Secure Software Development
Group Project

Weight: 25%

Final presentations will be held in week 15

Introduction

Secure software development course objectives are to (1) integrate security at the early stages of SDLC and (2) introduce students to defensive security measures when developing software

The main objectives of the project are to:

1. Identify the different stages of secure software development
2. Comply with data privacy and security requirements when designing a software system
3. Design a software solution for secure access and data protection
4. Work as a team

Team Formation

All the students in the course will be divided into teams. Number of members in a team can be up to 5. Students are free to form teams. Instructor will form teams for the students who have difficulty in joining some team.

Problem Statement

Develop a system for "**Dhahran E-Shopping and Item Tracking System**". The system information document is posted in Appendix A of this document.

Project Evaluation

Each phase of the project will be evaluated according to the details given in the "Deliverables" section of this handout.

Programming Environment

Students are free to use any suitable programming environment for coding phase of the project.

Deliverables

The project will be completed in phases. The phases of the project will be:

Phase 1. Software Requirements Specifications (30% marks) due date 6 March 2021 (week 7) midnight

(a)   Identify all actors, use cases and develop a use case model of the system.
(b)   Using the results of section (a), identify mis-use case actors, mis-use cases and develop a mis-use case model of the system
(c)   Add use cases (mitigation use cases) to mitigate mis-use cases identified in section (b).
(d)   Write description for all identified use cases/mis-use cases.

You can use the following template for use case model
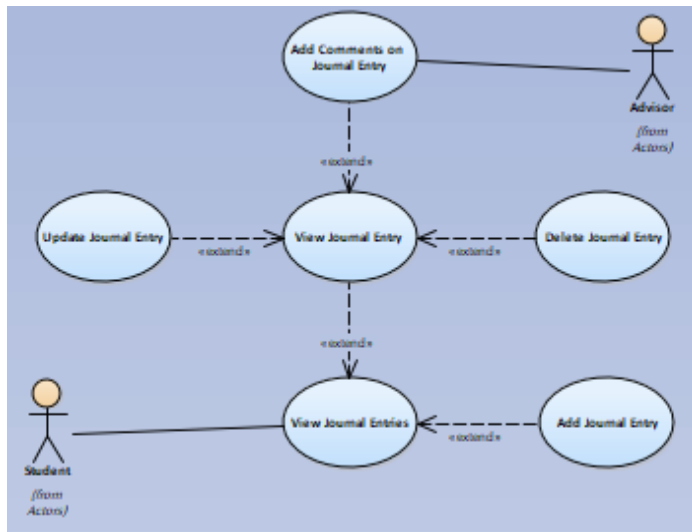
You can use the following template for all use case and mis-use case documents/ description

UC-01: Use Case/Mis-Use Case Name	
Description:	
Actors:	
Main Flow:	
Alternative(s):	

Phase 2. Software design (30% marks) due 27 March 2021 midnight (week 10)

(a)   User Interface Design: Screen Images – Screenshots showing (high fidelity prototype) complete interface from the user's perspective **for 3 mitigating use cases and 3 those use cases which have relation with the mitigating use cases**

(b)   Database design showing entity relationship diagram. state the primary keys, foreign keys, and alternative keys etc (entities used for section (a), i.e., 3 mitigating and 3 related use cases

Phase 3. Implementation (30% marks) due 24 April 2021 midnight (week 14)

(a)   Implement any 2 mitigating and 2 related use cases used in phase 2.

Phase 4. Testing (5% marks) due 1 May 2021 midnight (week 15)

(b)   Design and conduct black box testing for all modules developed in phase 3

Phase 5. Presentation and presentation of project (5% marks) week 15

(a) Final demo

I just made few changes in the project description to define its scope and to make it more understandable.

Appendix A: Dhahran E-Shopping System

The purpose of the E-shopping system is to provide a single central repository of all information about sales of electronic goods. This system is managed and owned by Dhahran E-Shopping Company.

A web customer uses a proposed website (E-shopping and tracking system) to make purchases online. In order to make a purchase a customer must register with the system and provide all the personal and financial details (i.e., credit card etc). A customer is able to view different items available on the website. A customer can checkout to proceed to the payment option. The customers can track their orders to see the delivery date and time. This system should be implemented using client-server architecture.

A customer must register with the website to buy any items. Each customer should have unique id and should be linked to exactly one **account.** In the registration process, a customer create his/ her login and password and provide other details such as name, date of birth, mobile number, credit/ mada card details etc.

In order to view items, a customer can search items, browse items, view recommended items, add items to shopping cart, add items to wish list.

In the checkout process, a customer should be logged-in or registered to process payment options. Payment can be done either by using credit card or with mada cards.

To process the payment via credit cards or mada cards, the Dhahran E-Shopping Company submits some credit card transaction verification request to the credit card payment bank on behalf of a customer. Bank which issued customer's credit card could approve or reject the transaction request. If transaction request is approved, funds will be transferred to Dhahran E-Shopping Company's bank account. In case if transaction is rejected then a customer will get a relevant message to correct the errors.

A customer can track his/ her order and can check the progress of items delivery.

In the back-end a database should be designed to keep records of customers' id, passwords, credit/ made card details, history of purchases made etc.