**Dental Clinic Services System**

Software Requirement Specification

By

**Kanokwan Maneerat 542115002**

**Worapun Wongkium 542115055**

Department of Software Engineering

College of Arts, Media, and Technology

Chiang Mai University

Project Adviser

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Miss Pattama Longanee

**Software Requirement Specification**

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**Chapter One: Introduction**

## 1. Introduction

### 1.1 Objectives

Dental clinic service system consists of a web application and a mobile application which supports iOS7. The system supports English language for people who are patients, officers, or dentists of dental clinics. Furthermore, it offers some features for visitors who would like to gain information about the clinic. This system will reduce officers’ work and help patients save their time. Patients can find information about the dental clinic and personal information using the mobile application as well as the web application. For the visitor who wants to have a dental treatment from the clinic, and the dentist can use the system for checking their appointment schedule. Dental clinic services system integrates the services that are provided by most dental clinics into the web application and the mobile application. By combining all the services into one, the system provides more convenience to dental clinic users as well as staff.

This Software Requirement Specification has described in more detail of each requirement and each function that the system should have. The document includes the scope of the project, the system’s functionalities, user characteristic, functional requirements, and non-functional requirements.

### 1.2 Project Scope

The objective of this software design is to specify the requirements that the system should fulfill, which are as follows:

* Dental clinic services system provides an application that is accessible via web browser on a computer and also on a mobile phone.
* Dental clinic services system on mobile phone support iOS.
* Dental clinic services system supports English language only.
* Dental clinic services system provides features for dental clinics’ registered user whose are patients, officers and dentists.
* Dental clinic services system assists managing appointments of patients and dentists using the web application and the mobile application.
* Dental clinic services system provides a user authentication for each patient and dentist through dental clinic officers.

### 

### 1.3 User Classes and Characteristics

The system divides users into 4 groups. Information and characteristics of each group are listed below.

* **Visitor**

This group of user no needs to register to the system to use the services on the website or to use their mobile phone. Visitor is able to:

* Visitor can view calendar from Google Calendar.
* Visitor can estimate the cost of dental treatment.
* Visitor can view information and promotion of the dental clinic.
* **Patient**

This group of users needs to be registered to the system at the dental clinic. They will get patientID and password from the clinic to use the services on the website or using their mobile phone. Patients use their patientID to login. Patients are able to:

* Patient can login to view own appointment.
* Patient can view all appointment from Google calendar.
* Patient can receive patientID and password form the dental clinic officer.
* Patient can use the QR code to identify his/herself.
* Patient can estimate the cost of dental treatment.
* Patient can view information and promotion of the dental clinic.

**Officer**

This group of users have the highest privilege in the system. They are given access to management functions for maintaining the system. Officers are able to:

* Officer can login to create patient and dentist account.
* Officer can login to create patient and dentist appointment.
* Officer can login to create patient and dentist appointment in Google calendar.
* Officer can login to add information and promotion into the website.

**Dentist**

This group of users needs to be registered to the system at the dental clinic. They will register their account at the clinic. Dentists use their dentistID and password to login to the system to use the services. Dentists are able to:

* Dentist can login to view own appointment
* Dentist can view all appointment from Google calendar
* Dentist can receive dentistID and password from the dental clinic officer
* Dentist can estimate the cost of dental treatment.
* Dentist can view information and promotion of the dental clinic.
* Dentist can communicate with patient

2. **1.4 Operation Environment**

Dental clinic services system uses web service technology and iOS technology. All the characters must have the Internet connection. Patients who want to use the mobile application must use a smartphone which supports iOS7.

**1.5** **Acronyms and Definitions Acronyms**

**Acronyms**

|  |  |
| --- | --- |
| **Acronyms** | **Stands for** |
| Registered User | Patient, Dentist, and Officer |
| Non-registered User | Visitor |
| PSR | Project Status Report |
| PM | Project Management |
| PMP | Project Management Plan |
| URS | User Requirement Specification |
| SRS | Software Requirement Specification |
| VSE | Very Small Entity |
| QR code | Quick Response Code |
| UC | Use Case |
| AD | Activity Diagram |
| UI | User Interface |
| UTC | Unit Test Case |
| STC | System Test Case |
| CD | Class Diagram |
| SD | Sequence Diagram |

# Chapter Two: Overall Description

## 2. Overall Description

### 2.1 Product Perspective

The Dental clinic services system consists of a mobile application base on iOS and a web application. The system helps patients save their time to contact the dental clinic by providing features such as making an appointment, viewing upcoming appointment, and getting cost estimation. It helps dentist to follow up their patients and check their appointments and schedule. Also the system reduces works of officers by providing them with features such as using QR code to identify patients at the clinic, managing appointments for patients and dentists. This system combines most of dental clinics' services into one application.

### 2.2 Product Features

The dental clinic services system offers seven features.

* Feature 1: Schedule management
* Feature 2: User registration and authentication
* Feature 3: Appointment management
* Feature 4: Patient identification using QR code
* Feature 5: Dental care consulting and following up
* Feature 6: A dental clinic information and promotion
* Feature 7: Cost estimation of dental treatments

Each of features will create a step-by-step suit by priority. In this progress we will develop Feature 1, 2, and 3

### 2.3 Design and Implementation Constraints

### List of project constraints:

* The application works only on iOS version7.
* The application requires the Internet connection.
* The application is available for users who are already registered to the system to use all the services and who are not registered to the system will be a visitor whose can be able to use only some services.

# Chapter Three: User Requirement

## 3. User requirement

## 3.1 Dental clinic services system URS

#### Feature 1: Schedule management

* URS-01: Patient can view own appointment in mobile application
* URS-02: Patient can view all appointments from Google calendar in mobile application
* URS-03: Patient can view own appointment in website
* URS-04: Dentist can view own appointment in website
* URS-05: Visitor can view all appointments from Google calendar in website
* URS-06: Officer can view all appointments as a list in website
* URS-07: Officer can view patients’ appointment as a list in website
* URS-08: Officer can view dentists’ appointment as a list in website
* URS-09: Registered User can view all appointments from Google calendar in website

#### Feature 2: Appointment management

* URS-10: Officer can create a new appointment
* URS-11: Officer can edit the appointment
* URS-12: Officer can delete the appointment
* URS-13: Officer can save the appointment to Google calendar

#### Feature 3: User registration and authentication

* URS-14: Patient can login to the mobile application
* URS-15: Registered User can login to the website
* URS-16: Patient can logout from the mobile application
* URS-17: Registered User can logout from the website
* URS-18: Officer can create an account for new patient
* URS-19: Officer can edit patients’ information
* URS-20: Officer can delete patients’ account
* URS-21: Officer can create an account for new dentist
* URS-22: Officer can edit dentists’ information
* URS-23: Officer can delete dentists’ account
* URS-24: Officer can view all patients’ account as a list
* USR-25: Officer can view all dentists’ account as a list

**Feature 4: Patient identification using QR code**

* URS-26: Patient can use the QR code to identify his/herself
* SRS-: System shall generate the QR code after the patient registration success
* SRS-: System shall add the patient’s QR code to the database
* SRS-: System shall provide the patient’s QR code in QR code function in mobile application
* SRS-: System shall provide the patient’s QR code in QR code function in the website

**Feature 5: Dental care consulting and following up**

* URS-27: Dentist can communicate with patient in follow up page
* URS-28: Patient can leave the message in the follow up page in the website
* URS-29: Patient can leave the message in the follow up page in the mobile application
* SRS-: System shall provide the follow up page in the website
* SRS-: System shall provide the follow up page in the mobile application
* SRS-: System shall update the message in real time
* SRS-: System shall add the patient’s message into the database
* SRS-: System shall add the dentist ‘s message into the database
* SRS-: System shall provide the patient’s message in the follow up page
* SRS-: System shall provide the dentist’s message in the follow up page

**Feature 6: A dental clinic information and promotion**

* URS-30: Patient can view the dental clinic information and promotion in the website
* URS-31: Patient can view the dental clinic information and promotion in mobile application
* URS-32: Officer can add the information and promotion
* URS-33: Visitor can view the dental clinic information and promotion
* SRS-: System shall add the dental clinic information and promotion in the database
* SRS-: System shall retrieve the dental clinic information data from the database
* SRS-: System shall retrieve the dental clinic information data from the database
* SRS-: System shall provide the dental information page in website
* SRS-: System shall provide the dental clinic promotion page in website
* SRS-: System shall provide the dental information page in mobile application
* SRS-: System shall provide the dental clinic promotion page in mobile application

SRS-: System shall provide the create information and promotion page

* SRS-: System shall add information’s data including dental information description into the database
* SRS-: System shall update information and promotion table in the database
* SRS-: System shall show error message “Please fill out this field” for any field that requires being not empty

**Feature 7: Cost estimation of dental treatments**

* URS-34: Patient can estimate the dental treatment cost by his/herself in the website
* URS-35: Patient can estimate the dental treatment cost by his/herself in the mobile application
* URS-36: Visitor can estimate the dental treatment cost by his/herself in the website
* URS-37: Officer can input the information of dental treatment including the detail and cost.
* SRS-: The system shall provide the dental treatment page in website

SRS-: The system shall provide the create dental treatment information page

* SRS-: The System shall add dental treatment’s data including dental treatment information description and cost into the database
* **SRS-:** The system shall update treatment info table in the database
* **SRS-:** The System shall show error message “Please fill out this field” for any field that requires being not empty
* SRS-: The system shall provide the dental treatment page in mobile application

### 3.2 Dental clinic services system SRS

**SRS-01:** System shall connect with the database

**SRS-02:** System shall retrieve patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-03:** System shall provide patients’ appointment data from the database in appointment page in mobile application

**SRS-04:** System shall provide appointment calendar from Google calendar in appointment calendar page in the website

**SRS-05:** System shall provide appointment calendar form Google calendar in calendar page in mobile application

**SRS-06:** System shall provide patients’ appointment data from the database in patient appointment page in the website

**SRS-07:** System shall retrieve dentists’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-08:** System shall provide dentists’ appointment data from the database in dentist appointment page in the website

**SRS-09:** System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-10:** System shall provide all appointments’ data as a list from the database in all appointment page

**SRS-11:** System shall provide patients’ appointment data from the database in patient appointment page (for officer) in the website

**SRS-12:** System shall provide dentists’ appointment data from the database in dentist appointment page (for officer) in the website

**SRS-13:** System shall provide create appointment page in the website

**SRS-14:** System shall add appointments’ data including patientID, dentistID, appointment date, start time, end time, dental treatment, and description into the database

**SRS-15:** System shall update appointment table in the database

**SRS-16:** System shall provide appointments’ edit page in the website

**SRS-17:** System shall edit appointments’ data in appointment table in the database

**SRS-18:** System shall delete appointments’ data in appointment table in the database

**SRS-19:** System shall redirect to Google calendar page

**SRS-20:** System shall provide appointments’ data from the database in Google calendar form in Google website

**SRS-21:** System shall save appointments’ data into the Google calendar

**SRS-22:** System shall provide patient login page in the website

**SRS-23:** System shall validate patientID and password from input form matching with the data in patient table in the database

**SRS-24:** System shall redirect to patient login page if login fail

**SRS-25:** System shall redirect to index page in the website

**SRS-26:** System shall store session after login success

**SRS-27:** System shall provide patient login page in mobile application

**SRS-28:** System shall display error message if there are empty fields “Please input patientID and password” in mobile application

**SRS-29:** System shall display error message if login fail “You’re login fail” in mobile application

**SRS-30:** System shall redirect to index page in mobile application

**SRS-31:** System shall destroy session

**SRS-32:** System shall provide create patient account page in the website

**SRS-33:** System shall add patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment into the database

**SRS-34:** System shall update patient table in the database

**SRS-35:** System shall provide patients’ edit page in the website

**SRS-36:** System shall edit patients’ information in patient table in the database

**SRS-37:** System shall delete patients’ account in patient table in the database

**SRS-38:** System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database

**SRS-39:** System shall provide patients’ data as a list in the patient list page

**SRS-40:** System shall provide create dentist account page in the website

**SRS-41:** System shall add dentists’ data including dentistID, password, first name, last name, address, email, and tel. into the database

**SRS-42:** System shall update dentist table in the database

**SRS-43:** System shall provide dentists’ edit page in the website

**SRS-44:** System shall edit dentists’ information in dentist table in the database

**SRS-45:** System shall delete dentists’ account in dentist table in the database

**SRS-46:** System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database

**SRS-47:** System shall provide dentists’ data as a list in the dentist list page

**SRS-48:** System shall display alert message “Invalid patientID or password”

**SRS-49:** System shall display alert message “Invalid officerID or password”

**SRS-50:** System shall display alert message “Invalid dentistID or password”

**SRS-51:** System shall retrieve all patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-52:** System shall retrieve all dentists’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-53:** System shall redirect to dentist login page if login fail

**SRS-54:** System shall redirect to officer login page if login fail

**SRS-55:** System shall validate dentistID and password from input form matching with the data in dentist table in the database

**SRS-56:** System shall validate officerID and password from input form matching with the data in officer table in the database

**SRS-57:** System shall retrieve appointments’ data including including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-58**: System shall provide appointments’ data in appointment edit page

**SRS-59:** System shall show error message “Please fill out this field” for any field that requires being not empty

**SRS-60:** System shall show error message “Duplicate data”

* **SRS-61:** System shall generate the QR code after the patient registration success
* **SRS-62:** System shall send the QR code via the patient’s email
* **SRS-63:** System shall send the QR code via the DCSS mobile application
* **SRS-64:** System shall provide the dental care page in the website
* **SRS-65:** System shall provide the dental care page in the mobile application
* **SRS-66:** System shall update the message in real time
* **SRS-65:** System shall collect the dental clinic information and promotion in the database
* **SRS-66:** System shall provide the dental information page in website
* **SRS-67:** System shall provide the dental clinic promotion page in website
* **SRS-68:** System shall provide the dental information page in mobile application
* **SRS-69:** System shall provide the dental clinic promotion page in mobile application
* **SRS-70:** System shall provide the create information and promotion page
* **SRS-71:** System shall add information’s data including dental information description into the database
* **SRS-72:** System shall update information and promotion table in the database
* **SRS-73:** System shall show error message “Please fill out this field” for any field that requires being not empty
* **SRS-74:** System shall provide the dental treatment page in website
* **SRS-75:** System shall provide the create dental treatment information page
* **SRS-75:** System shall add dental treatment’s data including dental treatment information description and cost into the database
* **SRS-76:** System shall update treatment info table in the database
* **SRS-77:** System shall show error message “Please fill out this field” for any field that requires being not empty
* SRS-78: System shall provide the dental treatment page in mobile application

**Chapter Four: System Features**

## 4. System Features

### 4.1 User requirement specification with system requirement specification

#### URS-01: Patient can view own appointment in mobile application

**SRS-01:** System shall connect with the database

**SRS-02:** System shall retrieve patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-03:** System shall provide patients’ appointment data from the database in appointment page in mobile application

#### URS-02: Patient can view all appointments from Google calendar in mobile application

**SRS-05:** System shall provide appointment calendar form Google calendar in calendar page in mobile application

#### URS-03: Patient can view own appointment in website

**SRS-01:** System shall connect with the database

**SRS-02:** System shall retrieve patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-06:** System shall provide patients’ appointment data from the database in patient appointment page in the website

#### URS-04: Dentist can view own appointment in website

**SRS-01:** System shall connect with the database

**SRS-07:** System shall retrieve dentists’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-08:** System shall provide dentists’ appointment data from the database in dentist appointment page in the website

#### URS-05: Visitor can view all appointment from Google calendar

**SRS-04:** System shall provide appointment calendar from Google calendar in appointment calendar page in the website

#### URS-06: Officer can view all appointments as a list in website

**SRS-01:** System shall connect with the database

**SRS-09:** System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-10:** System shall provide all appointments’ data as a list from the database in all appointment page

#### URS-07: Officer can view patients’ appointment as a list in website

**SRS-01:** System shall connect with the database

**SRS-11:** System shall provide patients’ appointment data from the database in patient appointment page (for officer) in the website

**SRS-38:** System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database

**SRS-39:** System shall provide patients’ data as a list in the patient list page

**SRS-51:** System shall retrieve all patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

#### URS-08: Officer can view dentists’ appointment as a list in website

**SRS-01:** System shall connect with the database

**SRS-12:** System shall provide dentists’ appointment data from the database in dentist appointment page (for officer) in the website

**SRS-46:** System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database

**SRS-47:** System shall provide dentists’ data as a list in the dentist list page

**SRS-52:** System shall retrieve all dentists’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**URS-09: Registered User can view all appointments from Google calendar in website**

**SRS-04:** System shall provide appointment calendar from Google calendar in appointment calendar page in the website

#### URS-10: Officer can create new appointment

**SRS-01:** System shall connect with the database

**SRS-10:** System shall provide all appointments’ data as a list from the database in all appointment page

**SRS-13:** System shall provide create appointment page in the website

**SRS-14:** System shall add appointments’ data including patientID, dentistID, appointment date, start time, end time, dental treatment, and description into the database

**SRS-15:** System shall update appointment table in the database

**SRS-59:** System shall show error message “Please fill out this field” for any field that requires being not empty

**SRS-60:** System shall show error message “Duplicate data”

#### URS-11: Officer can edit the appointment

**SRS-01:** System shall connect with the database

**SRS-09:** System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-10:** System shall provide all appointments’ data as a list from the database in all appointment page

**SRS-16:** System shall provide appointments’ edit page in the website

**SRS-15:** System shall update appointment table in the database

**SRS-17:** System shall edit appointments’ data in appointment table in the database

**SRS-57:** System shall retrieve appointments’ data including including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-58**: System shall provide appointments’ data in appointment edit page

**SRS-59**: System shall show error message “Please fill out this field” for any field that requires being not empty

#### URS-12: Officer can delete the appointment

**SRS-01:** System shall connect with the database

**SRS-09:** System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-10:** System shall provide all appointments’ data as a list from the database in all appointment page

**SRS-15:** System shall update appointment table in the database

**SRS-18:** System shall delete appointments’ data in appointment table in the database

#### URS-13: Officer can save the appointment to Google calendar

**SRS-01:** System shall connect with the database

**SRS-09:** System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database

**SRS-10:** System shall provide all appointments’ data as a list from the database in all appointment page

**SRS-19:** System shall redirect to Google calendar page

**SRS-20:** System shall provide appointments’ data from the database in Google calendar form in Google website

**SRS-21:** System shall save appointments’ data into the Google calendar

#### URS-14: Patient can login to the mobile application

**SRS-01:** System shall connect with the database

**SRS-23:** System shall validate patientID and password from input form matching with the data in patient table in the database

**SRS-24:** System shall redirect to patient login page if login fail

**SRS-26:** System shall store session after login success

**SRS-27:** System shall provide patient login page in mobile application

**SRS-28:** System shall display error message if there are empty fields “Please input patientID and password” in mobile application

**SRS-29:** System shall display error message if login fail “You’re login fail” in mobile application

**SRS-30:** System shall redirect to index page in mobile application

#### URS-15: Registered User can login to the website

**SRS-01:** System shall connect with the database

**SRS-22:**  System shall provide patient login page in the website

**SRS-23:** System shall validate patientID and password from input form matching with the data in patient table in the database

**SRS-24:** System shall redirect to patient login page if login fail

**SRS-25:** System shall redirect to index page in the website

**SRS-26:** System shall store session after login success

**SRS-48:** System shall display alert message “Invalid patientID or password”

**SRS-49:** System shall display alert message “Invalid officerID or password”

**SRS-50:** System shall display alert message “Invalid dentistID or password”

**SRS-53:** System shall redirect to dentist login page if login fail

**SRS-54:** System shall redirect to officer login page if login fail

**SRS-55:** System shall validate dentistID and password from input form matching with the data in dentist table in the database

**SRS-56:** System shall validate officerID and password from input form matching with the data in officer table in the database

#### URS-16: Patient can logout from the mobile application

**SRS-01:** System shall connect with the database

**SRS-30:** System shall redirect to index page in mobile application

**SRS-31:** System shall destroy session

#### URS-17: Registered User can logout from the website

**SRS-01:** System shall connect with the database

**SRS-25:** System shall redirect to index page in the website

**SRS-31:** System shall destroy session



#### URS-18: Officer can create an account for new patient

**SRS-01:** System shall connect with the database

**SRS-32:** System shall provide create patient account page in the website

**SRS-33:** System shall add patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment into the database

**SRS-34:** System shall update patient table in the database

**SRS-38:** System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database

**SRS-39:** System shall provide patients’ data as a list in the patient list page

**SRS-59:** System shall show error message “Please fill out this field” for any field that requires being not empty

**SRS-60:** System shall show error message “Duplicate data”

#### URS-19: Officer can edit patients’ information

**SRS-01:** System shall connect with the database

**SRS-34:** System shall update patient table in the database

**SRS-35:** System shall provide patients’ edit page in the website

**SRS-36:** System shall edit patients’ information in patient table in the database

**SRS-38:** System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database

**SRS-39:** System shall provide patients’ data as a list in the patient list page

**SRS-59:** System shall show error message “Please fill out this field” for any field that requires being not empty

#### URS-20: Officer can delete patients’ account

**SRS-01:** System shall connect with the database

**SRS-34:** System shall update patient table in the database

**SRS-37:** System shall delete patients’ account in patient table in the database

**SRS-38:** System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database

**SRS-39:** System shall provide patients’ data as a list in the patient list page

#### URS-21: Officer can create an account for new dentist

**SRS-01:** System shall connect with the database

**SRS-40:** System shall provide create dentist account page in the website

**SRS-41:** System shall add dentists’ data including dentistID, password, first name, last name, address, email, and tel. into the database

**SRS-42:** System shall update dentist table in the database

**SRS-46:** System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database

**SRS-47:** System shall provide dentists’ data as a list in the dentist list page

**SRS-59:** System shall show error message “Please fill out this field” for any field that requires being not empty

**SRS-60:** System shall show error message “Duplicate data”

#### URS-22: Officer can edit dentists’ information

**SRS-01:** System shall connect with the database

**SRS-42:** System shall update dentist table in the database

**SRS-43:** System shall provide dentists’ edit page in the website

**SRS-44:** System shall edit dentists’ information in dentist table in the database

**SRS-46:** System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database

**SRS-47:** System shall provide dentists’ data as a list in the dentist list page

**SRS-59**: System shall show error message “Please fill out this field” for any field that requires being not empty

#### URS-23: Officer can delete dentists’ account

**SRS-01:** System shall connect with the database

**SRS-42:** System shall update dentist table in the database

**SRS-45:** System shall delete dentists’ account in dentist table in the database

**SRS-46:** System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database

**SRS-47:** System shall provide dentists’ data as a list in the dentist list page

#### URS-24: Officer can view all patients’ account as a list

**SRS-01:** System shall connect with the database

**SRS-38:** System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database

**SRS-39:** System shall provide patients’ data as a list in the patient list page

#### USR-25: Officer can view all dentists’ account as a list

**SRS-01:** System shall connect with the database

**SRS-46:** System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database

**SRS-47:** System shall provide dentists’ data as a list in the dentist list page

### 4.2 Use Case Diagram

#### 4.2.1 Dental clinic services system Use Case for Patient

**Patient and Visitor**

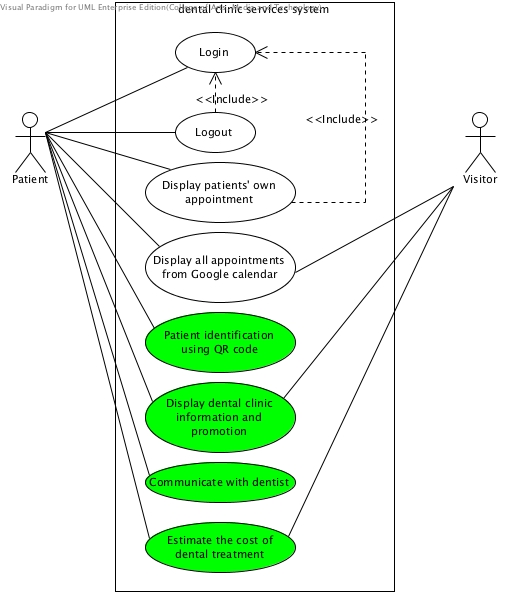


Figure 1: Dental clinic services system patient use case diagram

#### 4.2.2 Dental clinic services system Use Case for Officer

**Officer**

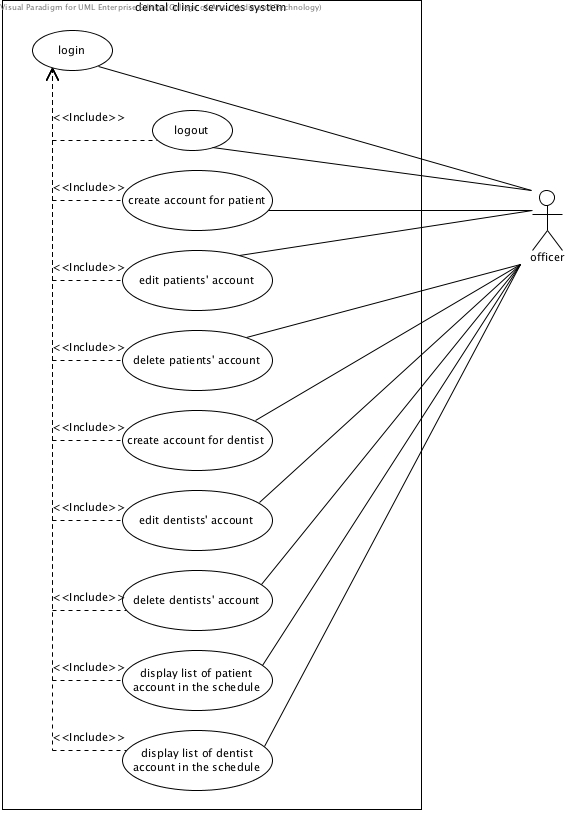
****

Figure 2: Dental clinic services system officer use case diagram

(Account management)

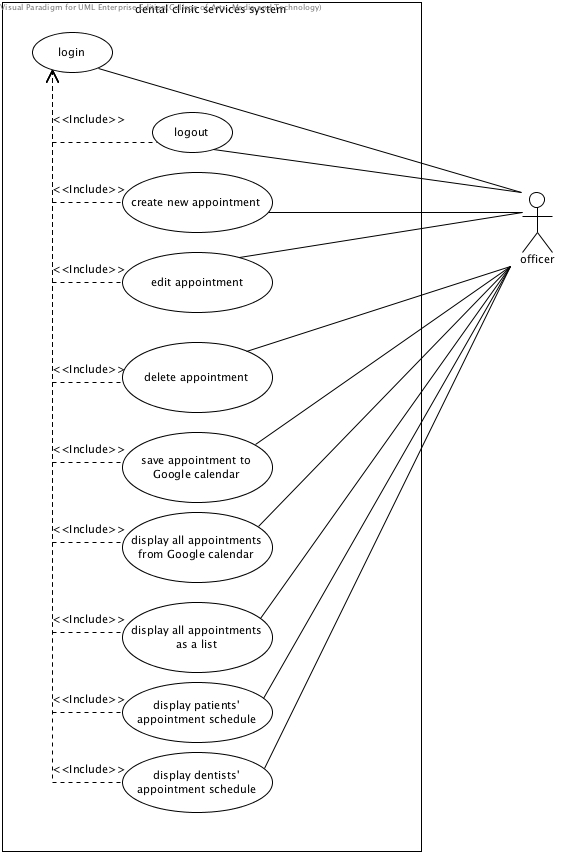
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Figure 3: Dental clinic services system officer use case diagram

(Appointment management)

#### 

Figure: Dental clinic services system officer use case diagram

(Dental clinic management)

#### 4.2.3 Dental clinic services system Use Case for Dentist

**Dentist**

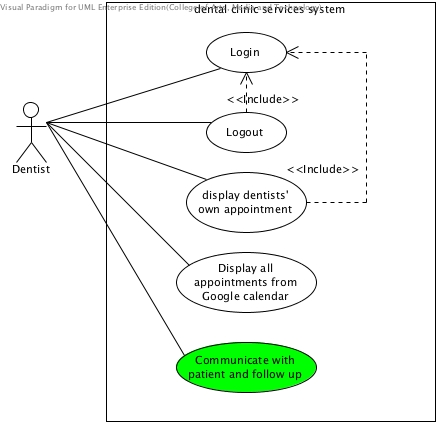
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Figure 4: Dental clinic services system dentist use case diagram

### 4.3 Use case description

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-01 | | |
| **Use Case Name:** | Display patients’ own appointment in mobile application | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 24/06/2014 |
| **Actors:** | Patient | | |
| **Description:** | Patient can view his/her appointment in appointment page which provide in the mobile application | | |
| **Trigger:** | Patient selects appointment menu | | |
| **Preconditions:** | Patient is already logged into the application by using patientID and password | | |
| **Postconditions:** | Patient can view their appointment in appointment page | | |
| **Normal Flow:** | 1. Patient selects appointment menu 2. System shall connect with the database 3. System shall retrieve patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide patients’ appointment data from the database in appointment page in mobile application 5. Patient can view his/her appointment in appointment page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Patient cannot view his/her appointment in mobile application. | | |

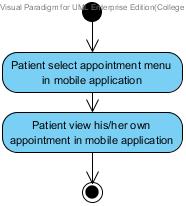


Figure 5: Display patients’ own appointment (in mobile application) [AD-01]

#### 

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-02 | | |
| **Use Case Name:** | Display all appointments from Google calendar in mobile application | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Patient | | |
| **Description:** | Patient can view all appointments from Google calendar in calendar page which provide in the mobile application | | |
| **Trigger:** | Patient selects calendar menu | | |
| **Preconditions:** | Patient enters to index page | | |
| **Postconditions:** | Patient can view all appointment from Google calendar in calendar page | | |
| **Normal Flow:** | 1. Patient selects calendar menu 2. System shall provide appointment calendar form Google calendar in calendar page in mobile application 3. Patient can view all appointment form Google calendar in mobile application | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not deliver information if there is no internet connection. Patient cannot view all appointments from Google calendar. | | |

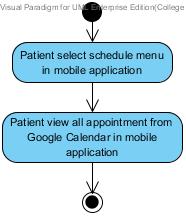


Figure 6: Display all appointment from Google calendar (in mobile application) [AD-02]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-03 | | |
| **Use Case Name:** | Display patients’ own appointment (in website) | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 24/06/2014 |
| **Actors:** | Patient | | |
| **Description:** | Patient can view his/her appointment in the patients’ appointment page which provide in the website | | |
| **Trigger:** | Patient selects patients’ appointment menu | | |
| **Preconditions:** | Patient is already logged into the application by using patientID and password | | |
| **Postconditions:** | Patient can view their appointment schedule | | |
| **Normal Flow:** | 1. Patient selects patients’ schedule menu 2. System shall connect with the database 3. System shall retrieve patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide patients’ appointment data from the database in patient appointment page in the website 5. Patient can view his/her appointment in patients’ appointment page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Patient cannot view his/her appointment in website. | | |

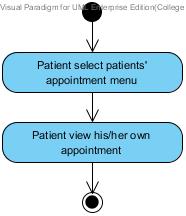


Figure 7: Display patients’ own appointment (in website) [AD-03]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-04 | | |
| **Use Case Name:** | Display dentists’ own appointment (in website) | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 24/06/2014 |
| **Actors:** | Dentist | | |
| **Description:** | Dentist can view his/her own appointment in the dentists’ appointment page which provide in the website | | |
| **Trigger:** | Dentist selects dentists’ appointment menu | | |
| **Preconditions:** | Dentist is already logged into the application by using dentistID and password | | |
| **Postconditions:** | Dentist can view their appointment schedule | | |
| **Normal Flow:** | 1. Dentist selects dentists’ schedule menu 2. System shall connect with the database 3. System shall retrieve dentists’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide dentists’ appointment data from the database in dentist appointment page in the website 5. Dentist can view dentists’ own appointment in dentists’ appointment page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Dentist cannot view his/her appointment in website. | | |
| **Includes:** | Steps 1-5 in the normal flow would be required for all types of display dentists’ own appointment (in website). | | |

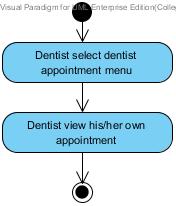


Figure 8: Display dentists’ own appointment (in website) [AD-04]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-05 | | |
| **Use Case Name:** | Display all appointments from Google calendar | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Visitor | | |
| **Description:** | Visitor can view all appointments from Google calendar in the appointment calendar page which provide in the website | | |
| **Trigger:** | Visitor selects appointment calendar menu | | |
| **Preconditions:** | Visitor enters to the website | | |
| **Postconditions:** | Visitor can view all appointment schedule | | |
| **Normal Flow:** | 1. Visitor selects appointment calendar menu 2. System shall provide appointment calendar from Google calendar in appointment calendar page in the website 3. Visitor can view all appointments from Google calendar in appointment calendar page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not deliver information if there is no internet connection. Visitor cannot view all appointments from Google calendar. | | |

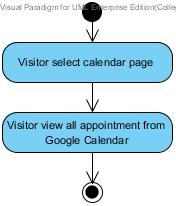


Figure 9: Display all appointment from Google calendar (in website) [AD-05]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-06 | | |
| **Use Case Name:** | Display all appointments as list in website | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can view all appointment as a list in website | | |
| **Trigger:** | Officer selects appointment list menu | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Display all appointments as list in website | | |
| **Normal Flow:** | 1. Officer selects view appointment list menu 2. System shall connect with the database 3. System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide all appointments’ data as a list from the database in all appointment page 5. Officer can view all appointments in appointment list page which provide in the website | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

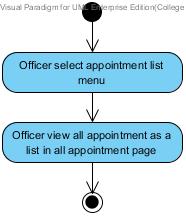


Figure 10: Display all appointments as a list [AD-06]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-07 | | |
| **Use Case Name:** | Display patients’ appointment list for officer | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can view patients’ appointment as a list in patient appointment page(for officer) | | |
| **Trigger:** | Officer selects patientID to view his/her appointment in patient list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Display patients’ appointment as a list in patient appointment page(for officer) | | |
| **Normal Flow:** | 1. Officer selects view patient list menu 2. System shall connect with the database 3. System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database 4. System shall provide patients’ data as a list in the patient list page 5. Officer selects patientID in the list 6. System shall retrieve all patients’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 7. System shall provide patients’ appointment data from the database in patient appointment page (for officer) in the website 8. Officer can view patients’ appointment in patient appointment page(for officer) | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

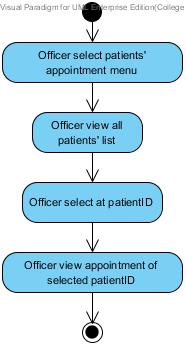


Figure 11: Display patients’ appointments list for officer [AD-07]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-08 | | |
| **Use Case Name:** | Display dentists’ appointment for officer | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can view dentists’ appointment as a list in dentist appointment page(for officer) | | |
| **Trigger:** | Officer selects dentistrID(dentist) to view his/her appointment | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Display dentists’ appointment as a list in dentists’ appointment page (for officer) | | |
| **Normal Flow:** | 1. Officer selects view dentist list interface 2. System shall connect with the database 3. System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database 4. System shall provide dentists’ data as a list in the dentist list page 5. Officer selects dentistID in the list 6. System shall retrieve all dentists’ appointment data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 7. System shall provide dentists’ appointment data from the database in dentist appointment page (for officer) in the website 8. Officer can view dentists’ appointment as a list in dentists’ appointment page**(**for officer**)** | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

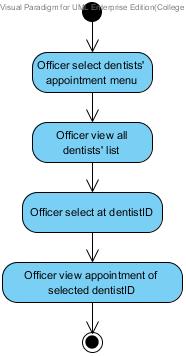


Figure 12: Display dentists’ appointment for officer [AD-08]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-09 | | |
| **Use Case Name:** | Display all appointments from Google calendar | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Registered user | | |
| **Description:** | Registered user can view all appointments from Google calendar in the appointment calendar page which provide in the website | | |
| **Trigger:** | Registered user selects appointment calendar menu | | |
| **Preconditions:** | Registered user enters to the website | | |
| **Postconditions:** | Registered user can view all appointment schedule | | |
| **Normal Flow:** | 1. Registered user selects appointment calendar menu 2. System shall provide appointment calendar from Google calendar in appointment calendar page in the website 3. Registered user can view all appointments from Google calendar in appointment calendar page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not deliver information if there is no internet connection. Registered users cannot view all appointments from Google calendar. | | |

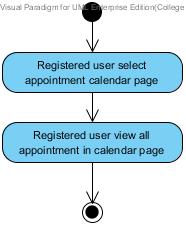


Figure 13: Display all appointment from Google calendar (in website) [AD-09]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-10 | | |
| **Use Case Name:** | Create new appointment | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can create a new appointment for patient and dentist | | |
| **Trigger:** | Officer selects make appointment menu | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Officer can view the new appointment which is already added in all appointment page | | |
| **Normal Flow:** | 1. Officer selects make appointment menu 2. System shall provide create appointment page in the website 3. Officer inputs appointments’ data including patientID, dentistID, appointment date, start time, end time, dental treatment, and description 4. Officer presses submit button 5. System shall connect with the database 6. System shall add appointments’ data including patientID, dentistID, appointment date, start time, end time, dental treatment, and description into the database 7. System shall update appointment table in the database 8. System shall provide all appointments’ data as a list from the database in all appointment page 9. Officer views all appointments as a list in all appointment page | | |
| **Alternative Flows:** | 4a. Officer presses submit button and some field is empty.   1. System shall show error message “Please fill out this field” for any field that requires to be not empty 2. Go back to normal flow 3   4b Officer presses submit button and there are duplicate date, time, and dentist.   1. System shall show error message “Duplicate data” 2. System shall provide create appointment page in the website | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

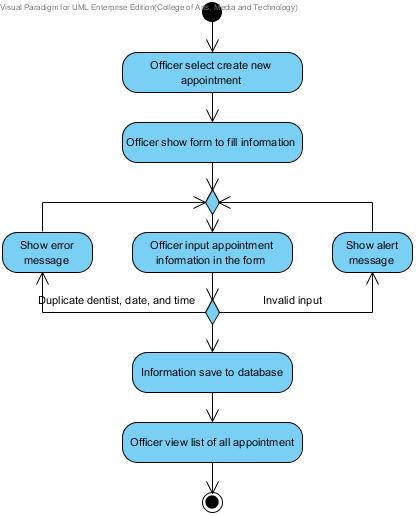


Figure 14: Create new appointment [AD-10]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-11 | | |
| **Use Case Name:** | Edit appointment | | |
| **Created By:** | Kanokwan Maneerat | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 25/06/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can edit appointment | | |
| **Trigger:** | Officer selects edit menu in all appointment page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Officer can view the appointment which is already edited in all appointment page | | |
| **Normal Flow:** | 1. Officer selects all appointment menu 2. System shall connect with the database 3. System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide all appointments’ data as a list from the database in all appointment page 5. Officer selects edit menu at the appointment which want to change in all appointment page 6. System shall provide appointments’ edit page in the website 7. System shall retrieve appointments’ data including including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 8. System shall provide appointments’ data in appointment edit page 9. Officer inputs some information that need to change 10. Officer presses submit button 11. System shall edit appointments’ data in appointment table in the database 12. System shall update appointment table in the database 13. System shall provide all appointments’ data as a list from the database in all appointment page 14. Officer views all appointment as a list in all appointment page | | |
| **Alternative Flows:** | 10a. Officer presses submit button and some field is empty   1. System shall show error message “Please fill out this field” for any field that require to not empty 2. Go back to normal flow 9 | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

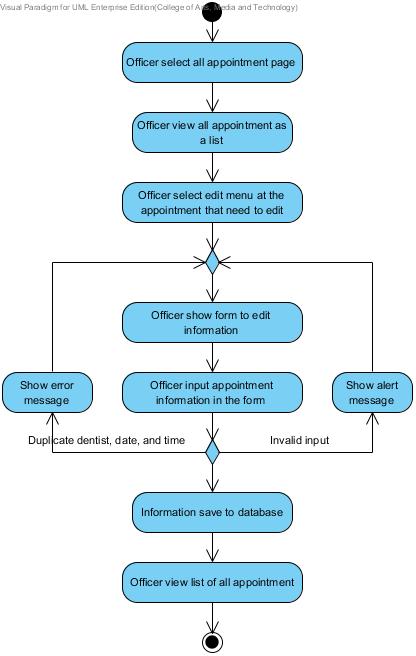


Figure 15: Edit appointment [AD-11]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-12 | | |
| **Use Case Name:** | Delete appointment | | |
| **Created By:** | Kanokwan Maneerat | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 25/06/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can delete appointment | | |
| **Trigger:** | Officer selects delete menu in all appointment page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Officer can view the appointment which is already deleted in all appointment page | | |
| **Normal Flow:** | 1. Officer selects all appointment menu 2. System shall connect with the database 3. System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide all appointments’ data as a list from the database in all appointment page 5. Officer selects delete menu that need to delete 6. System shall delete appointments’ data in appointment table in the database 7. System shall update appointment table in the database 8. Officer can view all appointments as a list in all appointment page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |



Figure 16: Delete appointments [AD-12]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-13 | | |
| **Use Case Name:** | Save the appointment to Google calendar | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can save appointment to the Google calendar | | |
| **Trigger:** | Officer selects view all appointments page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | New appointment added to Google calendar and can view in Google calendar | | |
| **Normal Flow:** | 1. Officer selects view all appointments page 2. System shall connect with the database 3. System shall retrieve all appointments’ data including appointmentID, patientID, dentistID, appointment date, start time, end time, dental treatment, and description from database 4. System shall provide all appointments’ data as a list from the database in all appointment page 5. Officer selects save appointment to Google calendar menu 6. System shall redirect to Google calendar page 7. System shall provide appointments’ data from the database in Google calendar form in Google website 8. Officer presses save button in Google calendar page 9. System shall save appointments’ data into the Google calendar 10. Officer can view appointments’ data in Google calendar which is provide in appointment calendar page in DCSS website | | |
| **Alternative Flows:** | 5a.Officer presses save button or cancel saving appointments’ data   1. System will not save Appointments’ data to Google Calendar | | |
| **Exceptions:** | System will not connect to the database, Google website and deliver information if there is no internet connection. | | |

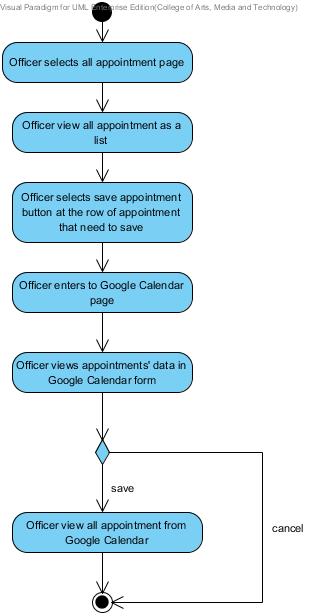


Figure 17: Save appointment to Google calendar [AD-13]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-14 | | |
| **Use Case Name:** | Login (in mobile application) | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 23/06/2014 |
| **Actors:** | Patient | | |
| **Description:** | Patient can login for identifying him/herself to mobile application. | | |
| **Trigger:** | Patient selects login menu in dental clinic services application | | |
| **Preconditions:** | Patient enters to the dental clinic services application. | | |
| **Postconditions:** | Patient enters to the application | | |
| **Normal Flow:** | 1. Patient selects at login menu 2. System shall provide patient login page in mobile application 3. Patient inputs patientID and password in login page 4. Patient presses login button 5. System shall connect with the database 6. System shall validate patientID and password from input form matching with the data in patient table in the database 7. System shall store session after login success 8. System shall redirect to index page in mobile application 9. Patient enters to index page in mobile application | | |
| **Alternative Flows:** | 4a. Patient press login button and some field is empty   1. System shall display error message if there are empty fields “Please input patientID and password” in mobile application 2. System shall redirect to patient login page if login fail   5a. patientID or password are not match with the data in patient table in the database   1. System shall display error message if login fail “You’re login fail” in mobile application 2. System shall redirect to patient login page if login fail | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Patient cannot login to the mobile application. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-15 | | |
| **Use Case Name:** | Login (in website) | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 23/06/2014 |
| **Actors:** | Patient, Officer, Dentist | | |
| **Description:** | Registered user can login for identifying him/herself to website | | |
| **Trigger:** | Registered user selects login menu in dental clinic website | | |
| **Preconditions:** | Registered user enters to the dental clinic website | | |
| **Postconditions:** | Registered user can use the services that requires log in. | | |
| **Normal Flow:** | 1. Registered user selects at login menu 2. System shall connect with the database 3. System shall provide patient login page in the website 4. Registered user inputs ID (patientID,dentistID,officerID) and password (patient,dentist,officer) 5. Registered user presses login button 6. System shall validate patientID and password from input form matching with the data in patient table in the database 7. System shall redirect to patient login page if login fail 8. System shall validate dentistID and password from input form matching with the data in dentist table in the database 9. System shall redirect to dentist login page if login fail 10. System shall validate officerID and password from input form matching with the data in officer table in the database 11. System shall redirect to officer login page if login fail 12. System shall store session after login success 13. System shall redirect to index page in the website 14. Registered user enters to index page in the website | | |
| **Alternative Flows:** | 6a. patientID or password does not match the data in patient table in the database   1. System shall display alert message “Invalid patientID or password” 2. Go back to normal flow 4   7a. dentistID or password does not match the data in dentist table in the database   1. System shall display alert message “Invalid dentistID or password 2. Go back to normal flow 4   8a. officerID or password does not match the data in officer table in the database   1. System shall display alert message “Invalid officerID or password” 2. Go back to normal flow 4 | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Registered user cannot login to the website. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-16 | | |
| **Use Case Name:** | Logout (in mobile application) | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 23/06/2014 |
| **Actors:** | Patient | | |
| **Description:** | Patient can logout from the system | | |
| **Trigger:** | Patient selects logout button | | |
| **Preconditions:** | Patient is already logged into the system | | |
| **Postconditions:** | Patient logged out of the system and redirect to index page | | |
| **Normal Flow:** | 1. Patient selects logout menu 2. System shall connect with the database 3. System shall destroy session 4. System shall redirect to index page in mobile application 5. Patient enters to index page in mobile application | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Patient cannot logout to the mobile application. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-17 | | |
| **Use Case Name:** | Logout (in website) | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 23/06/2014 |
| **Actors:** | Patient, Officer, Dentist | | |
| **Description:** | Registered User can logout from the system | | |
| **Trigger:** | Registered User selects logout button | | |
| **Preconditions:** | Registered User is already logged into the system | | |
| **Postconditions:** | Registered User is logged out of the system and redirects to main home page | | |
| **Normal Flow:** | 1. Registered User selects logout menu 2. System shall connect with the database 3. System shall destroy session 4. System shall redirect to index page in the website 5. Registered user enters to index page in the website | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. Registered user must login to the website first | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-18 | | |
| **Use Case Name:** | Create new account for patient | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can create an account for new patient to use the services from dental clinic | | |
| **Trigger:** | Officer selects create new patient menu | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | New patients’ account is added to the system and can view patient account as a list in patient list page | | |
| **Normal Flow:** | 1. Officer selects new patient menu 2. System shall provide create patient account page in the website 3. System shall connect with the database 4. Officer inputs patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment in create form 5. Officer presses submit button 6. System shall add patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment into the database 7. System shall update patient table in the database 8. System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database 9. System shall provide patients’ data as a list in the patient list page 10. Officer views a new patients’ account in patient list page | | |
| **Alternative Flows:** | 5a. Officer presses submit button and some field is empty   1. System shall show error message “Please fill out this field” for any field that requires to be not empty 2. Go back to normal flow 4   5b. Officer presses submit button and duplicate patientID  1. System shall show error message “Duplicate data”  2. System shall provide create patient account page in the website | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

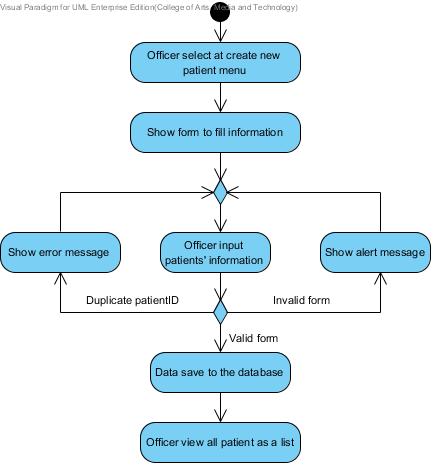


Figure 18: Create new account for patient [AD-14]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-19 | | |
| **Use Case Name:** | Edit patients’ information | | |
| **Created By:** | Kanokwan Maneerat | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 25/06/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can edit patients’ information | | |
| **Trigger:** | Officer selects edit menu in patient list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | New information of patient is edited and can view as a list in patient list page | | |
| **Normal Flow:** | 1. Officer selects patient list page 2. System shall connect with the database 3. System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database 4. System shall provide patients’ data as a list in the patient list page 5. Officer selects edit menu 6. System shall provide patients’ edit page in the website 7. Officer inputs some patients’ information that need to change 8. Officer presses submit button 9. System shall edit patients’ information in patient table in the database 10. System shall update patient table in the database 11. System shall provide patients’ data as a list in the patient list page 12. Officer views all patient accounts as a list in patient list page | | |
| **Alternative Flows:** | 8a. Officer press submit button and some field is empty   1. System shall show error message “Please fill out this field” for any field that requires to be not empty 2. Go back to normal flow 7 | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

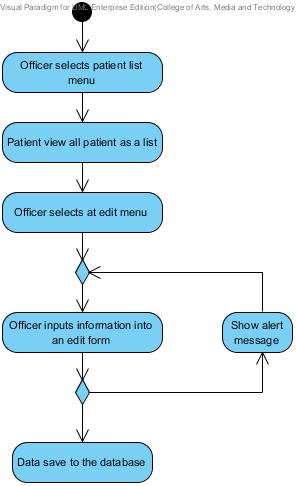


Figure 19: Edit patients’ information [AD-15]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-20 | | |
| **Use Case Name:** | Delete patients’ account | | |
| **Created By:** | Kanokwan Maneerat | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 25/06/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can delete patients’ account | | |
| **Trigger:** | Officer selects delete menu in patient list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Patients’ account is deleted from the system | | |
| **Normal Flow:** | 1. Officer selects patient list page 2. System shall connect with the database 3. System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database 4. System shall provide patients’ data as a list in the patient list page 5. Officer selects delete menu 6. System shall delete patients’ account in patient table in the database 7. System shall update patient table in the database 8. Officer views all patient accounts as a list in patient list page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

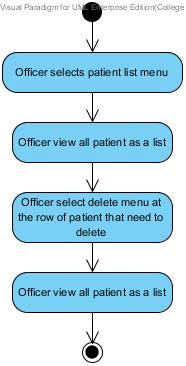


Figure 20: Delete patients’ account [AD-16]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-21 | | |
| **Use Case Name:** | Create new account for dentist | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can create an account for new dentist to use the services from dental clinic | | |
| **Trigger:** | Officer selects create new dentist menu | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | New dentist s’ account is added to the system and can view as dentist account as a list in dentist list page | | |
| **Normal Flow:** | 1. Officer selects create new dentist menu 2. System shall provide create dentist account page in the website 3. System shall connect with the database 4. Officer shall input dentists’ data including dentistID, password, first name, last name, address, email, and tel. in creating form 5. Officer press submit button 6. System shall add dentists’ data including dentistID, password, first name, last name, address, email, and tel. into the database 7. System shall update dentist table in the database 8. System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database 9. System shall provide dentists’ data as a list in the dentist list page 10. Officer views dentist account in dentist list page | | |
| **Alternative Flows:** | 5a.Officer press submit button and some field is empty   1. System shall show error message “Please fill out this field” for any field that requires to be not empty 2. Go back to normal flow 4   5a.Officer press submit button and duplicate dentistID   1. System shall show error message “Duplicate data” 2. System shall provide create dentist account page in the website | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

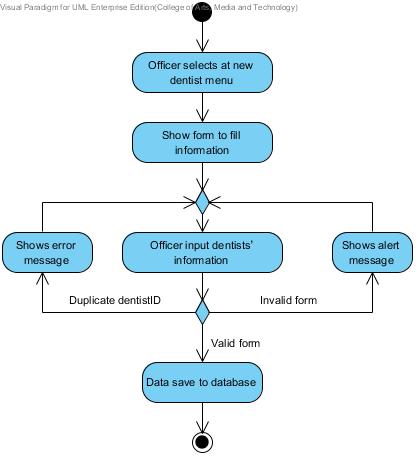


Figure 21: Create new account for dentist [AD-17]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-22 | | |
| **Use Case Name:** | Edit dentists’ information | | |
| **Created By:** | Kanokwan Maneerat | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 25/06/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can edit dentist s’ information | | |
| **Trigger:** | Officer selects edit menu in dentist list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | New information of dentist is edited and can view dentist account as a list | | |
| **Normal Flow:** | 1. Officer selects dentist list page 2. System shall connect with the database 3. System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database 4. System shall provide dentists’ data as a list in the dentist list page 5. Officer selects edit menu 6. System shall provide dentists’ edit page in the website 7. Officer inputs some dentists’ information that need to change in edit form 8. Officer presses submit button 9. System shall edit dentists’ information in dentist table in the database 10. System shall update dentist table in the database 11. System shall provide dentists’ data as a list in the dentist list page 12. Officer views dentist account in dentist list page | | |
| **Alternative Flows:** | 8a. Officer presses submit button and some field is empty   1. System shall show error message “Please fill out this field” for any field that requires to be not empty 2. Go back to normal flow 7 | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

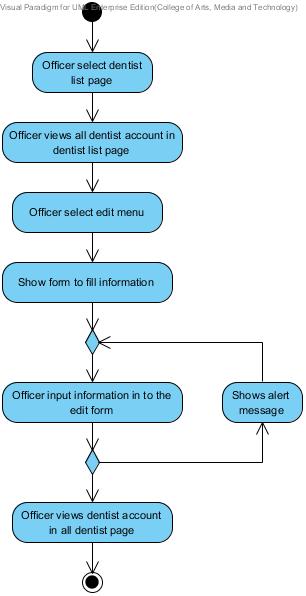


Figure 22: Edit dentists’ information [AD-18]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-23 | | |
| **Use Case Name:** | Delete dentist s’ account | | |
| **Created By:** | Kanokwan Maneerat | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 25/06/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can delete dentists’ account | | |
| **Trigger:** | Officer selects delete menu in dentist list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | Dentists’ account is delete from the system | | |
| **Normal Flow:** | 1. Officer selects dentist list page 2. System shall connect with the database 3. System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database 4. System shall provide dentists’ data as a list in the dentist list page 5. Officer selects delete menu 6. System shall delete dentists’ account in dentist table in the database 7. System shall update dentist table in the database 8. System shall provide dentists’ data as a list in the dentist list page 9. Officer views dentist account in dentist list page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

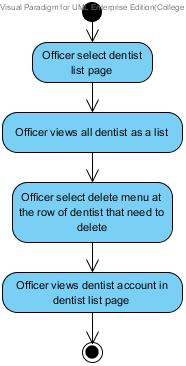


Figure 23: Delete dentists’ account [AD-19]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-24 | | |
| **Use Case Name:** | Display patients’ list | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can view list of patient from website | | |
| **Trigger:** | Officer selects patient list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | The list of patient is shown | | |
| **Normal Flow:** | 1. Officer selects patient list menu 2. System shall connect with the database 3. System shall retrieve patients’ data including patientID, password, first name, last name, age, gender, address, tel., email, and treatment from the database 4. System shall provide patients’ data as a list in the patient list page 5. Officer views all patients’ accounts in patient list page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

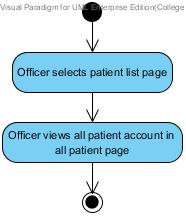


Figure 24: Display dentists’ list [AD-20]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-25 | | |
| **Use Case Name:** | Display dentists’ list | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** | Kanokwan Maneerat |
| **Date Created:** | 17/04/2014 | **Last Revision Date:** | 25/06/2014 |
| **Actors:** | Officer | | |
| **Description:** | Officer can view list of patient from website | | |
| **Trigger:** | Officer selects dentist list page | | |
| **Preconditions:** | Officer is already logged into the application by using officerID and password | | |
| **Postconditions:** | The list of dentist is shown | | |
| **Normal Flow:** | 1. Officer selects dentist list page 2. System shall connect with the database 3. System shall retrieve dentists’ data including dentistID, password, first name, last name, email, and tel. from the database 4. System shall provide dentists’ data as a list in the dentist list page 5. Officer views all dentists’ accounts in dentist list page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

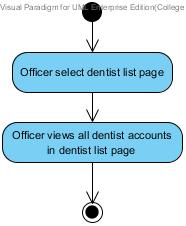


Figure 25: Display dentists’ list [AD-21]

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-26 | | |
| **Use Case Name:** | Patient identification using QR code | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** |  |
| **Date Created:** | 15/09/2014 | **Last Revision Date:** |  |
| **Actors:** | Patient | | |
| **Description:** | Patient can use the QR code that is receive from the dental clinic to identify his/herself when coming to the clinic. | | |
| **Trigger:** | Patient selects QR code function | | |
| **Preconditions:** | Patient is already logged into the application by using patientID and password | | |
| **Postconditions:** | Patient can view their QR code in the mobile application | | |
| **Normal Flow:** | 1. Patient selects QR code function in the mobile application 2. System shall generate the QR code after the patient registration success 3. System shall send the QR code via the patient’s email 4. System shall send the QR code via the DCSS mobile application 5. Patient can receive the QR code, which is in the mobile application and email. 6. Patient can use QR code to identify his/her self | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | The patient will not has the QR code if he/she does not register to the dental clinic. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-27 | | |
| **Use Case Name:** | Dentist can communicate with patient | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** |  |
| **Date Created:** | 15/09/2014 | **Last Revision Date:** |  |
| **Actors:** | Dentist | | |
| **Description:** | Dentist can communicate and follow up the dental clinic’s patient | | |
| **Trigger:** | Dentist select dental care menu | | |
| **Preconditions:** | Dentist is already logged into the website by using dentistID and password | | |
| **Postconditions:** | Dentist can view the patient comment as a list | | |
| **Normal Flow:** | 1. Dentist selects the dental care page in the website 2. System shall connect with the database 3. System shall provides the dental care page in the website 4. Dentist can view the patient ‘s comment as a list 5. Dentist can chat with the patient in the blog that is in the dental care page 6. System shall update the message in real time | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-28 | | |
| **Use Case Name:** | Patient can ask some problem with dentist in dental care page in the website | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** |  |
| **Date Created:** | 15/09/2014 | **Last Revision Date:** |  |
| **Actors:** | Patient | | |
| **Description:** | Patient can leave the question or comment to the dentist in dental care page | | |
| **Trigger:** | Patient select dental care menu | | |
| **Preconditions:** | Patient enter to the website | | |
| **Postconditions:** | Patient can view the | | |
| **Normal Flow:** | 1. Dentist selects the dental care page in the website 2. System shall connect with the database 3. System shall provides the dental care page in the website 4. Dentist can view the patient ‘s comment as a list 5. Dentist can chat with the patient in the blog that is in the dental care page 6. System shall update the message in real time | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-29 | | |
| **Use Case Name:** | Patient can ask some problem with dentist in dental care page in the website | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** |  |
| **Date Created:** | 15/09/2014 | **Last Revision Date:** |  |
| **Actors:** | Patient | | |
| **Description:** | Patient can leave the question or comment to the dentist in dental care page | | |
| **Trigger:** | Patient select dental care menu | | |
| **Preconditions:** | Patient enter to the website | | |
| **Postconditions:** | Patient can view the | | |
| **Normal Flow:** | 1. Dentist selects the dental care page in the website 2. System shall connect with the database 3. System shall provides the dental care page in the website 4. Dentist can view the patient ‘s comment as a list 5. Dentist can chat with the patient in the blog that is in the dental care page 6. System shall update the message in real time | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

* SRS-: The system shall collect the dental clinic information and promotion in the database
* SRS-: The system shall provide the dental information page in website
* SRS-: The system shall provide the dental clinic promotion page in website
* URS-31: Patient can view the dental clinic information and promotion in mobile application
* SRS-: The system shall provide the dental information page in mobile application
* SRS-: The system shall provide the dental clinic promotion page in mobile application
* URS-32: Officer can add the information and promotion

SRS-: The system shall provide the create information and promotion page

* SRS-: The system shall add information’s data including dental information

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-30 | | |
| **Use Case Name:** | Patient can view the dental clinic information and promotion | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** |  |
| **Date Created:** | 15/09/2014 | **Last Revision Date:** |  |
| **Actors:** | Patient | | |
| **Description:** | Patient can view the dental clinic information and promotion in the website | | |
| **Trigger:** | Patient select information and promotion page | | |
| **Preconditions:** | Patient enter to the website | | |
| **Postconditions:** | Patient can view information and promotion in the page | | |
| **Normal Flow:** | 1. Patient select the information and promotion page 2. System shall connect with the database 3. System shall retrieve the dental information’s data including infoID, and description 4. System shall retrieve the clinic promotion’s data including the promoID and description 5. System shall provide the dental information’s data in the information and promotion page 6. System shall provide the clinic promotion’s data in the information and promotion page 7. Patient can view the dental information and clinic promotion the this page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |

* description into the database
* **SRS-:** The system shall update information and promotion table in the database
* **SRS-:** The System shall show error message “Please fill out this field” for any field that requires being not empty
* URS-33: Visitor can view the dental clinic information and promotion

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case ID:** | UC-31 | | |
| **Use Case Name:** | Patient can view the dental clinic information and promotion | | |
| **Created By:** | Worapun Wongkium | **Last Updated By:** |  |
| **Date Created:** | 15/09/2014 | **Last Revision Date:** |  |
| **Actors:** | Patient | | |
| **Description:** | Patient can view the dental clinic information and promotion in the website | | |
| **Trigger:** | Patient select information and promotion page | | |
| **Preconditions:** | Patient enter to the website | | |
| **Postconditions:** | Patient can view information and promotion in the page | | |
| **Normal Flow:** | 1. Patient select the information and promotion page 2. System shall connect with the database 3. System shall retrieve the dental information’s data including infoID, and description 4. System shall retrieve the clinic promotion’s data including the promoID and description 5. System shall provide the dental information’s data in the information and promotion page 6. System shall provide the clinic promotion’s data in the information and promotion page 7. Patient can view the dental information and clinic promotion the this page | | |
| **Alternative Flows:** | N/A | | |
| **Exceptions:** | System will not connect to the database and deliver information if there is no internet connection. | | |