**MINISTRY OF EDUCATION AND TRAINING**

**FPT UNIVERSITY**

Capstone Project Report 3

**Building the laboratory tests management system**

|  |  |
| --- | --- |
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| **Capstone Project Code** | eLTMS |

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# 

# Software Requirement Specification

## User Requirement Specification

### Guest Requirement

* Login
* Register
* Make appointment

### Patient Requirement

* + Make appointment
  + Edit appointment
  + Cancel appointment
  + View appointment history
  + View appointment’s test result

### Hospital Receptionist Requirement

* View appointment list
* View appointment detail
* Delete Sample Getting(s) of an appointment
* Mark appointment as “Paid”

### Department Receptionist Requirement

* View Sample Getting List
* Create appointment for offline patient
* Mark Sample Getting as “Paid”

### Nurse Requirement

* View Sample Getting list
* Mark Sample Getting As “Nurse Done”

### Lab Technician Requirement

* Manage Lab Tests, Samples, Sample Groups

### Doctor Requirement

* View Test Results
* Write Conclusion
* Require Re-doing the test

### Warehouse Keeper Requirement

* Manage Supplies
* Manage Import/Export Supplies
* Inventory

## System Requirement Specification

### External Interface Requirement

#### User Interface

* Design, layout, colors are suitable for a medical website.
* Primary color are white and light blue.
* Font size is required big enough for elder people can read.
* Only Vietnamese.

#### Hardware Interface

* Desktops, mobiles, tablets which can connect Wi-Fi steadily.
* Device’s screen display in acceptable brightness.

#### Software Interface

* Using browser: Chrome (v25 or above), Firefox (v46.1) or Microsoft Edge.
* Using Android devices whose version is 4.4.2 or above.

#### Communication Protocol

* Use the HTTP, HTTPS protocol for communication between web browser and web server, between mobile device and web server.

### System Overview Use Case

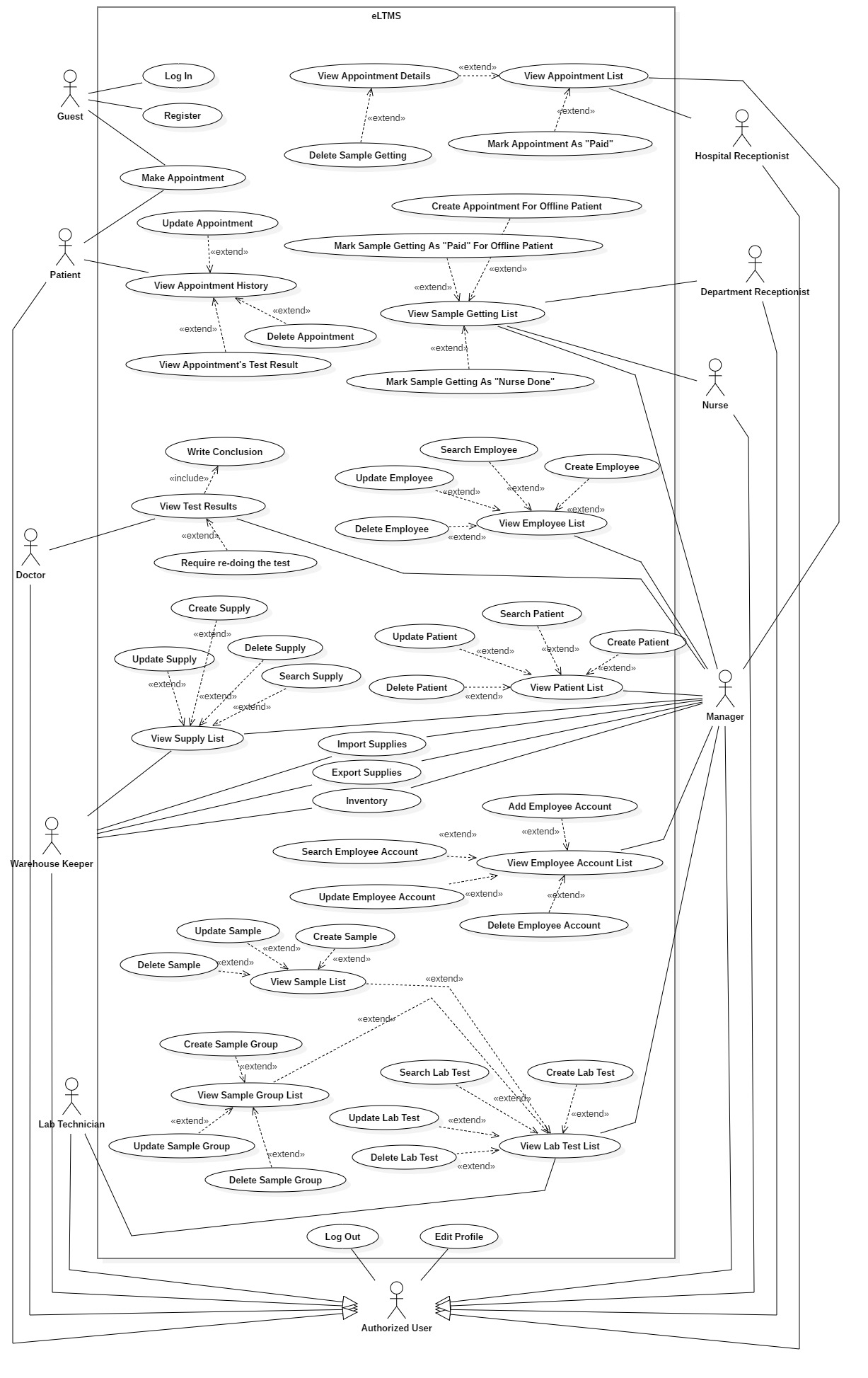


Figure 1 - System Overview Use Case

### List of Use Case

#### Guest Overview Use Case

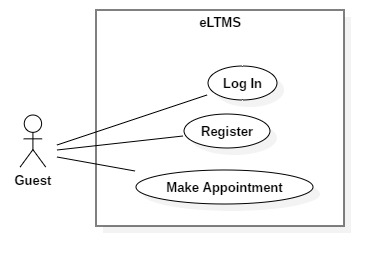


Figure 2 - <Guest>Overview Use Case

##### <Guest> Login

**Use Case Diagram**

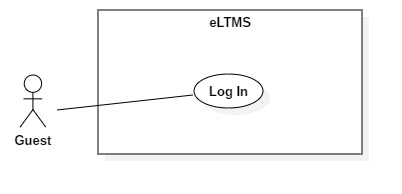


Figure 3 - < Guest > Login

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_01 | | | |
| Use Case No. | 01 | **Use Case Version** | 1.0 |
| Use Case Name | Login | | |
| Author | DucBM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Guest.   Summary:   * This use case allows Guest to login to the system.   Goal:   * Guests are authorized as their role.   Triggers:   * User clicks “Đăng nhập” button.   Preconditions:   * User has an account.   Post Conditions:   * Success: User logs into the system successfully and gets redirected to a specified page depends on user’s role. * Fail: System shows error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User goes to Login page. | System requires information:   * Phone: text input. * Password: password input. | | 2 | User inputs information.  User clicks “Đăng Nhập” button. | User will login to the system with roles of this account. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Phone is invalid length. | Show error message. | | 2 | Password is invalid length. | Show error message. | | 3 | Phone and password does not match with any accounts. | Show error message. |   Relationships: N/A  Business Rules:   * Patient can only log in to user-web. * Employee (Hospital Receptionist, Department Receptionist, Nurse, Doctor, Warehouse Keeper and Manager) can only log in to admin-web. | | | |

##### <Guest> Register

**Use Case Diagram**

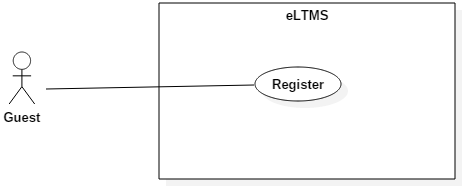


Figure 4 - < Guest > Register

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_02 | | | |
| Use Case No. | 02 | **Use Case Version** | 1.0 |
| Use Case Name | Register | | |
| Author | DucBM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Guest.   Summary:   * This use case allows Guest to register account.   Goal:   * Create a new account for guest.   Triggers:   * User clicks “Đăng ký” button.   Preconditions:   * N/A   Post Conditions:   * Success: System saves account on database and shows success message. * Fail: System shows error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User goes to “Đăng ký” page. | System requires information:   * Phone: text input. * Password: password input. * Confirm password: password input * Full name: text input. * Date of birth: date input. * Email: text input. * Home address: text input. * Company address: text input. | | 2 | User inputs all required field.  Then clicks “Đăng ký” button. | User will register the system with roles of this account.  [Exception from 1 to 8]. |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Phone is invalid. | Show error message. | | 2 | Password is invalid. | Show error message. | | 3 | Confirm password does not match | Show error message. | | 4 | Full name is empty. | Show error message. | | 5 | Date of birth is invalid | Show error message. | | 6 | Email is invalid. | Show error message. | | 7 | Home address is invalid. | Show error message. | | 8 | Company address is invalid. | Show error message. |   Relationships: N/A  Business Rules:   * Guest can only register as patient. * Phone is not null and must be verified by code. * Email is not null, correct email format. * Password is not null, in range of 8-255 characters, includes at least one digit and includes both lowercase and uppercase letters. * Date of birth is not null and not over the current date. * Full name is not null, in range of 5-50 characters. | | | |

##### <Guest, Patient> Make Appointment

**Use Case Diagram**

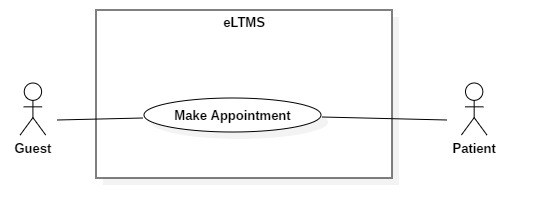


Figure 11 - < Guest, Patient > Make Appointment

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE - UC\_07** | | | |
| **Use Case No.** | 07 | **Use Case Version** | 1.0 |
| **Use Case Name** | Make Appointment | | |
| **Author** | DucBM | | |
| **Date** | 1/10/2018 | **Priority** | Normal |
| **Actor:**   * Patient   **Summary:**   * Patient makes appointment with personal information, types of LabTest, date and time.   **Goal:**   * A new appointment of the patient is made.   **Triggers:**   * User clicks on “Đặt lịch hẹn” menu item on the website or “Đặt lịch” button on mobile app.   **Preconditions:**   * N/A.   **Post Conditions:**   * **Success:** Show success message. * **Fail:** Show error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on “Đặt lịch hẹn”. | System requires information input:   * Full name * Phone number | | 2 | User clicks on “Bước 2”. | System displays a checkbox list of LabTest types for user to select. | | 3 | User clicks on “Bước 3”. | System displays a table that shows the selected LabTests and requires input date and time for each of them. | | 4 | User clicks on “Đặt lịch”. | System show message on a popup (success/error). |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Full name or phone number is empty. | Show error message. | | 2 | No LabTests are selected. | Show error message. | | 3 | A date or time is empty. | Show error message. | | 4 | Two date-times intersects. | Show error message. |   **Relationships:** N/A  **Business Rules:**   * User cannot book a Sample twice or more on the same day. * Number of bookings of a Sample-Group, on the same day, at the same slot cannot exceed the number of tables of that Sample-Group. * User cannot make an appointment with date-time in the past. * User cannot book 2 date-times which intersects each other. | | | |

#### Patient Overview Use Case

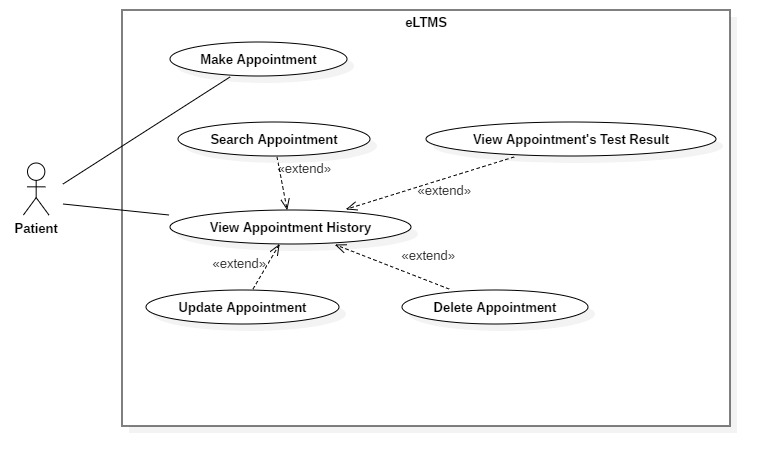


Figure 10 - < Administrator > Overview Use Case

##### <Patient> View Appointment History

**Use Case Diagram**

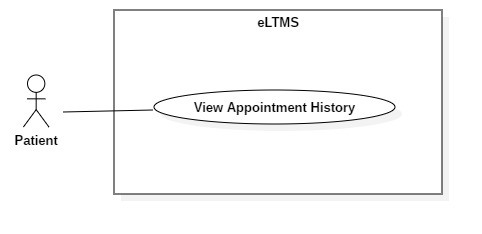


Figure 12 - <Patient> View Appointment History

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_07 | | | |
| Use Case No. | 07 | **Use Case Version** | 1.0 |
| Use Case Name | View Appointment History | | |
| Author | DucBM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Patient   Summary:   * Patient views his/her appointment history including new appointment, being processed appointment and done appointment.   Goal:   * A list of appointments of the patient, with search, filter and pagination controls, is shown.   Triggers:   * User clicks on “Danh sách cuộc hẹn” on the Website/Mobile App.   Preconditions:   * User is logged in as Patient.   Post Conditions:   * Has data: Show a list of appointments of the patient with search, filter and pagination controls. * Has no data: Show “Bạn chưa có cuộc hẹn nào.” text.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on “Danh sách cuộc hẹn” on the Website or Mobile App. | System shows a list of appointments of the patient with search, filter and pagination controls. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on “Danh sách cuộc hẹn” on the Website or Mobile App. | System shows a text: “Bạn chưa có cuộc hẹn nào.” |   Exceptions: N/A  Relationships: N/A.  Business Rules:   * In this list, each appointment has 3 status:   + “mới tạo”: User can edit and delete on Web. User can view detail (selected Samples, LabTests, date, time and price), edit and delete on Mobile App.   + “đang xử lý”: User can do nothing   + “hoàn tất”: User can view result on Web. User can view detail and view result on Mobile App. | | | |

##### <Patient> Update Appointment

**Use Case Diagram**

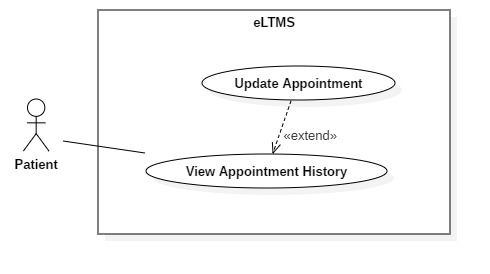


Figure 13 - < Patient >Update Appointment

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_08 | | | |
| Use Case No. | 08 | **Use Case Version** | 1.0 |
| Use Case Name | Update Appointment | | |
| Author | DucBM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Patient   Summary:   * Update an appointment’s LabTest types, date and time.   Goal:   * LabTest types, date and time of an appointment are updated.   Triggers:   * User clicks Edit Button in the appointment row.   Preconditions:   * User is logged in as Patient.   Post Conditions:   * Success: A success message is shown. * Fail: An error message is shown.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on Edit Button in the appointment row. | System redirect to Edit page. Old values of LabTests are set on a checkbox list. | | 2 | User re-selects new LabTests. Then, user clicks “Bước 2” | System show a table of Samples with date and time. | | 3 | User re-selects date and time. Then, user clicks “Cập Nhật” | System processes and return message. |   Alternative Scenario: N/A  Exceptions: N/A  Relationships: Extended from View Appointment History use case.  Business Rules:   * User cannot book a Sample twice or more on the same day. * Number of bookings of a Sample-Group, on the same day, at the same slot cannot exceed the number of tables of that Sample-Group. * User cannot make an appointment with date-time in the past. * User cannot book 2 date-times which intersects each other. | | | |

##### <Patient> View Appointment’s Test Result

**Use Case Diagram**

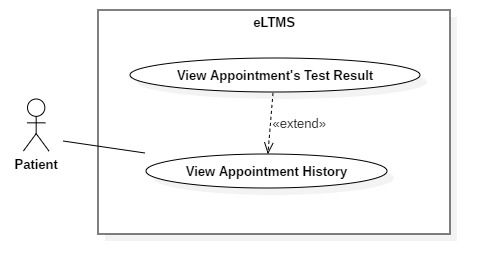


Figure 14 - < Patient > View Appointment’s Test Result

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE - UC\_10** | | | |
| **Use Case No.** | 10 | **Use Case Version** | 1.0 |
| **Use Case Name** | View Appointment’s Test Result | | |
| **Author** | DucBM | | |
| **Date** | 1/10/2018 | **Priority** | Normal |
| **Actor:**   * Patient   **Summary:**   * Patient views appointment’s test result.   **Goal:**   * Patient views appointment’s test result, a soft version of result paper.   **Triggers:**   * Patient clicks View Result Button in the appointment row.   **Preconditions:**   * User is logged in as Patient.   **Post Conditions:**   * The test result is shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | **1** | User clicks on View Result Button on the appointment row. | System redirects to View Result page which shows:   * Test results indexes: Name, value, status (normal/low/high), result, unit * “Tải tập tin PDF” button. | | **2** | User clicks on “Tải tập tin PDF”. | A PDF version is downloaded and opened on browser. |   **Exceptions:** N/A  **Relationships:** Extended from View Appointment History use-case.  **Business Rules:**   * In the test result grid: the rows has high or low status must be highlighted (bold, italic and underlined). If high, the result number marked “H” and righ-aligned. If low, the result number marked “L” and left-aligned. | | | |

##### <Patient> Delete Appointment

**Use Case Diagram**

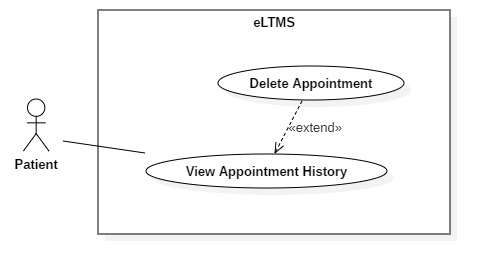


Figure 15 - <Patient> Delete Appointment

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE - UC\_12** | | | |
| **Use Case No.** | 12 | **Use Case Version** | 1.0 |
| **Use Case Name** | Delete Appointment | | |
| **Author** | DucBM | | |
| **Date** | 1/10/2018 | **Priority** | Normal |
| **Actor:**   * Patient   **Summary:**   * Delete (cancel) an appointment that patient made.   **Goal:**   * Help patients can flexibly delete the appointments that they cannot come.   **Triggers:**   * Patient clicks on Delete Button on the appointment row.   **Preconditions:**   * User is logged in as Patient.   **Post Conditions:**   * Show success message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on Delete Button on the appointment row. | System show a confirm popup with message: “Bạn có chắc chắn muốn hủy cuộc hẹn này không?” | | 2 | User clicks “Có”. | System deletes the appointment and show popup: “Cuộc hẹn đã được hủy thành công.” |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on Delete Button on the appointment row. | System show a confirm popup with message: “Bạn có chắc chắn muốn hủy cuộc hẹn này không?” | | 2 | User clicks “Không”. | System closes the popup and come back to the appointment history list. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | The appointment have been deleted before user confirmed “Có”. It is deleted from another device (maybe web or mobile). | Show error message. |   **Relationships:** Extended from View Appointment History List.  **Business Rules:** N/A | | | |

#### Hospital Receptionist Overview Use Case

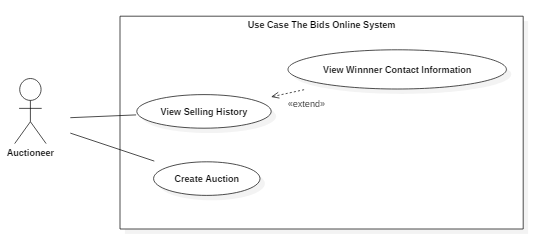


Figure 20 - <Hospital Receptionist> Overview Use Case

##### <Hospital Receptionist, Manager> View Appointment List

**Use Case Diagram**

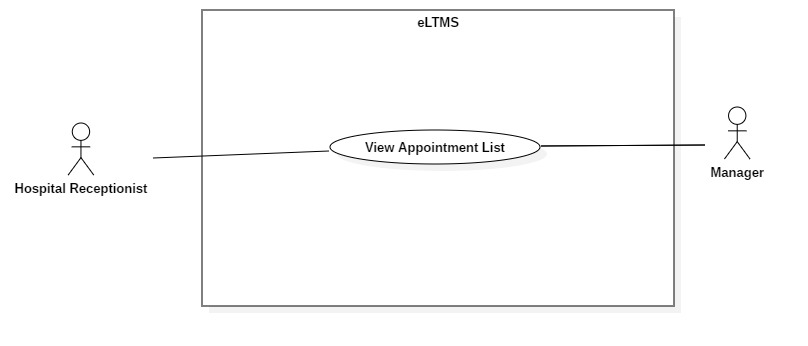


Figure 21 - <Hospital Receptionist> View Appointment List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_10 | | | |
| Use Case No. | 10 | **Use Case Version** | 1.0 |
| Use Case Name | View Appointment List | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Auctioneer.   Summary:   * Hospital Receptionist views a list of appointments to guide patients coming to the hospital.   Goal:   * Hospital Receptionist can view all appointments, search by appointment code and filter by date.   Triggers:   * After Hospital Receptionist logged in successfully or clicks on “Quản lý cuộc hẹn” menu item.   Preconditions:   * User logged in as Hospital Receptionist.   Post Conditions:   * A list of appointments is shown, with search, filter and pagination controls.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on “Quản lý cuộc hẹn” menu item. | A list of appointments is shown, with search, filter and pagination controls. |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Appointment table has no data. | Show message: “Chưa có cuộc hẹn nào” |   Relationships: N/A  Business Rules:   * Initially, all IsPaid Switches are set to OFF. | | | |

##### <Hospital Receptionist, Manager> View Appointment Detail

**Use Case Diagram**

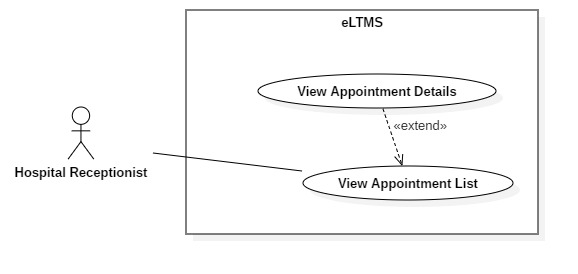


Figure 23 - <Hospital Receptionist, Manager> View Appointment Details

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_11 | | | |
| Use Case No. | 11 | **Use Case Version** | 1.0 |
| Use Case Name | View Appointment Details | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Actor:   * Hospital Receptionist. * Manager   Summary:   * This use-case allows Hospital Receptionist to view appointment details.   Goal:   * Appointment details, includes patient’s information and a list of booked Sample-Getting of the appointment, are shown.   Triggers:   * User clicks on “Xem chi tiết” button on the appointment row.   Preconditions:   * User logged in as Hospital Receptionist. * User is at View Appointment List page.   Post Conditions:   * Success: A pop up with appointment details is shown.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on on “Xem chi tiết” button on the appointment row. | A pop up appears and shows these information:   * Patient profile: Full name, phone number, gender, date of birth, email, home address, company address. * A list of booked Sample-Getting. |   Alternative Scenario: N/A  Exceptions: N/A  Relationships: Extend from View Appointment List use case  Business Rules: N/A. |

##### <Hospital Receptionist, Manager> Delete Sample Getting

**Use Case Diagram**

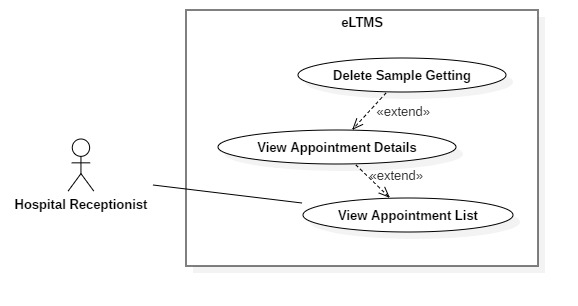


Figure 22 - <Hospital Receptionist, Manager> Delete Sample Getting

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE - UC\_10** | | | |
| **Use Case No.** | 10 | **Use Case Version** | 1.0 |
| **Use Case Name** | Delete Sample Getting | | |
| **Author** | YCM | | |
| **Date** | 1/10/2018 | **Priority** | Normal |
| **Actor**:   * Hospital Receptionist   **Summary**:   * This use-case allows Hospital Receptionist to delete Sample-Getting for online patient.   **Goal**:   * Sample-Getting of online patient is deleted.   **Triggers**:   * Hospital Receptionist clicks on Delete Button on the Sample-Getting row.   **Preconditions**:   * User logged in as Hospital Receptionist. * User is at Appointment Detail Popup.   **Post** **Conditions**:   * **Success**: Show success message. * **Fail:** Show error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on Delete Button on the Sample-Getting row. | System shows a popup: “Bạn có chắc chắn muốn xóa ca lấy mẫu này không?” | | 2 | User clicks “Có”. | System deleted the Sample-Getting and shows pop up: “Ca lấy mẫu đã được xóa.” |   Alternative Scenario 1:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on Delete Button on the Sample-Getting row. | System shows a popup: “Bạn có chắc chắn muốn xóa ca lấy mẫu này không?” | | 2 | User clicks “Không”. | System closes the popup and come back to the Sample-Getting list. |   **Exceptions**: N/A  **Relationships**: N/A  **Business** **Rules**:   * Price should be displayed as VND currency format. * Date should be displayed as Vietnamese date format. * For active auctions: user can sort the result by active time (newly listed/ending soon), number of bids (asc/desc), current price (asc/desc). User also can click on the row to visit auction’s detail page. * For ended auctions: user can sort the result by ended time (asc/desc), number of bids (asc/desc), current price (asc/desc). Each row provides a Contact icon for user can click and view seller’s contact information if the auction has a winner. | | | |

##### <Hospital Receptionist, Manager> Mark Appointment As "Paid"

**Use Case Diagram**

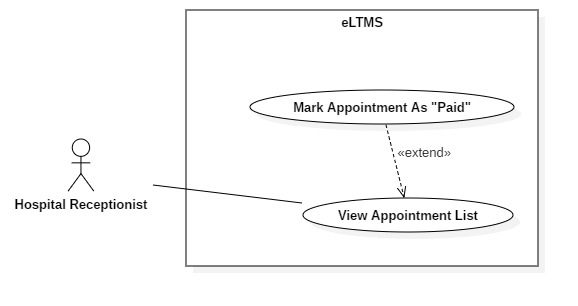


Figure 22 - <Hospital Receptionist, Manager> Mark Appointment As Paid

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE - UC\_10** | | | |
| **Use Case No.** | 10 | **Use Case Version** | 1.0 |
| **Use Case Name** | Mark Appointment As Paid | | |
| **Author** | YCM | | |
| **Date** | 1/10/2018 | **Priority** | Normal |
| **Actor**:   * Hospital Receptionist   **Summary**:   * This use-case allows Hospital Receptionist to mark the appointment as Paid.   **Goal**:   * Appointment is marked as Paid.   **Triggers**:   * User clicks on “Thanh toán” switch on the appointment row.   **Preconditions**:   * User logged in as Hospital Receptionist. * User is at Appointment List page.   **Post** **Conditions**:   * **Success**: Show success message. * **Fail:** Show error message.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on “Thanh toán” switch on the appointment row. | System show a pop up with a price list of all LabTests, and ask: “Bạn có chắc chắn muốn thanh toán không?” | | 2 | User clicks “Có”. | System processes and push notification to Nurses: “Đã thanh toán”. |   Alternative Scenario 1:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User clicks on “Thanh toán” switch on the appointment row. | System show a pop up with a price list of all LabTests, and ask: “Bạn có chắc chắn muốn thanh toán không?” | | 2 | User clicks “Không”. | Come back to Appointment List page. |   **Exceptions**: N/A  **Relationships**: N/A  **Business** **Rules**: N/A | | | |

#### Department Receptionist Overview Use Case

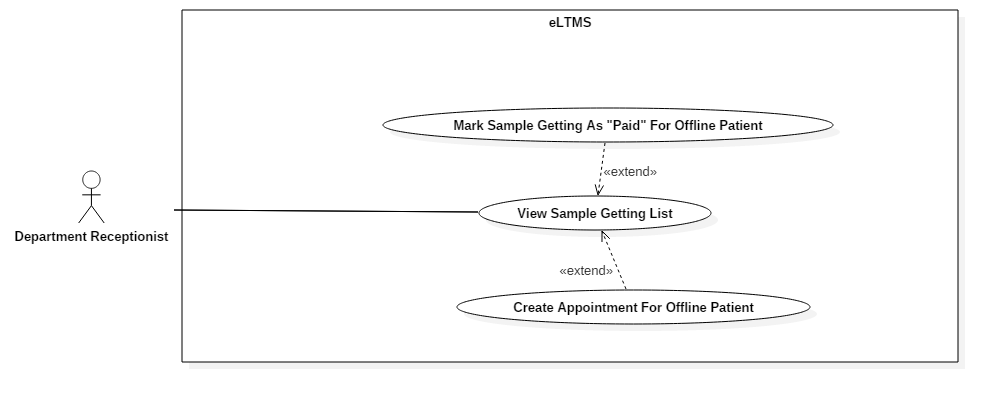


Figure 24 - < Bidder > Overview Use Case

##### <Department Receptionist, Manager, Nurse> View Sample Getting List

**Use Case Diagram**

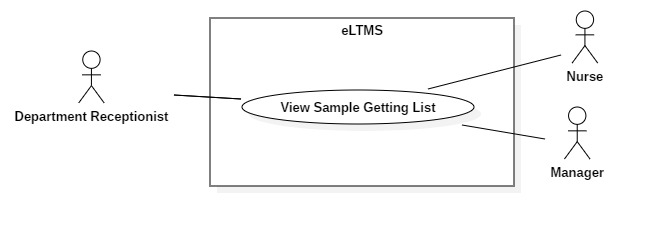


Figure 26 - 2.3.4.1. <Department Receptionist, Manager, Nurse> View Sample Getting List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE - UC\_13** | | | |
| **Use Case No.** | 13 | **Use Case Version** | 1.0 |
| **Use Case Name** | View Sample Getting List | | |
| **Author** | YCM | | |
| **Date** | 1/10/2018 | **Priority** | Normal |
| **Actor**:   * Department Receptionist * Nurse * Manager   **Summary**:   * View a list of Sample Gettings.   **Goal**:   * A list of Sample Gettings with suitable controls is shown.   **Triggers**:   * User Logged in successfully as Department Receptionist or Manager.   **Preconditions**:   * User logged in as Department Receptionist or Manager.   **Post Conditions**:   * Success: A list of Sample Getting is shown, with search, filter and pagination controls.   **Main Success Scenario**:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Users logged in successfully as Department Receptionist, Nurse or Manager. | System shows list of Sample Getting which includes following information:   * Patient’s full name * Patient’s phone number * Patient’s home address * Sample Getting’s occurring date * Sample Getting’s occurring slot * Action button: Paid |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | There are no data. | Show message: “Không có ca lấy mẫu nào.” |   **Relationships:** N/A  **Business Rules:**   * Initially, system displays a list of Sample-getting of the current date. | | | |

##### <Department Receptionist, Manager> Create Appointment For Offline Patient

**Use Case Diagram**

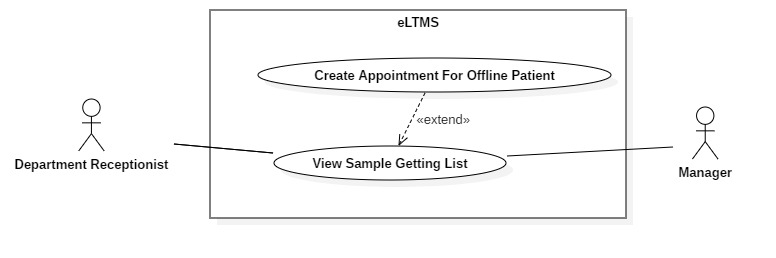


Figure 25 - 2.3.4.2. <Department Receptionist, Manager> Create Appointment For Offline Patient

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_12 | | | |
| Use Case No. | 12 | **Use Case Version** | 1.0 |
| Use Case Name | Create Appointment For Offline Patient | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Department Receptionist * Manager   Summary:   * Create Appointment for offline patients, who did not make appointment online.   Goal:   * Appointment for offline patient is created.   Triggers:   * Clicks on “Thêm mới” button in View Sample Getting List page.   Preconditions:   * User logged in as Department Receptionist or Manager.   Post Conditions:   * Success: System saves bid on database and shows success message, auction’s information and table of bidding transactions is updated on UI directly. * Fail: System shows error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Bidder clicks on any link of auction’s details page. | Redirect user to “Thông tin phiên đấu giá” displaying the auction’s information. | | 2 | Bidder inputs price in text input. | System formats input as currency format. | | 3 | Bidder clicks “Đấu giá” button. | System shows confirmation popup. | | 4 | Bidder clicks “Đồng ý” button on the popup. | System shows success message.  System updates auction’s information: current price, current minimum bid, current highest bidder’s username on UI.  System updates table of bidding transactions on UI.  System sends notification to bidder to confirm he/she is the highest bidder or not. |   Alternative Scenario: N/A  Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Bidder inputs price on their own products. | System shows “Bạn không thể đấu giá trên sản phẩm của mình” message. | | 2 | Bidder inputs reserve price that not divisible for 500. | System shows “Giá của bạn phải chia hết cho 500đ” message. | | 3 | Bidder inputs price too high comparing to item’s current price. | System shows “Giá của bạn nhập quá cao” message. | | 4 | Bidder inputs price lower than minimum bid. | System shows “Giá đấu của bạn phải bằng hoặc lớn hơn giá tối thiểu” message. |   Relationships: Extend from View Auction’s Details  Business Rules:   * The bid bidder types is not null, greater than 1000 and less than 200000000 and divisible for 500. * The bid bidder types needs to equal or be higher than the current minimum bid. * Automatic bidding system is provided to current highest bidder to bid on his/her behalf. See more at Algorithms section. * UI will be updated immediately after bidder places bid successfully without reloading the page. (real-time updating). | | | |

##### <Department Receptionist, Manager> Mark Sample Getting As “Paid” For Offline Patient

**Use Case Diagram**

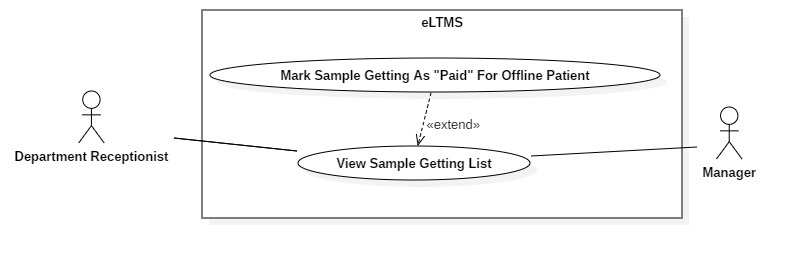


Figure 27 - <Department Receptionist, Manager> Mark Sample Getting As “Paid” For Offline Patient

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_13 | | | |
| Use Case No. | 13 | **Use Case Version** | 1.0 |
| Use Case Name | Mark Sample Getting As “Paid” For Offline Patient | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Actor:   * Department Receptionist * Manager   Summary:   * Mark Sample Getting as “Paid” for offline patient.   Goal:   * Sample Getting is marked as “Paid” to confirm that the patient has paid for his/her Sample Getting.   Triggers:   * Department Receptionist/Manager clicks on Paid Switch.   Preconditions:   * User logged in as Department Receptionist or Manager. * User is at View Sample Getting List page.   Post Conditions:   * Success: Sample Getting’s status is changed into “*Paid*”.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on Paid Switch. | Show a confirm pop up with message “Bạn có chắc chắn muốn thanh toán không?” | | 2 | Click “Có” button. | Change status of the Sample Getting and display message “Đã thanh toán”. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on Paid Switch. | Show a confirm pop up with message “Bạn có chắc chắn muốn thanh toán không?” | | 2 | Click “Có” button. | Change status of the Sample Getting and display message “Đã thanh toán”  Set Paid switch to ON |   Exceptions: N/A  Relationships: Extend from View Sample Getting List  Business Rules:   * Initially, all Paid switches are set as OFF. |

#### Nurse Overview Use Case

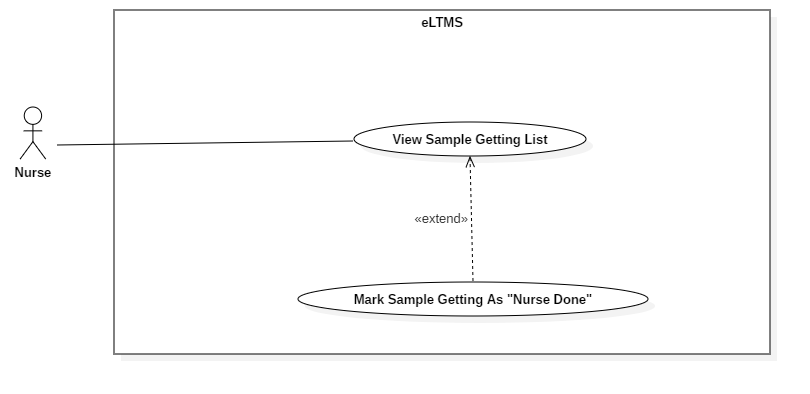


Figure 28 - <Authorized User> Overview Use Case

##### <Nurse, Manager> Mark Sample Getting As “Nurse Done”

**Use Case Diagram**

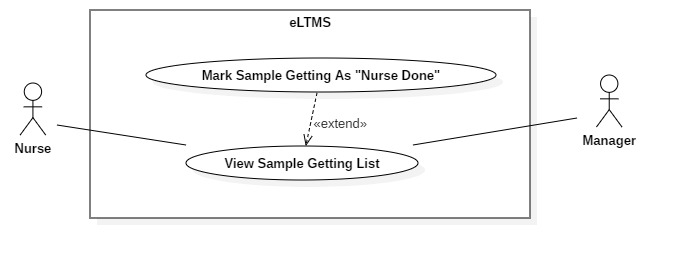


Figure 29 - 2.3.5.1. <Nurse, Manager> Mark Sample Getting As “Nurse Done”

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Mark Sample Getting As “Nurse Done” | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Nurse. * Manager   Summary:   * Mark Sample Getting as “Nurse Done”   Goal:   * Sample Getting is marked as “Nurse Done”.   Triggers:   * User clicks on the switch on the “Đã lấy mẫu” column of the Sample Getting’s row.   Preconditions:   * User logged in as Nurse or Manager. * User is at View Sample Getting List page.   Post Conditions:   * Success: Show success message. Sample Getting status is changed into “*Nurse Done*”   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on the switch on the “Đã lấy mẫu” column of the Sample Getting’s row. | Show a confirm pop up: “Bạn có chắc chắn đã lấy mẫu?” | | 2 | Click “Có” button. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on the switch on the “Đã lấy mẫu” column of the Sample Getting’s row. | Show a confirm pop up: “Bạn có chắc chắn đã lấy mẫu?” | | 2 | Click “Không” button. | Come back to the Sample Getting List. |   Exceptions: N/A  Relationships: Extended from View Sample Getting List  Business Rules:   * Initially, all switches are set to OFF. | | | |

#### Warehouse Keeper Overview Use Case

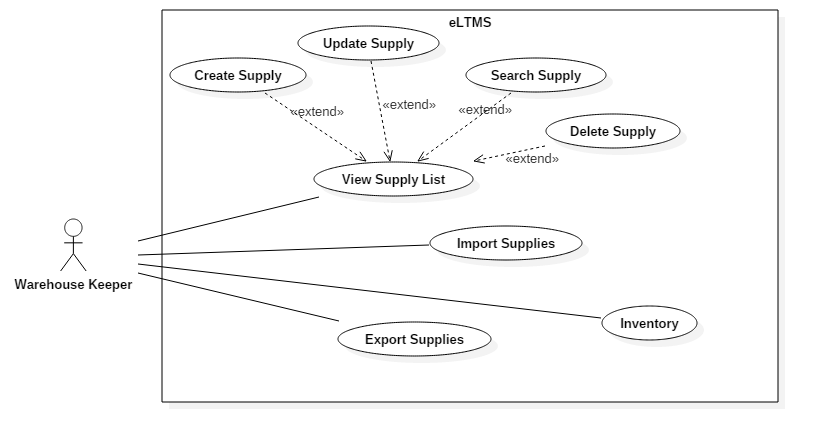


Figure 28 - <Warehouse Keeper> Overview Use Case

##### <Warehouse Keeper, Manager> View Supply List

**Use Case Diagram**

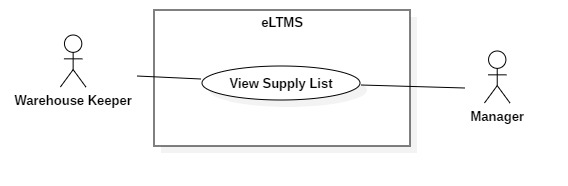


Figure 29 - <Warehouse Keeper, Manager> View Supply List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View Supply List | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper. * Manager   Summary:   * Display a list of supplies.   Goal:   * A table of supplies’ information, with search, filter and pagination controls.   Triggers:   * Display as default page of Warehouse Keeper. * Display after user clicks on “Quản lý vật tư” menu item.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: A list of supplies is displayed.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Logged in successfully as Warehouse Keeper. | Display a list of supplies. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Is at another page and clicks on “Quản lý vật tư” menu item. | Display a list of supplies. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | There are no data of supplies. | Show message: “Chưa có vật tư nào.” |   Relationships: N/A  Business Rules: N/A. | | | |

##### <Warehouse Keeper, Manager> Search Supply

**Use Case Diagram**

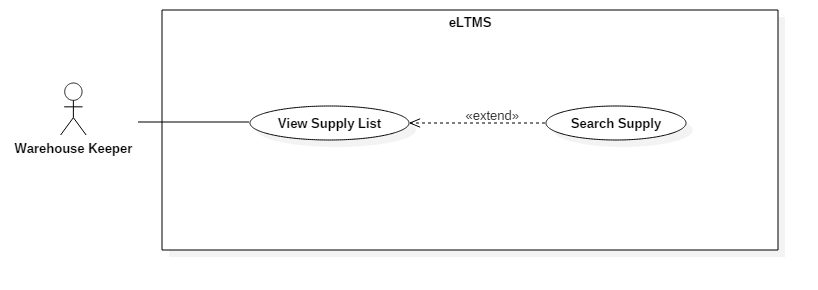


Figure 29 - <Warehouse Keeper, Manager> Search Supply

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Search Supply | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper.   Summary:   * Search for supplies.   Goal:   * Search for supplies.   Triggers:   * User enters a search string into search text field.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: Show search results. * Fail: Show text “Không tìm thấy kết quả nào”.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Enter search string into search text field. Type Enter. | Display the search results in the table. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Enter search string into search text field. Type Enter. | Display text messate: “Không tìm thấy kết quả.” |   Relationships: Extended from View Supply List use-case.  Business Rules:   * Search results are supplies that contains the search string in Supply Code or Supply Name. * Search case-insensitively. * User can search by unsigned Vietnamese. Ex: User searches “kim tiem”, system can return “kim tiêm” results. | | | |

##### <Warehouse Keeper, Manager> Create Supply

**Use Case Diagram**

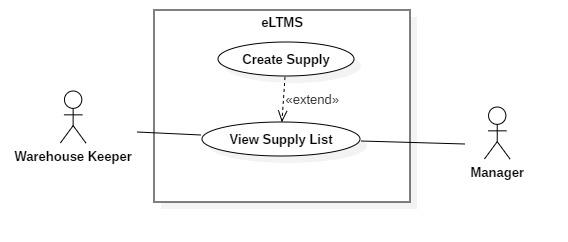


Figure 29 - 2.3.6.2. <Warehouse Keeper, Manager> Create Supply

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create Supply | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper.   Summary:   * Create a new supply.   Goal:   * Create a new supply.   Triggers:   * User clicks “Thêm mới” Button. * User is at View Supply List page.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: Show success message. * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on “Thêm mới” button. | Require information:   * Mã vật tư: text input * Tên vật tư: text input * Loại vật tư: dropdown list * Đơn vị: dropdown list * Ghi chú: textarea | | 2 | Input information and click “Lưu” button | Process and show message. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Mã vật tư is empty. | Show error message | | 2 | Tên vật tư is empty. | Show error message. | | 3 | Loại vật tư is not selected. | Show error message. | | 4 | Đơn vị is not selected. | Show error message. | | 5 | Ghi chú is empty | Show error message. |   Relationships: Extended from View Supply List use-case.  Business Rules:   * Mã vật tư is not empty, max length is 50. * Tên vật tư is not empty, max lenth is 50. * Ghi chú is not empty, max length is 50. | | | |

##### <Warehouse Keeper, Manager> Update Supply

**Use Case Diagram**

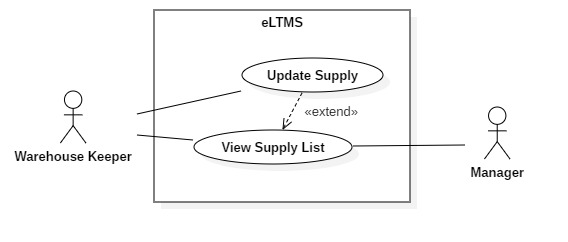


Figure 29 - 2.3.6.3. <Warehouse Keeper, Manager> Update Supply

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update Supply | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper. * Manager   Summary:   * Update a supply’s information.   Goal:   * Update a supply’s information.   Triggers:   * User clicks on Edit button on the action column of the supply’s row.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: Show success message. * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on Edit button on the action column of the supply’s row. | Show a popup, containing fields are filled with old information. | | 2 | Enter new formation of the supply and click “Lưu” button. | Show success message. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Mã vật tư is empty. | Show error message | | 2 | Tên vật tư is empty. | Show error message. | | 3 | Loại vật tư is not selected. | Show error message. | | 4 | Đơn vị is not selected. | Show error message. | | 5 | Ghi chú is empty | Show error message. |   Relationships: Extended from View Supply List  Business Rules:   * Mã vật tư cannot be changed in this use-case. * Tên vật tư is not empty, max lenth is 50. * Ghi chú is not empty, max length is 50. | | | |

##### <Warehouse Keeper, Manager> Delete Supply

**Use Case Diagram**

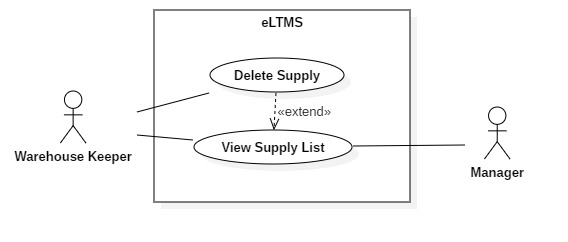


Figure 29 - 2.3.6.4. <Warehouse Keeper, Manager> Delete Supply

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete Supply | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper * Manager   Summary:   * Delete an existing supply.   Goal:   * Delete an existing supply.   Triggers:   * User clicks on Delete button on the action column of the supply’s row.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: Show success message. * Fail: Show error message.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on Delete button on the action column of the supply’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | 2 | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on Delete button on the action column of the supply’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | 2 | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | The supply is deleted at the same time by another person. | Show error message. |   Relationships: Extended from View Supply List use-case.  Business Rules: N/A. | | | |

##### <Warehouse Keeper, Manager> Import Supply

**Use Case Diagram**

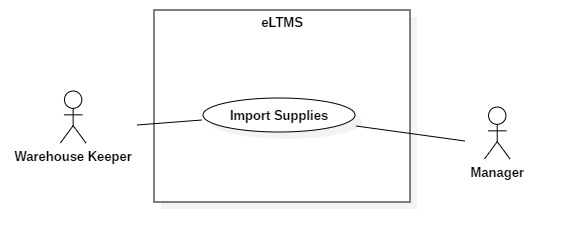


Figure 29 - 2.3.6.5. <Warehouse Keeper, Manager> Import Supply

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Import Supply | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper. * Manager   Summary:   * Display a list of supplies.   Goal:   * A table of supplies’ information, with search, filter and pagination controls.   Triggers:   * Display as default page of Warehouse Keeper. * Display after user clicks on “Quản lý vật tư” menu item.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: A list of supplies is displayed.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Logged in successfully as Warehouse Keeper. | Display a list of supplies. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Is at another page and clicks on “Quản lý vật tư” menu item. | Display a list of supplies. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | There are no data of supplies. | Show message: “Chưa có vật tư nào.” |   Relationships: N/A  Business Rules: N/A. | | | |

##### <Warehouse Keeper, Manager> Export Supply

**Use Case Diagram**

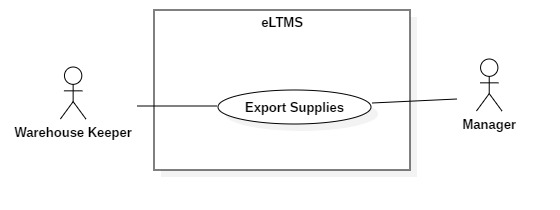


Figure 29 - 2.3.6.6. <Warehouse Keeper, Manager> Export Supply

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Export Supply | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper. * Manager   Summary:   * Display a list of supplies.   Goal:   * A table of supplies’ information, with search, filter and pagination controls.   Triggers:   * Display as default page of Warehouse Keeper. * Display after user clicks on “Quản lý vật tư” menu item.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: A list of supplies is displayed.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Logged in successfully as Warehouse Keeper. | Display a list of supplies. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Is at another page and clicks on “Quản lý vật tư” menu item. | Display a list of supplies. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | There are no data of supplies. | Show message: “Chưa có vật tư nào.” |   Relationships: N/A  Business Rules: N/A. | | | |

##### <Warehouse Keeper, Manager> Inventory

**Use Case Diagram**

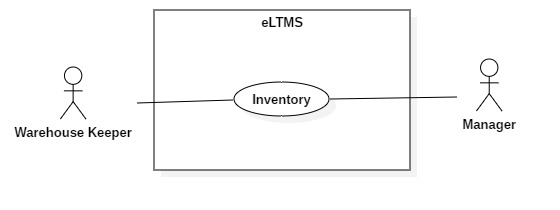


Figure 29 - 2.3.6.7. <Warehouse Keeper, Manager> Inventory

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Inventory | | |
| Author | YCM | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * Warehouse Keeper. * Manager   Summary:   * Display a list of supplies.   Goal:   * A table of supplies’ information, with search, filter and pagination controls.   Triggers:   * Display as default page of Warehouse Keeper. * Display after user clicks on “Quản lý vật tư” menu item.   Preconditions:   * User logged in as Warehouse Keeper or Manager.   Post Conditions:   * Success: A list of supplies is displayed.   Main Success Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Logged in successfully as Warehouse Keeper. | Display a list of supplies. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Is at another page and clicks on “Quản lý vật tư” menu item. | Display a list of supplies. |   Exceptions:   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | There are no data of supplies. | Show message: “Chưa có vật tư nào.” |   Relationships: N/A  Business Rules: N/A. | | | |

#### Manager Overview Use Case

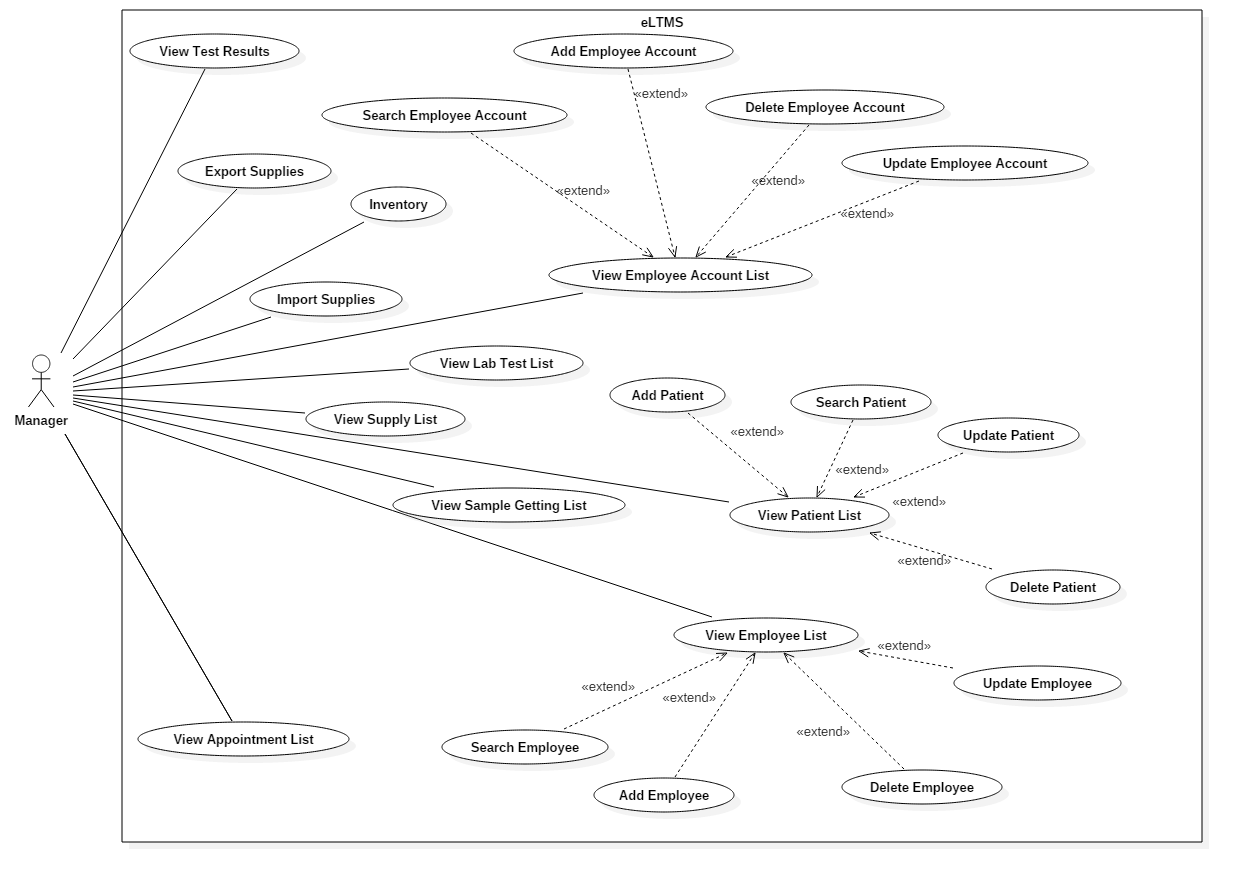


Figure 28 - <Authorized User> Overview Use Case

##### <Manager, Lab Technician> View Sample Group List

**Use Case Diagram**

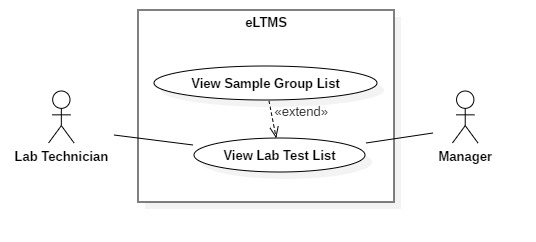


Figure 29 - 2.3.6.1. <Manager, Lab Technician> View Sample Group List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View Sample Group List | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Lab Technician.** * **Manager**   Summary:   * **Display a list of Sample Groups.**   Goal:   * **A table of Sample Groups’ information, with search, filter and pagination controls.**   Triggers:   * **Display after user clicks on “Quản lý nhóm xét nghiệm” menu item.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: A list of Sample Groups is displayed.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Logged in successfully as Manager, Lab Technician. | Display a list of Sample Groups. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Is at another page and clicks on “Quản lý nhóm xét nghiệm” menu item. | Display a list of Sample Groups. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | There are no data of Sample Groups. | Show message: “Chưa có nhóm xét nghiệm nào.” |   Relationships: **N/A**  Business Rules: **N/A.** | | | |

##### <Manager, Lab Technician> Create Sample Group

**Use Case Diagram**

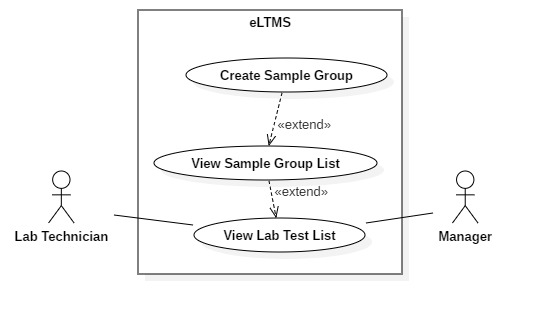


Figure 29 - 2.3.6.2. <Manager, Lab Technician> Create Sample Group

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create Sample Group | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Create a new Sample Group.**   Goal:   * **Create a new Sample Group.**   Triggers:   * **User clicks “Thêm mới” Button.** * **User is at View Sample Group List page.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on “Thêm mới” button. | Require information:   * Sample Group Name: text input * Description: text input | | **2** | Input information and click “Lưu” button | Process and show message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Sample Group Nameis empty. | Show error message | | **2** | Descriptionis empty. | Show error message. |   Relationships: **Extended from View Sample Group List use-case.**  Business Rules:   * **Sample Group Name is not empty, max length is 50.** * **Description is not empty, max length is 500.** | | | |

##### <Manager, Lab Technician> Update Sample Group

**Use Case Diagram**

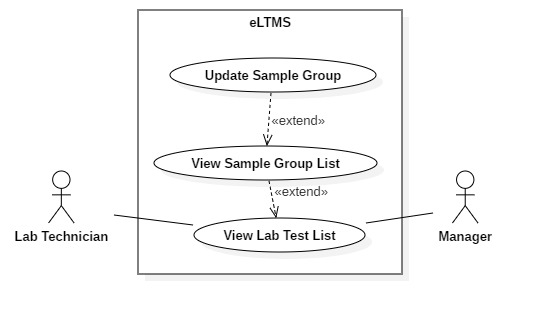


Figure 29 - 2.3.6.3. <Manager, Lab Technician> Update Sample Group

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update Sample Group | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Update a Sample Group’s information.**   Goal:   * **Update a Sample Group’s information.**   Triggers:   * **User clicks on Edit button on the action column of the Sample Group’s row.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Edit button on the action column of the Sample Group’s row. | Show a popup, containing fields are filled with old information. | | **2** | Enter new formation of the Sample Group and click “Lưu” button. | Show success message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Sample Group Nameis empty. | Show error message | | **2** | Descriptionis empty. | Show error message. |   Relationships: **Extended from View Sample Group List**  Business Rules:   * **Sample Group Name is not empty, max length is 50.** * **Description is not empty, max length is 500.** | | | |

##### <Manager, Lab Technician> Delete Sample Group

**Use Case Diagram**

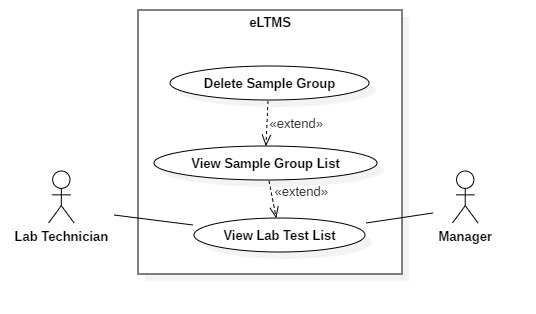


Figure 29 - 2.3.6.4. <Manager, Lab Technician> Delete Sample Group

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete Sample Group | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician**   Summary:   * **Delete an existing Sample Group.**   Goal:   * **Delete an existing Sample Group.**   Triggers:   * **User clicks on Delete button on the action column of the Sample Group’s row.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Sample Group’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Sample Group’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | The Sample Group is deleted at the same time by another person. | Show error message. |   Relationships: **Extended from View Sample Group List use-case.**  Business Rules: **N/A.** | | | |

##### <Manager, Lab Technician> View Sample List

**Use Case Diagram**

****

Figure 29 - 2.3.6.1. <Manager, Lab Technician> View Sample List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View Sample List | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Display a list of Samples.**   Goal:   * **A table of Samples’ information, with search, filter and pagination controls.**   Triggers:   * **Display after user clicks on “Quản lý loại xét nghiệm” menu item.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: A list of Samples is displayed.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Logged in successfully as Manager, Lab Technician. | Display a list of Samples. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Is at another page and clicks on “Quản lý loại xét nghiệm” menu item. | Display a list of Samples. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | There are no data of Samples. | Show message: “Chưa có loại xét nghiệm nào.” |   Relationships: **N/A**  Business Rules: **N/A.** | | | |

##### <Manager, Lab Technician> Create Sample

**Use Case Diagram**

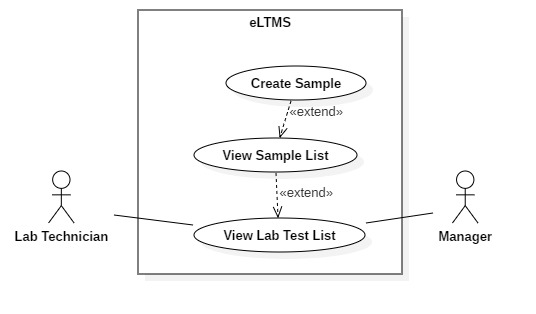


Figure 29 - 2.3.6.2. <Manager, Lab Technician> Create Sample

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create Sample | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Create a new Sample.**   Goal:   * **Create a new Sample.**   Triggers:   * **User clicks “Thêm mới” Button.** * **User is at View Sample List page.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on “Thêm mới” button. | Require information:   * Sample Name: text input * Description: text area | | **2** | Input information and click “Lưu” button | Process and show message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Sample Name is empty. | Show error message | | **2** | Description is empty. | Show error message. |   Relationships: **Extended from View Sample List use-case.**  Business Rules:   * **Sample Name is not empty, max length is 50.** * **Description is not empty, max length is 500.** | | | |

##### <Manager, Lab Technician> Update Sample

**Use Case Diagram**

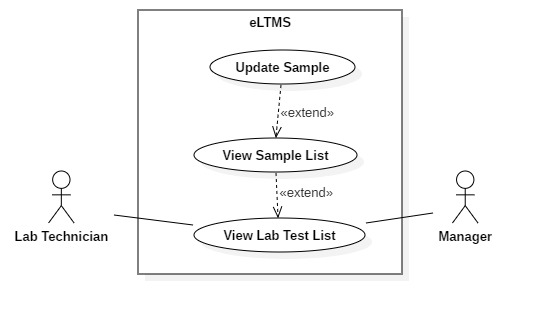


Figure 29 - 2.3.6.3. <Manager, Lab Technician> Update Sample

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update Sample | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Update a Sample’s information.**   Goal:   * **Update a Sample’s information.**   Triggers:   * **User clicks on Edit button on the action column of the Sample’s row.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Edit button on the action column of the Sample’s row. | Show a popup, containing fields are filled with old information. | | **2** | Enter new formation of the Sample and click “Lưu” button. | Show success message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Sample Name is empty. | Show error message | | **2** | Description is empty. | Show error message. |   Relationships: **Extended from View Sample List**  Business Rules:   * **Sample Name is not empty, max length is 50.** * **Description is not empty, max length is 500.** | | | |

##### <Manager, Lab Technician> Delete Sample

**Use Case Diagram**

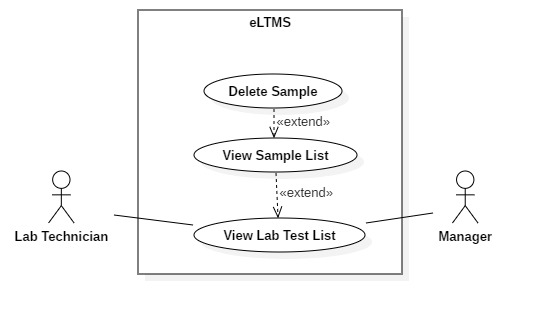


Figure 29 - 2.3.6.4. <Manager, Lab Technician> Delete Sample

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete Sample | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician**   Summary:   * **Delete an existing Sample.**   Goal:   * **Delete an existing Sample.**   Triggers:   * **User clicks on Delete button on the action column of the Sample’s row.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Sample’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Sample’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | The Sample is deleted at the same time by another person. | Show error message. |   Relationships: **Extended from View Sample List use-case.**  Business Rules: **N/A.** | | | |

##### <Manager, Lab Technician> View LabTest List

**Use Case Diagram**

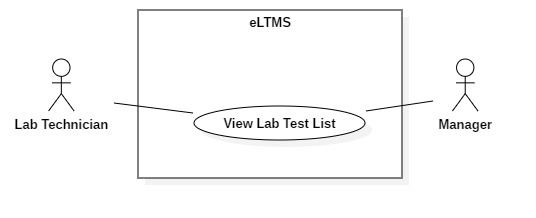


Figure 29 - 2.3.6.1. <Manager, Lab Technician> View LabTest List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View LabTest List | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Display a list of LabTests.**   Goal:   * **A table of LabTests’ information, with search, filter and pagination controls.**   Triggers:   * **Display after user clicks on “Quản lý dịch vụ xét nghiệm” menu item.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: A list of LabTests is displayed.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Logged in successfully as Manager, Lab Technician. | Display a list of LabTests. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Is at another page and clicks on “Quản lý dịch vụ xét nghiệm” menu item. | Display a list of LabTests. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | There are no data of LabTests. | Show message: “Chưa có dịch vụ xét nghiệm nào nào.” |   Relationships: **N/A**  Business Rules: **N/A.** | | | |

##### <Manager, Lab Technician> Search LabTest

**Use Case Diagram**

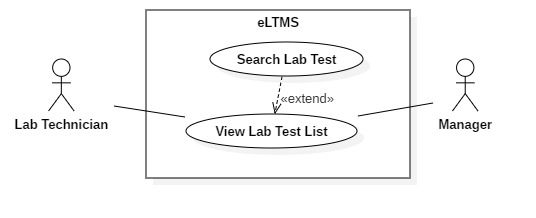


Figure 29 - 2.3.6.2. <Manager, Lab Technician> Search LabTest

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Search LabTest | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Search for LabTests.**   Goal:   * **Search for LabTests.**   Triggers:   * **User enters a search string into search text field.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show search results.** * Fail: **Show text “Không tìm thấy kết quả nào”.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display the search results in the table. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display text messate: “Không tìm thấy kết quả.” |   Relationships: **Extended from View LabTest List use-case.**  Business Rules:   * **Search results are LabTests that contains the search string in LabTest Code or LabTest Name.** * **Search case-insensitively.** * **User can search by unsigned Vietnamese. Ex: User searches “kim tiem”, system can return “kim tiêm” results.** | | | |

##### <Manager, Lab Technician> Create LabTest

**Use Case Diagram**

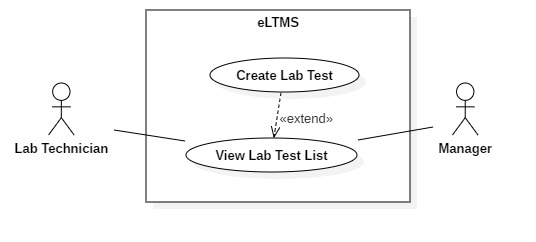


Figure 29 - 2.3.6.2. <Manager, Lab Technician> Create LabTest

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create LabTest | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Create a new LabTest.**   Goal:   * **Create a new LabTest.**   Triggers:   * **User clicks “Thêm mới” Button.** * **User is at View LabTest List page.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on “Thêm mới” button. | Require information:   * Lab Test Code: text input * Lab Test Name: text input * Description: text area | | **2** | Input information and click “Lưu” button | Process and show message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Lab Test Code is empty. | Show error message | | **2** | Lab Test Name is empty. | Show error message. | | **3** | Description is not selected. | Show error message. |   Relationships: **Extended from View LabTest List use-case.**  Business Rules:   * **Lab Test Code is not empty, max length is 50.** * **Lab Test Name is not empty, max lenth is 50.** * **Description is not empty, max length is 500.** | | | |

##### <Manager, Lab Technician> Update LabTest

**Use Case Diagram**

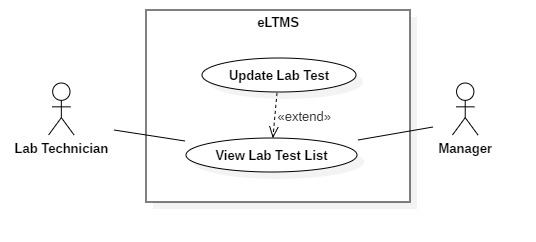


Figure 29 - 2.3.6.3. <Manager, Lab Technician> Update LabTest

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update LabTest | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician.**   Summary:   * **Update a LabTest’s information.**   Goal:   * **Update a LabTest’s information.**   Triggers:   * **User clicks on Edit button on the action column of the LabTest’s row.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Edit button on the action column of the LabTest’s row. | Show a popup, containing fields are filled with old information. | | **2** | Enter new formation of the LabTest and click “Lưu” button. | Show success message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Lab Test Code is empty. | Show error message | | **2** | Lab Test Name is empty. | Show error message. | | **3** | Description is not selected. | Show error message. |   Relationships: **Extended from View LabTest List**  Business Rules:   * **Lab Test Code is not empty, max length is 50.** * **Lab Test Name is not empty, max length is 50.** * **Description is not empty, max length is 500.** | | | |

##### <Manager, Lab Technician> Delete LabTest

**Use Case Diagram**

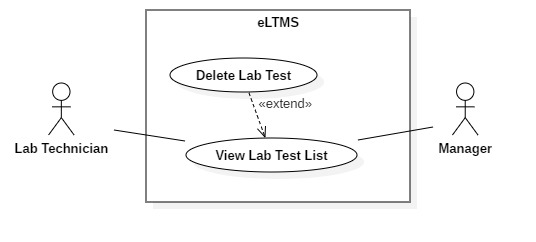


Figure 29 - 2.3.6.4. <Manager, Lab Technician> Delete LabTest

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete LabTest | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager, Lab Technician**   Summary:   * **Delete an existing LabTest.**   Goal:   * **Delete an existing LabTest.**   Triggers:   * **User clicks on Delete button on the action column of the LabTest’s row.**   Preconditions:   * **User logged in as Manager, Lab Technician.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the LabTest’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the LabTest’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | The LabTest is deleted at the same time by another person. | Show error message. |   Relationships: **Extended from View LabTest List use-case.**  Business Rules: **N/A.** | | | |

##### <Manager> View Employee Account List

**Use Case Diagram**

****

Figure 29 - 2.3.6.1. <Manager> View Employee Account List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View Employee Account List | | |
| Author | LamNH | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Display a list of Employee Accounts.**   Goal:   * **A table of Employee Accounts’ information, with search, filter and pagination controls.**   Triggers:   * **Display after user clicks on “Quản lý tài khoản nhân viên” menu item.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: A list of Employee Accounts is displayed.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Logged in successfully as Manager. | Display a list of Employee Accounts. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Is at another page and clicks on “Quản lý tài khoản nhân viên” menu item. | Display a list of Employee Accounts. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | There are no data of Employee Accounts. | Show message: “Chưa có tài khoản nhân viên nào.” |   Relationships: **N/A**  Business Rules: **N/A.** | | | |

##### <Manager> Search Employee Account

**Use Case Diagram**

****

Figure 29 - 2.3.6.2. <Manager> Search Employee Account

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Search Employee Account | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Search for Employee Accounts.**   Goal:   * **Search for Employee Accounts.**   Triggers:   * **User enters a search string into search text field.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show search results.** * Fail: **Show text “Không tìm thấy kết quả nào”.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display the search results in the table. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display text messate: “Không tìm thấy kết quả.” |   Relationships: **Extended from View Employee Account List use-case.**  Business Rules:   * **Search results are Employee Accounts that contains the search string in Employee Account Code or Employee Account Name.** * **Search case-insensitively.** * **User can search by unsigned Vietnamese. Ex: User searches “kim tiem”, system can return “kim tiêm” results.** | | | |

##### <Manager> Create Employee Account

**Use Case Diagram**

****

Figure 29 - 2.3.6.2. <Manager> Create Employee Account

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create Employee Account | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Create a new Employee Account.**   Goal:   * **Create a new Employee Account.**   Triggers:   * **User clicks “Thêm mới” Button.** * **User is at View Employee Account List page.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on “Thêm mới” button. | Require information:   * Mã vật tư: text input * Tên vật tư: text input * Loại vật tư: dropdown list * Đơn vị: dropdown list * Ghi chú: textarea | | **2** | Input information and click “Lưu” button | Process and show message. |   Relationships: **Extended from View Employee Account List use-case.**  Business Rules: **N/A** | | | |

##### <Manager> Update Employee Account

**Use Case Diagram**

****

Figure 29 - 2.3.6.3. <Manager> Update Employee Account

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update Employee Account | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Update a Employee Account’s information.**   Goal:   * **Update a Employee Account’s information.**   Triggers:   * **User clicks on Edit button on the action column of the Employee Account’s row.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Edit button on the action column of the Employee Account’s row. | Show a popup, containing fields are filled with old information. | | **2** | Enter new formation of the Employee Account and click “Lưu” button. | Show success message. |   Relationships: **Extended from View Employee Account List**  Business Rules: **N/A** | | | |

##### <Manager> Delete Employee Account

**Use Case Diagram**

****

Figure 29 - 2.3.6.4. <Manager> Delete Employee Account

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete Employee Account | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager**   Summary:   * **Delete an existing Employee Account.**   Goal:   * **Delete an existing Employee Account.**   Triggers:   * **User clicks on Delete button on the action column of the Employee Account’s row.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Employee Account’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Employee Account’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | The Employee Account is deleted at the same time by another person. | Show error message. |   Relationships: **Extended from View Employee Account List use-case.**  Business Rules: **N/A.** | | | |

##### <Manager> View Patient List

**Use Case Diagram**

****

Figure 29 - 2.3.6.1. <Manager> View Patient List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View Patient List | | |
| Author | LamNH | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Display a list of Patients.**   Goal:   * **A table of Patients’ information, with search, filter and pagination controls.**   Triggers:   * **Display after user clicks on “Quản lý bệnh nhân” menu item.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: A list of Patients is displayed.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Logged in successfully as Manager. | Display a list of Patients. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Is at another page and clicks on “Quản lý bệnh nhân” menu item. | Display a list of Patients. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | There are no data of Patients. | Show message: “Chưa có nhân viên nào.” |   Relationships: **N/A**  Business Rules: **N/A.** | | | |

##### <Manager> Search Patient

**Use Case Diagram**

****

Figure 29 - 2.3.6.2. <Manager> Search Patient

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Search Patient | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Search for Patients.**   Goal:   * **Search for Patients.**   Triggers:   * **User enters a search string into search text field.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show search results.** * Fail: **Show text “Không tìm thấy kết quả nào”.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display the search results in the table. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display text messate: “Không tìm thấy kết quả.” |   Relationships: **Extended from View Patient List use-case.**  Business Rules:   * **Search results are Patients that contains the search string in Patient Code or Patient Name.** * **Search case-insensitively.** * **User can search by unsigned Vietnamese. Ex: User searches “Nguyen Van”, system can return “Nguyễn Văn” results.** | | | |

##### <Manager> Create Patient

**Use Case Diagram**

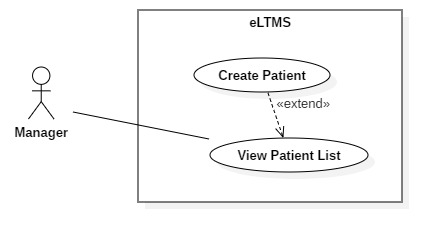


Figure 29 - 2.3.6.2. <Manager> Create Patient

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create Patient | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Create a new Patient.**   Goal:   * **Create a new Patient.**   Triggers:   * **User clicks “Thêm mới” Button.** * **User is at View Patient List page.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on “Thêm mới” button. | Require information:   * Full name: text input * Gender: radio buttons * Phone number: text input * Email: text input * Date of birth: date input * Home Address: text input * Company Address: text input * Identity Card Number: text input | | **2** | Input information and click “Lưu” button | Process and show message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Full name is empty. | Show error message | | **2** | Phone number is empty. | Show error message. | | **3** | Date of birth is empty. | Show error message. | | **4** | Identity Card Number is empty. | Show error message. |   Relationships: **Extended from View Patient List use-case.**  Business Rules:   * **Full name: is not empty, max length is 200.** * **Phone number: is not empty, max length is 20.** * **Email: max length is 255.** * **Date of birth: is not empty.** * **Home Address: max length is 200.** * **Company Address: max length is 200.** * **Identity Card Number: is not empty, max length is 20.** | | | |

##### <Manager> Update Patient

**Use Case Diagram**

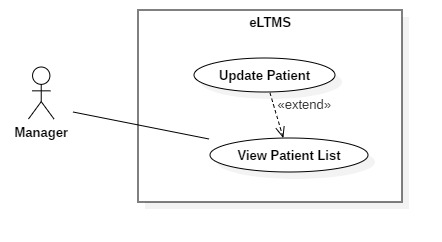


Figure 29 - 2.3.6.3. <Manager> Update Patient

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update Patient | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Update a Patient’s information.**   Goal:   * **Update a Patient’s information.**   Triggers:   * **User clicks on Edit button on the action column of the Patient’s row.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Edit button on the action column of the Patient’s row. | Show a popup, containing fields are filled with old information. | | **2** | Enter new formation of the Patient and click “Lưu” button. | Show success message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Full name is empty. | Show error message | | **2** | Phone number is empty. | Show error message. | | **3** | Date of birth is empty. | Show error message. | | **4** | Identity Card Number is empty. | Show error message. | | **5** | Full name is empty. | Show error message |   Relationships: **Extended from View Patient List**  Business Rules:   * **Full name: is not empty, max length is 200.** * **Phone number: is not empty, max length is 20.** * **Email: max length is 255.** * **Date of birth: is not empty.** * **Home Address: max length is 200.** * **Company Address: max length is 200.** * **Identity Card Number: is not empty, max length is 20.** | | | |

##### <Manager> Delete Patient

**Use Case Diagram**

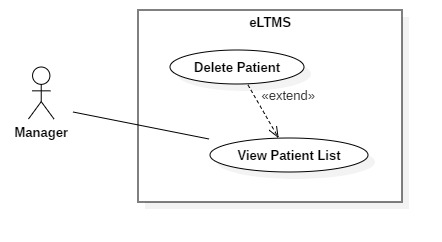


Figure 29 - 2.3.6.4. <Manager> Delete Patient

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete Patient | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager**   Summary:   * **Delete an existing Patient.**   Goal:   * **Delete an existing Patient.**   Triggers:   * **User clicks on Delete button on the action column of the Patient’s row.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Patient’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Patient’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | The Patient is deleted at the same time by another person. | Show error message. |   Relationships: **Extended from View Patient List use-case.**  Business Rules: **N/A.** | | | |

##### <Manager> View Employee List

**Use Case Diagram**

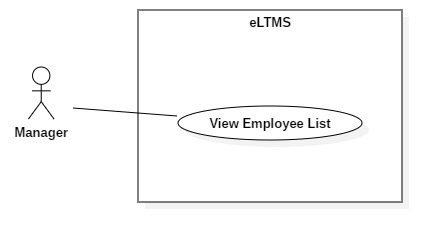


Figure 29 - 2.3.6.1. <Manager> View Employee List

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | View Employee List | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Display a list of Employees.**   Goal:   * **A table of Employees’ information, with search, filter and pagination controls.**   Triggers:   * **Display after user clicks on “Quản lý nhân viên” menu item.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: A list of Employees is displayed.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Logged in successfully as Manager. | Display a list of Employees. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Is at another page and clicks on “Quản lý nhân viên” menu item. | Display a list of Employees. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | There are no data of Employees. | Show message: “Chưa có nhân viên nào.” |   Relationships: **N/A**  Business Rules: **N/A.** | | | |

##### <Manager> Search Employee

**Use Case Diagram**

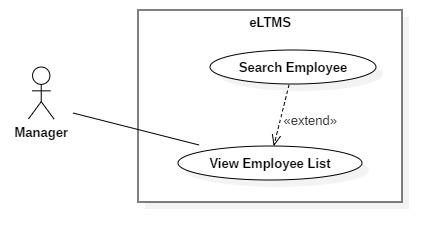


Figure 29 - 2.3.6.2. <Manager> Search Employee

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Search Employee | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Search for Employees.**   Goal:   * **Search for Employees.**   Triggers:   * **User enters a search string into search text field.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show search results.** * Fail: **Show text “Không tìm thấy kết quả nào”.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display the search results in the table. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Enter search string into search text field. Type Enter. | Display text messate: “Không tìm thấy kết quả.” |   Relationships: **Extended from View Employee List use-case.**  Business Rules:   * **Search results are Employees that contains the search string in Employee Code or Employee Name.** * **Search case-insensitively.** * **User can search by unsigned Vietnamese. Ex: User searches “Nguyen Van”, system can return “Nguyễn Văn” results.** | | | |

##### <Manager> Create Employee

**Use Case Diagram**

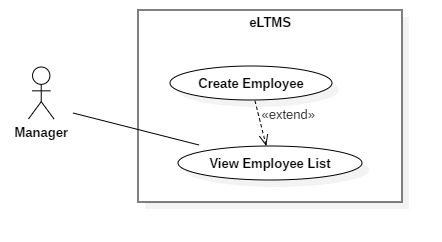


Figure 29 - 2.3.6.2. <Manager> Create Employee

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Create Employee | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Create a new Employee.**   Goal:   * **Create a new Employee.**   Triggers:   * **User clicks “Thêm mới” Button.** * **User is at View Employee List page.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on “Thêm mới” button. | Require information:   * Full name: text input * Gender: radio buttons * Phone number: text input * Email: text input * Date of birth: date input * Home Address: text input | | **2** | Input information and click “Lưu” button | Process and show message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Full name is empty. | Show error message | | **2** | Date of birth is in the future | Show error message |   Relationships: **Extended from View Employee List use-case.**  Business Rules:   * Full name: is not empty, max length is 200 * Phone number: max length is 20 * Email: max length is 255 * Date of birth: is not in the future * Home Address: max length is 500 | | | |

##### <Manager> Update Employee

**Use Case Diagram**

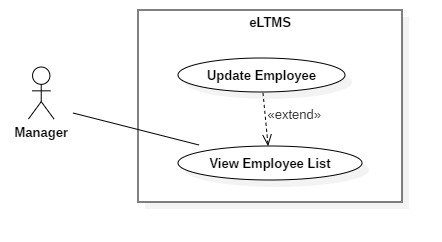


Figure 29 - 2.3.6.3. <Manager> Update Employee

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Update Employee | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager.**   Summary:   * **Update a Employee’s information.**   Goal:   * **Update a Employee’s information.**   Triggers:   * **User clicks on Edit button on the action column of the Employee’s row.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Edit button on the action column of the Employee’s row. | Show a popup, containing fields are filled with old information. | | **2** | Enter new formation of the Employee and click “Lưu” button. | Show success message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | Full name is empty. | Show error message | | **2** | Date of birth is in the future | Show error message |   Relationships: **Extended from View Employee List**  Business Rules:   * Full name: is not empty, max length is 200 * Phone number: max length is 20 * Email: max length is 255 * Date of birth: is not in the future * Home Address: max length is 500 | | | |

##### <Manager> Delete Employee

**Use Case Diagram**

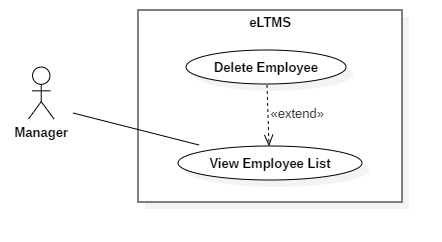


Figure 29 - 2.3.6.4. <Manager> Delete Employee

**Use Case Specification**

|  |  |  |  |
| --- | --- | --- | --- |
| USE CASE - UC\_14 | | | |
| Use Case No. | 14 | **Use Case Version** | 1.0 |
| Use Case Name | Delete Employee | | |
| Author | DungTT | | |
| Date | 1/10/2018 | **Priority** | Normal |
| Actor:   * **Manager**   Summary:   * **Delete an existing Employee.**   Goal:   * **Delete an existing Employee.**   Triggers:   * **User clicks on Delete button on the action column of the Employee’s row.**   Preconditions:   * **User logged in as Manager.**   Post Conditions:   * Success**: Show success message.** * Fail: **Show error message.**   Main Success Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Employee’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Có”. | Show success message. |   Alternative Scenario:   |  |  |  | | --- | --- | --- | | **Step** | **Actor Action** | **System Response** | | **1** | Click on Delete button on the action column of the Employee’s row. | Show confirm popup: “Bạn có chắc chắn muốn xóa?” | | **2** | Click “Không”. | Show error message. |   Exceptions:   |  |  |  | | --- | --- | --- | | **No** | **Cause** | **System Response** | | **1** | The Employee is deleted at the same time by another person. | Show error message. |   Relationships: **Extended from View Employee List use-case.**  Business Rules: **N/A.** | | | |

#### Lab Technician Overview Use Case

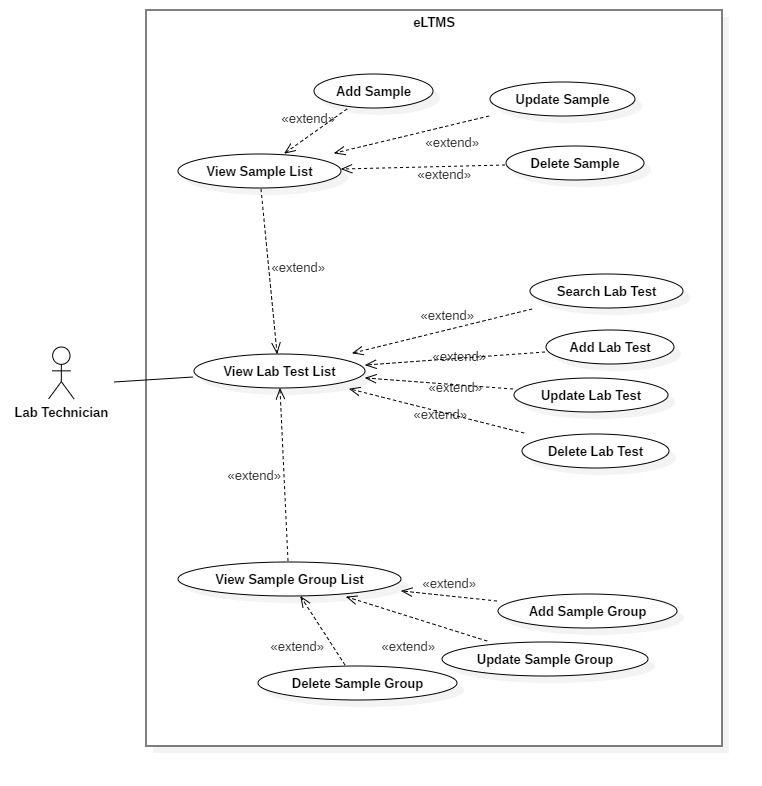


Figure 28 - Lab Technician Overview Use Case

## Software System Attribute

### Usability

* User website and mobile app: User can make appointment at the first time of using.
* Admin website: 90% employees can work with the system rightly after less than 8 hours of training.

### Reliability

* The rate of failure occurrence shall be 1/1500 (1 occurrence in 1500 days – nearly 3 years).
* The number of sending notification failure is 1 time per 1000 notifications.
* The data should be backed up every day.

### Availability

* System is divided into modules, if a module is down, it will not affect others.
* The system can be adapted for a large number of request (maximum 100 users at the same time).

### Security

* Privacy: Each role of user has a specific permission to interact with system.
* System always checks authorization and authentication before doing anything.
* Only admin can grant permission to other roles.

### Maintainability

* The system is divided into separate modules.
* The source code is easy to maintain and upgrade.

### Portability

* The web application is running on desktop, tablet and mobile.

## Conceptual Diagram

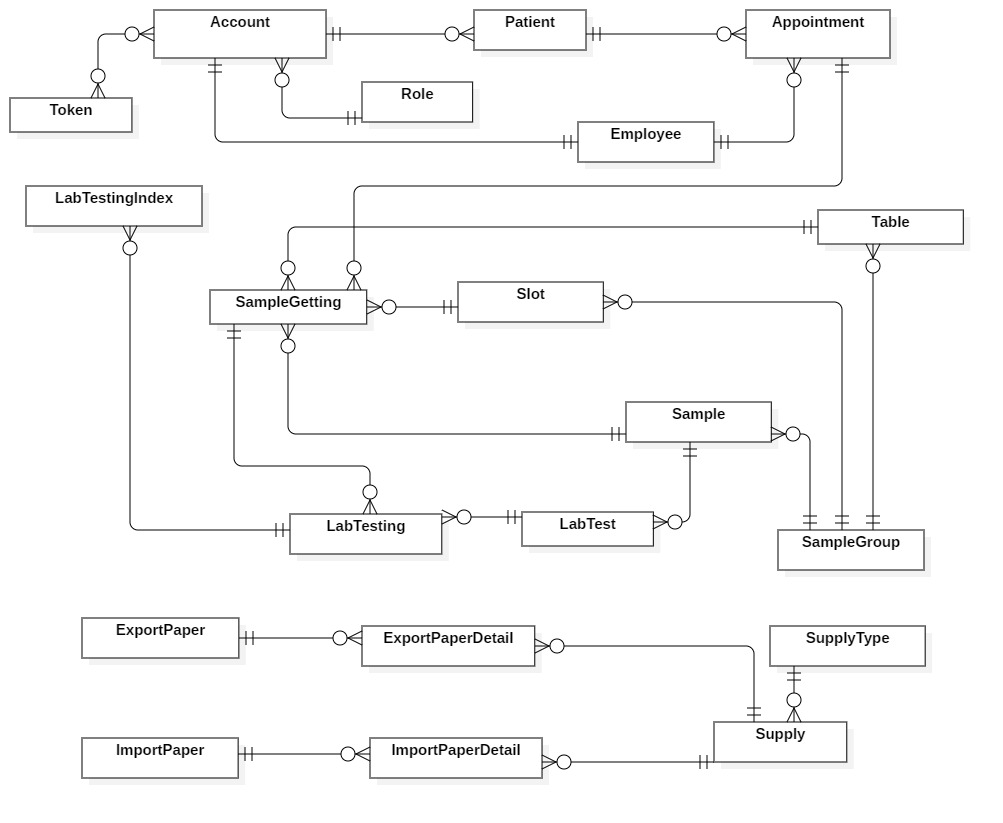


Figure 31 - Conceptual Diagram

**Data Dictionary**

|  |  |
| --- | --- |
| Entity Data dictionary: describe all content of all entities | |
| Entity Name | **Description** |
| Account | Contain account information |
| Appointment | Contain Appointment information |
| Employee | Contain staff’s information |
| ExportPaper | Contain Export Paper information |
| ExportPaperDetail | Contain Export Paper Detail information |
| ImportPaper | Contain information about Import Paper |
| ImportPaperDetail | Contain Import Paper Detail information |
| LabTest | Contain Lab Test information |
| LabTesting | Contain information about Lab Testing |
| LabTestingIndex | Contain transaction information of Lab Testing Index |
| Patient | Contain Patient information |
| Role | Contain Role information |
| Sample | Contain Sample information |
| SampleGetting | Contain Sample Getting information |
| SampleGroup | Contain Sample Group information |
| Slot | Contain Slot information |
| Supply | Contain Supply information |
| SupplyType | Contain Supply Type information |
| Table | Contain Table information |
| Token | Contain Token information |

Table 1 - Data dictionary