Cairo University
Faculty of Engineering
Computer Engineering Dept.

CMPN425

Consultation Project Requirements

Fall 2021

Learning Management System

Objectives

- Implementing a full front end using a front-end framework
    - Create multiple components with state handling
    - Implement routing
- Implementing a suitable backend for the project
    - Use a backend framework to implement a full backend
- Using Database in Web Applications

Introduction

In this project, a customer requests creating learning management system. The customer has defined his requirements for the project.

You are required to design and develop the LMS given the customer's requirements.

Requirements

1. Users:

1. 1 **User Types:**

The Customer provided you with the following description of each user type:

1- Site Administrator

The Site Administrator is an IT Engineer that manages the users' authorities. He has all other privileges.

2- Leaner

He/she is an end-user that had registered his personal data. He/she could view any course.

3- Guest

He/she is an unregistered user or didn't login. He/she could login, register.

4- Instructor

He/she is a course instructor who can add and edit courses.

1. 2 **User Data:**

Each user should have the following **personal data**:

1- Username (Should be unique)

2- Password

3- First Name

4- Last Name

5- Birth Date

6- Email (Should be unique)

7- Type (admin/customer)

1. 3 **User Features:**

Each user type has the following features:

- Site Administrator
    - Change User roles
        - Change a user's role from a learner to instructor only.
    - Have the same roles as instructor and learner
- Instructor
    - Create a course
    - Add activities to a course
- Learner
    - View courses
    - View activities of a course
    - View and edit his profile
- Guest
    - Register a new account
        - The guest could register a new account
    - Login an existing account
        - The guest could login to an existing account

2. **Courses**

A course should have a home page with information about the instructor and the syllabus. Each course should have a QA section where each question can start a thread. Each thread can be single threaded with a main question and many replies.

3. **Activities**

Activities can be one of the following:

1- Video (embedded from YouTube)

2- Pdf material

The main webpages that must exist:

- Website Homepage (The main page for the LMS)
- Courses Page
- Login Page (The user should enter his username & password)
- For each feature decide whether it is a stand-alone page or a function embedded in another page.

Implementation Guidelines:

- Implement full front-end pages with a frontend framework
    - Use the steps of design we went over. Start with a mock website.
    - Use a router to route different webpages (Components you created)
    - Use CSS and styling to design an appealing UI to your website. (Using bootstrap is optimal).
    - Use Ajax to send requests to your back-end server (Optional, you can use any other library to create your requests.)
- Implement a full backend
    - Implement an API for each needed request by your client side.
    - Implement a simple routing for each needed request.
- Implement a Database to store your data (MYSQL for example)
- Your frontend code must be completely separated from your backend. They should only communicate through post, get, or other REST methods.
- Bonus (max 10%):
    - Using an authentication library like OAuth (5%).
    - Responsive UI on different screen sizes (5%)
    - Quizzes with auto grading (5%)
    - Course enrolment and progress for each user (5%)

Teams

The teams should be 4-5 members in each team (not more or less). **Deadline:** Prepare and deliver a spreadsheet with the teams & names by Dec 14th, 2021**.**

Final Delivery

Deadline: Jan 4th, 2021, at the section time.

- You will be required to deliver a .rar file a Google drive form (link will be shared by email). The .rar file should contain
    - A .txt file named ID.txt with your names, sections and BNs.
    - A folder named fronted containing your frontend project
    - A folder named backend containing your backend project
    - An SQL file (or any script) that does the following
        - Create all tables
        - Adds one admin account
        - Adds some dummy data
    - A .txt file named login.txt containing the login information of that admin account.

Note: Complete Projects from the internet will get zero.