# Schedule

Phase 1

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

Phase 2

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

register page for new restaurant owner

# Notes

If apple has security system by default – it means only authorised people can access to the phone. Then record bank details. If bank detail page, retrieve phone number, using this to retrieve all bank details and auto fill. If not security system by default, use login

# 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 (Done)

// 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\%). Each restaurant that employs two waiters will attract a saving of half the waitering cost - £15,000 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).

// how does the personnel organisation work?

In terms of the company personnel organisation, this business can be run by a single person acting as a software developer and a salesperson working alongside with a legal and accounting representative. Once the software, legal and the accounting groundwork are established, we only need to mass advertise our service through post. The operational cost is almost negligible compared to the revenue potential discussed below.

// 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 an profit of £3.75 billion per year (750,000 restaurants x £5,000).

# Final Software Product (Done until after coding)

* link of software product demo
* diagrams for final product

# Business Executive Blueprint v1 p4

## Phase 1 - Pre-Launch Groundwork

### Legal and Accounting Responsibilities

Should seek professional for comprehensive advice, the list is not exhaustive as it is only some personal research

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

Obtain advice regarding company business name and register a trademark

Identify the company type.

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

Consider between public limited company (PLC), private company limited by guarantee, private company limited by shares/ private limited company (LTD), and private unlimited company and other special types of limited company.

PLC - Whether sell shares to the public via the stock market to raise capital. Need tow directors and a company secretary.

Guarantee – in the event that the company is subject to bankruptcy, the members of the company (guarantors) do not subject to the liability and will only require to pay £1.

Shares – In the event that the company is subject to bankruptcy, the shareholders are only liable to the reserves of the company - their own personal assets will be only seized to repay the debts.

Private Unlimited Company – the shareholders are liable to repay the debt of the company in the case of bankruptcy. Do not require to publicise their annual financial statements. Businesses can maintain a level of secrecy about their financial status.

Others – inapplicable

Set up legal documents, such as terms and conditions, tax, and organisational measures.

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

T&C – prevent abuses – spamming users, harmful languages, user termination clauses, limit liability for errors. Set the governing law – state that the company is registered in the UK

Tax – comply with tax obligations

Organisational - the system involves large-scale systematic monitoring and processing of financial transaction activities. We must develop and implement a robust protocol for the protection of data subjects in terms of consent and cyber security. We cannot process transaction data for users who do not consent to use our app. We will provide adequate safeguard to minimise system security vulnerability to actively prevent financial data leakage and malicious hacking.

Explore options for the source of finance

Whether IPO is an option for the business idea. The larger the capital expenses we can have, the wider the scope of clients we can reach.

The more diverse our system will be

The more user base we can get, increase popularity

Explore related opportunities

Venture Capitalist Share Buy-Out

IPO – Initial Public Offering

Self-Fund Entrepreneurship

### Software Deployment & Platform Error and Performance Testing

Deploy app using AWS

Run and fix all test cases

Check that every parts work correctly by acting like different shareholders and go through all the testing scenarios manually (Section 3.1 platform error testing)

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

Response time, loading time

### User Support Manuel YouTube Tutorial Channel

* record videos on user support (introduce and promote our app & describe the signup and logistics , how to change meals online
* write the headings here – contents in last section

## Phase 2 – Software Product Marketing and Commercialisation

Topic sentence

* post –
* YouTube channels
* justify why not email, social media marketing

Justification

* post – proofread letter content
* cost - 50p colour printing, paper, envelope, stamp postal cost, the number of posts (divided by phases)

Implementation

* draft the email and post the picture here – product pricing
* Company staff sends business posts to mass audience (mail template) – a city at a time
* 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

## 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

### Business Executions

Follow phase 2 – software product marketing and commercialisation

# Design Principles p2 p5

Book link or web

## Literature Review

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

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.

## CSCW

## Ethical Design

* privacy
* anonymity
* ethical form

## Colour Psychology

## Multimodal Interaction

## Design for Infinity

## Disability Friendly

* colour blind

# Software Requirements Specification p1

Web link

## User Stories (doing)

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 are expressed with a consistent structure - as a [persona], [I want to], [so that].

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.

1. Restaurant Customers

As a Restaurant Customer, 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.

1. Restaurant Chefs

As a restaurant chef, 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.

1. Restaurant Owners

As a restaurant owner, 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.

1. Laser Mate Employees

I want to add new client (restaurant owners) details to the restaurant database so that they can use the ordering system. These details are: restaurant number (to uniquely identify the restaurant because they can obtain the wrong information when referring to a branch restaurant); restaurant name, and address (to allow customers to verify that they are redirected to the correct website)

1. Laser Mate! CEO

QR code additional than the number of table

## MOSCOW

# 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

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

We want to showcase the recommended approach to develop the software requirement analysis. This document considers it as a partial advice and possibly use it to build another enhanced software development strategy.

First, we write out the full systematic 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

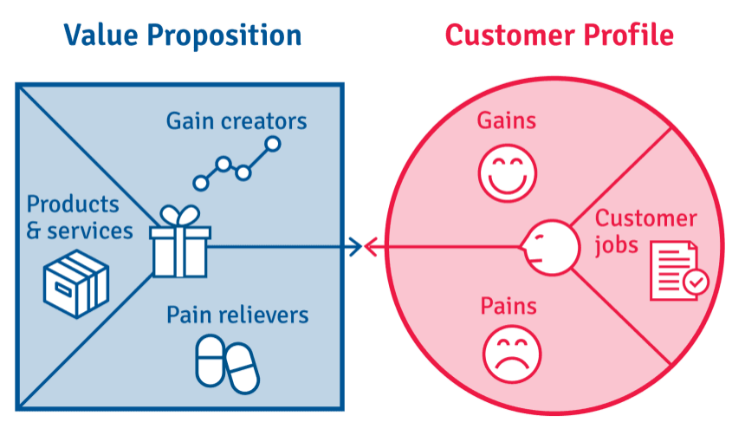
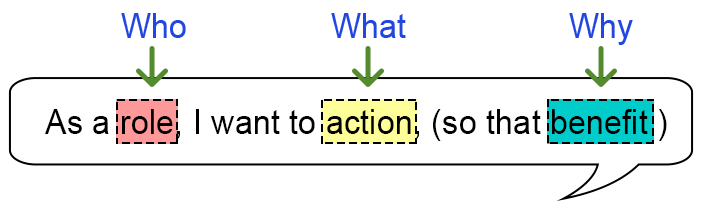


Figure X

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

### Drafting 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

### 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)

# Evaluation Techniques – p3 p6

<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

### Semi-Structured Interviews with Surveys

1. Supervisor

Cognitive Walkthrough

1. Family
2. Friends

## Phase 2 – Digital Wireframe Evaluations

### Online Heuristic Evaluations

### Semi-Structured Interviews with Surveys

1. Supervisor
2. Family
3. Friends

## Phase 3 – Final Product Evaluations

### Semi-Structured Interviews with Surveys

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

## 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

# User Support Manuel YouTube Tutorial Channel p11

Headings and Contents

# 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

Paper prototype

All Evaluations