**Fix 1.3.2.1 Mobile Application**

This application is used by patient, which is provided features to improve treatment effective. It is included below functions:

* Show treatment which accepted by doctor.
* Remind using medicine, doing exercises, appointment with doctor.
* Collect data from wristband and send to server.

**Fix 1.3.2.2 Web application**

Main web application is built for a clinic in Vietnam. It models all main processes from a clinic. Below are the detailed features and roles of this web application.

For nurse:

* Register medical examination for patient.
* Print prescription for patient.

For doctor:

* Make prescription.
* View patient medical history.
* View history practice data.

For administrator:

* Manage accounts.

For staff:

* Manage supported wristband.
* Update formula to support calculating calories.

For nutrition doctor:

* Make nutritional ingredient.
* Manage food’s nutrition.

For doctor manager:

* Manage regimen.

For scheduler:

* Analytic data of wristband.

For analyst:

* Suggest treatment.
* Analytic meal by voice.
* Analytic meal.

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| **USE CASE – WD02** | | | |
| **Use Case No.** | WD02 | **Use Case Version** | 2.0 |
| **Use Case Name** | View Patient Medical History | | |
| **Author** | QuyHK | | |
| **Date** | 16/11/2015 | **Priority** | High |
| **Actor:**   * Doctor.   **Summary:**   * This use case allows doctor to view medical history of patient.   **Goal:**   * Show medical history of patient for doctor.   **Triggers:**   * Doctor select an appointment date to view.   **Preconditions:**   * User logged in system with role “Doctor”. * Doctor has selected a patient before.   **Post Conditions:**   * **Success:** Medical history of patient show for doctor. * **Fail:** Show error message   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor selects an appointment date from list view. | System display medical history of patient in specific day.  - Date of appointment: text, read only.  - Medicines:  + Name of medicine: text input, read only.  + Times: text input, read only.  + Number of quantity per time: text input, read only.  + Unit of medicine: text input, read only.  + Advice: text input, read only.  - Food:  + Name of food: text input, read only.  + Time: text input, read only.  + Number of quantity per time: text input, read only.  + Unit of food: text input, read only.  + Advice: text input, read only.  - Practice:  + Name of practice: text input, read only.  + Time: text input, read only.  + Quantitative: text input, read only  + Advice: text input, read only.  [Exception 1] |   **Alternative Scenario:** N/A  **Exceptions:**  [Exception 1]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Doctor sends cancel command | System display main view. |   **Relationships:** N/A  **Business Rules:**   * Doctor can choose a day from list of historical appointment date to view. * When doctor chooses a specific day, system will detail prescription in that day included medicines, foods and practices. These data help doctor to make prescription more clear and correct. | | | |

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| **USE CASE – WDM01** | | | |
| **Use Case No.** | WDM01 | **Use Case Version** | 2.0 |
| **Use Case Name** | Insert regimen | | |
| **Author** | QuanTD | | |
| **Date** | 1/10/2015 | **Priority** | Normal |
| **Actor:**   * Doctor Manager.   **Summary:**   * This use case allows doctor manager to create new regimen.   **Goal:**   * Doctor Manager can create new regimen.   **Triggers:**   * Doctor Manager sends creating regimen command.   **Preconditions:**   * Actor logged in system with role “Doctor Manager”.   **Post Conditions:**   * **Success:** New regimen data is inserted into storage. * **Fail:** System display error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor manager sends create new regimen command | System require input fields:   * Name of regimen: free text input, required, length is 1- 100. * Name of illness: free text input, required, length is 1-100. * Detail of treatment phases:   + Number of day per a phase: free text input, required, value is 1-100.  + Medicine:   * Medicine name: text input with suggestion, required, length is 3-50. * Quantitative: free text input with suggestion, required, value is 1-10. * Number of time: free text input, required, value is 1-7. * Advice: free text input, not required.   + Food:   * Food name: text input with suggestion, required, length is 3-50. * Food unit: text input with suggestion, required, length is 3-50. * Quantitative: free text input with suggestion, required, value is 1-10. * Number of time: free text input, required, value is 1-7. * Advice: free text input, not required.   + Practice:   * Practice name: text input with suggestion, required, length is 3-50. * Time duration: free text input, required. * Number of time: free text input, required, value is 1-7. * Advice: free text input, not required. | | 2 | Doctor manager inputs all required field. | System validate information.  [Exception 1] | | 3 | Doctor manager sends create regimen command | System required doctor manager confirming all inputted information. | | 4 | Doctor manager sends submit command  [Alternative 1] | New regimen and detail of phases, medicines, foods and practices data are created in storage. System display main view.  [Exception 2] |   **Alternative Scenario:**  [Alternative 1]   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor manager sends cancel command | System display main view. |   **Exceptions:**  [Exception 1]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Doctor manager does not input required fields. | System notice that user need to input required field.   * Regimen name: System ask user to input valid regimen name. * Name of illness: System ask user to input valid illness name. * Detail of treatment phases:   + Number of treatment day per phase: System ask user to input valid number of treatment day.  + Medicine:   * Medicine name: System ask user to input valid medicine name. * Quantitative: System ask user to input valid quantitative value. * Number of time: System ask user to input valid number of time value.   + Food:   * Food name: System ask user to input valid food name. * Food unit: System ask user to input valid food unit. * Quantitative: System ask user to input valid quantitative value. * Number of time: System ask user to input valid number of time value.   + Practice:   * Practice name: System ask user to input valid practice name. * Time duration: System ask user to input valid time duration value. * Number of time: System ask user to input valid number of time value. |   [Exception 2]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 2 | Doctor manager sends submit command | System display error message that can’t create new regimen data. Creating regimen request is aborted. |   **Relationships:** N/A.  **Business Rules:**   * Name of regimen must be unique. * Regimen will be used to suggest doctor making prescription. Based on the illness and start time of patient’s medical record, system will calculate current day is belong to which phase of regimen, then suggest detail phase including medicines, foods, practices for doctor. | | | |

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| **USE CASE – WDM03** | | | |
| **Use Case No.** | WDM03 | **Use Case Version** | 2.0 |
| **Use Case Name** | Delete regimen | | |
| **Author** | QuanTD | | |
| **Date** | 24/09/2015 | **Priority** | Normal |
| **Actor:**   * Doctor Manager.   **Summary:**   * This use case allows doctor manager to delete a regimen.   **Goal:**   * Doctor Manager can delete a regimen.   **Triggers:**   * Doctor sends deleting regimen command.   **Preconditions:**   * Actor logged in system with role “Doctor Manager”. * The regimen must be available before.   **Post Conditions:**   * **Success:** The regimen has been deleted. * **Fail:** Display error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor sends delete command | System require doctor manager to confirm deletion | | 2 | Doctor sends submit command  [Alternative 1] | System display main view. The regimen request is deleted from storage.  [Exception 1] |   **Alternative Scenario:**  [Alternative 1]   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor sends cancel command | Display main view. Regimen data is not deleted from storage. |   **Exceptions:**  [Exception 1]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Doctor sends submit command | System display error message that can’t delete regimen data. Deleting regimen request is aborted. |   **Relationships:** N/A.  **Business Rules:**   * The regimen is marked as unused. * After deleting regimen, old treatments won’t be affected. * This regimen can’t be used to suggest doctor making prescription continuously | | | |

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| **USE CASE – WN1** | | | |
| **Use Case No.** | WN1 | **Use Case Version** | 2.0 |
| **Use Case Name** | Register Medical Examination | | |
| **Author** | QuanTD | | |
| **Date** | 1/10/2015 | **Priority** | High |
| **Actor:**   * Nurse.   **Summary:**   * This use case allows nurse to register new patient profile.   **Goal:**   * Nurse can create new patient profile.   **Triggers:**   * Nurse sends register examination command.   **Preconditions:**   * Actor logged in system before with role “Nurse”.   **Post Conditions:**   * **Success:**   + New patient profile is stored.  + Credential information is sent to patient.  + Doctor will see new appointment with patient in his/her scheduler.   * **Fail:** Display error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Nurse sends create patient profile command. | System require inputting information:   * Patient name: free text input, required, length is 3- 50. * Birthdate: date time input, required, year old value is 20-60. * Male: option input, value is choose or not. * Weight: free text input, required, value is 2- 300, unit: kilogram. * Height: free text input, required, value = 100 - 250, unit: centimeter. * Doctor: text input with suggestion, required. * Medicine usage history: free text input, length is 0-500. * Medical history: free text input, length is 0-500. * Symptom: free text input, required, length = 10 – 1000. * Email: free text input, required, length = 10 – 100, unique. * Heart beat: free text input, required, value is 20-200, unit: times/minute. * Blood pressure: free text input, required, value is 20-200, unit: mmHg. * Waits: free text input, required, value is 50-300. * Body fat: free text input, required, value is 1-100, unit: %. * Visceral fat: free text input, required, value is 1-100, unit: level. * Muscle mass: free text input, required, value is 1-100, unit: %. * Body water: free text input, required, value is 1-100, unit: %. * Phase angle: free text input, required, value is 1-100, unit: o. * Impedance: free text input, required, value is 1-100, unit: Ohm. * Basal metabolic rate: free text input, value is 1-5000, unit: kilo calories. | | 2 | Nurse inputs all required information  [Alternative 1] | System validate information.  [Exception 1] | | 3 | Nurse sends register patient profile command | Display basic profile of patient and medical order number. Credential information is sent to patient’s email.  [Exception 2] |   **Alternative Scenario:**  [Alternative 1]   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Nurse sends cancel command. | Display main view. |   **Exceptions:**  [Exception 1]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Nurse does not input all required fields, or input wrong some fields. | System notice that user need to input all required field.  + Patient name: System ask user to input patient name.  + Birthday: System ask user to input valid birthday.  + Weight: System ask user to input valid weight.  + Height: System ask user to input valid height.  + Doctor: System ask user to input valid doctor name.  + Symptom: System ask user input symptom, do not make it blank.  + Email: System ask user to input a valid email.  + Heart beat: System ask user input symptom, do not make it blank.  + Blood pressure: System ask user input blood pressure, do not make it blank.  + Waits: System ask user input waits, do not make it blank.  + Body fat: System ask user input body fat, do not make it blank.  + Visceral fat: System ask user input visceral fat, do not make it blank.  + Muscle mass: System ask user input muscle mass, do not make it blank.  + Body water: System ask user input body water, do not make it blank.  + Phase angle: System ask user input phase angle, do not make it blank.  + Impedance: System ask user input impedance, do not make it blank.  + Basal metabolic rate: System ask user input basal metabolic rate, do not make it blank. |   [Exception 2]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 2 | Nurse inputs email that existed in system. | System notify user that email is existed in system, required user inputting again. |   **Relationships:** N/A.  **Business Rules:**   * With old patient, nurse don’t need to create new patient profile. System will suggest if nurse input duplicate name. * An email contain username and password should be send to patient, patient can use this credential information to login system. * The initial status of patient account will be set to INACTIVE. * New medical record data will be created with status AWAITING TO CHECK. * Email pattern should be: **/^[a-zA-Z0-9.!#$%&'\*+\/=?^\_`{|}~-]+@[a-zA-Z0-9](?:[a-zA-Z0-9-]{0,61}[a-zA-Z0-9])?(?:\.[a-zA-Z0-9](?:[a-zA-Z0-9-]{0,61}[a-zA-Z0-9])?)\*$/** (following *RFC 5322 standard).* * When register examination successfully, nurse will notice order number to patient. Patient will use this order number for waiting to exam. | | | |

**Fix Availability**

* Server should have back-up method to make sure that if it having problems, all necessary data can be protected and restore easily.
* Mobile application should have local storage to store data in case of no Internet connection.

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| **USE CASE – WD03** | | | |
| **Use Case No.** | WD02 | **Use Case Version** | 2.0 |
| **Use Case Name** | View History Practice Data | | |
| **Author** | QuanTD | | |
| **Date** | 16/11/2015 | **Priority** | High |
| **Actor:**   * Doctor.   **Summary:**   * This use case allows doctor to view history practice data.   **Goal:**   * Show the practice result of patient from last appointment date to now.   **Triggers:**   * Doctor send view history practice data command.   **Preconditions:**   * User logged in system with role “Doctor”. * Doctor has selected a patient before.   **Post Conditions:**   * **Success:** History practice data of patient show for doctor. * **Fail:** Show error message   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor send view practice data command. | System display practice data.  [Exception 1] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor send view practice data command. | System display message that no practice data to show.  [Exception 1] |   **Exceptions:**  [Exception 1]   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Doctor sends cancel command | System display main view. |   **Relationships:** N/A  **Business Rules:**   * Practice result that show on view must include below information:   + An estimate calories required value which was making by doctor from last appointment.  + A series of calories burned value every day which was sent from patient’s device.   * For purpose that show the different between required value and real practice value to doctor, practice result should be display in type of a graph. It will help doctor make a better estimate value at this appointment. | | | |