CSIE5142/CSIE4302 Software Engineering

Homework # 2
Due on 11/09/2017

1. (30%) Consider the requirements engineering process.
   (a) (10%) Draw and describe the requirements engineering process and associated activities.
   (b) (10%) Draw an activity diagram to explain the process of requirements change management.
   (c) (10%) What is the traceability matrix? How traceability matrix can be used in the requirements change management?

2. (70%) You have been appointed to develop a **Movie Ticket Booking System** that allows customer to view movie information including description and show time, to book tickets, to cancel tickets, and to collect tickets. It also allows staffs to add/update/delete/view movie information. For booking tickets, customers will first login as a registered customer. The registered customer then can select the movie and the show time. To book tickets, the system will retrieve and show the current available seats from the reservation database for the selected movie and show time. The customer then can choose his/her favorite seats and make a payment to reserve the tickets. The system will return a reservation number to the customer if the ticket booking is successful. The customer can collect the tickets by showing the reservation number to the staffs in the cinema. The customers may cancel the ticket booking 30 minutes before the show time of the movie and the system will refund the payment back to the credit card (or account) of the customer.
   (a) (10%) Write a **user story** for booking a movie ticket online.
   (b) (10%) Identify the possible stakeholders and specify the requirement elicitation and analysis techniques that can be used for this system.
   (c) (10%) Draw the **use case diagram** for the system. The use case diagram must have at least two actors, such as customer and staff.
   (d) (20%) Identified the possible classes such as **RegisteredCustomer**, **Movies**, **BookTicketSystem**, **Payment**, **ReservationDB**, and draw the UML class diagram for the system. Please give essential ***attributes*** and ***methods*** for each class and specify their *visibility*. Show appropriate relationships between the classes and specify the *multiplicity* for each relationship.
   (e) (20%) Draw the UML sequence diagram based on your class diagram for the scenarios 1) *a customer successfully books a movie ticket*; and 2) *a customer cancels the booked tickets*. Make proper assumptions if necessary.