COURSEWORK DETAILS

COURSE TITLE: Databases

COURSE CODE: ITIB2063

COURSE LEADER: Sir Muhammad Aiman bin Md Zuki

TITLE: Restaurant Management System

GROUP MEMBER:

NO	FULLNAME	MATRIC NUMBER	SECTION NUMBER	PHONE NUMBER
1.	MOHAMAD AMIRUL AHNAF BIN MOHD YUSRI	MC240126209	MC-O31	019-2718564
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Assignment (40%)

Assignment Guidelines:

1. This assignment shall be done in group (maximum member of 3).
2. Cover page should include these details.
   - Course code and Course Name
   - Title of assignment
   - Your name and Matric No
   - Section
   - Lecturer's name
3. Plagiarism in all forms is forbidden. Students who submit plagiarized tutorial and/or copy from each other will bepenalized.

Items to be submitted:
1. A final **report** (10%)
2. Presentation and a soft copy of a **system** (30%)

Project
Guideline
Database
System (30%)

- Choose **ONE** of the following title.

No	Title
1.	Food Ordering system -
2.	Class Scheduling System
3.	Movie Ticket Reservation System
4.	Car Rental System
5.	Bookstore System
6.	Inventory System
7.	Hotel Reservation System
8.	Hospital Management System
9.	Restaurant Management System
10.	Football (any other sports) tournament Management System

- Create a prototype of your database system using any programming language (e.g: Visual Basic, PHP, Ms Access etc).
- System Requirement:
   o consists of at least **THREE** tables
   o must include at least 10 data for each table
   o assign **primary key** for each table
   o create relationship to all tables

Final Report Guideline (10%)

The report should include:
   o A cover page indicating the title of your project, the full names (with e-mail), the student numberand the course code.
   o Abstract
1. INTRODUCTION
   o Introduction
   o Problem Description

- Background and Significance of the problem
- Analyze the current data processing
  - o Project Description
    - Describe the functionality of your system and how data will be processed.
  - o Project Scope
  - o Project Objective

  - o Target User
  - o Conclusion

2. SYSTEM ANALYSIS AND DESIGN
   - o Introduction
   - o Conceptual Model (ERD)
   - o Normalization (until 3rd normal form)
   - o Relation Model
   - o Conclusion

3. CONCLUSION
   - o Introduction
   - o Hardware and Software Requirements
   - o Conclusion

*** END OF QUESTION
PAPER ***

Due DATE: Week 11 **(27 March 2024)**

ASSESSMENT RUBRICS

Rubric

Database System (25%)			
Criteria	**Outstanding 10 marks**	**Adequate 5 marks**	**Not Adequate 1 mark**
Table Creation	Created all of the tables defined in project requirements Named tables appropriately in regard to their data elements	Created most of the tables defined in project requirements Table name was a little unclear in regard to its data elements	Partially created some of the tables defined in project requirements Table name did not correlate to its data elements
Table Implementation	Completely populated tables with correct data elements reflecting the ERD design	Populated tables with majority of data elements outlined in the ERD design	Populated tables with minimal data elements defined in project the ERD design
System Features	All system features are working	Most of the system features are working	Some system features are working.
Interface Design	All the interfaces are created and working	80% of interface are created and working	None of the interface are working
Overall quality	System is able to solve problem statements and meet all of the project objectives	System is able to solve some of the problem statements	System unable to solve problem statement

Report (10%)			
Criteria	**Outstanding 10 marks**	**Adequate 5 marks**	**Not Adequate 1 mark**
Define the Problem	The problems are described in depth	The problems are described but not in depth.	The problems are identified but not defined.
Project Description	The project description are described in depth.	The project description are slightly described	The project description are stated but unsuitable with the system

Project Objectives	The objective stated is suitable and matches with the project goal	The objective stated matches only some of the project goal	The objective is stated but unsuitable
Overall Crow's Foot Model	Logically designed the database design exhibiting a firm understanding of Crow's Foot notation Completely and accurately explained design usage and purpose. Correctly choose all primary and foreign keys respecting the naming convention	Exhibited a partial understanding of Crow's Foot database design and manipulation. Some minor inaccuracy when explaining design usage and purpose. Correctly choose most of the primary and foreign keys respecting the naming convention	Exhibited minimal understanding of Crows's Foot database design and manipulation Inaccurate design explanation in regard to design usage and purpose. Incorrectly choose most of the primary and foreign Keys, and somehow respected the naming convention
Relations and Cardinalities	Correctly interpreted all the Business Rules and created all necessary relations with clear indication to the cardinalities and observing the three normalizations forms.	Correctly Interpreted most Business Rules and created most of the necessary relations with some indication to cardinalities and observing at least two normal forms.	Incorrectly Interpreted the Business Rules, few relations were created and few indications to Cardinalities and Normal forms

Presentation (5%)			
Criteria	**Outstanding 10 marks**	**Adequate 5 marks**	**Not Adequate 1 mark**
Content	Presentation contains accurate information. Material included is relevant to the overall message/purpose.	Presentation material covers some of the outcomes.	Presentation material is unorganized.
Visual Aids	Excellent visual aids	Appropriate visual aids	Poor quality visual aids
Delivery	Smooth effective delivery. Good voice control. Appears relaxed; Speaks without note	Appropriate language and voice control; Uses notes occasionally.	Incorrect or inappropriate Language. Problems with voice control; Reads and relies heavily on notes
Ability to Handle Questions	All questions are answered very well	Student can answer some questions	Student can answer basic questions only

Prepared by Course Leader:

Noor Lees Ismail		11 Jan 2024
(Name)	(Signature)	(Date)

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1.0 INTRODUCTION

1.1 Introduction

Database management system (DBMS) software for creating and managing large databases efficiently. To create a database management system we need to analyse the limitations of the file processing system traditionally used for accessing huge amount of data. Database management system is widely used in businesses such as restaurants that use management system to facilitate costumer making food orders. A restaurant management system is a type of software designed to streamline restaurant operations and simplify restaurant management. These systems also designed to keep your restaurant running by tracking employees, inventory and sales. Not only that, taking orders through the system created by Restaurant can avoid mistakes that occur when the Restaurant makes different orders in the system and can be a testament to the customer to get the actual order. This paper will discuss the use and need to create a restaurant management system capable of taking orders from customer using a system that has been created to facilitate customers and dealers.

1.2 Problem Description

1.2.1 Background and Significance of the problem

In recent years, competition between food industries is increasing among restaurant owners and so restaurant owners need to do something to be competitive with the thriving restaurants. Therefore, there is an idea to improve and upgrade the technology used by the restaurant by taking customers' orders from within the official website of the restaurant. Not only that, due to the longer development of technology, restaurant owners need to be at the same time in improving technology to make it easier for customers to take orders using only their smartphones. The

traditional way of taking orders from clients such as servers needing to come to the front of the customer to write client orders is a way that is not effective for now and needs to be replaced by taking orders from inside the mobile phone only. This is because, there are many problems encountered when using traditional methods such as the server miswriting the menu requested by the customer, misnumbered and the chef misrepresenting the menu written by the waiter causing the chef to misplace the order and cause the customer discomfort to the restaurant. Therefore, the restaurant management system needs to be available in every restaurant that operates today to prevent this from happening because with the availability of this restaurant, it can be ensured that there will be no problems such as miswriting the menu and cooking orders for customers due to the clear and readable system writing by anyone.

1.2.2 Analyse the current data processing

In this paper, we need to analyse the current data processing in several important aspects to make the restaurant management system operate properly and is safe for customers to use. first to run the restaurant management system we need Order Management which aims to take orders, which recording order specifics including good chosen, quantities, request, and table numbers, is the first step in data processing process. Second is Inventory management system, this data is required for improve customer experience, target marketing campaigns, and personalise service, data on consumer preferences and history.

Third is we need to analyse the billing data. This data can make it easier for the system to process bills counts for customers to make it easier for customers to make up their money and avoid the count of bills that cause losses between restaurants or customers. Last is Reservation Management data. We need this data to make a live table reservation or table assignment. For example, during the costumer submit order in the system provided there will be a table number that will be displayed in the system to indicate where the costumer is located and what table it is sitting at now to make it easier for the waiter to know the customer's position to deliver the finished food to the costumer.

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1.3 Project Description

1.3.1 Describe the functionality of your system and how data will be processed.

At the beginning, the system will work using the rules that have been prepared and this will happen after or before the customer makes an order in the given system. In detail, when the customer enters the order in the system, the customer will be presented with the available menus before placing the order and first logging into the system. Customers will also be given access to modify how much food is cooled based on their individual needs. Upon completion of the order, the customer will be displayed with the amount of payment to be made or a receipt to make it easier for the customer to calculate and prepare the money of a set amount of money. If the customer has obtained the receipt, the customer can reorder using the given system and will get the receipt back depending on the costumer's desire. The system is also made for staff and not just for customers. The system works for staff by providing two different logins which are staff and admin. This system plays a huge role in regulating the administration of restaurants. Admins are allowed to view staff with a list of available staff. If the materials for placing the order have run out or the store is to be closed the admin can close the system to retrieve the order and reopen it in case it is ready to receive the customer again. The admin is also given permission to view the remaining menus available in the system so that there is no unresolved order advantage due to the lack of menus. DMIN in this system will be able to add new staff to the system to assist with food preparation and customer management work. There is another use of staff which is that this staff is given permission to access admin work but simply cannot add staff into the system because only admins are allowed to do so. Finally, this system will provide convenience for admins if they have additional menus that they want to include in the system, admins can easily add new menus they want.

1.4 Project Scope

The objective of the project is to build a computerised Silk Road system to handle restaurant bill records and record orders made by customers. Additionally, allowing employees to view and keep restaurant records as they wish.

To protect the privacy and security of records, employees have limited access. The database is stored throughout the entire duration of the project.

1.5 Project Objective

The main objective of making the restaurant management system is to increase the monthly income effectively and reduce the mistakes that are always made by the restaurant management to attract customers to come to the store and be able to be competitive healthily. The following are the objectives applied in this paper:

i) To aid in the more effective and efficient management of the restaurant by computerised inventory control, billing, and meal ordering.

ii) To prevent the lack of communication that is caused by handwriting from waiter to chef.

iii) To avoid mistakes when taking orders and lack of time management.

1.6 Target User

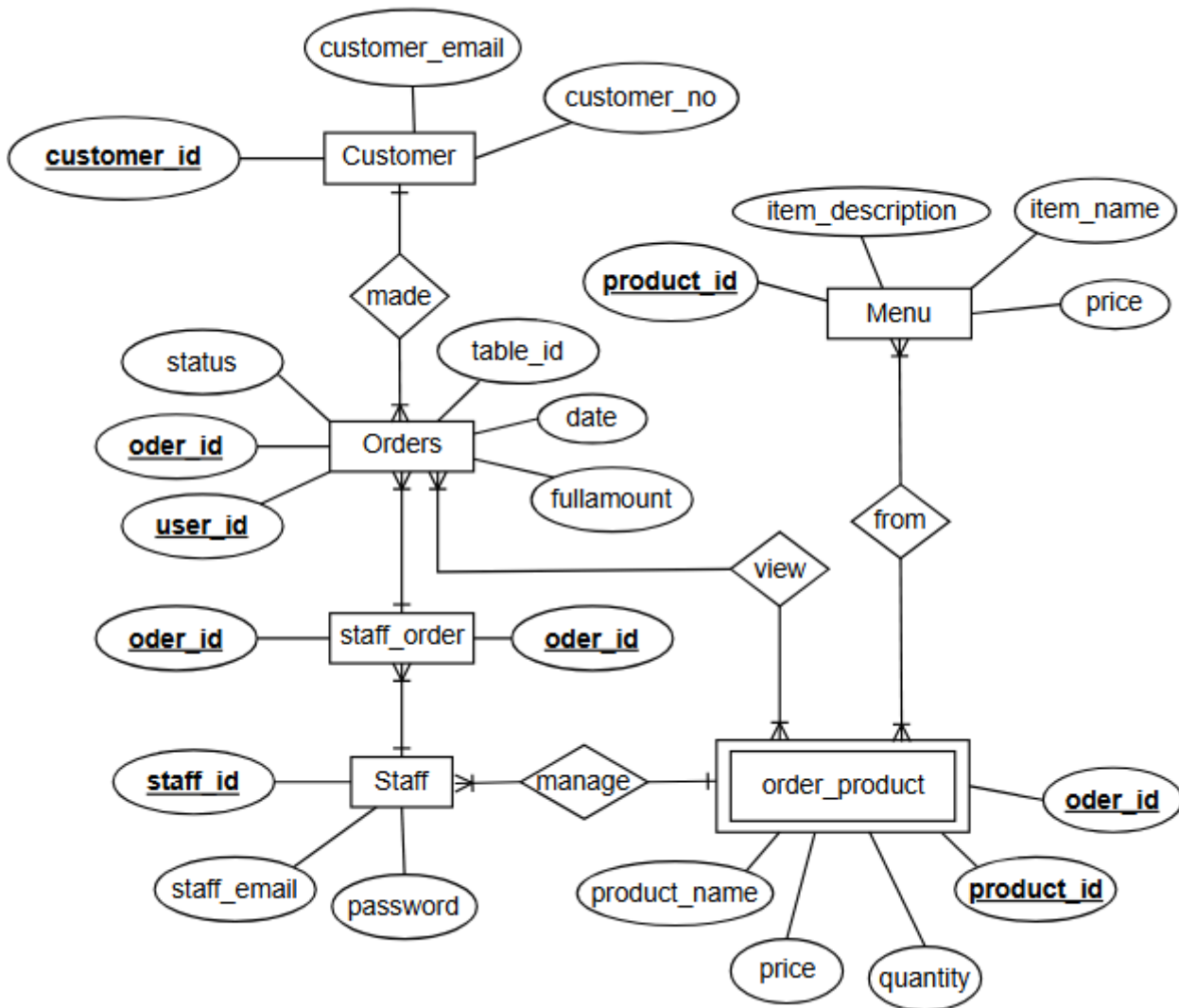i) Customer

ii) Restaurant businesses

1.7 Conclusion

In short, Restaurant Management system is able to provide customers and employees with a comprehensiveness. This is because, by using this system, employees do not have to interact with customers and will not cause missed communication between the client and the server who writes the order and the server to the cook due to poor writing and can cause errors to the customer's order. Not only that, this system will be one of the factors in the attraction of customers to eat at this restaurant due to its unique concept of taking orders that only use smartphones to write orders And this will make each customer who comes will get their own time to make the desired menu decision. With this system in place, the restaurant and management will reduce the losses faced due to the mis-making of menus that have been ordered by the customers and are able to maximise the profits of the restaurant as it is able to reduce the cost of hiring to take orders from customers. Finally, with this system, we managed to create a customer-friendly system that is able to upgrade the technology used in the restaurant for staff management and costumer. With this system in place, there is no need to hesitate to place an order because the price will be displayed in the system before the system shows the receipt of payment to be made by the costumer itself. And this can save staff time not to go to the costumer table and save the chef time to cook the selected menu because there is no doubt written on the costumer receipt and there will be no lack of communication and the mistake of making the menu.

2.0 SYSTEM ANALYSIS AND DESIGN

2.1 Introduction

In today's fast-paced world, every system is built to be fast, high technology and efficient. From a public transport system, social system, IT system and many more. Meanwhile, our restaurant system remains the same using the ancient system where waiters still use paper to take orders and make payment. Restaurants need to have an efficient system to manage a bunch of customers' orders and menus. Ordering System in a restaurant must focus on creating a digital solution to streamline this process.This involves understanding the current ordering system's strengths and weaknesses, then designing a user-friendly interface for both customers and staff. The goal is to improve order accuracy, reduce wait times, and provide a smooth dining experience.

2.2 Conceptual Model (ERD)

2.3 Normalization (until 3rd normal form)

1NF

customer_mail	customer_no	table_id	date	status	fullamount	staff_email	product_name	quantity	price (Order product)	item_name	order id	password	product id	price (Menu)	item_description
amirul@gmail.com	11119901	1	1/1/2024	paid		staff2@fr.com	Teh O Ais	1	1.5	Teh O Ais	1023		A1	1.5	Maniss
amirul@gmail.com	11119901	1	1/1/2024	paid		staff2@fr.com	Tom Yam	1	7.5	TomYam	1023		A2	7.5	Pedass
ahnaf@gmail.com	23781931	2	2/1/2024	pending		staff1@fr.com	Tom Yam	1	7.5	TomYam	1024		A2	7.5	Pedass
Fauzan@unitar.com	23697908	3	3/1/2024	paid		staff1@fr.com	Teh O Ais	1	1.5	Teh O Ais	1025		A1	1.5	Maniss
ismail@gg.gov.my	36123109	4	4/1/2024	paid		staff2@fr.com	Teh O Ais	1	1.5	Teh O Ais	1026		A1	1.5	Maniss
shazali@unitar.com	5423430	5	1/1/2024	pending		staff3@fr.com	Teh O Ais	1	1.5	Teh O Ais	1027		A1	1.5	Maniss

2NF

Customer Table

customer_id	customer_mail	customer_no
1	amirul@gmail.com	111-19901
3	ahnaf@gmail.com	237-81931
4	fauzan@unitar.com	236-97908
5	ismail@gg.gov.my	361-23109
6	shazali@unitar.com	542-3430

Order Table

order_id	table_id	date	status	fullamount
1023	T1	1/1/2024	paid	
1024	T2	2/1/2024	pending	
1025	T3	3/1/2024	paid	
1026	T4	4/1/2024	paid	
1027	T5	1/1/2024	pending	

Staff Table

staff_id	staff_email	password
2	staff2@fr.com	
2	staff2@fr.com	
1	staff1@fr.com	
1	staff1@fr.com	
2	staff2@fr.com	
3	staff3@fr.com	

Menu Table

product_id	item_name	item_desc	price
A1	Teh O Ais	Maniss	1.5
A2	Tom Yam	Pedass	7.5

3NF

Customer Table

customer_id	customer_mail	customer_no
1	amirul@gmail.com	111-19901
3	ahnaf@gmail.com	237-81931
4	fauzan@unitar.com	236-97908
5	ismail@gg.gov.my	361-23109
6	shazali@unitar.com	542-3430

Order Table

order_id	table_id	date	status	fullamount
1023	T1	1/1/2024	paid	
1024	T2	2/1/2024	pending	
1025	T3	3/1/2024	paid	
1026	T4	4/1/2024	paid	
1027	T5	1/1/2024	pending	

Staff Table

staff_id	staff_email	password
2	staff2@fr.com	
2	staff2@fr.com	
1	staff1@fr.com	
1	staff1@fr.com	
2	staff2@fr.com	
3	staff3@fr.com	

Menu Table

product_id	item_name	item_desc	price
A1	Teh O Ais	Maniss	1.5
A2	Tom Yam	Pedass	7.5

Order_product

order_id	product_id	product_name	quantity	price
1023	A1	Teh O Ais	1	1.5
1024	A2	Tom Yam	1	7.5
1025	A2	Tom Yam	1	7.5
1026	A1	Teh O Ais	1	1.5
1027	A1	Teh O Ais	1	1.5

2.4 Relation Model

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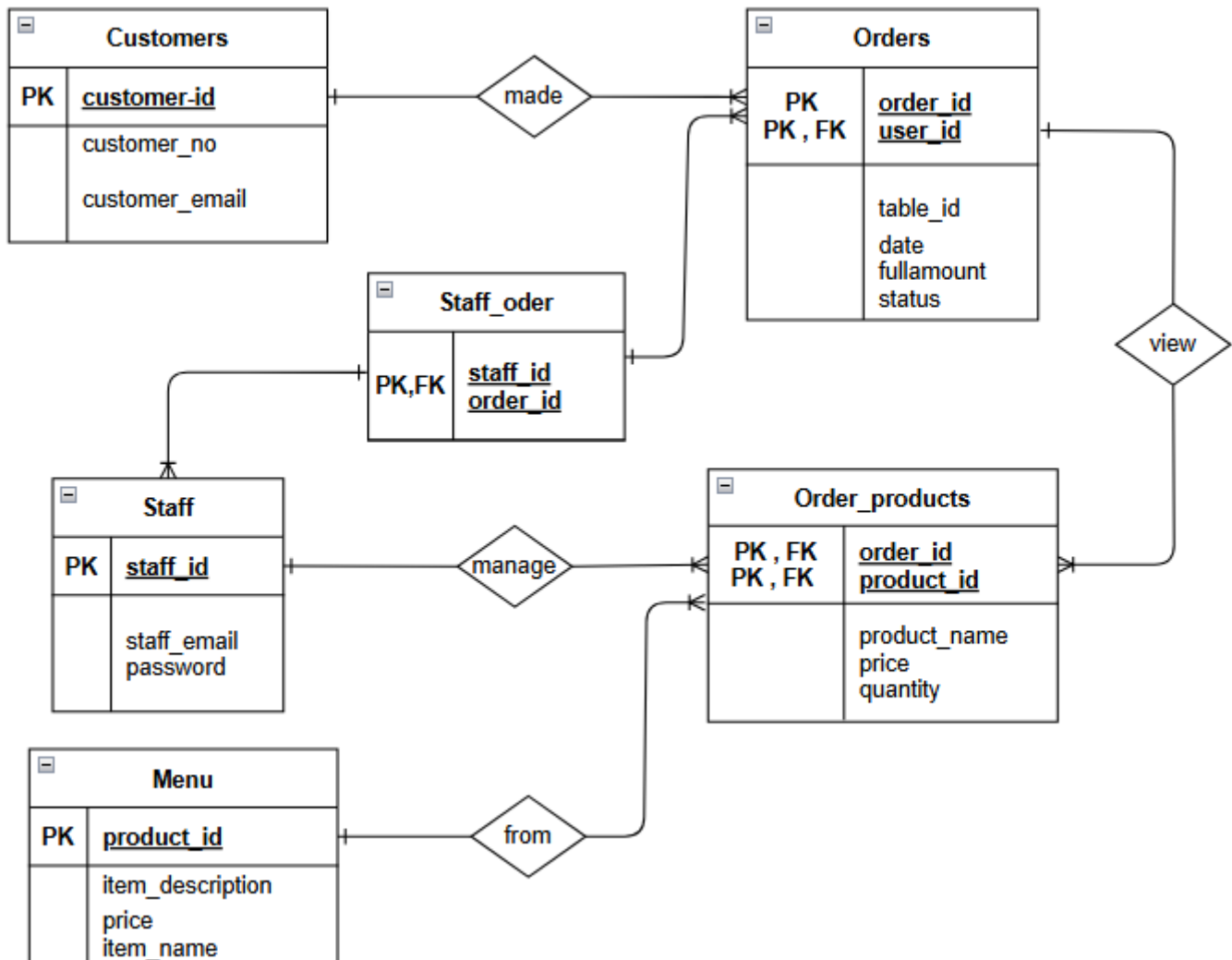
2.5 Conclusion

To summarise, system analysis and design is needed for a food ordering system database to involve a comprehensive understanding of customer or consumer needs, by understanding the process flows, and database design principles. By meticulously analysing these elements, designing an appropriate database schema, and executing the system, it can establish an efficient and user-friendly system on platform for managing orders, menus, customers, payments, and other vital data in the food ordering domain. This holistic approach guarantees the successful development and implementation of a functional and scalable food ordering system database.

1.0 CONCLUSION

3.1 Introduction

To evaluate the prototype system, the system was exposed to numerous individuals that are not related with the project to see how the system can deal with real life users. Several improvements were made after sessions with the user and were implemented as soon as possible. This is to ensure that the system prototype is able to be applied in real life situations and can be practically used and applied as a concept.

For our system testing was done through using Google Chrome Version 123.0.6312.106 (Official Build) (64-bit) and was done on multiple platforms such as Desktop PC and Laptops to ensure that html formatting is configured to each display size. This was done internally by the group.

3.2 Hardware and Software Requirements

The system platform for the project is all browsers that support XAMPP v3.3.0 above. Hardware that was involved in this project is standard laptop device and desktop device. Software that is involved is XAMPP.

The system requirements for this system is any device that is able to run Windows. Therefore, the minimum requirements to run windows 11 would be:

- 1 gigahertz (GHz) or faster with 2 or more cores on a compatible 64-bit processor or System on a Chip (SoC).
- 4 gigabyte (GB) RAM.
- 64 GB or larger storage device.
- UEFI, Secure Boot capable.
- Compatible with DirectX 12 or later with WDDM 2.0 driver.
- High definition (720p) display that is greater than 9" diagonally, 8 bits per colour channel.
- Trusted Platform Module (TPM) version 2.0.

3.3 Conclusion

We are confident that we have developed an efficient prototype restaurant management system that can be applied in real life and any restaurant can utilise it in real life. All functions were designed to be applied in real life and after numerous testing and troubleshooting we are confident all functions work in any environment. Based on recent trends, we believe that the restaurant management system we have designed can be implemented for restaurants that are looking to modernise their ordering system.