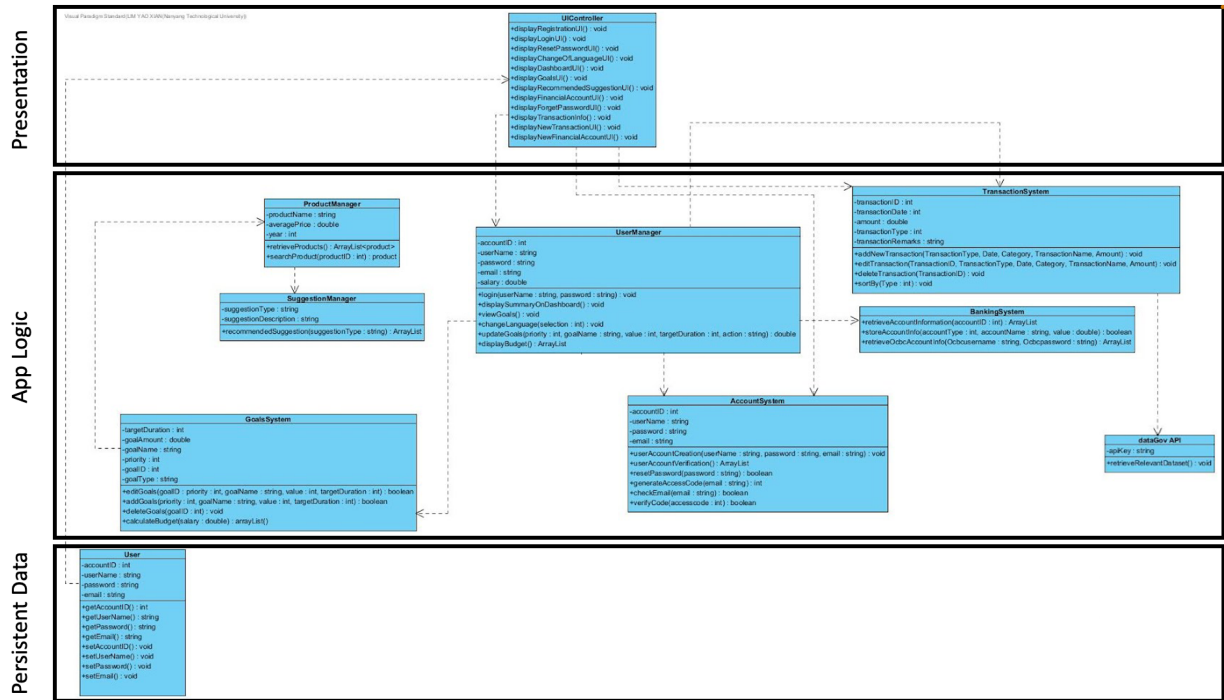
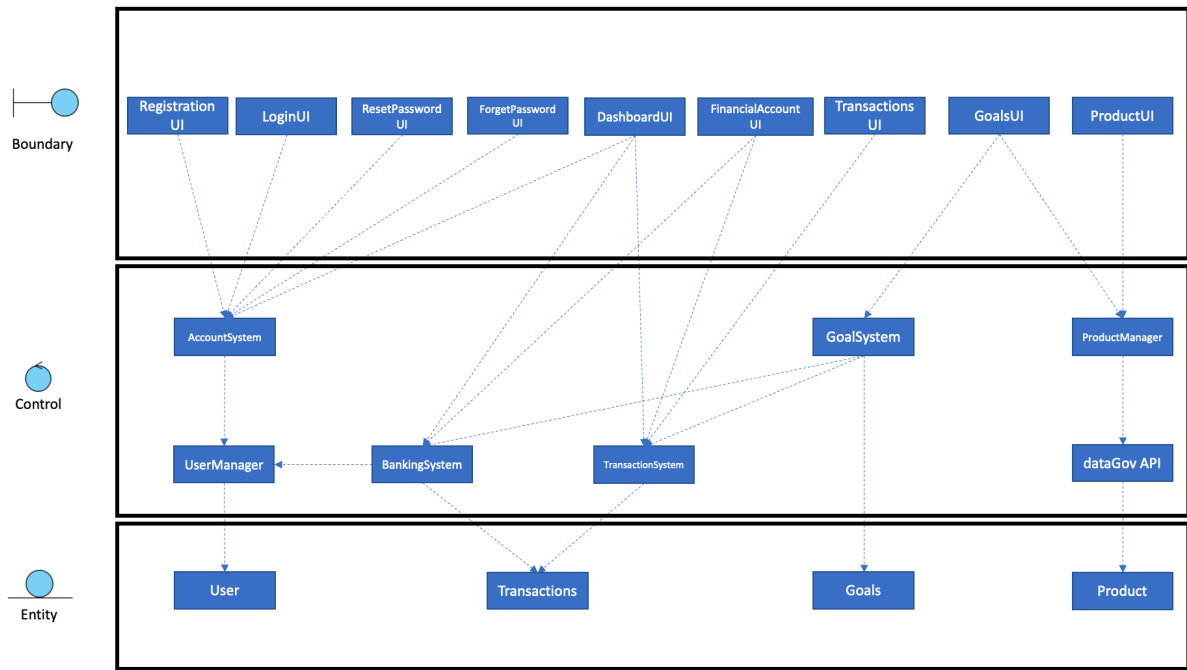
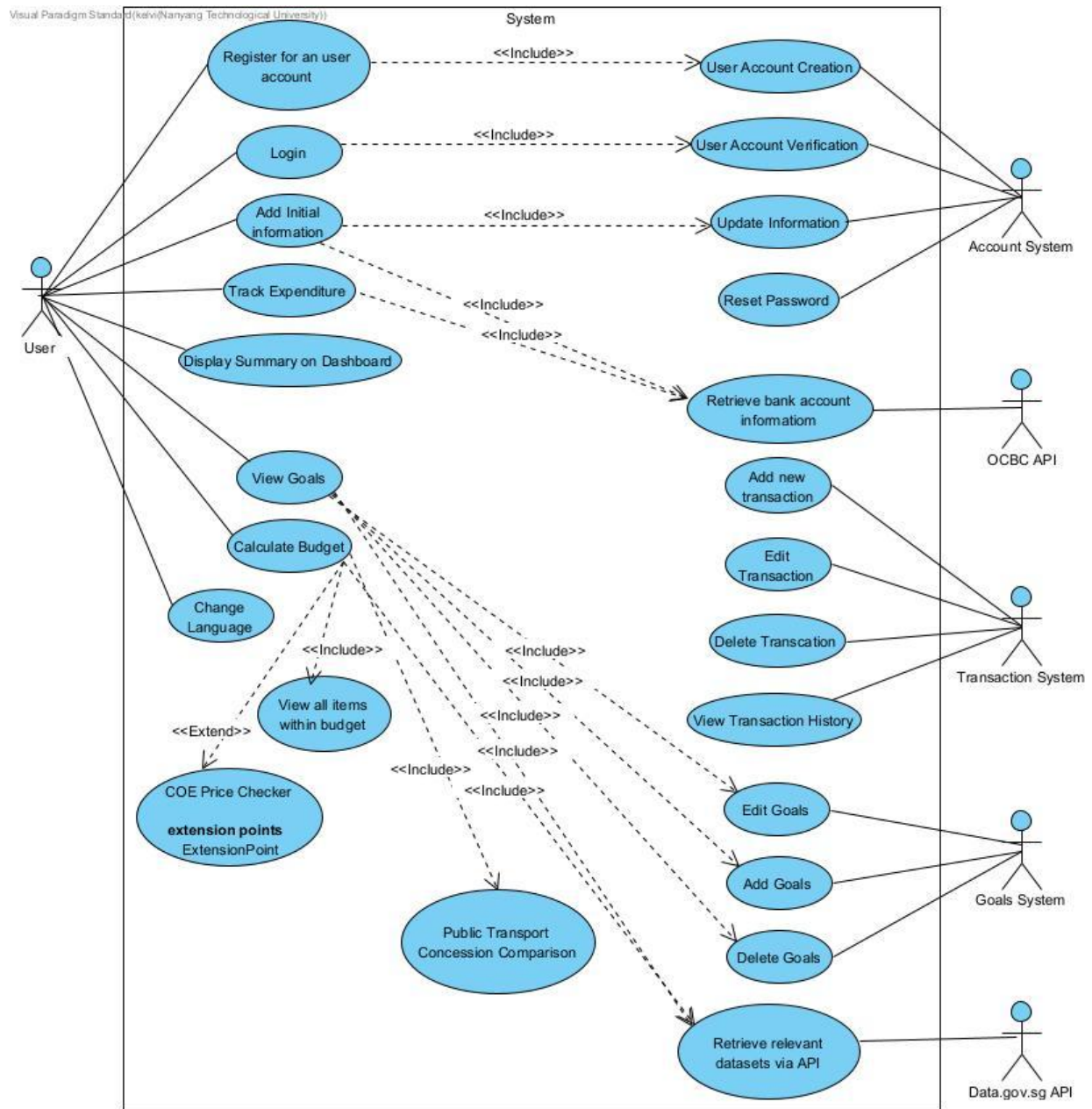


System Architecture



Visual Paradigm Standard (kelvin@Nanyang Technological University))



Use Case Descriptions

Use Case ID:	1		
Use Case Name:	Log in		
Created By:	Kelvin Pang	Last Updated By:	Keith
Date Created:	6/9/2022	Date Last Updated:	13/9/2022

Actor:	User, System
Description:	User logs in to the system.
Preconditions:	<ol style="list-style-type: none"> 1. The user must have an existing user account, 2. Devices must be connected to the internet.
Postconditions:	-
Priority:	High
Frequency of Use:	Less than 5 times per initial installation of application.
Flow of Events:	<ol style="list-style-type: none"> 1. User provide their username and password to the respective input fields. 2. User clicks on the login button. 3. System ensures that the provided information is correct. 4. System redirects user to their account dashboard
Alternative Flows:	<p>AF-S1: User clicks on register instead of entering details.</p> <ol style="list-style-type: none"> 1. Redirect the user to the registration use case. <p>AF-S3: System detects invalid email/password.</p> <ol style="list-style-type: none"> 1. Prompt users to re-enter their credentials. 2. Return to step 1. <p>AF-S3: Three failed login attempts.</p> <ol style="list-style-type: none"> 1. System send an email to account owner. 2. Return to step 1. <p>AF-S1: Input fields are empty.</p> <ol style="list-style-type: none"> 1. Prompt users to re-enter their credentials.
Exceptions:	<p>EX-AF_S3: The device is not connected to the internet.</p> <ol style="list-style-type: none"> 1. Prompt users to connect to the internet.
Includes:	User account Verification
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	2		
Use Case Name:	Calculate Budget		
Created By:	Kelvin Pang	Last Updated By:	
Date Created:	6/9/2022	Date Last Updated:	6/9/2022

Actor:	User, Data.gov.sg
Description:	Calculation of budget
Preconditions:	1. User is already logged in.
Postconditions:	1. Users are able to view their monthly budget. 2. Users are able to view their recent transactions. 3. Users are able to view their assets and liabilities. 4. Users are able to view their progress towards their goals.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User clicks on the budget button. 2. System will display the following: <ol style="list-style-type: none"> 1. Table of the user's assets and liabilities. 2. The user's progression towards their goals. 3. A list of the user's recent transactions for the current month.
Alternative Flows:	-
Exceptions:	-
Includes:	User account Verification
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	3		
Use Case Name:	Register for an user account		
Created By:	Samuel	Last Updated By:	
Date Created:	6/9/2022	Date Last Updated:	6/9/2022

Actor:	User, System
Description:	User creates an user account
Preconditions:	1. The user must not be logged in
Postconditions:	-
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User clicks New user button 2. System displays form for an User Account Creation - Username, Email, Password, Confirm Password 3. User enters required information and submits form 4. System stores information in database using the User Account Creation use case 5. System displays result of an User Account Creation Success 6. Return to login Page
Alternative Flows:	<p>AF-S3: System detects password and confirm password fields are different</p> <ol style="list-style-type: none"> 2. Prompt users to re-enter their credentials. 3. Return to step 1. <p>AF-S4: System detects invalid email is already in the database</p> <ol style="list-style-type: none"> 4. Display message "User account already exists" 5. Return to Login Page
Exceptions:	-
Includes:	User Account Creation
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	4		
Use Case Name:	Update Transactions		
Created By:	Samuel	Last Updated By:	Kelvin
Date Created:	6/9/2022	Date Last Updated:	17/9/2022

Actor:	User, System
Description:	User can view and add transactions
Preconditions:	<ol style="list-style-type: none"> 1. The user must be logged in 2. User is on accounts page.
Postconditions:	-
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> 1. User Clicks Add New Transaction 2. System displays form for Adding New Transaction - Transaction Type, Date, Category, Transaction Name, Amount 3. User enters transaction details and clicks Add New Transaction button
Alternative Flows:	<p>AF-S1: User right clicks a transaction</p> <ol style="list-style-type: none"> 1. Display menu to edit or delete transaction 2. User clicks delete transaction 3. Transaction is deleted <p>AF-S1: User right clicks a transaction</p> <ol style="list-style-type: none"> 1. Display menu to edit or delete transaction 2. User clicks edit transaction 3. Display menu for editing New Transaction - Transaction Type, Date, Category, Transaction Name, Amount 4. User updates transaction details 5. User clicks Edit Transaction button 6. System returns to account page
Exceptions:	-
Includes:	Add new Transaction, Retrieve account information, Edit Transaction, Delete Transaction, View Transaction History
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	5		
Use Case Name:	Update Goals		
Created By:	Yao Xian	Last Updated By:	Keith
Date Created:	6/9/2022	Date Last Updated:	13/9/2022

Actor:	User
Description:	For the users to set/update their budget goals. Budget goals are calculated based on the list of items which they want to buy and prioritized according to their preferences.
Preconditions:	1. User is already logged in.
Postconditions:	1. Users are able to view how much they have saved up. 2. Users are able to view their progress through a progress bar.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. Users click on Budget. 2. Users enter required information and submit a form. 3. System verifies all required information is filled. 4. System sets/updates goals specific to the user's account 5. Goals are set/updated
Alternative Flows:	AF-S1: User had previously set up goals 1. User clicks on edit/add goal button 2. Return to step 2. AF-S2: System detects empty form or form filled up with invalid values 1. System displays error message "Please enter valid values into the form" 2. Prompt users to re-enter required information. 3. Return to step 3.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	6		
Use Case Name:	View Goals		
Created By:	Yao Xian	Last Updated By:	Keith
Date Created:	6/9/2022	Date Last Updated:	17/9/2022

Actor:	User
Description:	For the user to view their goals
Preconditions:	1. The user must be logged in
Postconditions:	-
Priority:	-
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> 1. Users click on Budget. 2. System must display calculated budget based on previously set goals and list of items within budget.
Alternative Flows:	AF-S2: User does not have a single goal <ol style="list-style-type: none"> 1. Redirect user to the Update Goals use case.
Exceptions:	-
Includes:	Retrieve relevant datasets via API , Delete Goals, Set Goals, Add Goals, Edit Goals
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	7		
Use Case Name:	Display Summary on Dashboard		
Created By:	Samuel	Last Updated By:	
Date Created:	6/9/2022	Date Last Updated:	6/9/2022

Actor:	User
Description:	Display a summary of users information
Preconditions:	<ol style="list-style-type: none"> 1. The user must be logged in 2. The user must have some financial accounts added 3. The user must have some transactions added
Postconditions:	-
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> 1. User Clicks Dashboard 2. System displays user account information - Net worth over time, Cash Flow, Expenses, Revenue
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	8		
Use Case Name:	Add account Information		
Created By:	Samuel	Last Updated By:	
Date Created:	6/9/2022	Date Last Updated:	6/9/2022

Actor:	User, System
Description:	Adds Bank account information
Preconditions:	1. User must be logged in
Postconditions:	-
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User Clicks Account 2. Display Account Page 3. User Clicks Add New Account 4. Display Add new Account Page 5. User enters account details 6. User Clicks Add new Account 7. Account Information is updated
Alternative Flows:	AF-S5:User Clicks on OCBC <ol style="list-style-type: none"> 6. Display Form with field: username, password 7. User Clicks Sync 8. Account Information is updated
Exceptions:	-
Includes:	Update Information, Retrieve account information
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	9		
Use Case Name:	Add initial Information		
Created By:	Samuel	Last Updated By:	
Date Created:	6/9/2022	Date Last Updated:	6/9/2022

Actor:	User, System
Description:	Adds Bank account information
Preconditions:	2. User must be logged in
Postconditions:	-
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. New User logs in for the first time 2. User enters account details 3. User Clicks Add new Account 4. Account Information is updated
Alternative Flows:	AF-S2:User Clicks on OCBC <ol style="list-style-type: none"> 3. Display Form with field: username, password 4. User Clicks Sync 5. Account Information is updated
Exceptions:	-
Includes:	Update Information, Retrieve account information
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	10		
Use Case Name:	Change Language		
Created By:	Yao Xian	Last Updated By:	
Date Created:	6/9/2022	Date Last Updated:	6/9/2022

Actor:	User, System
Description:	For the user to select their preferable language.
Preconditions:	1. The user must be logged in
Postconditions:	1. The system will change to the selected language.
Priority:	Low
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. The user clicks on the change language button. 2. The system prompts the user on which language to choose. 3. The system converts to the selected language.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	11		
Use Case Name:	COE Price Checker		
Created By:	Keith	Last Updated By:	
Date Created:	13/9/2022	Date Last Updated:	13/9/2022

Actor:	User, System
Description:	Recommends if it is the right time to buy a car depending on the current COE price against historical prices
Preconditions:	<ol style="list-style-type: none"> 1. User must be logged in 2. User has set a car as one of his budget goals
Postconditions:	<ol style="list-style-type: none"> 1. User must be able to view recommendation made by system.
Priority:	Medium
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User clicks on budget 2. User sets a car as one of their budget goals 3. System checks current COE prices against historical prices 4. Recommends if the user should wait or buy now.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	12		
Use Case Name:	Public Transport Concession Comparison		
Created By:	Kelvin Pang	Last Updated By:	
Date Created:	13/9/2022	Date Last Updated:	13/9/2022

Actor:	User, System
Description:	Displays a calculated suggestion of whether a concession pass is cheaper based on the user's monthly transport expenses.
Preconditions:	<ol style="list-style-type: none"> 1. User must be logged in. 2. Network must be available 3. The user should have at least one public transport expense.
Postconditions:	
Priority:	Medium
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User clicks on budget. 2. System displays various information regarding budget, including if user should purchase a concession pass.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

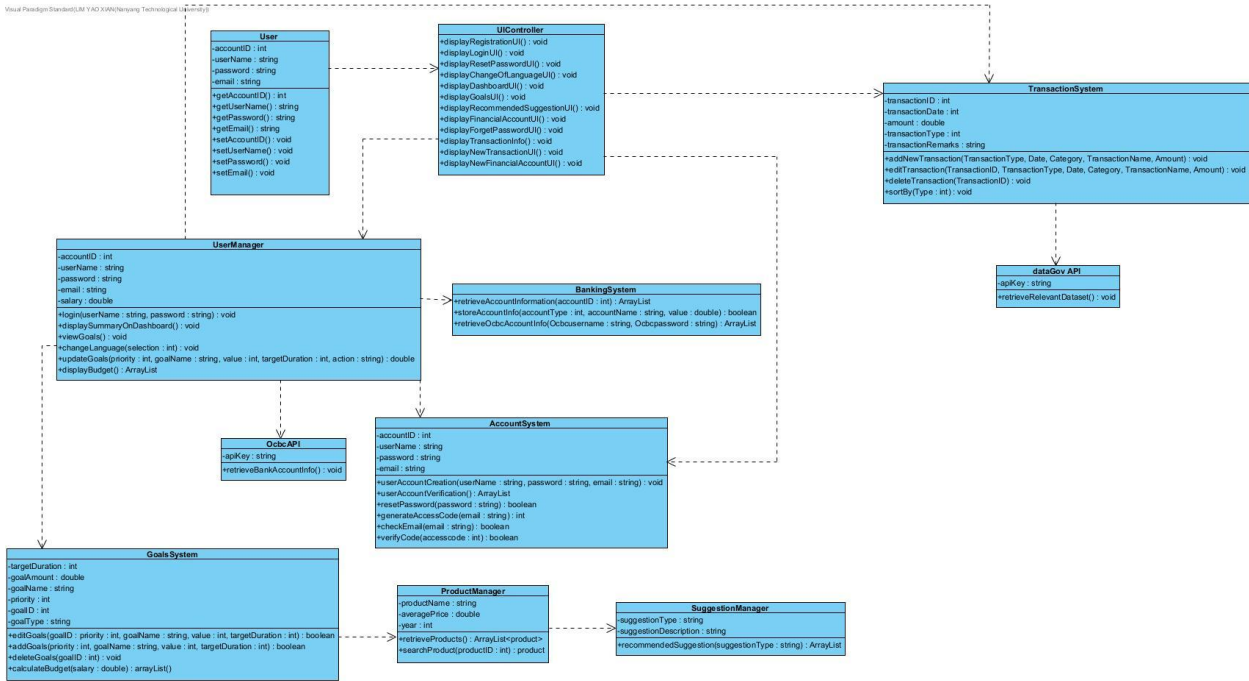
Use Case ID:	12		
Use Case Name:	Forget Password		
Created By:	Kelvin Pang	Last Updated By:	
Date Created:	13/9/2022	Date Last Updated:	13/9/2022

Actor:	User, System
Description:	Allows the user to reset their passwords if the user needs to do so.
Preconditions:	<ol style="list-style-type: none"> 1. User must not be logged in. 2. Network must be available. 3. The user should know their email or user id.
Postconditions:	
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User clicks "Forget password?" 2. System prompts user to enter their email or user id. 3. User provide their username and password to the respective input fields. 4. System ensures that the email or id is valid. 5. System emails a code to the user's registered email. 6. System prompts the user for the emailed code. 7. User enters the received code. 8. System verifies the code. 9. System prompts user to enter a new password. 10. User enters their new password. 11. System checks that password meets the criteria. 12. System updates the user's password. 13. System displays login page to the user.
Alternative Flows:	<p>AF-S3: Entered email or id is invalid:</p> <ol style="list-style-type: none"> 1. Return to Step 2. <p>AF-S5: User does not receive the email:</p> <ol style="list-style-type: none"> 1. User clicks on "Did not receive email" 2. System sends the user another verification code. 3. Return to Step 6. <p>AF-S8: Entered the wrong verification code:</p> <ol style="list-style-type: none"> 1. Return to Step 6. <p>AF-S11: Entered password does not meet criteria:</p> <ol style="list-style-type: none"> 1. Return to Step 9.
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

Use Case ID:	13		
Use Case Name:	View All Items Within Budget		
Created By:	Samuel	Last Updated By:	
Date Created:	13/9/2022	Date Last Updated:	13/9/2022

Actor:	User, System
Description:	Displays items that user can afford
Preconditions:	<ol style="list-style-type: none"> 1. User must be logged in. 2. User must set-up budget calculator
Postconditions:	
Priority:	Medium
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> 1. User clicks on Items within budget 2. System displays various items that is within their budget.
Alternative Flows:	-
Exceptions:	-
Includes:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	-

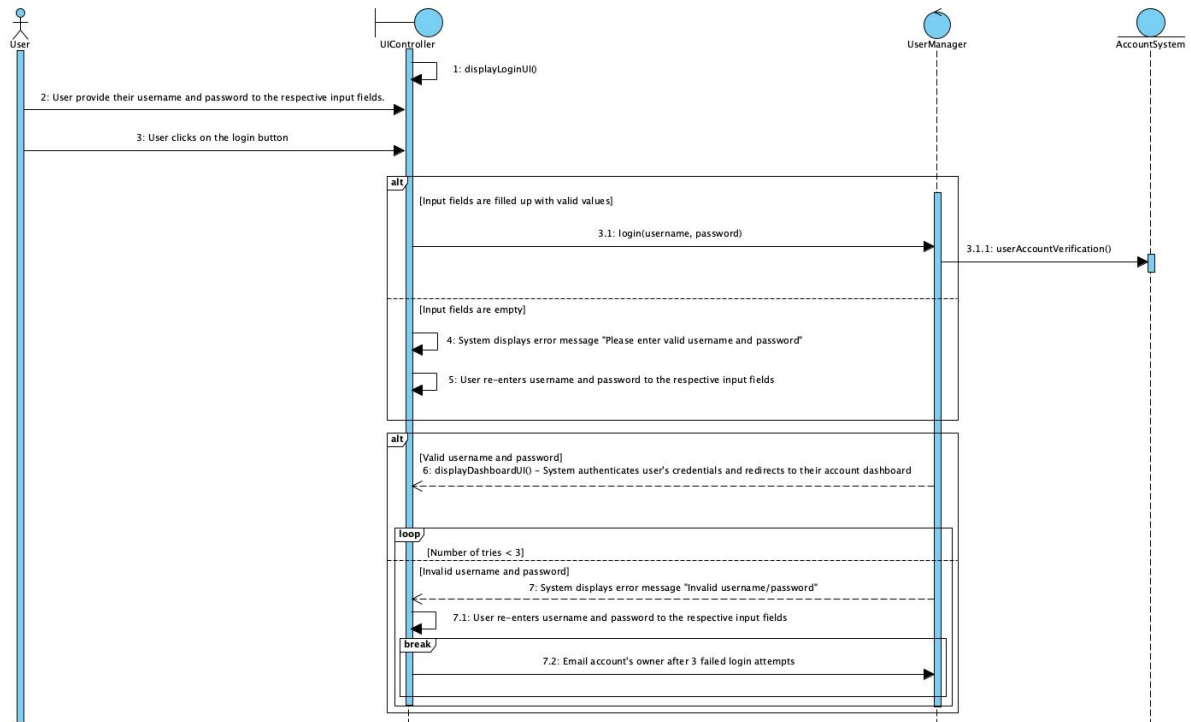
Class Diagram



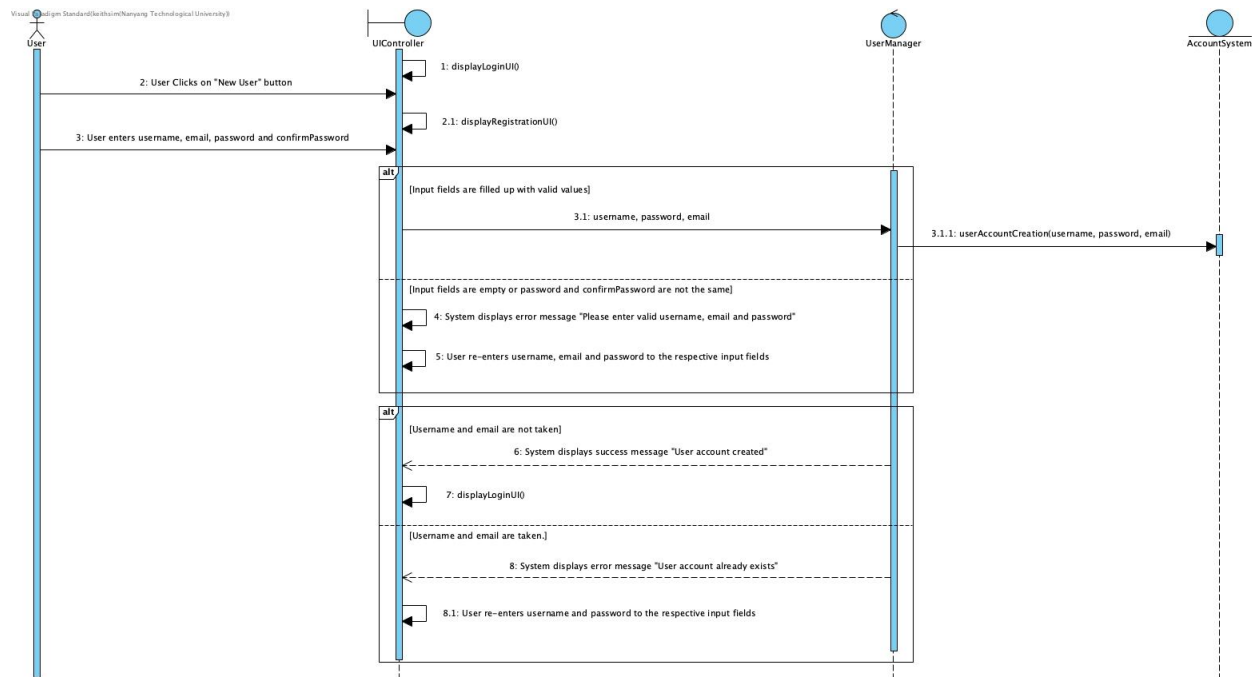
Sequence Diagram

Use Case 1 - Log In:

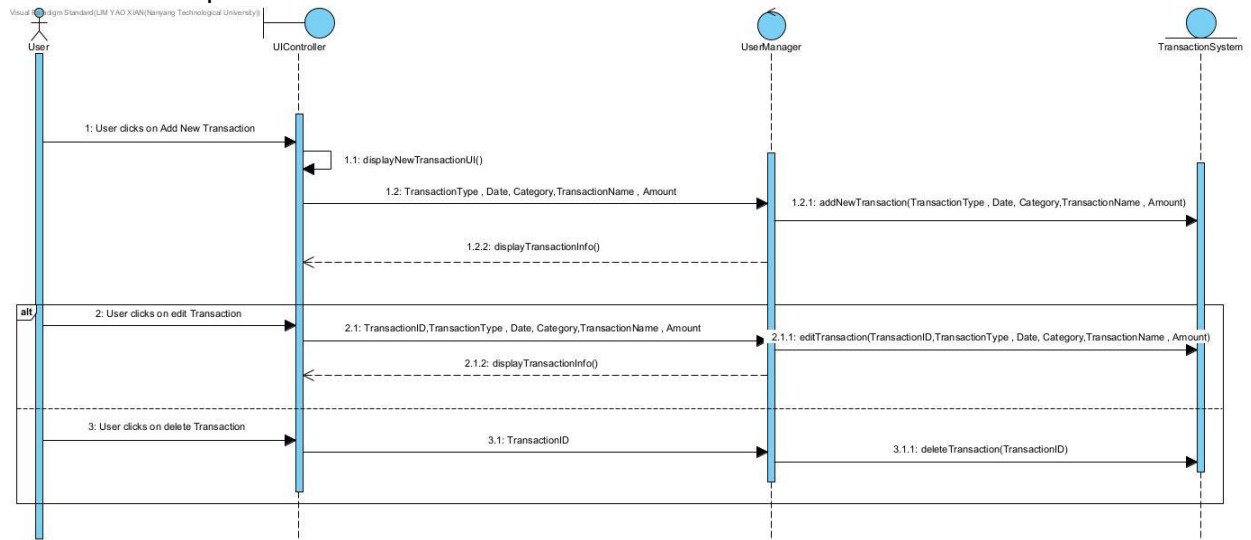
UML Paradigm Standard (Keele/Norwegian Technological University)



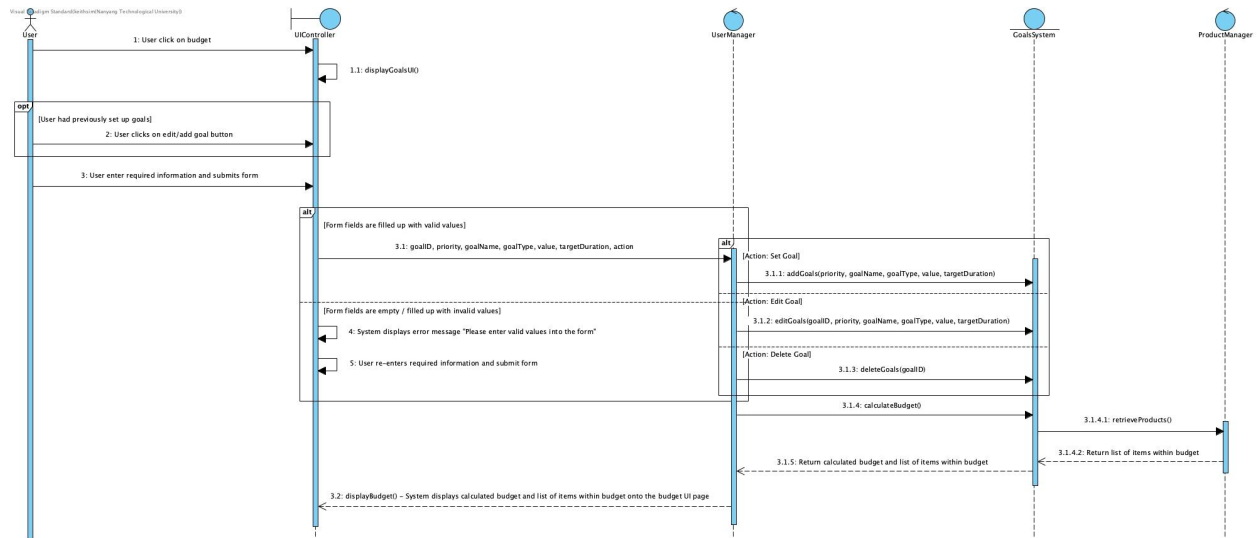
Use Case 3 - Register for an account:



Use Case 4 - Update Transaction:

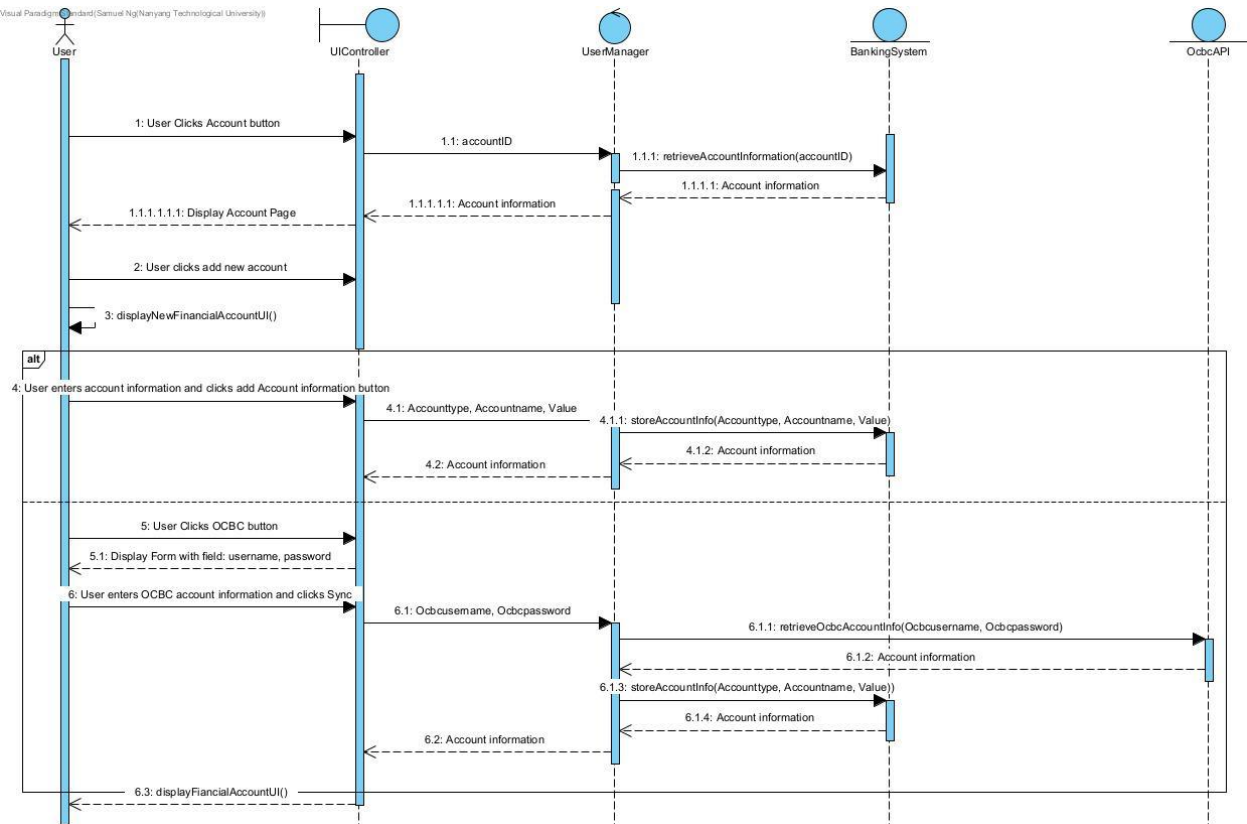


Use Case 5 - Update Goals:



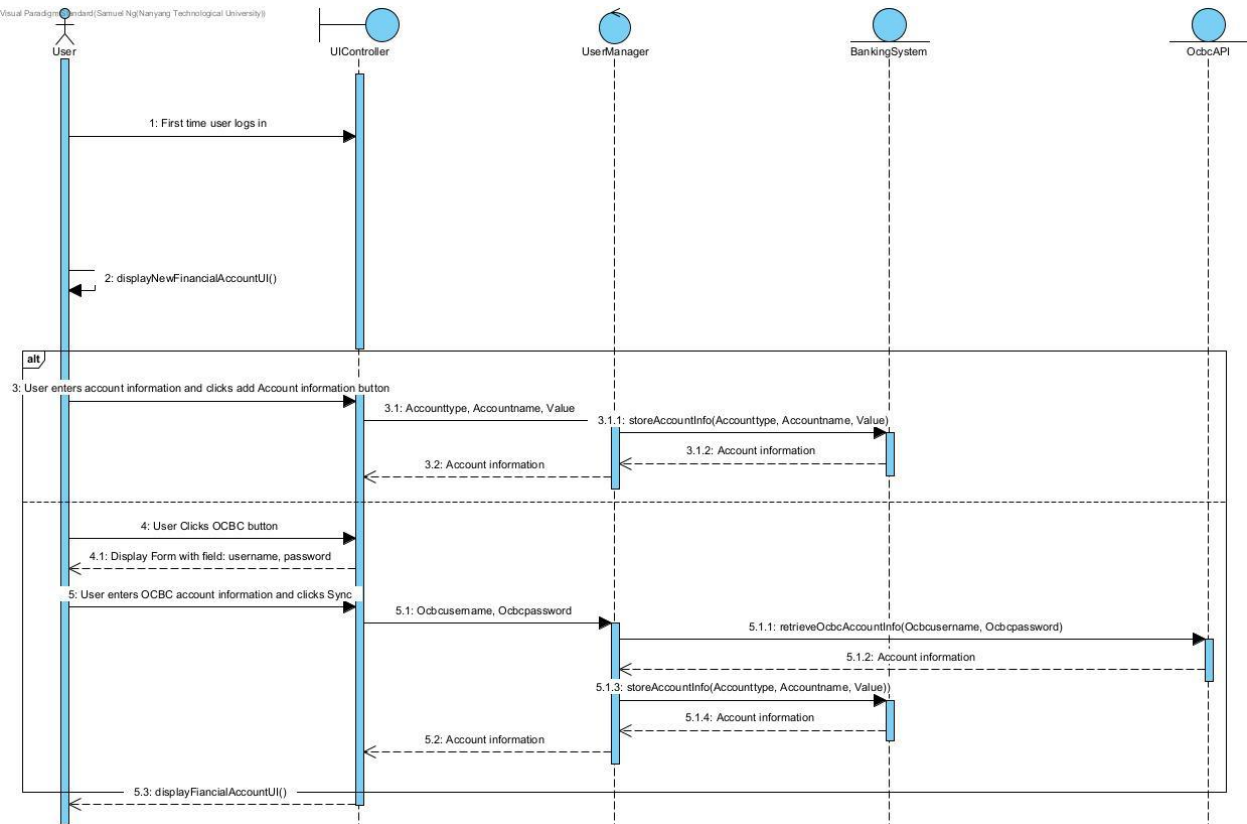
Use Case 8 - Add Account Information:

Visual Paradigm Standard (Samuel Ng/Nanyang Technological University)



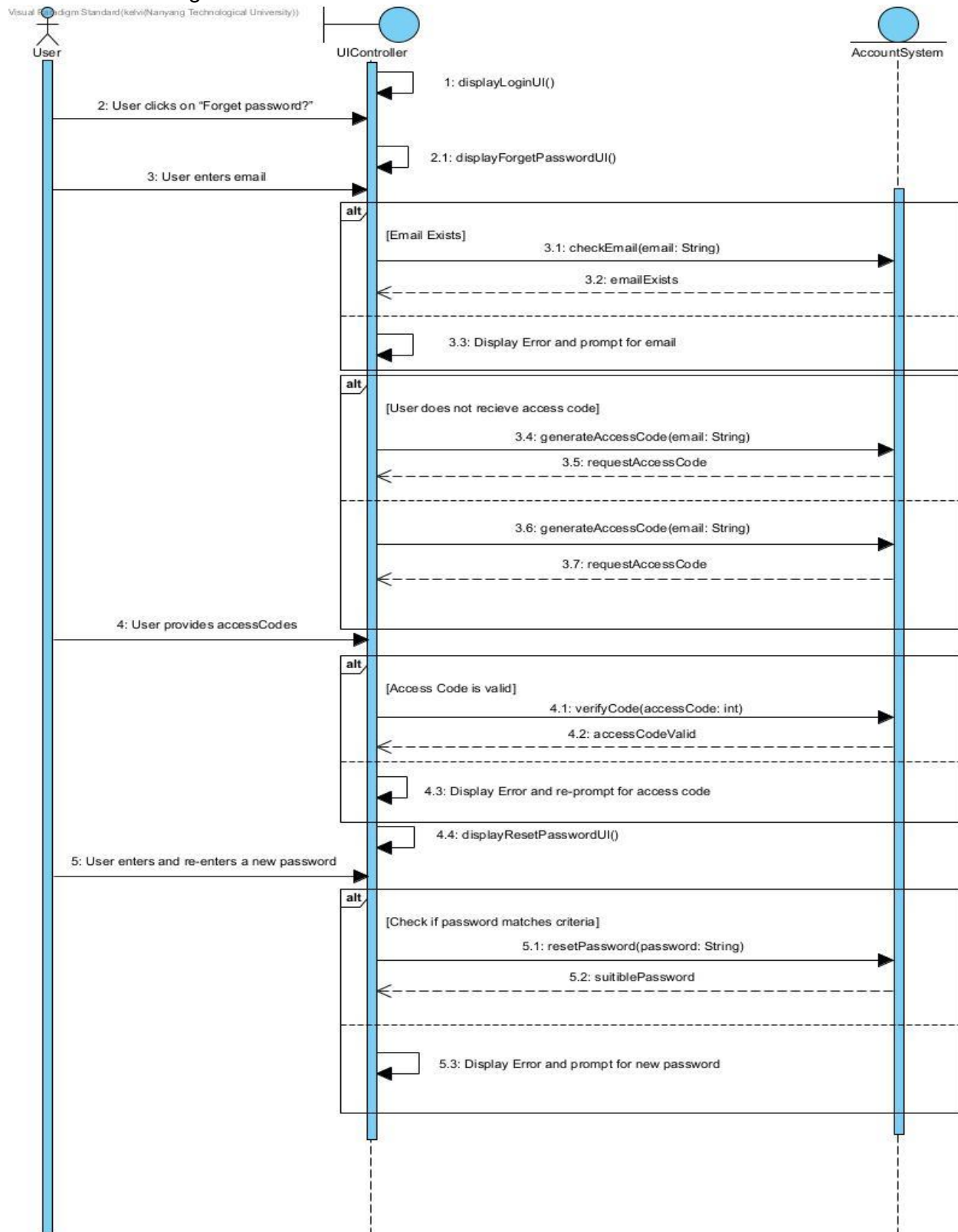
Use Case 9 - Add Initial Information:

Visual Paradigm Standard (Samuel Ng/Nanyang Technological University)



Use Case 12 - Forget Password

Visual Modeling Standard (Kevin Nanyang Technological University)



Dialog Map

Visual Analysis: Scenario-Based User Interface Technology (Scenario)

