

SWP391

**Report 3 – Software Requirement Specification**

– Danang, April 2023 –

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# Record of Changes

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **A\*, M, D** | **In charge** | **Change Description** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

\*A - Added M - Modified D - Deleted

# Software Requirement Specification

## Product Overview

Nowadays, with the increasing number of students enrolling at FPT University each year, the issue of student accommodation management is becoming crucial. Currently, most accommodation management is done manually using paper-based records and documents, which is time-consuming and prone to errors.

Applying information technology to dormitory management is essential to facilitate easier management, avoid data loss, and enable quick and efficient processing of information with high accuracy. It saves time and effort for managers and enhances the overall experience of students. To address these challenges and provide a more reasonable approach to dormitory management with the application of information technology, we propose developing a Student Dormitory Management System at FPT University.

The Student Dormitory Management System will assist in managing room allocation, accommodation registration, as well as storing and processing information about students and the dormitory situation. It will simplify the management process and save time.

**Figure 1. Overview of FPT Dormitory Management**

## User Requirements

### Actors

|  |  |  |
| --- | --- | --- |
| **#** | **Actor** | **Description** |
| 1 | Guest | Guest is a person who accesses the FPT Dormitory Management system without logging. They have access to the landing page and can view announcements, service and contact information about dormitory. |
| 2 | Student | Students are individuals who have an account in the FPT Dormitory Management system. They have the ability to logging to their account using valid credentials, manage their information, view available rooms and their details (e.g., room types, occupancy, amenities, price,…), reserve a room for a specific academic term and receive confirmation of their room reservation and allocation, check-out from the dormitory at the end of each academic term or when vacating the room, submit maintenance requests, billing and payment, receive important updates, deadlines, and relevant information through the system . |
| 3 | Manager | Manager who have full control over the system such as users’ accounts management, room management, room allocation and assignment in the FPT Dormitory Management system... will be called Manager. |

**Table 1. All actors in the system**

**Guest :**

● Sign up (with ID student)

● View landing page

● View service information page

● View contact information page

● View dormitory rules

**User :**

● Logging (with ID student)

● Manage personal profile (Update or change password for account)

● View all rooms and their details (e.g., room types, occupancy, amenities, price,…)

● View roommates information.

● Search by categories (e.g., gender, room types, occupancy, amenities, price,…)

● Reserve a room for a specific academic term (fill form to provide with necessary information and procedures for the check-in process)

● Billing and payment for a specific academic term (e.g., room before each semester, the amount of electricity and water used by month, water and electric bill after each semester)

● Request to change room with another student

● Submit maintenance or recommendations requests for manager

**Manager :**

● Logging (with Manager ID)

● Manage announcements (CRUD an announcement)

● Manage reserve rooms (change the status of the student's room rental request after the room fee has been paid or delete the request reserve room)

● Manage student information (View all student account and their information – update – delete – search)

● Manage room (CRUD a room)

● Manage collect room fee and other fees (Check the payment status for room fee/electricity fee/water fee, Send total bill)

● Statistic (Total number of rented accommodation (all/male/female), total number of unregistered spaces (all/male/female), total student’s room fees paid)

### Use Cases

* + - 1. *Diagram(s)*

###### Use Case Overview

Below is an overview of the use cases for the FPT Dormitory Management System.

A screenshot of a black screen

Description automatically generated with low confidence

**Figure 2. FPT Dormitory Management System Use Case Diagram**

###### Use Case for Authentication

In the FPT Dormitory Management system, all actors except for guests are required to go through authentication upon entry. This process verifies the identity of the user and ensures that only authorised individuals are granted access. By enforcing authentication, the system can protect sensitive information and prevent unauthorised access.

A picture containing screenshot, circle

Description automatically generated

**Figure 3. Use Case for Authentication**

###### Use Case for Student

Below is a subsystem use case for the Student actor.

A screenshot of a cell phone

Description automatically generated with medium confidence

**Figure 4. Use Case for Student**

###### Use Case Manager

A picture containing screenshot, text, black and white, black

Description automatically generatedBelow is a subsystem use case for the Manager actor.

**Figure 5. Use Case for Manager**

**A picture containing text, diagram, screenshot, parallel

Description automatically generated**

#### 2.2.3 Descriptions

Below is a summary of the use cases present in the FLearning system:

|  |  |  |
| --- | --- | --- |
| **ID** | **Use Case** | **Actors** |
| UC-1 | Sign Up | Guest |
| UC-2 | Sign In | User, Manager |
| UC-3 | Sign Out | User, Manager |
| UC-4 | Forgot Password | User, Manager |
| UC-5 | Change Password | User, Manager |
| UC-6 | Manage profile | User, Manager |
| UC-7 | View Landing Page | Guest, User, Manager |
| UC-8 | Manage student information | Manager |
| UC-9 | View all student information | Manager |
| UC-10 | Update student information | Manager |

**Table 2. Use case Description**

### 2.3 Feature Common

#### 2.3.1 Authenticate User

##### 2.3.1.1 Sign Up

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID: | **UC-01** | | Use Case Name: | **Sign Up** |
| Created By: | HungPN | | Date Created: | 2023/05/21 |
| Primary Actor: | Guest | | Secondary Actor: | None |
| Description: | This use case describes the process of new visitors creating an account on FDorm website, provide the student ID to become a registered user. | | | |
| Priority: | High | | | |
| Trigger: | The guest clicks on the "Tạo tài khoản" link in the Sign in page or accesses the sign-up page with a link. | | | |
| Preconditions: | PRE-01: Guest has a valid email student ID. | | | |
| Post - Conditions: | POST-1: FDorm system works stably, without error.  POST-2: The guest can use their account to login to FDorm system. | | | |
| Basic Flow: | 1. 2. 3. 4.  5. | The guest accesses the landing page.  Click on “Đăng nhập” button.  System redirects to the sign-in page.  Click on “Tạo tài khoản” link.  Type in all the required fields needed to create an account. | | |
|  | 6. | Click on button “Tạo tài khoản”. | | |
|  | 8. | System redirects to the sign-in page. | | |
| Alternative Flow: | None |  | | |
| Exception Flow: | **5a. The guest fills in invalid username(student ID).**  5a1. The system gives an error message and inform the guest to fill in another username.  **5b. The guest fills in a username(student ID) already exists.**  5b1. The system gives an error message and inform the guest to fill in another username. | | | |
| Business Rules: | BR-02, BR-03, BR-04 | | | |

##### 2.3.1.2 Sign In

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | **UC-02** | Use Case Name: | **Sign In** |
| Created By: | HungPN | Date Created: | 2023/05/21 |
| Primary Actor: | User, Manager | Secondary Actor: | None |
| Description: | This use case describes how a user can sign in to their account. The system verifies the credentials and grants access to the user's account. | | |
| Priority: | High | | |
| Trigger: | Users want to login to the FDorm system using a Fdorm account. | | |
| Preconditions: | PRE-01: User has a created and valid account. PRE-02: User account has been authorised. | | |
| Post - Conditions: | POST-1: Fdorm system works stably, without error.  POST-2: User successfully logged into the Fdorm system. | | |
| Basic Flow: | 1. User access to the sign-in page. 2. User to choose login with Fdorm account. 3. User type in account info and press sign in button. 4. System verifies the user's account information and allows the user to access the system. 5. System redirects to Landing page. | | |
| Alternative Flow: | None | | |
| Exception Flow: | **4c. The system fails to verify the user's account information and display message.**  4c1. Users stop the login process.  4c2. Users click on Forgot password. | | |
| Business Rules: | BR-02, BR-16 | | |

##### 2.3.1.3 Sign Out

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | **UC-03** | Use Case Name: | **Sign Out** |
| Created By: | HungPN | Date Created: | 2023/05/21 |
| Primary Actor: | User, Manager | Secondary Actor: | None |
| Description: | This use case describes how a user can sign out of their account, which clears any active cookies and logs them out of the system. | | |
| Priority: | High | | |
| Trigger: | The user wants to log out of the FLearning website and clicks on the log out option. | | |
| Preconditions: | PRE-01: User has logged in into FLearning system. | | |
| Post - Conditions: | POST-1: FLearning system works stably, without error.  POST-2: System navigates the users back to landing page. | | |
| Basic Flow: | 1. User hovers over the avatar in the header. 2. Click on the log out option. 3. The user is now no longer determined as any role but Guest. 4. The guest will be navigated back to the Landing page. | | |
| Alternative Flow: | None | | |
| Exception Flow: | None | | |
| Business Rules: | BR-16 | | |

##### 2.3.1.4 Forgot Password

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID: | **UC-04** | | Use Case Name: | **Forgot Password** |
| Created By: | PhucHNT | | Date Created: | 2023/2/24 |
| Primary Actor: | Learner, Knowledge Sharer, Admin | | Secondary Actor: | None |
| Description: | This use case describes how a user can reset their forgotten password by verifying their email address and clicking on the password reset link sent by the system. | | | |
| Priority: | Medium | | | |
| Trigger: | The user clicks on the forgot password link to be able to reset their password. | | | |
| Preconditions: | PRE-01: User already has a valid account and valid email address. | | | |
| Post - Conditions: | POST-1: FLearning system works stably, without error.  POST-2: The user changed their account password successfully. | | | |
| Basic Flow: | 1. 2. 3. 4.  5. | User access to the sign-in page.  User clicks on forgot password in the login screen.  User will fill their email address in the email field.  The FLearning system will send a link to reset password to the user’s email address.  The user clicks on the link in their mail and got redirected to the reset password screen. | | |
|  | 6. | The user types in the new password and clicks confirms the new password. | | |
|  | 7. | System redirects back to login screen. | | |
| Alternative Flow: | None |  | | |
| Exception Flow: | **3a. The user fills in an invalid email address**  3a1. The system gives an error message and inform the guest to fill in a valid email. | | | |
| Business Rules: | BR-16 | | | |

##### 2.3.1.5 Change Password

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | **UC-05** | Use Case Name: | **Change Password** |
| Created By: | PhucHNT | Date Created: | 2023/2/24 |
| Primary Actor: | Learner, Knowledge Sharer, Admin | Secondary Actor: | None |
| Description: | This use case describes how a user can change their password by entering their old and new passwords. | | |
| Priority: | Medium | | |
| Trigger: | User wants to change their password and click on edit password in their personal profile. | | |
| Preconditions: | PRE-01: | | |
| Post - Conditions: | POST-1: FLearning system works stably, without error.  POST-2: The user changed their account password successfully. | | |
| Basic Flow: | 1. User access to the sign-in page. 2. User clicks on forgot password in the login screen. 3. User will fill their email address in the email field. 4. The FLearning system will send a link to reset password to the user’s email address. 5. The user clicks on the link in their mail and got redirected to the reset password screen. 6. The user types in the new password and clicks confirms the new password. 7. System redirects back to login screen. | | |
| Alternative Flow: | None | | |
| Exception Flow: | None | | |
| Business Rules: | BR-02, BR-04, BR-16 | | |

#### 2.3.2 View Common Feature as Guest

##### 2.3.2.1 View Landing Page

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID: | **UC-06** | Use Case Name: | **View Landing Page** |
| Created By: | PhucHNT | Date Created: | 2023/2/24 |
| Primary Actor: | Guest, Learner, Knowledge Sharer, Admin | Secondary Actor: | None |
| Description: | This use case describes how a user can view the homepage, which displays courses, blogs, navigation menus, etc. | | |
| Priority: | High | | |
| Trigger: | Users access the FLearning system and the view Homepage. | | |
| Preconditions: | PRE-01: User logged in into the system. | | |
| Post - Conditions: | POST-1: FLearning system works stably, without error.  POST-2: System displays homepage and all the courses, blogs. inside it. POST-3: User is able to navigate to other pages or features of the application. | | |
| Basic Flow: | 1. User accesses the FLearning website. 2. System displays the homepage to the user. 3. User views the available features and content on the homepage. | | |
| Alternative Flow: | None | | |