



TRƯỜNG ĐẠI HỌC FPT

Online Learning System

Software Requirement Specification

– Hanoi, May 2022 –

Record of Changes

Version	Date	A* M, D	In charge	Change Description
v1.0	13/05	A	All members	Add Sections I.1 -> I.7
v1.1	18/06	A	All members	Add User Requirement Specification
v1.2	28/06	A	All members	Add Functional Requirements
v1.3	19/07	M	All members	Edit content

*A - Added M - Modified D - Deleted

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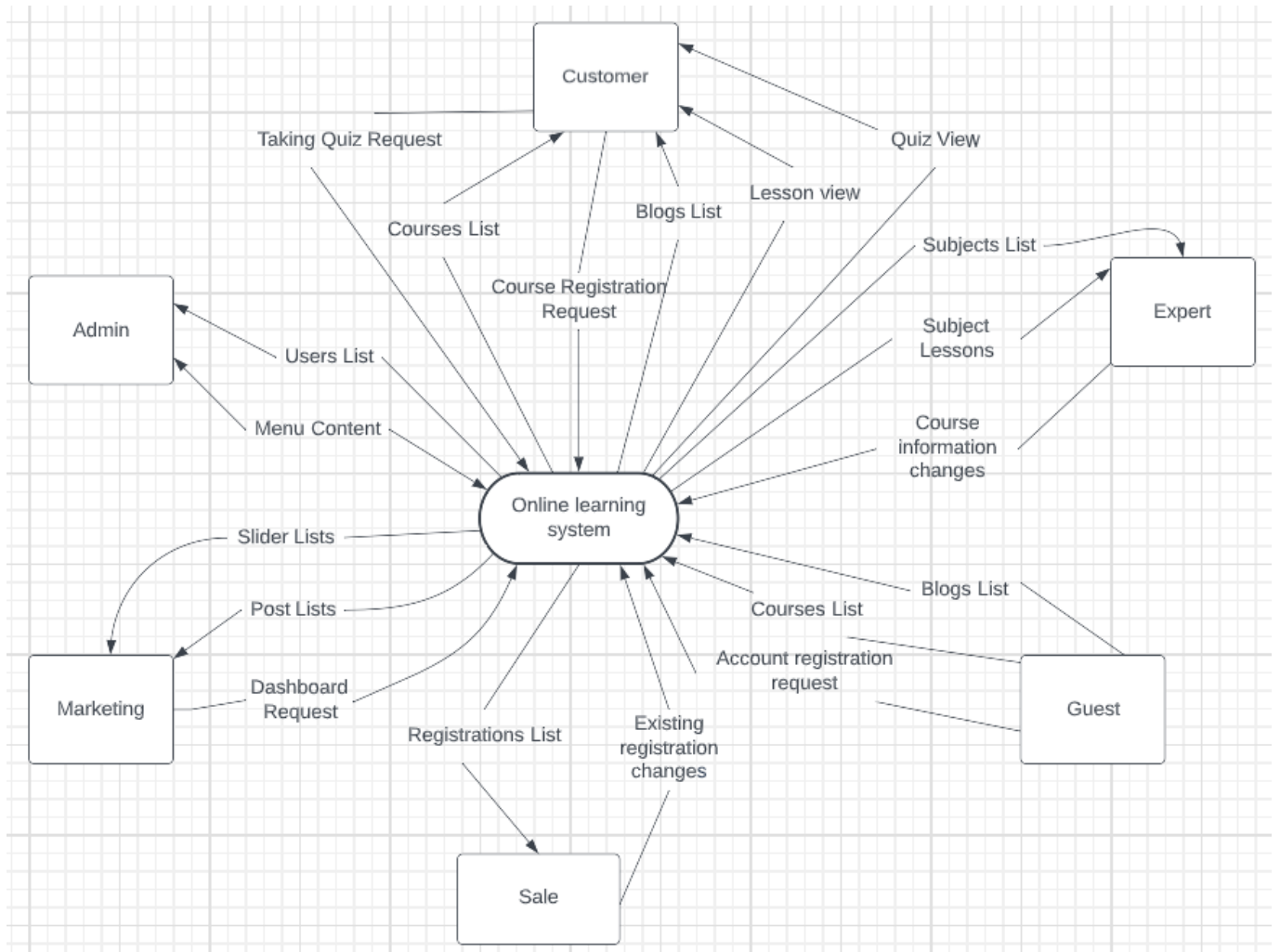
I. Introduction

1. Product Vision

This project is aimed at developing an online learning system which supports the organisation/expert to build up & sell the online courses, supports the user to search - register - access online courses for learning.

2. Product Context

The connections between the Online Learning System with the external entities are as described in the below diagram



In which:

- Guest: unregistered users
- Customer: they are registered users who are actual customers or potential customers
- Marketing: the marketing members of the organisation
- Sale: the sale members of the organisation
- Expert: access & prepare the course/test contents as assigned by admin
- Admin: the organisation leader/manager, acts as the system administrator

3. Major Features

FE-01: Register courses from the course lists to study or enrol.

FE-02: Enrol and pay for course lists to learn.

FE-03: Create, view, modify, and delete the course menu.

FE-04: View ingredient lists and information for course lists.

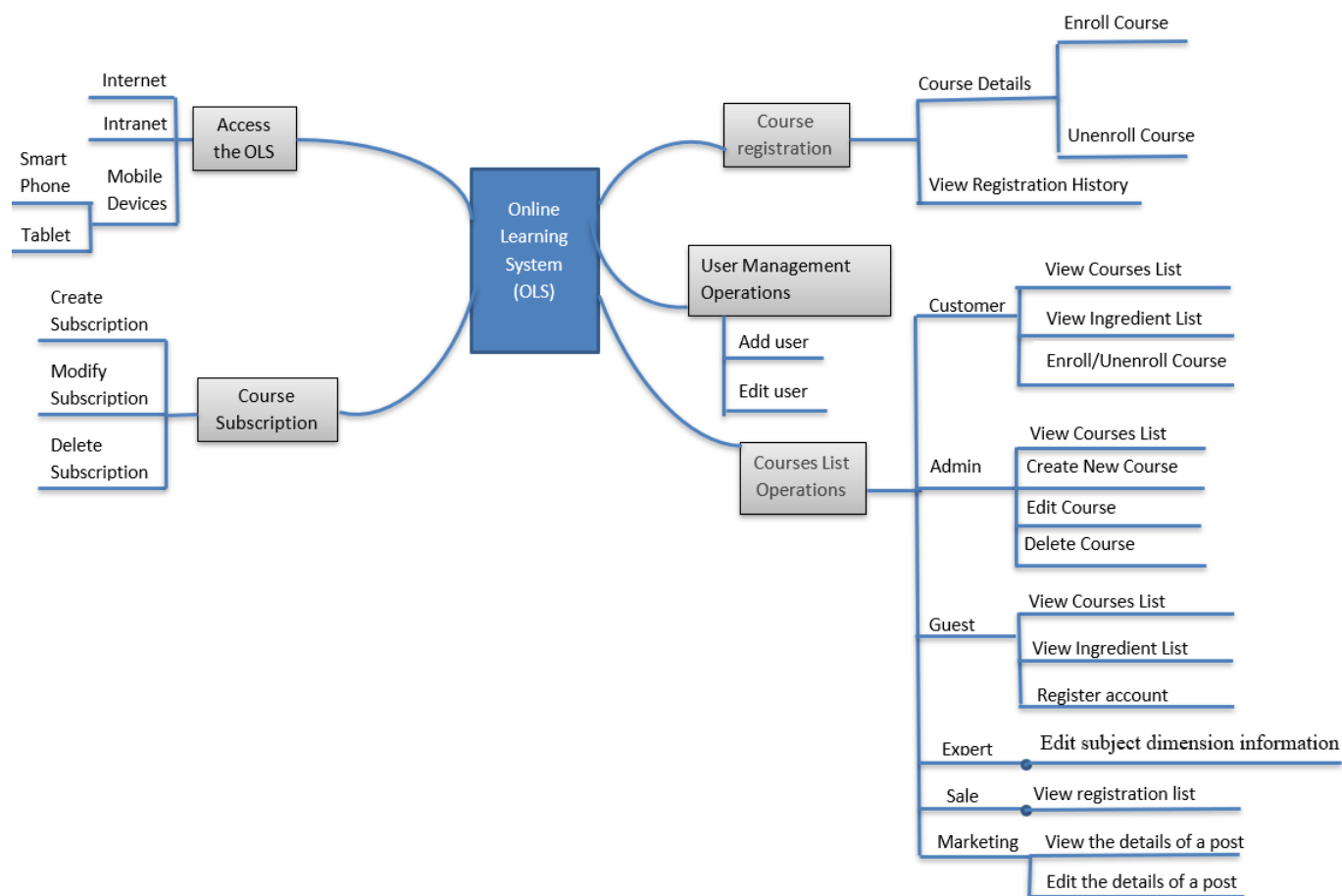
FE-05: Create, view, modify, and cancel enrolling course subscriptions.

FE-06: Provide system access through the corporate intranet, smartphone, tablet, and outside Internet access by authorized customers.

FE-07: View the list of components and lesson information for courses.

FE-08: Create, view, amend and unenroll the course registration for periodic courses, or for special courses to cooperate with universities.

FE-09: Provide to access the system through the course's internal network, smartphones, tablets and external internet access by authorized customers.



4. User requirements

4.1 Actors List

#	Actor	Description
1	Administrator	The organization leader/manager, acts as the system administrator
2	Marketing Manager	The marketing members of the organization
3	Sale Manager	The sale members of the organization

ID	Feature	Use Case	Description
1	Admin	Manage Course	List, filter, search, show, hide, view, add new course
2	Admin	Manage Users	View & edit the details of a specific user
3	Admin	Manage Menu	View & edit the details of a specific system
4	Common	User Login	Access to the account to use and change authorized resources
5	Common	User Register	Register an account
6	Marketing & Sale	Dashboard	See and lookup for the relevant management statistics with the relevant links
7	Guest	User's Registrations	Allow to register to access a course with a specific price package
8	Guest	Blogs List	List of shared posts
9	Guest	Post Details	Allows to access and view post
10	Guest	View Course List	List of courses
11	Expert	Subject Details	Allows to access and prepare the subject information
12	Expert	Lesson Details	Shows the list of lessons for a selected package
13	Expert	Subject List	See the existing course list and see all the courses while the expert can only see his assigned courses
14	Customer	Enroll course	Allow user to enroll selected course

15	Customer	Lesson View	Access the course lessons for his/her studying
16	Customer	View Quiz List	Allow user to view list of quizzes
17	Customer	Quiz Handle	Browse and answer the quiz questions
18	Customer	My Registrations	View his/her submitted course registrations
19	Customer	My courses	View his/her access-allowed courses
20	Public	View Courses List	List of the active courses
21	Public	View Course Details	Details of the selected course
22	Public	Blogs List	List of shared posts
23	Public	Blog Details	Detail of the shared post
24	Sale	View Registration List	List of the registration
25	Sale	Manage Registrations	Edit, delete, update user's registrations

5. Assumptions & Dependencies

AS-1: The interface system clearly displays new courses easy to learn for new customers to quickly register for courses.

AS-2: The system to register for a new account is quick and easy, detailed information will be required to complete at the end of the course to issue a certificate.

AS-3: Experts will update new courses according to the needs of the market, add the necessary lessons to the course, and update the system on a quarterly basis.

AS-4: Marketers must deal with customer complaints and support requests within 30 minutes of the request being submitted to the system.

AS-5: Admin will monitor the list of visitors, and request them on the system to evaluate and manage new updates of experts in each cycle.

AS-6: Daily sales will check the information of new users registered in the system to prevent negative behaviours such as cheating on the learning test.

6. Limitations and Exclusions

- Users expect after each course to be able to have an online certificate so they can see their results
- Users expect after each lesson there is a discussion between learners to gain a deeper understanding or have questions about the lesson.
- Courses can have a star rating so that those who experience or want to participate can rate them directly.

7. Business Rules

ID	Type of Rule	Rule Definition	Static or Dynamic	Source
BR-01	Constraints	No cheat, No copy, No paste from outsourcing	Static	Course Policy
BR-02	Constraints	Grade must be greater than or equal to 80% to pass the quiz	Dynamic	Course Manager
BR-03	Constraints	Only admin can create, edit and delete the course	Static	Course Policy
BR-04	Constraints	Only admin and marketing can edit the menu (blogs posts, sliders)	Static	Course Policy
BR-05	Constraint	Paid courses must be paid for by using the same payment method.	Dynamic	Course Manager
BR-06	Constraint	Only regular customers can register for payroll deduction for any course purchase.	Static	Corporate Accounting Manager
BR-07	Constraint	Only admin can view users profile list	Static	Course Policy

II. Use Case Specifications

1. Common Feature

1.1 User Login

ID and Name:	UC-01 User Login		
Created By:	ThuyTTTHE153005	Date Created:	04/06/2022
Primary Actor:	Customer, Marketing, Sale, Expert, Admin	Secondary Actors:	Google
Description:	Allows a user (Customer, Marketing, Sale, Expert, Admin) to be able to login in the software when he/she has a registered account to give him/her access to the corresponding authorized features.		
Trigger:	Click the button "Account" in the home page		
Preconditions:	PRE-1. Have a registered account		
Postconditions:	POST-1. Redirect to the corresponding home page POST-2 Display message in login page if login failed		
Normal Flow:	1.0 Login successful by entering email & password 1. User asks to login (User clicks the "Account" button in the home page or enters the URL directly in the address bar). 2. OLS displays Login Screen with the following fields: email, password, login and continue with Google button, register, forget password. 3. User enter email & password into email & password fields then click on the Login button. 4. OLS authenticates the entered email & password then displaying home page.		

Alternative Flows:	<p>1.1 Login successful by Google account</p> <ol style="list-style-type: none"> 1. User asks to login (User clicks the "Account" button in the home page or enters the URL directly in the address bar). 2. OLS displays Login Screen with the following fields: email, password, login and continue with Google button, register, forget password. 3. User clicks on "Continue with Google" button then choosing email and entering password. 4. OLS authenticates the chosen Google account then displaying home page. <p>1.2 Login failed by entering email & password</p> <ol style="list-style-type: none"> 1. User asks to login (User clicks the "Account" button in the home page or enters the URL directly in the address bar). 2. OLS displays Login Screen with the following fields: email, password, login and continue with Google button, register, forget password. 3. User enter email & password into email & password fields then click on the Login button. 4. OLS authenticates the entered email & password then displaying the message "Email or password is invalid!" on the Login Screen. <p>1.3 Login failed by Google account</p> <ol style="list-style-type: none"> 1. User asks to login (User clicks the "Account" button in the home page or enters the URL directly in the address bar). 2. OLS displays Login Screen with the following fields: email, password, login and continue with Google button, register, forget password. 3. User clicks on "Continue with Google" button then choosing email and entering password. 4. OLS authenticates the chosen Google account then displaying the message "Account is invalid!" on the Login Screen. <p>1.4 Forget password</p> <ol style="list-style-type: none"> 1. User asks to login (User clicks the "Account" button in the home page or enters the URL directly in the address bar). 2. OLS displays Login Screen with the following fields: email, password, login and continue with Google button, register, forget password. 3. User clicks on "Forget password" button then entering email 4. OLS send a new password to entered email. 5. Return to step 1 of normal flow.
Exceptions:	None
Priority:	High

Frequency of Use:	Approximately 100 users, average of one usage per day. Peak usage load for this use case is between 8:30 P.M. and 10:00 P.M. local time.
Business Rules:	None
Other Information:	<ol style="list-style-type: none"> 1. User can log out at any time after login. 2. User can change password after login
Assumptions:	Assume that 50% of Customers will be logged in at least 5 days per week

1.2 User Profile

ID and Name:	UC-02 User Profile		
Created By:	ThuyTTTHE153005	Date Created:	04/06/2022
Primary Actor:	Customer, Marketing, Sale, Expert, Admin	Secondary Actors:	None
Description:	Allows a user (Customer, Marketing, Sale, Expert, Admin) view him/her profile and other's profile (Admin).		
Trigger:	Click the button "Profile" in the home page		
Preconditions:	PRE-1. Logged in to the system		
Postconditions:	POST-1. Redirect to the corresponding View Profile Screen POST-2. Screen display message "Access denied"		

Normal Flow:	<p>1.0 View own profile</p> <ol style="list-style-type: none"> 1. User (Customer, Marketing, Sale, Expert, Admin) asks to access to View Profile Screen (User clicks the "View Profile" button in the home page or enters the URL directly in the address bar). 2. OLS displays View Profile Screen.
Alternative Flows:	<p>1.1 View other profile (With admin)</p> <ol style="list-style-type: none"> 1. Admin asks to access to View Users Profile Screen (Admin clicks the "Setting" button in the home page or enters the URL directly in the address bar). 2. OLS displays Users Profile Screen
Exceptions:	<ol style="list-style-type: none"> 1. When user who are not admin unauthorized access to the View User Profile Screen via enter the links directly, screen will display message "Access Denied"
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	BR-07
Other Information:	None
Assumptions:	None

2. Public Feature

2.1 Home Page

ID and Name:	UC-03 Home Page		
Created By:	NamNHHE151296	Date Created:	04/06/2022
Primary Actor:	Guests	Secondary Actors:	Online Learning System
Description:	Allows guests to view the home page(hot post, more subjects,...).		
Trigger:	Click the Logo in the head of home page		
Preconditions:	PRE-1.Guests who visits OLS		
Postconditions:	POST-1. Redirect to the corresponding home page		
Normal Flow:	1.0 View home page 1.Guests access the view home by clicking the Logo in the head of page or entering the URL directly in the address bar. 2. OLS displays a home page that includes more info.		
Alternative Flows:	1.1 View other home (With customer) 1. Guest requests to User Register (clicks the "Account" button in the home page or enters the URL directly in the address bar). 2. Then go to login to access the home with the customer. 3. OLS displays home page with customer		
Exceptions:	If the user uses the search bar with the option to be empty, the system will automatically display all the courses.		
Priority:	High		

Frequency of Use:	Approximately 300 users, average of one usage per day. Peak usage load for this use case is between 9:00 A.M. and 10:00 A.M. local time.
Business Rules:	None
Other Information:	None
Assumptions:	Assuming > 50% of learners click to post to view, OLS will push it to screen with “hot post” for customer view.

2.2 Course Register

ID and Name:	UC-04 Course Register		
Created By:	NamNHHE151296	Date Created:	4/6/2022
Primary Actor:	Guest or Customer	Secondary Actors:	Online Learning System
Description:	The customer or guest can register the courses if they register an account before doing this.		
Trigger:	Click enrol button in the course detail to register the course		
Preconditions:	<p>PRE-1. The guest is registered into OLS.</p> <p>PRE-2. The guest is logged into OLS.</p> <p>PRE-3. The guest now is customer who can registered for course payments by payroll deduction.</p>		

Postconditions:	<p>POST-1. Course registrations which customer register are stored in OLS with a status of “Accepted”.</p> <p>POST-2. And now the customer can learn and explore your course. .</p>
Normal Flow:	<p>1.0 Register for a course</p> <ol style="list-style-type: none"> 1. The customer requested to see the list of courses through filter. 2. OLS display available courses. 3. Customer selects one or more courses from list. 4. The system will display the course registration form and pay for paid course.
Alternative Flows:	<p>1.1 Register for many courses</p> <ol style="list-style-type: none"> 1. Customers can register for many courses at the same time. 2. Return to step 1 of normal flow.
Exceptions:	<p>1.0 E1 Registration date</p> <ol style="list-style-type: none"> 1. OLS notifies learners that they have successfully registered via email. 2. OLS always notifies you of your progress and reminds you important info.
Priority:	High
Frequency of Use:	Approximately 300 users, average of one usage per day. Peak usage load for this use case is between 9:00 A.M. and 10:00 A.M. local time.

Business Rules:	BR-01, BR-02, BR-05, BR-06
Other Information:	Learners can cancel the course registration process during learning but enough half of course time..
Assumptions:	Assuming 60% of learners register the same course, OLS will push it to screen with “hot course” for customer choose.

3. Course Content Feature

3.1 Course List

ID and Name:	UC-20 Course List		
Created By:	Chieundhe151294	Date Created:	4/6/2022
Primary Actor:	Guest or Customer	Secondary Actors:	Online Learning System
Description:	An online learning system allows guests or customers to view courses. By selecting the attribute filters, they can choose the courses that are most suitable for them.		
Trigger:	A guest or customer indicates that he wants to choose a suitable course.		
Preconditions:	PRE-1. Guest or Customer visited OLS.		

Postconditions:	<p>POST-1. Users choose a reasonable filter for optimal choices.</p> <p>POST-2. The results from the system reflect exactly what the user needs.</p>
Normal Flow:	<p>1.0 Choose a suitable course</p> <ol style="list-style-type: none"> 1. The user clicks to view the menu for a list of courses. 2. OLS displays the menu of available course items. 3. The user selects one or more filters to be able to narrow down the search results. 4. OLS displays the results based on chosen filters. 5. The user can also search for more specific courses by the course name. 6. OLS will return courses that include all the selected filters. 7. Pagination makes it possible for users to see the full results with the best experience. 8. OLS will also automatically save the filters with the same results that the user has searched for.
Alternative Flows:	None
Exceptions:	<p>If the user uses the search bar with the option to be empty, the system will automatically display all the courses.</p> <p>The clear all button will clear all previous user selections.</p>
Priority:	High
Frequency of Use:	Approximately 300 users, an average of one usage per day. The peak usage load for this use case is between 8:00 P.M. and 11:00 P.M. local time.
Business Rules:	None
Other Information:	<ol style="list-style-type: none"> 1. The user can have the function to remove each filter from the selected item.

Assumptions:	None
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3.2 Course Details

ID and Name:	UC-20 Course Details		
Created By:	Chieundhe151294	Date Created:	4/6/2022
Primary Actor:	Guest or Customer	Secondary Actors:	Online Learning System
Description:	An online learning system allows guests or customers to view the course details. When we click on a specific course, we will go to the introductory page of that course.		
Trigger:	Users want to see specific details about a course they are interested in.		
Preconditions:	PRE-1. Guest or Customer visited OLS. PRE-2. Users need to click on the link of course they want to see the details		
Postconditions:	POST-1. Users can join the course right after registering an account. POST-2. The results from the system reflect exactly what the user needs.		
Normal Flow:	1.0 View a course details <ol style="list-style-type: none"> 1. The user clicks on the link to the details of the course they want to see. 2. OLS displays the course details content of a specific course. 3. Users can view the course name, its description, the instructors, the enrol button, along with the sections the course teaches. 		

Alternative Flows:	None
Exceptions:	<ol style="list-style-type: none"> 1. If the user presses enrol while not logged in they will have to come back to log in if they have an account or register if they don't. 2. Once they are logged in, if they click on enrol, the registration panel will appear.
Priority:	High
Frequency of Use:	Approximately 300 users, an average of one usage per day. The peak usage load for this use case is between 8:00 P.M. and 11:00 P.M. local time.
Business Rules:	None
Other Information:	<ol style="list-style-type: none"> 1. The user can have the function to return each course list. 2. Course details give users the most overview of what they will learn.
Assumptions:	None

4. Customer Feature

4.1 My Registrations

ID and Name:	UC-18 My Registrations		
Created By:	ThanhPNHE151285	Date Created:	4/6/2022

Primary Actor:	Guest or Customer	Secondary Actors:	Online Learning System
Description:	The customer can view his/her submitted course registrations		
Trigger:	A guest or customer indicates that he wants to choose a suitable course		
Preconditions:	PRE-1. The customer is logged into OLS . PRE-2. The customer is registered for course payments by payroll deduction.		
Postconditions:	POST-1. Course registrations are stored in OLS with a status of "Accepted". POST-2. Courses must be constantly updated to see reviews and feedback from learners.		
Normal Flow:	1.0 Register for a course 1. The customer requested to see the list of courses through filter. 2. OLS display available course. 3. Customer selects one or more courses from list. 4. The system will display the course registration form. 5. Learners will have to log in and pay for paid courses. 6. The system will confirm and notify the course registration status. 7. The system will resend the course registration content to the learner's email.		
Alternative Flows:	1.1 Register for many different courses 1. Patron requests a specified number of identical meals. 2. Return to step 1 of normal flow.		

Exceptions:	<p>1.0 E1 Registration date is today and current time after registration today.</p> <p>1. OLS notifies learners that they have successfully registered via email.</p> <p>2 a. If the student cancels during the course of the study, OLS will send an email warning of expulsion and block re-enrollment.</p> <p>2b. If learners achieve achievements in the course, OLS will send a congratulatory email.</p> <p>1.0 E2 There is not enough money in the account to learn the payment course.</p> <p>1. OLS notifies learners of the amount in their account when there are insufficient payment courses.</p> <p>2 a. If the learner doesn't want to pay any more, then return to step 1 of normal flow</p> <p>2b. If the learner cancels the subscription, OLS will terminate the paying learning unit.</p>
Priority:	High
Frequency of Use:	Approximately 300 users, average of one usage per day. Peak usage load for this use case is between 9:00 A.M. and 10:00 A.M. local time.
Business Rules:	BR-01, BR-05, BR-06
Other Information:	<p>1. Learners can cancel the course registration process at any time before confirmation.</p> <p>2. Learners can view all course payments within six months.</p>
Assumptions:	Assuming 60% of learners sign up for this course a lot, the course will be featured on the front pages of OLS

4.2 My Courses

ID and Name:	UC-19 My Courses		
Created By:	ThanhPNHE151285	Date Created:	4/6/2022
Primary Actor:	Customer	Secondary Actors:	Online Learning System
Description:	The customer to view his/her access-allowed courses		
Trigger:	None		
Preconditions:	PRE-1. The customer is logged into OLS .		
Postconditions:	POST-1. Customers can view their current courses. POST-2. Courses will show progress details to learners what progress they are on.		
Normal Flow:	1.0 View all the courses you are studying through filters, pagination, ...		
Alternative Flows:	none		
Exceptions:	1.0 E1 Learners will see all their courses in progress such as: not yet started, studying (how many %)		
Priority:	Medium		
Frequency of Use:	Approximately 200 users, average of one usage per day. Peak usage load for this use case is between 8:00 P.M. and 11:00 P.M. local time.		

Business Rules:	None
Other Information:	None
Assumptions:	Assuming 60% of learners sign up for this course a lot, the course will be featured on the front pages of OLS

5. Marketing Feature

5.1 Post List

ID and Name:	UC-08 Post List		
Created By:	Daotvhe151293	Date Created:	4/6/2022
Primary Actor:	Marketing	Secondary Actors:	Online Learning System
Description:	The e-learning system allows marketing list, filter, search, show, hide, view, add new or edit existing post		
Trigger:	Marketing indicates that he wants to edit, update the post list regularly		
Preconditions:	PRE-1. Marketing has logged into the OLS		

Postconditions:	POST-1.Marketing offers the hottest, useful posts for users to increase their attention to the system
Normal Flow:	1.0 Select a post you want to change 1. User clicks to see the list of posts menu. 2. OLS displays a menu of available post items. 3. Users choose a filter by blog name to be able to narrow down the search results. 4. OLS displays results based on selected filters. 5. Users can also search for more specific posts by post name. 6. OLS will return posts that include all the selected filters. 7. Users can add, edit, view, hide, show existing posts 8. Pagination makes it possible for users to see all the results with the best experience. 9. OLS will also automatically save filters with the same results that the user searched for.
Alternative Flows:	None
Exceptions:	<p>If the user uses the search bar with the option left blank, the system will automatically display all the posts.</p> <p>If the user selects postlist, the system will redirect the list from filtering by blog name to displaying the entire list</p>
Priority:	High
Frequency of Use:	Quite often based on information collected customer needs and tastes
Business Rules:	None
Other Information:	None

Assumptions:	None
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5.2 Post Details

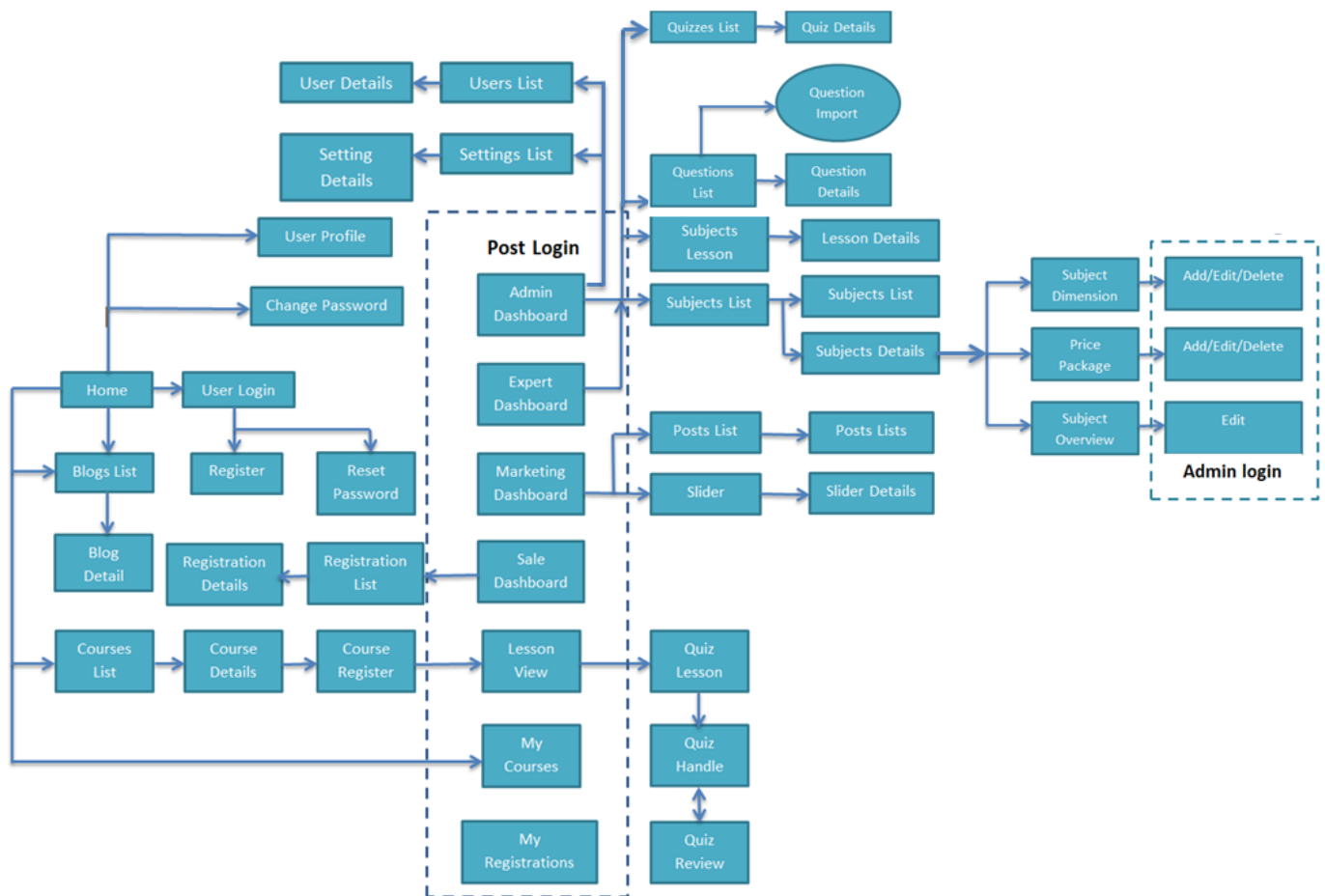
ID and Name:	UC-09 Post Details		
Created By:	Daotvhe151293	Date Created:	4/6/2022
Primary Actor:	Marketing	Secondary Actors:	Online Learning System
Description:	An online learning system allows marketing view & edit the details of a specific post. When we click on a specific post, user will go to the introductory page of that post.		
Trigger:	Marketing wants to see specifics about a course they want to update.		
Preconditions:	PRE-1. Marketing has logged into the OLS PRE-2. Users need to click on the link of post they want to see the details		
Postconditions:	POST-1. Users can edit any post they want		
Normal Flow:	1.0 Edit post details <ol style="list-style-type: none"> 1. The user clicks the link to the details of the post they want to see. 2. OLS displays the detailed content of a specific post. The user can edit the post name, its description, the instructor along with the sections the post contains.		

Alternative Flows:	None
Exceptions:	3. Marketing must log in to the system to be able to view the post list and post details with the interface and as an administrator
Priority:	High
Frequency of Use:	Quite often based on information collected customer needs and tastes
Business Rules:	None
Other Information:	None
Assumptions:	None

III. Functional Requirements

1. System Functional Overview

1.1 Screens Flow



1.2 Screen Descriptions

#	Feature	Screen	Description
01	User Login	Common	This is a pop-up screen which allows the user to enter email & password to login; on this page, there are also options for user to register new information or reset the password for the case s/he forget it
02	User Register	Common	This is a pop-up screen which allows the user to register himself/herself to the system by inputting following information: full name, gender, email, mobile; User then need to verify by clicking the link sent via email to him/her before being able to access the system
03	Reset Password	Common	The user input his/her email to receive the reset password link. This link is sent to the user's email for his/her password resetting. - On clicking the link, the user is redirected to the password resetting page in which s/he input new password (twice) for the system access
04	User Authorization	Common	Implementation of authorization mechanism in the

			system, including the specify the role of logged-in user, his/her authorised page links (building the displayed menu items (in the front end) and preventing unauthorised access via enter the links directly)
05	User Profile	Common	This is a screen which allows the user to edit his/her profile information, including the registered ones & the avatar image. Please note that s/he is not allowed to change the email.
06	Change Password	Common	This is a pop-up screen which allows the user to change his/her password by inputting his current password as well as new password (twice)
07	Home	Public	Show sliders, hot posts, featured subjects + the sider with the latest posts, static contacts/links - Shown slider information includes its image and title; the user is redirected to the slider's backlink on his/her clicking - Shown post information includes its thumbnail, title, post date; the user is redirected to the post's details on his/her clicking - Shown subject information includes its thumbnail, title, tag line; the user is redirected to the subject's details on his/her clicking
08	Blogs List	Public	Show the posts pagination (sorted by updated date) + the sider with the post search box, posts categories, latest posts, static contacts/links; Shown post information includes its thumbnail, title, category, brief-info; the user is redirected to the post's details on his/her clicking
09	Blog Details	Public	Show post details (including title, author, updated date, category, and post details) + the sider with the post search box, posts categories, latest posts, static contacts/links
10	Courses List	Public	Show the subjects paginated (sorted by updated date, paginated) + the sider with the subject search box, subject categories, featured subjects, and static contacts/links; - Shown subject information includes its thumbnail, title, tag line, lowest price package option (list price, sale price); - The user is redirected to the subject's details on his/her clicking on the subject - The user can choose to register to the subject by clicking the Register button
11	Course Details	Public	Show subject details (including title, tag line, brief info, lowest price package option (original price, sale price), product description, and a Register button) + the sider with the subject search box, subject categories, featured subjects, static

			contacts/links
12	Course Register	Public	This is a pop-up screen which allows the user to register to access a subject. On this screen, the user needs to choose an appropriate subject price package & input his/her information (full name, email, mobile, gender); A logged in user doesn't have to input those contact information
13	My Registrations	Customer	Show the list of user's registration + the sider with the subject search box, subject categories, static contacts/links - Each registration includes the following information: id, subject, registration time, package, total cost, status, valid from, valid to; - If the registration is still in the submitted status, the users can choose to cancel it or come back to the Course Register pop-up to edit it)
14	My Courses	Customer	for the customer to view his/her access-allowed courses
15	Lesson View	Customer	allow the customer to access the course lessons for his/her studying
16	Quiz Lesson	Customer	This allows the user to take the topic quiz or view the quiz results
17	Quiz Handle	Learning	This screen allows the user to browse and answer the quiz questions
18	Quiz Review	Learning	This screen allows the user to review the details of the quiz that s/he has just taken
19	Dashboard	Marketing	Show statistics of new subjects (new, all), new registrations (success, cancel, submitted), revenues (total, by subject categories), customers (newly registered, newly bought), and the trend of order counts (success, all) by day for the last 7 days (the start date & end date can be adjustable)
20	Post Details	Marketing	Show detailed post information (thumbnail, category, title, brief information, description, flag to turn the featurning on/off), from that allow the user to input, view or edit them
21	Sliders List	Marketing	Show the paginated list of sliders (including sliders' id, title, image, backlink, status) - The user can filter the sliders by the status + search by title or backlink - For each slider, the user can choose to hide, show, edit it
22	Slider Details	Marketing	Show detailed slider information (image, title, backlink, status, notes)
23	Subjects List	Course Content	Show the list of course paginated. The shown

			<p>information for each subject include the id, name, category, number of lessons, owner, and status</p> <p>The user can:</p> <ul style="list-style-type: none"> - Filter the list by course category & status - Search the course by the name - Choose to add a new course (redirect the user to the New Subject page for that) - Edit course information (linked to the Subject Details for that)
24	New Subject	Course Content	The screen is shown with below information for the user to input new course information: name, thumbnail image, category, featured flag, owner, status, and description
25	Subject Details	Course Content	This page allows the admin and the assigned expert to access and prepare the subject information, including the course general information, the dimension, and price package. Only the admin can change the status to Published or Unpublished + add/edit the price packages
26	Subject Dimension	Course Content	This page allows the admin/expert to input or edit subject dimension information, including the following detailed information: type, name, description
27	Price Package	Course Content	This page allows the admin to input or edit subject dimension information, including the following detailed information: name, access duration (in months), status (read-only), list price, sale price, description. The expert can only view the information.
28	Subject Lessons	Course Content	This page shows the list of lessons for a selected package. On this page, the admin/expert is allowed to activate/deactivate, or call the Lesson Details for adding new or editing existing lesson
29	Lesson Details	Course Content	This page allows the admin/expert to input/edit the lesson information
30	Questions List	Test Content	<p>The existing questions list for a specific subject/course are shown here (paginated). On this screen, the admin/expert is allowed to filter the questions by the subject, lesson, dimension(s), level, status + search the questions by content</p> <p>The information below is shown for each question in the list: id, content, subject /dimension /lesson, level, status + options to show, hide, edit it; The page also allows the user to import the question (redirect him/her to the Questions Import pop-up screen).</p>
31	Question Details	Test Content	This page allows the admin/expert to input or edit questions information, including following

			information: subject, dimension(s), lesson, status, content, media (image, audio, video – with preview option), answer options (with the key marked + ability to add, edit, delete), and explanation
32	Question Import	Test Content	This is a pop-up screen which allows the user to choose an import file and then import the questions in the file into the questions bank. The screen also provides the option for the user to download the sample import template.
33	Quizzes List	Test Content	<p>The existing quizzes are shown in this page pagination:</p> <ul style="list-style-type: none"> - The user can filter the list by subject, quiz types + search quizzes by the name - Each quiz includes following information: id, name, subject, level, # question, duration, pass rate, and the quiz type. <p>From this page, the user has the option to call the Quiz Details page for adding new or editing existing quizzes + delete the quiz. Please note that the quiz can be edited only when there is not any test taken yet.</p>
34	Quiz Details	Test Content	This page allows the user to input or edit quiz information
35	Registrations List	Sale	<p>Show the list of users' registrations</p> <ul style="list-style-type: none"> - Each registration includes the following information: id, email, registration time, subject, package, total cost, status, valid from, valid to, last updated by; - The user can filter the list by subject (searchable), registration time (from, to), status + can search by the email - The list can be sorted by id, email, registration time, subject, package, total cost, status, valid from, valid to - From the list, the user can choose to add new or edit an existing registration via the Registration Details screen as below

36	Registration Details	Sale	Show detailed registration information (subject, package with list price/sale price, full name, gender, email, mobile), registration time, sale, status, valid from, valid to, notes) from that for the user to add new or change the status of a registration with relevant notes (if a registration is created by the user, then s/he can edit other registration information). On changing a registration status to Paid, if the user with relevant registered email does not exist, the system would create one and send back to the user the login information (link, email, pass) along with the other notification notes
37	Users List	Admin	Show the paginated list of registered users (include users' id, full name, gender, email, mobile, role, status): <ul style="list-style-type: none"> - The admin can filter the users by gender, role, status - Allow the admin to search users by full name, email, mobile - The list is sortable by id, fullname, gender, email, mobile, role, status - From each user, the admin can choose to view or edit it - The page also has the button/link that allows the admin to add new user
38	User Details	Admin	Show detailed user information (avatar, full name, gender, email, mobile, role, address, status), from that allow the user to add new, view or edit user information <ul style="list-style-type: none"> - After adding, the new generated login password would be emailed to the new user - The admin can only edit/update the role and status of the user
39	Settings List	Admin	Show the paginated list of settings (include settings' id, type, value, order, status): <ul style="list-style-type: none"> - The admin can filter the setting by type, status - Allow the admin to search settings by value - The list is sortable by id, type, value, order, status - From each setting, the admin can choose to view, activate/deactivate, or edit it - The page also has the button/link that allows the admin to add new setting
40	Setting Details	Admin	Show detailed user information (type, value, order, description, status), from that allow the user to add new, view or edit setting information

1.3 Screen Authorization

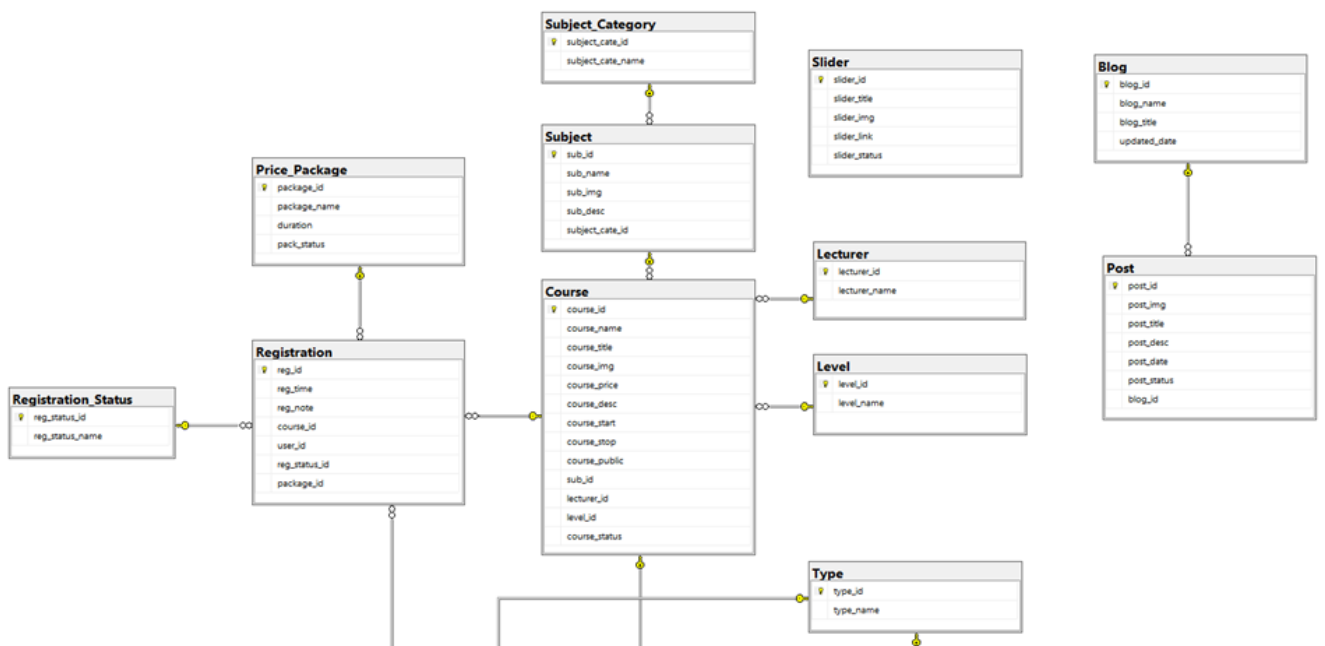
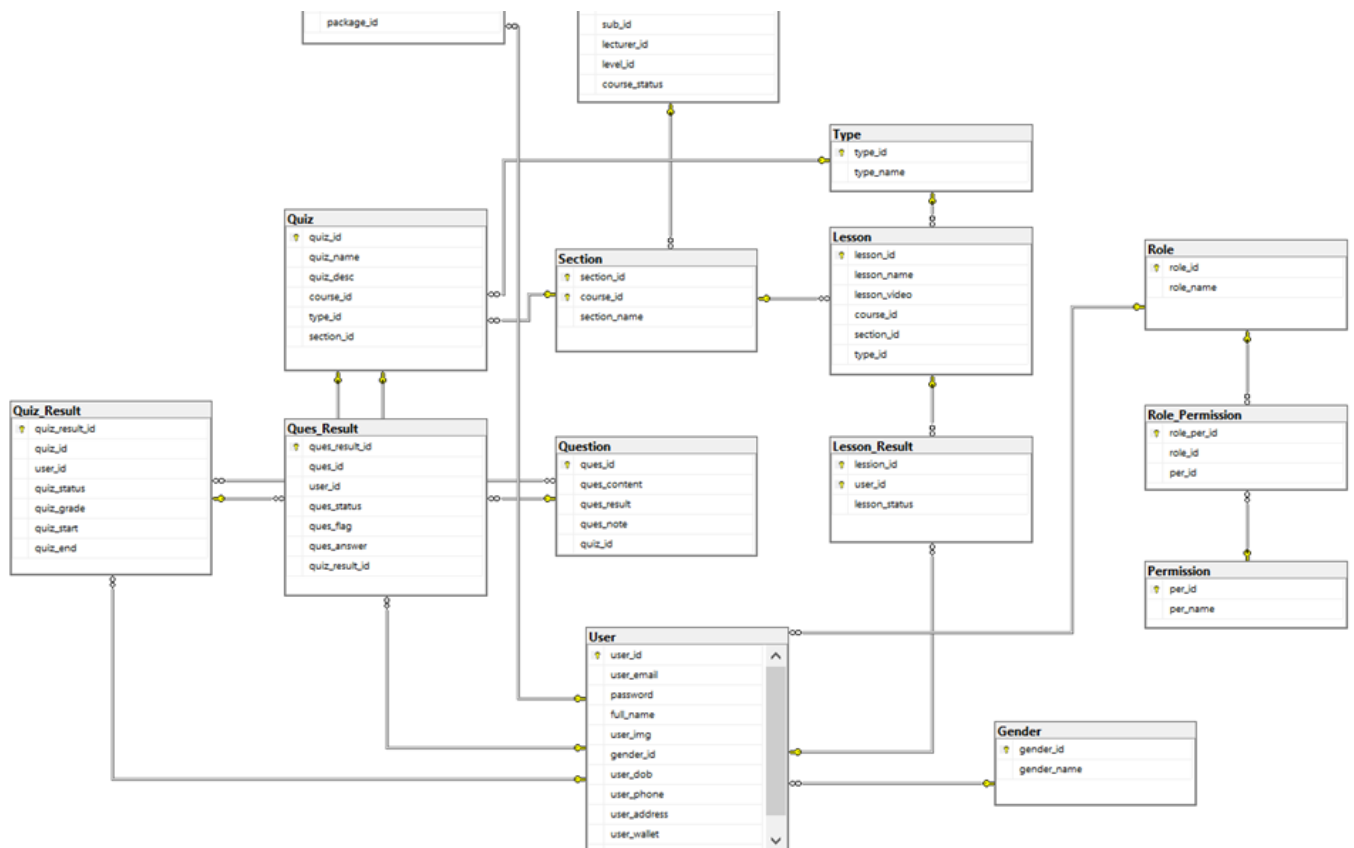
Screen	Guest	Customer	Marketing	Sale	Expert	Admin
User Login		x	x	x	x	x
User Register		x	x	x	x	
Reset Password		x	x	x	x	
User Authorization	x	x	x	x	x	x
User Profile		x	x	x	x	x
Change Password		x	x	x	x	x
Home	x	x	x	x	x	x
Blogs List	x	x	x	x	x	x
Blog Details	x	x	x	x	x	x
Courses List	x	x	x	x	x	x
Course Details	x	x	x	x	x	x
Course Register		x				
My Registrations		x				
My Courses		x				
Lesson View		x				
Quiz Lesson		x				
Quiz Handle		x				
Quiz Review		x				
Dashboard			x	x		x
Post Details			x			
Sliders List	x	x	x	x	x	x
Slider Details	x	x	x	x	x	x
Subjects List	x	x	x	x	x	x
New Subject		x				
Subject Details	x	x	x	x	x	x
Subject Dimension					x	x

Price Package	x	x	x	x	x	x
Subject Lessons		x			x	x
Lesson Details		x			x	x
Questions List		x			x	x
Question Details		x			x	x
Question Import					x	x
Quizzes List		x			x	x
Quiz Details		x			x	x
Registrations List			x	x	x	x
Registration Details		x	x	x	x	x
Users List			x	x	x	x
User Details	x	x	x			x
Settings List			x			x
Setting Details			x			x

1.4 Non-Screen Functions

#	Feature	System Function	Description
1	Expert	Support Online	Gmail
2	Customer	Help	Gmail

1.5 Entity Relationship Diagram



No	Table	Description
01	<i>Blog</i>	- Primary keys: PK_Blog : <i>blog_id</i>
02	<i>Course</i>	- Primary keys: PK_Course : <i>course_id</i> - Foreign keys: <i>FK_Course_Lecturer: lecturer_id - lecturer_id (Lecturer)</i> <i>FK_Course_Level: level_id - level_id (Level)</i> <i>FK_Course_Subject: sub_id - sub_id (Subject)</i>
03	<i>Gender</i>	- Primary keys: PK_Gender : <i>gender_id</i>
04	<i>Lecturer</i>	- Primary keys: PK_Lecturer : <i>lecturer_id</i>
05	<i>Lesson</i>	- Primary keys: PK_Lesson : <i>lesson_id</i> - Foreign keys: <i>FK_Lesson_Section: section_id - section_id (Section)</i> <i>FK_Lesson_Type: type_id - type_id (Type)</i>
06	<i>Lesson_Result</i>	- Primary keys: PK_Lesson_Result: <i>lesson_id,user_id</i> - Foreign keys: <i>FK_Lesson_Result_Lesson: lesson_id - lesson_id (Lesson)</i> <i>FK_Lesson_Result_User: user_id - user_id (User)</i>
07	<i>Level</i>	- Primary keys: PK_Level : <i>level_id</i>
08	<i>Permission</i>	- Primary keys: PK_Permission: <i>per_id</i>
09	<i>Post</i>	- Primary keys: PK_Post: <i>post_id</i>

		<p>- Foreign keys:</p> <p><i>FK_Post_Blog : blog_id - blog_id (Blog)</i></p>
10	<i>Price_Package</i>	<p>- Primary keys: <i>PK_Price_Package</i></p>
11	<i>Question_Result</i>	<p>- Primary keys: <i>PK_Question_Result</i></p> <p>- Foreign keys:</p> <p><i>FK_Ques_Result_Question: ques_id - ques_id (Question)</i></p> <p><i>FK_Ques_Result_Quiz_Result: quiz_result_id - quiz_result_id (Quiz_Result)</i></p> <p><i>FK_Ques_Result_User: user_id - user_id (User)</i></p>
12	<i>Question</i>	<p>- Primary keys: <i>PK_Question: ques_id</i></p> <p>- Foreign keys:</p> <p><i>FK_Question_Quiz: quiz_id - quiz_id (Quiz)</i></p>
13	<i>Quiz</i>	<p>- Primary keys: <i>PK_Quiz: quiz_id</i></p> <p>- Foreign keys:</p> <p><i>FK_Quiz_Section: section_id - section_id (Section)</i></p> <p><i>FK_Quiz_Type: type_id - typr_id (Type)</i></p>
14	<i>Quiz_Result</i>	<p>- Primary keys: <i>Quiz_Result: quiz_result_id</i></p> <p>- Foreign keys:</p> <p><i>FK_Quiz_Result_Quiz: quiz_id- quiz_id (Quiz)</i></p> <p><i>FK_Quiz_Result_User: user_id- user_id (User)</i></p>
15	<i>Registration</i>	<p>- Primary keys: <i>PK_Registration : registration_id</i></p> <p>- Foreign keys:</p> <p><i>FK_Registration_Course: course_id - course_id (Course)</i></p>

		<p><i>FK_Registration_Price_Package: package_id - package_id (Package)</i></p> <p><i>FK_Registration_Registration_Status: reg_status_id - reg_status_id(Registration_Status)</i></p> <p><i>FK_Registration_User: user_id - user_id(User)</i></p>
16	Registration_Status	- Primary keys: PK_Registration: reg_status_id
17	Role	- Primary keys:PK_Role: role_id
18	Role_Permission	<p>- Primary keys:PK_Role_Permission: role_permission_id</p> <p>- Foreign keys:</p> <p><i>FK_Role_Permission_Permission: per_id - per_id (Permission)</i></p> <p><i>FK_Role_Permission_Role: role_id - role_id (Role)</i></p>
19	Section	<p>- Primary keys:PK_Section: section_id</p> <p>- Foreign keys:</p> <p><i>FK_Section_Course: course_id - course_id(Course)</i></p>
20	Slider	- Primary keys:PK_Slider: slider_id
21	Subject	<p>- Primary keys:PK_Subject: sub_id</p> <p>- Foreign key:</p> <p><i>FK_Subject_Subject_Category: subject_cate_id - subject_cate_id(Subject_category)</i></p>
22	Type	- Primary keys:PK_Type: type_id
23	User	<p>- Primary keys:PK_User: user_id</p> <p>- Foreign keys: gender_id, role_id</p> <p><i>FK_User_Gender: gender_id - gender_id(Gender)</i></p>

24	Subject_category	- Primary key: subject_cate_id
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2. Common Feature

2.1 Login

- Function trigger: Click the button "Account" in the home page or enter the URL directly in the address bar.
- Function description:
 - Actor/Role: Customer, Marketing, Sale, Expert, Admin.
 - Purpose: Allows a user (Customer, Marketing, Sale, Expert, Admin) to be able to login in the software when he/she has a registered account to give him/her access to the corresponding authorized features.
 - Data processing: The email is compared with the data in the database. The password will be encrypted and then compared with the data in the database.
- Screen layout:

- Function detail: This is a screen which allows the user to enter email & password to login or login by google account; on this page, there are also options for user to register new account or reset the password for the case he/she forget it.

2.2 User profile

- Function trigger: Click the button "Profile" in the dropdown of home page or enter the URL directly in the address bar.
- Function description:
 - Actor/Role: Customer, Marketing, Sale, Expert, Admin

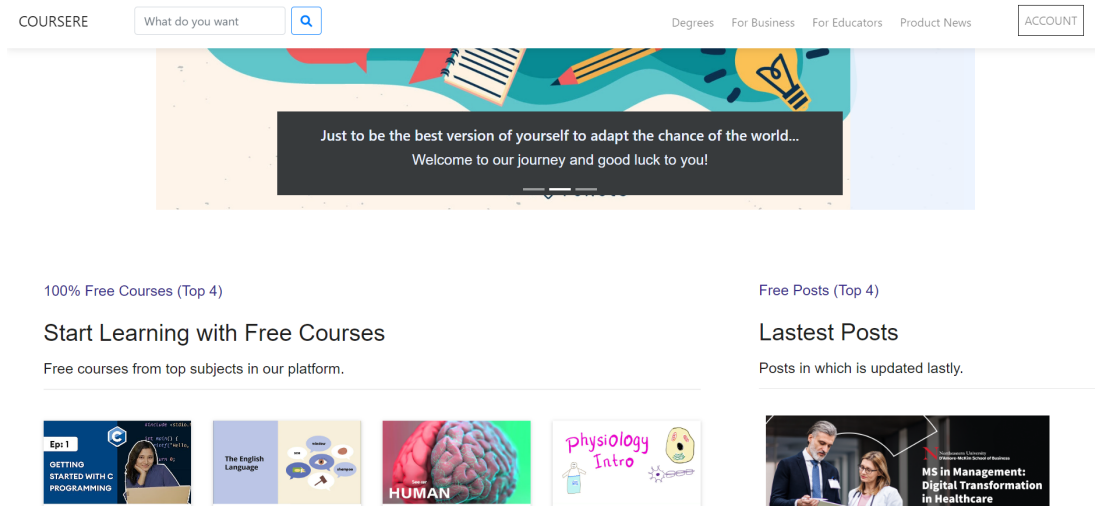
- Purpose: Allows a user (Customer, Marketing, Sale, Expert, Admin) view him/her profile.
 - Data processing: The data is loaded from the database and displayed on the screen.
- Screen layout:

- Function detail: This is a pop-up screen which allows the user to view her/him profile.

3. Public Feature

3.1. Home Page

- **Function trigger:** /home or Home (button)
- **Function description:** everyone can access , show sliders, hot posts, shown slider information includes its image and title, shown post information includes its thumbnail, title, post date, shown subject information includes its thumbnail, title, tag line.
- **Screen layout:**

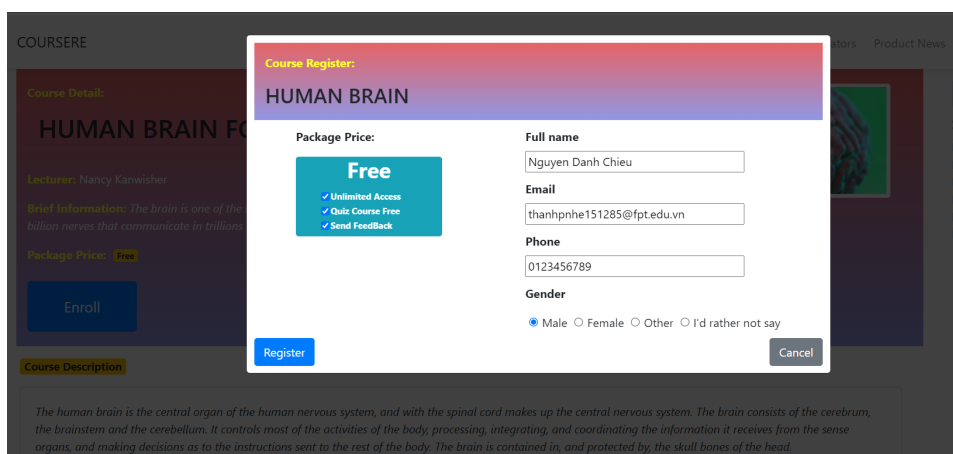


• **Function Details:**

- Show sliders, hot posts, featured subjects + the slider with the latest posts, static contacts/links
- Shown slider information includes its image and title; the user is redirected to the slider's backlink on his/her clicking
- Shown post information includes its thumbnail, title, post date; the user is redirected to the post's details on his/her clicking
- Shown subject information includes its thumbnail, title, tag line; the user is redirected to the subject's details on his/her clicking

3.2 Course Register

- **Function trigger:** Enroll (button, a popup screen)
- **Function description:** everyone can access, user can to choose appropriate subject price package & input his/her information (full name, email, mobile, gender)
- **Screen layout:**



Course Register:

DIGITAL MARKETING

Package Price:

- ☒ **Silver (64.0\$)**
 - ☒ 3 months Access
 - ☒ Quiz Course Free
 - ☒ Send FeedBack
- ☐ **Gold (96.0\$)**
 - ☒ 6 months Access
 - ☒ Quiz Course + Test Free
 - ☒ Send FeedBack
- ☐ **Diamond (128.0\$)**
 - ☒ Unlimited Access
 - ☒ Quiz Course + Test Free
 - ☒ Send FeedBack
 - ☒ Bonus enroll 1 course (-30\$)

Full name

Email

Phone

Gender
☒ Male ☐ Female ☐ Other ☐ I'd rather not say

Register **Cancel**

- **Function Details:** *this is a pop-up screen which allow the user to register for access a subject. On this screen, the user needs to choose appropriate subject price package & input his/her information (full name, email, mobile, gender); A logged in user doesn't have to input those contact information.*

4. Course Content Feature

4.1 Course List

- Function trigger: /courselist or Try all Courses button on home page
- Function description: All users can access this page. Everyone can view the courses and choose the appropriate courses.
- Screen layout:

localhost:8080/project/courselist

COURSEERE What do you want

Degrees For Business For Educators Product News ACCOUNT

COURSEERE > List of courses

List of courses

Filter By

Subject Level Lecturer Price Public Date

List of courses

Ep: 1

GETTING STARTED WITH C PROGRAMMING

Course title: C for Beginners

Tag Line: "Hello World. "

Free

Introduction to Digital Marketing

Course title: Digital Marketing for Beginners

Tag Line: "Think beyond the wave"

80.0 \$

The English Language

Course title: English for Beginners

Tag Line: "Hi!Hello! "

Free

Financial Markets

Course title: Financial Markets for Beginners

Tag Line: "Free enterprise with every issue "

100.0 \$

- Function Details: When accessing this page, data is loaded from a database including images and other attributes of a course. Filters and pagination help users get the best experience to find the right course. Filters are automatically saved for subsequent selections to narrow the scope.

4.1 Course Detail

- Function trigger: /coursedetail or Click to the course you want
- Function description: All users can access this page. All users can see the details of the course they clicked on.
- Screen layout:

COURSEERE Degrees For Business For Educators Product News ACCOUNT

Course Detail:

C FOR BEGINNERS

"Hello World."

Lecturer: Padma Manandhar

Brief Information: C is a general-purpose programming language that is extremely popular, simple, and flexible to use.

Package Price: Free

Enroll

Course Description

C is a procedural programming language. It was initially developed by Dennis Ritchie in the year 1972. It was mainly developed as a system programming language to write an operating system. The main features of the C language include low-level memory access, a simple set of keywords, and a clean style, these features make the C language suitable for system programs like an operating system or compiler development. Many later languages have borrowed syntax/features directly or indirectly from the C language. Like syntax of Java, PHP, JavaScript, and many other languages are mainly based on the C language. C++ is nearly a superset of C language (Few programs may compile in C, but not in C++).

Suggest Courses In The Same Subject

Subject...

Subject

- Information Technology
- Mathematics
- Musical Instrument
- Language
- Business
- Health

C for Beginners

- Brief Information
- Package Price
- Enroll
- Course Description
- Suggest Course

- Function Details: When accessing this page, the data of the selected course is uploaded from the database including photos, description, lecturer's name, and price along with navigation links to access related pages.

5. Customer Feature

5.1 My Registrations

- Function trigger:** *My Registration(button) or "/myregistration".*
- Function description:** *When the user(customer) logs in and clicks the enrol(button) to submit the course. Then the user clicks the My Registration(button) to view your registration which includes more information for user.*
- Screen layout:**

Subject Category:
☐ Science
☐ Society
☐ Economics
☐ Art

My registration

ID	Course	Subject	Registration time	Package	Total cost	Status	Valid from	Valid to	Action
1	Financial Markets	Business	2022-06-16	Silver	80.0	Submitted	2022-06-16	2022-09-16	Cancel

COURSERE

Get the in-demand skills you need to grow professionally. Choose any SkillSet that aligns with your learning goals.




SUBJECT



Information Technology
Mathematics
Musical Instrument
Language
Business
Health

BLOG

Degrees
For Business
For Educators
Product News

CONTACT

- Function Details:**

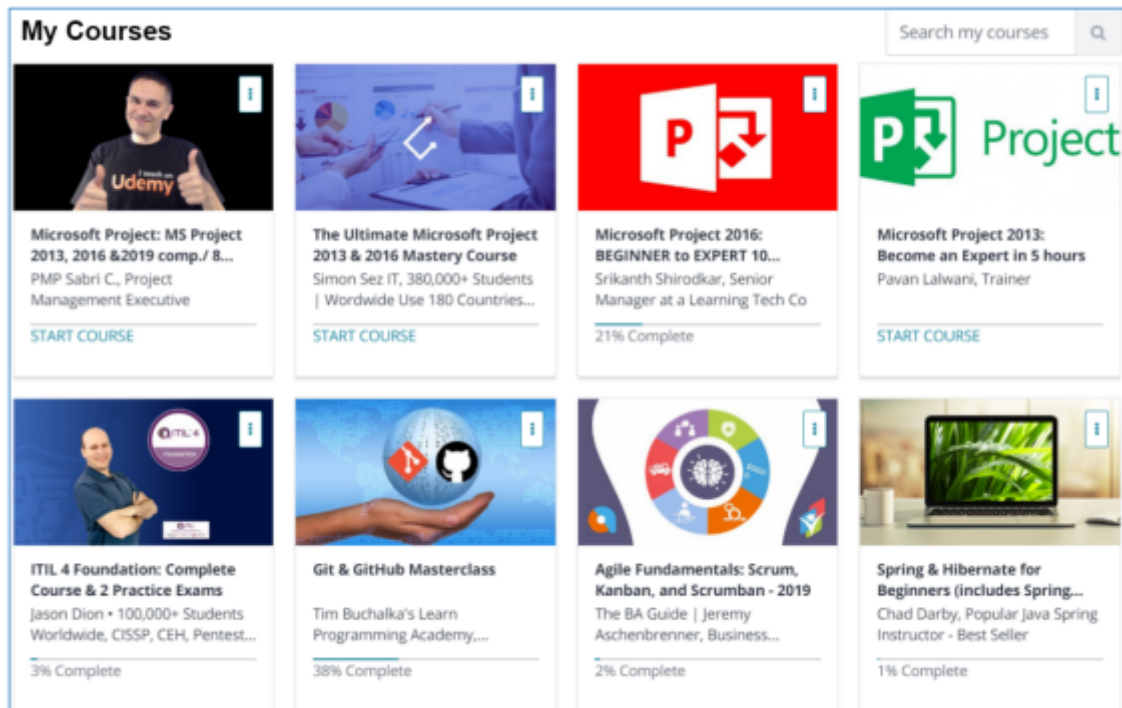
- Show the list of user's registration + the sider with the subject search box, subject categories, static contacts/links.

- Each registration includes below information: id, subject, registration time, package, total cost, status, valid from, valid to.

- If the registration is still in the submitted status, the users can choose to cancel it or coming back to the Course Register pop-up to edit it).

5.2 My Courses

- Function trigger:** *My Course(button) or "/mycourse".*
- Function description:** *When user(customer) logs in and clicks the enrol(button) to submit the course. Then the user clicks the My Course(button) to view your course which includes more information.*
- Screen layout:**



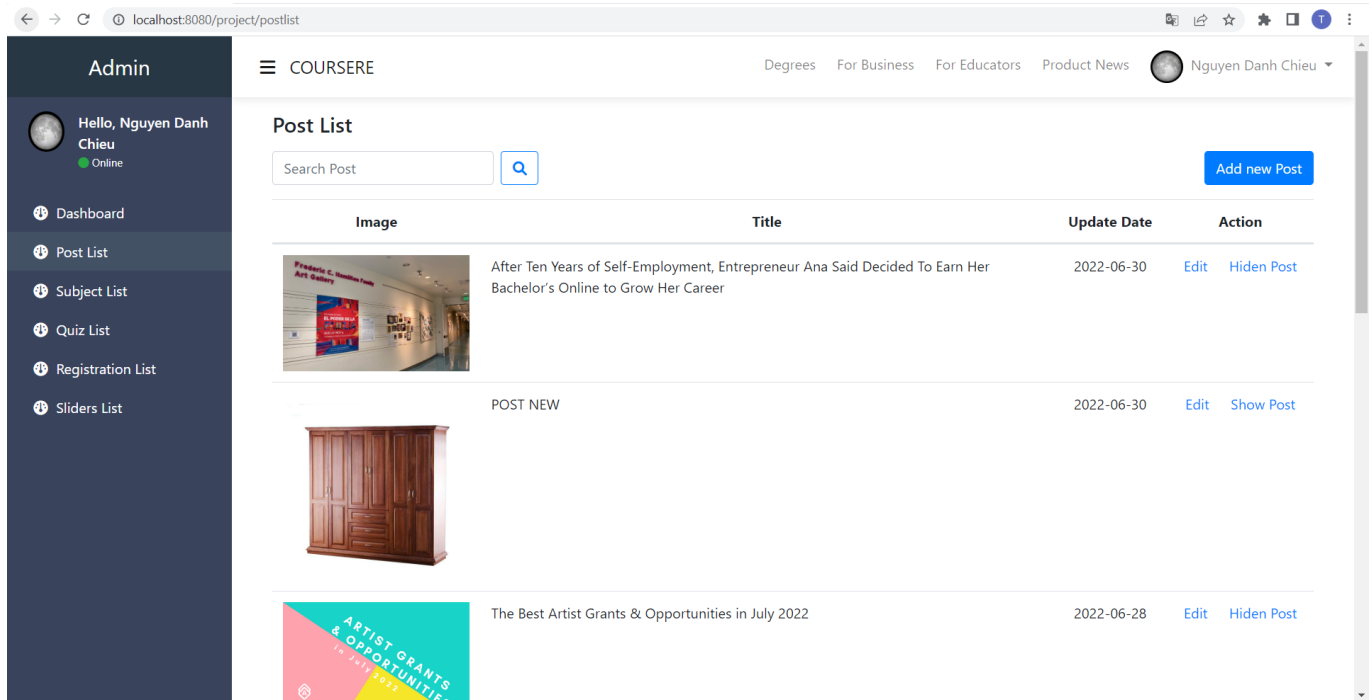
- **Function Details:** for the user to view his/her access-allowed courses information(course name, author, started_date, status,...).

6. Marketing feature

6.1. Post List

- **Function trigger:** Post List (button) or "/postlist".
- **Function description:** When the user (marketing) logs in and presses the postlist (button) in the marketing function interface to enter the postlist interface. Then, users click on each specific post to see more information and perform the function of adding, editing, hiding and showing those posts.

Screen layout:

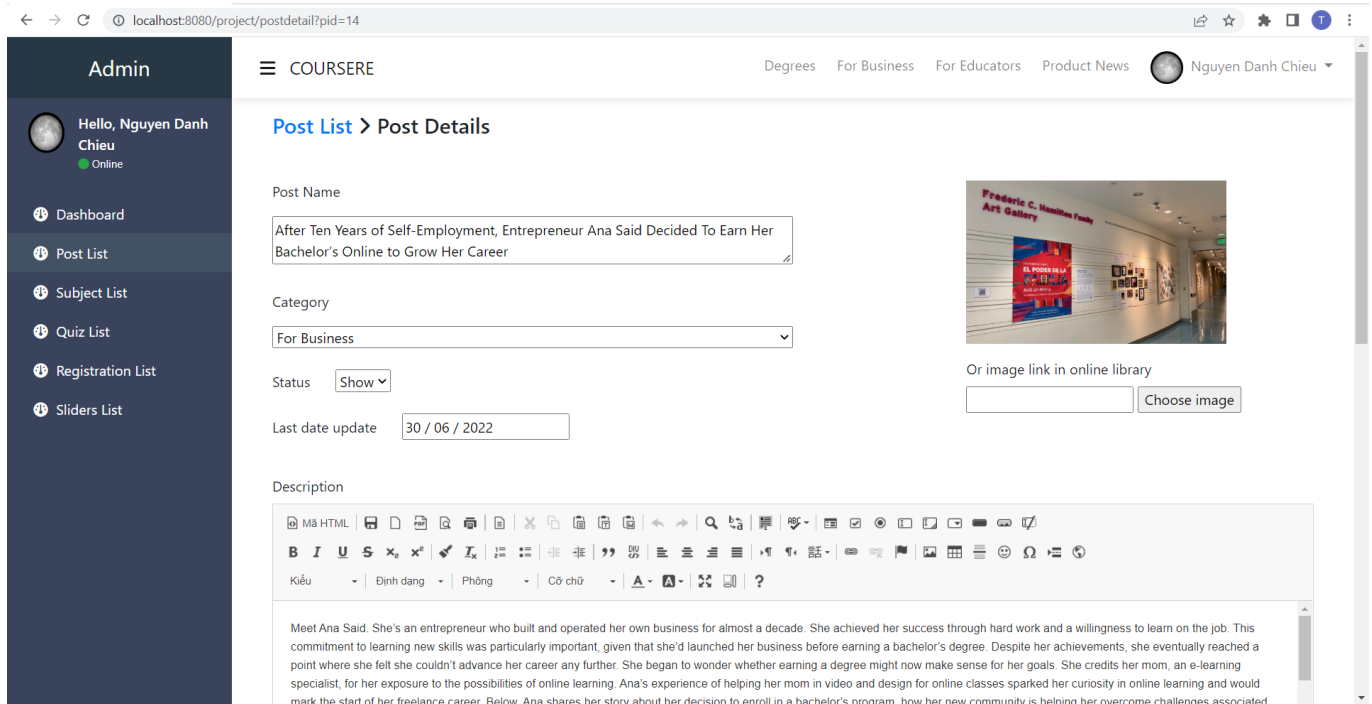


- **Function Details:** Show the posts paginatedly (sorted by updated date) + the sider with the post search box, posts categories, latest posts, static contacts/links; Shown post information includes its thumbnail, title, category, brief-info; the user is redirected to the post's details on his/her clicking

6.2. Post Detail

- **Function trigger:** 1 specific post in the post list(button).
- **Function description:** When a user (marketing) logs in and presses a specific post (button) in the postlist to enter the post interface. Then users can view more information and perform the function of adding, editing, hiding and showing those articles.

Screen layout:



- **Function Details:** Show detailed post information (thumbnail, category, title, brief information, description, flag to turn the featuring on/off, status), from that allow the user to input, view or edit them

IV. Non-Functional Requirements

1. External Interfaces

[This section provides information to ensure that the system will communicate properly with users and with external hardware or software/system elements.]

2. Quality Attributes

[List all the required system characteristics (quality attributes) specification. Some of the possible attributes are provided with the guide/descriptions are mentioned here]

2.1 Usability

[This section includes all those requirements that affect usability. For example, specify the required training time for a normal users and a power user to become productive at particular operations specify measurable task times for typical tasks or base the new system's usability requirements on other systems that the users know and like specify requirement to conform to common usability standards, such as IBM's CUA standards Microsoft's GUI standards]

2.2 Reliability

[Requirements for reliability of the system should be specified here. Some suggestions follow:

Availability—specify the percentage of time available (xx.xx%), hours of use, maintenance access, degraded mode operations, and so on.

Mean Time Between Failures (MTBF) — this is usually specified in hours, but it could also be specified in terms of days, months or years.

Mean Time To Repair (MTTR)—how long is the system allowed to be out of operation after it has failed?

Accuracy—specifies precision (resolution) and accuracy (by some known standard) that is required in the system's output.

Maximum Bugs or Defect Rate—usually expressed in terms of bugs per thousand lines of code (bugs/KLOC) or bugs per function-point(bugs/function-point).

Bugs or Defect Rate—categorised in terms of minor, significant, and critical bugs: the requirement(s) must define what is meant by a “critical” bug; for example, complete loss of data or a complete inability to use certain parts of the system's functionality.]

2.3 Performance

[The system's performance characteristics are outlined in this section. Include specific response times. Where applicable, reference related Use Cases by name.

Response time for a transaction (average, maximum)

Throughput, for example, transactions per second

Capacity, for example, the number of customers or transactions the system can accommodate

Resource utilisation, such as memory, disk, communications, and so forth.]