

# Project: Iteration1

CSIS3275 – 053, SOFTWARE ENGINEERING PROJECT

INSTRUCTOR: RAHIM VIRANI

|            |  |
|------------|--|
| GROUP NAME | MIS  |
| NAME       | SEONGKU (DANIEL) AHN<br>ANKIT CHUTANI<br>TWINKLEPREET KAUR |
| STUDENT ID | 300286629<br>300289566<br>300289692                        |

# Movie Information System: Iteration#1

## 1. Overview:

This report provides the technical document of movie information system (MIS) for iteration1. This phase provides the layout design of project with diagram, a couple of module implementations, and hibernate in Spring framework. Based on Agile method, for better and improved UX/UI design and performance of the project, some requirements and features may be changeable in progress.

### 1.1. Group Dynamics: R&R

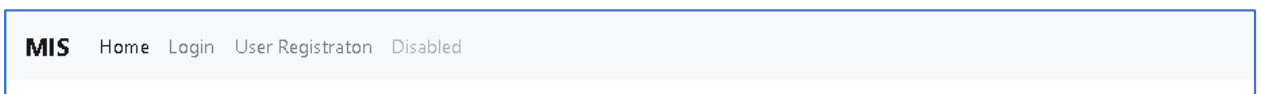
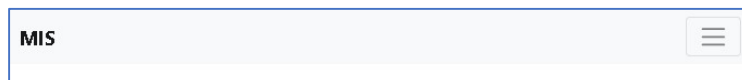
- Seongku (Daniel) Ahn: planning in Github, building the environment with login
- Ankit Chutani: documentation, ddl for database, and test the modules
- Twinklepreet Kaur: documentation, test, and implementation of user registration

### 1.2. Scope of iteration1

- **Product and features:** welcome home page with menu, login, and user registration with Hibernate in SpringMVC
- **Documentation:** detailed use cases, CRC cards, metrics and measurement, component diagram, Hibernate for persistence layer, and Github for the planning, defects, and issue tracking

### 1.3. Use cases

#### 1.3.1. Home page



**Use case:** Menu bar and screen when user access to MIS.

**Primary actor:** Everyone

**Goal in context:** To display the first page with navigation menu.

**Precondition:** MIS has been installed properly and a user can access the correct URL. The account should be already registered and login properly.

**Trigger:** Access to the URL in Chrome and navigate the menu bar in the main page.

**Scenario:**

- 1) User: type the MIS URL to access the system
- 2) User: log in the page (Already created accounts are only accessible to login)
- 3) User: click 'Login' menu
- 4) User: click the one of menu to check if it move on the other page.

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign in'.
- 2) The features which do not support currently, it is just disabled.
- 3) The design layout is not finished yet. So, it may not be clear to see the menu when hover the menu.

**Priority:** Essential for users.

**When available:** In the home page.

**Frequency of use:** It is possible whenever you access the application.

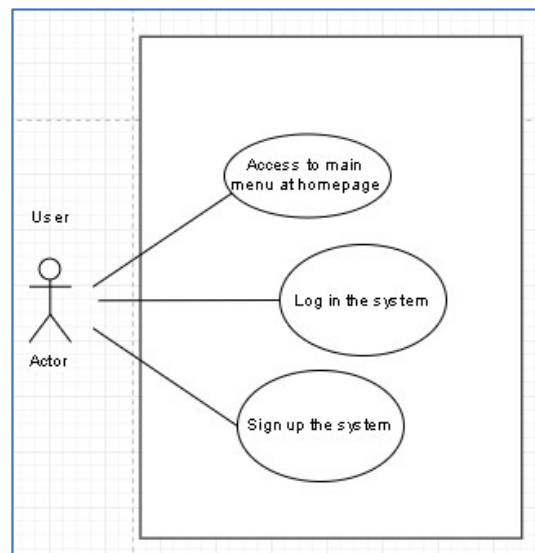
**Channel to actor:** Via web browser

**Secondary actors:** Administrator

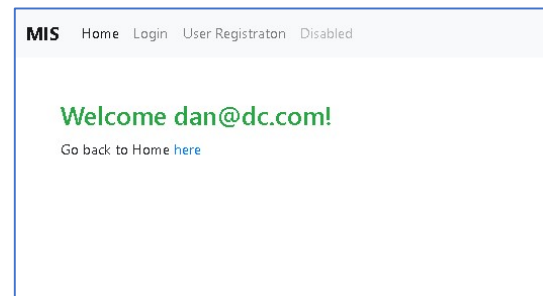
**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to show the page as the size of screen?
- 2) Is there any way to move on the other page? (Navigation bar)
- 3) Can we access to login page any time?

**1.3.2. Login the system**

The screenshot shows a web application interface with a navigation bar at the top containing 'MIS', 'Home', 'Login', 'User Registraton', and 'Disabled'. The main content area is titled 'Login' and contains two input fields: 'User email:' with a placeholder 'Enter email' and 'Password:' with a placeholder 'Enter password'. Below the password field is a blue 'Login' button. At the bottom, there is a link that says 'New User Register here'.



**Use case:** Login the registered account information.

**Primary actor:** Everyone

**Goal in context:** To login into the system.

**Precondition:** The account should be already registered. MIS has been installed properly and a user can access the correct URL

**Trigger:** In the main page, click 'Login' menu

**Scenario:**

- 1) User: type the MIS URL to access the system
- 2) User: log in the page (Already created accounts are only accessible to login)
- 3) User: click 'Login' menu
- 4) User: display the user id and password.

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign in'.
- 2) If the username and password is incorrect then it will not allow to login.
- 3) Only registered users can be allowed to login.

**Priority:** Essential for registered users.

**When available:** In the home page.

**Frequency of use:** Only once it is possible to login the account.

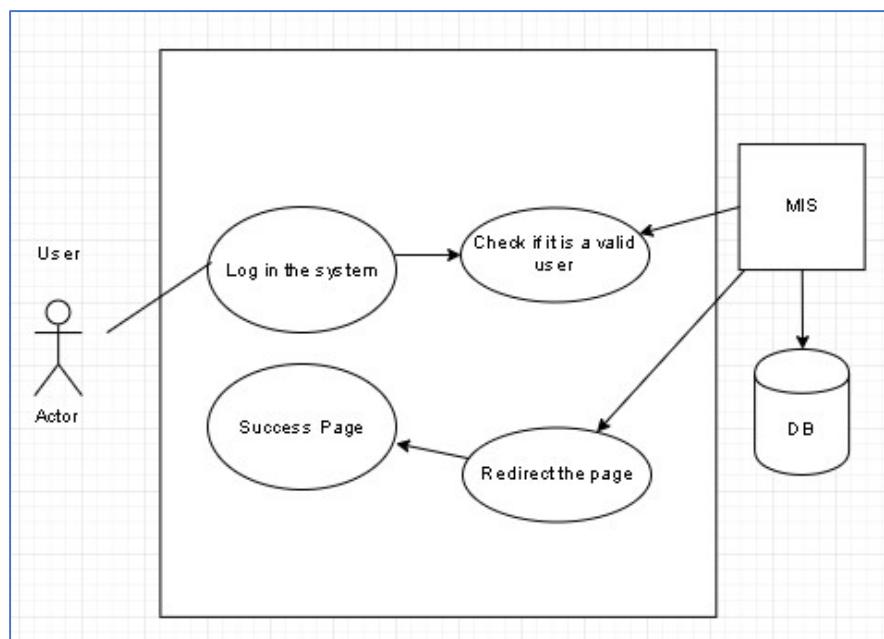
**Channel to actor:** Via web browser

**Secondary actors:** Administrator

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to login again into the incorrect account with username and password?
- 2) Is there any way to logout from the system?
- 3) How many users can login at a time?



### 1.3.3. Register a user (Sign up)

The screenshot shows a web interface for the 'MIS' system. At the top, there is a navigation bar with links: 'MIS', 'Home', 'Login', 'User Registraton', and 'Disabled'. The main heading is 'New User'. Below this, there are five input fields: 'User Name:' with a placeholder 'Enter username', 'Password:' with a placeholder 'Enter password', 'Email Address (ID):' with a placeholder 'Enter email address', and 'Phone Number:' with a placeholder 'Enter telephone number'. Below these fields is a 'Role:' dropdown menu currently set to 'Guest'. At the bottom left of the form is a blue 'Save' button.

**Use case:** Register to the MIS

**Primary actor:** General user

**Goal in context:** To register to the MIS when the user visits the MIS

**Precondition:** MIS has been installed properly and a user can access the correct URL

**Trigger:** In the login page, click 'Sign up' button

**Scenario:**

- 1) User: type the MIS URL to access the system
- 2) User: click 'Sign up' button under log in page
- 3) User: input the user profile
- 4) User: click 'Submit'

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign up'
- 2) Invalid ID, name and password are input in the registration form: 'Submit' doesn't work.
- 3) Duplicate ID does not allow in the registration form: 'Submit' doesn't work.

**Priority:** Essential, must be implemented before login

**When available:** In the first login page

**Frequency of use:** Once

**Channel to actor:** Via web browser

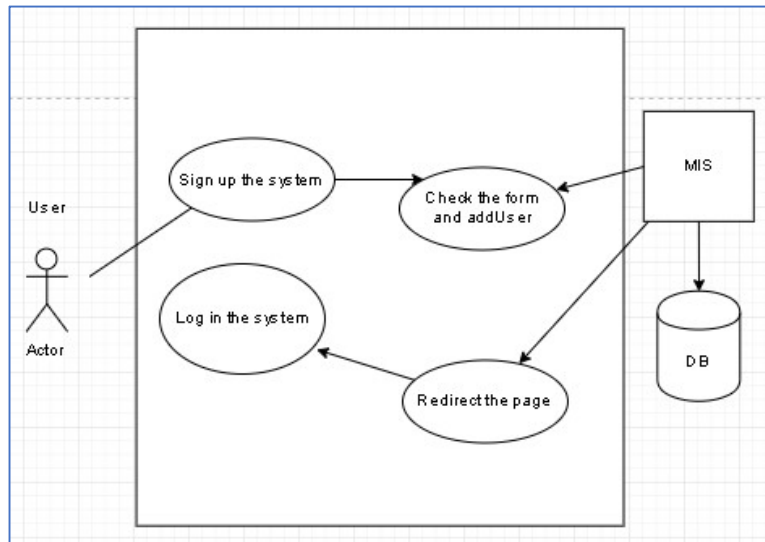
**Secondary actors:** User manager or Administrator

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to change the user ID?

- 2) Should the administrator assign the role to users?
- 3) Is there a way to approve without user ID?



#### 1.3.4. Search database

**Use case:** Search the movie information from the registered account.

**Primary actor:** Only the logged users can search the information.

**Goal in context:** To get the information about the movie.

**Precondition:** The account should be logged in. MIS has been installed properly and a user can access the correct URL

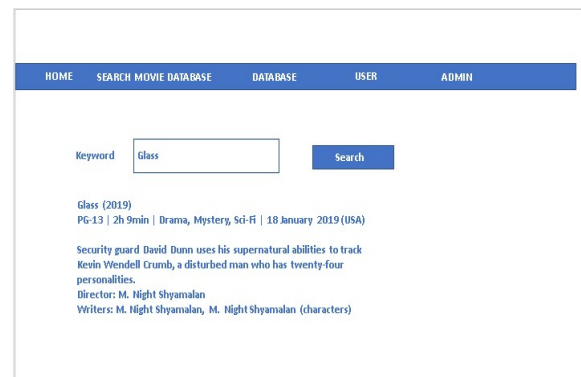
**Trigger:** In the main page, click 'Search' menu

**Scenario:**

- 1) User: type the MIS URL to access the system
- 2) User: Login into the account.
- 3) User: click 'Search' menu
- 4) User: Search the information (Only the logged users can access the information)
- 5) User: display the whole information about the movie.

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign in'.
- 2) If the account is not login it will not allow to search the information.
- 3) If there will be no information in the movie database, then the user cannot see any of the results.



**Priority:** Essential for logged users.

**When available:** After login the page, user can only access the ‘search’ button.

**Frequency of use:** Only accessible when the user will enter into the textbox.

**Channel to actor:** Via web browser

**Secondary actors:** Administrator

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) How can the user access the information about movie database if he adds wrong characters in search textbox?
- 2) Is there any way to download the movie information?
- 3) Does it allow more than one movie information to access at the same time?

### 1.3.5. Add new data to MIS

**Use case:** Add data in the database

**Primary actor:** Database Administrator

**Goal in context:** To add data about a movie in the database using SQL

**Precondition:** Database Administrator account is needed. MIS has been installed properly and a user can access the correct URL

**Trigger:** Click the database tab from the navigation bar

**Scenario:**

- 1) Database Administrator: type the MIS URL to access the system
- 2) Database Administrator: Log in from the main page
- 3) Database Administrator: click ‘Database’ menu
- 4) Database Administrator: click ‘Add’ Button
- 5) Database Administrator: input the data for the movies into database

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the ‘Sign in’.
- 2) This function only is implemented by database administrator.
- 3) Only one movie data can be entered at one time.

**Priority:** Optional, initially there can be no data, but DBA can add more data.

**When available:** After login the page, in the database tab from the navigation bar.

**Frequency of use:** Whenever choose ‘Database’ and click ‘Add’ button

**Channel to actor:** Via web browser or MySQL

**Secondary actors:** Administrator.

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to add the plenty of data at the same time?
- 2) Is there a way to add data via the MySQL directly?
- 3) Is there a way to import the list of data?

### 1.3.6. Delete a data to MIS

**Use case:** Delete data from the database

**Primary actor:** Database Administrator

**Goal in context:** To delete data about a movie in the database using SQL

**Precondition:** Database Administrator account is needed. MIS has been installed properly and a user can access the correct URL

**Trigger:** Click the database tab from the navigation bar

**Scenario:**

- 1) Database Administrator: type the MIS URL to access the system
- 2) Database Administrator: Log in from the main page
- 3) Database Administrator: click 'Database' menu
- 4) Database Administrator: click 'Delete' Button
- 5) Database Administrator: delete data for movies from the database

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign in'.
- 2) This function only is implemented by database administrator.
- 3) Only one movie data can be deleted at one time.
- 4) If there is no data, then no chance to delete.

**Priority:** Optional, initially there can be no data, but if DBA can add more data, then we can choose one to delete.

**When available:** After login the page, in the database tab from the navigation bar.

**Frequency of use:** When choose 'Database' and click 'Delete' button

**Channel to actor:** Via web browser and MySQL

**Secondary actors:** Administrator

**Channels to secondary actors:** Support via email address

**Open issues:**

- 4) Is there a way to delete the plenty of data at the same time?
- 5) Does it allow to delete data via the MySQL directly?
- 6) Is there a way to back up or roll back the data?



### 1.3.7. List up users

**Use case:** Display user list which registered in the database

**Primary actor:** User manager

**Goal in context:** To show what users exist and verify the current status

**Precondition:** User manager account. MIS has been installed properly and a user can access the correct URL

**Trigger:** In the main page, click 'User' menu

**Scenario:**

- 1) User manager: type the MIS URL to access the system
- 2) User manager: log in the page (if there is not account for user manager, create this first. Refer to 1.5.5)
- 3) User manager: click 'User' menu
- 4) User manager: display the list of users with status

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign up'.
- 2) This function only is implemented by user manager or administrator.
- 3) If there is no user to register, it will only show user manager and administrator.
- 4) The list displays a page with the limits of account up to maximum 20.

**Priority:** Essential for user manager to check and manage the current users

**When available:** In the menu bar of the main page

**Frequency of use:** Whenever click the 'User' menu

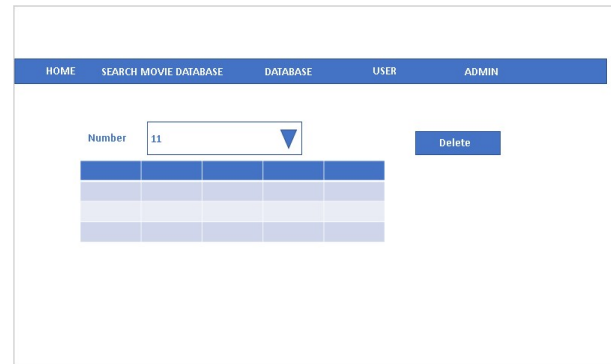
**Channel to actor:** Via web browser

**Secondary actors:** Administrator

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to show the user list by order?
- 2) Should the user manger (including administrator) access this menu?
- 3) How many users can display a page?



### 1.3.8. Remove a user

**Use case:** Remove a user which registered in the database

**Primary actor:** User manager

**Goal in context:** To remove a user from the database

**Precondition:** User manager account is needed. MIS has been installed properly and a user can access the correct URL

**Trigger:** In the main page, click 'User' menu

**Scenario:**

- 1) User manager: type the MIS URL to access the system
- 2) User manager: log in the page (if there is not account for user manager, create this first. Refer to 1.5.5)
- 3) User manager: click 'User' menu
- 4) User manager: display the list of users with status and there is a button to delete a user

**Exceptions:**

- 4) The server or database is not installed properly, then it shows error message when click the 'Sign up'.
- 5) This function only is implemented by user manager or administrator.
- 6) If the list only shows user manager and administrator, then there is no user to remove. This is because they are users given by default.
- 7) Only a user can be erased at a time.

**Priority:** Essential for user manager to manage the current users

**When available:** In the menu bar of the main page

**Frequency of use:** When choose a user and click 'Delete' button

**Channel to actor:** Via web browser

**Secondary actors:** Administrator

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to roll-back the removed in the user list?
- 2) Should the user manger (including administrator) access this menu?
- 3) How many users can delete at a time?

### 1.3.9. Assign the role to a user

**Use case:** Assign the role to a user which registered in the database

**Primary actor:** Administrator

**Goal in context:** To map a user with the one of proper roles from the database

**Precondition:** Administrator account is needed. MIS has been installed properly and a user can access the correct URL

**Trigger:** In the main page, click 'Admin' menu

**Scenario:**

- 1) Administrator: type the MIS URL to access the system

The screenshot shows a web application interface with a blue header bar containing navigation links: HOME, SEARCH MOVIE DATABASE, DATABASE, USER, and ADMIN. Below the header, there are two dropdown menus. The first dropdown is labeled 'User' and has 'Daniel' selected. The second dropdown is labeled 'Role' and has 'User manager' selected. Below these two dropdowns, there is a blue button labeled 'Assign'.

- 2) Administrator: log in the page
- 3) Administrator: click 'Admin' menu
- 4) Administrator: there is a button to map a user with the roles such as guest, database administrator, user manager

**Exceptions:**

- 1) The server or database is not installed properly, then it shows error message when click the 'Sign up'.
- 2) This function only is implemented by administrator.
- 3) If the list only shows user manager and administrator, then there is no user to assign. This is because they are users given by default.
- 4) Only a user can be assigned at a time.

**Priority:** Essential for administrator to manage the current users

**When available:** In the menu bar of the main page

**Frequency of use:** When choose a role for a user and click 'Assign' button

**Channel to actor:** Via web browser

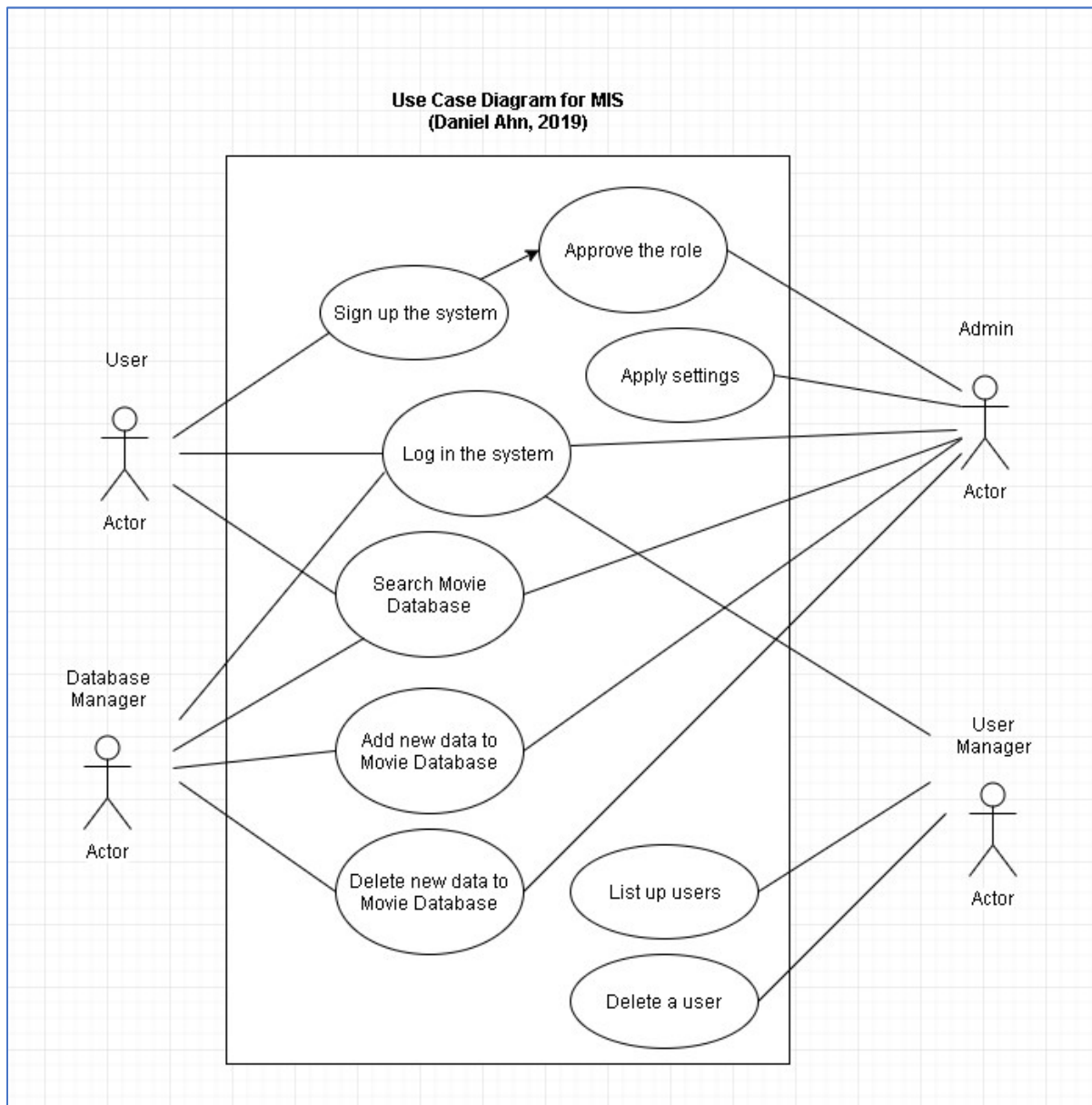
**Secondary actors:** None. Administrator only

**Channels to secondary actors:** Support via email address

**Open issues:**

- 1) Is there a way to add more roles for users?
- 2) Can the administrator only access this menu?
- 3) How many users can assign at a time?

#### 1.4. Use case diagram (overall)



## 1.5. CRC Cards

| Class Name: User (Entity)                      |                   |
|--|-------------------|
| Responsibilities                               | Collaborator      |
| Define: id, name, email, password, phone, role |                   |
| User constructor for initialization            |                   |
| Set/Get user name                              | User Controller   |
| Set/Get user email                             | User Service/Impl |
| Set/Get user password                          | User DAO/Impl     |
| Set/Get user phone                             |                   |
| Set/Get user role                              |                   |

| Class Name: UserController          |              |
|-------------------------------------|--------------|
| Responsibilities                    | Collaborator |
| Define: UserService                 |              |
| User constructor for initialization |              |
| ListUser                            | User Entity  |
| LoginUser                           | User Service |
| AddUser                             |              |
| SaveUser                            |              |

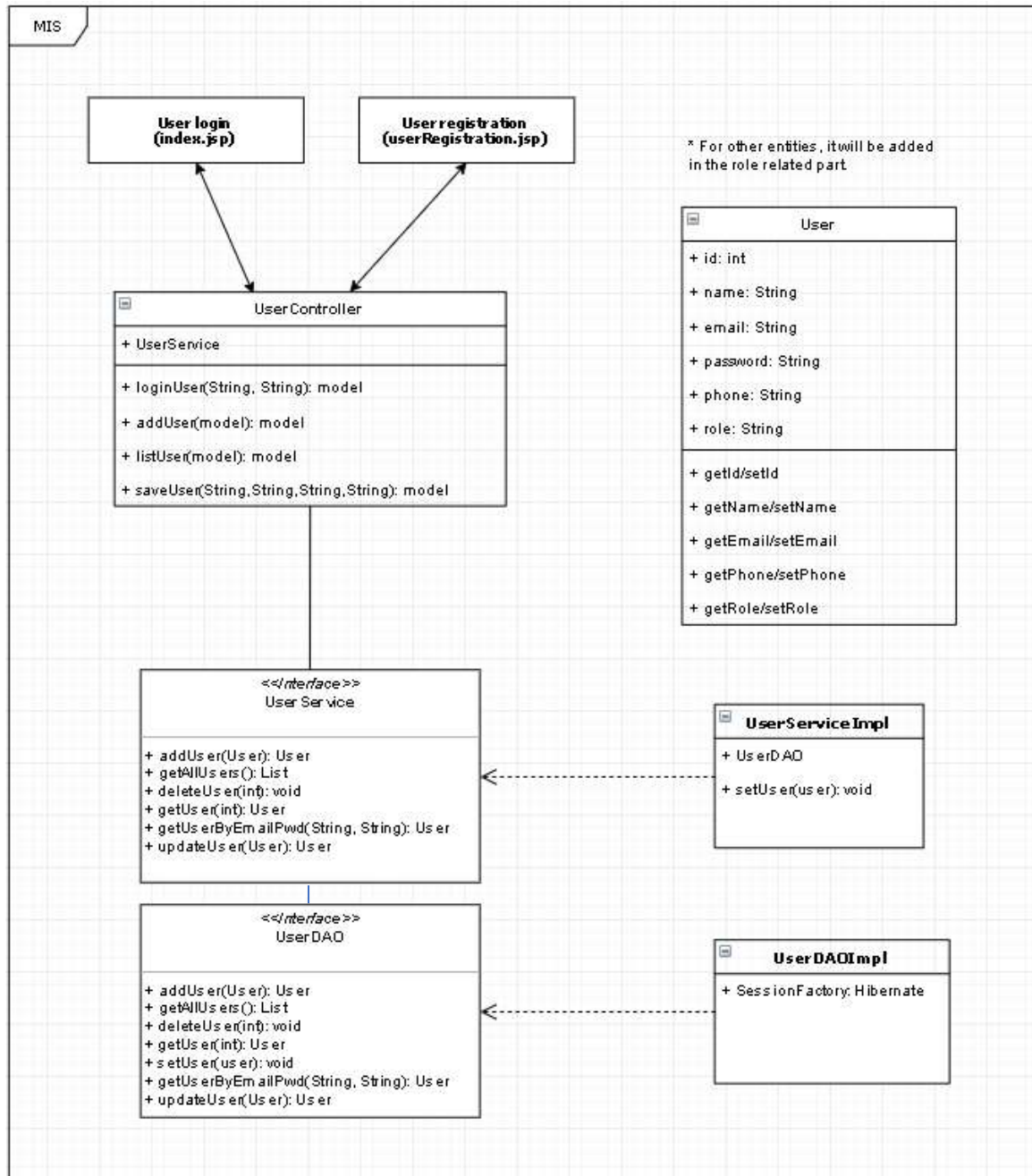
| Class Name: UserService (Interface) |                  |
|-------------------------------------|------------------|
| Responsibilities                    | Collaborator     |
| AddUser                             |                  |
| Get All Users                       | User Entity      |
| Delete User                         | UserService Impl |
| Get User                            | User Controller  |
| GetUser By Email and Pwd            |                  |
| Update User                         |                  |

| Class Name: UserDao (Interface) |              |
|---------------------------------|--------------|
| Responsibilities                | Collaborator |
| AddUser                         |              |
| Get All Users                   | User Entity  |
| Delete User                     | UserDAO Impl |
| Get User                        |              |
| GetUser By Email and Pwd        |              |
| Update User                     |              |

| Class Name: UserServiceImpl |              |
|-----------------------------|--------------|
| Responsibilities            | Collaborator |
| AddUser                     |              |
| Get All Users               | User Entity  |
| Delete User                 | UserService  |
| Get User                    | UserDAO      |
| GetUser By Email and Pwd    |              |
| Update User                 |              |

| Class Name: UserDaoImpl  |              |
|--------------------------|--------------|
| Responsibilities         | Collaborator |
| AddUser                  |              |
| Get All Users            | User Entity  |
| Delete User              | ServiceImpl  |
| Get User                 | UserDAO      |
| GetUser By Email and Pwd |              |
| Update User              |              |

## 1.6. Component diagram



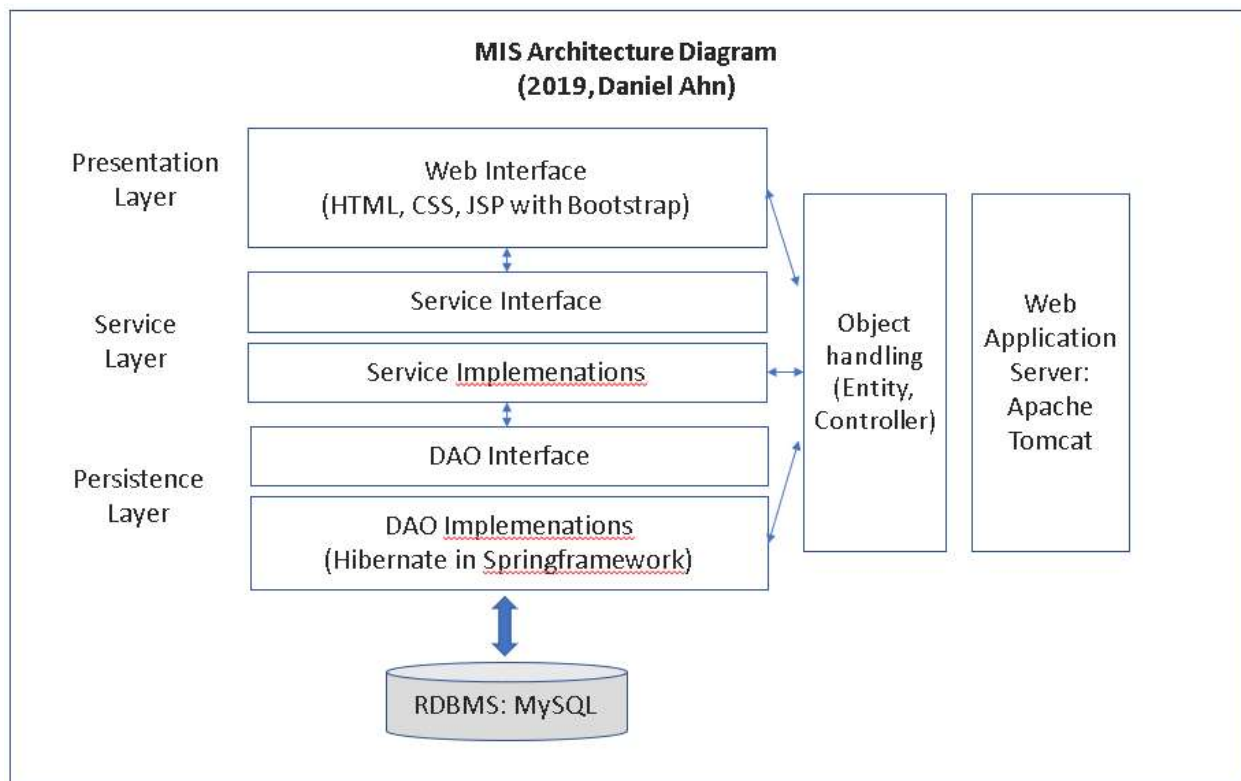
## 1.7. Implementation

### 1.7.1. Overall architecture

This application interacts with some external components; Java runtime environment, Spring framework with Tomcat as web server, and MySQL for DBMS. Hibernate is added from class clab is the useful development environment to satisfy the labs in class such as

### 1.7.2. Specification

- Java runtime environment 1.8
- Spring framework 4: MVC2 (model-view-controller), Hibernate5 (using sessionFactory)
- Web server: Apache Tomcat 8.5
- MySQL5.7 with workbench
- Additional tools: JMeter, Junit, Jenkins, Selenium and so on



### 1.7.3. How to setup the environment and see the homepage

There are several steps to set up the whole development environment. Here are the requirements.

Step1. Install JDK 1.8 or higher in your pc.

Step2. Install Apache Tomcat 8.5 or higher.

Step3. Install IDE Eclipse or Spring STS (different version of Eclipse)

Step4. Create the new project or pull <https://github.com/danask/MIS.git> and import to the project

Step5. After file synchronization, make sure the maven build. If it shows the problem, then try to download libraries for dependency.

Step6. Run the project with selection of tomcat. Without this, it does not work properly.

Step7. If you do not have DBMS such as MySQL, it shows up the error. It is time to make setting for database link. Just make sure the user id/password and database name.

Step8. Everything is properly installed, then the project shows the first page in Chrome.  
<http://localhost:8080/>

Step9. In the first page, try to click user registration and then you can login the system properly.

### 1.7.4. Metrics and measurement

This application is based on web application. Therefore, the performance about web application is necessary such as average connect time to web server, average response time for adding data to server and error rate as below. It is divided into 4 categories; content, navigation, program, management. Each category has own weight.

Four types of metrics, Iteration#1 (2019, Daniel Ahn)

| Content metrics                    | Description   | Unit              | Goal         | Weight | Grade           | Sum |
|------------------------------------|---|-------------------|--------------|--------|-----------------|-----|
| Page wait (latency for first page) | Average time required for a page to download at different connection speeds | ms                | under 1000ms | 5      | 100<br>(879ms)  | 500 |
| Page complexity                    | Average number of different types of media used on page, not including text | # of feature/page | under 2      | 3      | 100<br>(1/page) | 300 |

| Navigation metrics      | Description                                | Unit               | Goal     | Weight | Grade           | Grade |
|-------------------------|--|--------------------|----------|--------|-----------------|-------|
| Page-linking complexity | Number of links per page                   | # of links/page    | under 10 | 5      | 90<br>(5/page)  | 450   |
| Menu depth              | Number of click to access per each feature | # of click/feature | under 3  | 5      | 100<br>(1/page) | 500   |

| Program metrics             | Description  | Unit                | Goal     | Weight | Grade           | Grade |
|-----------------------------|--|---------------------|----------|--------|-----------------|-------|
| Object Oriented Programming | Entity/Controller/Boundary/DAO class per a feature | # of breaks/feature | under 10 | 5      | 100<br>(1/page) | 500   |
| Coding convention           | How follow the rules?                              | # of breaks/feature | under 10 | 2      | 100<br>(2/page) | 200   |

| Management metrics                        | Description      | Unit                            | Goal      | Weight | Grade             | Grade |
|---|------------------|---------------------------------|-----------|--------|-------------------|-------|
| Bugs and errors per a feature             | Git hub tracking | # of defects/feature            | under 100 | 10     | 97<br>(3/feature) | 970   |
| Finish within the deadline for fix issues | Git hub tracking | # of over deadline/total issues | under 20% | 10     | 80<br>(30%)       | 800   |

Total

93.777778



### **1.8. Project Schedule**

To make sure the successful project, we added more small iteration between regular iterations like iteration 1.5. During this time, more activity will occur as much as we can. And some seminar will be held to know more information of Spring architecture. This is a challenging part of this project.

### **1.9. Meeting Minutes**

Project and Meeting minutes will be attached & updated on GitHub

<https://github.com/danask/MIS/tree/master/meeting%20minutes>