SC2006/CZ2007 SOFTWARE ENGINEERING

Semester 2 23/24

Lab 2: Requirements Analysis

Team Name: Seow's Team
Project Name: Kanbanize
Lab Group: SCSG

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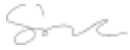
Samuel Tan	SCSG	
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Table of Contents

1. Refined Use-Case Models

1.1 Updated Functional Requirements

1. The system must have a User Registration Page.
    1.1. The system must display one text field for Username.
    1.2. The system must display one text field for Email Address.
    1.3. The system must display one text field for Password.
    1.4. The system must display one text field for Confirm Password.

2. The system must display a “Register” button.
    2.1. When the user clicks “Register”, the system must validate that all required fields are not empty.
    2.2. When the user clicks “Register”, the system must validate that the Email Address entered is valid.
    2.3. When the user clicks “Register”, the system must validate that the password entered must meet the following requirements:
        2.3.1. A minimum of 8 characters in length.
        2.3.2. Contains at least one character from three of the following categories: Uppercase letter (A-Z) Lowercase letter (a-z) Digit (0-9) Special character (~`!@#$%^&*()_-+={}[]|\:;”’<>,.?/).

3. The system must have a Login Page.
    3.1. The system must request the user’s username and password.
        3.1.1. Users must create unique usernames.
    3.2. The system must allow users to reset their account passwords through a “Forgot Password” button.
    3.3. When the user enters a username that is not in the database, the system must prompt the user that “The username is not found.”.
    3.4. When the user enters a username in the database and the wrong password, the system must prompt the user that “The password is incorrect.”
    3.5. When the user enters a username in the database and the correct password, the system must redirect the user to the Board View Page.

4. The system must have a Forget Password Page.
    4.1. The system must display one text field for the user to enter their registered email address.
    4.2. The system must display a text field for the user to enter their new password.
        4.2.1. The system must require the user to type in the new password twice to ensure the accuracy of the password.

5. The system must have a Board View Page.
    5.1. The system must display a button to create new projects.

5.1.1. The system must display one text field for Project Name.

5.2. The system must display the current projects the user is a part of.

5.3. The system must redirect the user to the Kanban View of the project that the user selected.

6. The Kanban View Page of the system must contain the main functionalities of the Kanban Board that the user can use.

6.1. The system must display 4 distinct columns to represent different stages of the workflow. (To Do, In Progress, For Review, Completed)

6.2. The system must be able to display task cards.

6.2.1. Users must be able to create, edit or delete existing task cards.

6.2.2. Users must be able to set/edit a deadline for a task.

6.2.3. Users must be able to add and edit the description of a task.

6.2.4. Users must be able to comment on task cards.

6.2.5. Users must be able to flag a task as high priority.

6.2.6. Users must be able to drag and drop tasks between different columns to update workflow progress.

1.2 Updated Non-Functional Requirements

Performance

- When the user uses task-based functionalities, changes must be reflected within at least 1 minute.

Reliability

- The system should not crash more than thrice daily.

Security

- The system should prevent unauthorized personnel from accessing user data.
- The system should only allow registered users to view their account information.

Scalability

- The website must be able to support 10 active users while meeting all real-time requirements.
- The website must be able to support at least 20 tasks on a board while meeting all real-time requirements.

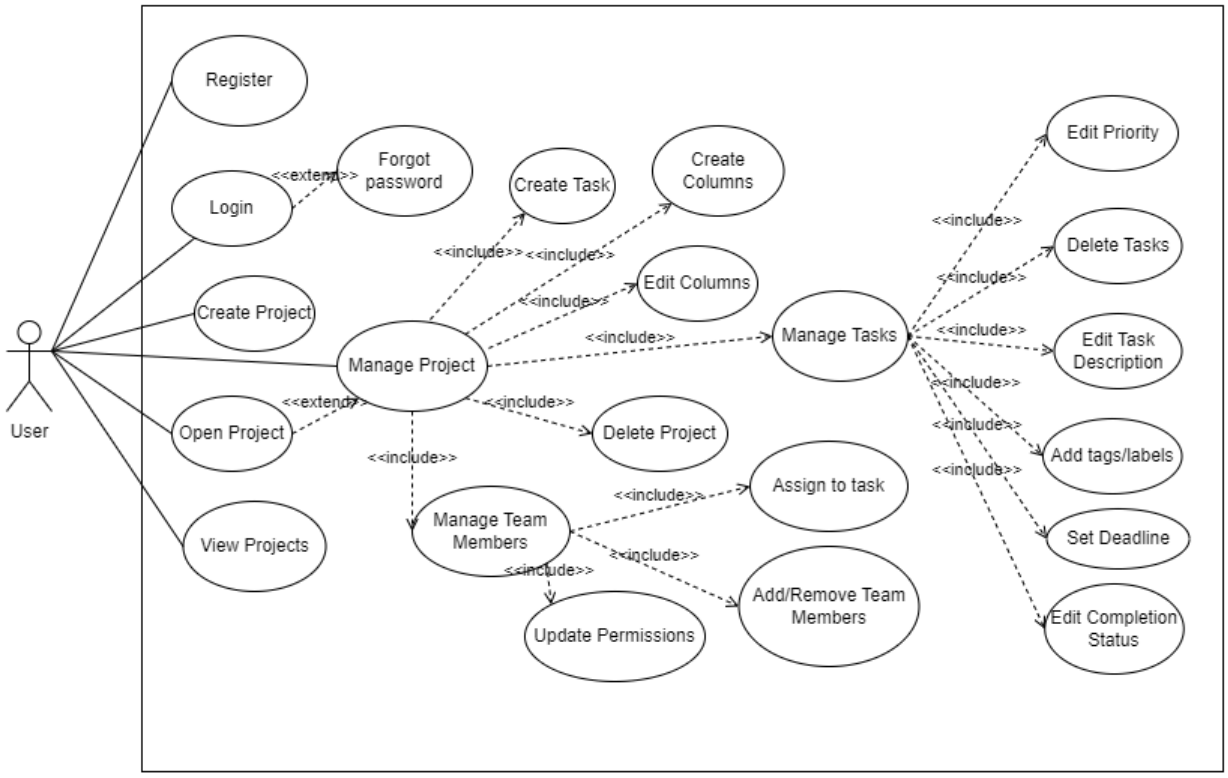
Usability

- Features on the website must be responsive within 3 seconds of being clicked.

1.3 Updated Data Dictionary

Term	Definition
Kanban-board	Project management tool which is the main feature of our website. Kanban boards visually depict work at various stages of a process using cards to represent work items and columns to represent each stage of the process.
Column	Vertical division of a Kanban-board that allows users to visualize different stages of workflow
Task Card	Digital cards to represent a task in the project.
Project View	The page where users are directed to after a successful login. The User can view their projects or create a new project here.
Kanban View	The main page of a project. The main functionalities of the Kanban-board will be performed here.

1.4 Refined Use-Case Diagram



1.5 Refined Use-Case Descriptions

1.5.1 Registration

Use Case ID:	UC1		
Use Case Name:	Registration		
Created By:	Samuel Seow	Last Updated By:	Samuel Seow
Date Created:	08/02/2024	Date Last Updated:	08/02/2024

Actor:	User (Initiating actor)
Description:	User registers for a new account.
Preconditions:	1. User has an email account. 2. User does not have an account registered with this email 3. User has a unique username. 4. User has a password that contains 1 of each: uppercase, lowercase and special character.
Postconditions:	1. User creates an account with a unique username.
Priority:	High
Frequency of Use:	Once
Flow of Events:	1. User is able to view “User Registration Page”. 2. User will be prompted to enter a “Username”, “Email”, “Password” and “Confirm Password”. 3. User clicks on the “Register” button.

	4. User's account is created and logged into his account, and brought to the Home Page.
Alternative Flows:	User's Username is not unique: 1. User is prompted to enter his Username again. User's Password does not fulfill the requirements: 1. User is prompted to enter his Password again. User's Password and Confirm Password are not the same: 1. User is prompted to enter Confirm Password again.
Exceptions:	NIL
Includes:	NIL
Special Requirements:	1. Website is able to respond to the user's inputs within 1 second. 2. Website must be able to store at least 100 user account data.
Assumptions	1. User is connected to the internet.
Notes and Issues:	NIL

1.5.2 Login

Use Case ID:	UC2		
Use Case Name:	Login		
Created By:	Senchia	Last Updated By:	Samuel Seow
Date Created:	08/02/2024	Date Last Updated:	08/02/2024

Actor:	User (Initiating actor)
Description:	User logins to an existing account.
Preconditions:	1. User has registered for an account beforehand.
Postconditions:	1. User has logged in.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User clicks on Member Login tab. 2. Login UI displays to User. 3. User inputs unique username and password in text boxes and click on Login Now button. 4. Kanbanize system verifies users login credentials. 5. User is directed to Home page.
Alternative Flows:	Incorrect username or password: 1. Login UI displays “incorrect username or password”. 2. System returns to step 1.
Exceptions:	NIL
Includes:	NIL
Special Requirements:	NIL
Assumptions:	1. User is connected to the internet.
Notes and Issues:	NIL

1.5.3 Create Project

Use Case ID:	UC3

Use Case Name:	Create Project		
Created By:	Samuel Seow	Last Updated By:	Senchia
Date Created:	08/02/2024	Date Last Updated:	08/02/2024

Actor:	User (Initiating actor)
Description:	User creates a project.
Preconditions:	1. User must have a Kanbanize account. 2. User must be logged in. 3. User is at the Home Page.
Postconditions:	1. User creates a New Project.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User is at the Kanbanize Home Page. 2. User clicks on “Create New Project”. 3. A new project is created and the user is brought to that particular Project Dashboard.
Alternative Flows:	NIL
Exceptions:	1. Project name is the same as a previously named project.
Includes:	NIL
Special Requirements:	1. User is connected to the internet.
Assumptions	1. User has an account and is logged in.

	2. User is connected to the internet.
Notes and Issues:	NIL

1.5.4 Add Task

Use Case ID:	UC4		
Use Case Name:	Add Task		
Created By:	Samuel Seow	Last Updated By:	Senchia
Date Created:	08/02/2024	Date Last Updated:	08/02/2024

Actor:	User (Initiating actor)
Description:	User will be able to add tasks in a selected project
Preconditions:	1. User must be logged in. 2. User must have a registered account.
Postconditions:	1. User adds a task.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. Select the desired project. 2. Click on add tasks on the top right corner of the page. 3. Fill in the “Description”, “Due Date” and “Progress” status. 4. Task is created once user clicks “create”.

Alternative Flows:	Add tasks directly to the desired column: 1. Select the desired project. 2. Click on add tasks on the top right corner of the particular column. 3. Fill in the “Name”, “Description” and “Due Date”. 4. Task is created once user clicks “Create”.
Exceptions:	NIL
Includes:	1. Name 2. Due Date 3. Status of Completion 4. Description
Special Requirements:	NIL
Assumptions	1. User has an account and is logged in. 2. User is connected to the internet.
Notes and Issues:	NIL

1.5.5 Edit Task Status

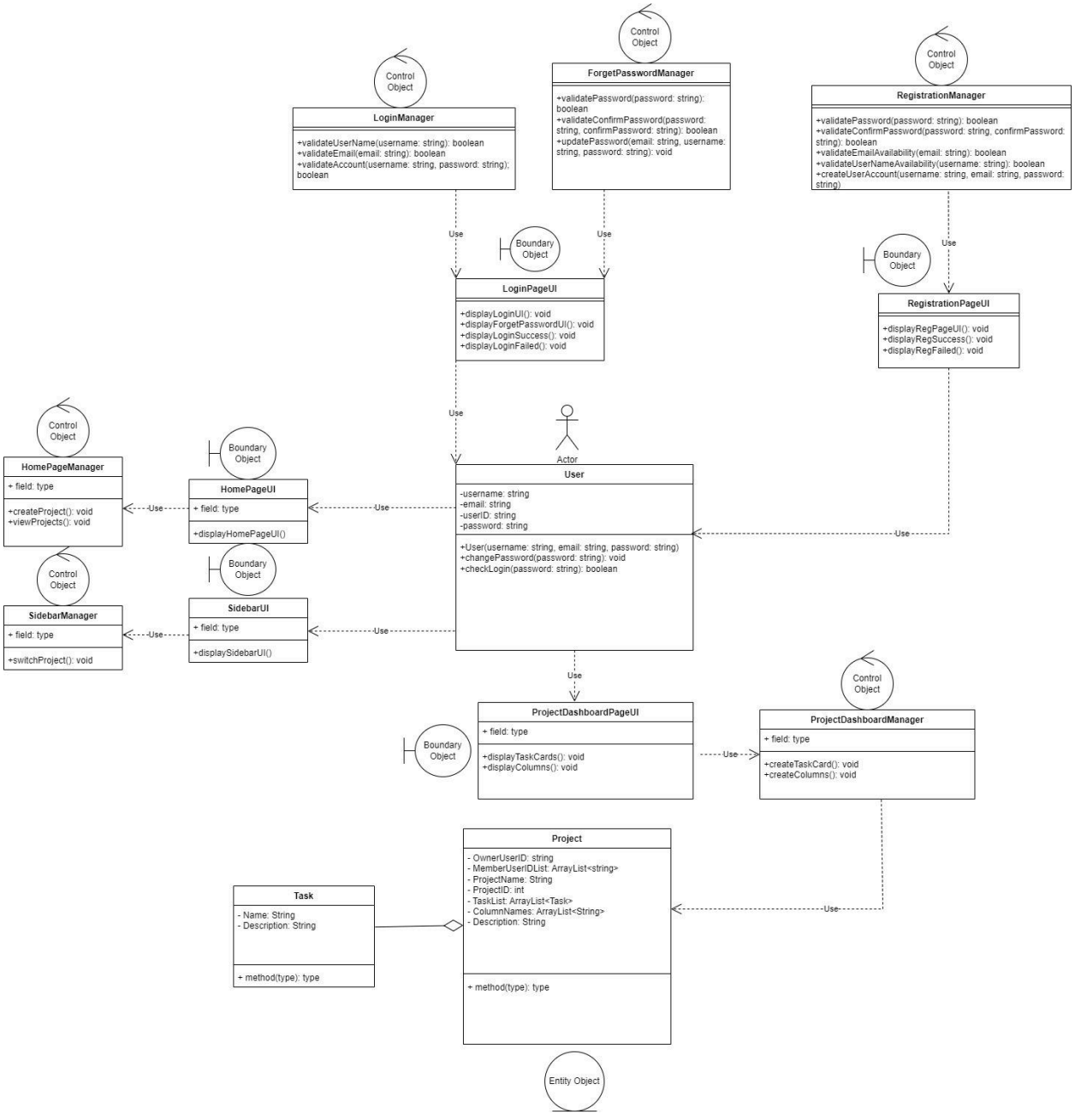
Use Case ID:	UC5		
Use Case Name:	Edit Task Status		
Created By:	Samuel Seow	Last Updated By:	Willy
Date Created:	09/02/2024	Date Last Updated:	09/02/2024

Actor:	User (Initiating actor)

Description:	User updates the status of the task in a project.
Preconditions:	1. The User must be a member of the project. 2. The User must be at the Project Dashboard Page of the project.
Postconditions:	1. The status of the task is updated.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User clicks and holds on a Task Card. 2. User drags the Card to another Column. 3. User releases the click.
Alternative Flows:	1. User clicks on a Task Card and opens the Task Card Window of the task. 2. User clicks on the “Status” field and changes the status. 3. User confirms changes.
Exceptions:	NIL
Includes:	NIL
Special Requirements:	NIL
Assumptions	1. The User must be connected to the internet. 2. The User must have a Kanbanize account. 3. The User must be logged in.
Notes and Issues:	NIL

2. Conceptual Model

2.1 Class Diagram of Entity Classes



2.2 Initial Boundary Classes

1. Kanbanize Website
    a. RegistrationPageUI
    b. LoginPageUI
    c. HomePageUI
    d. ProjectDashboardPageUI
    e. SidebarUI

2.3 Initial Entity Objects

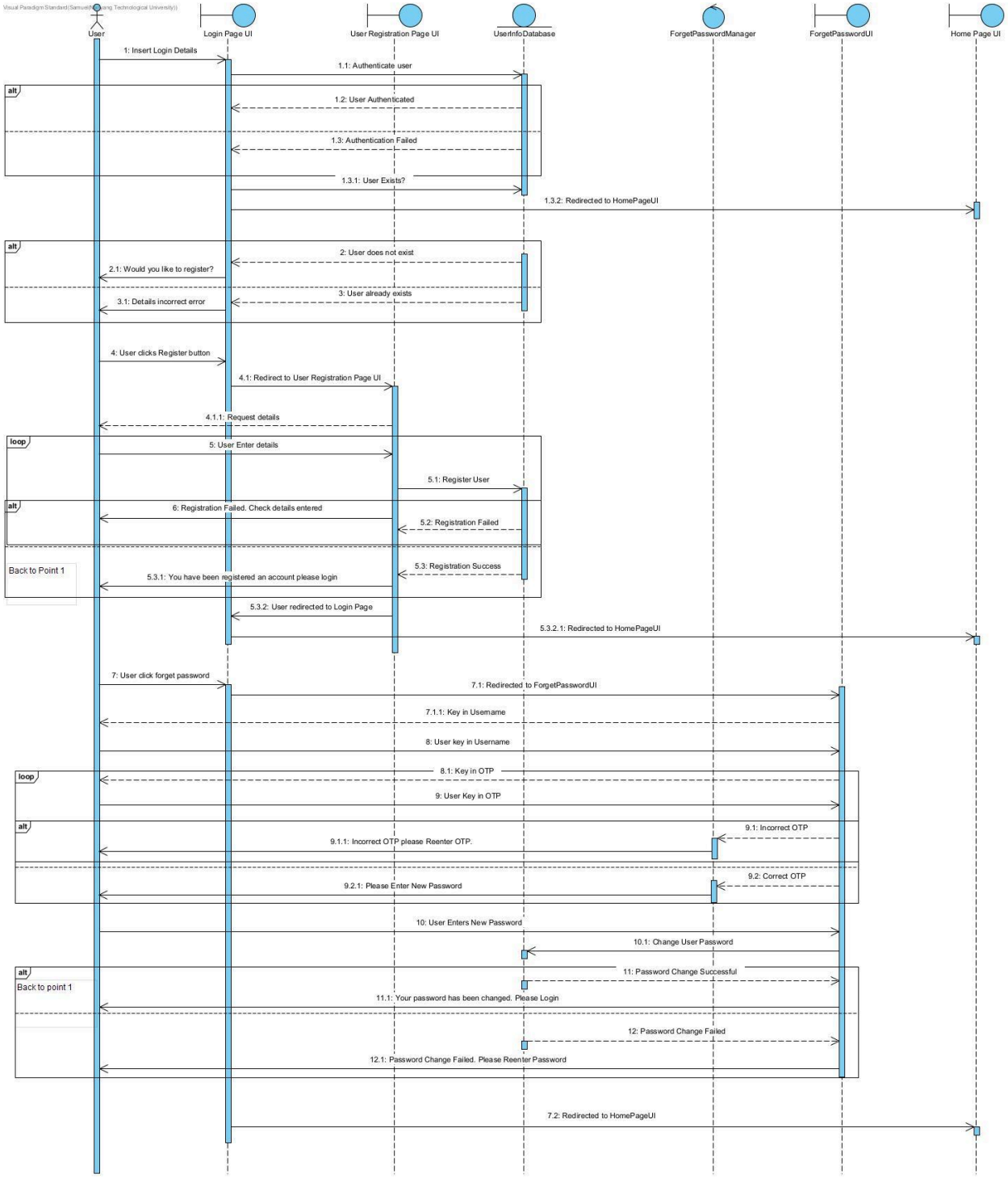
1. UserInfoDatabase
2. ProjectsDatabase

2.4 Initial Control Objects

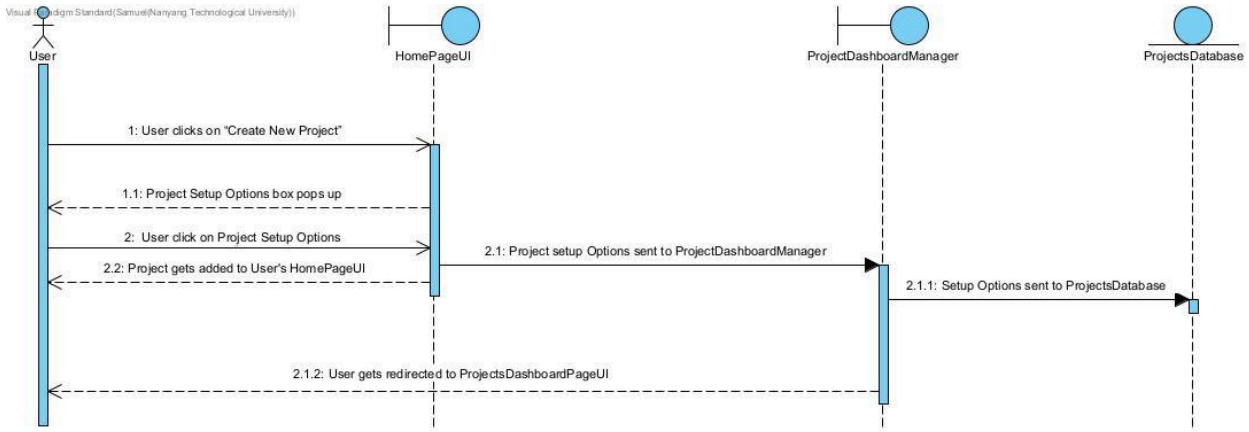
1. RegistrationManager
2. LoginManager
3. ForgetPasswordManager
4. HomePageManager
5. ProjectDashboardManager
6. SidebarManager

2.5 Sequence Diagrams of some Use-Cases

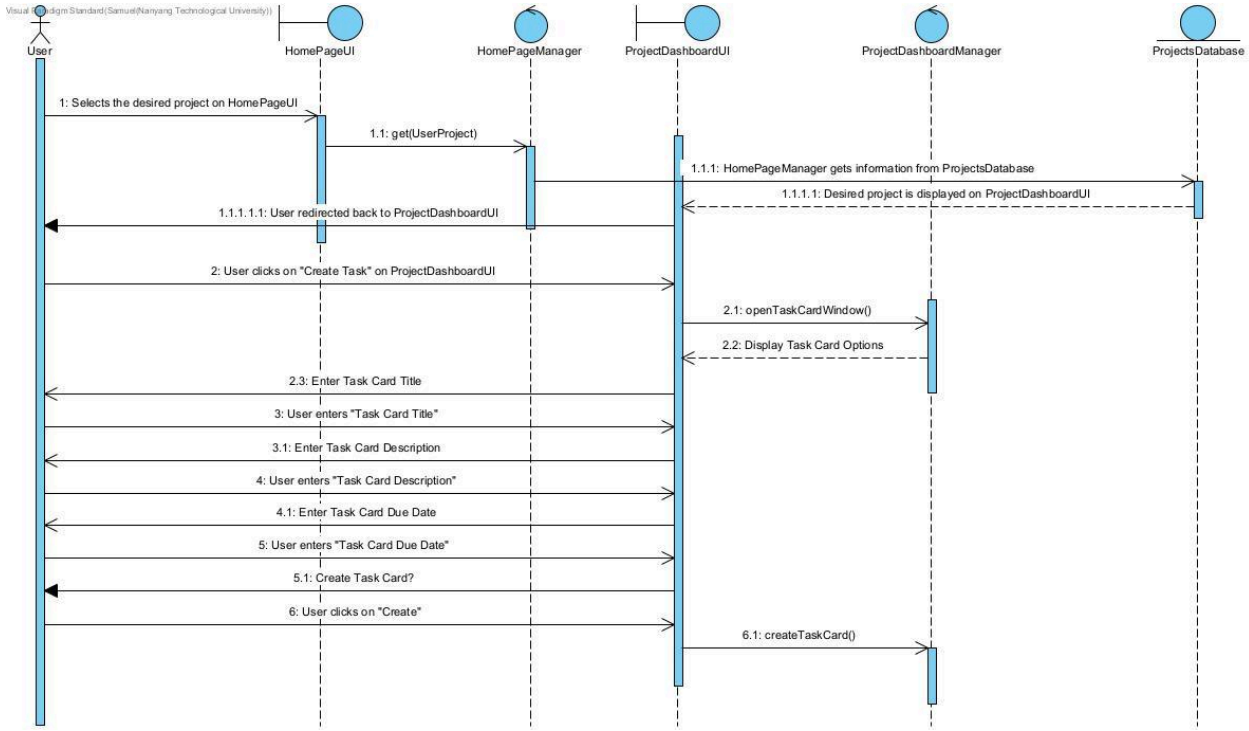
2.5.1 Registration and Login



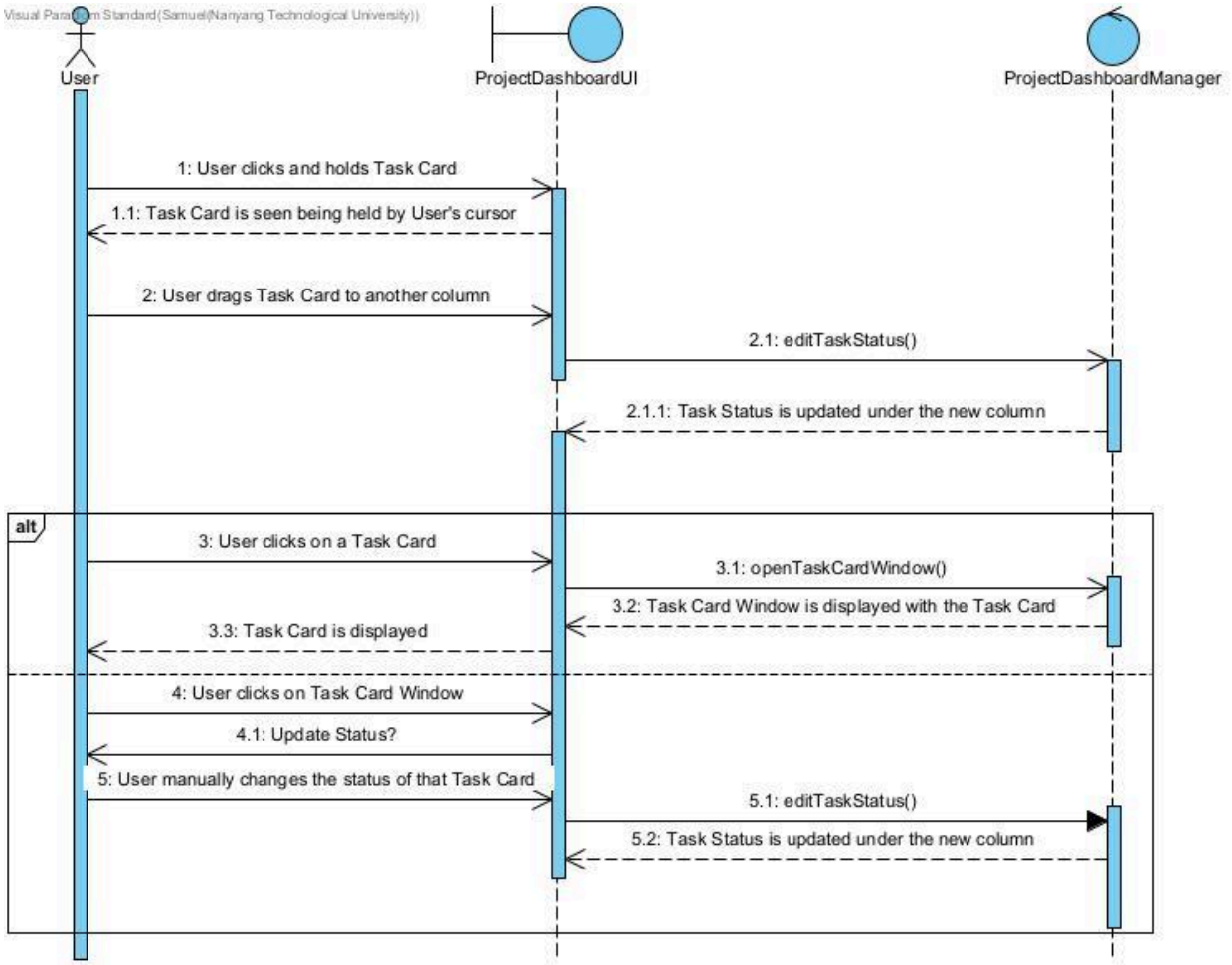
2.5.2 Create Project



2.5.3 Add Task



2.5.4 Edit Task Status



2.6 Initial Dialog Map