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Poliklinik Koh Clinic Management System

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Abstract: The goal of putting in place the Clinic Management System for Poliklinik Koh is to create, build, and test a web-based system for managing the clinic that uses an organised method to give each type of user their own set of functions. A method called "Agile development" was used to make the system that was put in place. The system's technological language is constructed using Visual Studio Code and phpMyAdmin as a MySQL database administration tool. The system has four types of users: the supervisor, the doctor, the clinic staff, and the student. Also, the applied system has five functional parts, such as user management, schedule management, service management, report generation, and job management. The test plan was carried out by the system that was put into place to make sure that the units worked as planned. In short, the method that was put in place makes Poliklinik Koh's operation better and gives people a place to meet their needs.

Keywords: Booking system, management system, web-based system.

1. Introduction

A healthy body and mind are required for a long and happy life. Health, as the adage goes, is riches. Maintaining a healthy body is part of self-care. The mind resides in the body. Good health improves both mental and physical stamina. Health is a shared responsibility.

Clinical governance has influenced other health-care systems to create and implement norms and standards in order to enhance clinic treatment by minimizing diversity in care [1]. Clinical effectiveness, clinical auditing, risk management, information use, education and training, people management, and patient and public participation are proposed as seven pillars for clinical governance by the authors. Their job is similar to that of the NHS [2]. Information systems (IS) have long been important in healthcare delivery [3].

Batu Pahat, according to search results, lacks web-based patient and clinic management. Although most clinics have websites where patients may schedule appointments online, few have website responsive which can view in tablet, phone, and laptop. Google the closest medical facility and book an appointment via phone or text. Patients may save time by utilising a smartphone app to schedule appointments. To check availability, the patient must go to the clinic or hospital.

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Despite technological advancements, several clinics and hospitals continue to manually record patient information and medical services throughout time [4]. A patient may forget to take medicine or return to the clinic for a checkup in a variety of conditions. Some clinics close on a weekly basis. Patients in a hurry may overlook the clinic's closure and go anyhow. Physicians and nurses are concerned about the present system since it is not widely used and requires specialised expertise to install or operate. They hope the technology may eventually replace the traditional paper process.

Current clinic management entails scanning paper records and entering them into a database. Common functions include patient record keeping, inventory management, and billing management. Additional functionalities are lacking in the system. As a result, patient clinic management website are being developed.

The patient clinic management application may preserve the most recent patient data in the clinic management system, enabling the administrator to search for patient data in seconds rather than minutes. [5]. Using technology, the administrator and patient may have a fruitful conversation about scheduling the appointment time to avoid unfavorable circumstances. Conflicts in scheduling are minimised. Patients may use this app to arrange medical appointments, see when to take medications, and set up follow-up testing. This will be plain and explicit, reducing the possibility of misunderstandings. The system saves patient and medical history information.

This article is divided into six parts. Section 1 discusses the project's background, while Section 2 outlines the associated activities of the present Poliklinik Koh management as well as completing a literature assessment of existing systems in the next section. Methodology is explained in Section 3, and the conclusions from the analysis and system design are explained in Section 4. Finally, Section 5 provides a brief summary of the existing work and identifies future work to be completed in the established system.

2. Literature Review

2.1 Current Poliklinik Koh Clinic Management System

Doctors at Poliklinik Koh treat a wide range of illnesses, stock a vast array of pharmaceuticals, and provide exceptional patient care. A single physician treats all patients at the clinic. Poliklinik Koh treats only one patient per session using the FIFO method. Patients must wait a minimum of 30 minutes, even if they have a phone appointment [6]. The patient may select his or her illness. The basic single room at Poliklinik Koh may help patients feel safer and more private. Mr. Koh Kevin is responsible for personnel recruitment, pharmaceutical procurement, and patient treatment at the clinic. Mr. Koh Kevin is aided in operating the clinic by five employees.

There is no centralised method for administering Poliklinik Koh, scheduling consultations between patients and physicians, documenting patient’s payment histories, or monitoring medical data to determine allergies. Customers can contact Poliklinik Koh via Facebook, telephone, or in person. Everyone is eligible for care at the facility. Appointments must be made over the phone. Employees may need to locate a patient's medical records upon arrival. To reduce the possibility of a negative reputation, patient allergies are documented in the medical record. User have probably forgotten the location of patient records and the names of clinic staff.

Some patients with medication allergies do not notify their doctors, and doctors may not inquire. This could lead to skin irritation, insomnia, and death. This condition may prevent patients from seeking medical care when unwell. If the clinic is crowded, patients with scheduled appointments must wait. They fail to replenish because they lack a dependable method to record patient information [7]. A receipt is issued as evidence of payment, and the patient's payment history is manually entered into Microsoft Excel. There may be misunderstandings if employees of the clinic inaccurately note payment for the patient's preferred medication. Careless patients risk losing their medical records and paid sick leave.

Physicians will investigate patient information to corroborate the identity of the individual. The patient might waste time or delay too long. A clinic administration system has been devised in response to technological advancement and the demand for computerised information management.

As a short conclusion, the way Clinic Management System is managed now means that daily tasks take a huge amount of work and time. Management needs to do more to improve performance and cut down as much as possible on mistakes made by people.

2.2 Study of Existing System

This research compares the present system and identifies its drawbacks and benefits. The study's findings may be utilised as a reference and guidance for future system development. A study of the current system is conducted in order to discover flaws and shortcomings in the present system. Furthermore, as a consequence of this research, improvements may be applied by comparing the present system to the system that will be constructed. Table 1 compares the present system to the Poliklinik Koh Clinic Management System.

Several inadequacies in the present system were discovered as a consequence of the comparison. There is no log in, the module for the assessment report is too easy, and the Clinic Batu Pahat - Pakej Medical Check Up system is too simple since there is no account management module, which means that users cannot update their own information. The assistance module, which serves as system advice, is the most important. Finally, the suggested system will be constructed using the PHP programming language since the usage of the PHP programming languages is always employed in system development.

Table 1: Comparison of the existing system and the clinic management system of Poliklinik Koh

No	Features	EPRS Klinik Kesihatan	Clinic Batu Pahat – Pakej Medical Check Up	Pantai Hospital Batu Pahat System	Proposed System
1.	Patient Record Search	✓	×	×	✓
2.	Informational Module	×	✓	✓	✓
3.	Login Module	✓	×	×	✓
4.	Account Management Module	×	×	×	✓
5.	Report Produce Module	✓	✓	✓	✓
6.	External Link Module	×	✓	✓	✓
7.	Booking Appointment Module	✓	✓	✓	✓
8.	Payment Module	×	×	×	✓
9.	Clinic Monitoring Module	✓	✓	✓	✓
10.	Location Module	✓	✓	×	×
11.	COVID 19 screening	✓	×	✓	×
12.	Career Module	×	×	✓	✓
13.	Help Module	✓	×	✓	✓
14.	Helpline	✓	✓	✓	✓

Legend : ✓=Yes ; ×= No

3. Methodology

The agile methodology was selected as the project development model. The agile technique may be used to manage a project by breaking it down into stages. It entails continual cooperation with stakeholders as well as continuous improvement at all stages of the system development life cycle, including the other five phases of brainstorming, system design, development, quality assurance, and system deployment. Table 2 provides a summary of each stage's activities and outputs. Gantt Chart would be shown in (**See Appendix A**).

Table 2: Summary of each phase's activities in the Agile methodology

No	Phase	Task	Output
1	Brainstorming	• Proposed the project • Determine the project schedule, activities and output	• Proposal • Gantt Chart • Literature Review
2	Design	• Establish User Interface • Clarify how Poliklinik Koh operates. • Establishing the connection between entities and the database	• Design wireframe • Context Diagram • Data Flow Diagram • Entity Relationship Diagram • Database design • Define software and hardware requirements
3	Development	• Front-end development including its entirety • Back-end development through its entirety	• Easy to use by user • Database system
4	Quality Assurance	• White box testing • Black box testing	• The system is bug-tested by the developer and the intended user. • Questionnaire feedback from the target user
5	Deployment	• Deploy Clinic Management System to Poliklinik Koh	• Both the developer and the intended user are pleased with the system that has been created. • User guide

3.1 Brainstorming phase

The problem faced and requirement of the clinic management system in Poliklinik Koh are collected in this stage. The proposed system's functional and non-functional requirements are identified and presented in Table 3 and 4.

Table 3: Functional requirements

No.	Functional Requirements	User
1	Users must be able to sign up for the system with a valid email address and a more secure password.	All user
2	Users must be able to log in to the system with the right username and password.	All user
3	The system needs to let more than one person log in with their own account.	All user
4	The system must let them do CRUD on their profile, including changing their passwords.	Patient
5	The main page for a patient must be able to do CRUD.	Administrator
6	The system must be able to record patient now condition with the type of disease.	Doctor

Table 3 (cont.)

7	The system must be able to keep track of the record of bookings.	Clinic Staff
8	The system must let people see information about the clinic, like when it opens and type of disease treated in this clinic.	Patient
9	The system must let user look at the status and history of their bookings.	Patient
10	The system lets user keep track of payments.	Administrator, Clinic Staff, Patient
11	The system must be able to record patient medicine instruction to the patient and also the payment paid by the patient.	Doctors, Clinic staff

Table 4: Non-functional requirements

No.	Terms	Non-Functional Requirements
1	Accessibility	• This website can be use by anyone who wants to become a patient at this clinic.
2	Performance	• Respond to users in a reasonable amount of time without the system breaking down or stopping.
3	Usability	• User-friendly interface. • Message pop out when user input wrong.
4	Security	• Make sure the user's username and password are correct. • Make users fill out fields like phone number and email address in a certain way.

3.2 Designing Phase

During the research process, during conversations with clinic proprietors, the user's perspective matched the project's requirements. Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD) are the methods to know more accurately what is inside. This stage's objective is to illustrate multiple diagrams for the proposed system, including flowcharts, data flow diagrams, entity relationship diagrams, and interface design.

3.2.1 Flowcharts

A flowchart is an effective tool for graphically depicting the process of a complex system or activity. There are four flowcharts (**See Appendix B**) created for each user category to illustrate the process of using the system and the tasks that they are capable of performing.

3.2.2 Data Flow Diagram (DFD)

A context diagram also referred to as DFD Level 0 will depict the relationship between system data and entities. It displays a complete overview of the system. The data flow that links the processes at the source and entity is readily seen in this figure. Figure 1 depicts the context diagram for Poliklinik Koh's Clinic Management System. Administrators, doctor, clinic staff and patients are the system's external entities. The DFD Level 1 (**See Appendix C**) disassembled the context diagram into numerous processes.

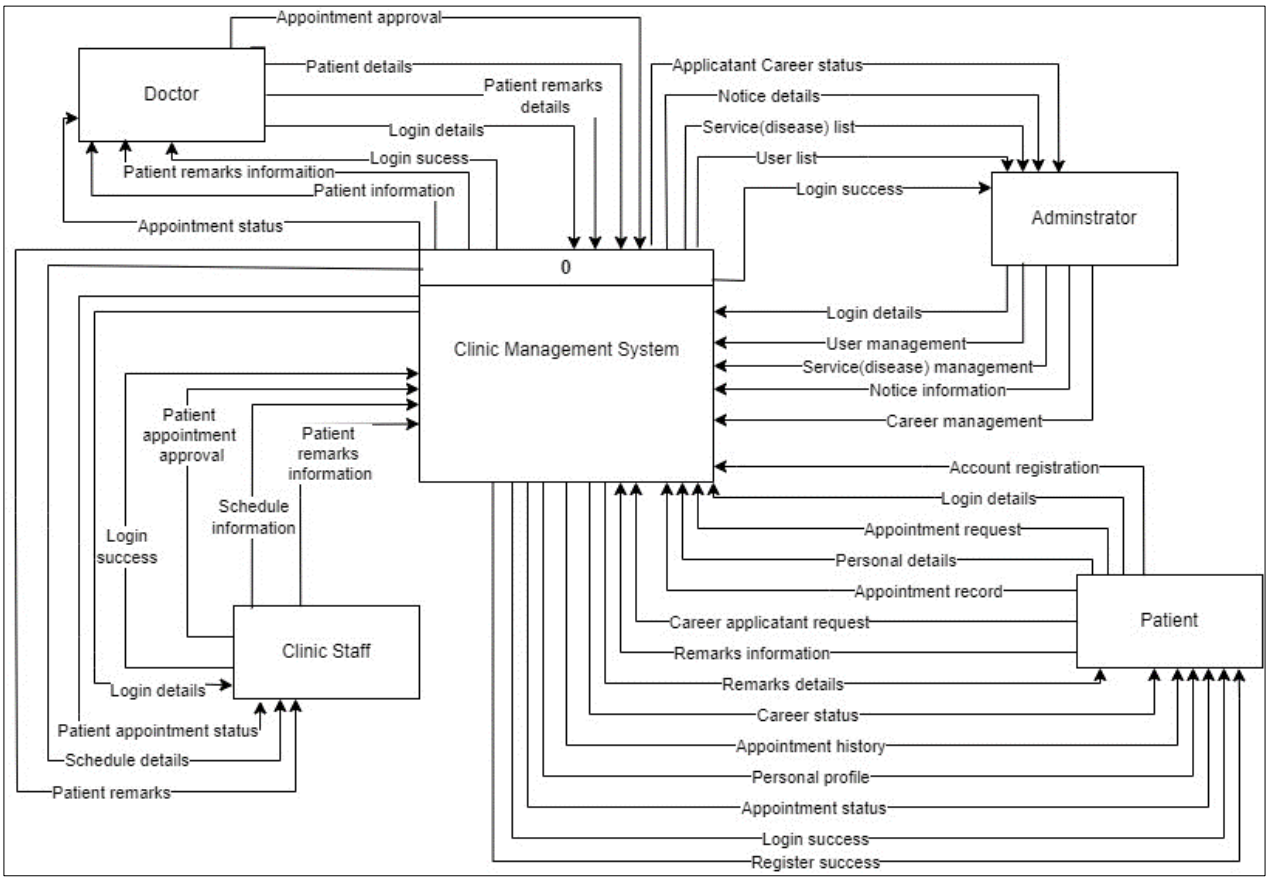


Figure 1: Context Diagram

3.2.3 Entity Relationship Diagram

A database design that describes the connections between all the entities in the database system is known as an Entity Relationship Diagram (ERD). This system's ERD (See Appendix D) have 19 tables and each of the tables contains a primary key. This system's entity relationship diagram depicts the relationship between one entity and another. Each object has its own set of characteristics, which include primary and foreign keys.

3.2.4 User Interface Design (UI)

User interface (UI) design is the architecture of the system's user interface. Using draw.io, wireframes illustrating the system user interface are created for this project. There are four user locations for the implemented system which are administrator, doctor, clinic staff, and student. Each user site has a unique layout and performs distinct functions. Figure 2 depicts the administrator's dashboard.

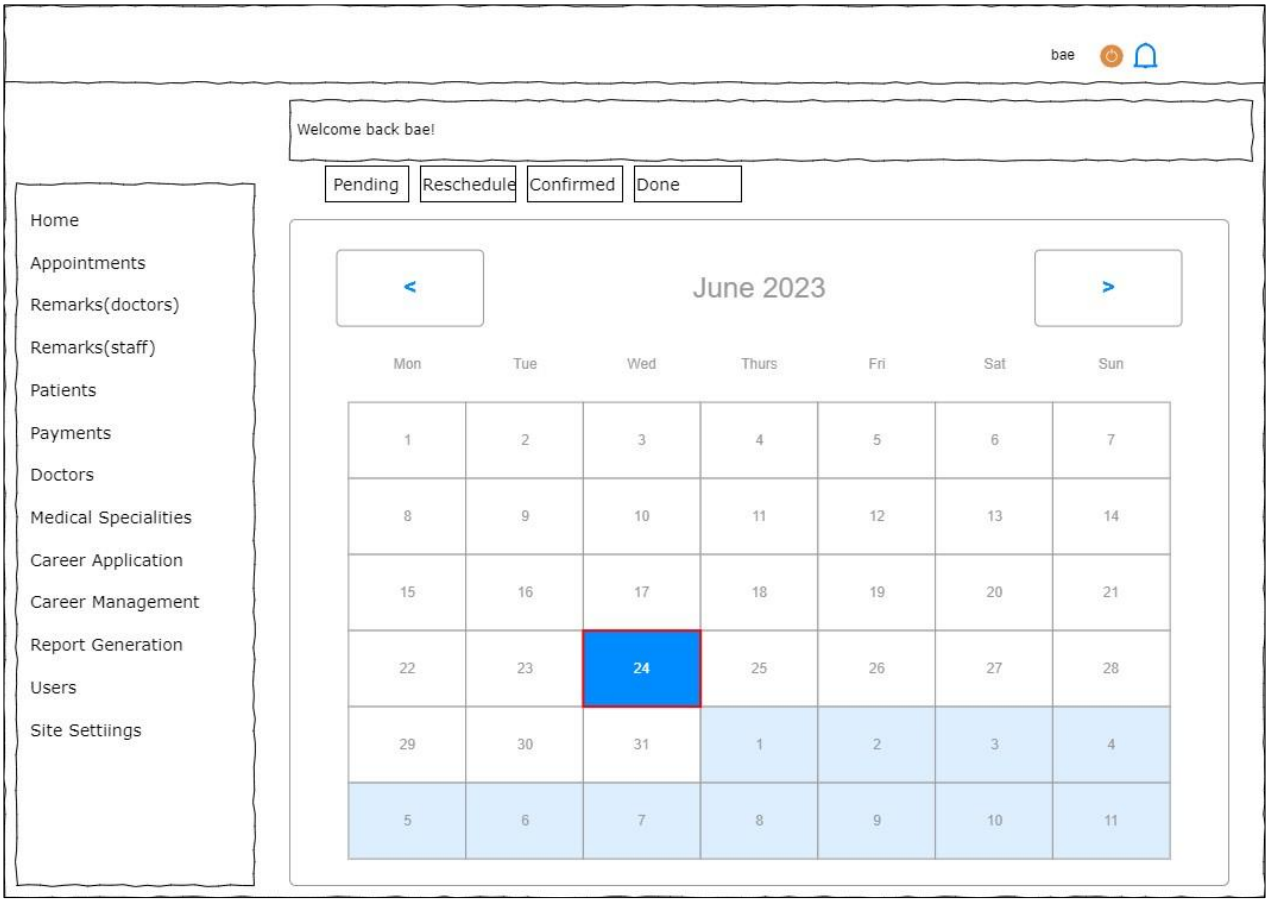


Figure 2: Dashboard Administrator

3.3 Development phase

In the developing phase, the development of the clinic administration system is carried out until the UI and functionalities system achieves the desired results. PHP, JavaScript, HTML, CSS, jQuery, and AJAX are the programming languages used and implemented in the system, with Visual Studio Code serving as the Integrated Development Environment (IDE). The database used to execute SQL commands is the phpMyAdmin database with MySQL. The implemented system is user-friendly, and the database system can function as anticipated.

3.4 Quality assurance phase

During the testing phase, the system has been tested to eliminate logic errors and repair bugs. The testing phase can be divided into white box testing and black box testing phases which are alpha and beta testing. Before releasing the system to the general public, the author conducted alpha testing in order to repair bugs and critical issues. All anticipated test results should be successful. Finally, the developer conducts a comprehensive test of the system to determine whether it satisfies the specified requirements.

3.5 Deployment phase

The final phase is deployment, which makes the final system accessible to the end user. Target users, including prospective patient, doctor, clinic staff and admin assess the system. The final system will be delivered via a specific URL, and the end user will be able to access it via.

4. Results and Discussion

This web-based Clinic Management System follows the initial project concept. Visual Studio Code and Xampp created this system. PHP is used for programming and Xampp for database storage. Visual Studio Code creates the system display, functions, database, and localhost. This system is divided into five major modules which are user management module, the appointment management module, the service management module, the career management module, and the report production module.

4.1 System Implementation

Figure 3 depicts the interface of the homepage that will be viewed by all users. This main page provides patient proprietors with a concise overview manual.

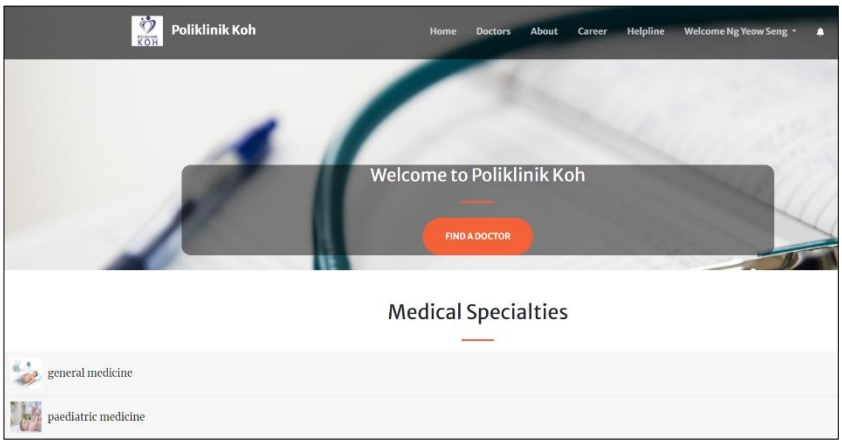


Figure 3: Interface of the main page

Figure 4 depicts the registration interface that all user types will use to enter in to the system with the correct username and password. Patient who do not have an account can create one by clicking the “Create New Account" link.

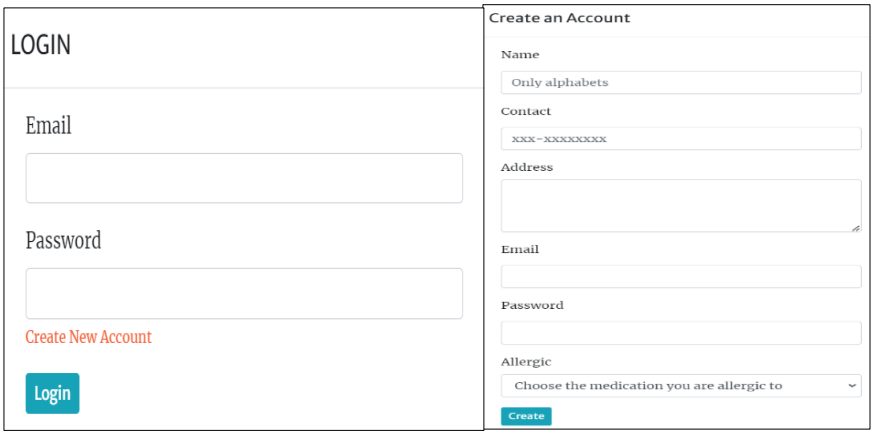


Figure 4: Interface of the login and register page

Patient that need to apply job here must complete the career application form in order to apply this career in Poliklinik Koh. An approval mail is generated by Poliklinik Koh after the patient have been confirm to take as the job position that offered by Poliklinik Koh. The administrator will verify the information and either accept or deny the application. Figure 5 depicts the approval message of the career application interface, while Figure 6 depicts the career application form.

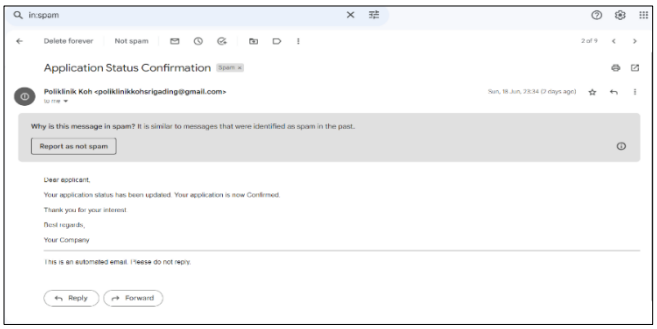


Figure 5: Success message of career application

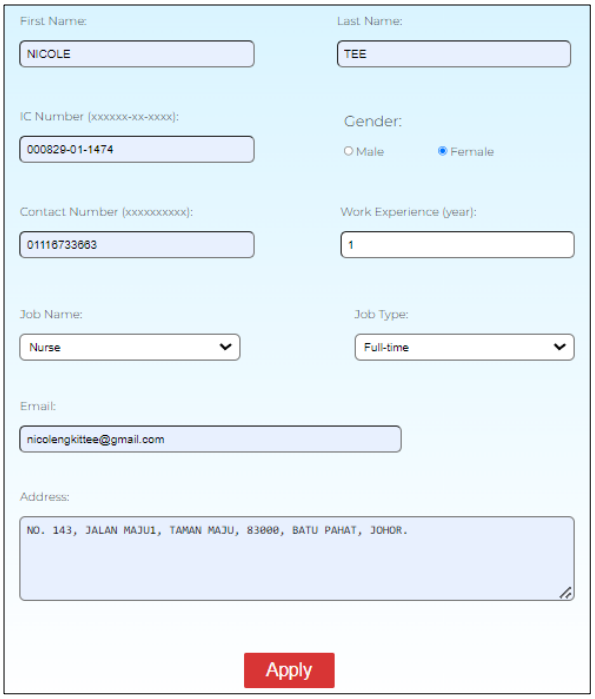


Figure 6: Interface of career application form

Patients wishing to schedule an appointment must first register or log in, then search for a specialist who specialises in the disease they wish to treat, and lastly select a time for their appointment. The patient must wait for the clinic staff to modify the registration request for the specified date and time at Poliklinik Koh after submitting the form. Figure 7 depicts the interface of the appointment form, whereas Figure 8 depicts the clinic staff updating the appointment.

Figure 7: Appointment form interface

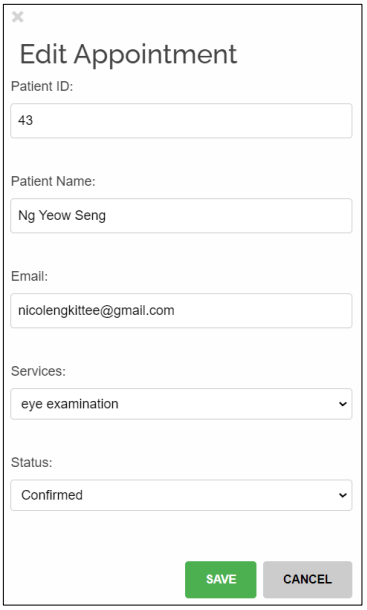


Figure 8: Update Appointment Page

Poliklinik Koh consistently assists patients in treating their illness. These days, more and more viruses are affecting citizens. Poliklinik Koh has decided to include a function for creating and updating disease types so that patients can select which disease they have and how to treat it. Figure 9 depicts the patient view and select interface, while Figure 10 depicts the administrator editing and adding the disease type.

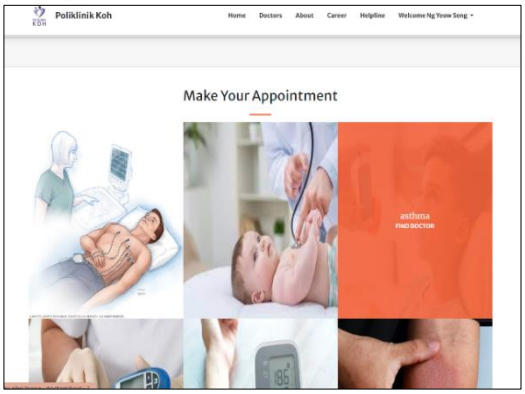


Figure 9: Patient select type of disease interface

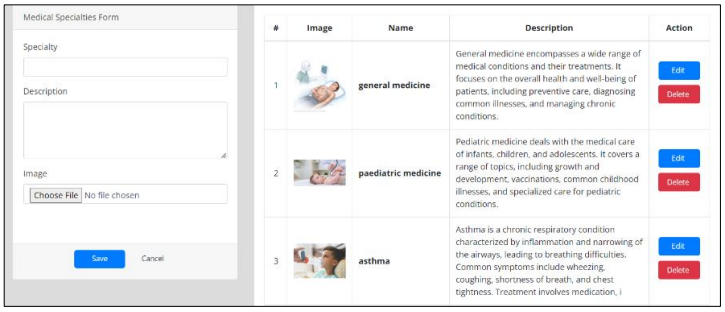


Figure 10: Admin update the type of disease interface

Administrators can examine the patient report, doctor report, staff report, and sales report, among others. Figure 11 depicts the option report interface. Figure 12 depicts the patient report's contents.

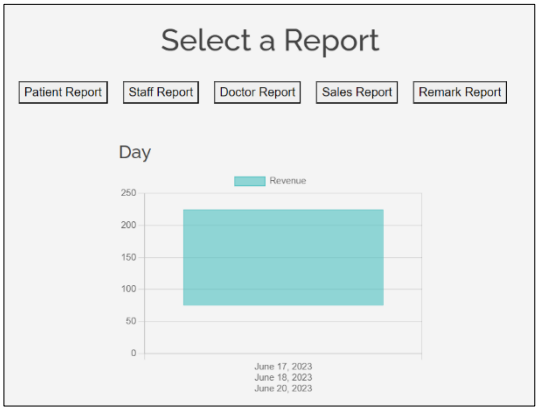
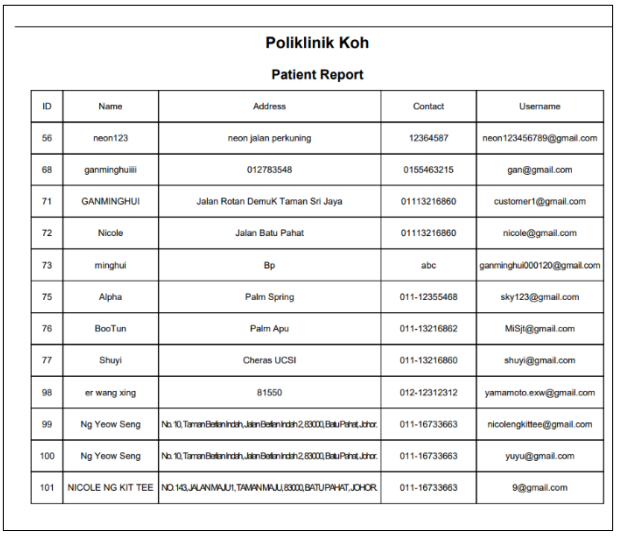


Figure 11: Admin report generation interface



Poliklinik Koh

Patient Report

ID	Name	Address	Contact	Username
56	neon123	neon jalan perkuning	12364587	neon123456789@gmail.com
68	ganminghuiiii	012783548	0155463215	gan@gmail.com
71	GANMINGHUI	Jalan Rotan DemuK Taman Sri Jaya	01113216860	customer1@gmail.com
72	Nicole	Jalan Batu Pahat	01113216860	nicole@gmail.com
73	minghui	Bp	abc	ganminghui000120@gmail.com
75	Alpha	Palm Spring	011-12355468	sky123@gmail.com
76	BooTun	Palm Apu	011-13216862	MiSjt@gmail.com
77	Shuyi	Cheras UCSI	011-13216860	shuyi@gmail.com
98	er wang xing	81550	012-12312312	yamamoto.exw@gmail.com
99	Ng Yeow Seng	No.10,TamanBatuIndah,JalanBatuIndah2,83000,BatuPahat,Johor.	011-16733663	nicolengkittee@gmail.com
100	Ng Yeow Seng	No.10,TamanBatuIndah,JalanBatuIndah2,83000,BatuPahat,Johor.	011-16733663	yuyu@gmail.com
101	NICOLE NG KIT TEE	NO.143,JALANMAJU1,TAMANMAJU,83000,BATUPAHAT,JOHOR.	011-16733663	9@gmail.com

Figure 12: Report generation of patient record interface

4.2 Testing

After the development of a system is complete, functional testing and User Acceptance Testing are performed. It is crucial to determine whether the developed system meets the specifications.

4.2.1 Functionality Testing

Using the test designs, each of the developed system's functional modules is evaluated. Table 5 displays the test designs and outcomes.

Table 5: Test plan and result

No.	Test Plans	Expected Result	Actual Result
	User Management Module		
1.	User logging in with valid username and password	Upon successful login, navigate to the homepage or dashboard based on the roles.	Pass
2.	User clicks the logon icon without entering a username and password.	Display an alert to prompt the user to complete the required field.	Pass
3.	User inputs an invalid username or password.	Display an error message informing the user that their username or password is inaccurate.	Pass
4.	User access the page by URL without logging credentials.	Display an error message and reroute the user to the logon page in order to access their precise roles.	Pass
5.	Patient must complete all mandatory fields on the registration form.	A new account was effectively created, enabling users to register in.	Pass
6.	Patient did not complete the registration form with all required fields.	Display an error message to re-request user input.	Pass
7.	Patient enroll for a new account using an existing identity.	Display an alert to inform the user that the username already exists.	Pass
8.	Patient correctly completes all required fields on the appointment form.	Show applied successful. Show the information that patient input before.	Pass
9.	Patient did not complete all the required fields or improper input.	Display an error message to re-request user input	Pass
10.	Patient applies for the existing appointment with others patient.	Display an alert to inform the user that this appointment are not available.	Pass
11.	Admin verifies the status of application approval	Display the modal that informs the user of the application's status.	Pass
12.	Admin views the application list.	Display the list of applications for corporate accounts.	Pass
13.	Clinic staff update status of the appointment request from patient.	Displays the approve/reject effective message.	Pass
14.	The administrator examines the list of patients, doctors and clinic staff.	Display the list of patients, doctors and clinic staff.	Pass
15.	Admin can delete the account or even update or create the account for each user.	CRUD patient, clinic staff and doctors information.	Pass
16.	The administrator reactivates the deactivated doctors, clinic staff or patient account.	Active effective.	Pass
17.	Admin views the application list.	Display the application of apply job from patient list.	Pass
No.	Test Plans	Expected Result	Actual Result
	Appointment Management Module		
18.	Patient click the type of disease to view the doctor treat the type of disease	Display the list of doctor treat the disease	Pass
19.	Patient click the set appointment button without log in.	Display the modal to ask the user to log in or register before making a appointment.	Pass
20.	Patient clicks the Request button.	Display error ask user to fill in the appointment form with validation input.	Pass
21.	Patient selects the appointment date, time, type of services, duration of illness in sequence.	The date before the current date is disabled. Based on the selected appointment date, display the available time.	Pass
22.	Patient clicks the request button to submit the appointment details form.	Appointment being make successful without overlapping with other appointment records.	Pass
23.	Clinic staff choose the patient appointment status to confirm.	Appointment being make successful and show the updated status in patient view.	Pass
24.	Patient clicks the delete appointment button.	Display records of appointment being deleted.	Pass

Table 5: (cont.)

No.	Test Plans	Expected Result	Actual Result
	Appointment Management Module		
25.	Patient views the appointment status.	Display the status of the appointment on the management appointment page.	Pass
26.	Patient prints the appointment receipt.	Display the receipt.	Pass
27.	Patient clicks the management appointment page.	Display the list of appointment id, service, doctor id, time , status, duration of sickness, date created.	Pass
28.	Patient click the notification button	Show an info message of patient what admin want to reply.	Pass
29	Clinic staff reschedule the customer's appointment.	Display in patient page with the reason of reschedule patient appointment.	Pass
30.	The current date is later than the booking date.	All the in-progress appointment updated to completed status.	Pass
No.	Test Plans	Expected Result	Actual Result
	Service Management Module		
31.	Patient click the description of service.	Display the description of the disease.	Pass
32.	Patient click the image of the disease.	Display the doctor who professional in treating this disease.	Pass
33.	Patient click management appointment.	Display the history of the appointment with the type of disease being treated.	Pass
34.	Admin CRUD the type of service.	CRUD success for the types of disease.	Pass
No.	Test Plans	Expected Result	Actual Result
	Career Management Module		
35.	Patient click career tab.	Career information being shown with image.	Pass
36.	Patient clicks apply now.	Display the job details form.	Pass
37.	Patient complete fill in the form.	Display the view of form to let patient confirm it.	Pass
38.	Patient click submit.	Display the apply career form being submit successfully.	Pass
39.	Patient did not complete the job details form.	Display the error message with asking patient to fill in the form with valid input.	Pass
40.	Admin career interface.	Display patient that apply job.	Pass
41.	Admin click confirm.	Patient would receive success application career of Poliklinik Koh.	Pass
42.	Admin click reject.	List of career application would shown success and reject status of application.	Pass
No.	Test Plans	Expected Result	Actual Result
	Report Generating Module		
44	Admin views the revenue report in the admin report generation module page.	Display the revenue report in graph.	Passed
45	On the page displaying the list of patients, doctors, clinic staff, and sale records by selects the button by admin.	The list of patient, doctors, clinic staff and sales report is downloaded in PDF format.	Passed

4.2.2 Analysis of User Acceptance Testing

Google Forms was used to distribute the questionnaire for user acceptance testing. The purpose of this questionnaire is to collect feedback from administrators, doctor, clinic staff and patient regarding the user interface and functionality of the developed system. There were a total of 42 responses received, 1 from administration, 1 from doctor, 5 from clinic staff, and 35 from patient. The questionnaire contains two evaluation sections: user interface and functionality for each user category. In the user interface section, ranking 1 indicates extreme dissatisfaction, while ranking 5 indicates extreme satisfaction. For the functionality section, a 1 indicates strong agreement and a 5 indicates strong disagreement. Tables 6 and 7 display the aggregate outcomes of the user interface and functionality evaluations, respectively. The majority of respondents are satisfied with the interface design and functionality of the developed system, according to the evaluation results. Graph of the result of user interface would be shown in (**See Appendix E**)

Table 6: Result of user interface (users)

No	Features	Ranking					
		1	2	3	4	5	Total
1	The overall design of the interface	0	0	2	15	25	42
2	Font size and font colour in the system	0	0	2	16	24	42
3	Theme colour in the system	0	0	2	16	24	42
4	Navigation of the system	0	0	3	11	28	42
5	Responsiveness of interactive elements (button, link)	0	0	2	17	23	42

Table 7: Result of System Functionalities (Administrator)

No	Features	Ranking					
		1	2	3	4	5	Total
1	Secure and Resilient Registration Mechanism for Administrators Function.	0	0	0	1	0	1
2	Patient Information Search Function.	0	0	0	0	1	1
3	Registration of Doctors and Clinic Staff Function.	0	0	0	1	0	1
4	Appointment Slot Management Function.	0	0	0	0	1	1
5	Patient, Doctor, and Clinic Staff Information Management Function.	0	0	0	1	0	1
6	Informational Module Access and Update Function.	0	0	0	0	1	1
7	Recording Patient Choices Function.	0	0	0	1	0	1
8	Report Generation Function.	0	0	0	0	1	1
9	Patient Application Confirmation/Rejection Function.	0	0	0	1	0	1
10	Booking Status Display Function.	0	0	0	1	0	1

Table 8: Result of System Functionalities (Doctor)

No	Features	Ranking					
		1	2	3	4	5	Total
1	Secure Login Process Function.	0	0	0	0	1	1
2	Patient Information Search Function.	0	0	0	1	0	1
3	Appointment Management Function.	0	0	0	2	1	3
4	Patient Condition Management Function.	0	0	0	0	1	1
5	Remarks Management Function.	0	0	0	1	0	1
6	Booking Status Display Function.	0	0	0	0	1	1

Table 9: Result of System Functionalities (Clinic Staff)

No	Features	Ranking					
		1	2	3	4	5	Total
1	Secure and Resilient Login Process Function.	0	0	0	2	3	5
2	Patient Information Search Function.	0	0	0	2	3	5
3	Remarks Management Function.	0	0	0	1	4	5
4	Appointment Slot Arrangement Function.	0	0	0	5	5	10
5	Patient Record Display Function.	0	0	0	3	2	5

Table 9 (cont.)

6	Patient Condition and History Display Function.	0	0	0	2	3	5
7	Patient Payment Display Function.	0	0	0	1	4	5
8	Booking Status Display Function	0	0	0	2	3	5

Table 10: Result of System Functionalities (Patient)

No	Features	Ranking					
		1	2	3	4	5	Total
1	Secure and Resilient Registration Mechanism Function.	0	0	3	14	18	35
2	Allergy Selection Function.	0	0	2	7	26	35
3	Appointment Slot Selection Process Function.	0	0	2	15	18	35
4	Medication Details Function.	0	0	2	9	24	35
5	Display of Medical Leave Information Function.	0	0	2	15	18	35
6	Display of Check-up Dates and Times Function.	0	0	2	9	24	35
7	Comprehensive Display of History Information Function.	0	0	3	13	19	35
8	Payment for Testing Purposes Function.	0	0	2	13	20	35
9	Information Module Function.	0	0	2	12	21	35
10	Help Module Function.	0	0	2	13	20	35
11	Helpline Function.	0	0	2	13	20	35
12	Account Details Management Function.	0	0	2	13	20	35
13	"Forgot Password" Feature.	0	0	3	11	21	35
14	Integration with Gmail Function.	0	0	2	11	22	35
15	Booking Slots Function.	0	0	2	10	23	35
16	Career Opportunities Management Function.	0	0	2	12	21	35
17	Display of Booking Status Function.	0	0	2	12	21	35

5. Conclusion

In short, the clinic management system is made for the Poliklinik Koh and met the project's goals. The method that was put in place was able to cut down on work and save as much time as possible. The system is a good way to run the Poliklinik Koh because it has a variety of functions that are good for different people. These features make it easy and effective for users to do different things.

Even though the present system has some useful features for running the Poliklinik Koh, there is still a lot of room for improvement. The first change is to connect the medicine inventory control to know when should the medicine to be in stock. So, the technology is made and the amount of work is cut down. Also, adding a feature for an online payment method gives students more options for how they can pay the medicine fee. The fact that payments are made electronically makes sure that the process works well and lowers the need for manual payment processing.

Acknowledgment

The author would like to thank the Faculty of Computer Science and Information Technology at Universiti Tun Hussein Onn Malaysia for their encouragement and assistance throughout the research process.

Appendix A

	Task Mode	Task Name	Duration	Start	Finish	Resource Names
1		**Planning**	**12 days**	**Sun 10/16/22**	**Sat 10/29/22**	**Nicole**
2		Define Project Scope	3 days	Sun 10/16/22	Tue 10/18/22	Nicole
3		User requirement analysis	4 days	Wed 10/19/22	Sat 10/22/22	Nicole
4		Functional requirement analysis	3 days	Sun 10/23/22	Tue 10/25/22	Nicole
5		Interface analysis	4 days	Wed 10/26/22	Sat 10/29/22	Nicole
6		**System Design**	**27 days**	**Sun 10/30/22**	**Sun 12/4/22**	**Nicole**
7		Entity Relationship Diagram(ERD) design	10 days	Sun 10/30/22	Thu 11/10/22	Nicole
8		Data flow diagram(DFD)	8 days	Thu 11/10/22	Sat 11/19/22	Nicole
9		Design user interface	12 days	Sun 11/20/22	Sun 12/4/22	Nicole
10		**Develop**	**105 days**	**Mon 12/5/22**	**Fri 4/28/23**	**Nicole**
11		Font end development(HTML and CSS)	33 days	Mon 12/5/22	Wed 1/18/23	Nicole
12		Back end development(PHP)	40 days	Thu 1/19/23	Wed 3/15/23	Nicole
13		Database	33 days	Wed 3/15/23	Fri 4/28/23	Nicole
14		**Testing**	**7 days**	**Fri 4/28/23**	**Mon 5/8/23**	**Nicole**
15		Performing system testing	5 days	Sat 4/29/23	Thu 5/4/23	Nicole
16		Debugging	2 days	Sun 5/7/23	Mon 5/8/23	Nicole
17		**Deployment of System**	**14 days**	**Mon 5/8/23**	**Thu 5/25/23**	**Nicole**
18		Testing by Target Users	4 days	Mon 5/8/23	Thu 5/11/23	Nicole
19		Interaction with Target Users	4 days	Fri 5/12/23	Wed 5/17/23	Nicole
20		System Improvement and Debugging	4 days	Thu 5/18/23	Tue 5/23/23	Nicole
21		System Deployment	3 days	Tue 5/23/23	Thu 5/25/23	Nicole

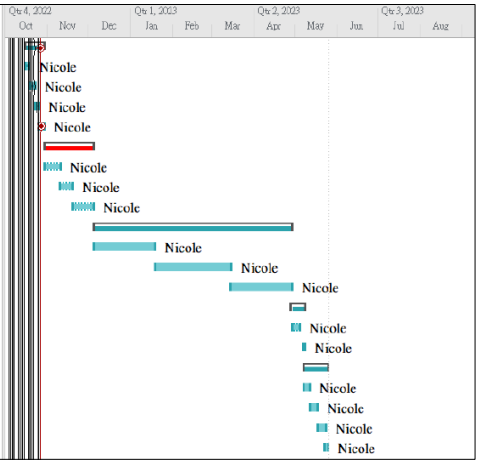


Figure 13: Gantt Chart for Develop Clinic Management System

Appendix B

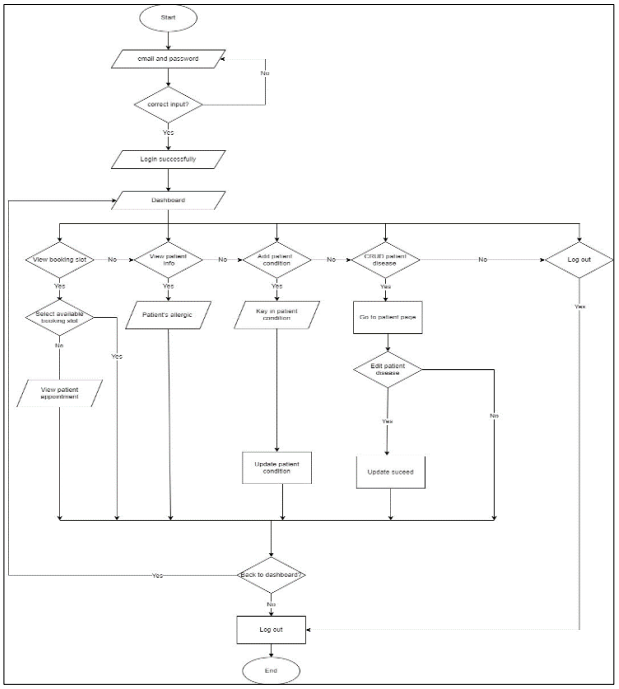


Figure 14: Doctor Flowchart

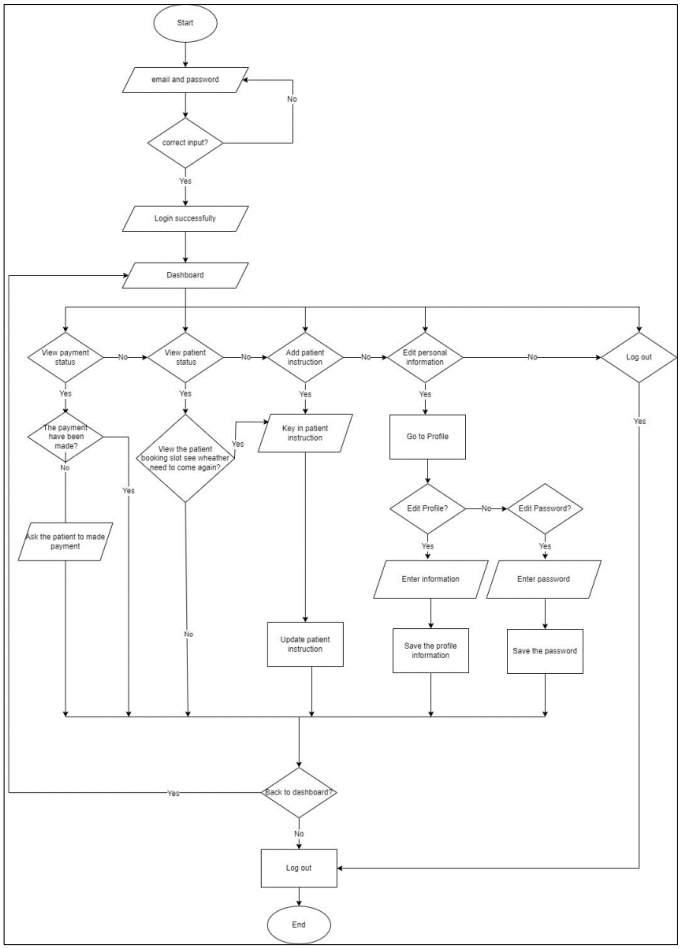


Figure 15: Clinic Staff Flowchart

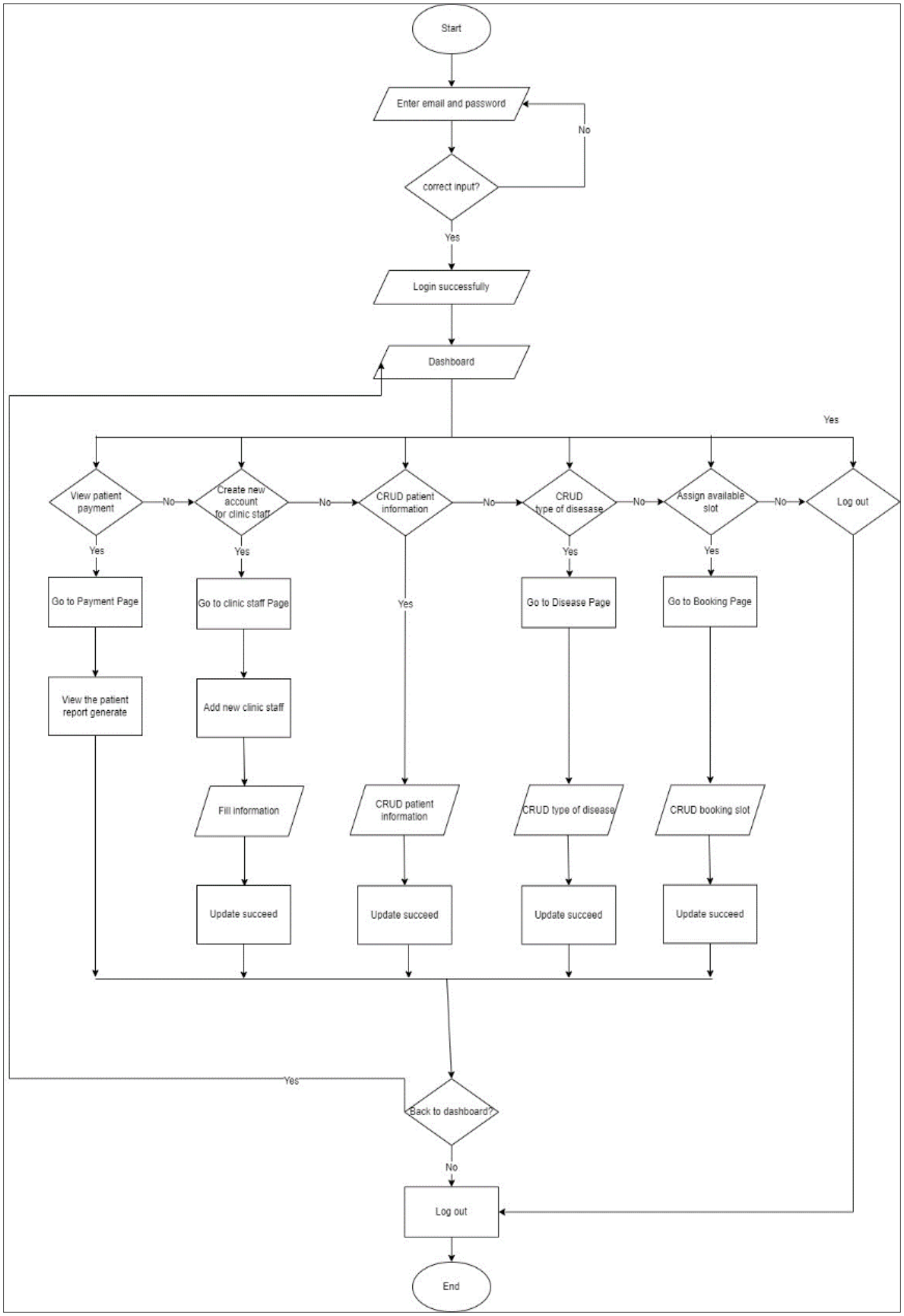


Figure 16: Admin Flowchart

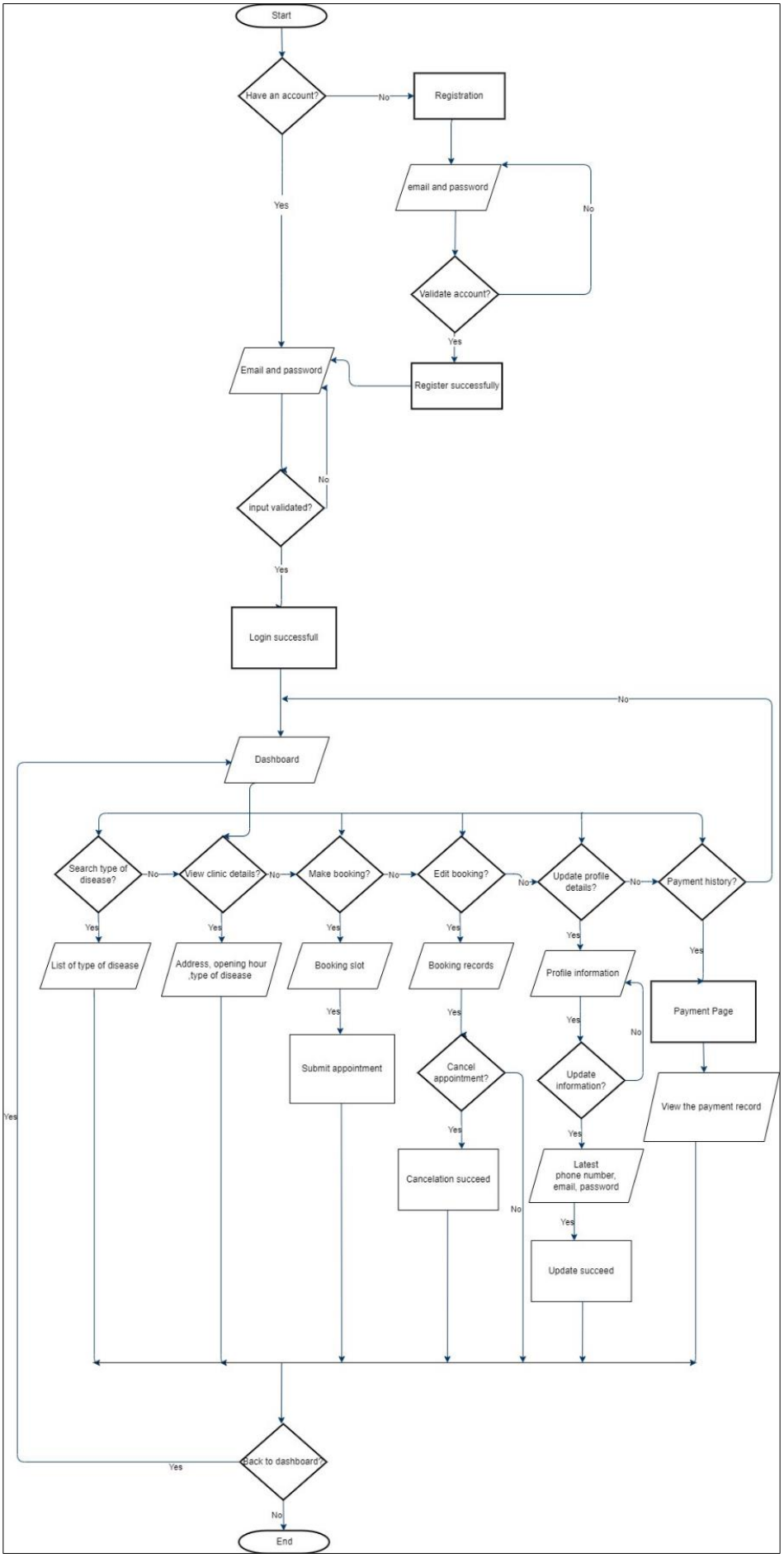


Figure 17: Patient Flowchart

Appendix C

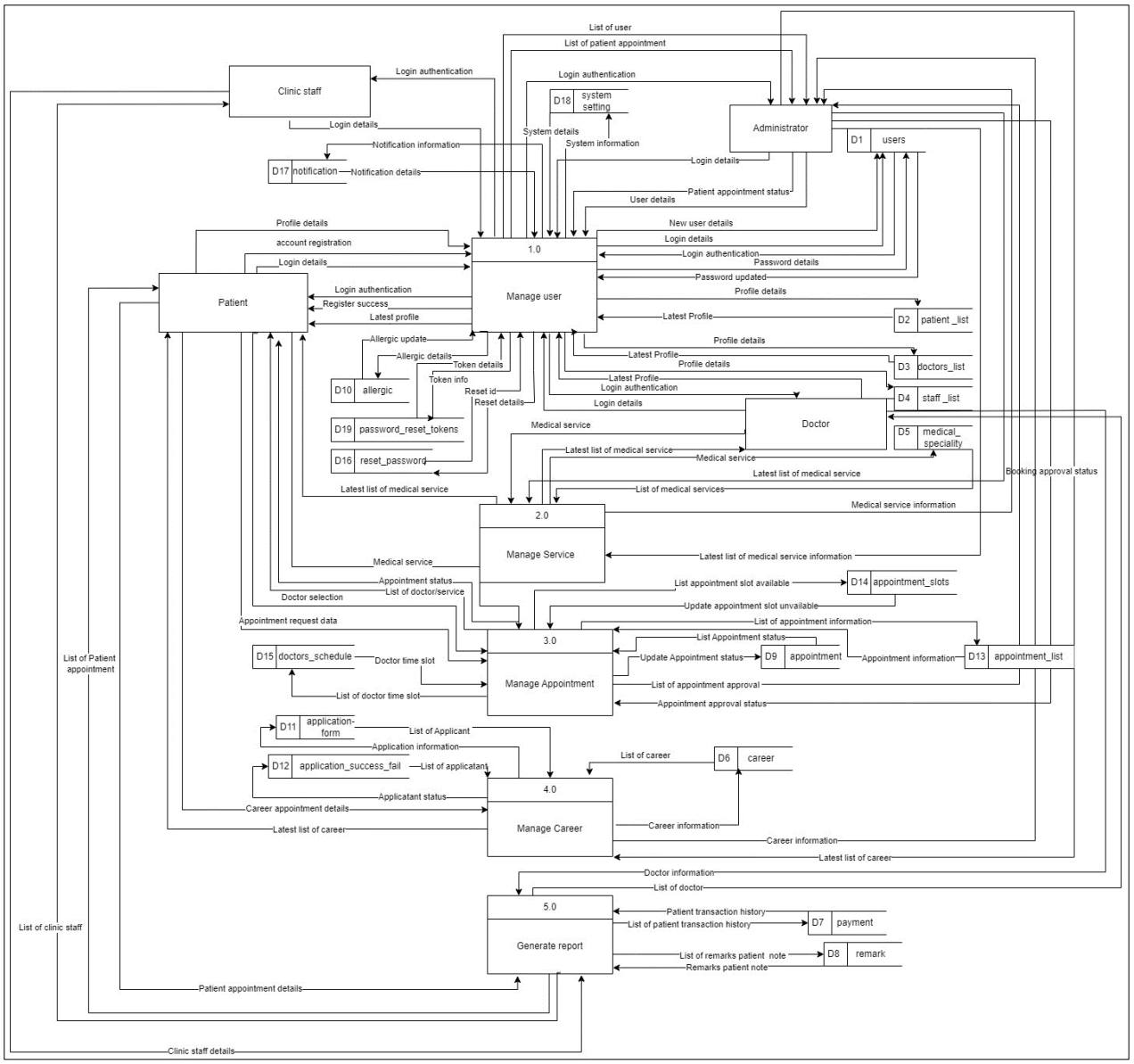


Figure 18: DFD Level 1

Appendix D

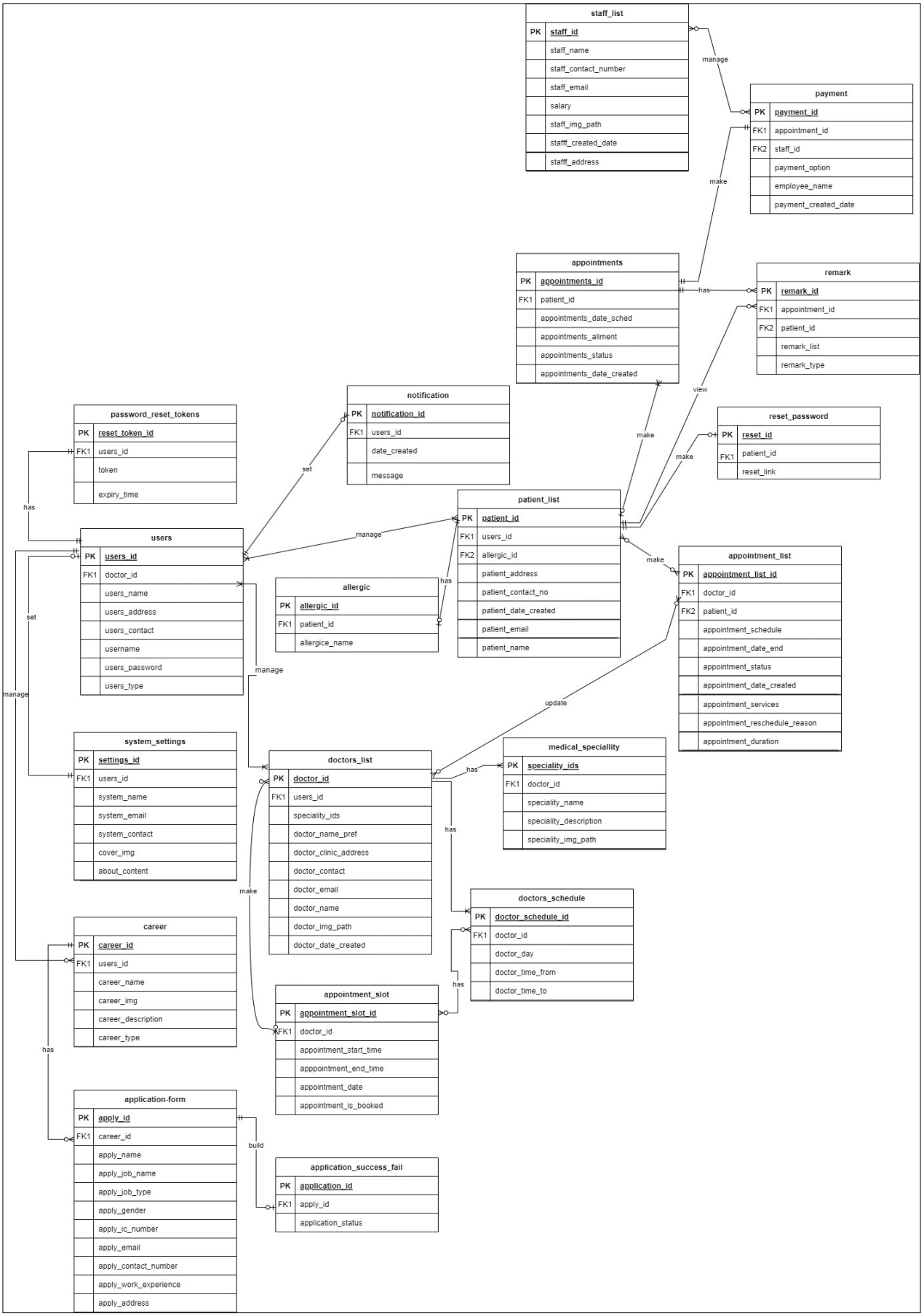


Figure 19: ERD

Appendix E

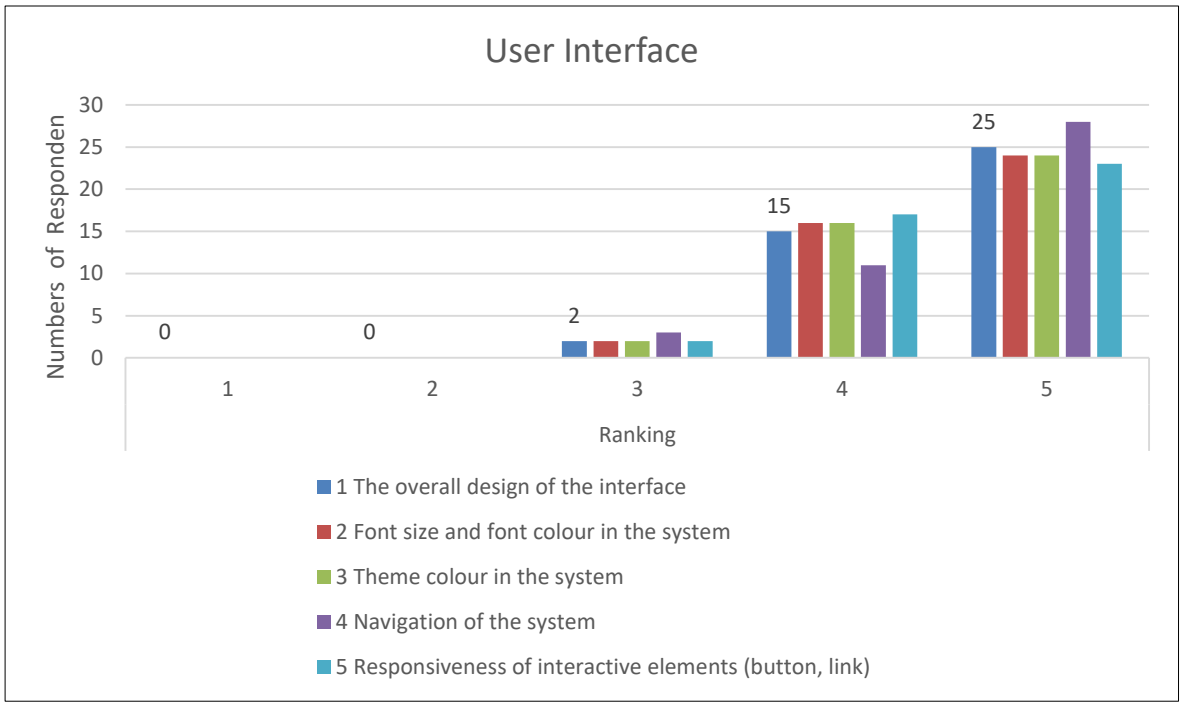


Figure 20: Graph of the result of user interface

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