

Continuous Assessment Brief

Enterprise .NET I – April 2015

Course Registration System

ABC is a training vendor to provide IT-related training to IT professionals in Singapore. All of the courses offered by ABC are short courses that runs for less than 6 days (so far). Each course may be offered multiple times in a year depending on its popularity. The maximum size of each course will depends on the subject and the capacity of the classroom.

To manage ABC's registration process, ABC Course Registration System is proposed. The application should be implemented using Microsoft .NET version 4.5. The CIO is keen to adopt good software engineering practices and at the same time take advantage of the numerous powerful and productive features offered by the .NET platform. The software solution should be designed based on a Layered Architecture to provide effective separation of concerns. In addition, the system should carefully consider relevant enterprise design patterns and use them where appropriate.

ABC plans to have multiple releases of the software. This document describes the functionality envisioned to be in their first release.

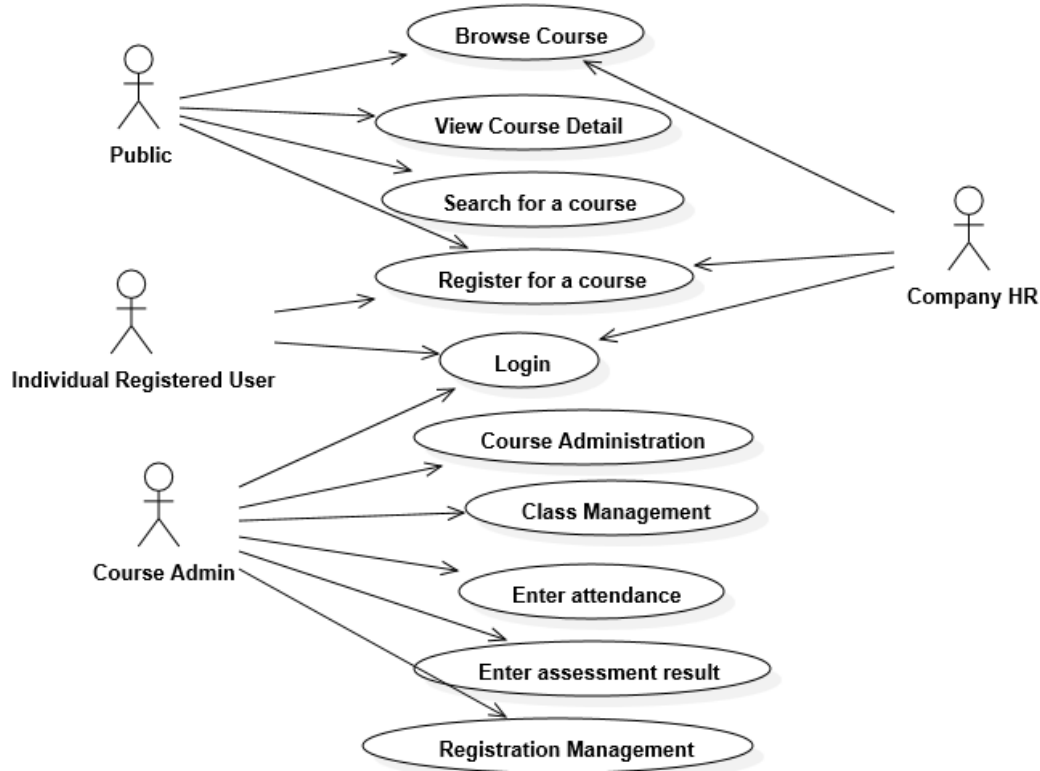
Note:

Given the similarity of ABC's business with professional courses offered by ISS, you can refer to ISS website to get more realistic view on information required for courses and registration for your system.

Functional Specification

The system should be web-based accessible from browsers and implemented using Microsoft suite of products and technologies such as ASP.NET, IIS, SQL Server and .NET Framework.

The course registration system that you need to build contains the following use cases



Actors

- **Public**
The public should be able to access information about courses and register for a course.
- **Individual Registered User (shortened to Individual User from now on)**
Participants represent users who has created user ID and password for their website when they register for course the first time. The system should remember their information and auto-populate the form whenever applicable. The login ID for individual registered user would be their ID number (NRIC for Singaporean/PR, passport number of others).
- **Company HR**
Company HR would register a course on behalf of the company employees. The system should remember the employees information and able to retrieve it should the company HR requires them.
- **Course Administrator**
Course administrator keep track of all courses run by ABC, determine the dates for each runs of the course and manage the registrations

Use Cases

Browse Course

- User should be able to see list of upcoming courses on the homepage of the website
- User should be able to clearly see the list of course categories and the list of courses within the category. It can be implemented as a single page listing all the courses as long as the user interface allow the user easy access to the list of categories (for example, by putting them in the sidebar) and allow the user to quickly see list of courses in a particular category
- When user click on the course title, it should go to the course detail.

Search Course

- Allow user to search courses from a search bar.
- Extra point if you can make it into a full-text search with title, category and instructor names having more weight than the course description

View Course Detail

- Display the details of the course, including the upcoming classes and register button.

Register for a Course

- System should display the selected course and schedule but allow the user to change
- If the user has not logged in, system should allow the user to
 - Continue the process
 - Login as individual user and come back to this screen once the login is successful
 - Login as company HR and come back to this screen once the login is successful
- If the user has logged in before trying to register for a course, directly continue the process without asking the user to login.
- For public user (the user do not have any login or choose not to log in)
 - Get the information required
 - Upon successful registration, send email with system generated password to the user
 - If there is existing individual users with the same ID number, inform the user that probably the user probably has a login, offer to reset the password by sending a new email containing system generated password, and display the contact number for the user to speak to the customer service officer.
- For individual users
 - Get the information required and pre-populate the forms with the information from the user's latest registration
 - User cannot change the ID and the identification number (because the identification number is used as the user's login ID)
- For company HR
 - Show a screen showing the list of employees that the user has registered for before. If the user select existing employee, then use that employee data to prepopulate the form.
 - At the end of the registration process, create a new employee record for under the company HR's account if the company HR hasn't registered anyone with the same ID number before, or update the previous record if the company HR has previously registered someone with the same ID.

- A company HR user must not be able to see any information entered by another company HR user even if they enter registration for the same person. Example: John (S123456H) worked in NCS and has attended a course registered by NCS HR. Last year, he switched job to IDA and when IDA HR try to register John for a course for the first time, IDA HR should not see any forms being pre-populated.
- Register as HR
 - Allow registration for company HR. The user ID for this type of account would be the same as their email address.
 - Information captured would be the identity of the HR person as well as the company information. The company information can be used to prepopulate company related data during registration.

Login

- Allow the user to login. Different type of user should be detected and access control should be enforced
- If the user uses system generated password, prompt the user to change password.

Change Password

- Allow the user to change password by supplying the old password and the new password.

Course Administration

- Allow the course administrator to create courses, edit their descriptions and disable/enable courses. Disabled courses should be hidden from public view.
- Bonus point: if the user can access the list of classes (past and present) when working on a course

Class Management

- The course administrator can schedule new classes for a particular course.
- End date should be automatically computed when the administrator change the start date according to the duration of the course, but the system should allow change of the end date to cater for holidays, split courses, and other special circumstances.
- Course administrator can close the registration of a particular class. Once the registration for a class is closed, an indicator should be displayed on the public page to indicate that registration for that particular upcoming class has been closed.
- Course administrator also can look at detail of the past classes
- Course administrator can confirm or cancel classes.
- Upon confirmation, email will be send to all the registered participants.
- Upon cancellation, email will be send to all the registered participants. The participants will automatically be enrolled to the next available class.
- Bonus point: if the user can easily access the list of registered participants when working on a particular class.

Registration Management

- Course administrator can view the registrations
- Course administrator can search for a registration based on name, ID number, or company
- Course administrator can cancel the registration
- Course administrator can move the registration to another class
- Course administrator can edit the personal details of a course registration

User Management (optional)

- Course administrator can reset password for individual user and company HR so that the system would send the email with the new password to the user.
- System admin can create new Course Admin, edit their details, disable their account and reset their password

Report

- Print attendance sheet for a particular class

Business Concepts

Course

A course represents one type of training offering with a specific agenda and learning objectives. A course is conducted as a series of identical classes with different schedules

A course would contain the following attributes:

- Course Code
- Course Title
- Description (should include some formatting option)
- Fee
- Instructors
- Number of days

Class (also known as Run)

A class is an execution of a course in a specific schedule with a specific list of participants. A class will have multiple instructors and multiple participants. A class may have a minimum number of participants and thus the course administrator can choose to cancel a class for poor registration. It is decided that this decision is to be made manually rather than being automated in the system.

A class would contain the following attributes:

- Class ID
- Course Code
- Start Date
- End Date

Participant

Participants are people who come for training by attending one or many classes offered by ABC. Participant may register for a class on his or her own behalf, or being registered by a company through their HR. The system need to isolate participant's personal data based on a simple principle: *You can only see data that was previously entered by you*. It means that you cannot see the personal data that is entered by your company's HR manager because you are not the one entering the data.

A participant would contain the following attributes:

- ID Number
- Company ID (if entered by HR)
- Salutation
- Employment Status
- Company
- Job Title
- Department

- Full Name
- Gender
- Nationality
- Date of Birth
- Email
- Contact Number
- Dietary Requirement
- Organization Size
- Salary Range

Company

A company may register its employees for a class and the HR manager can do the registration. Technically a company is simply a collection of employee data that has been used to register for some courses in the past by that company HR representative. The data can then be used to pre-populate course registration form.

A company would contain the following attributes:

- Company ID
- Company Name
- Company UEN
- Organization Size
- Company Address
- Country
- Postal Code

Registration

A registration is an expression of strong interest by a participant to attend a class of a particular course. Once the class is confirmed, all registered participants will be asked to pay the course fee

A registration would contain the following attributes:

- Class ID
- Participant ID
- Sponsorship (Self/Company)
- Dietary Requirement
- Organization Size
- Billing Address
- Billing Person Name
- Billing Address Country
- Billing Address Postal Code

Company HR

The company HR is the user representing a company that can register on behalf of individual employees. We should separate company HR and the company entity itself because in the future there might be a need to allow multiple HR for a single company

A company HR record would contain the following attributes:

- Company ID
- Email
- Name
- Contact Number
- Job Title
- Fax Number
- Email Address

Assignment Details

For this continuous assessment, you are required to implement a course registration system using ASP.NET applying the various technique and best practices discussed in the classroom.

The objective of this assessment is to allow the student to demonstrate their skills and understanding in building a good quality ASP.NET application. This continuous assessment make up to 30 percent of grade.

Technology Use

For this assignment, you need to use both ASP.NET Frameworks: ASP.NET MVC and ASP.NET Web Form as well as Entity Framework for the persistence. Other libraries and framework can be used when necessary.

To use two front end framework for this application, you can split the use cases into two modules based on their user: external users (public, individual users and company HR users) and internal users (course administrator and system administrator) and use different front end framework for the modules. For example, you can use ASP.NET MVC for external users and web forms for internal users or vice versa.

Team Structure

Students should form a group of 4 persons and register themselves to their groups in IVLE. In the event that the number of students are not easily divisible by 4, your instructor will brief you on the additional arrangement. The continuous assessment will continue to Enterprise .NET II, so do take this into consideration when forming your team.

Grading

The grading will depends on the following components:

- Scope of completed implementation. Prioritize complex use cases because those are the ones that will contribute to much of your points, however you should also prioritize simple use cases that is required to access other use cases.
- User experience: how clever you design your screens so that it would be easier for the users to use the system with minimal disruption and perhaps minimal amount of work by merging some of the screens.
- Application of enterprise layering patterns
- Code quality
- Presentation: how you prepare good sample data and run through the scenarios during the presentation

Presentation

Presentation for this work will be done on the 23 June 2015 for full-time students and 27 June 2015 for part-time students. For teams that planning to go overseas before this time, you can request for early presentation to be done in the first week of June.

Code License

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