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| **USE CASE – WN02** | | | |
| **Use Case No.** | WN02 | **Use Case Version** | 2.0 |
| **Use Case Name** | Print prescription. | | |
| **Author** | QuanTD | | |
| **Date** | 1/10/2015 | **Priority** | High |
| **Actor:**   * Nurse.   **Summary:**   * This use case allows nurse to print prescription for a patient.   **Goal:**   * Nurse can view prescription document and print it.   **Triggers:**   * Nurse send printing prescription command.   **Preconditions:**   * Actor logged in system before with role “Nurse”. * Exist at least one treatment with status “On Treating” for current patient in storage.   **Post Conditions:**   * **Success:** Display prescription document. * **Fail:** Display error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Nurse send printing prescription command. | System check available prescription for current patient. Then build a prescription document, display to nurse. |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Nurse send printing prescription command. | System display message that no available prescription for current patient. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Nurse send printing prescription command. | System display error message that can’t print prescription document. |   **Relationships:** N/A.  **Business Rules:**   * When nurse send print prescription command, system will check the existence of last treatment with status “On Treating” in storage. If it is existed, system will get the detail content of medicines part for building prescription document. * The detail content of prescription document included:   + Diagnostic.  + Next appointment date.  + All medicines and information of times, quantity, unit, note belong medicine defined in that treatment.  + Name of doctor.   * The output prescription document can be viewed directly, printed, or saved. It can’t be modified by another people except doctor. | | | |

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| **USE CASE – WAL01** | | | |
| **Use Case No.** | WAL01 | **Use Case Version** | 2.0 |
| **Use Case Name** | Suggest Treatment | | |
| **Author** | AnhPN | | |
| **Date** | 16/11/2015 | **Priority** | High |
| **Actor:**   * Analyst.   **Summary:**   * This use case allows analyst suggest treatment for doctor.   **Goal:**   * Doctor can be suggested base on regimen.   **Triggers:**   * Doctor sends command to make prescription request.   **Preconditions:**   * User log in the system by role doctor. * Doctor selected a patient before.   **Post Conditions:**   * Success: Show suggest treatment. * Fail: Log error.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Doctor goes make prescription of patient view. | System display   * Name: text, read only. * Age: text, read only. * Gender: text, read only. * Illness: text, read only. * Status: text, read only. * Description: text area, read only. * List day of medical history of patient with information:   + Date: the day when doctor make prescription, format day dd-mm-yyyy, ex: “29-10-2015”.  + Appointment: appointment of Date, format day dd-mm-yyyy, ex: “29-10-2015”.  Suggest treatment information.  Diagnostic: text input with option, required, length 3-40.  - Medicines:  + Name of medicine: text input with option, required.  + Times: text input with option, required, range value 1-6.  + Number of quantity per time: number text input, required, range value 1-10.  + Unit of medicine: text input, required, value depend on medicine.  + Advice: free text input.  - Food:  + Name of food: text input with option, required.  + Time: text input with option, required, range value 1-6.  + Number of quantity per time: number text input, required.  + Unit of food: text input with option, required, value depend on food.  + Advice: free text input.  - Practice:  + Name of practice: free text input, required.  + Time: text input with option, required, range value 1-6.  + Quantitative: free text input, required.  + Advice: free text input.   * Appointment Date: default 1 week form current day, format day “dd/mm/yyyy”. * Note: free text area. | | 2 | Doctor input diagnostic. | System validation information. | |  | Doctor sends command to suggest prescription | System display   * Name: text, read only. * Age: text, read only. * Gender: text, read only. * Illness: text, read only. * Status: text, read only. * Description: text area, read only. * List day of medical history of patient with information:   + Date: the day when doctor make prescription, format day dd-mm-yyyy, ex: “29-10-2015”.  + Appointment: appointment of Date, format day dd-mm-yyyy, ex: “29-10-2015”.   * Suggest treatment information.   - Diagnostic: text input with option, required, length 3-40.  - Medicines:  + Name of medicine: text input with option, required.  + Times: text input with option, required, range value 1-6.  + Number of quantity per time: number text input, required, range value 1-10.  + Unit of medicine: text input, required, value depend on medicine.  + Advice: free text input.  - Food:  + Name of food: text input with option, required.  + Time: text input with option, required, range value 1-6.  + Number of quantity per time: number text input, required.  + Unit of food: text input with option, required, value depend on food.  + Advice: free text input.  - Practice:  + Name of practice: free text input, required.  + Time: text input with option, required, range value 1-6.  + Quantitative: free text input, required.  + Advice: free text input.   * Appointment Date: default 1 week form current day, format day “dd/mm/yyyy”. * Note: free text area. |   **Alternative Scenario:** N/A  **Exceptions:** N/A  **Relationships:** Extend to “Make Prescription”  **Business Rules:**   * Diagnostic field is the name of illness which is identified by doctor. Doctor should be supported to find the exactly illness name defined in system when input the diagnostic field. * When doctor sends “Suggest Treatment” command, system will calculate current day is belong to which phase of suitable regimen. Then system will display the detail of phase:   + All medicines with information of times, quantity, unit, note belong medicine defined in that phase.  + All foods with information of times, quantity, unit, note belong food defined in that phase.  + All practices with information of times, quantity, note belong practice defined in that phase.   * All above information is help doctor making prescription follow standard medical process and regimen within least time. However, doctor can modify detail of output prescription basing on each patient when making prescription. * In case of doctor identify that diagnostic (stand for illness name) is different than the last diagnostic defined in storage, system understands that **“Patient is fine with old illness, but they are getting new sick”,** and it will get the first phase of suitable regimen belong to new diagnostic for displaying. | | | |

**MAIL SCHEDULER ALGORITHMS**

#### Solution

We create an embed scheduler in our web application. The scheduler will automatically run following schedule setting that system administrator defines when deploy the system. Below are detail steps of each time that schedule running:

* + - Step 1: Check if the scheduler configuration is active to running business or not. If no, the scheduler come to finish.
    - Step 2: System accesses to a queue in memory contains list of account that necessary to send credential information.
    - Step 3: If the queue is not empty and the counter does not reach max limitation configure value, system polls first element (an Account object) from queue. If above condition is failed, the scheduler come to finish.
    - Step 4: System tries to send an email contain username and password to target email address of registered account, then increase counter 1 unit. If the email can’t be sent successfully, system will re-push Account element to the end of queue.
    - Step 5: Back to step 2.

#### Complexity

The complexity of this algorithm is O(n).