+Appendix A – Cover Page


FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY
Year 2

AACS1304 Systems Analysis and Design

2022/2023 Programme: Diploma in Computer Science   **Tutorial Group:** 8

No.	Student Names	Student ID	Contribution (%)	Signature	Part 1 (30%)	Part 2 (20%)	Part 3 (10%)	Total (60%)
1.	Yeoh Man Tik	2208738	20					
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5.	Nicholas Lim Sze Whye	2208641	20					
Total:			100%					

Date of Submission: 31/12/22   **Date Received by Tutor**: _____

Appendix B – Rubrics Part 2.1

CLO3 : Perform various activities carried out in a systems development life cycle. (A2, PLO9)
Assessment Rubrics for Part 2.1: Final Documentation (Group)

Area	Criteria & Marks	Excellent	Good	Average	Poor	Score
Content	Degree of completion and meeting assignment requirements. Ability to develop a feasible report for a business system. **(20 marks)**	Addressed all of the assignment components. Very clearly illustrated. **(17 – 20)**	Addressed almost all of the assignment components. It is relatively detailed. **(12 – 16)**	Addressed many of the assignment components. Not detailed enough. **(7 – 11)**	Does not address all assignment components. Unclear. **(0 – 6)**	
	Ability to apply knowledge, skills and critical understanding of the theories, concepts, issues and challenges in conducting a business project. **(20 marks)**	Excellent in applying concepts learn. **(17 – 20)**	Quite good in applying concepts learn. **(12 – 16)**	Average in applying concepts learn. **(7 – 11)**	Poor in applying concepts learn. **(0 – 6)**	

	Points presented are correct and relevant to the topic.	Perfectly comprehensive, relevant and correct description of the assignment deliverables. All the deliverables	Almost comprehensive, relevant and mostly correct description of the assignment deliverables. Most deliverables	Reasonably correct description of the assignment deliverables. Some deliverables have been updated and	Unclear, incorrect and incomplete description of the assignment deliverables. Most deliverables have not been	
	(20 marks)	have been updated and improved accordingly. **(17 – 20)**	have been updated and improved accordingly. **(12 – 16)**	improved accordingly. **(7 – 11)**	updated and improved accordingly. **(0 – 6)**	
Presentation Format	Points are logically developed (easy-to read). **(5 marks)**	All the points are logically developed with excellent structure. **(5)**	Most of the points are logically developed with adequate structure. **(4)**	Some of the points are not logically developed and have awkward structure. **(3)**	Most of the points are not logically developed. Very poor structure. **(0 – 2)**	

	Compliance with prescribed formatting requirements. **(5 marks)**	Professionally formatted and meeting all formatting requirements. **(5)**	Clear and recognizable format and meeting almost of the formatting requirements. **(4)**	Recognizable format and meeting some of the formatting requirements. **(3)**	Little attempt to use the appropriate format. **(0 – 2)**	
Total	**70**					

Appendix C – Rubrics Part 2.2

Assessment Rubrics for Part 2.2: Final Presentation - Oral (Individual)

Area	Criteria & Marks	Excellent	Good	Average	Poor	No.				
						1	**2**	**3**	**4**	**5**
Content	Viewpoints logically developed and completed **(10 marks)**	Viewpoints logically developed. Complete and very clear explanation of content. **(9 – 10)**	Viewpoints fairly developed. Adequate explanation of content. **(6 – 8)**	Viewpoints poorly developed. Unclear Explanation of content. **(3 – 5)**	Viewpoints not logically developed. Lack of explanation of content. **(0 – 2)**					

	Effective and correct application of concepts **(10 marks)**	Captivating and interesting. All are appropriate and effective. **(9 – 10)**	Most parts are interesting. Mostly are appropriate and effective. **(6 – 8)**	Some parts are interesting. Some are appropriate and effective. **(3 – 5)**	Most parts are boring and uninteresting. All are not appropriate and effective. **(0 – 2)**					
Delivery & Style	Clarity of presentation & explanation **(5 marks)**	Highly effective oral communication skills. Hardly reading from text. **(5)**	Effective oral communication skills. Occasionally reading from text. **(4)**	Average oral communication skills. Frequently reading from text. **(3)**	Poor oral communication skills. Most of the time reading from text. **(0 – 2)**					

	Demonstrated understanding (handling Q & A) **(5 marks)**	Able to handle all the Q & A. All explanations are accurate and clear. **(5)**	Able to handle most of the Q & A. Most explanations are accurate and clear. **(4)**	Able to handle some Q & A. Some explanations are inaccurate and confusing. **(3)**	Unable to handle any Q & A. All explanations are inaccurate and confusing. **(0 – 2)**					
Total	**30**									

*Total of 100% (Part A and B) is to be converted to 20% as the final coursework mark.

Comment by tutor (if any):

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1.0 Background Studies

Before beginning the project, background studies on the client will be conducted. Within this section, there are descriptions of the Organisation Background, Organisation Structure, Products and Services as well as the most important of all, Current System Used.

1.1 Organisation Background

Grand Imperium Hotels Group (GIH Hotels and Resorts) has a 200 year history, starting as a Bass brewery in 1777, founded by William Bass. In 2010, it was known as one of the most leading hospitality companies in the world with their CEO, Keith Barr.

GIH Hotels and Resorts provides hotel room rental with the best services to all. Their hotels receive a large number of positive reviews on most major travel websites, including TripAdvisor. Ranking as one of the highest rated hotels in the world.

GIH Hotels and Resorts was founded by Juan Trippe in 2003. GIH Hotels and Resorts is rated one of the most famous and largest luxury hospitality brands running more than 6,000 hotels and more than 888,000 available rooms around the world. The company has over 325,000 workers to deliver true hospitality, prioritising cleanliness and the best service.

GIH Hotels and Resorts owns 17 hotel brands which includes Six Senses Hotels Resorts Spas, Regent International Hotels, Kimpton Hotels and Restaurants, Hotel Indigo, Voco, Hualuxe Hotels and Resorts, Even Hotels, Crowne Plaza, Holiday Inn Express, Holiday Inn, Holiday Inn Club Vacations, Avid Hotels, Atwell Suites, Staybridge Suites and Candlewood Suites.

GIH Hotels and Resorts provide and rent out a wide variation of hotel and resort rooms such as a collection of luxury and lifestyle hotels, premium collection rooms, essential collection hotels, and a wide range of suites.

GIH Hotels and Resorts brand hotels can be found in more than 100 countries internationally. Which includes: The United States of America, The United Kingdom, Mainland China, Canada, Mexico, Germany, France and Japan, London, Paris, The Caribbean, Dubai, Sydney, Hong Kong, Johannesburg, Amsterdam, Toronto and Shanghai. Most of their brands can be found in the US in 10 different states, being Atlanta, Chicago, Dallas, Honolulu, Houston, Los Angeles, New York, Orlando, San Francisco and Washington.

GIH Hotels and Resorts provides guests with their official website. Providing guests an easy-to-use, transparent and efficient platform for room reservations. Customers can access all information from the website such as availability of rooms, price, location and facilities of a hotel or a resort in their destination. GIH Hotels and Resorts has an average annual revenue of $1.5 billion dollars from room rentals, partnerships, sponsorships and advertising from branches worldwide. GIH Hotels and Resorts rent out 32 million rooms annually to visitors, tourists and business travellers from across the globe.

Hence, the company is known as one of the highest earning hotel companies today

1.2 Product and Services

GIH Hotels & Resorts offers premium accommodation, designed for the discerning business and leisure traveller. Our hotel also showcases a complete collection of leisure and wellness facilities that forms the heart of every guest's experiences for every occasion.

1.2.1 Rental Services

GIH Hotels & Resorts provide various rental services such as room rental, car rental, facility rental, etcetera. Customers can make a reservation for a room, hall or facilities by calling the hotel hotline or by booking a room on the spot at the reservation counter. They can contact the hotel via email, phone or the website for any inquiries regarding the hotel room and facilities. They can choose various kinds of rooms ranging from standard to luxury for a certain period of time. Comfortability and luxuriousness of the room are priorities. Customers can also rent spacious halls mainly for events like Birthday Party, Graduation Party, Meetings, Gathering and so on. Car rental service is also available upon request. Car rental includes the option to ride on your own or hire a driver to bring you to places.

1.2.2 Catering Services

The hotel provides services such as catering. Customers looking for a refreshing dining experience may dine at restaurants within the hotel. During the morning, customers may walk into the restaurant for a free breakfast buffet which is included in the hotel rental fee. Not only that, customers can order their favourite beverages and snacks from their room. The staff will then have their beverage and snacks delivered to their room as soon as possible.

1.2.3 Facilities Services

The hotel also has various facilities that are built for guests to enjoy and make use of. There is a gym and fitness centre, where you can stay in shape after waking up from a good night's sleep. Swimming pool, which is one of the selling points of a hotel, allows you to enjoy swimming in an enormous size pool. The bar, where guests can make business travels more rewarding with panoramic views. The bar is truly the place to be with friends and family. Karaoke night will be hosted in the bar during night time. This is an adult-only space where guests can enjoy exclusivity, bespoke services and additional amenities. A spa and massage centre, where you can visit us after a long and stressful day to help ease our mind. Last but not least, we also have a premium leisure lounge where parents can unwind at the family lounge while their children have endless hours of fun. This unique and laid back space serves afternoon tea and evening cocktails and canapes.

1.2.4 Guest Welfare

Customers' welfare is also the hotel's priority. For a luxury experience the hotel had carefully made the interior of the room to feel comfortable and luxurious, it provides a fully equipped kitchen, a phone to call customer services, free high speed Wi-Fi, Huge OLED TV, air-conditioner, laundry room, and finally all the basic essentials needs such as toiletries and personal care items. GIH Hotels and Resorts have may collaborations with other branches to have various fun activities hosted by other agencies. Not only that, customers can also walk to the grand mall which is located near the hotel.

The whole design and service is to provide travellers a place to make them feel safe at home.
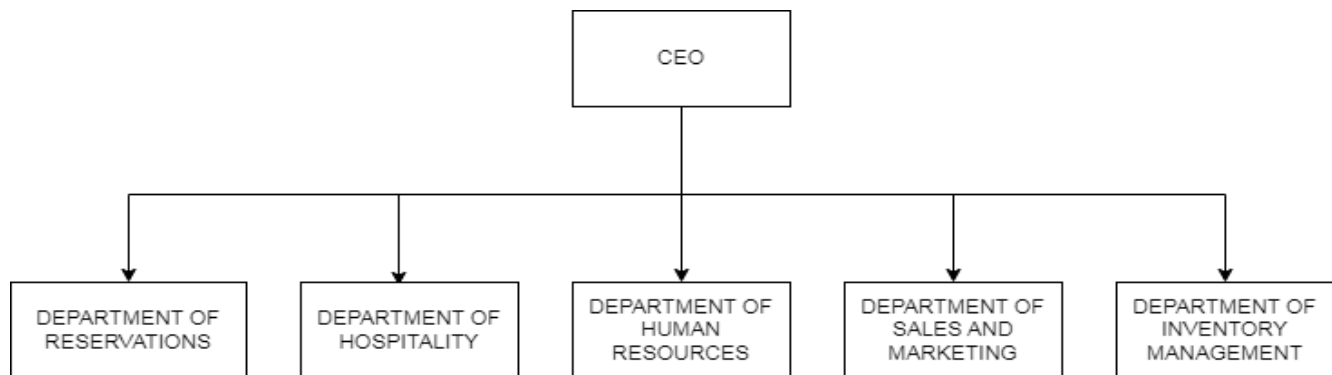
1.3 Organisation Structure

Diagram 1.0

1.3.1 Reservation Department

The current system the Reservation Department is using is the hotel system and it is responsible for all the customer inquiries, the customer has to make a phone call to make a reservation for an available room. Customers can communicate with the receptionist and book for the type of room they like, and when the date of their booking comes, the customer will have to check-in at the counter of the hotel with the receptionist. The system also allows people or companies to book a spot for an event such as booking a part of the lobby to hold an event. Customers are also allowed to book parking slots for their car at the hotel but it has to be done at the counter. If a customer decides to cancel the booking they have to give a phone call to the department again. And lastly in order to check-out, customers are obligated to go to the counter to do so by returning the key for the room they checked-in..

1.3.2 Hospitality Department

The current system this department is using is the hotel system, the system provides multiple functions but is not limited to staff schedule management and customer service. Currently the system provides schedules for the workers within its department, mainly for the cleaner, chefs, massage therapist and spa attendants of the establishment. The schedules are decided by upper management before being printed and handed out to the workers. The current system also allows for menu making by upper management before being finalised and printed and handed out to the chefs of the establishment. Additionally the system also allows for coordination with the reservation department to manage room cleaning and customer service via calling. It also allows for coordination with the inventory management system to request for restocking.

1.3.3 Human Resources Department

The current system the Human Resources Department is using is human resource management system. They help recruiting staff for different departments. The department has to appoint an interviewer to potential candidates and judge whether the interviewee is suitable for the job they are applying for by reviewing their resume, asking them their general information, and monitoring their work. This department also will train their workers to get familiar with the workplace, new workers will come

earlier to work for the first day and have the manager show the hotel around and tell them what things belong to where. And having a supervisor to monitor and guide their work for at least a week before they can work without heavy supervision. Human resources are also responsible to keep track of their employee information to make sure they are not a liability to the company, like whether they have a bad or criminal record, if such things do occur the department will dismiss the employee. The department can also promote employees that perform well by increasing salary or promotion to higher positions. In general the human resources department is responsible for managing and maintaining the employee lifecycle.

1.3.4 Sales And Marketing Department

The current system the sales and marketing department is using is the sales system, the department requires to do market research by conducting street interview, survey and customer observation. This gives the company knowledge about what the customer wants and how to cater towards them, and knowing what the customer wants allows the department to promote and advertise to the target audience. The system also allows for the department to monitor the sales performance and plan accordingly should changes be needed for the improvement of customer satisfaction and work efficiency. The system also allows for the planning of meetings for partnerships or collaboration with other companies or branches to be scheduled, coordinated, recorded and agreed upon with contracts on paper.

1.3.5 Inventory Management Department

The inventory system is the current system used by the inventory management department. The current system allows for coordination with other departments such as the reservation department but primarily the hospitality department. Such coordination is necessary for the restocking of food, cleaning supplies and office equipment. It also allows for the storage of inventory in designated storage areas or warehouses for ease of access by its staff members such as the storage of food within the pantry for the chef's to easily access. In addition, the quantity and precise location of where the inventory is being stored is also recorded in paper before being tabulated or updated for future reference and usage. In coordination with the previous point, the tabulation of inventory allows for the planning of future inventory restocking purchases so that no excess inventory is purchased and money wasted. All is done before being recorded on paper.

1.4 Current System Used

The current system used by the company is a manual system. Many tasks are still not automated and needed to be done manually by staffs and customers. There are currently four systems being used by every department of the hotel which are, Hotel System, Inventory System, Sales System, and Recruitment System.

1.4.1 Hotel System

The Hotel System is the current system used by the reservation department and hospitality department of GIH Hotels & Resorts is the Hotel System. It consists of four main functions which are customer service, reservation service, customer enquiries and check-in service.

Customer service comes in use when a customer requests a certain service. Such services are provided by the hospitality department which is dedicated to provide comfort and convenience to their customers. For example, the customer's room is dirty after one day of use and they would like to request for a room cleaning service and all they need to do is just make a phone call to the hospitality department. The hospitality department will then send staff to the customer's room when the customer leaves their room. On the other hand, the customer may also put up a sign at the room door to indicate whether their room needs to be cleaned. The customer service function is not only limited to room cleaning but also food and beverage service. A request from the customer and they will respond quickly.

The second function is one of the most used functions in every hotel system; reservation service. Reservation services provided by the reservation department are vital. Customers can make a phone call to the hotel's reservation department to make a reservation. Reservation department will find the most suitable hotel for the customers' requirements. After the customer decides on a room, a confirmation of reservation will be sent to the customer's email address. The confirmation letter will then be required to be printed and present it during the day. Reservations can also be cancelled for free within the time set by the hotel's condition.

On the other hand, enquiries function is also another important aspect of the Hotel System. Sometimes, there may be details that customers are unclear of. This is when the enquiries function comes in place. There will be a dedicated department standby to answer any questions that customers may have. This is to clear any confusion that customers could be facing. As well as solve possible problems and issues that are encountered by the customers. For example, the customer may be looking for public transportation by the hotel. Therefore, the customer can ask the hotel's customer enquiries department and they will be answered with clarity.

Lastly, check-in and check-out functions are regularly used in the Hotel System. When the customer has arrived in the hotel, they will be required to check- in within the limited time provided by the hotel. This is to ensure that the customer has occupied the room and registered into the system. The common check-in time used by hotels around the world is 12pm. Besides the check-in function, Hotel System also has a check-out function. Similar to the check-in function, Hotel System uses a check-out function in order to ensure that the customer is no longer occupying the room and is registered into the system. The common check-out time used by hotels around the world is 2pm. These two functions are

used to clear any uncertainty and to verify the current status of the customer. Hence, staff are able to work more efficiently because customer data is arranged systematically.

1.4.2 Inventory System

The Inventory System is mainly used by the Inventory Management Department of GIH, Grand Imperium Hotel. It makes sure that the inventory of the hotel is always filled. This is to prevent a deficit in stock which is being used by the guests everyday. Products such as shampoo, towels, body wash, etc are frequently used by hotel customers are vital because the availability of personal care products impacts the hotel's reputation.

Therefore, the inventory system is a crucial system to the inventory management department. One of its main functions is to keep track of the supplies received from suppliers. For example, Whenever new supplies have been received, it will be recorded and calculated into the inventory system. The Inventory management department also ensures that the amount of supplies ordered is enough and never empty. This will help the hotel to prepare for the holiday season in which a huge sum of customers will be coming for a vacation.

Besides that, distribution of inventory to customers is also included in the system. Each distribution to each room is recorded. This is to ensure that distribution of items are done evenly and prevent duplication in the process of distribution. Keeping track of the inventory is a good habit that prevents unnecessary losses for the company. As well as save a good sum of money from buying extra supplies.

On the other hand, inventory reports will be presented every week. This report is to be handed to the management team within the inventory management department. The manager will then proceed to make purchase orders referring to the inventory report presented.

Lastly, the reason behind the Inventory System being crucial to the department is that it improves efficiency and productivity. It also prevents human error that causes unnecessary losses.

1.4.3 Sales System

The sales system is the current system used mainly by the sales and marketing department of GIH. The system assists the company in keeping track of customer information, hotel revenue and other sales related information by monitoring the sales performance for the sales and marketing department to plan accordingly.

Firstly, the sales system is used by the sales department for creating and sending quotations to customers before they make their payments. In particular, the department can send invoices to customers that provide their guests with knowledge on the hotel's various services and its prices. Thus, customers can receive information regarding the reservation of their hotel room before making the final payment.

Besides that, the sales system allows hotel employees to receive and approve requests from guests wanting to stay in the hotel. Moreover, sales employees can inspect the credit card status of customers beforehand to ensure successful payment before their stay. For example, travellers from around the

world can complete payments with the hotel or resort they desire to stay days before their arrival. Furthermore, the system gives access for the sales department to enquire on the availability of rooms in the hotels for guests to stay as well as book their reservations early. Therefore, the system is critical in preventing overbooking and ensuring that guests pay for the rooms they are getting. On top of that, it is important to have this system in order for customers to pay for the services the hotels provide.

Additionally, the sale system also allows for the receiving and answering of enquiries from potential partners, collaborators or customers in general. This allows for transparency and ease of communication or negotiations with potential collaborators and allows for the ease in securing potentially lucrative contracts.

Lastly, the sales system also allows for a request for a quote (RFQ) which is a process where a business requests quotes from their suppliers for a project or restocking. This is also quite secure as the company will only award such requests to companies that it trusts. The function also allows for the quick obtaining of supplies as no further procurement documents are required, thus saving time.

1.4.4 Recruitment System

The recruitment system is the current system used mainly by the human resources department of GIH. This system is used to select suitable candidates to employ for the company. The first main function of this system is to help supply manpower to the other department, branches or subsidiary. If the other department requests more manpower from the HR department they will allocate employees that are suitable for the role the department needs.

The second main function of the recruitment system is job advertisements, the department will advertise that there is a job position available and by putting up posters in nearby areas or online to announce. The department will start sorting out the request from potential applicants and whoever has been chosen will be arranged for an interview.

The third main function of the recruitment system is allowing potential applicants to apply for job interviews. The applicants are allowed to submit their request via online or through the department's telephone number. The applicants have to fill up a forum of their basic information and send it to the system to let the management review it.

The final main function of the recruitment system is arranging interviews for potential candidates, the interviewer will set up meeting place and time with the candidates with both sides agreeing upon the arrangement. And when they meet up the interviewer will start asking some basic questions about the candidates and reviewing the resume they provide. And try to pick out what they excel and lack at. And if the interview goes well they will start making the final decision.

2.0 System Planning

After analysing the organisation's background, we will proceed to system planning in which we start collecting feedback from various parties. After analysing the feedback, we will be able to proceed with planning a new system/improvement of the current system. Feasibility studies will then be carried out to evaluate whether the new system is viable.

2.1 System Request Form

The system request form we use is Google Form. Google Form is a useful survey software that can help collect large numbers of surveys without the use of physical paper. Contents are saved in Google Drive/Cloud Storage; a very convenient way of storing data.

In the form itself, the requestors are required to fill in their full name, contact and department name before proceeding to the filling up their requests. This is to ensure that the user's request is valid and we are able to clarify their department accordingly. The next page will require the user to state their type of request and the current system request. As well as the expected date of system completion. After finishing up the responses required, the brief statement of the problem is required to be disclosed. Additional documents can also be provided for further clarification. Lastly, the requestor may suggest their expectation of solution or outcome from the system request form submitted.

System request form is important as there are many issues that will only be encountered by everyday users. Even though the system was designed by the IT Company, complications and issues are very difficult to find as they are not the frequent users. It takes experience and time to look for each problem. Therefore, it requires cooperation from other departments that use the system. Hence, system request form helps the IT Company to recognize the issues so that it could be fixed and the system can be perfected.

Diagram 1.1

Diagram 1.2

2.2 Sources of Request

From the request forms we had collected we had determined that there were three main sources of request. In simple terms, the source of the request is where the request of the system is coming from. It is important to determine the sources of request as there are different types of users using the system. They are classified into three categories in order to help us understand the issues and problems faced by different users. These requests were coming from the Top Management, Staff Member, Customers and IS personnel.

2.2.1 Top Management

The current system is gradually failing the company and a new system is being requested to solve these issues. Top Management is one of the main sources of request.

The top management realised the current system cannot meet their required objectives, the current system is affecting their workers efficiency. There is always a struggle to generate accurate reports from the lower management team. This is due to frequent errors in their documentation caused by the current system. Reports are important as the Top Management are decision makers and they require accurate information to make future decisions. One botched decision may cost the company a hefty amount of funds. Having low efficiency also affects customer satisfaction; it will tarnish the company's reputation. Thus, lowering the sales revenue, and let the other competitor thrive in the market. For such a major flaw in the system, the majority of the Top Management had requested a new system to be developed.

Besides that, the company is currently using a third-party website to promote their hotel. This will cost the company monthly as they are required to pay a certain amount of fees monthly.

2.2.2 User (staff member)

Another source of system requests are coming from the users, which a large portion of users are the staff members. The staff members are coming from across five departments within the company. As the current system process is very cumbersome, there have been many complaints from them.

A manager from the Inventory Management Department complained that reports generated by the system are often inaccurate as it involves human error during the inventory tracking process. Junior staff often make mistakes during the distribution of inventory as the current system requires them to count the inventory manually. Inaccurate reports may cause the manager to order extra supplies which are unnecessary and costly.

A very common complaint from the staff members is that the current system is too tedious and complicated to use in addition to the current system being antiquated and slow. The result of such a problem is reduced employee and customer satisfaction. This is due to outdated systems still being used. Outdated system may still be operational but many newly employed staff members are not used to it. Senior staff members will be required to spend more time on training the new staff members. Hence, causing difficulty and delay to complete their quota. This has begun to generate more frustrations among the staff members.

For example, during peak season like the upcoming Christmas holidays, there will be an increased amount of phone calls from customers requesting for reservations. When there are not enough staff presented, they are struggling to answer as many phone calls as possible. This has disputed customer dissatisfaction and ruined the hotel's reputation. With so many staff members focusing on phone calls, they will not have enough workforce distributed to other areas such as serving the current hotel guests.

2.2.3 User (customers)

A common complaint from customers is that the current system is that it takes too long to wait in order to make a reservation. In rare cases, reservations made are sometimes voided or simply not recorded due to congestion and human error. This has resulted in customers switching their interest to another hotel. The current system, which requires customers to call the establishment to make a reservation, is too frustrating and outdated.

Another common complaint, walk-in customers have been waiting too long in line due to the inefficiency of the staff members. Check-in, Check-out, reservations, rental services sections are all mixed up and causing congestion in the lobby. This is unacceptable as they are in the mood for holiday and relaxation not waiting a long time in the queue.

Not only the terrible lobby experience, customer service is also being tediously slow as there is a lack of staff available during the peak season. From the customers' perspective, the hotel's competitors are a better fit for their holiday vacation.

2.2.3 IS Personnel

The last main source of system requests are existing system problems that are later discovered by the company's IS personnel. Staff members complain to them that they find it problematic to track client records using outdated software and systems. For example, some inexperienced staff members find it difficult to use an out-sourced software to track a clients' records since all customer information is blended into an outdated storage system and it's hard to find the specifics. Microsoft Excel was later introduced to track the clients' records but it was deemed unworthy as Excel spreadsheets are becoming obsolete when there is new technology/software in the market.

A problem discovered by an IS personnel is that the current system uses outdated server hardware, resulting in slow processing times and causing frustration to both the staff member using it and the customer said staff is servicing.

Other than the company's own hardware problems, the third-party software/website is also a setback for the current system. IS personnel find it difficult to make changes to the website as it requires higher-up and the software company's permission. Cooperation with the other company is not easy to deal with.

2.3 Services / Improvement Requested

2.3.1 A new platform (Website)

In the new system, there will be a new website that can be used by both customers and staffs. The new website will bring better performance to every aspect. For example, customers will be able to make reservation online through the website instead of making a phone call to the reservation department.

The new website would also save a decent cost for the company because they no longer have to pay monthly fees for using the third party website. There will also be lesser restrictions when it comes to customising and changing features in their own website.

The website will also be including many features that the third-party website couldn't support due to some restrictions. For example, there isn't any recruitment feature in the third-party website and with the new website, they can have a page dedicated for recruitment only. This creates more visibility for the Human Resource Department to recruit more staffs.

2.3.3 Improved Recruitment

The Recruitment Department wanted to have more visibility which is not available from the third-party website. The improvement they expected would help the department to look for more applicants to fulfil the manpower deficiency. Interested applicants may look for the recruitment page from the official hotel's website.

The department would also be able to receive and review applicants' resume or CV online. The details are stored in a cloud-based storage where they are able access without a physical hard drive as long as the internet connection is available.

2.3.4 Better Inventory Tracking

The Inventory Department would like to have new inventory tracking to be improved. The current inventory tracking system is inaccurate and frustrating to deal with. They use Microsoft Excel to update the inventory status and it is not synchronised across other platforms. They wanted the inventory tracking process to be more automated and user-friendly.

Thus, a new inventory tracking system will be using RFID to scan and record distributed or received inventory. Recorded data will also be stored in the cloud-based storage.

2.3.5 Addition of Public Announcement/Promotion

The Sales and Marketing Department wanted to add a new membership feature to attract more first-time customers. They will also have access to public announcements and promotions on the website. The department will be able to freely customise this section. Customers will be able to extract announcement and hotel promotions from a glimpse.

This will bring more visibility and publicity of the hotel to more customers.

2.4 Feasibility Study

2.4.1 Technical Feasibility

Evaluation of hardware specifications:

The specifications of hardware requirements listed in the above for the new system is technically feasible with sufficient funding. The list of requirements are sustainable and can be utilized for a long lifespan by our company.

Desktop computers, monitors, keyboards and mouses are essential devices for the employees to use the new system. Additionally, a net router allows employees to connect to the Internet. Besides that, staff members require headsets for listening and communicating with guests through calls. Servers run actively to establish a connection with valued customers. Servers function to obtain data and store it for clients and hosts to review.

The provided list of hardware is the bare minimum required for the making of a new system cost wise.

Evaluation of software specifications:

Programming software such as Visual Studio 2022 will be used to program required modules for future systems, written in languages such as C++.

Browsing software is used for research and development for our company. Cost free browsers such as Google Chrome and Bing are feasible.

Web Design Software is used to create a website for our company which would display important and relevant information to potential customers in an easily accessible manner. Besides that, it also helps expand the online reach which will enable direct hotel booking reservation and increase in the hotel revenue. By doing so, we should visually impress and connect guests with the website design and display excellent visual content that is highly engaging and relevant.

SkyTouch Hotel OS is designed to increase hotel's efficiency by helping with real-time operations, monitoring, hotel reservation services, front desk operations, inventory management, resources distribution, sales, housekeeping, and catering management. The software also works seamlessly with top travel sites such as TripAdvisor and Expedia.

Issues to be addressed:

Number of users :

The software is able to handle a large number of users with the assistance of the servers provided. This is because the number of users accessing the system varies. Thus, it must be capable of receiving and sending data to many users. In case the amount of active users increases, additional servers can be installed for expansion. Servers provide a stable connection between the host and the clients, no matter the amount of clients.

Response Time :

The system must be viable in responding with high speed to users such as customers, staff, management and administration. This is important for guests to connect to the servers easily from the

comforts of their home with an active internet connection. This is allowed by the connection established between our active servers via ethernet cable and wireless connection. Therefore, requests are almost instantaneous as the system provides users with data from servers.

Data Input and Output :
The system's input must be specifically designed to receive input from users such as staff or guests booking a reservation accurately. Example, data such as the credentials, date of reservation, and name of guests are all inputs for booking a hotel room that must be recorded precisely and correctly into the system. This is important for reducing mistakes and miscommunication between guests and staff from information received from the system.

The system's output must display the accurate and correct data for both parties. At the same time, allow the reservation department to approve the shown data and allow users to efficiently book a room with the acknowledgement of the management. It is very important to ensure that employees obtain the accurate information stored in the system. Therefore, the staff and guests can view and check the reservation information accurately such as which room and which correct date they will be staying at.

2.4.2 Economic Feasibility

Evaluation :
The new system will begin its development in the year 2022, and start operation and maintenance in 2023. In the year 2022, the development of the new system will cost RM25,000. Running the system requires the initial purchase of system hardware and software which is approximately RM120,750 for hardware and RM2,000 for software. Annually, the software subscriptions will cost roughly RM300. An estimate of RM35,000 will be dedicated to teaching our hotel employees to better acquaint them with the new system. The employment of staff such as sales and marketing agents, management, hospitality staff and workers will require roughly RM2,268,000 yearly, this value decreases annually as the HR Department can manage staff regulations and amount of working staff. Lastly, system maintenance such as hardware and program software is needed which approximates to RM12,600 and RM1,400 initially, however the cost requirement decreases annually as less resources are needed to maintain it yearly.

Assuming the COVID-19 pandemic affects the hotel revenue in the first year, the hotel makes RM8 million in 2023, the revenue increases as the global pandemic eases. Meanwhile costly benefits can be accounted for such as the overtime working hours, saving RM16,000 yearly with an increment of RM1,000 annually. Besides that, we are able to reduce the number of unnecessary staff which saves the company RM16,000-RM20,000 in 5 years. Furthermore, staff can receive proper training from professionals, thus reducing staff performance errors therefore no customers would cancel their bookings because of bad services. This would save approximately RM8,000-RM16,000.

Estimated Profit in 6 Years (2022 - 2027):
Total Cost in 6 Years:
= RM11,489,250

Total Benefit in 6 Years:
= RM50,198,000

Estimated Profit in 6 Years:
= RM50,198,000 - RM11,489,250
= RM38,708,750

2.5 Cost (Hardware & Software)

Specifications of hardware utilised with our company:

Hardware	Cost Per Unit (RM)	Purpose
Desktop Computer ● CPU ● RAM ● Motherboard ● Disk Storage ● Power Supply Unit	3500 - 4,000	For users to access and use the system
Headset ● Microphone	100-150	A communication device for employees to communicate
Monitor	300 - 400	Display device
Keyboard	50 - 100	Input keys device
Mouse	50 - 100	Input pointer device
Router	400	Internet access
Servers	5,000 - 10,000	Functions as a host for clients to connect and obtain data for storage

Diagram 1.3

Specifications of software associated with our company:

Software	Costs (RM)
Browser Software	Free
Web Design Software ○ Visual Studio Enterprise 　■ JavaScript 　■ HTML 　■ CSS	Free Free
Programming Software ○ Visual Studio 2022 　■ C++	1,000
SkyTouch Hotel OS	25 per month
Operating System (OS) ● Windows 11	550 - 850

Diagram 1.4

2.6 Cost Summary

Year	2022	2023	2024	2025	2026	2027
Costs (RM):						
Development of a new System	25,000					
System Hardware	120,750					
System Software	2,000	300	300	300	300	300
Hotel Employee Training	35,000					
Hotel Employee Salary		2,268,000	2,258,000	2,248,000	2,238,000	2,228,000
System Hardware Maintenance • Healthcare • Support		12,600	10,600	8,600	6,600	4,600
Feature Requests		12,000	10,000	8,000	6,000	4,000
Application Support • System Upgrades • Bug fixes		1,400	1,200	1,000	800	600
Total Cost:	159,750	2,294,300	2,280,100	2,265,900	2,251,700	2,237,500
Benefits:						
Hotel System Earnings		8,000,000	9,000,000	10,000,000	11,000,000	12,000,000
Eliminate Overtime Work Hours		8,000	9,000	10,000	11,000	12,000
Reduce Human Resources		16,000	17,000	18,000	19,000	20,000
Eliminate Staff Performance Errors		8,000	10,000	12,000	14,000	16,000
Total Benefits:	0	8,032,000	9,036,000	10,040,000	11,044,000	12,046,000

Diagram 1.5

2.7 Intangible Benefits

2.7.1 Improve company image

With the implementation of the new system, the hotel will be receiving lesser complaints from customers and staff. Hence, this is a sign of lesser frustration and annoyance from the customer and staff after using the new system.

Therefore, It is able to have a strong brand image that can create credibility and customer loyalty for the company. This will also give the company a good first impression to the customers. Creating a high quality experience from the beginning will give customers a good first impression and also to show them that our company is the one that they can rely on.

With a higher company reputation, more guests will check out the hotels as it has a high popularity among potential customers. New customers will feel more reassured and at ease when using the company's product and services.

2.7.2 Improve customer service and satisfaction

Good service by the new system will improve customer service and efficiency. This is due to the new system will save customers' time spent on calling for reservations. Therefore, the new system will leave a good impression on guests staying at the hotel. Satisfied customers increase customer retention and how often they will return for our service. It inspires customer loyalty and satisfaction, and makes the employees' jobs easier.

The new system makes it much easier for guests to reserve a room, check-in and check-out, as well as obtain information about the hotel/resort. Thus, more positive feedback will be received rather than the negative.

2.7.3 Improve staff morale, motivation and retention

The addition of the new system would motivate staff to work more efficiently as complicated and outdated features are being replaced with more simpler and pleasant features. Hence, there will be lesser tension during peak hours where everyone is busy and packed before the implementation of the new system.

Not only that, with the improved and rebranded company image, the staff morale will also be raised. Staff morale will be a crucial factor for a good system as it motivates and encourages staff to work harder and smarter.

3.0 System Analysis - Facts Gathering

Before proceeding to implementing/developing the new system, System Analyst will begin with fact gathering starting from top management/client and users of the system. Fact gathering is important as it helps System Analysts to understand the existing problem within the system better.

3.1 Interview

Interviews are useful to gather information because more flexible and deeper questions about the system can be asked during interviews. Not only questions can be designed specifically for each department, interviews can also retrieve more detailed and private information that is not available to the general user of the system. Although interviews can be beneficial, it also has its shortcomings which require skill to design each question.

3.2 Interview Questions

The questions are specifically designed for Top Management of each four departments. In order to learn more about the department and their features, interview questions are designed for specific department only.

3.2.1 Reservation Department

https://forms.gle/886BpiVHUf5ZF1xC9

1. For your reservation service, how many type of way of requesting reservation?
2. What mandatory information a customer needed to request booking?
3. How does reservation department keep track of booking record?
4. What's the earliest limit for booking in advance?
5. How many times can the customer postpone a booking date before the department cancels it? If they want to cancel booking, how long does it take before facing penalty? What is the penalty in cancelling booking at the last minute?
6. How long will the department track a postponed booking date before terminating it?
7. Is there a limit for a customer to extend stay? How many times a customer can extend their stay before the department starts prohibiting it?
8. Does reservation department allow customer to amend what they have booked at the last minute?
9. If the customer wants to amend what they booked, when do they have to do it before the reservation department no longer accept any changes to the booking details?
10. If the customer wants to extend their stay and they also want to change to a different room, does it count as a new reservation or extend stay?

3.2.2 Human Resource Department

https://forms.gle/FqR2WBDFB7i4YseF9

1. What are the ways to attract more interested applicants to apply for a job?
2. How do you prefer recruitment session to be done, online or physical?
3. How often are recruitment sessions conducted?

4. How long does a recruitment session last?
5. How often are training sessions held? What are the core focus of training sessions?
6. How are employee performance appraisal done?
7. If the employee did not pass the performance appraisal will there be consequences they will have to face? If yes, what are the appropriate actions?
8. How often does staff complain to the HR Department? How do you react to staff complain received?
9. How often do you respond to staff complain? What are the ways used to respond their complain? (Face to face, email, phone call, etc.)
10. What happens to resolved complain/feedback? Do they need to be stored in a storage space?

3.2.3 Inventory Management Department

https://forms.gle/DTWtShsSzkYxdzeP6
1. What information is required for the storage and tracking of your inventory?
2. How do you currently purchase a new inventory?
3. How do you know when and what inventory restocking is required?
4. Do you currently require a method to approve of restocking?
5. What is the maximum capacity of your inventory storage?
6. What information is required from the destination of delivery?
7. How do you currently obtain confirmation of successful restocking?
8. What information, currently are required for the purpose of restocking?
9. How do you confirm that restocking is required?
10. How do you ensure that the other establishments are fully restocked?

3.2.4 Sales and Marketing Department

https://forms.gle/qvQhCTahczM6RReL7
1. How often are advertisements posted by the department? What form of advertisement is usually used? (Online, flyers, billboard, etc)
2. What is the average number of views of your advertisement/average click on advertisement online? (Frequency of exposure)
3. What are they ways to accumulate membership points? How many levels of membership are obtainable by customers?
4. Mind explaining what privileges of each level of membership obtainable by the customer?
5. What happens to the membership status of customer who were found violating the hotel's terms of service/regulations?
6. Are membership status transferable?
7. What is the most used alternatives of complain used by the customer? (Online, papers, face to face, etc)
8. How often are customer complain reviewed and responded? How do you reply to customer complain? (Through online, letters, etc)
9. How often are sales report generated?
10. How would you like to access your sales report? (Online/Physical)

3.3 Questionnaires

Questionnaires are general questions that are widely distributed to large numbers of people. It is useful as it can gather a lot of information from a short period of time. Questionnaires are easy to design and respondents can respond anonymously. This can ease the tension of those who have social anxiety.

3.4 Questionnaires Questions

Questionnaires are collected mostly from customer and lower departmental staff. There are a total of 10 questions within the questionnaire.

https://forms.gle/4ebFdM8hHAqqsSx69

1) Do you think that, with the current system it is easy to obtain relevant information to proceed with your work? (e.g.: schedules, customer details, etc.)

2) In reference to the previous question, why do you think so?

3) How satisfied are you with the current equipment or hardware that is provided for you?

4) Do you think that currently, given the current hardware the company provides, is in need of an upgrade?

5) On a scale of 1 to 5, how streamlined do you think that your current work is?

6) What changes do you think that, if done, would improve workplace efficiency or comfortability?

7) On a scale of 1 to 5, how easy have you found to communicate with your colleague within the same department or in other departments?

8) On a scale of 1 to 5, how easy have you found to coordinate with your colleague within the same department or in other departments?

9) What changes do you think can be made to further ease communication with your colleagues?

10) Do voice your other opinions unlisted in the survey on your current workplace.

4.0 System Analysis – Fact Recording

After understanding the existing problems and the operation of the system, the more detailed sections of the system are recorded. The new system details will then be converted into diagrams for easy reference and better understanding. Diagrams save time as you can tell exactly the features and flow of the system from a glance.
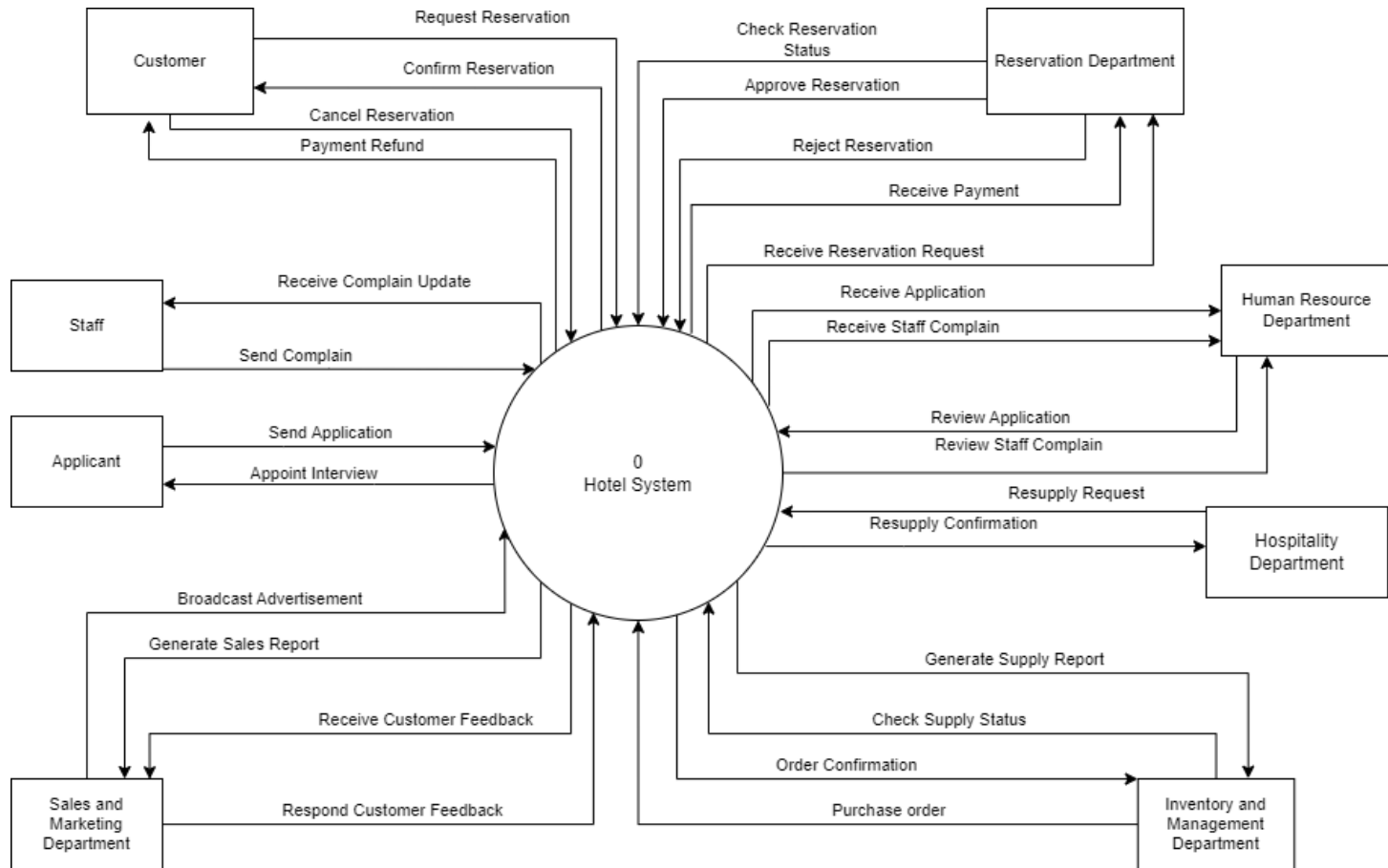
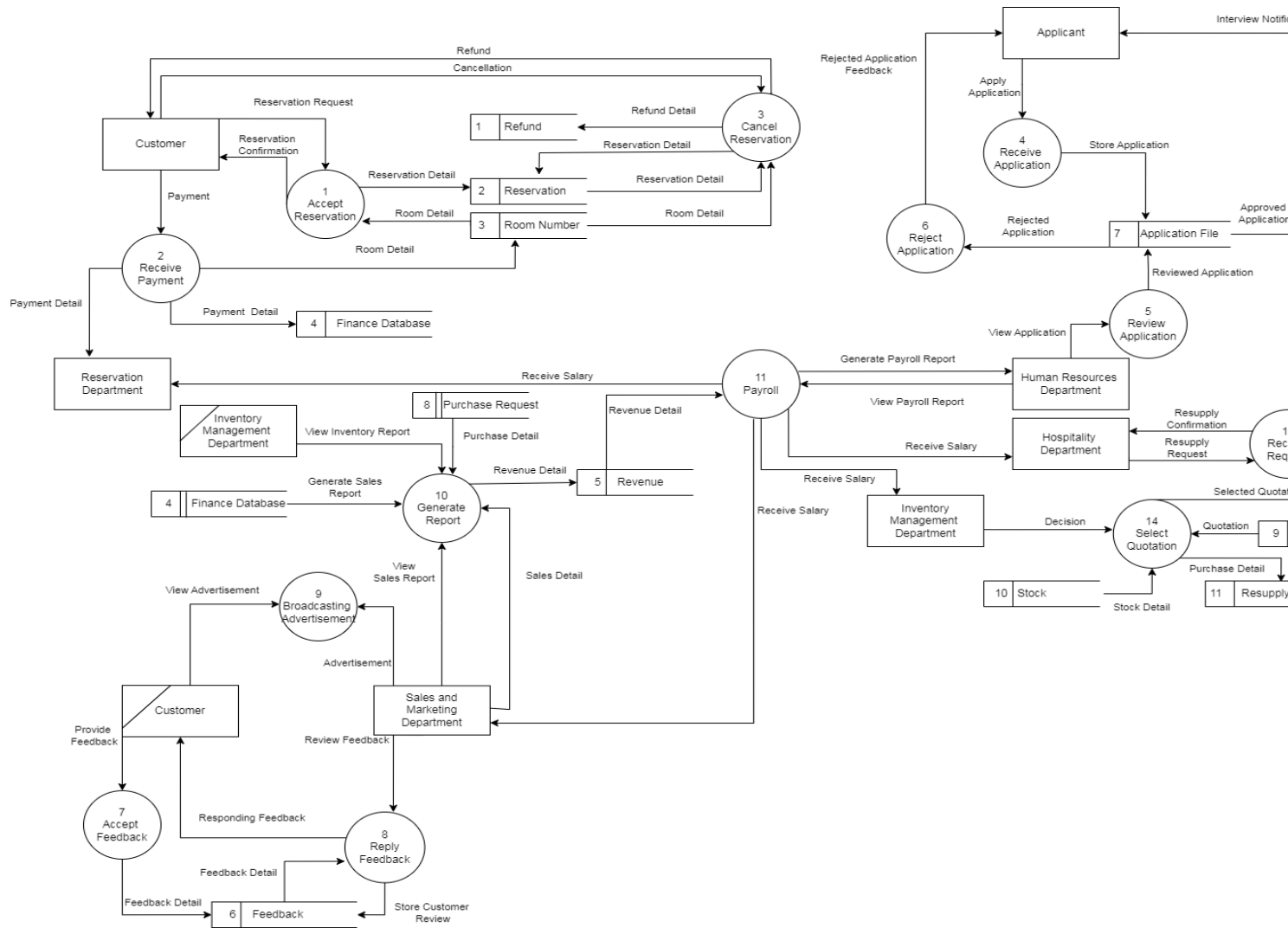## 4.1 Context Diagram

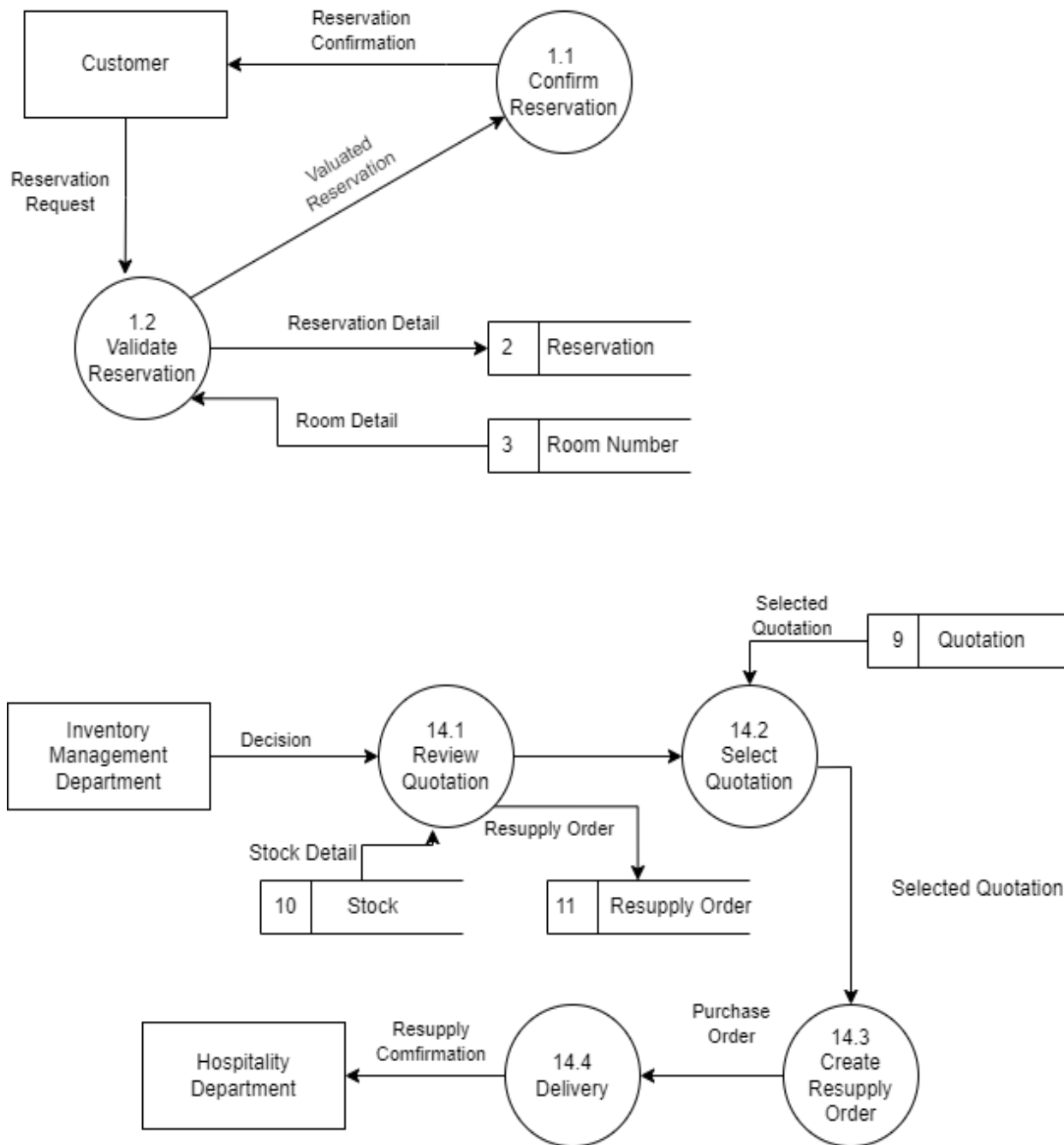Diagram 1.6

4.2 Diagram 0 DFD

Diagram 1.6

4.3 Diagram 1 DFD

Diagram 1.7 & 1.8
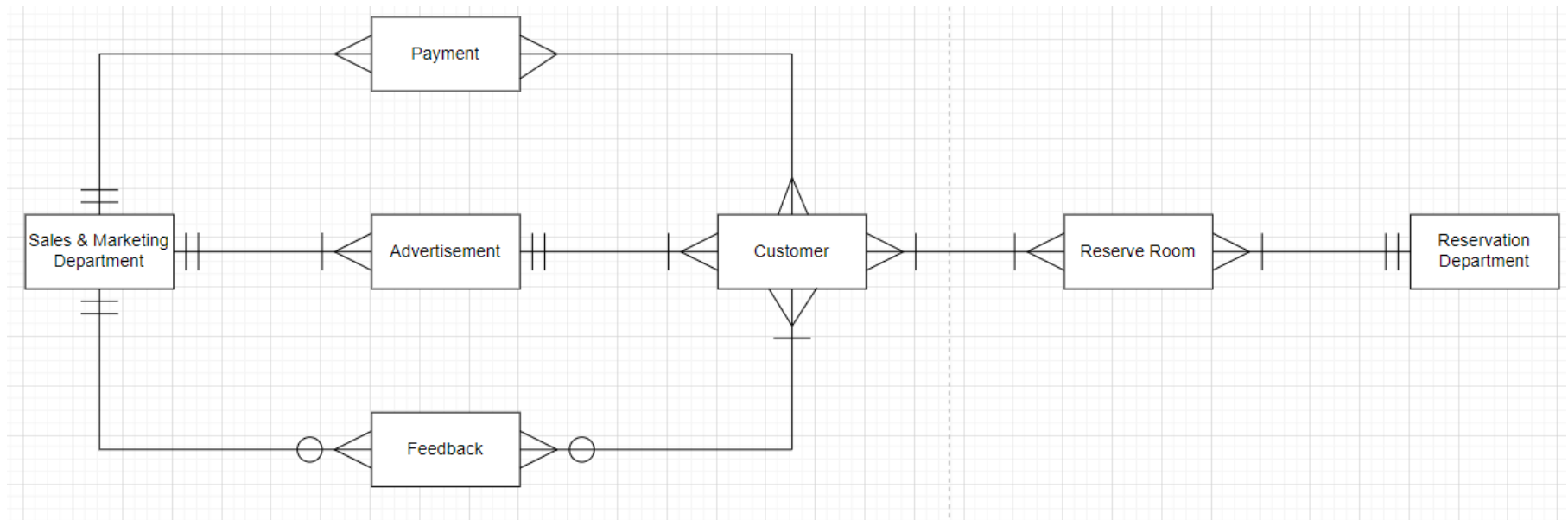
4.4 Initial ERD
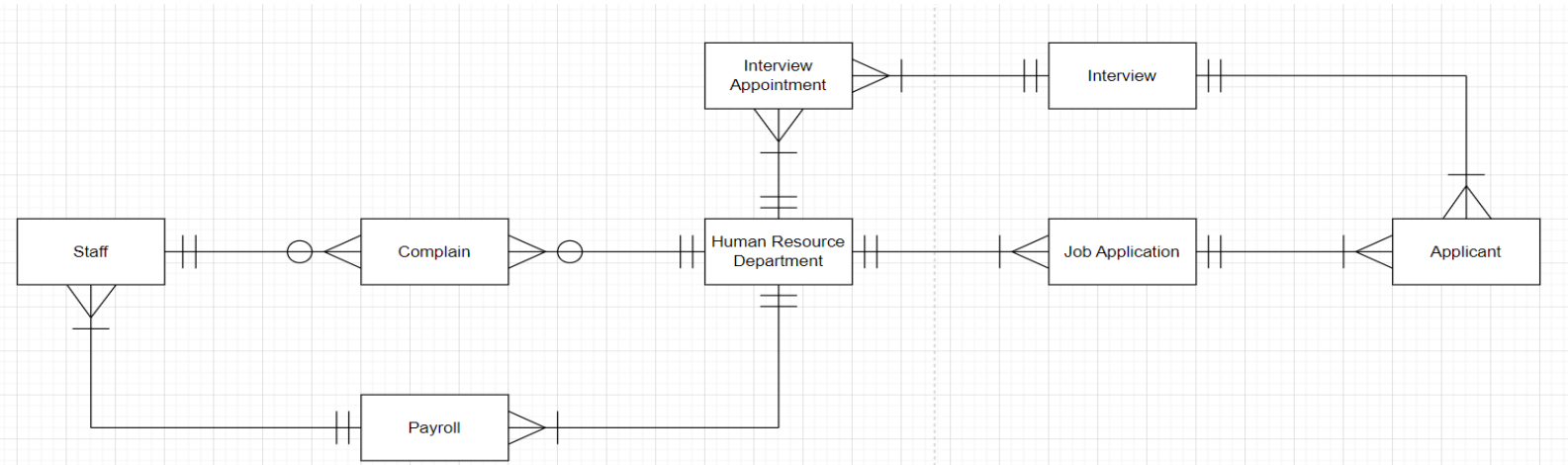
Diagram 1.9
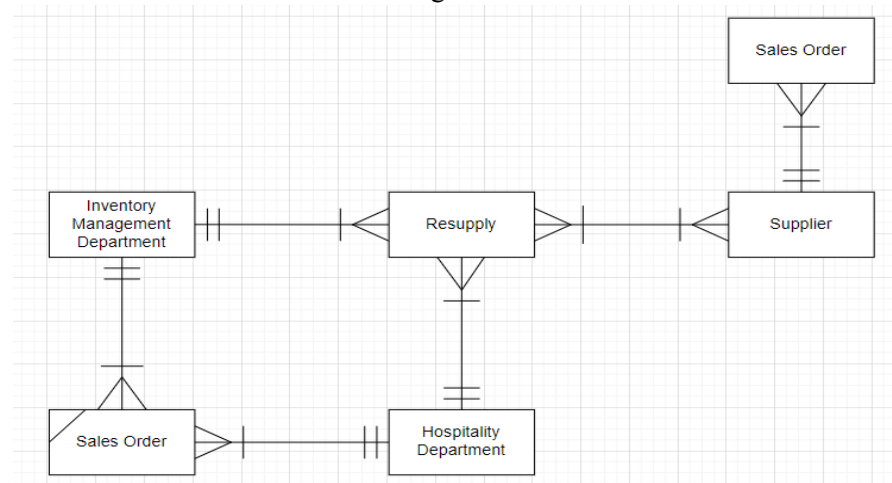
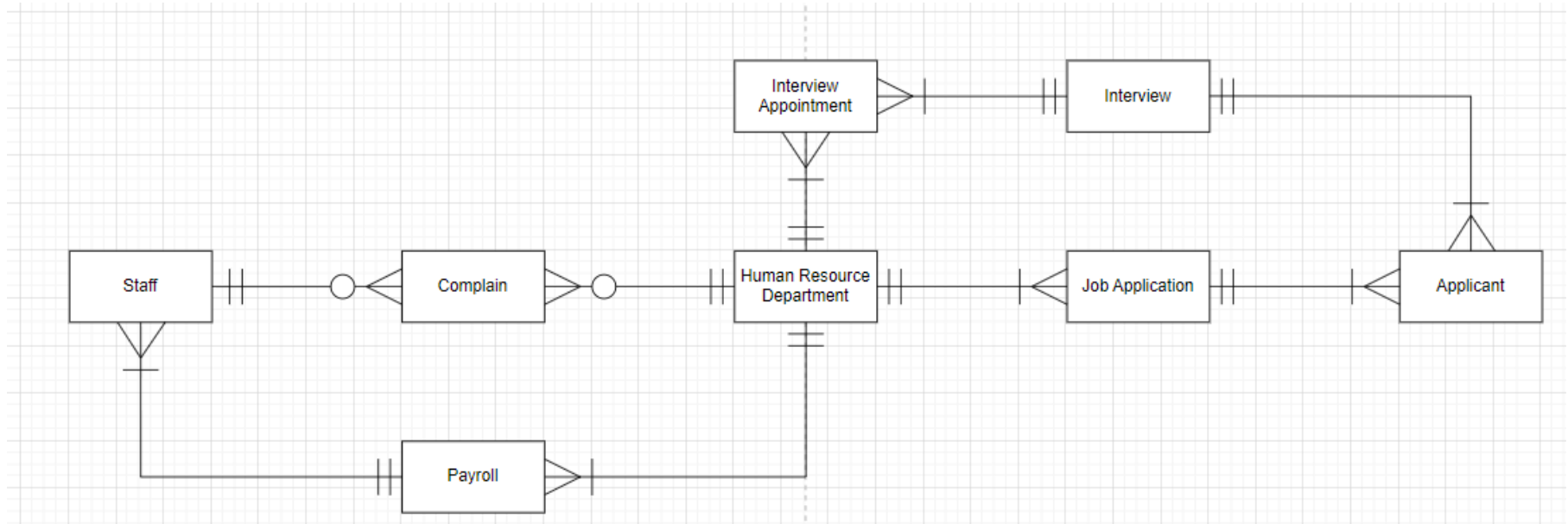Diagram 2.0

Diagram 2.1

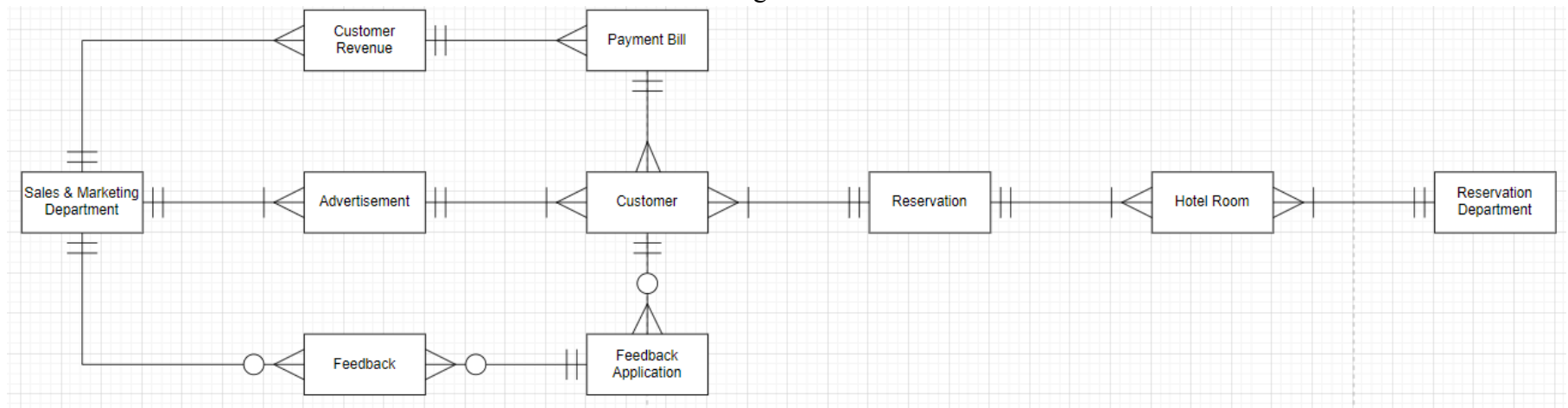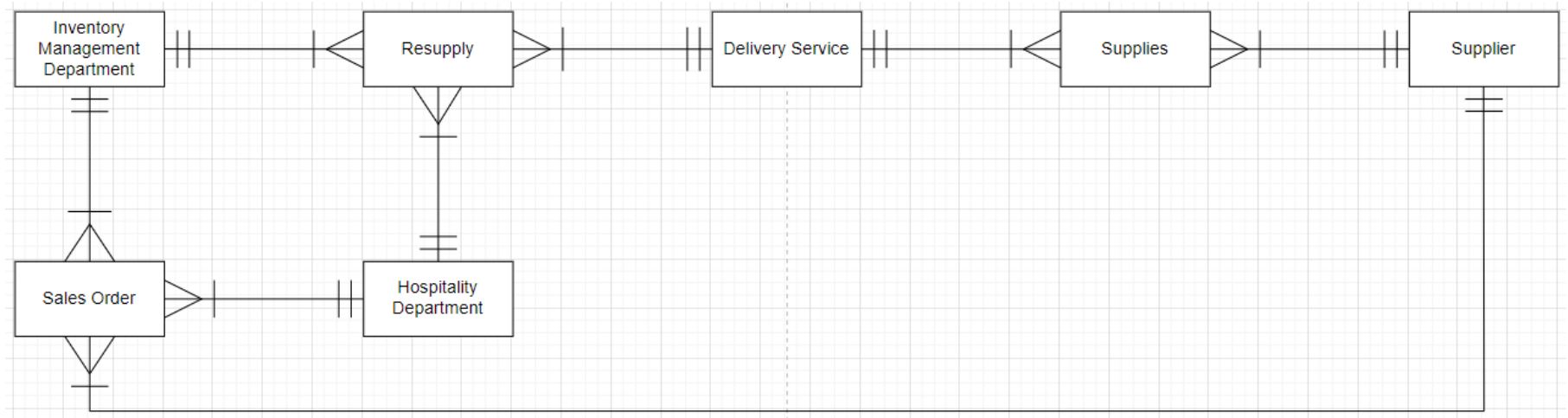# 4.5 Final ERD

Diagram 2.2

29

Diagram 2.3

Diagram 2.4

5.0 System Design - Functional Design

After gathering the facts and record, the system design phase will begin. Functional Design diagram is to help the client to understand features that are listed for the new system. As well as functions and features part will be describing what each module does and offers.
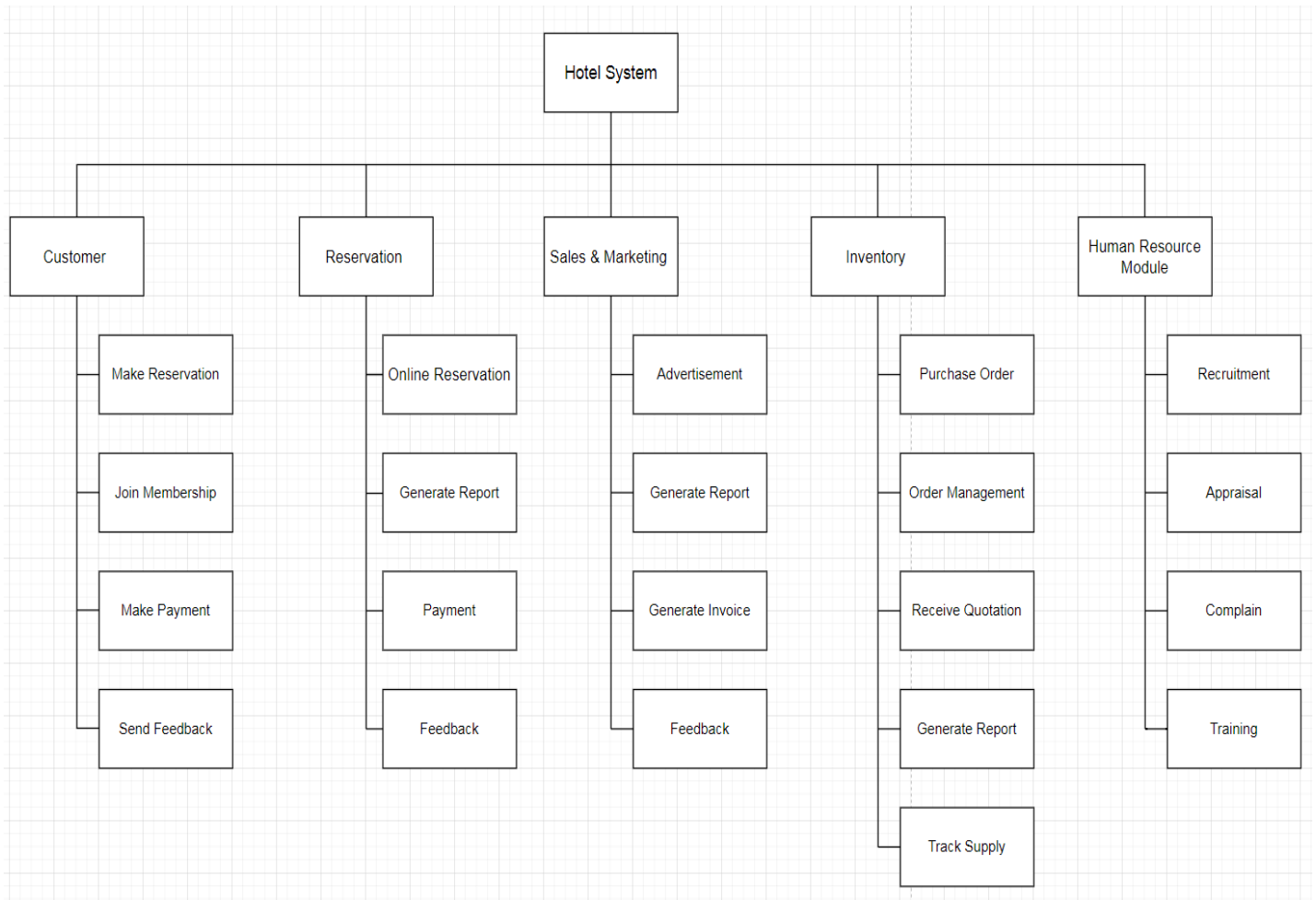
5.1 Functional Design

Diagram 2.5

5.2 Functions and Features

5.2.1 Online Reservation

When it comes to reservations, customers can make reservations through the website instead of making a phone call to the hotel. When the sufficient input required is satisfied, the website will automatically sort out the available website to the customer. The website allows customers to reserve the hotel with available rooms only. Any fully booked hotel will not be displayed in the sorted list of available hotels. The customer will then be required to create an account with very little time needed to confirm the reservation. After confirming the reservation, customers will be able to check their reservation status on the website. Customers don't have to worry about not knowing their reservation status anymore. For example, an email will be sent to the customer confirming and notifying them that the reservation had been confirmed. The customer will also be notified by the website when the booking date is near to remind them of their trip planning.

Whenever the customer feels like they don't want the reservation anymore, they can proceed to cancel the reservation from the website and send an email that confirms the cancellation of reservation. Reservation fee is free.

Besides that, the reservation department also has staff access to this system. Customers who made a reservation request will notify the department through the website/function. The department will then have to approve the reservation if there's no issues. The reservation information will then be stored into the system storage. The department is not only limited to approving the reservation, they can also reject the reservation request if there's any error in the process of reservation.

5.2.2 Join Membership

Customers who had made the payment or previous customer can register for membership. Membership is a newly introduced feature to encourage customers to use the hotel services more. Membership can either be registered online or walk-in any of the hotel group's branches. The customer just had to fill up their general personal particulars to register as a member. Membership is a progressive system that is used in many businesses.

Members can accumulate membership points by purchasing any of the hotel's product and services every time. Points are always reset after not making any purchase more than a year so that it gives them the tendency to keep using our services in order to keep their accumulated points. There are also different tiers of membership. For instance, accumulate until 10,000 points the customer will be given a silver tier which provides benefits like free laundry service and movie ticket. On the other hand, there are also lucrative rewards to be redeemed once the member has accumulated enough points.

The Sales & Marketing department will be managing this part of the feature. The department staff will be able to access the feature to check the customer's membership status when the customer requests to redeem a reward. The department will also notify and remind the customer when they almost reach the next tier or redeem reward. The department will be able to terminate the customer's membership if they were found violating the hotel's Terms and Services.

6.0 System Design – Input

This section will be the introduction of data input screen. It is the artist's impression of the new website user interface that will be developed. It is the visual guideline to both the client and the IT Company. The client will be able to have better understanding of the new system after taking a glance at the user interface.

6.1 Data Input Screen

6.1.2 Reservation User Interface

This is the first page of the website which will be introduced to the user. From this page, user can input their desired location, check-in and check-out date, and number of pax. After filling up the necessary input, the user can click "search" and the website will redirect the user to the best option available based on the user input.
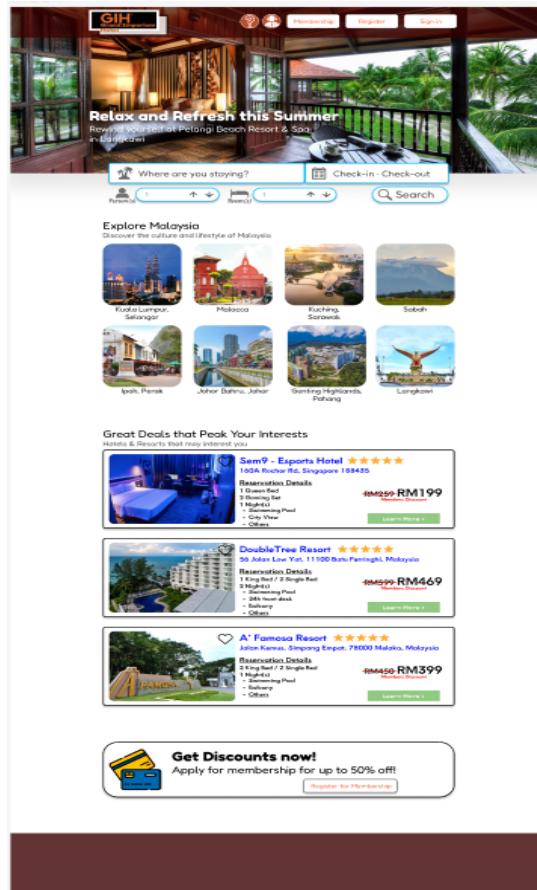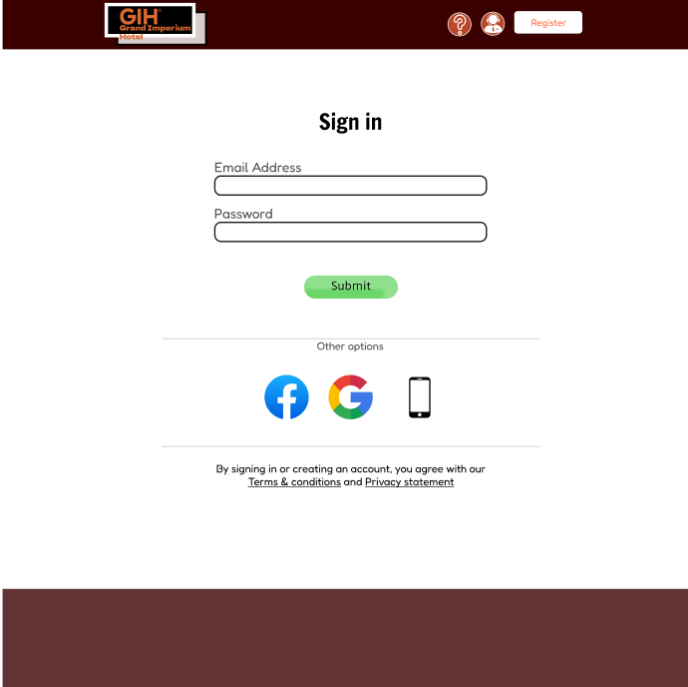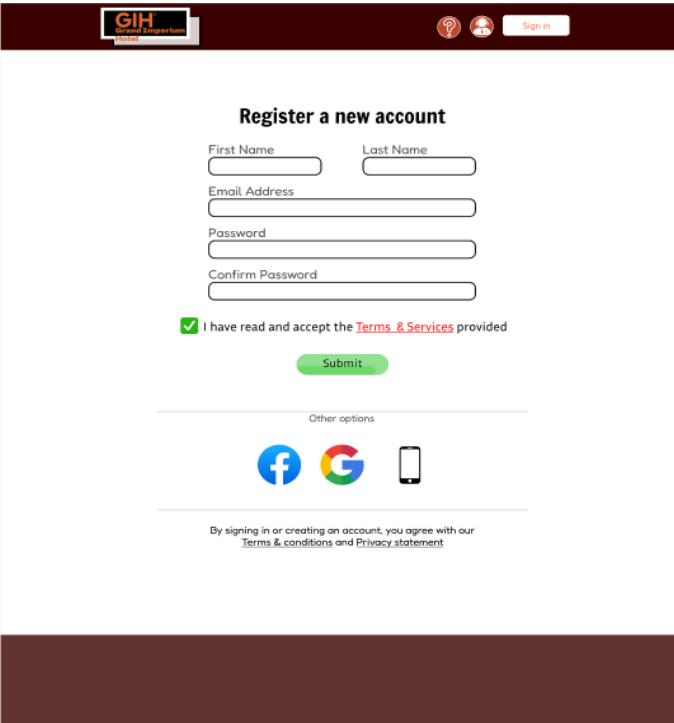

Diagram 2.6

6.1.3 User Account Interface

User is able to create an account or signing in existing account when they decided to confirm a booking. Only simple personal information is required for creating an account so that the hotel will be able to send in updates into their email or their personal account.

Diagram 2.7

Diagram 2.8

6.1.4 Membership Account Interface

After signing in the user may choose to register as a member for the hotel's membership programme. If the user didn't fill up the form correctly, there will be a alert message to ask them to fill in before submitting. Incorrect matching of the password will also inform the user.

Diagram 2.9

This page says ⚠   ✕
Please fill up form before submitting.

                                        Ok

Alert Box 2

This page says ⚠   ✕
Password does not match.

                                        Ok

Diagram 3.0

6.1.5 Recruitment User Interface

When it comes to Recruitment UI, applicants are required to fill up their desired job position and their respective area/city/region. Once the search button is clicked, the website/software will help the applicant to look for the job position available at the specific region. This had decrease the input time user spends on data entry.
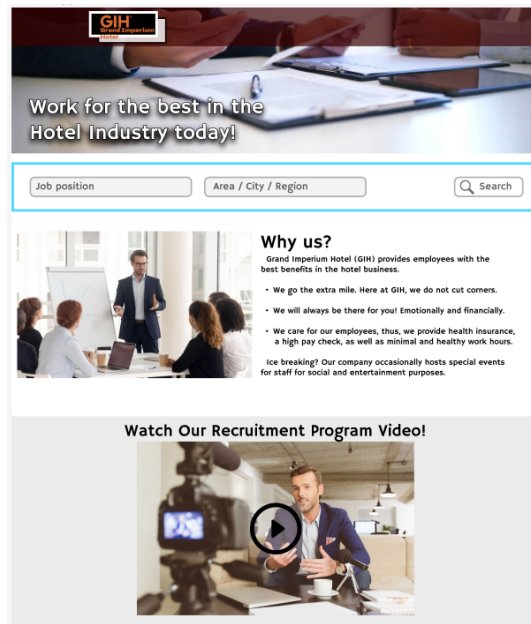
Diagram 3.1

Diagram 3.2

6.2 Validation Check (Diagram 2.9)

No.	Field Name	Input Method	Validation Check	Explanation
1.	First Name	Manual Key-in	Existence check	Ensure the data is present before proceeding to the next entry field.
2.	Last Name	Manual Key-in	Existence check	Ensure the data is present before proceeding to the next entry field.
3.	Email Address	Manual Key-in	Format check	Ensure data is the correct format for email before proceeding to the next entry field
4.	Create Password	Manual Key-in	Data Type check	Ensure data is the item required for creating a password. E.g, number, alphabet and symbol.
5.	Confirm Password	Manual Key-in	Data Type check	Ensure that the data entered in the previous field is

				correctly entered.
6.	Country/Province/State	Arrow Selection	Pull down list	A list of data will be provided when the pull down arrow is clicked.
7.	Address	Manual Key-in	None	Ensure that the data entered is the accurate location of your place.
8.	Checkbox (T&S)	Button	Checkbox	The checkbox must be checked before proceeding to register a membership account. To ensure that customers had read and accepted Terms and Services.
9.	Submit Button	Button	None	Users will be redirected to the membership page upon filling up the data field required.

7.0 System Design - Data Definition & Database

In this section, there will be database design that will be used in the new system. Databases are important as crucial data and information will be stored in the specifically designed form.

7.1 Attributes
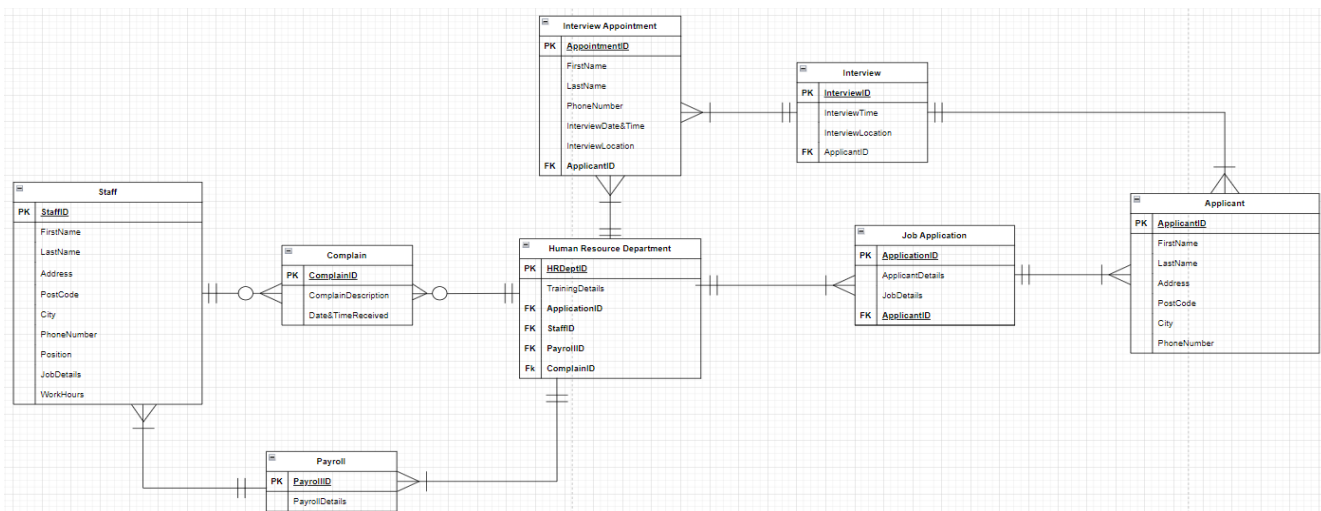
Diagram 3.3
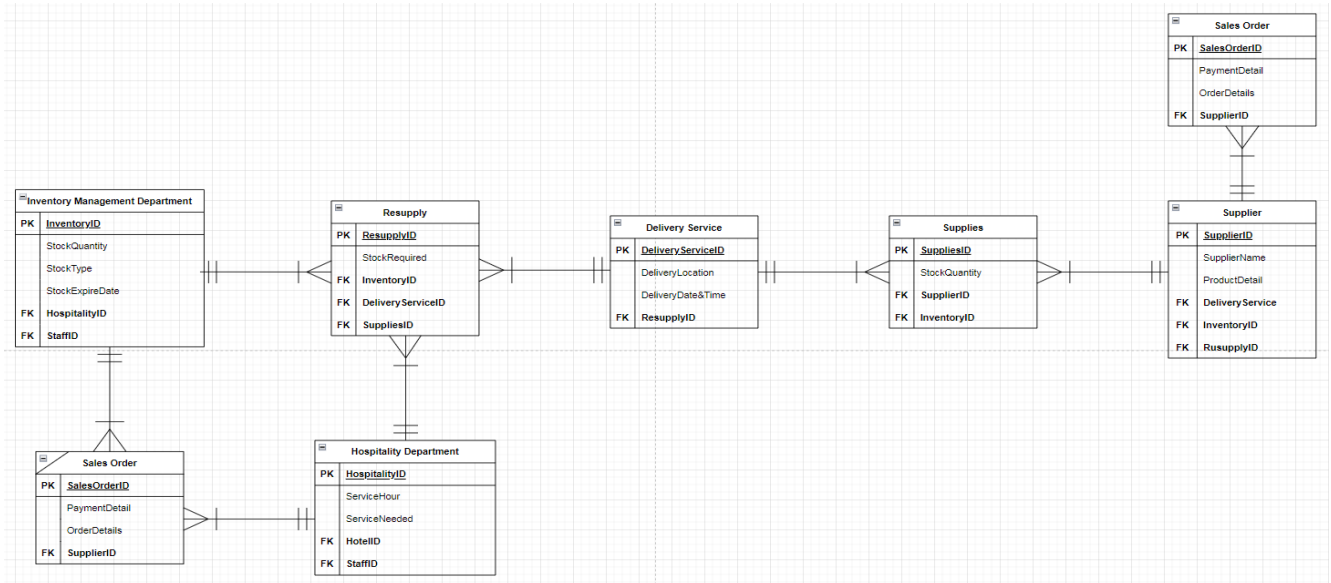
Diagram 3.4
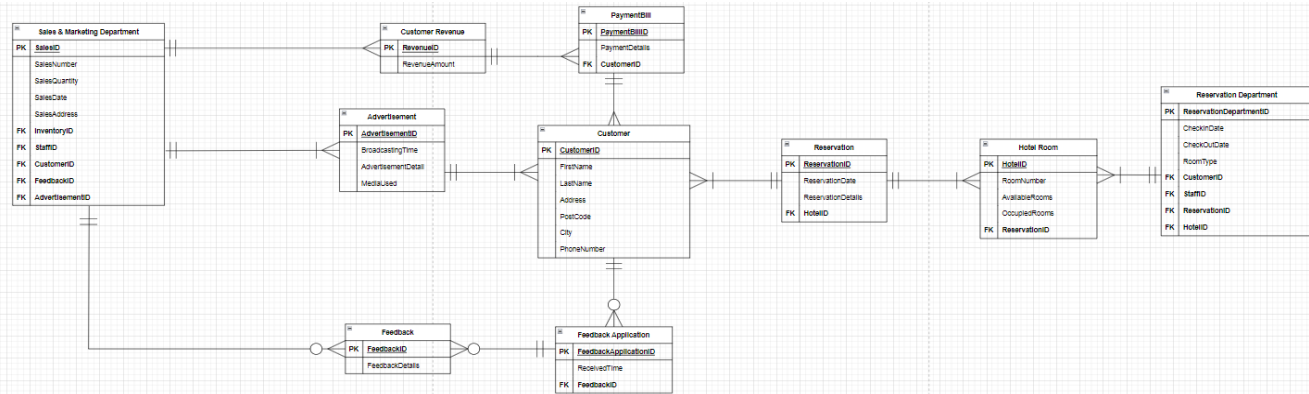
Diagram 3.5

7.2 Keys

Customer (<u>CustomerID</u> ,FirstName, LastName, Address, PostCode, City, PhoneNumber)

Staff (<u>StaffID,</u>FirstName,LastName,Address,PostCode,City,PhoneNumber,JobDetails,WorkHours)

Human Resource Department (<u>HRDeptID</u>, TrainingDetails, ApplicationID*, StaffID*, PayrollID*, ComplainID*)

Inventory Management Department (<u>InventoryID</u>, StockQuantity, StockType, StockExpiryDate, HospitalityID*, StaffID*)

Hospitality Department (<u>HospitalityID,</u> ServiceHour,ServiceNeeded, HotelID*, StaffID*)

Reservation Department (<u>ReservationDeptID</u>, CheckInDate, CheckOutDate, CustomerID*, StaffID*, ReservationID*, HotelID*)

Sales and Marketing Department (<u>SalesID</u>, SalesNumber, SalesQuantity, SalesDate, SalesAddress, InventoryID*, StaffID*, CustomerID*, FeedbackID*, AdvertisementID*)

 Complain (<u>ComplainID</u> ,ComplainDescription, Date&TimeReceived)

Payroll (<u>PayrollID</u> ,PayrollDetails)

Appointment (<u>AppointmentID</u> ,FirstName ,LastName ,PhoneNumber ,InterviewDate&Time ,InterviewLocation ,ApplicantID*)

Interview (<u>InterviewID,</u> InterviewTime, InterviewLocation, ApplicantID*)

Job Application (<u>ApplicationID</u> ,ApplicantDetails ,JobDetails ,ApplicantID*)

Application (<u>ApplicantID</u>, FirstName, LastName, Address, City, PhoneNumber)

Sales Order (<u>SalesOrderID</u>, PaymentDetail, OrderDetails, SupplierID*)

Resupply (<u>ResupplyID</u> ,StockRequired ,InventoryID* ,DeliveryServiceID* ,SuppliesID*)

Delivery Service (<u>DeliveryServiceID</u> ,DeliveryLocation ,DeliveryDate&Time ,ResupplyID*)

Supplies (<u>SuppliesID</u> ,StockQuantity ,SupplierID* ,InventoryID*)

Supplier (<u>SupplierID</u> ,SupplierName, ProductDetail, DeliveryService, InventoryID* ,ResupplyID*)

Customer Revenue (<u>RevenueID</u>, RevenueAmount)

Payment Bill (<u>PaymentBillID</u>, PaymentDetails, CustomerID*)

Advertisement (<u>AdvertisementID</u>, BroadcastingTime, AdvertisementDetail, MediaUsed)

Feedback (<u>FeedbackID</u>, FeedbackDetails)

Feedback Application (<u>FeedbackApplicationID</u>, ReceivedTime, FeedbackID*)

Reservation (<u>ReservationID</u>, ReservationDate, HotelID*)

Hotel Room (HotelID, RoomNumber, AvailableRooms, OccupatiedRooms, ReservationID*)

7.3 Codes Design

Code	Design
ReservationID Eg. 0004KS	**Significant Alphabetic Code** Branch Location Code - Floor number - Room type The first two digit represent the code number for the location of the branches customer reserved,The next two digit is the floor number of the reserve room. The two Alphabet represent the type of room customer reserve e.g (KS=King-Size)
CustomerID Eg. CTM420MN	**Significant Alphabetic Code** Customer- Customer Sequence Number- Membership Status- VIP status CTM represents customer while the next 3 digits represent the customer's sequence The next Alphabet represents their membership status (M= member, N= non-member) The last Alphabet denotes their VIP status (V= VIP, N= non-VIP).
WarehouseID Eg. 04030409	**Significant Digit Code** Warehouse Location Code - Floor number - Section number- Row number Warehouse location is the first two digit, the next two digit is the floor number The next two digit is the the section number. The last two digit is the row number.
ApplicantID Eg. APP103HRTR	**Significant Alphabetic Code** Applicant-Applicant Sequence Number- Department- Position Applicant is denoted by APP. The next 3 digits denotes the applicant's sequence.The Nex 2 Alphabets Denote the department of the applied position and the last 2 alphabet denotes the position applied by the applicant.
StaffID Eg. STF420HRM	**Deriviation Code** Staff- Staff Sequence- Department- Position Staff is represented by the abbreviation STF. The next 3 digits represent the staff's sequence. The next 2 alphabets denotes the department the staff works in while the last alphabets represent the position of the staff (eg. manager).

Diagram 3.6

7.4 Data Records

CustomerID	First Name	Last Name	Address	PostCode	City	PhoneNumber
CTM001MV	Chou	MeiMei	Pasar Besar GBN2 Jln Jeloh 2, 43000, Kajang, Selangor, Malaysia	43000	Kajang	322741158
CTM002NN	Zhong Li	Lee	60, Jalan Masjid, Taman Jubilee, 30105 Ipoh, Perak, Malaysia	30105	Ipoh	322741158
CTM003NV	Molly	Nancy	56, Lorong Bukit Juru, Taman Bukit Juru, 11005 Simpang Ampat, Pulau Pinang, Malaysia	11005	Simpang Ampat	340432585
CTM004NN	Alablaster	Thompson	99, Persiaran Kewajipan, 47636 Subang Jaya, Selangor, Malaysia	47636	Subang Jaya	392220600
CTM005MN	Sonia	Sanic	72, Jalan Dato Tahwil Azhar, Osborne Street, 30108 Ipoh, Perak, Malaysia	30108	Osborne Street	124022480
CTM006NN	Veronica	McGee	7, Stewart Ln, George town, 10757 George Town, Penang, Malaysia	10757	George Town	333236008
CTM007MN	Cole	Cassidy	49, Jalan Dato Seri Ahmad Said, Greentown Utama, 30593 Ipoh, Perak, Malaysia	30593	Greentown Utama	333929188
CTM008NV	Jassey	McCree	64, Jalan Macalister, 1072 George Town, Pulau Pinang, Malaysia	1072	George Town	340436384
CTM009MN	Riley	Seguhstar	6, Jalan Dato Tahwil Azhar, Osbrone Street, 30485 Ipoh, Perak, Malaysia	30485	Ipoh	356328084
CTM010MN	Fatin	Fatimah	3, Jalan Macalister, 10602 George Town, Pulau Pinang, Malaysia	100620	Pulau Penang	168786073

Diagram 3.7

ReservationID		Customer Name	Reservation Date	Check-In	Check-Out
0304SB		Billy Ming	8/7/22	16/09/22	18/9/22
0006DB		Lee Zhong Li	8/7/22	20/09/22	24/9/22
0707KS		Gugu Gaga	10/7/22	20/09/22	22/9/22
0305DB		Alablastor Thompson	12/7/22	22/09/22	24/9/22
0209KS		Sonia Sanic	14/7/22	23/09/22	27/9/22
0210KS		Veronica McGay	16/7/22	23/09/22	26/9/22
0708QS		Cole Cassidy	5/8/22	07/10/22	10/10/22
0709KS		Jessie McCree	6/8/22	07/10/22	9/10/22
0204SB		Riley Seguhstar	6/8/2022	10/10/22	13/10/22
0305DB		Fatin Fatimah	10/8/2022	10/10/22	14/10/22

Diagram 3.8

InventoryID	Quantity (box)	Type (code)	ExpireDate
11020210	27	1002	07/06/2026
11010310	30	2104	06/04/2024
20010211	12	2113	9/1/2023
10100209	10	2090	12/1/2023
2030310	21	3023	4/8/2023
3040503	23	3090	9/7/2024
11010104	30	1001	07/08/2026
1030303	21	2001	09/04/2024
20312009	9	2069	07/03/2024
10032028	7	2420	06/09/2025

Diagram 3.9

ApplicantID	FirstName	LastName	Address	City	PhoneNumber
APP001HRMR	Helena	Humphrey	6, Jalan Masjid, Taman Elizabeth, 30105 Ipoh, Perak, Malaysia	Ipoh	(60) 12-456-9876
APP002HSCR	George	Mckenlley	30, Lorong Bukit Guru, Taman Bukit Juru, 11005 Simpang Ampat, Pulau Pinang, Malaysia	Simpang Ampat	(60) 12-555-3333
APP003RDRT	Binti Abu Bakar	Safiyya Aliaa	88, Persiaran Kewajipan, 47936 Petaling Jaya, Selangor, Malaysia	Petaling Jaya	(60) 16-656-7788
APP004HSMR	Foo	Ling Mei	31, Jalan Dato Tahwil Azhar, Osborne Street, 30108 Ipoh, Perak, Malaysia	Osborne Street	(60) 18-434-2313
APP005HSCF	Bin Hamedi	Ahmad Faliq	71, Stewart Ln, George town, 10757 George Town, Penang, Malaysia	George Town	(60) 14-034-6131
APP006IMMR	Chou	McShinlley	49, Jalan Dato Seri Ahmad Said, Greentown Utama, 30593 Klang, Selangor, Malaysia	Greentown Utama	(60) 10-767-3333
APP007SMSS	Nicholas	McNicholas	65, Jalan Macalister, 1072 Petaling Jaya, Selangor, Malaysia	Petaling Jaya	(60) 19-868-4444
APP008SMSA	Ranjeev	A/L Sanjeev	61, Jalan Dato Tahwil Azhar, Osborne Street, 30485 Ipoh, Perak, Malaysia	Ipoh	(60) 11-040-2567
APP009IMIH	Orion	Lousey	32, Jalan Macalister, 10602 George Town, Pulau Pinang, Malaysia	George Town	(60) 15-010-8888
APP010HSMN	Tiffany	O'vert	10, Jalan Macalister, 1072 George Town, Pulau Pinang, Malaysia	George Town	(60) 12-112-2365

Diagram 4.0

StaffID	FirstName	LastName	Address	Postcode	City	PhoneNumber	JobDetails	WorkHours
STF101HRMR	Helena	Humphrey	6, Jalan Masjid, Taman Elizabeth, 30105 Ipoh, Perak, Malaysia	30105	Ipoh	(60) 12-456-9876	Manager of HR Department Team 1	9
STF102HSCR	George	Mckenlley	30, Lorong Bukit Guru, Taman Bukit Juru, 11005 Simpang Ampat, Pulau Pinang, Malaysia	11005	Simpang Ampat	(60) 12-555-3333	Cleaner, HS Cleaner Team 2	9
STF103RDRT	Binti Abu Bakar	Safiyya Aliaa	88, Persiaran Kewajipan, 47936 Petaling Jaya, Selangor, Malaysia	47936	Petaling Jaya	(60) 16-656-7788	Reservationist, RD Reservationist Team 3	8
STF104HSMR	Foo	Ling Mei	31, Jalan Dato Tahwil Azhar, Osbrone Street, 30108 Ipoh, Perak, Malaysia	30108	Osborne Street	(60) 18-434-2313	Manager of HS Department Team 10, Responsible for managing floor 10	9
STF105HSCF	Bin Hamedi	Ahmad Faliq	71, Stewart Ln, George town, 10757 George Town, Penang, Malaysia	10757	George Town	(60) 14-034-6131	Chef, HS 5th Chef Team	9
STF106IMMR	Chou	McShinlley	49, Jalan Dato Seri Ahmad Said, Greentown Utama, 30593 Klang, Selangor, Malaysia	30593	Greentown Utama	(60) 10-767-3333	Manager of IM Department Team 5, Responsible for managing warehouse 5	9
STF107SMSS	Nicholas	McNicholas	65, Jalan Macalister, 1072 Petaling Jaya, Selangor, Malaysia	1072	Petaling Jaya	(60) 19-868-4444	Sales Specialist, SM Department Team 9	8
STF108SMSA	Ranjeev	A/L Sanjeev	61, Jalan Dato Tahwil Azhar, Osbrone Street, 30485 Ipoh, Perak, Malaysia	30485	Ipoh	(60) 11-040-2567	Sales Assistant, SM Department Team 8	8
STF109IMIH	Orion	Lousey	32, Jalan Macalister, 10602 George Town, Pulau Pinang, Malaysia	10602	George Town	(60) 15-010-8888	Inventory Handler, Handles Inventory, IM Department Team 9	9
STF110SMSS	Tiffany	O'vert	10, Jalan Macalister, 1072 George Town, Pulau Pinang, Malaysia	1072	George Town	(60) 12-112-2365	Sales Specialist, SM Department Team 10	8

Diagram 4.1

8.0 System Design - Reports

This section is the introduction of various reports like Summary Report and Exception Report. Reports are crucial to the top directive of the company because they require accurate and up-to-date report to make future decision for the growth of the company.

8.1 Summary Report

Legend				
Sales Revenue (MYR)	0 - 300,000	300,001 - 600,000	600,001 - 900,000	>900,000
Colour Code				

	Month	Week 1	Week 2	Week 3	Week 4	Total Sales
	Sales Revenue Report 2022					
Highest	February	480,932	431,511	450,718	500,717	1,863,878
	December	390,181	440,686	413,595	480,289	1,724,751
	January	300,282	320,192	291,828	380,191	1,292,493
	November	250,727	281,283	373,811	253,383	1,159,204
	January	200,282	193,181	240,282	319,292	953,037
	October	172,181	182,282	250,282	240,181	844,926
	September	200,281	238,822	182,294	200,281	821,678
	August	140,191	170,282	120,181	160,822	591,476
	July	120,191	124,282	182,191	154,181	580,845
	June	74,282	84,282	80,187	60,833	299,584
	May	50,722	58,182	68,383	78,102	255,389
	April	49,282	48,282	58,189	40,389	250,748
Lowest	March	36,292	36,292	31,272	29,101	132,957

Diagram 4.2

45

8.2 Exception Report

Legend	
Day of Abscence	
<= 2	
>= 3	

Diagram 8.2.1

Absence Report (December) 1/12-31/12/22					
Week		**Employee Name**	**Positions**	**Duration of Absence in Days**	**Weekly Total**
1		Thompson, Thomas	Hospitality Manager	3	
		Harry, Harrison	Head Chef	1	
		Peterson, Hugh	Human Resource Manager	2	
		Peterson, Jack	Security Guard	2	
		Muhammed Ali	Security Guard	2	
					10
2		Edison, Cason	Hospitality Manager	3	
		Thompson, Halsey	Reservation Dep Manager	3	
		Xiao Lin, Chew	Accountant	1	
		Janus, Jason	Sales Assistant	2	
		Jefferson, Jeff	Sales Assistant	2	
					11
3		Thompson, Elias	Sales and Merketing Manager	3	
		Washington, George	HR Manager	2	
		George, Bush	HR Operations Assistant	2	
		Karen, Cassedy	Receptionist	1	
		Ranjeev A/L Yujiro Hanma	BellBoy	1	
					9
4		Maddison, Laurey	Reservation Manager	4	
		Johnson, John	Hospitality Manager	4	
		Davis, Donald	Security	3	
		Fawkes, Guy	Cleaner	3	
		Fakimah Bin Ahmad	Cleaner	3	
		Ford, Harrison	Cleaner	3	
		Yi Long Ma	Chef	3	
					23
5		Thompson, Thomas	Hospitality Manager	3	
		Jackson, Samuel	Inventory Mangement Manager	3	
		Chong Si Ma	Receptionist	2	
		Saab, Ana	Receptionist	2	
		Anderson, Susie	Receptionist	2	
		Dickerson, Sally	Stock Handler	2	
		Ramsy, Rom Rom	Head Chef	2	
		Bent O'vert	Cleaner	4	
		J. Jonah Jameson	Cleaner	4	
					24
Monthly Total Absent Days					77

Diagram 4.3

Legend	
Price 150-250	
Price 251-350	
Price 351-450	
Grand Total	

Reservation Cancellation Report (December)				
Room Number	**Reservation Date**	**Cancellation Date**	**Room Type**	**Price (RM)**
609	12/10/22	4/12/22	King-Size Bedroom	450
420	04/09/22	12/12/22	Double Bed Bedroom	250
220	31/08/22	20/12/22	Queen-Size Bedroom	300
125	14/09/22	21/12/22	Single Bedroom	150
302	7/10/22	18/12/22	Double Bed Bedroom	250
GRAND TOTAL				1400

Diagram 4.4

No.	Report Title	Content	User	Purpose
1.	Sales Revenue	This report shows the total sales revenue of each month from January to December,	Sales Manager will be in charge of the total sales every month.	To summarise the business sales' activities and analyse the success of each one, which will be useful to make decisions on which month needs more marketing efforts.
2.	Overtime Report	This report serves as an analysis and evaluation of the working hours of employees	The HR Department will manage the overtime report and salary.	To help identify whether paid overtime can truly benefit from the business in terms of productivity and workforce efficiency.
3.	Reservation Cancellation	This report shows all reservation originally booked for a specific date that have since been cancelled by customers	Receptionist will manage the cancellation of the reservation from customers	To view all reservations cancelled and lost for a specific cancellation date range or specific arrival date that affects sales revenue.

Appendix

Table of Meetings

Weeks	Members	Explanation
Week 1	Aloysius Khoo Yeoh Man Tik Khoo Li Xuan Gregory Chia Nicholas Lim	First discussion held on practical class for 4 hours. Briefing from tutor for the assignment and tasks for the following week.
Week 2	Aloysius Khoo Yeoh Man Tik Khoo Li Xuan Gregory Chia Nicholas Lim	Discussion during practical class for about 4 hours. Briefing from the tutor for the following week's tasks.
Week 3	Aloysius Khoo Yeoh Man Tik Khoo Li Xuan Gregory Chia Nicholas Lim	Discussion during practical class for about 4 hours. Briefing from the tutor for the following week's tasks.
Week 4	Aloysius Khoo Yeoh Man Tik Khoo Li Xuan Gregory Chia Nicholas Lim	Discussion during practical class for about 4 hours. Briefing from the tutor for the following week's tasks.
Week 5	Aloysius Khoo Yeoh Man Tik Gregory Chia Nicholas Lim	Discussion during practical class for about 4 hours. Briefing from the tutor for the following week's tasks. One member missing due to Covid.
Week 6	Aloysius Khoo Yeoh Man Tik Khoo Li Xuan Gregory Chia Nicholas Lim	Submission of assignment and presented to the tutor during practical class.

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