FACULTY OF COMPUTING

SEMESTER II - SESI 2023/2024

SECD2613-09 SYSTEM ANALYSIS AND DESIGN

GROUP PROJECT - P1

System Analysis and Design (Group 5): Development of an Online Booking and Reservation Platform

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1.0 Introduction

In today's fast-paced world, people are pursuing higher efficiency, so convenience and accessibility are paramount in every aspect of our lives. Whether it's booking a table at a restaurant, reserving a hotel room, or securing tickets for an event, the ability to make arrangements smoothly and seamlessly is very essential. However, traditional methods of booking and reservation often involve time-consuming phone calls, manual paperwork, and potential miscommunications, leading to frustration for both businesses and customers alike.

Regarding this situation and to fulfill modern era needs, we propose the development of an online booking and reservation platform. This platform aims to revolutionize the way bookings are made across various industries, providing a user-friendly interface that streamlines the entire process. By harnessing the power of technology, we seek to address the shortcomings of traditional booking methods and offer a comprehensive solution that benefits businesses and customers alike.

2.0 Background Study

During the bustling festive season, hotel reception areas become a whirlwind of activity. The influx of guests seeking accommodation creates a pleasant yet chaotic atmosphere. Straits View Hotel JB, like many other properties, grapples with constant overcrowding. Operational challenges impact guest satisfaction and overall results. These challenges include congestion at the reception desk, resulting in long waiting times during check-in and check-out. Additionally, incomplete guest information arises due to a lack of synchronization between online travel agencies (OTAs) and the hotel system. Furthermore, data security risks emerge from non-compliant credit card authorization forms, potentially compromising guest data security.

Even if guests have booked through the system, they still need to visit the receptionist to register their attendance. This manual step delays the guest experience. To address this, we propose designing a user-friendly website that streamlines the check-in process, eliminates unnecessary steps, and saves time for guests.

3.0 Problem Statement

1. **Users need to come to the hotel to make a reservation.**

   When guests choose to book in person, they physically visit the hotel's front desk. There, they can interact directly with hotel staff, providing details such as check-in and check-out dates, room preferences, and any special requests. However, handling bookings manually is time-consuming. Receptionists must interact with each guest individually, gather information, and record details, which can lengthen the registration process. Moreover, during peak hours or busy seasons, wait times can frustrate guests. Additionally, guests must coordinate their reservation requests with the receptionist's working hours.

2. **Requires a lot of energy and time for business.**

   In hotel management, various roles are performed by each hotel employee to facilitate efficient operations. However, relying solely on manual labor can be resource-intensive. For instance, at the hotel reception, multiple employees handle guest registrations, which can lead to time wastage. By streamlining processes and leveraging technology, we can free up staff to focus on other essential tasks, such as housekeeping and customer service.

3. **There are many negligence in the manual booking process.**

   In the manual booking process, several areas of negligence can impact hotel operations. Data entry errors, such as wrong names and dates, can cause confusion and affect the guest experience. Reservation dates may be inaccurately recorded, leading to overbooking or underutilization of rooms. Room allocation challenges, such as mismatched options and ignoring special requests, can also occur. Assigning a room that doesn't align with the guest's preferences can result in dissatisfaction. Additionally, privacy and security risks arise from manual credit card authorization forms, potentially compromising guest data security. Hotels must adhere to privacy regulations when handling guest information to maintain trust and safeguard sensitive data.

4. **Low guest Satisfaction Scores.**

   When hotel management fails to satisfy present guests, they often receive negative feedback. Unhappy guests share their experiences online, impacting the hotel's reputation. This not only affects future guests but also creates a stressful working atmosphere for employees. Ultimately, guests feel less comfortable due to unsatisfactory service.

5. **The hotel will bear the losses that will occur.**

   The hotel will bear the loss because all guests make orders physically. If the negligence occurs from the management, the hotel has to bear it. But if it's a guest, the hotel needs to look at the problem first and then they help them. This is because the customer is always right. This matter is very important to maintain the reputation and feedback of the guests who come. Even this thing cannot be expected to happen. This should be avoided. The hotel must also provide sufficient training to all staff so as not to be negligent.

4.0 Proposed Solutions

We are going to implement a great system called Rer.com.This system is going to transform the booking experience for our users, ensuring a seamless and efficient process when booking accommodation through our website. With this new initiative, our users will have access to a wide range of features designed to simplify the booking process and enhance their overall experience from real-time access to secure payment options. We are also committed to providing a hassle-free and user-friendly platform for all customers.

Rer.com is an online hotel reservation website that can be accessed anytime and anywhere so users do not have to come to the hotel or make a phone call for reservations which usually can only be done at a specific time. We believe a user-friendly interface is paramount for any

successful hotel reservation system. In particular, our system boasts a clean and simple design, which allows users to navigate easily in all areas. Whether booking a hotel, checking room information, or finalizing a registration, users should find the process seamless and effortless. By prioritizing a simple and clear design, this system can provide greater user satisfaction and simplify the overall booking experience.

Our system simplifies the booking process and greatly reduces the manual effort of visitors and hotel staff. Instead of using the traditional methods of booking, visitors can simply use the system to search for available rooms, select dates and preferences, and complete bookings in a few minutes. This system reduces manual data entry and reduces the workload of hotel staff to manually process reservation requests or the availability checklist. In addition, this website will notify visitors via email and SMS so hotel staff do not need to contact visitors to ensure that visitors receive timely information about their reservations. It also prevents hotel staff from disturbing visitors. Overall, this system will simplify work, increase productivity, and enhance the overall visitor experience.

Unlike traditional methods based on manual data entry, which are prone to human error, Rer.com automate the registration process from start to finish without making it redundant as manual input of guest information, dates and room availability. These systems use real-time updates and synchronization across multiple platforms to ensure room availability is accurately reflected to prevent overbooking situations. Our system also automated confirmation email notifications further to reduce the risk of miscommunication and errors and provide guests with accurate and timely information about all their reservations. So, our systems will improve efficiency and accuracy while improving the overall guest experience.

Other than that, Rer.com will also be collecting valuable data and insights about customer preferences, booking trends and business performance through their integrated analytics features by tracking user behaviour and interactions on this platform, such as search queries, booking history and navigation patterns. This data will be analyzed to identify popular destinations, room variety preferences, and ordering patterns. This data also will be represented in simple ways on our website so our users can make comparisons between hotels they want to book easily. It will

ensure users book the best hotel according to their preferences quickly and easily. Overall, this feature is very useful for users, especially for those who want to book a hotel for the first time.

Technical feasibility

Rer.com is a website that can be accessed on mobile and PC. In order to create a great hotel reservation website a few things must be examined to determine whether current technological resources are sufficient to develop a website for hotels. Firstly, we need to examine our hardware infrastructure, including servers and network equipment, to ensure it can handle the anticipated website traffic and data storage requirements. Additionally, we should assess our access to necessary software licenses, development tools, and technical expertise in web development, database management, and security protocols. Integration with existing systems and compliance with security standards and data protection laws are also crucial factors to consider. By carefully analyzing these factors, we are able to put our system in the best state.

Operational feasibility

It is important to carefully analyze the human resource requirements for the post-installation operation of the infrastructure. This course will look at the skills of our team members in managing different parts of the system, including servers, databases and booking platforms. We will identify any knowledge or skills gaps in the hotel and our existing staff and create a customized training program to be done to handle them properly. Maintaining the staff in good performance will provide exceptional service to our guests. By fostering a culture of continuous learning and improvement, we will empower all the staff to lead business trends and optimize the long-term performance of our retention programs. With this study, we aim to ensure that our systems work seamlessly and provide guests with an unparalleled booking experience.

Economic Feasibility (CBA)

Assumptions	
Discount rate	10%
Sensitivity factor (cost)	1.1
Sensitivity factor (benefit)	0.9
Annual change in production cost	7%
Annual change in benefit	5%

Estimated cost	
Hardware	RM 10 000
Software	RM 7 000
Training	RM 10 000
Maintenance	RM 2 500 per year
Salary	RM 40 000 per year

Estimated benefit	
Increase Sales	RM 50 000 per year
Saving	RM 40 000 per year

Cost	Year 0	Year 1	Year 2	Year 3
Development cost:				
Hardware	11 000			
Software	7 700			
Training	11 000			
Total	29 700			
Production Costs				
Maintenance		2 750	2 943	3 149
Salary		44 000	47 080	50 376
Annual Production cost (Present value)		46 750 42 500	50 023 42 205	53 525 40 214
Accumulated Cost		72 200	114 405	154 619

Benefit	Year 0	Year 1	Year 2	Year 3
Increase Sales		45 000	47 250	49 613
Saving		36 000	37 800	39 690
Reduce Inventory Costs		81 000	85 050	89 303

(Present Value)		73 636	70 289	67 095
Accumulated Benefit (Present Value)		73 636	143 925	211 020
Gain or Loss		1 436	29 520	56 401
Profitability Index (PI)	1.9			

5.0 Objective

We set a few objectives to enhance and simplify the reservation and booking process.

1. Allow users to book services or reserve items from anywhere with internet access.
2. Reduce manual effort and for the business.
3. Improve efficiency by reducing errors associated with manual booking processes.
4. Collect valuable data and insights into customer preferences, booking trends, and operational performance through analytics features.
5. Enhance the overall customer experience by offering a user-friendly platform.

6.0 Scope

We are developing an online hotel booking and reservation platform. This helps to improve the reservation efficiency which is an important key in the service career. The system requires the user to enter their email address to register an account. To increase the security and user's privacy, two-factor verification is a must for all users when logging into their account. The main user of the system includes customers of the hotel and the management team of the hotel. For both categories of the users, they will have different user faces, functionally and view.

View from hotel's customer:

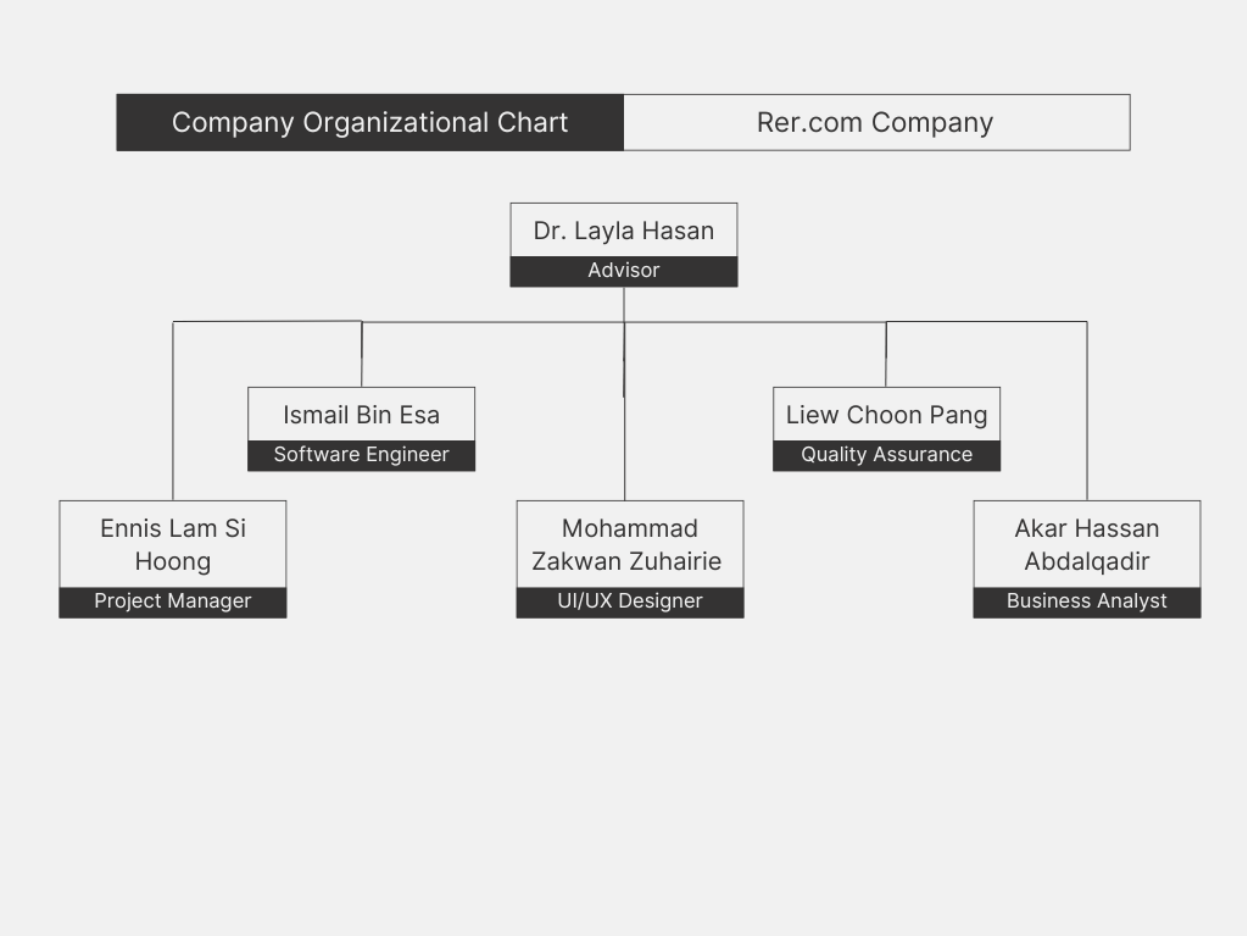
In this system, customers are able to book their room online. Review and preview of the room will be shown in the system so that they can make a better decision. Beside that, online transactions are also allowed to make the paying process more efficient and convenient. The system also provided customer service to give guidance for the customer.

View from hotel’s management team:

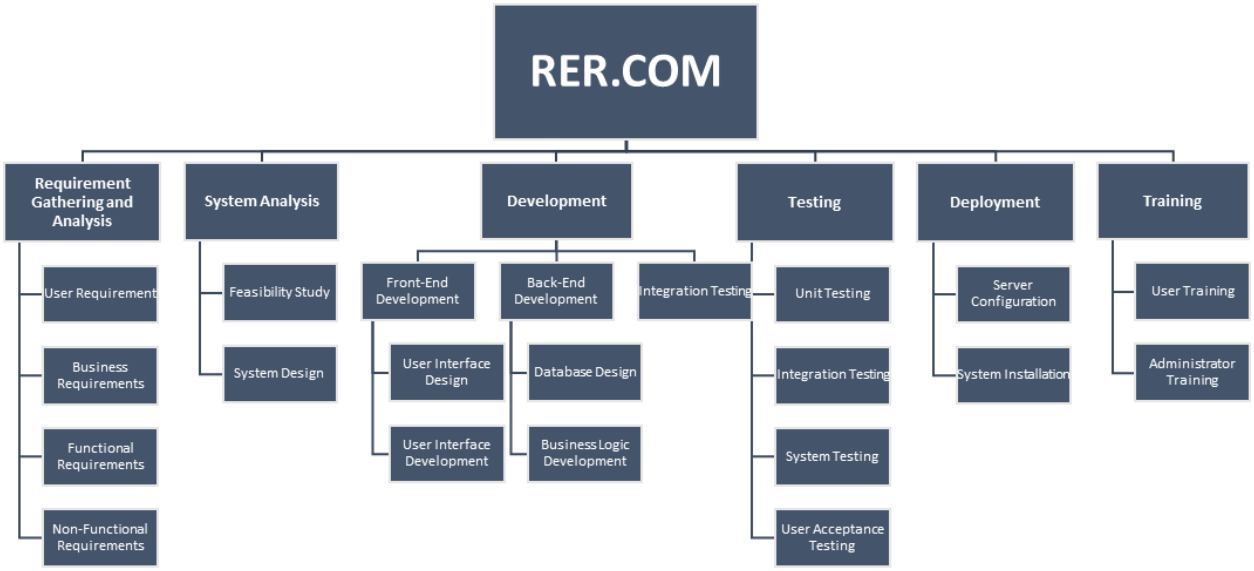
For the management team, users are able to trace immediate reservations through the system, so they can prepare the specific room as soon as possible. Beside that, users can see the amount of rooms available for each type of room. They can have a much more systematic management in room distributions. Next, users are able to see the feedback of each reservation so improvement can be made.

7.0 Project Planning

7.1 Human Resources:



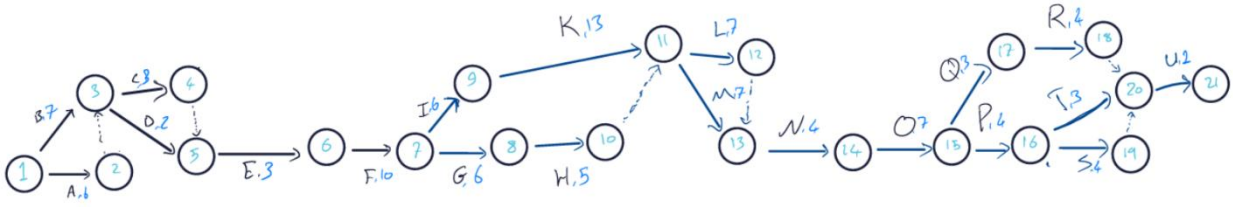
7.2 Work Breakdown Structure



7.3 Pert Chart

Task Label	Task Name	Predecessor	Duration (days)
A	Gather User Requirements	-	6
B	Define Business Requirements	-	7
C	Specify Functional Requirements	A, B	3
D	Specify Non-Functional Requirements	A, B	2
E	Conduct Feasibility Study	A, B	3
F	Design the New System	E	10

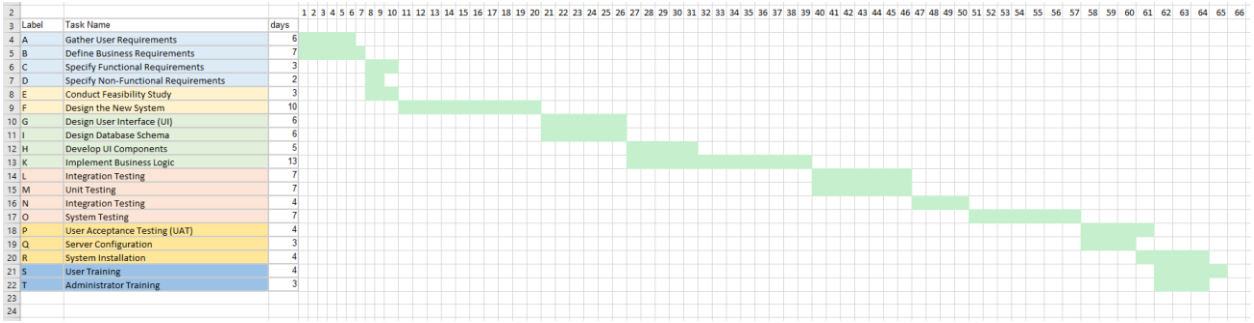
G	Design User Interface (UI)	F	6
I	Design Database Schema	F	6
H	Develop UI Components	G	5
K	Implement Business Logic	I	13
L	Integration Testing	H, K	7
M	Unit Testing	H, K	7
N	Integration Testing	M	4
O	System Testing	N	7
P	User Acceptance Testing (UAT)	O	4
Q	Server Configuration	O	3
R	System Installation	Q	4
S	User Training	P	4
T	Administrator Training	P	3



And the critical path is: 1, 3, 4, 5, 6, 7, 9, 11, 13, 14, 15, 16, 19, 20, 21

Which is 69 days.

7.4 Gantt Chart



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L	Integration Testing	7
M	Unit Testing	7
N	Integration Testing	4
O	System Testing	7
P	User Acceptance Testing (UAT)	4
Q	Server Configuration	3
R	System Installation	4
S	User Training	4
T	Administrator Training	3

8.0 Benefit and Summary of Proposed System

In conclusion, with this system proposed, we aim to enhance user experience. This platform will provide a seamless and intuitive booking process for customers, which allows them to easily browse, compare all the prices, receive instant confirmations and reminders. Overall improve the satisfaction of customers and encourage repeat business.

Secondly, we are going to increase the accessibility. With the platform accessible via web browsers and mobile devices, customers can make bookings anytime, anywhere, catering to the needs of modern, on-the-go lifestyles.

Moreover, the system will also improve efficiency. Automation of booking processes reduces the need for manual intervention, saving time and resources for businesses. Real-time updates and notifications minimize the risk of overbookings, cancellations, and missed appointments, leading to smoother operations.

The switch from traditional booking to online booking and reservation system brings data-driven decision making. Robust analytics tools provide businesses with valuable insights into booking trends, customer preferences, and operational performance. This empowers businesses to make informed decisions, optimize resource allocation, and tailor services to better meet customer demands. It also centralized management of bookings simplifies administrative tasks for

businesses, enabling them to efficiently track reservations, allocate resources, and manage staff schedules. By adopting modern, technology-driven booking solutions, businesses can differentiate themselves from competitors, attract more customers, and maintain a competitive edge in the market.

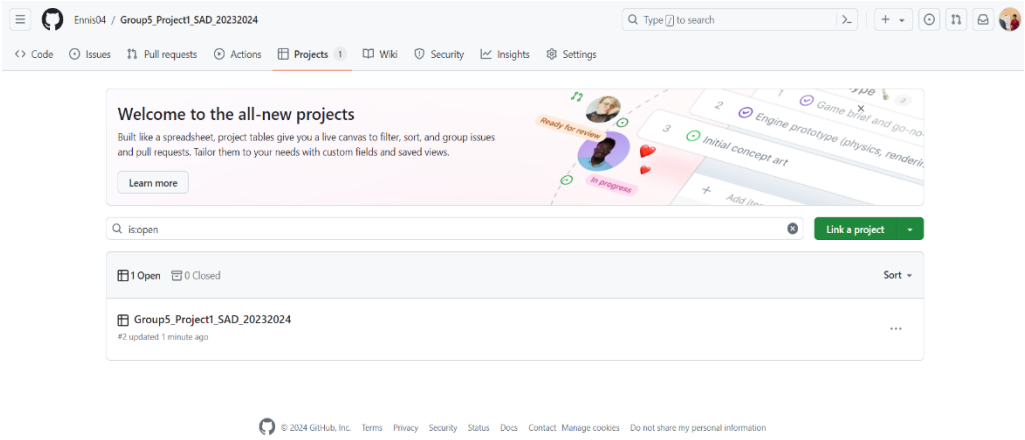
As a summary, the proposed online booking and reservation platform represents a significant advancement in how businesses manage bookings and interact with customers. By leveraging technology to streamline processes, enhance accessibility, and provide valuable insights, the platform offers numerous benefits for businesses across various industries. From improved efficiency and scalability to enhanced customer satisfaction and competitive advantage, the system promises to revolutionize the booking experience and drive growth and success for businesses in the digital age.

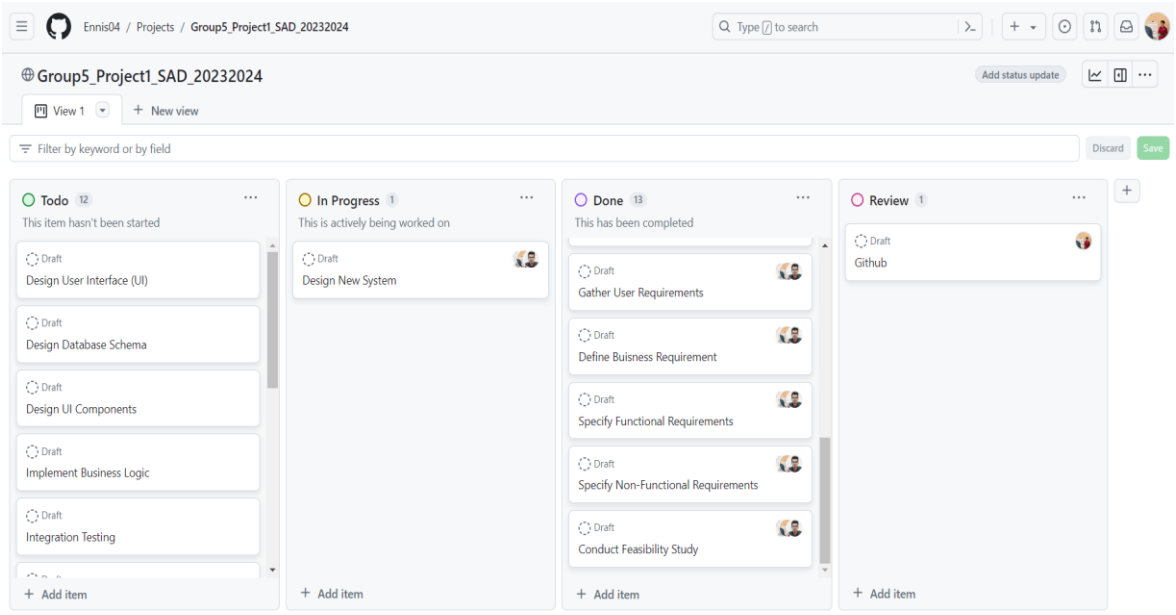
9.0 Github

9.1 Github Repository Link

Link: https://github.com/Ennis04/Group5_Project1_SAD_20232024

9.2 Repository Snapshot





9.3 Kanban Board Integration

Link: https://github.com/users/Ennis04/projects/2/views/1

9.4 Version Control Practices

Feature Branching:

Feature branching allows developers to work on new features or fixes in isolation, preventing interference with other ongoing development efforts. Different team members can work on separate features simultaneously without affecting each other's work.

Pull Requests:

Pull requests provide a structured mechanism for reviewing code changes before they are merged into the main branch, ensuring adherence to coding standards and best practices.Pull requests facilitate collaboration among team members by allowing them to provide feedback, suggestions, and improvements on code changes.

Code Reviews:

Code reviews help identify and address issues such as bugs, logic errors, and code smells early in the development process, leading to higher overall code quality. Code reviews provide an opportunity for knowledge sharing and learning among team members, as developers can learn from each other's code, techniques, and experiences.