurant staff cannot possibly look at the meals all the time. This system ensures that only when there is a new order will the staff look at the interface.

## Inclusive Design

Our mobile app takes into account users with specific difficulties, such as colour blind, dyslexia, eyesight problems and mental and physical disability. Over 0.038% of the world population [?] suffers from colour blind. To overcome this barrier, we ensure that we follow a checklist of colour-blind design criteria online [?], all our customer interface designs are high contrast, particularly for essential information that must be standout, such as prices and menu descriptions.

<https://www.colourblindawareness.org/colour-blindness/>

<https://www.designmantic.com/community/website-design-guide-color-blind.php>

We also incorporate simple English word choices for all the interfaces so that all people, regardless if they are linguistically or mentally disadvantage, can use the interface effectively.

All our interface components consistently accommodate for eyesight issue. All the texts are at least 16px [?]. Secondary texts are about 2 sizes smaller than the primary ones.

<https://learnui.design/blog/mobile-desktop-website-font-size-guidelines.html>

## System Feedback Mechanism

Our app provides system feedback when new data is inserted into the database, i.e. for the customer interface, we have a system feedback when a menu item is added to the system; when payment is performed (success/ failed); when bank details is added to the system.

## Design for Automation & Infinity

Our search and result functionality in our company employee and CEO databases incorporate the principles of the design infinity. Our quick search feature will only display data entries that are exactly the same as the input. While the app users type in their search keywords, the system will provide the possible word options after each character is entered. This is not only to help users find possible results through autosuggestions, this also reduces input error rates. Our search function also allows for multi-selection so that company employees and CEO can compare and further analyse company problems through different database entries. Our database supports infinity scrolling, not pagination, so that, as an example, database users are not limited to see a set number of data entries.

## Design for Hacking

We also design the system in a way that assumes hackers already knew our passwords. We will perform a cross-verification process in which every time a company employee or the CEO logs into their system, they will receive a text alert and only if the company employee types the randomised codes into the account system can the account be logged in. In the case that a hacker logged into our system, they cannot do so unless they also steal the employee phone. Our staff will then have the time to immediately inform the CEO the incident and we can shut down the account immediately.

Our database also assumes that we will have malicious employees who will manipulate sensitive data. After each company employee log into their account, all the confidentiality information, namely, their account password, and their financial data (card number, expire date, security number), will be represented as asterisks. This way, our employees cannot transfer money to their own account through our client bank in a large scale through our system.

## Worst-Case Scenario Documentations

One of our company protocols is to refine our worst-case scenario documentations (in a design for all eventuality manner) in which all the possible worse-case scenarios that can happen to the company will be denoted. This is to ensure that we can foresee all company problems and deal with repetitive incidence as soon as possible before it catches the public eye.

## Collaborative Development

According to the ACM code of ethics, software developers must only work in areas of competence. Consequently, company operations regarding software security, law, and accounting will be crowdsourced to the respective professionals.

# Software Requirements Specification p6.5

## User Stories v2

// Go through each digital prototype and see if requirement is missing

// what is user stories pattern

The user stories software design pattern [?] identifies, for each stakeholder, what they want to do with the app and the reasons for them. The user stories expresses the software requirement using a consistent structure - as a [role], I want to [action], so that [benefit].

// how it is derived

We did not include the initial process how the software specification is developed because it is highly repetitive. However, you can find out the full design documentation on the wiki in GitLab, under software requirement documentation.

### As a Restaurant Customers

I want to access the menu online or at the door, so that I can pick the restaurant I want to go most; I can decide on the food and drinks to order before going into the restaurant; I can compare the restaurants in terms of their food, price, discount, customer service and location. I want to see all restaurant discounts from text and emails so that I can go to a restaurant that I may not normally go because they are too expensive. I want to see the exterior design, specialist food, type of food (vegan, vegetarian, gluten free, Japanese) so that I can pick the restaurant I want to go most based on these criteria. I want to get recommendations from celebrities, YouTubers, critics, friends, and Facebook and Instagram advertisement so that I can be inspired with new types of food across the world. I want to reserve a table before going to the restaurant so that I will not go to a restaurant that is full at the time. I want to know approximately when the meal is cooked so that I can choose not to go to the restaurant if I need to wait too long. I want to order meals when I am queueing outside for a table, so that the order can come along quickly. I want to order meals straight after I sit down in the restaurant, so that I can get food as quick as possible. I want to see food and drinks in text (meal name, description, price) and images, instead of just text, so that I have an idea what the meal looks like before ordering it (especially for foreign meals); I can see if the meal is too big, OK, or too small for me; I may have eyesight problems, colour blind, or dyslexia. I want the menu to be presented clearly, so that I find it easier to pick the food that I want. I want to see popular meals first so that I get some meal recommendation before deciding my own order. I want to know what the options for tailoring meals are (e.g. extra salt and pepper), so that I can try some new way of eating the same meal. I want to see all the meals I have ordered to make sure that these are the meals that I want to order, and I made no mistakes with my order. I want to tell the chef whether I want the food to come together or separately before making the order so that they can serve the food hot at the time they serve it. I want to see the overall price of the order before getting the bills so that I don’t over, or underspent. I want to have the option to pay by card when the card machine is unavailable. I want to give the restaurant staff a tip so that they are rewarded for their effort. I want to find similar restaurants so that I can try out the restaurants that serve similar food. I want to look at all the restaurants I have been in the past so that I know the types of restaurant I like and don’t like most.

### As a Restaurant Chefs

I want to see digital orders so that it is faster to see what orders need to be cooked; it is less likely for me to cook the wrong food or with the wrong quantity. I want to notify the waiter that the food is ready when they are not nearly so that the waiter knows that they need to serve a meal when they don’t notice it. I want to see all the meals that was ordered so that when the customer says that their meal is wrong, I can see the order history and the meals to cook for them. I want to have a seamless staff rota system so that they know when their shifts are as soon as possible.

### As a Restaurant Owners

I want to develop my restaurant website using the Laser Mate platform so that I can tailor the website and change the contents (menu, contact info, opening hours) quickly. I want to advertise the restaurant through the Laser Mate advertisement platform so that I can save additional costs when I switch the platform (from OpenTable). I want to have a staff rota system so that I can organise and distribute the roles to my staff digitally. I want to have a salary portal so that I can automatically pay my staff their salaries and, oversee, record and adjust the data. I want to have a customer analytics page so that I can see the popular food and drink and those that should be removed from the menu. I want to get advice and inspirations on food and drink recipes and cookery techniques so that my chefs can improve their cooking skills. I want to take online certified business growth and administration courses via Laser Mate’s YouTube channel so that I know how to better manage the restaurant business logistically and systematically. I want my staff (chef, waiter) to see Laser Mate’s induction tutorials so that they understand the operation of the app. I want to use Laser Mate’s low-cost accounting and legal services so that I don’t need to find my own consultant and I can get better advice on restaurant administration. I want to use Laser Mate’s insurance service so that I don’t need to find my own insurance company – it is also easier to provide documentation and get a lower price for the same service. I want to get recommendation and training for restaurant start-up and on dealing with emergency situations, such as breakage in interior design, furniture, repairing kitchen appliances and plumbing. I want to be able to contact the Laser Mate team so that they can change the menu details for me or answer some questions that are not posted online. I want to have a semi-automated emailing function for organising and scheduling food delivery so that I can email the food suppliers for food delivery (the item they need the stock, the time before the food must be delivered). I want to have a printer friendly version of the menu so that so that I can print out paper menus to serve customers who can’t use the Laser Mate platform. I want to have additional menu QR codes so that the customers can still use Laser Mate even when some QR codes are lost. I want to have different menus and costs at different times so that the customers can order different meals based on the time (morning, afternoon, evening). I want to use a mobile ordering system so that the restaurant can abide to the covid-19 rules by enforcing social distancing rules between the customers and the waiters. I want to have a customer complaint page so that I can improve my products and services based on their feedback.

### As a Laser Mate Employee

I want to have a login system to ask me for my email address and my password to get into the company employee platform so that unauthorised people cannot access to my employee account. I want to have a second login system to ask for my phone number and my second password so that the system checks whether I am happy with the email address and the phone number I currently have. It also prevents the situation where other company can log into the staff account if the employee chooses the same password for other companies. I want to then have a phone text message to ask me to input the text code in my phone to the login system so that I can be alerted if another person logs into my account. If I found that an unauthorised person is logging into my account, I can immediately obtain the text message and notify the incident to the company CEO. I want to get access to my account only if the 3-step login is successful at first attempt to prevent others from trying the login details. I want to add new client (restaurant owners) details to the restaurant database so that they can use the ordering system. I want to record the restaurant number so that I will not obtain the wrong information when referring to another restaurant with identical name. I want to record the restaurant name and address so that the customer interface can show this information to the customer to verify that the menu they are looking at is referring to the restaurant they are in. I want to record the name for the restaurant owner so that I can refer to the client by name when I get their phone call and can verify their identity. I want to record the restaurant email so that I can contact them (for advertisement, responding to their emails) by email if they cannot respond by telephone. I want to record the owner phone number so that I can contact them urgently when their system is down. I want to record all the restaurant QR code menus so that I can resend the QR code menus to the restaurant if they have lost it for a particular table number. I want to record the restaurant weblink so that I can generate the QR codes based on these weblinks. I want to record the restaurant login username and password so that I can access and change their restaurant menu (the time it serves, the meal (photo, price, short and longer descriptions, dish category, extras, allergy information and whether they are available for today); restaurant information (restaurant name, restaurant address, restaurant phone number, restaurant owner name, restaurant account password), restaurant staff account details (staff account username, staff account password); financial information (card type, card number, expire date, security number, card holder name). We will now move onto the weekly progress report page. I want to oversee the number of new clients I have added and removed each week so that I can compare and track my progress on client number; I want to understand why clients leaves the company so that we can improve upon the existing service. I want to describe the total projected profit each week so that I can aggregate the profit summary and form a long-term progress report. I want to document new problems and solutions not in the staff manual so that we can develop a central documentation for all the staff and CEO to follow. I want to submit a report to the CEO weekly regarding new innovative suggestions so that the company can improve its products and services. I want to refer to company staff manual every time I do something so that I can strictly follow company executive procedures without missing some important steps and can improve upon the existing documentation.

### As a Laser Mate CEO

We will now refer to the employee database. I want to add a new employee tuple so that I can record company data. I want to allow myself to edit all the information in the database by clicking the data so that I can make changes easily. I want to construct the database so that each company employee can only edit and see the data they registered within the database. This is to prevent malicious employee to reveal all the client data to third parties – they can only reveal the details for the clients they have added. I want to record the names for all the company employees so that I can remember what they call, and I can find each employee data easily. I want to record and oversee the employee login username and password so that if they leave the company without company notice, I can log into their account and change the employee who can edit the restaurant details. I want to be able to change the password for each company employee so that if they leave the company, they cannot log into the system again. I want to ask for a second login details for my CEO account once my first set of username and password are correct so that the hacker will need to enter a second combination of login details before they can access and change the data in the system. I want to have a second login system that again asks for my email address and second password (when actually the system demands for my telephone number under the false email address title) so that I can confuse the hacker to enter the wrong information. In the login system, I want to state that the second password should be 8 characters long, have at least one capital letter and one number when the actual password violates some of these criteria so that I can further confuse the hacker to enter the wrong password. I want to setup the second login system so that it will give me a phone alert that asks for my approval before the hacker can log into the system – therefore, they can only access the database when they get the textual approval from my phone. I want to setup a text messaging system that every time I scroll through another data entry or every time, I edit an entry, I will get a text message alert so that when hackers are viewing or editing my data without my acknowledgement, I will get a security alert straight away. I want to setup the system so that the CEO and the company employee accounts are frozen when I send a specified text code in my phone or via my email so that if either the CEO or the company employee accounts are hacked, the hacker is forced to logout and cannot view or edit the information. I want to have this multiple security measure so that when the hacker changes some parts of my security code, other parts of the security code will hopefully be active. My system will be compromised only when the hacker knows my email address, first password, phone number, second password, steal my phone, know my phone security code, reply to the text message, make sure that I don’t know that the security is compromised every time they access to the new database tuples and don’t allow me to freeze the CEO and employee accounts via phone or email. I want to get an email notification if an employee enters the wrong login details twice so that I can contact them to verify if they entered the incorrect login information twice. I want to store employee NIN number so that I can perform employee tax duty. I want to record employee telephone number so that I can contact them individually if I need to. I want to record the employee role so that I know their job descriptions. I want to record the job descriptions for all the employee roles so that I can organise and allocate tasks effectively. I want to record the employee hourly salary so that I can adjust their salary accordingly and help calculate their weekly working hours. I want to record the employee weekly working hours so that I can calculate their weekly salary and transfer them the money weekly. We will now move onto the restaurant weekly transaction page. I want to record the restaurant number so that I can cross-reference other restaurant data using the restaurant number. I want to record the weekly transaction date so that I can first search a specific restaurant number and sort their weekly transaction date so that I can see the weekly fee taken sequentially by date. I want to record the transaction date so that I can cross-check the full transaction details on the bank app with the transaction date. I want to record the weekly transaction status (success, failed, pending) so that I can quickly repeat the payment transaction and resolve any payment problems. I want to have the aggregated database from all the company employee accounts so that I can take on their job roles if they are sick; I can track the entire company activity for managing personnel. I want to have a manager section for each restaurant tuple so that only the allocated staff and the CEO can see the restaurant data. If the manager entry is changed, the previous allocated staff can no longer see this data entry and the only new manager, and the CEO can see it. I want to have a performance database so that I can track, for each company employee, the number of clients they signed up, the weekly profit that they help the company make, the number of clients who unsub-scripted to our service. I want to set up a telephone verification – the person who accesses the account must enter the randomised code that is sent to my phone to the database platform before they can access to the CEO account - so that I can know when someone log into my account without my acknowledgement. I want to create a new employee tuple so that when a new employee joins the company, I can add their information into the database. I want to allow for data sorting for all data tuples by clicking the database column so that I can easily find the same database entries.

## MOSCOW p6.6

Security is should have because we need to hire a security team to do that

Payment is should have because we need to ask for the payment company for it

# Software Development Process – ongoing

https://en.wikipedia.org/wiki/Software\_quality\_assurance

<https://standards.ieee.org/standard/24748-3-2020.html>

Summarise all methods

Business Models

https://www.investopedia.com/terms/b/businessmodel.asp

Value Proposition Canvas

<https://www.b2binternational.com/research/methods/faq/what-is-the-value-proposition-canvas/>

User Stories

<https://www.visual-paradigm.com/guide/agile-software-development/what-is-user-story/>

MOSCOW method

We want to showcase the recommended approach to develop the software as a whole. The point of this section is to document the algorithmic thinking that everyone can apply to develop the perfect software at first attempt with the shortest time possible. A world-class blueprint that produces the mastermind of designers, strategists, readers and 10x programmers – that those without this can never rival.

## Phase 1 – Product Conceptualisation, Prototyping, Evaluations and Testing

We want to showcase the recommended approach to develop the software as a whole. The point of this section is to document the algorithmic thinking that everyone can apply to develop the perfect software at first attempt with the shortest time possible. A world-class blueprint that produces the mastermind of designers, strategists, readers and 10x programmers – that those without this can never rival.

Make an overall plan with prioritisation from start to end

For each step, list all the key points to express in bullet points until the end of the plan

Write the first draft, in a normal way of essay writing, up to the point of coding

Write the second draft, in a normal way of essay writing, up to the point of coding. This is to ensure all the requirements are met before coding so that you don’t need to change the code in the future

Code and refine all sections

First, we write out the full systematic requirement analytics processes (Figure?) how the full restaurant business operation occurs, for the different stakeholders. After having a list of goals, we think about and write how software can better improve the experience. Once a table that denotes the goals and the software features for different stakeholders is written, we develop the paper prototype (see appendix) using the software components set out in the requirement statement. While writing the paper prototype, we exclude unimportant features so that we only write the minimal design. We now forget and set aside all these design inspirations and draft out another requirement statement, without referring to another notes. We want to use a different method, namely, the Value Proposition Canvas model (VPC) [?] (Figure X). This is to develop a second, better plan based on an established understanding. The VPC brainstorms the software ideas by identifying the customer profile (their gains, pains, jobs), and subsequently the value proposition (gain creators, pain relievers, product and services).

Restaurant Customer

|  |  |
| --- | --- |
| Goals (things that they will do step-by-step) | Software Features (how software can achieve it) |
|  |  |

Figure X

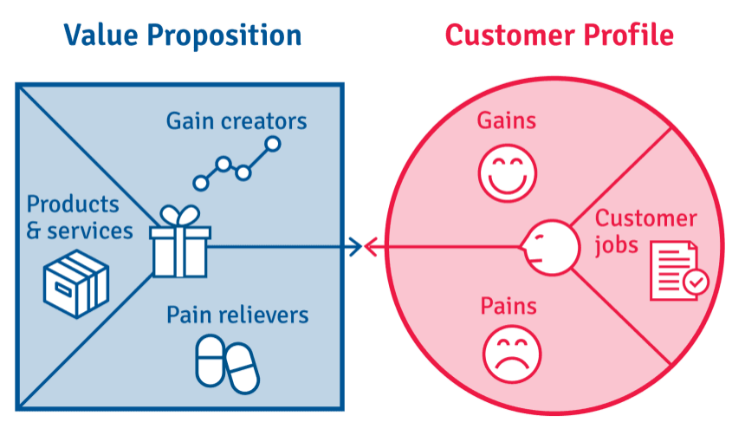
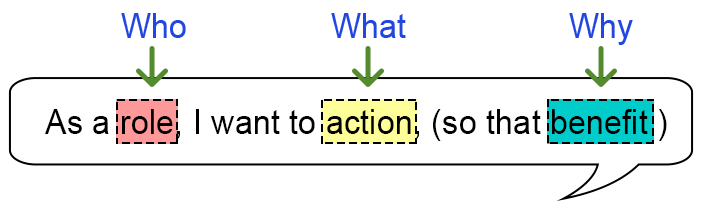


Figure X

Based on the two requirement statements and the paper prototype that are derived under different models and understandings,

we then create the minimal digital prototype (see appendix) using Adobe XD. The process is to gather and graphically place all software components logically

rewrite the requirements using the user stories [?] (Figure). The point to repeat the same process with different methods is to collect as many requirements as possible for future work. The user stories can now act as a communicator through which any other software developers can checklist the software components within the scope of the project, with the underlying reasons of importance. Based on the user stories, we develop



Write the bullet points then the passage

===

After that, using the (4) MOSCOW method [?], we categorise the software components based on the level of priority each feature should be deployed. Lower priority will be our future work. The objective of this prioritisation approach is to ensure that we first develop a minimum working product that our clients can use. Now, having a list of high-priority features, we then write out the corresponding (4) test cases with acceptance criteria under the test-driven development approach so that we develop a contract which states all the test cases for which their acceptance tests must pass for a minimum viable product.

After having all the software specifications set out in a contract, we then write out the overall (5) paper designs on paper for all the software components that are determined to be the highest priority. We will then draft out some (6) survey questions using Google Form, which will then be used to conduct the (7) semi-structured interviews. These interviews will be performed with my project supervisor and my family. We will also take some design guidance from an (8) online heuristic evaluation [?]. Once all the requirements and suggestions are collected, we develop a (8) digital wireframe using Adobe XD. We will perform additional evaluations, by first designing another version of (9) Google Form survey, such as (10) several semi-structure interviews, again with my project supervisor, my friends and family. Finally, we will (9) rewrite the project requirement specification and finalise the (10) digital wireframe and (11) the acceptance test criteria.

## Phase 2 – Software Coding, Programming Documentations and Testing

1. Platform Considerations

* version control (GitLab)
* web front-end (bootstrap, Django)
* database (PostgreSQL – scalability)
* test suites
* Security
* software deployment

## Phase 3 – Software Deployment, Evaluation and Testing

# Software Coding Manual p7

Web link

## Phase 1 – Pre-Programming Strategy

Justifications – above is the tricks – why use that platform

### Platform Considerations

* version control (GitLab)
* web front-end (bootstrap, Django)
* database (PostgreSQL – scalability)
* test suites
* Security
* software deployment

Database Requirements (PostgreSQL)

* High Traffics (50 million users per day)
* High volume of photo and text update and retrieval, bank transaction
* High speed

Framework Documentation and Support

* LinkedIn Learning (Intensive documentation and consider Ease of Development)
* Used by Similar Multi-Billion Apps such as Instagram

Ease of Development

- Bootstrap Studio – design webpages without coding then copy and paste the auto-generated code to Django

Security

* Django in-built security

Cost & Reliability of Coding Platform

* Development and deployment
* AWS

Cross-Platform – responsive designs

* Between mobile, tablet and desktop web
* Tablet (chef/waiters & business owner & admin interface)
* Mobile (customer)

Testing Suite

* Spring Boot

Evaluation

- Google Form

### Overall Coding Workflow

1. Initial Mockup

* document your process
* set up the project
* draw big 4 boxes that spans the full screen
* set up the web database page (front end) so that you can add/ edit/ delete database elements using the web, without directly interacting with the database/ use tailored form
* responsive design to web, tablet and mobile (front end)
* test if mobile data is altered, so is the desktop database
* design two pages for the customer interface
* integrate test cases
* implement payment portal using NetPay
* deploy it with different screen size and see if it looks ok

1. Development

* prioritise and execute the development (restaurant owner page > admin > chef/ waiter page > CEO page)
* continue the software development ensuring that the aforementioned processes are accounted for
* don’t program the payment portal and the security protocol before having a consultation with experts

### Coding Tutorials & Documentation Searching

**Responsive Design (2015)**

– ensure that the web app is displayed accordingly in the mobile phone, tablet and desktop [https://www.linkedin.com/learning/creating-a-responsive-web-design/introduction-to-this-course?u=26205482#](https://www.linkedin.com/learning/creating-a-responsive-web-design/introduction-to-this-course?u=26205482)

1. Relevant Sections for the material – responsive web design

* header, main section, atmosphere section, content, navigation, footer content
* font, text styles, heading and page container, logo, button, table, graphics
* nav bar, list items, links, device computability options for nav
* adjustable layout for large and medium screen
* moving navigation for smaller screens, rearrange logo, main section, atmosphere, main text, spacing, footer
* making adjustment for the smallest screens

## Phase 2 – Coding Executions and Documentations

### p8 (actual coding and testing)

### Programming Principles

### Coding Templates

Reduce image size

# Evaluation Techniques

<https://software.ac.uk/sites/default/files/SSI-SoftwareEvaluationCriteria.pdf>

<https://software.ac.uk/sites/default/files/SSI-SoftwareEvaluationTutorial.pdf>

more web link

## Phase 1 – Paper Prototype Evaluations p3

### Literature Review

* understand what other people have done
* limitation and how viewpoint differ
* tie to your project

dines

Since it is a fairly new business idea, our literature review indicates that there are limited existing designs for evaluation. We found some representable and similar software designs – Dines and Starbucks. Our software

However, their customer order interface is discouraging for use, due to the frustration felt by the users to navigate through enormous list of data (Figure 1), and the time-consuming factor to download the platform via an App Store.

### Semi-Structured Interviews with Questionnaires

1. Supervisor

// what you learnt and will do differently

The first evaluation with my supervisor was not effective but worth-while. I first drafted a script I just came up with 5 generic questions and apply it flexibly in every design. Although the supervisor provided constructive feedbacks, the design itself contains too much errors. I should have waited until I have a more throughout plan, however, I have some experience how a semi-structured interview work. The interview was a positive experience because I am now able to think with a larger scope before the next evaluation trial. Should refer to existing evaluation methods

1. Family

I also conducted the evaluation using a similar approach with my family.

## Phase 2 – Digital Wireframe Evaluations p6

### Subjective Evaluations

* Evaluate the wireframe by going through the software parts yourself as if you are a app user. What process went wrong, how to improve existing presentation. You want to make your design as perfect as possible before evaluating your design with other people who will care less about the prototype than yourself.
* Go through existing documentations – it is easy to make a mistake at first attempt, it is important to go through your dissertation again and check for errors – business executive blueprint, design principles, software requirement specifications - to make sure that every software component makes sense and flawless in your own prospective. Especially for design principles.

### Online Heuristic Evaluations

* It is an evaluation techniques in which I go through a list of design criteria and check whether the system adhere to them. This is to further ensure that the design contains less defects before evaluating it with the supervisor
* Login security criteria

### Ethical Form

http://dcs.gla.ac.uk/ethics/assessment-form.pdf

* secure the wellbeing and right of the participants - state at the start of the evaluation that they can withdraw from evaluation process if they want to
* informed consent – terms and conditions, legal policies, liability limiting statement, system notification on payment, security, enough information for the participants to make a reasonable choice, opportunity to ask questions, adequate time for consideration; voluntary: no coercion, manipulation or rational persuasion, written consent; no harm and risks related to the participant ; university ethical approval
* enough information for the participants to make a reasonable choice, opportunity to ask questions, adequate time for consideration; voluntary: no coercion, manipulation or rational persuasion, written consent; no harm and risks related to the participant ; university ethical approval
* maintain participant privacy (all data is kept secret)
* prevent unauthorized access to personal data through robust security protocols,

### Semi-Structured Interviews with Questionnaires

https://www.quirkos.com/blog/post/semi-structured-interview-guide-qualitative-interviews

The second attempt at evaluation is more constructive, mainly because I went through the dissertation again to make sure that each software parts are logical and adhered to the business executive blueprint, design principles, software requirement specifications stated above. I have conducted an interview with my family and friends first to make sure that the designs makes sense to them. Refine my evaluation goals and questioning approach. Check some internet resources. Draft the evaluation procedures with google form and rehearse in my mind the full interview process.

1. Supervisor
2. Family
3. Friends

## Phase 3 – Final Product Evaluations

### Semi-Structured Interviews with Questionnaires

1. Supervisor
2. Family
3. Friends

# Software Testing p8 (document each testing examples) p10 (run all tests)

<https://www.atlassian.com/continuous-delivery/software-testing/types-of-software-testing>

some one example how testing is done for each section

## Business Requirement Testing

– Functional Testing

* Business requirement met

## User Requirement Testing

* End-to-end testing
* Replicate user behaviours

## Error Testing

* Methods, functions and class testing
* Unit test

## Software Feature Testing

* Smoke testing
* Software features and functionalities work

## Interface and Service Integration Testing

* Integration
* Modules or services used by the application work well together

## Performance Testing

* System response time and loading speed under different data volumes

Optimise and evaluate your system performance, not lagging with mass data entry and retrieval – stress test

Response time, loading time

# Software Deployment p9

Web link

What is the choice of platform?

How to do it – the weblink and your brief descriptions

# Support and Help Page

Document potential issues and solutions so that employees can follow

Reduce enquiry to CEO

## User Support Manuel via YouTube Tutorial Channel p11

Headings and Contents

## Company Employee Execution Manuel

Device

Headings and contents

All possible problems

How to answer enquiries from customer and restaurant owners

How to do things properly

Document process and improvement – trouble-shooters

As part of staff training

Document why good and bad

# Conclusion

# Bibliography

Business Models

https://www.investopedia.com/terms/b/businessmodel.asp

Value Proposition Canvas

<https://www.b2binternational.com/research/methods/faq/what-is-the-value-proposition-canvas/>

User Stories

<https://www.visual-paradigm.com/guide/agile-software-development/what-is-user-story/>

MOSCOW method

IEEE International Standard – System and Software Engineering Life-Cycle Management https://standards.ieee.org/standard/24748-3-2020.html

# Appendix

Digital Prototype

Software Coding Templates Documentations

Software Testing Templates Documentations

Evaluations

Systematic Requirements Analysis

Value Proposition Canvas

Paper Prototype