Software Design and Architecture Assignment Part One

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Overview

We have chosen the Human Resource Management (HRM) System as our enterprise application. As an enterprise system, HRM system would have different number of users depending on the size of the enterprise that uses this system. For large enterprises, the user number of HRM system would be large. Therefore, HRM system would also need to process tons of data every day and should handle concurrency issues when multiple users accessing the same resources. And there should be several kinds of users in the system, such as administrator, department manager, employee, etc. This results in different interfaces and permissions for different user modes. Nowadays, different companies have different types of work attendance regulation. For business logic aspect, we plan to deliver flexible work-hours computation. The administrators could set up different ways of attendance recording to fit their requirements. At the same time, the system would compute the attendance records and give out the related statistical result.
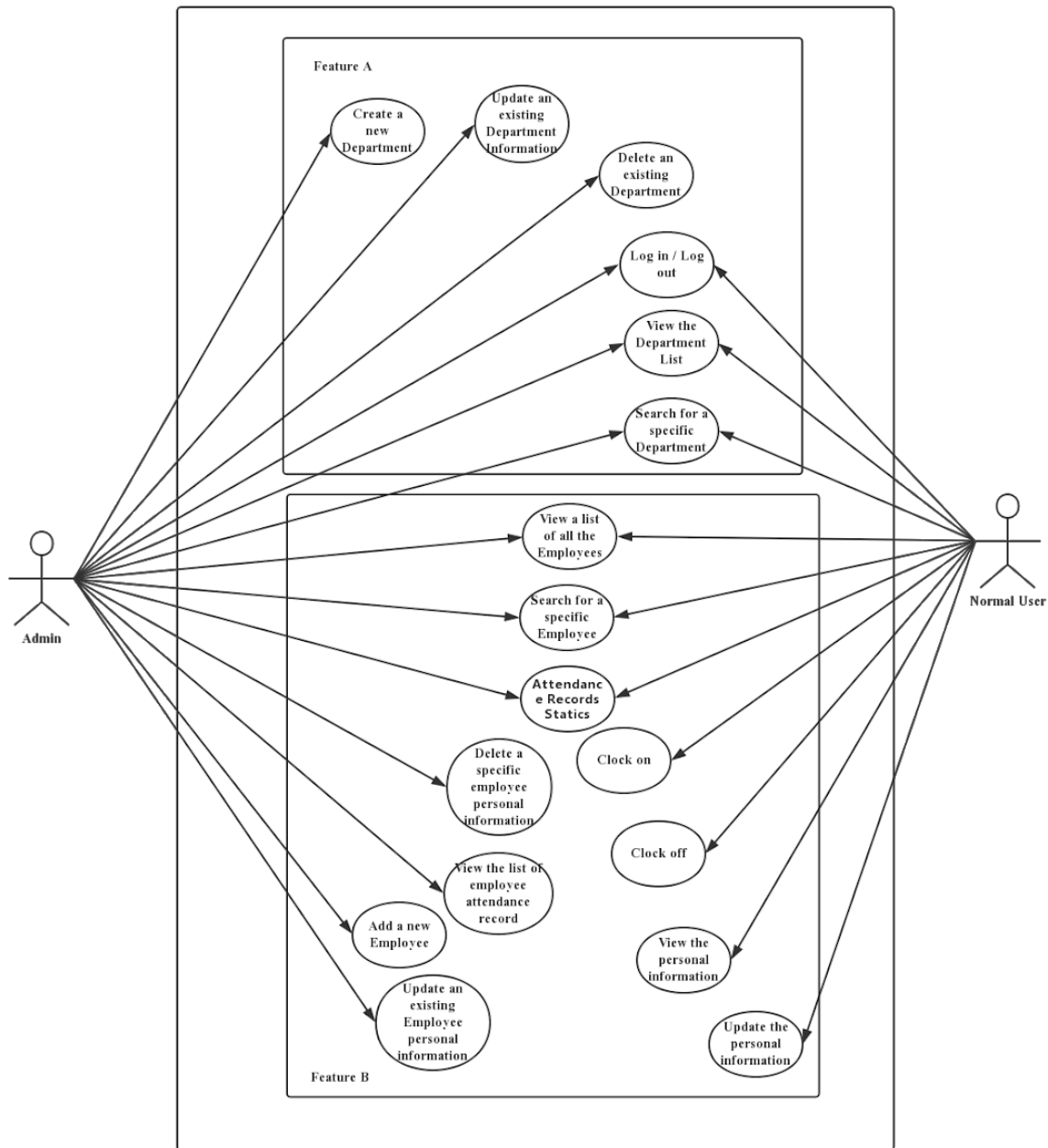
Features

There are two types of roles designed in this system, respectively, Administrator and Normal User. Administrator refers to the staff who is responsible for managing this system and this type of user would have more permissions of operating the system. Normal user refers to the employee who would have limited permission.

For functions of the system, there will be two main features which are Department Management and Employee Management. The details of these two features will be described below.
- Feature A: Department Management
  Department Management feature is mainly used for managing the structure of different companies. For administrators, they would have permission to create a new department, edit the departments' information and delete any departments. However, for normal users, they would have any permissions to manage the departments' information. They only have the right to view the information about different departments.
- Feature B: Employee Management
  The purposes of the Employee Management feature is to manage employees' personal information and attendance records. Therefore, for administrator uses, they would create an archive for a new employee, edit the existing employees' personal information and

delete any employees' archives. In addition, administrators also could view the attendance records and the related statistical result. For normal users, they could clock on or clock off on this system and manage some of their own personal information.

The user case diagram for the whole system is shown below.

Detailed Use Cases

- Feature A: Department Management

Use Case 1: Create a new department

ID	1.1
Description	Admin user can create new departments at Department Management page
Primary Actor	Admin
Precondition	User has already logged in as Admin
Postcondition	System returns to Department Management page with newly created data displayed on the system
Main Scenario	1. The system jumps to Department Management page 2. Click on "Add" button 3. Enter the information into corresponding fields 4. Click the 'Save' button
Extensions	Prompts an error message "Failed creation"

Use Case 2: Update an existing department information

ID	1.2
Description	Admin user can update existing departments at Department Management page
Primary Actor	Admin
Precondition	1. User has already logged in as Admin 2. There is at least one department in the list
Postcondition	The system returns to Department Management page with updated data displayed on the system
Main Scenario	1. The system jumps to Department Management page 2. Select a department and click the corresponding 'Edit' button 3. Enter the information into corresponding fields 4. Click the 'Save' button
Extensions	Prompts an error message "Failed edit"

Use Case 3: Delete an existing department

ID	1.3
Description	Admin user can delete existing departments at Department Management page
Primary Actor	Admin
Precondition	1. User has already logged in as Admin 2. There is at least one Department in the list
Postcondition	System returns to Department Management page with updated data displayed on the system
Main Scenario	1. The system jumps to Department Management page 2. Select a department and click the corresponding 'Delete' button
Extensions	Prompts an error message "Failed delete"

Use Case 4: View the Department List

ID	1.4
Description	Admin and Normal User can view Department List at Department Management page
Primary Actor	Admin, Normal User
Precondition	User has already logged in as Admin or Normal User
Postcondition	The system displays existing Department List
Main Scenario	1. The system jumps to Department Management page
Extensions	Prompts an error message "Department information not found"

Use Case 5: Search for a specific Department

ID	1.5
Description	Admin and Normal User can search for a specific department at Department Management page

Primary Actor	Admin, Normal User
Precondition	User already logged in as Admin or Normal User
Postcondition	System returns to Department Management page with query result displayed on the system
Main Scenario	1. System jumps to Department Management page 2. Enter the information into searching input box 3. Click the 'Search' button
Extensions	Prompts an error message "Department information not found"

- Feature B: Employee Management

Use Case 6: Add a new employee

ID	2.1
Description	Admin user can add a new employee at Employee Management page
Primary Actor	Admin
Precondition	User has already logged in as Admin
Postcondition	The system returns to Employee Management page with newly created data displayed on the system
Main Scenario	1. The system jumps to Employee Management page 2. User click on "Add" button 3. Enter the corresponding information 4. Click 'Save' button
Extensions	Prompts an error message "Failed creation"

Use Case 7: Update an existing employee personal information

ID	2.2
Description	User can edit an existing Employee information at Employee Management page
Primary Actor	Admin
Precondition	1. User has already logged in as Admin

	2. There is at least one Employee in the list
Postcondition	The system returns to Employee Management page with updated data displayed on the system
Main Scenario	1. The system jumps to Employee Management page 2. Select an employee and click the corresponding 'Edit' button 3. Enter the information into corresponding fields 4. Click the 'Save' button
Extensions	Prompts an error message "Failed edit"

Use Case 8: View a list of all the Employees

ID	2.3
Description	Admin and Normal User can view the Employee List at Employee Management page
Primary Actor	Admin, Normal User
Precondition	User has already logged in as Admin or Normal User
Postcondition	The system displays existing Employee List
Main Scenario	1. The system jumps to Employee Management page
Extensions	Prompts an error message "Employee information not found"

Use Case 9: Search for a specific employee

ID	2.4
Description	Admin can search for a specific employee based on the keywords they enter.
Primary Actor	Admin, Normal User
Precondition	User has already logged in as Admin or Normal User
Postcondition	The original Employee List changes to the list of search results
Main Scenario	1. The user enters the Employee Management page 2. The user enters the name of the employee 3. Click the 'search' button

Extensions	Prompts an error message "There is no related employee"

Use Case 10: Delete a specific employee personal information

ID	2.5
Description	Admin can delete a specific employee's personal information.
Primary Actor	Admin
Precondition	User has already logged in as Admin
Postcondition	The deleted employee item has been removed from the Employee list
Main Scenario	1. Select an employee and click the corresponding "delete" button 2. The system displays a pop-up window to confirm whether delete operation would be performed. 3. Click the "confirm" button 4. The pop-up window disappears 5. The system returns to the Department Management page and reloads the data
Extensions	Prompts an error message "The delete operation fails to perform. Please try again."

Use Case 11: View the list of employee attendance record in The System

ID	2.6
Description	The admin can view all the attendance records
Primary Actor	Admin
Precondition	User already logged in as Admin
Postcondition	The system displays existing Attendance Record List
Main Scenario	1. The system enters the Attendance Record Page and loads the Attendance Record data
Extensions	Prompts an error message "Attendance record information not found"

Use Case 12: Clock On

ID	2.7
Description	Normal User can clock on
Primary Actor	Normal User
Precondition	User has already logged in as Normal User
Postcondition	User successfully records the working hours
Main Scenario	1. User Click the 'Clock on' button 2. The system enters the result page to display the operation result and time
Extensions	Prompts an error message "Fail to Clock on. Please try again."

Use Case 13: Clock Off

ID	2.7
Description	Normal User can clock off.
Primary Actor	Normal User
Precondition	User has already logged in as Normal User
Postcondition	User successfully records the working hours
Main Scenario	3. User Click the 'clock off' button 4. The system enters the result page to display the operation result and time
Extensions	Prompts an error message "Fail to Clock off. Please try again."

Use Case 13: View the personal information in The System

ID	2.8
Description	Normal User can view his/her personal information.
Primary Actor	Normal user
Precondition	User has already logged in as Normal user
Postcondition	The system displays the personal information of the current

	user
Main Scenario	1. The system enters the personal information page and loads the related data
Extensions	Prompt an error message "Fail to display your personal information."

Use Case 14: (Employee) Update the personal information

ID	2.8
Description	Normal User can update some of his/her personal information.
Primary Actor	Normal user
Precondition	User has already logged in as Normal user The information which could be modified by the employee is the information which is in editable text fields.
Postcondition	Personal information of the current user has been updated successfully
Main Scenario	1. The system enters the personal information page and loads the related data 2. Click the "edit" button 3. Modify the related information 4. Click the "save" button
Extensions	Prompts an error message "Fail to update your personal information. Please try again."

Use Case 14: Attendance Record Statics

ID	2.8
Description	Admin and Normal user can view the statistical result of attendance records.
Primary Actor	Admin and Normal user
Precondition	User has already logged in as Admin or Normal user
Postcondition	The statistical result of attendance records is successfully displayed

Main Scenario	1. The system enters the statistics page
Extensions	Prompt an error message "Fail to display the data. Please try again."