Use Cases

for

HealthZone Application

Version 3.3.3 approved

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NTU

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Revision History

Name	Date	Reason For Changes	Version
Darryl Tan	7 FEB 2021	Initial Release	1.0.0
Darryl Tan	18 FEB 2021	Modified Manage Medicine Reminders, Add Medicine Reminders, and Delete Medicine Reminders	1.1.0
Loh Seng	20 FEB 2021	Modified Edit Current Medicine Reminders	1.2.0
Chockalingam Kasi	21 FEB 2021	Modified Manage Medicine Reminders	1.2.1
Darryl Tan	28 FEB 2021	Added Notification for Medicine Reminder. and Request Weekly Infectious Bulletin Modified View CHAS Clinic Information	2.0.0
Royce Tan	4 MAR 2021	Modified View CHAS Clinic Information, and Notification for Medicine Reminder	2.0.1
Darryl Tan	18 MAR 2021	Modified Manage Medicine Reminders, Add Medicine Reminders, Edit Current Medicine Reminders, and Delete Medicine Reminders	3.0.0
Chockalingam Kasi	20 MAR 2021	Modified Notification for Medicine Reminder	3.1.0
Lim Jun Wei	23 MAR 2021	Modified View CHAS Clinic Information	3.2.0
Lim Jun Wei	25 MAR 2021	Modified View CHAS Clinic Information	3.2.1
Darryl Tan	10 APR 2021	Modified Manage Medicine Reminders, Add Medicine Reminders, Edit Current Medicine Reminders and Delete Medicine Reminders	3.3.0
Loh Seng	11 APR 2021	Modified Manage Medicine Reminders	3.3.1
Chockalingam Kasi	13 APR 2021	Modified Add Medicine Reminders, Edit Current Medicine Reminders, and Delete Medicine Reminders	3.3.2
Loh Seng	14 APR 2021	Modified View CHAS Clinic Information, Notification for Medicine Reminder and Request Weekly Infectious Bulletin	3.3.3

1. Guidance for Use Case Template

Document each use case using the template shown in the Appendix. This section provides a description of each section in the use case template.

1. Use Case Identification

1.1. Use Case ID

Give each use case a unique numeric identifier, in hierarchical form: X.Y. Related use cases can be grouped in the hierarchy. Functional requirements can be traced back to a labeled use case.

1.2. Use Case Name

State a concise, results-oriented name for the use case. These reflect the tasks the user needs to be able to accomplish using the system. Include an action verb and a noun. Some examples:

- View part number information.
- Manually mark hypertext source and establish link to target.
- Place an order for a CD with the updated software version.

1.3. Use Case History

1.3.1 Created By

Supply the name of the person who initially documented this use case.

1.3.2 Date Created

Enter the date on which the use case was initially documented.

1.3.3 Last Updated By

Supply the name of the person who performed the most recent update to the use case description.

1.3.4 Date Last Updated

Enter the date on which the use case was most recently updated.

2. Use Case Definition

2.1. Actor

An actor is a person or other entity external to the software system being specified who interacts with the system and performs use cases to accomplish tasks. Different actors often correspond to different user classes, or roles, identified from the customer community that will use the product. Name the actor(s) that will be performing this use case.

2.2. Description

Provide a brief description of the reason for and outcome of this use case, or a high-level description of the sequence of actions and the outcome of executing the use case.

2.3. Preconditions

List any activities that must take place, or any conditions that must be true, before the use case can be started. Number each precondition. Examples:

1. User's identity has been authenticated.
2. User's computer has sufficient free memory available to launch task.

2.4. Postconditions

Describe the state of the system at the conclusion of the use case execution. Number each postcondition. Examples:

1. Document contains only valid SGML tags.
2. Price of item in database has been updated with new value.

2.5. Priority

Indicate the relative priority of implementing the functionality required to allow this use case to be executed. The priority scheme used must be the same as that used in the software requirements specification.

2.6. Frequency of Use

Estimate the number of times this use case will be performed by the actors per some appropriate unit of time.

2.7. Flow of Events

Provide a detailed description of the user actions and system responses that will take place during execution of the use case under normal, expected conditions. This dialog sequence will ultimately lead to accomplishing the goal stated in the use case name and description. This description may be written as an answer to the hypothetical question, "How do I <accomplish the task stated in the use case name>?" This is best done as a numbered list of actions performed by the actor, alternating with responses provided by the system.

2.8. Alternative Flows

Document other, legitimate usage scenarios that can take place within this use case separately in this section. State the alternative course, and describe any differences in the sequence of steps that take place. Number each alternative course using the Use Case ID as a prefix, followed by "AC" to indicate "Alternative Course". Example: X.Y.AC.1.

2.9. Exceptions

Describe any anticipated error conditions that could occur during execution of the use case, and define how the system is to respond to those conditions. Also, describe how the system is to respond if the use

case execution fails for some unanticipated reason. Number each exception using the Use Case ID as a prefix, followed by "EX" to indicate "Exception". Example: X.Y.EX.1.

2.10. Includes

List any other use cases that are included ("called") by this use case. Common functionality that appears in multiple use cases can be split out into a separate use case that is included by the ones that need that common functionality.

2.11. Special Requirements

Identify any additional requirements, such as nonfunctional requirements, for the use case that may need to be addressed during design or implementation. These may include performance requirements or other quality attributes.

2.12. Assumptions

List any assumptions that were made in the analysis that led to accepting this use case into the product description and writing the use case description.

2.13. Notes and Issues

List any additional comments about this use case or any remaining open issues or TBDs (To Be Determined) that must be resolved. Identify who will resolve each issue, the due date, and what the resolution ultimately is.

Use Case 01

Use Case ID:	01		
Use Case Name:	Manage Medicine Reminders		
Created By:	Darryl Tan	Last Updated By:	Loh Seng
Date Created:	07 FEB 2021	Date Last Updated:	11 APR 2021

Actor:	User (Initiating Actor)
Description:	Users should be able to view their respective reminders to take medicine and choose a corresponding action if necessary.
Preconditions:	Users open the application and navigate to the "Manage Medicine Reminders" page.
Postconditions:	All the medicine reminders and their respective details are shown to the user.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. The user should select the "Manage Medicine Reminders" button. 2. The application will retrieve the list of reminders from the system database. 3. The application will show the various medicine reminders that the user has created with the following details: Medicine name, Intake quantity, and Time of intake.
Alternative Flows:	AF-S3: If there is no medicine reminder to show 1. The application will display a blank table.
Exceptions:	EX1: The application could not connect to the system database, unable to load in the medicine reminders. 1. The application will display a blank table.
Includes:	NA
Special Requirements:	The application cache and data should not be wiped by the user.
Assumptions:	NA
Notes and Issues:	NA

Use Case 02

Use Case ID:	02		
Use Case Name:	Add Medicine Reminders		
Created By:	Darryl Tan	Last Updated By:	Chockalingam Kasi
Date Created:	07 FEB 2021	Date Last Updated:	13 APR 2021

Actor:	User (Initiating Actor)
Description:	Users should be able to add a reminder for their medicine intake.
Preconditions:	Users are at the "Medicine Reminders" page and have selected the ADD button.
Postconditions:	A reminder is set and shown in the "Medicine Reminders" page.
Priority:	High
Frequency of Use:	Medium
Flow of Events:	1. In the "Medicine Reminders" page, users will select the "ADD" button. 2. Users will be required to fill in the following details: Medicine name, Intake quantity, and Time of intake. 3. The application will prompt the user to take any of the following actions after filling up the required information: CREATE, CANCEL. 4. If the user selects the activity CREATE, then the system will take the information, create a medication reminder, and add that reminder into the database. 4.1. The system will schedule a notification for that reminder with the Android alarm manager. 5. If the user selects the activity CANCEL, then the system will discard the information that was filled in and no alarm will be created.
Alternative Flows:	AF-S3: If the input formatting for any of the fields is incorrect. 1. The application will display the appropriate error messages for the formatting. 2. The application goes back to step 3. AF-S3: If the user selects CREATE with any blank inputs 1. The application will display an error: "The field is empty!". 2. The application goes back to step 3.
Exceptions:	NA
Includes:	NA
Special Requirements:	The application cache and data should not be wiped by the user. There must be appropriate field space for the user to input data.
Assumptions:	The start date should be the same date or of an earlier date than the end date.
Notes and Issues:	NA

Use Case 03

Use Case ID:	03		
Use Case Name:	Edit Current Medicine Reminders		
Created By:	Loh Seng	Last Updated By:	Chockalingam Kasi
Date Created:	07 FEB 2021	Date Last Updated:	13 APR 2021

Actor:	Users (Initiating Actor)
Description:	Users should be able to add or reduce their existing medication dosage levels as requested by the physician or doctor.
Preconditions:	Users open the application, navigate to the "Medicine Reminders" page, and click on "EDIT" at the bottom of the page.
Postconditions:	The modified medicine dosages will be reflected in the "Medicine Reminders" page.
Priority:	High
Frequency of Use:	Medium
Flow of Events:	1. In the "Medicine Reminders" page, upon selecting a medication reminder, the user will be given the option to edit that reminder. 2. The application will open a new "Edit Dosage Levels" page with prefilled information. 3. The user will be allowed to edit the following details of the reminder: Medicine name, Intake quantity, and Time of intake. 4. The application will prompt the user to take any of the following actions: "SAVE" or "CANCEL" 5. If the user chooses "SAVE", the application will update the medicine reminder in the system database. 5.1 The notification is rescheduled to the updated time for the user to be notified to consume the medicine 6. The application will revert to the "Medicine Reminders" page with all the updated dosage information.
Alternative Flows:	AF-S5: If the user chooses "CANCEL" 1. The medication will not be updated, and it will retain its old medication details in the database. AF-S5: If the user enters the incorrect input formatting 1. The application will display an error message window: "Error! Try again!" 2. The application will revert to step 3 with previously saved values.
Exceptions:	NA
Includes:	NA
Special Requirements:	The application cache and data should not be wiped by the user.
Assumptions:	Medication exists in the application records.
Notes and Issues:	NA

Use Case 04

Use Case ID:	04		
Use Case Name:	Delete Medicine Reminders		
Created By:	Loh Seng	Last Updated By:	Chockalingam Kasi
Date Created:	07 FEB 2021	Date Last Updated:	13 APR 2021

Actor:	Users (Initiating Actor)
Description:	Users should be able to delete their existing medication as requested.
Preconditions:	Users open the application, navigate to the "Manage Medicine Reminders" page, and click on "DELETE" at the bottom of the page.
Postconditions:	The medicine deleted will be removed in the "Manage Medicine Reminders" page.
Priority:	High
Frequency of Use:	Medium
Flow of Events:	1. In the "Medicine Reminders" page, upon selecting the respective medication reminder, the user will be given the option to delete that reminder. 2. When the user deletes that reminder, the application will do the following: 2.1. The respective medication details are deleted from the database. 2.2. The reminder notifications are deleted from the scheduled list of notifications. 3. The user will not get any notifications regarding the deleted medication with immediate effect.
Alternative Flows:	NA
Exceptions:	NA
Includes:	NA
Special Requirements:	The application cache and data should not be wiped by the user.
Assumptions:	Medication exists in the application records.
Notes and Issues:	If the user chooses to delete the medicine reminder prior to completion of the set duration, all the scheduled reminders will be deleted from the database as well.

Use Case 05

Use Case ID:	05		
Use Case Name:	Send Medicine Reminder & Notify User		
Created By:	Royce Tan	Last Updated By:	Loh Seng
Date Created:	07 APR 2021	Date Last Updated:	14 APR 2021

Actor:	User
Description:	Users will be reminded to take medication through a pushed notification.
Preconditions:	Users will receive a notification and alert the person to take medication.
Postconditions:	The application will stop pushing the notifications, until the next available reminder.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. The user will receive an automatic pushed notification by the application to take medication. 2. The user taps on the notification and the application will be opened automatically. 3. The application may ask for authentication by the user. 4. After authentication is complete, the application will show the name of the medicine, dosage, instructions (To consume before or after meal), and time until next consumption in the Medicine Reminders tab.
Alternative Flows:	AF-S1: If there is no upcoming medication reminder set. 1. The application should not push any notifications.
Exceptions:	EX1: The application could not push the notification to the user. 1. The application will reattempt to push the same notification within the next 5 minutes. 2. Failure to do so, when the user opens the application, the application will show the warning, including a list of the missing medication reminders and the expected date and time of consumption.
Includes:	“Manage medicine reminder”
Special Requirements:	The application cache and data should not be wiped by the user, and Autostart permissions must be enabled for the application.
Assumptions:	NA
Notes and Issues:	Some Android device manufacturers have disabled the Autostart permissions by default, to reduce the background battery consumption. However, it was found to severely impact the reliability for pushed notifications for many applications, including HealthZone. Users are strongly encouraged to enable the Autostart permissions to ensure reliable notifications for their commonly used applications.

Use Case 06

Use Case ID:	06		
Use Case Name:	View CHAS Clinic Information		
Created By:	Chockalingam	Last Updated By:	Loh Seng
Date Created:	07 FEB 2021	Date Last Updated:	14 APR 2021

Actor:	User (initiating actor), Government and GitHub Repo Database
Description:	Users should be able to see the list of General Practitioner (GP) Clinics that participates in CHAS Programme.
Preconditions:	Users will open the application and navigate to the "Clinic Locator" page.
Postconditions:	The information on the CHAS Clinic will be displayed, including but not limited to: Name, Address, and Contact Number of the participating clinic
Priority:	High
Frequency of Use:	High
Flow of Events:	1. The user will enter the "Clinic Locator" page. 2. The application will let users choose whether to display all participating clinics in Singapore, or to choose the list of participating clinics based on their preferred locations. 2.1. If the user chooses to view all participating clinics, the application will retrieve the full list from the government database and display all the clinics in pins for the user to select. 2.2. If the user chooses to view the participating clinics based on their preferred locations, the application will retrieve the list of clinics based on the regional postal code from the filtered database hosted by GitHub, and display all the clinics in pins for the user to select. 3. The user shall select any of the pins available in the selected map to get more details of the selected clinic. 4. The application will display the following details of the clinic upon selection: Name, Address (including Postal Code), and Contact Number of the clinic.
Alternative Flows:	AF-S2: If there is no detailed information of the clinic available. 1. The application will not display the clinic information, instead it will display "Detailed information not available! Click another clinic to view information or return back!"
Exceptions:	EX1: The application could not connect to the relevant databases and load the clinic details. 1. The application will show "Web Page not available" in the built-in Android System WebView.
Includes:	NA

Special Requirements:	The application must be connected to the internet to retrieve the latest information from the database.
Assumptions:	The user has installed the latest supported default mapping application and web browser in the device. The device is connected to the Internet, including but not limited to the following mediums: public cellular network (mobile data), and Wireless Local Area Network (WiFi).
Notes and Issues:	Due to Android System WebView requirements, the HealthZone application will only be allowed to install on devices with Android 5.0 Lollipop (Android API Level 21) or later, instead of the default Android 4.1 Lollipop (Android API Level 16) and later defined by the Flutter Framework.

Use Case 07

Use Case ID:	07		
Use Case Name:	Request Weekly Infectious Bulletin		
Created By:	Jun Wei	Last Updated By:	Loh Seng
Date Created:	07 FEB 2021	Date Last Updated:	14 APR 2021

Actor:	User (initiating actor), Government Database
Description:	Users should be able to request and view the top three infectious diseases (based on number of active cases) in Singapore
Preconditions:	Users open the application and navigate to the "Infectious Bulletin" page.
Postconditions:	The top three infectious diseases, with the respective number of cases for each of the three diseases are listed. The latest recorded date of the weekly infectious bulletin is displayed.
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	1. The user should select the "Infectious Bulletin" page. 2. The user must allow the HealthZone application storage access rights. 3. The application will request for the weekly infectious bulletin from the government database upon user's request. 4. The government database will transmit the requested information to the application. 5. The top three infectious diseases will the displayed in three separate graphs, from topmost common on the left to the third most common on the right. 6. The number of cases for each respective disease within 4 weeks before the latest recorded is shown on each graph for each disease listed, from oldest to newest weekly numbers.
Alternative Flows:	AF-S2: If the user deny storage rights to the application 1. The application will not display the correct information, instead it will display "Please allow storage rights!"
Exceptions:	EX1: The application could not connect to the relevant databases 1. The latest health hazard information will not be available. 2. The application will show 0 cases throughout the 4 week period for all the charts.
Includes:	NA
Special Requirements:	The application must be connected to the Internet to retrieve the latest information from the database.
Assumptions:	The government database that includes the weekly infectious bulletin has been updated and is currently online.

	The device is connected to the Internet, including but not limited to the following mediums: public cellular network (mobile data), and Wireless Local Area Network (WiFi). The device has enabled storage access rights* for the application and has enough storage to store the downloaded file.
Notes and Issues:	On Android 6.0 Marshmallow (Android API Level 23) and later, Google has mandated app permissions control for new Android application installs. As the HealthZone application requires storage access outside the "*com.example.medicine_reminders*" project, the user must allow the storage access rights to enable the application to run properly.