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Development of Temangan Dental Clinic Management System

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Abstract: Temangan Dental Clinic Management System is a system that serves to manage information related to services at Temangan dental clinic. Purpose of this system is to solve the problems of dental clinic staff and patients in managing appointment dates, treatment and employees scheduling. The methodology used to develop system is simple SDLC. This system has three users: nurse, doctor, and patient, and six functional modules which are login, appointment, employee scheduling, stock, patient profile and record. Through this system, patients can make appointment by select available date and time, clinic staff can manage patient treatment records and staff scheduling. System can send appointment notification thorough patient email. Development of this system can increase the efficiency of service management system in Temangan clinic. Both user acceptance and functional testing were conducted. Result for functional testing is 100% successful. Google Forms was used to conduct user acceptance testing, and the system received positive feedback from the users.

Keywords: Clinic management, appointments

1.   Introduction

A dental clinic is a place where a dentist performs teeth treatments and dental procedures on the patients. Treatment of the dental clinic is important to maintaining a healthy mouth, teeth, and gums. To get the teeth treatment, the patient needs to follow the flow of dental clinic management. According to [1] "Visit your dentist twice a year" the most commonly used phrase in dentistry. This is because to prevent gum disease. Gum disease is an infection of soft tissues and bond that surround the teeth and can cause the loss of tooth [2]. This is the reason why treatment of dental clinic is important.

Temangan Dental Clinic is a clinic located in a rural. This dental clinic has no permanent workers, and city employees will be assigned to the Temangan clinic as needed. The management system of Temangan dental clinic is a manual system. The teeth treatment needs to record and stored for future use and this record is called a medical record. Medical record is an important primary tool in the practice of medicine and hospitals, the whole idea behind it is to provide better care of the patient through careful

recording of every detail having to do with his/her case [3]. The process of storing medical records will be using a manual or computerized system. For the Temangan dental clinic, the system used to store the medical record is a manual system. The medical and patient record were written on paper and kept in files and the files are divided into the section for each type of record such as patient appointment, patient treatment record, test result and staff scheduling. Each patient's record is stored by name and years after a patient's last treatment to easily track the patient's record. The employee schedule was created by using excel. WhatsApp platforms or the printed paper is used to share or hand out the weekly schedule of Temangan dental clinic. For the appointment, Temangan dental clinic used appointment cards to remind the patient of the next meeting date. To arrange a patient appointment, the employee used calendar paper and a book log to check the availability date and to keep track of appointments.

The manual system of Temangan dental clinic management can cause disadvantages to the clinic. The disadvantage of using a manual system is a lack of security. Documents that are misplaced can easily fall into the wrong hands. There is no backup of data if the data is lost or burn because the manual record only has one copy. This manual system can cause a time-consuming process to store the document because staff need to write down the data, divide the data into the section, and keep the record based on name and last year of treatment. Handling the patient record and store the record based on last year treatment safely is not easy. Moreover, a manual management system causes an increase in the cost of the Temangan dental clinic. Paper, files, storage, and so on are all very expensive processes in a manual management system. Based on the interview, one of the Temangan dental clinic staff states that the budget given is not enough to make an appointment card and the staff need to call the patient to arrange the appointment date. By 14 years of age, 30% of children have experienced a dental injury [4]. In this case, it can cause dental trauma in children. To solve this problem, it is important for dental professionals to understand how to best manage dental trauma, especially in the acute phase, as this will result in improved long-term outcomes for the patient [5]. This situation causes a problem to Temangan dental clinic's doctor to know which patient suffered dental trauma.

To solve the problem, encounter on the existing system, Temangan dental clinic management system is developed. This system is to help the flow of the clinic employee and patient to perform the teeth treatment. This system will keep the medical record of the patient. The staff can key in the medical record using the system and save the data into the system. The medical record will be stored in the database to keep the data secure. Furthermore, the employee schedule can be created using the system. The employee on duty will get the notification of the schedule from the system. In addition, the appointment process will be using the system. The employee can check the appointment schedule and appoint the patient appointment using the system. With this system, the patient will get the appointment reminder from the email. The patient can check the appointment date using their phone. The patient can cancel the appointment before the appointment date and the employee will reschedule the appointment after they get the cancellation notification. Moreover, the system will provide historical data on the patient's previous illnesses. Finally, the equipment supply will be stored in the system, and the nurse will be able to update the number of items left. If the equipment is out of stock, the system will send a request for new equipment to the suppliers through email.

This article is organized into five sections. The first part is an introduction describing the context of the project. the second section describe the analysis of the relevant work. In the third section, the methodology is explained. The implementation and testing of the system are described in the fourth section. In the last section, a conclusion with some introduction for future employment is given.

2. Related Work

This chapter discusses the related work that has been done in this project to assist in the development of new systems for dental clinics. The discussion is including the information management system methods, reviews the mobile application technology, and Three types of existing systems were studied and compared with the systems developed.

Management information system (MIS) is increasingly being used for information storage, handling, processing and retrieval of data for improving the services provided by any organisation [6]. MIS consist of both hardware and software components for use by managers, customers and other users [7]. MIS is aimed to meet the general information need of all the managers in the firm or in some organizational subunit of the firm [8]. The main goal of MIS is to gather the various important data, organize and reported information to organize and help organization to visualize the relationship from the data. Hence, MIS is implemented in a Temangan dental clinic management system to manage patient care and related administrative function. The data of the patient is captured and gathered in MIS. Patient data is captured online and saved in the system's database. Moreover, the report of patient treatment is generated by MIS. Moreover, the patient treatment report is generated in the MIS. This report is intended to provide the patient and doctor with information about the condition of the patient's teeth.

The Temangan dental clinic management system is developed using the mobile application. Mobile application is a software application that runs on the mobile device and has an operating system that supports standalone software [9]. Mobile applications are consisted of software or a set of programs that runs on a mobile device and perform certain tasks for the user [10]. Cell phones, alarm clocks, and currency calculators are the first simple mobile applications, and the developer then explores mobile applications with a wide range of features [10]. This mobile application is to help patients in scheduling appointments and receiving treatment quickly and efficiently. To registered to this application, the patient needs to verify their email account using OTP (One Time Password) number. OTP is an indispensable role on authenticating mobile users to critical web services that demand a high level of security [12]. This OTP number will be generated on the server and sent via email to the users.

The study of the similar existing system is carried out to analyze and compare the system with the system to be developed. Three similar existing systems have been chosen, which is iDentist, Dental Care Clinic Management System and my dental clinic. Table 1 shows the comparison of the similarity and differences between the three systems and also the system proposed to be developed.

Table 1: System's Comparison

Features/System	iDentist	Dental Care Clinic Management System	My Dental Clinic	Temangan Dental Clinic Management System
Login and Register	√	√	√	√
Appointment	√	✖	√	√
Treatment	√	√	√	√
Employee scheduling	✖	✖	✖	√
Patient record	√	√	√	√
Patient Profile	✖	✖	√	√

From the observation based on Table 2.1, registration, login, and treatment feature are available in all systems. For the appointment module, only Dental Care Clinic Management does not have this feature. As for Employee scheduling, all of the system in Table 2.1 does not have this module. Besides that, the doctor record feature is not available in the iDentist and My Dental Clinic system.

3.   Methodology

A software development methodology refers to the framework that is used to plan, manage, and control the process of developing an information system [13]. The simple Software Development Life Sycle (SDLC) model is selected to be used to developing this project. Simple Software Development Life Cycle model has five phases which is analysis phase, design phase, implementation phase and testing phase. Table 2 shows the software development phase and its activity.

Table 2: Software development activities and their task

Phase	Activity	Deliverables
Analysis	• Collect and analyze information. • Identify programming language. • Create UML diagram and class diagram.	Functional requirements Non-functional requirements Use-case diagram, Class diagram, Sequence diagram, Activity diagram, and Requirement Definition
Design	• Design system design, user interfaces and database.	System architecture User interface design Schema Table/ Data Dictionaries
Implementation	Performed the system of Temangan dental clinic by writing code.	Java programming code
Testing	User acceptance testing and functionalities testing	Test plan Test cases

The task of needs analysis is to gain a detailed understanding of the specification needs of the project. During system requirements analysis, framework development for application is generated that provides a foundation of all future design and development process. Functional module of the system is summarized in Table 3. It contains six modules, which are registration and login, appointment, employee schedule, patient profile, patient record and stock equipment.

System analysis is an analysis of requirements for determining specification for the system. Functional requirement for system is presented in Table 4 and non-functional requirement in Table 5.

Table 3: System functional module

System Module	Function	User
Registration and Login	Manage user registration and Login for the system user	Patient, doctor and nurse
Appointment	Arrange, check, cancel and rearrange the appointment Send appointment notification through e-mail.	Doctor and patient
Employee Scheduling	Make employee schedule and view schedule	Nurse and doctor
Patient record	Add, delete and update the treatment record. View previous treatment report.	Doctor
Patient profile	Check history treatment.	Patient

| Stock equipment | Add, view, and remove stock equipment. | Nurse |

**Table 4: Functional requirements**

No	Module	Description
1.	Registration and Login	• The system should allow new users to register before login into the system. • The system should allow user to login into the system using registered username/email and password. • The system should only allow a user to log in as a user with a valid username/email and password. • The system should alert the user for any invalid input. • The system should redirect user to that respective main menu upon successful login.
2.	Appointment	• The system should allow patient to choose date and time slot to make an appointment. • The system should be able to send appointment notification through user email. • The system should allow doctor and nurse to view list of patients for today appointment. • The system should allow doctor to view the patient appointment details. • The system should allow doctor to cancel the appointment. • The system should allow doctor to save the appointment treatment to database. • The system should allow user to rearrange the appointment date
3.	Employee Scheduling	• The system should allow doctor and nurse to choose days of working for every week. • The system should allow doctor and nurse view their working days. • The system should be able to delete the user working days automatically for every week.
4.	Patient record	• The system should allow the doctor to add a new treatment record of the patient with the visual structure of teeth. • The system should allow the doctor to update the patient's treatment record. • The system should allow the doctor to delete the patient's treatment record. • The system should allow the doctor to view the patient's previous treatment report.
5.	Patient profile	• The system should allow the patient to view history treatment. • The system should allow patient to view appointment date. • The system should allow patient to cancel the appointment date.

		• The system should allow patient to view the total bill.
6.	Stock equipment	• The system should allow the administrator to add, view, and remove the stock equipment. • The system should be able to send emails to the supplier when the equipment is out of stock.

Table 4.3: Non-functional requirements of the developed system

No	Requirements	Description
1.	Performance	The system should be usable at all times
2.	Operational	The loading time required for a website is no more than 1 minute
3.	Security	The system should be user friendly
4.	Cultural and political	The system should be able to work on any web browser

Figure 1 shows the use case diagram that represents the overall activity of the Temangan Dental Clinic Management System. Six use cases connected to the actors: login, patient record, patient profile, employee schedule, appointment, and stock equipment. The patient can login to the system, view the patient profile and manage the appointment. Doctor can login to the system, manage the patient record and update their schedule. Nurse can login to the system, create the employee schedule, manage the appointment and manage the stock equipment.
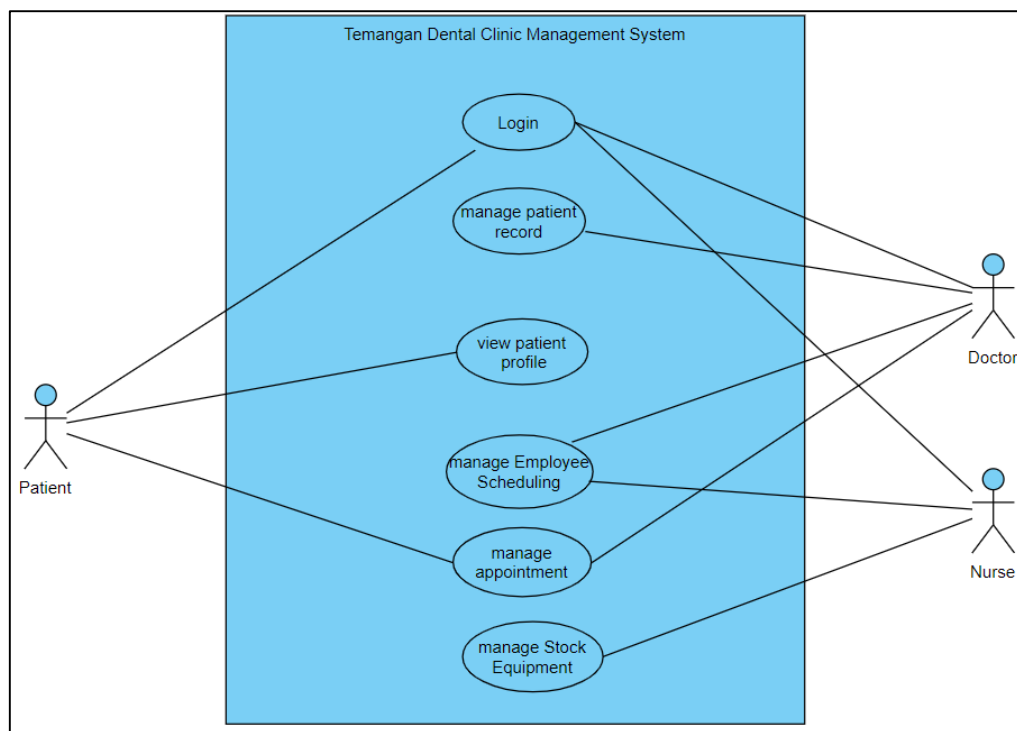
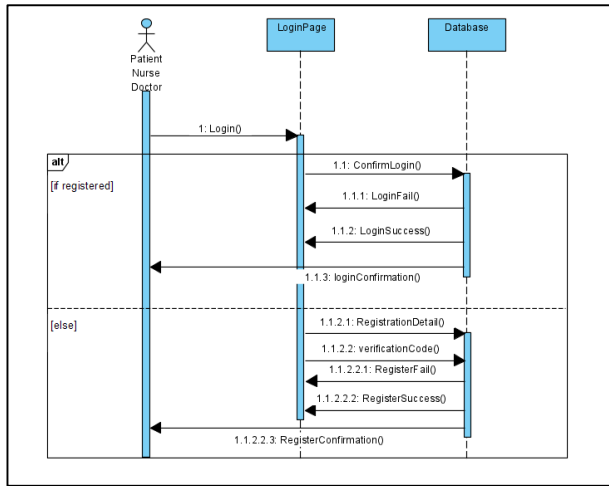**Figure 1: Use Case Diagram of Proposed System**

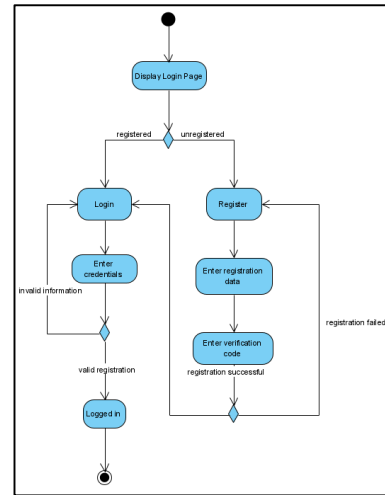Figure 2: Sequence diagram of login Use Case

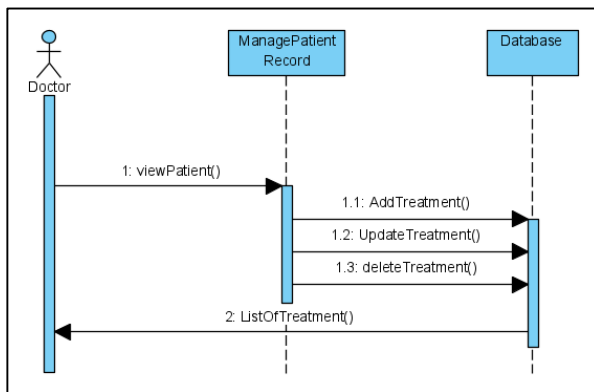Figure 3: Activity diagram of login Use Case

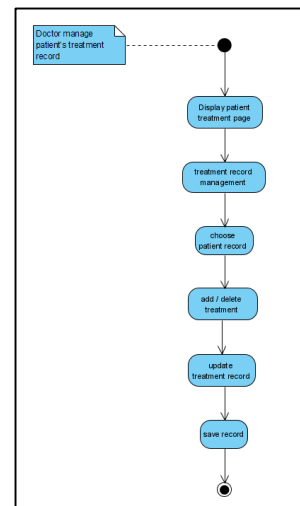Figure 4: Sequence diagram of manage patient record Use Case

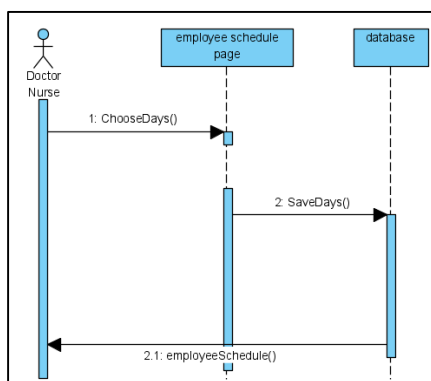Figure 5: Activity diagram of manage patient record Use Case

Figure 6: Sequence diagram of manage employee scheduling Use Case
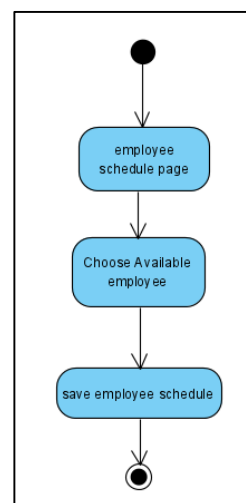

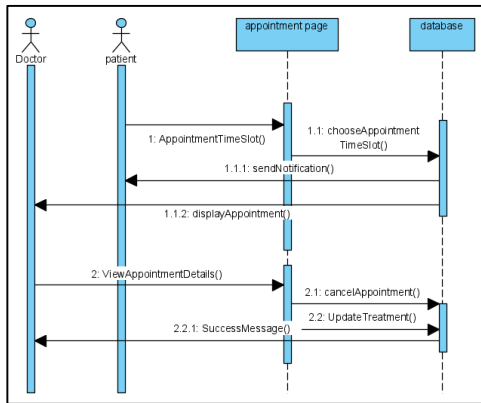Figure 7: Activity diagram of manage employee scheduling Use Case

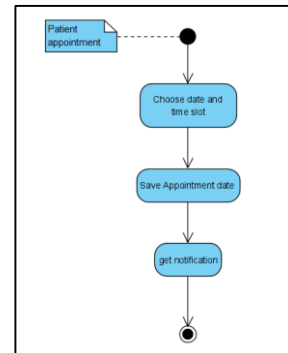Figure 8: Sequence diagram of manage appointment Use Case

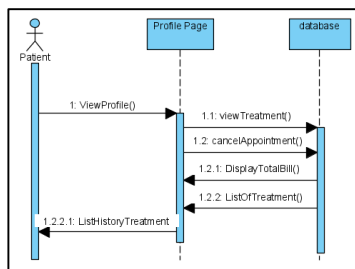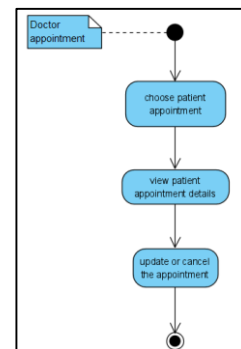Figure 9: Activity diagram of manage appointment Use Case

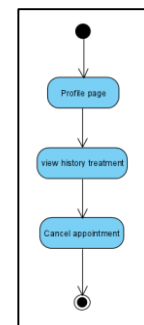Figure 10: Sequence diagram of view patient profile Use Case

Figure 11: Activity diagram of view patient profile Use Case
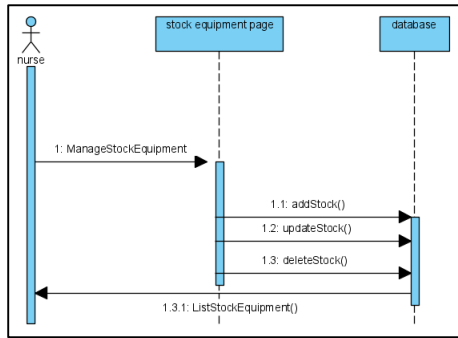
Figure 12: Sequence diagram of manage stock equipment Use Case
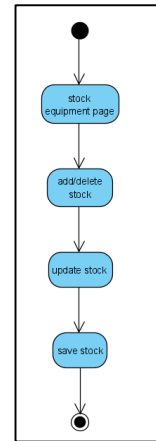
Figure 13: Activity diagram of manage stock equipment Use Case

Figure 14 shows the class diagram of the Temangan Dental Clinic Management System. The new system's class diagram contains nine classes, three of which are from the actors (patient, doctor, and nurse) and six more from the use cases (`login`, `patient record`, `patient profile`, `employee scheduling`, `appointment`, and `stock equipment`).
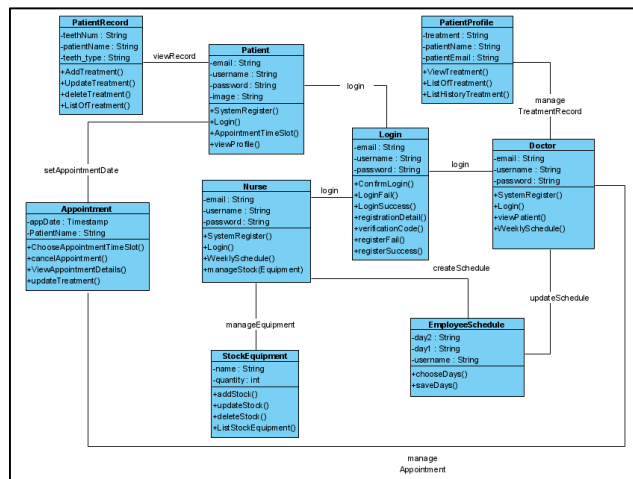
Figure 14: Class Diagram

A system architecture is a conceptual model that defines the system's structure, and behavior [14]. Figure 16 shows the system architecture of the Temangan dental clinic management system.

Figure 16: System Architecture

Data dictionary is a collection of the data in the ambient noise monitoring the system IoT at construction site. Information in this system includes attributes, datatype, constraints and description. Table 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14 and 4.15 show the data dictionary of the proposes system.
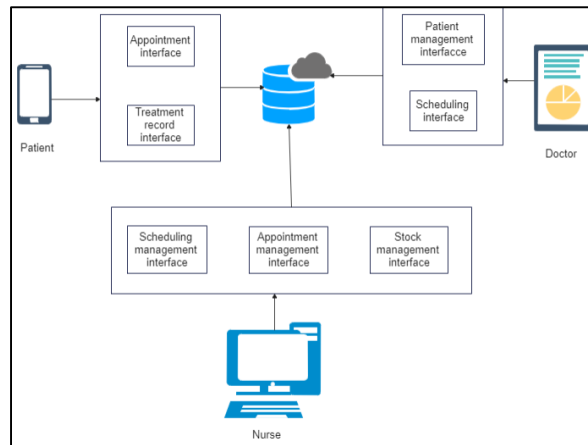
Table 4.14: Patient Table

Attributes	Data Type	Constraints		Description
		Null	Key	
Patient_username	string	No	Primary	Username of the patient
Patient_email	string	No		Patient email
Patient_pass	string	No		Patient password
cost	string	No		Total of bill

Table 4.15: Nurse Table

Attributes	Data Type	Constraint		Description
		Null	Key	
Nurse_username	string	No	Primary	Username of the nurse and doctor
Nurse _email	string	No		Nurse and doctor email
Nurse _pass	string	No		Nurse and doctor password

Table 4.16: Doctor Table

Attributes	Data Type	Constraint		Description
		Null	Key	
doctor_uasername	string	No	Primary	Username of the nurse and doctor
doctor _email	string	No		Nurse and doctor email
doctor _pass	string	No		Nurse and doctor password

Table 4.17: Login Table

Attributes	Data Type	Constraints		Description
		Null	Key	
username	string	No	Primary	Username of the user
email	string	No		user email

password	string	No		user password
status	string	No		User role

Table 4.18: Patient_Record Table

Attributes	Data Type	Constraint		Description
		Null	Key	
patient_username	string	No	Foreign	Patient username
Teeth_num	string	No		Patient teeth num
Teeth_type	string	No		Type of treatment
status	string	No		Status of treatment

Table 4.19: Stock_Equipment Table

Attributes	Data Type	Constraint		Description
		Null	Key	
name	string	No	Primary	Stock equipment name
quantity	string	No		Quantity of stock

Table 4.20: Appointment Table

Attributes	Data Type	Constraint		Description
		Null	Key	
Patient_username	varchar	No	Foreign	Username of patient
App_time	string	No		Appointment time slot
App_date	string	No		Patient appointment date

Table 4.21: Employee_Scheduling Table

Attributes	Data Type	Constraint		Description
		Null	Key	
Username	string	No	Foreign	Nurse and doctor username
day1	string	No		First day of nurse and doctor choose
day2	string	No		Second day of nurse and doctor choose
tday	string	No		The day of doctor and nurse update their schedule
status	String	No		User role
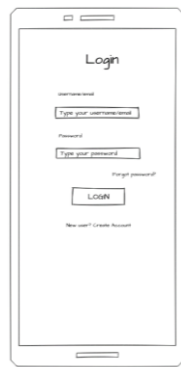
Figure 17: Login interface for patient
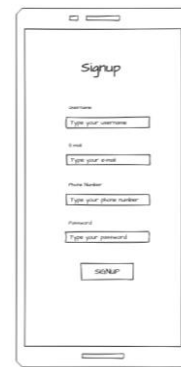
**Figure 18: registration interface for patient**

Figure 17 show the interface of login for users. From this login interface, users need to insert username or email, and password. If the user not registered, user need to click 'Create Account' and need to register to the system. Figure. In registration interface, user need to insert username, e-mail, and password. After user click 'SIGNUP' user need to insert the verification code that send through the user e-mail. Figure 19 shows the patient record module. In this module, users need to choose patient record in the patient list to manage the patient treatment record.
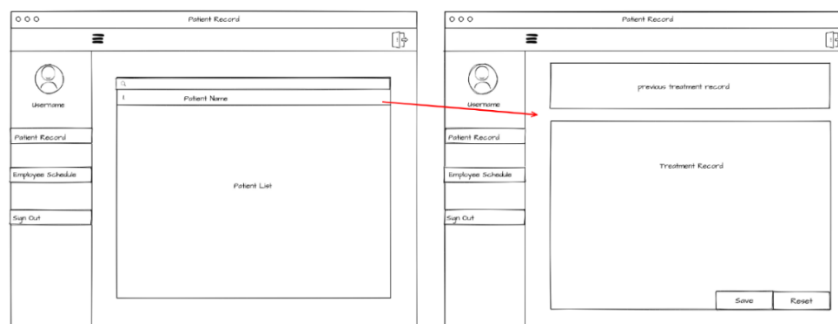
Figure 19: patient record interface for doctor

Figure 20 shows the interface of employee scheduling for nurse. In this interface, nurse need and doctor need to choose day for their weekly schedule. Than the interface will display the user's schedule.
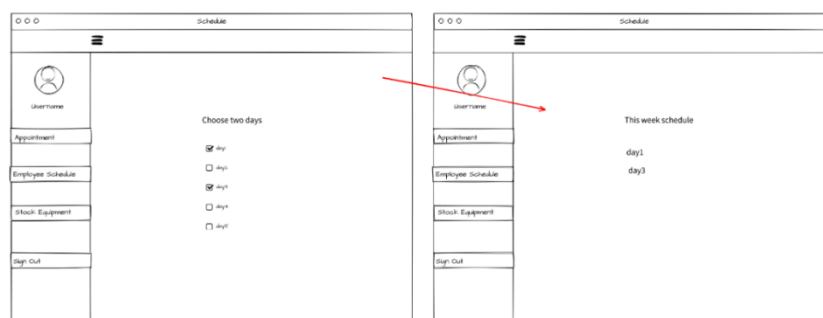
Figure 20: employee scheduling module for nurse
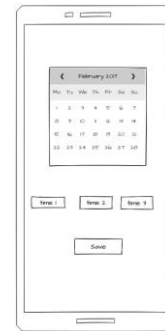
Figure 21 shows the appointment interface for nurse. In this interface list of today appointment is displayed. Doctor needs to choose patient appointment and the system will open the details of patient appointment. In this interface doctor can cancel the appointment by clicking the 'cancel' button. Doctor also can click 'complete' button update the patient appointment.

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Figure 21: Appointment interface for doctor

Figure 22: Appointment interface for patient

Figure 22 shows the appointment interface for patient. The patient needs to choose date and available time slot. Click 'save' to save the appointment date.

4. Results and Discussion

Table 5 show the test case for login module. All of the functional requirements in login module are tested.

Table 5: Login Module Testing

Test Case Id	TC_100
Test Case Name	Login
User	Patient, doctor, nurse
Summary	User register and login into the system with valid information.

Test Case ID	Software Requirement Specification	Description	Pass/Fail
TC_100_101	SRS_REQ_101	System login page view	Pass
TC_100_102	SRS_REQ_102	Users sign into the system with valid information	Pass
TC_100_103	SRS_REQ_103	System displays error message if login is invalid	Pass
TC_100_104	SRS_REQ_104	Users register with input personal data	Pass
TC_100_105	SRS_REQ_105	System sends validation code through email	Pass
TC_100_106	SRS_REQ_106	Users enter the validation code.	Pass
TC_100_107	SRS_REQ_107	System displays error message if the registration is not successful.	Pass

TC_100_108	SRS_REQ_108	System store user information in database once registration successful	Pass

Table 6 show the test case for patient record module. All of the functional requirements in patient record module are tested.

Table 6: Patient Record Module Testing

Test Case Id	TC_200
Test Case Name	Patient Record
User	Doctor
Summary	Doctor adds, edit, delete patient treatment record

Test Case ID	Software Requirement Specification	Description	Pass/Fail
TC_200_201	SRS_REQ_201	System patient record page view	Pass
TC_200_202	SRS_REQ_202	System displays list of patient record	Pass
TC_200_203	SRS_REQ_203	Users choose patient record	Pass
TC_200_204	SRS_REQ_204	Users add the new treatment record	Pass
TC_200_205	SRS_REQ_205	Doctor updates the treatment record	Pass
TC_200_206	SRS_REQ_206	Users delete the treatment record	Pass
TC_200_207	SRS_REQ_207	Users save the treatment record	Pass
TC_200_208	SRS_REQ_208	System stores the patient treatment record in database	Pass

Table 7 show the test case for employee scheduling module. All of the functional requirements in employee scheduling module are tested.

Table 7: employee scheduling module Testing

Test Case Id	TC_300
Test Case Name	Employee Scheduling
User	Doctor and nurse
Summary	Doctor and nurse arrange their weekly schedule

Test Case ID	Software Requirement Specification	Description	Pass/Fail
TC_300_301	SRS_REQ_301	System employee schedule page view	Pass
TC_300_302	SRS_REQ_302	Users arrange weekly schedule	Pass
TC_300_303	SRS_REQ_303	System automatically deletes the employee schedule at the end of week	Pass
TC_300_304	SRS_REQ_304	System stores the employee schedule in database	Pass
TC_300_305	SRS_REQ_305	System displays the employee schedule	Pass

Table 8 show the test case for appointment module. All of the functional requirements in appointment module are tested.

Table 8: appointment module Testing

Test Case Id	TC_400
Test Case Name	Appointment
User	Doctor, patient and nurse
Summary	Patient can make the appointment and doctor can view the appointment.

Test Case ID	Software Requirement Specification	Description	Pass/Fail
TC_400_401	SRS_REQ_401	System appointment page view	Pass
TC_400_402	SRS_REQ_402	Patient choose the appointment time slot	Pass
TC_400_403	SRS_REQ_403	System stores the appointment date in database once the appointment date is set	Pass
TC_400_404	SRS_REQ_404	System sends the appointment date reminder to the users.	Pass
TC_400_405	SRS_REQ_405	Doctor and nurse view list of patient appointment.	Pass
TC_400_406	SRS_REQ_406	Doctor view patient appointment details	Pass
TC_400_407	SRS_REQ_407	Doctor cancels the appointment	Pass
TC_400_408	SRS_REQ_408	Doctor completes the patient treatment	Pass
TC_400_409	SRS_REQ_409	System update patient treatment	Pass

Table 9 show the test case for patient profile module. All of the functional requirements in patient profile module are tested.

Table 9: patient profile module Testing

Test Case Id	TC_500
Test Case Name	Patient Profile
User	patient
Summary	Patient view history treatment, make an appointment and cancel the appointment

Test Case ID	Software Requirement Specification	Description	Pass/Fail
TC_500_501	SRS_REQ_501	System patient profile page view	Pass
TC_500_502	SRS_REQ_502	System retrieves patient treatment from database	Pass
TC_500_503	SRS_REQ_503	Patient view history treatment	Pass
TC_500_504	SRS_REQ_504	Patient make an appointment	Pass
TC_500_505	SRS_REQ_505	Patient cancel the appointment	Pass

Table 10 show the test case for stock equipment module. All of the functional requirements in stock equipment module are tested.

Table 10: patient profile module Testing

Test Case Id	TC_600
Test Case Name	Stock Equipment
User	nurse
Summary	Nurse add, update and delete the stock equipment

| Test Case ID	Software Requirement Specification	Description	Pass/Fail
TC_600_601	SRS_REQ_601	System stock equipment page view	Pass
TC_600_602	SRS_REQ_602	Users add stock equipment	Pass
TC_600_603	SRS_REQ_603	Users update stock equipment	Pass

TC_600_604	SRS_REQ_604	User delete stock equipment	Pass
TC_600_605	SRS_REQ_605	User save stock equipment	Pass
TC_600_606	SRS_REQ_606	System stores the stock equipment in database	Pass

The last test done on this application is the user acceptance test. This test helps to determine whether the system functions as users expected. In this user acceptance test, 25 participants participated in the evaluation. Their feedback is taken through the goggle form. The questions consist of two sections, which is section A and B. Section A is evaluation for effectiveness of system and section B is to evaluate system interface. The question of section A is shown as in Table 11. The question has scale from 1 to 4. Scale 1 is poor, 2 is fair, 3 is good and 4 is very good.

Table 11: patient profile module Testing

No	Question	Scale				total
		1	2	3	4	
1	The system meets the requirements of Temangan dental clinic	0	0	3	13	15
2	The system help patient to make an appointment smoothly	0	0	5	10	15
3	The system helps doctor and nurse manage the clinic schedule easily	0	0	3	12	15
4	The system help doctor to manage patient treatment	0	2	5	8	15
5	The system help nurse to track the clinic tools	0	0	3	12	15

Figure 4.1 shows the result of section A questions in bar chart form. A total of 12 users gives very good ratting for question 1, 3, and 5. While, 2 users give fair ratting for question 4.
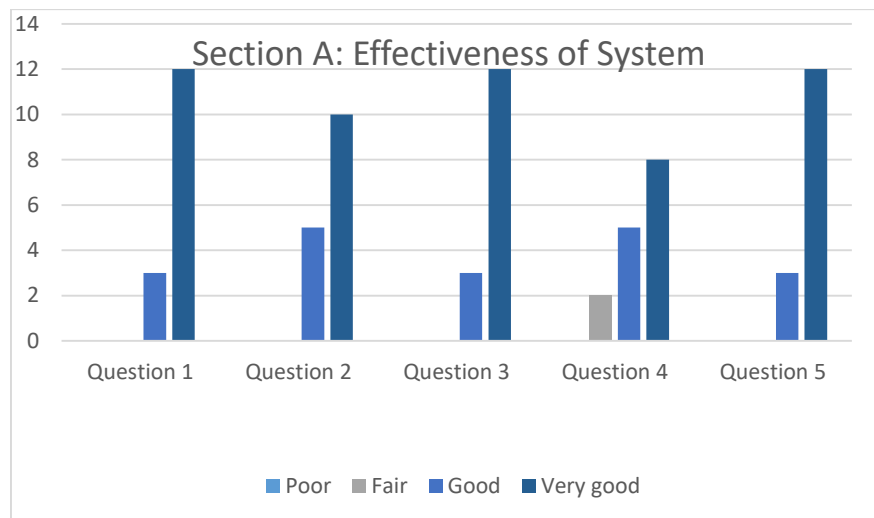

The question of section B is shown as in Table 12. Same like section A question, the question has scale from 1 to 4. Scale 1 (poor), 2 (fair), 3 (good) and 4 (very good).

Table 12: patient profile module Testing

No	Question	Scale				total
		1	2	3	4	
1	The interface is user friendly.	0	0	3	13	15
2	The interface (text, graphic, color) is consistent.	0	0	5	10	15
3	User has good control of interface.	0	0	3	12	15
4	The design is comprehendible.	0	2	5	8	15
5	It is designed to minimize user error.	0	0	3	12	15

Figure 4.2 shows the result of section B questions in bar chart form. A total of more than 14 users gives very good ratting for question 5. While, 2 users give good ratting for question 1 and 4.

Section B: Interface Design Satisfaction
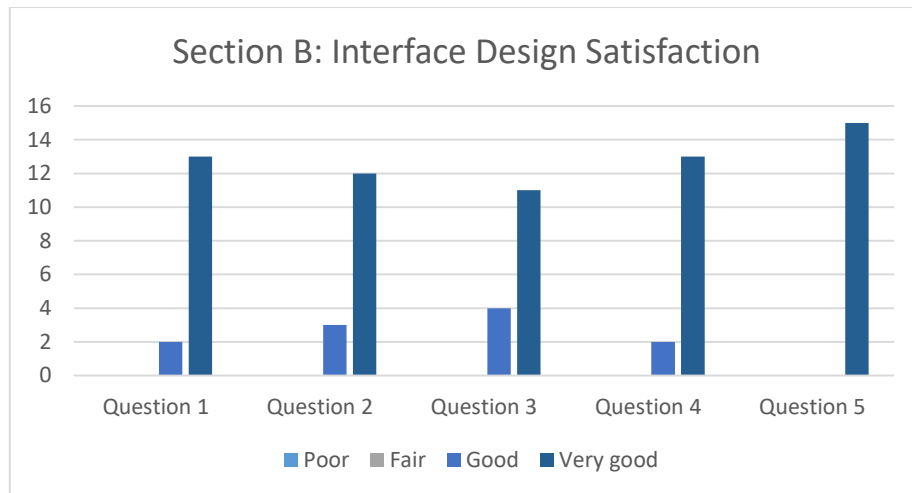
5. Conclusion

In conclusion, the Temangan Dental Clinic system is design and developed to improve the current system used by Temangan Dental Clinic. There are several benefits of the system that can help clinic staff and patient. This system allows users to manage the appointment, patient record and staff scheduling. Doctor manages patient treatment records in the system to keep patient records secure. In addition, nurses can manage the stock of clinic equipment to track the stock of the clinic. Through this system, patients can select an appointment time slot to set appointment date. Therefore, this app can increase the efficiency of the service management system in Temangan dental clinic. There are several disadvantages of the system. Among the disadvantages of this system are not provide online payment service. The system only displays the total of bill and there is no online payment to pay the bill. Moreover, the system doesn't have auto delete appointment. If user did not attendant the appointment the user appointment still pending in the system and doctor need to cancel the appointment to delete user appointment. To complete this developed system, some suggestions that can be implement to improve the system for the future. The improvement that can be implement in this system is provide online payment service such as online banking service. Lastly the system should delete the appointment of patient if the patient did not attend the appointment 10 minutes earlier than the appointment date.

Acknowledgment

Appendix A (Optional)

Table 13: Requirement Traceability Matrix of the Proposed System.

No	Module	Description
1.	Registration and Login	• The system should allow new users to register before login into the system. • The system should allow user to login into the system using registered username/email and password. • The system should only allow a user to log in as a user with a valid username/email and password. • The system should alert the user for any invalid input. • The system should redirect user to that respective main menu upon successful login.

2.	Appointment	• The system should allow patient to choose date and time slot to make an appointment. • The system should be able to send appointment notification through user email. • The system should allow doctor and nurse to view list of patients for today appointment. • The system should allow doctor to view the patient appointment details. • The system should allow doctor to cancel the appointment. • The system should allow doctor to save the appointment treatment to database.
3.	Employee Schedule	• The system should allow doctor and nurse to choose days of working for every week. • The system should allow doctor and nurse view their working days. • The system should be able to delete the user working days automatically for every week.
4.	Patient record	• The system should allow the doctor to add a new treatment record of the patient with the visual structure of teeth. • The system should allow the doctor to update the patient's treatment record. • The system should allow the doctor to delete the patient's treatment record. • The system should allow the doctor to view the patient's previous treatment report.
5.	Patient profile	• The system should allow the patient to view history treatment. • The system should allow patient to view appointment date. • The system should allow patient to cancel the appointment date. • The system should allow patient to view the total bill.
6.	Stock equipment	• The system should allow the administrator to add, view, and remove the stock equipment.

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