COMPS350F Software Engineering

(Autumn Term 2023)

Group 8

Software Testing Plan

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GitHub link: https://github.com/jackyyhc/2023_350_project

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1. Introduction

   This testing plan is documented to describe the scope, test cases, approaches, and schedule of the testing activities of the project.

   The academic system is designed to manage the academic records and personal information of students. It supports multiple user roles, including admin, teacher and student, each having specific functions and permissions.

   Validation testing and Defect Testing are included for the evaluation of the achievements and effectiveness of the academic system in terms of the predefined specifications.

2. Objectives

   Tests are aimed to make sure the system fulfills the system specifications. The system is the combination of different sub-systems which are the account management system, personal information system, the emergency contact system, academic system, and the course system. All sub-systems should be able to be previewed and modified through the academic system according to the user roles and their authorized rights.

   It is important to confirm the reliability of the system in terms of the data accuracy and its functionality. The system should be able to display precise information to the corresponding user. The functions should return correct result.

   The system is designed for a wide range of users with different technological backgrounds. It should be able to handle errors, identify invalid input and be responsive to the users by warning those invalid actions.

3. Scope

   Features to be tested:

   The content under the student user and teacher user

   - Login page
   - Academic record page
   - Personal information page
   - Emergency contact page
   - Update function
   - Search function

Features not to be tested:

- The content of admin user

Reason: The features of admin are similar to those in student and teacher.

Test Types:

Validation Testing

The purpose of the validation testing is to test the validation of accessing different sections of the system, which are academic record system, personal information system, course system. It also tests the key functions of the system. The login function, GPA calculation function, search function and update function. The test cases are simulation of the expected operation from users if the system is launched. The test cases will be considered success if the system responses in a way that meets the user requirements, and the result data are accurate.

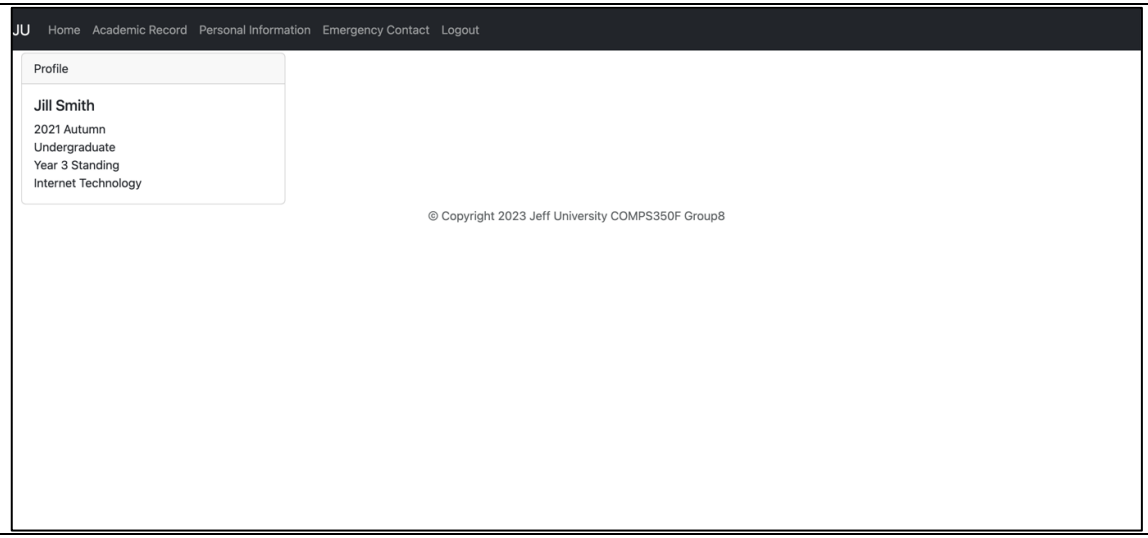
Defect Testing

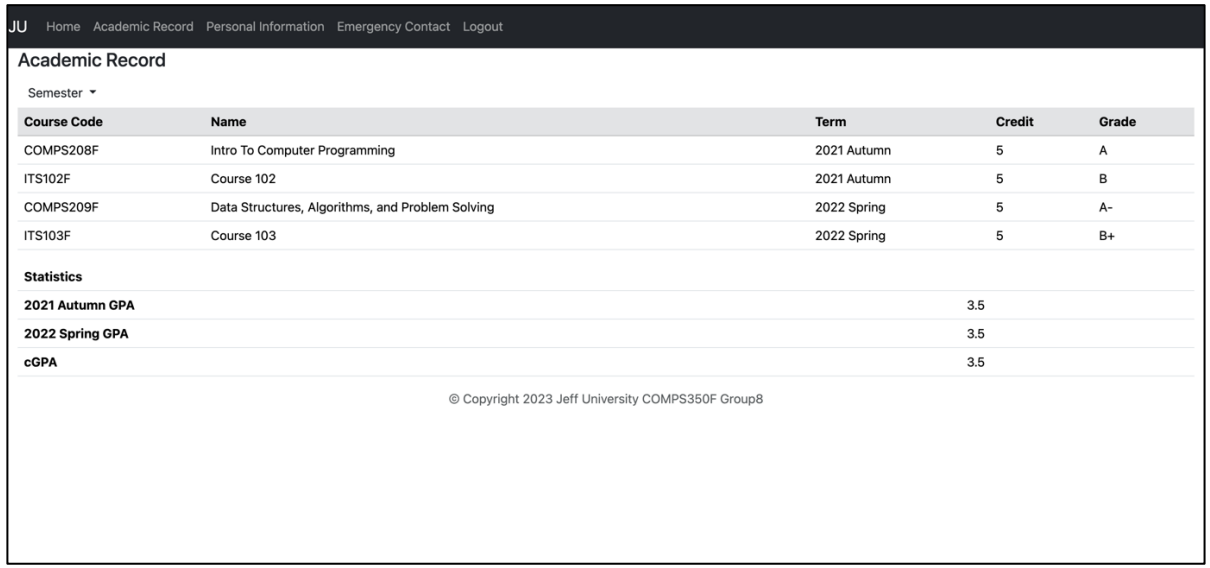
The tests are mainly testing the system ability of error handling by discovering unexpected inputs and operations from users. The testing will be considered success if the system is able to identify the invalid inputs and operations, prevent in advance and response to the user with explanations that are easy to understand.

4. Test Schedule

ID	Task	Duration	Start Date	End Date
1.	Test Planning	1 day	2/12	2/12
2.	Validation Testing	2 days	3/12	4/12
3.	Defect Testing	2 days	5/12	6/12

5. Validation Testing

Test Case 1	Login function, multiple role-based function
Expected	Student user can login to the system with existing student ID and preset password.
Steps	1. Access to the login page of the academic system with web browser. 2. Enter user id and password in the corresponding fields. 3. Logged in to the home page of the system
Result	Pass 1. Login with correct id and password grants access to the academic system. 2. Navigation bar shows buttons that matched with the student role. 3. System shows information that belongs to the user correctly.
Attachments	

Test Case 2	Academic record system, GPA calculation function
Expected	Student user can preview their own academic grade and GPA
Steps	1. Access the academic record section. 2. Preview the result.
Result	Pass 1. System shows the academic result of the user correctly. 2. Statistic result of GPA and cGPA shows properly and correctly. 3. Semester filter function works properly.
Attachments	

JU Home Academic Record Personal Information Emergency Contact Logout

Academic Record

Semester

Course Code	Name	Term	Credit	Grade
COMPS208F	Intro To Computer Programming	2021 Autumn	5	A
ITS102F	Course 102	2021 Autumn	5	B
COMPS209F	Data Structures, Algorithms, and Problem Solving	2022 Spring	5	A-
ITS103F	Course 103	2022 Spring	5	B+

Statistics	
2021 Autumn GPA	3.5
2022 Spring GPA	3.5
cGPA	3.5

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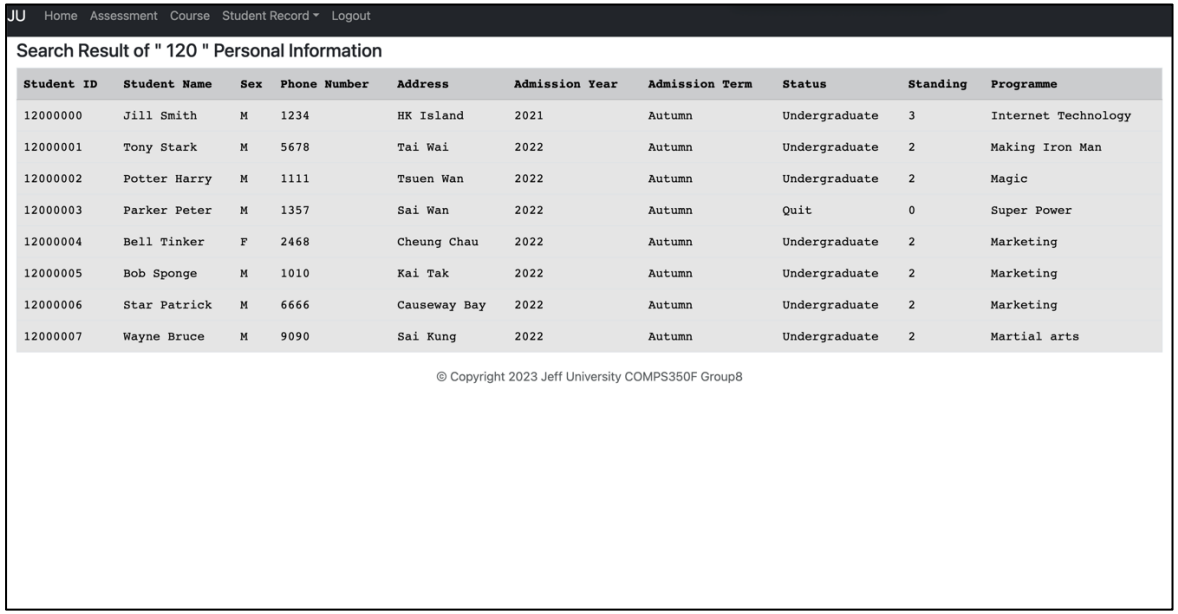
Test Case 3	Personal Information system, search function
Expected	Teacher user search with partial student id and get the student personal information result.
Steps	1. Access to the student personal information section. 2. Enter partial student id ‘120’ and search. 3. System returns list of result.
Result	Pass 1. System performs searching properly. 2. System shows the personal information that match the criteria correctly.
Attachments	

JU Home Assessment Course Student Record Logout

Search Result of " 120 " Personal Information

Student ID	Student Name	Sex	Phone Number	Address	Admission Year	Admission Term	Status	Standing	Programme
12000000	Jill Smith	M	1234	HK Island	2021	Autumn	Undergraduate	3	Internet Technology
12000001	Tony Stark	M	5678	Tai Wai	2022	Autumn	Undergraduate	2	Making Iron Man
12000002	Potter Harry	M	1111	Tsuen Wan	2022	Autumn	Undergraduate	2	Magic
12000003	Parker Peter	M	1357	Sai Wan	2022	Autumn	Quit	0	Super Power
12000004	Bell Tinker	F	2468	Cheung Chau	2022	Autumn	Undergraduate	2	Marketing
12000005	Bob Sponge	M	1010	Kai Tak	2022	Autumn	Undergraduate	2	Marketing
12000006	Star Patrick	M	6666	Causeway Bay	2022	Autumn	Undergraduate	2	Marketing
12000007	Wayne Bruce	M	9090	Sai Kung	2022	Autumn	Undergraduate	2	Martial arts

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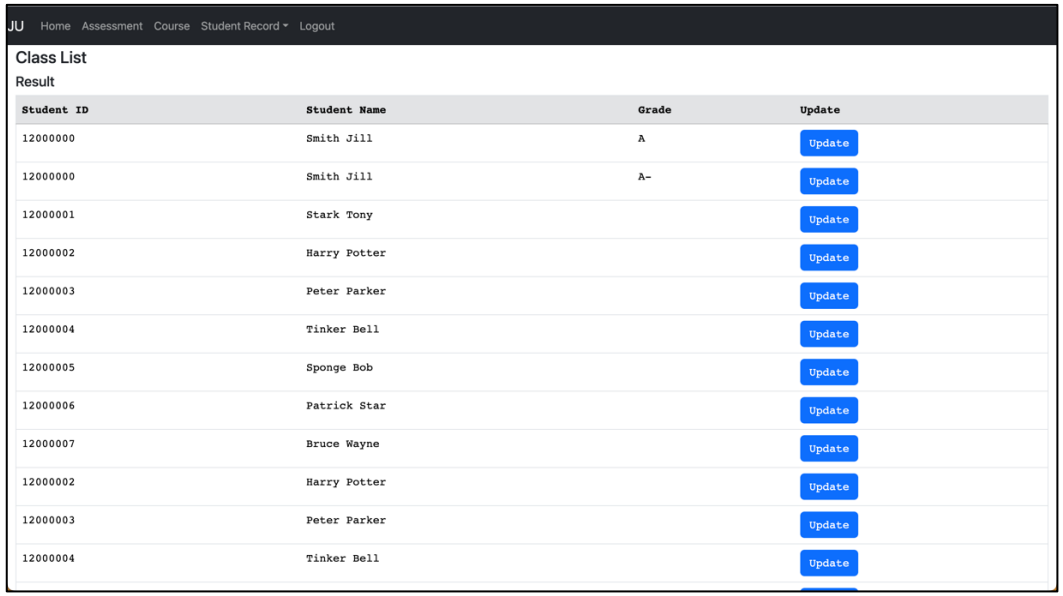
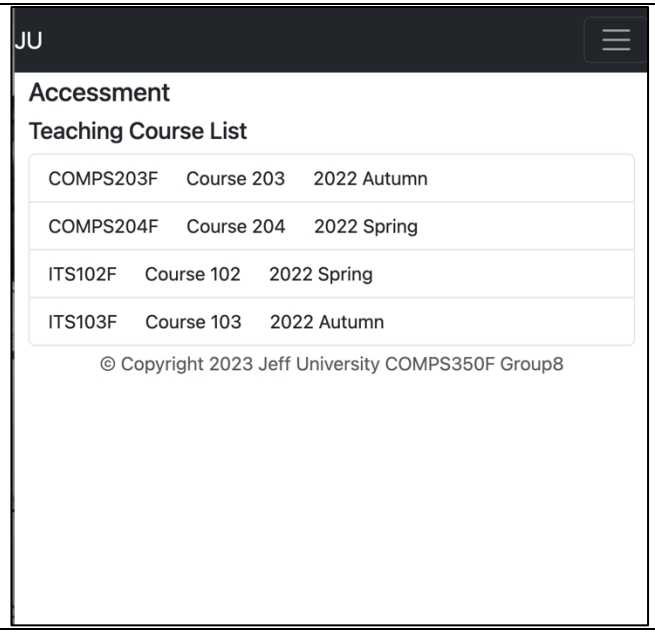
Test Case 4	Course system, update function
Expected	Teacher user update the grade of a class he/she teaches
Steps	1. Access to the course section. 2. Choose from a course list that contain the courses he/she is teaching. 3. Update the grade of the student from the class list.
Result	Pass 1. Course list shows correctly with courses that taught by the teacher. 2. The class list shows correctly with students that study that course. 3. Update function work properly.
Attachments	

JU Home Assessment Course Student Record Logout

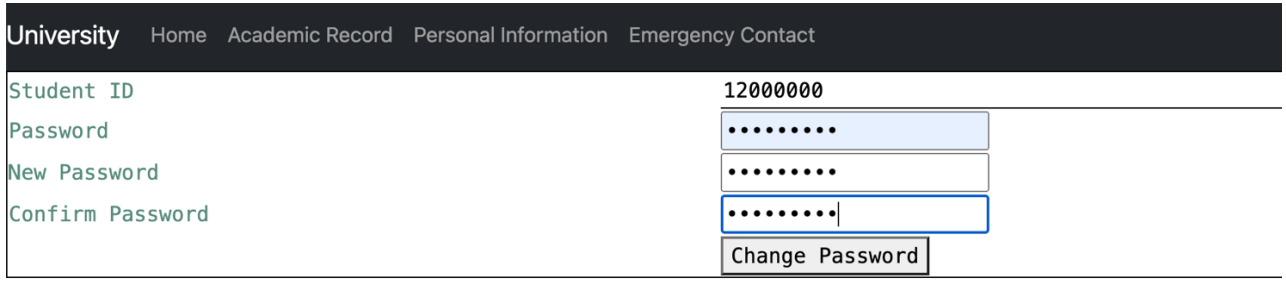
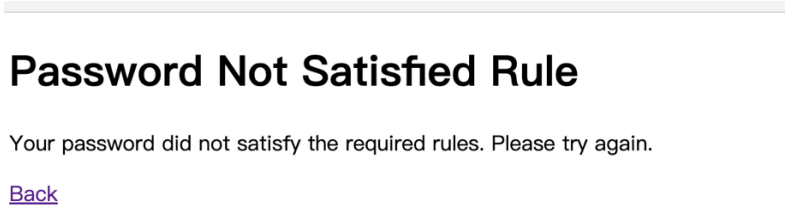
Class List

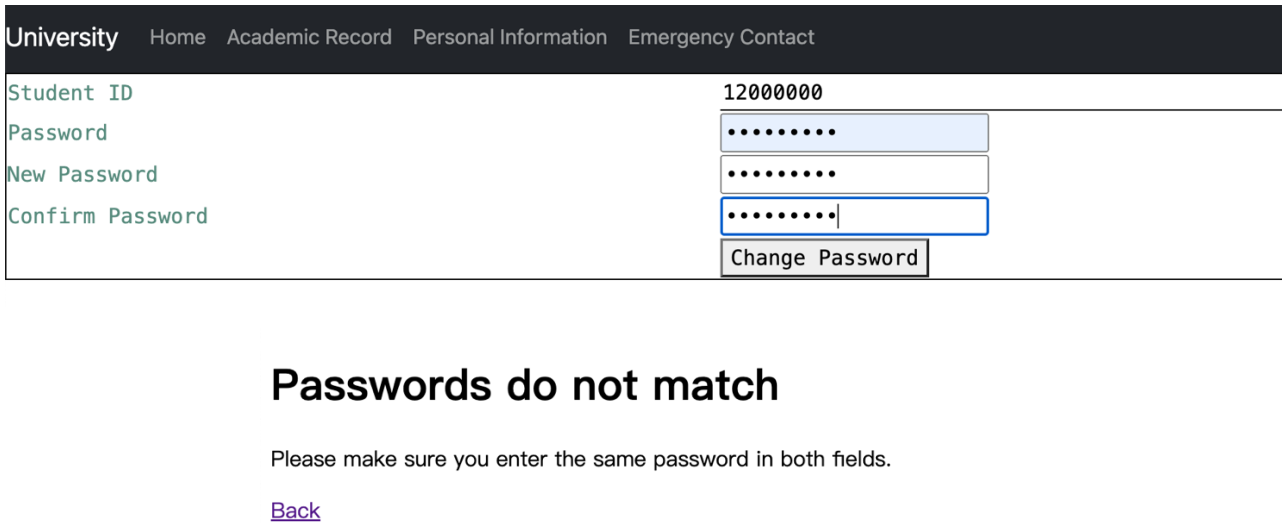
Result

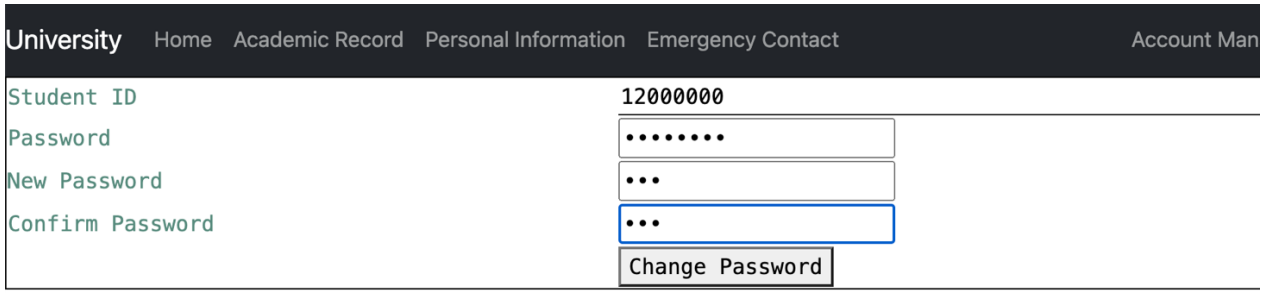
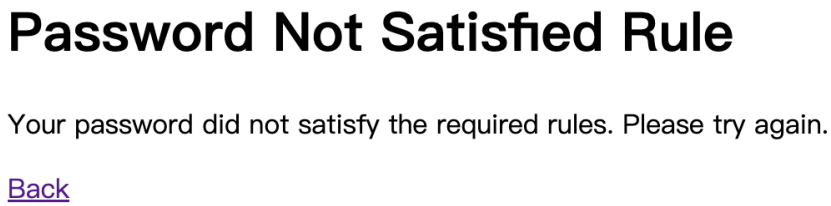
Student ID	Student Name	Grade	Update
12000000	Smith Jill	A	Update
12000000	Smith Jill	A-	Update
12000001	Stark Tony		Update
12000002	Harry Potter		Update
12000003	Peter Parker		Update
12000004	Tinker Bell		Update
12000005	Sponge Bob		Update
12000006	Patrick Star		Update
12000007	Bruce Wayne		Update
12000002	Harry Potter		Update
12000003	Peter Parker		Update
12000004	Tinker Bell		Update

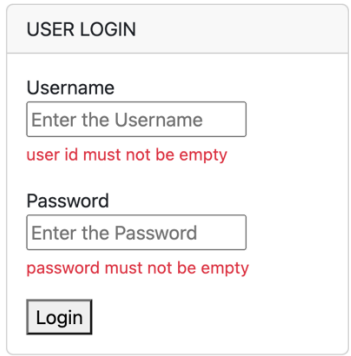
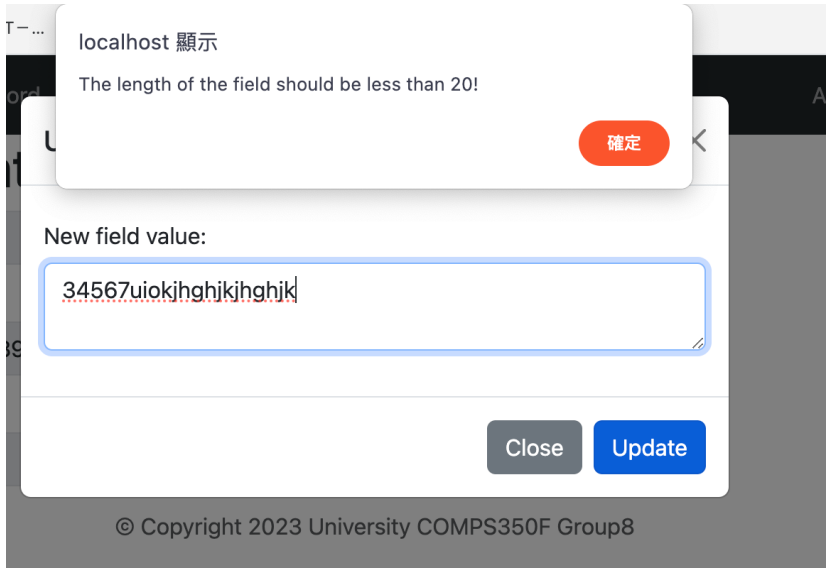
Test Case 5	Responsive to screen size of web browser
Expected	User previews content clearly in small and large screen size.
Steps	1. Adjust the size of the web browser. 2. Click into different pages.
Result	Pass 1. Navigation bar collapse in small screen and normal in large and medium size, all buttons work properly. 2. Content and Table adjust automatically, text remain readable size. 3. Wide table can be scrolled horizontally.
Attachments	

6. Defect Testing

Defect Test Case 1	
Problem	User try to update a password with the one that same as the old password.
Threat	Update password regularly is important for account security. If user is not aware and enter the same password for the new password, there is security threat.
Handle	New password cannot be the same as the old password.
Steps	1. Login with id and password. 2. Update the password with old password.
Result	Warning message shows, prevents user to enter same password for the new one.
Attachments	 

Defect Test Case 2	
Problem	User enter new password incorrectly while updating the password.
Threat	User is not able to login again.
Handle	Require user to enter new password and confirm password while updating the password, reduce the chance of entering wrong password.
Steps	1. Update the password. 2. Enter different input in confirm password.
Result	Warning message shows, remind user the new password and confirm password must be the same.
Attachments	

Defect Test Case 3	
Problem	User enter new password that is short and easy to remember.
Threat	The security level of the password is too low.
Handle	Set constraint to the password requirement which is the password length.
Steps	1. Update the password. 2. Enter a password that shorter then 8 digits.
Result	Warning message shows, remind user the password must longer than 8 digits.
Attachments	 

Defect Test Case 4	
Problem	User login without entering any input
Threat	Unexpected input may affect the login function and cause security problem.
Handle	Prevent user to submit empty login data, block the suspicious access to the database.
Steps	1. Leave the id and password input fields empty and click login.
Result	Warning message shows, remind user the login id and password field cannot be null.
Attachments	

Defect Test Case 5	
Problem	User update the emergency contact information with invalid input
Threat	The information will become inaccurate and useless.
Handle	Set constraints to the emergency contact input while updating the information.
Steps	1. Update the relationship field with unreasonable long input.
Result	Warning message shows, remind user the relationship field cannot exceed length of 20.
Attachments