

Systems Requirements Specifications Documents

Project Number : 24

Team Number : 45

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Client : Sai Teja, XR Academy.

Brief Problem Statement

- Building a cloud based learning management System (LMS) exclusively for AR/VR courses with user authentication, Payment UI, Custom UI, certificate generation like giving badges and also tracking the users' performance. To be built in microservice architecture

System Requirements

1. Backend implemented in NodeJS
2. Backend framework - Express
3. Frontend implemented in React
4. MongoDB atlas for database
5. Microservice architecture to be followed (A microservice architecture arranges an application as a collection of loosely-coupled services).

Users Profile:

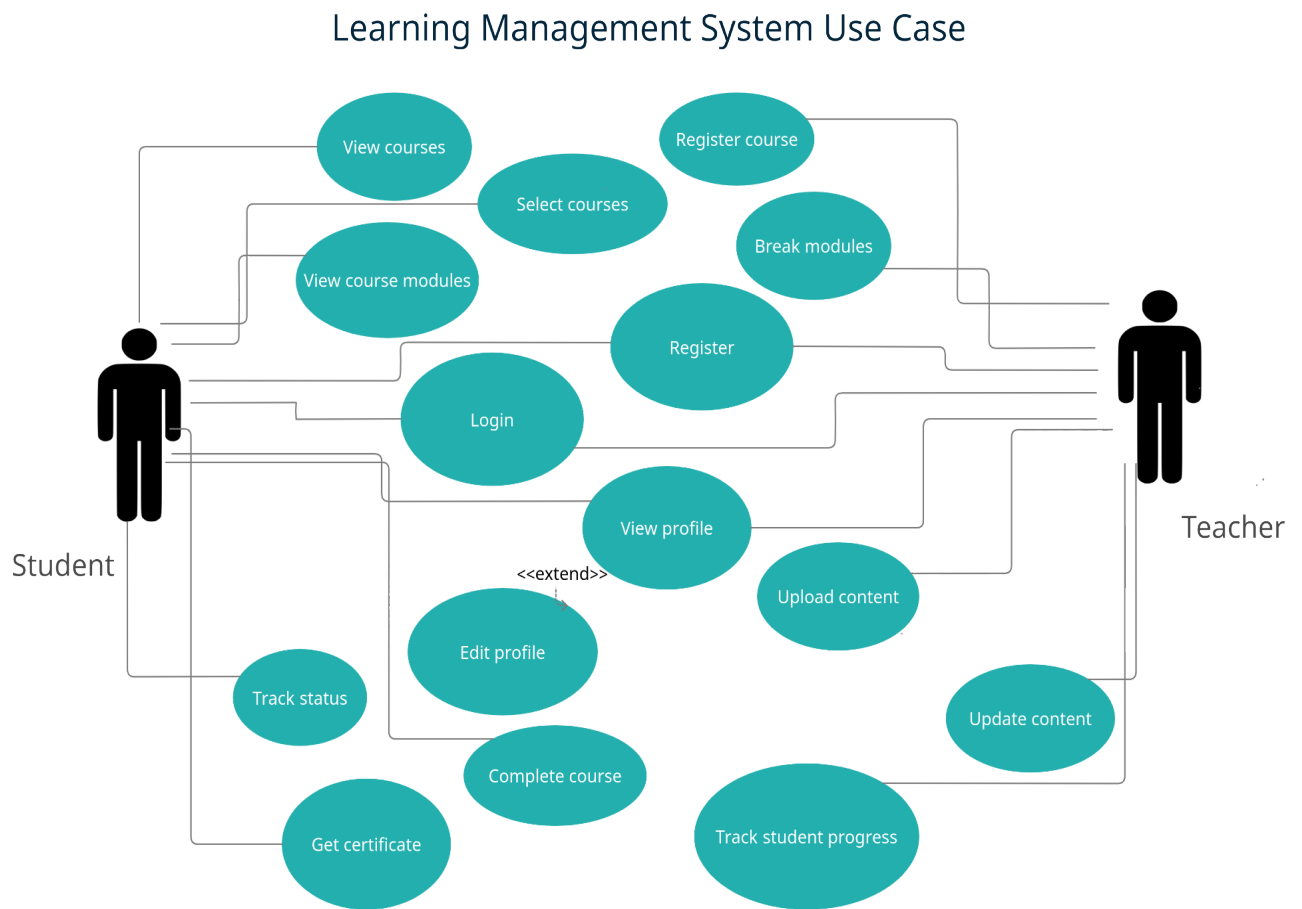
- Students - will be given login credentials to access course material, questionnaires and will get certificates after completing a particular course. Students can be either school students or college students, and we expect them to be comfortable with using platforms like this one. Focus will be on making a neat and understandable UI so that the platform is easy to use.
- Tutors/Teachers - will add course material and also make questionnaires for the students to use

Feature Requirements

S. No.	Use case name	Description	Release
1.	Registering a student	Student will be asked for some details for registration	R1
2.	Registering a teacher	Teacher will be asked for some details for registration	R1
3.	Teacher login	Student will be able to login using his username/email and password	R1
4.	Student login	Student will be able to login using his username/email and password	R1
5.	View student profile	Student will be able to view his/her profile	R1
6.	View teacher profile	Teacher will be able to view his/her profile	R1
7.	Edit student profile	Student will be able to edit his/her profile	R1
8.	Edit teacher profile	Teacher will be able to edit his/her profile	R1
9.	Register a course	Teacher should be able to add a course	R1
10.	View courses	Student should be able to view the courses he/she has registered for	R1
11.	Select course	Student should be able to select a course from the given list of courses	R1
12.	Break modules	For a certain course, the teacher should be able to break it into modules	R2
13.	View course modules	Student should be able to view the course contents upon selecting a course	R2
14.	Upload content	Teacher should be able to upload content for a particular module in a course	R2
15.	Update content	Teacher should be able to upload content for a particular module in a course	R2
16.	Complete a course	Once a student has completed all the modules and attempted the quiz, the course gets completed	R2
17.	Track status	The student should be able to track his/her status of a particular course like	R2

		what percentage of the course has been completed till that time	
18.	Track student progress	Teacher should be able to track the progress of a student	R2
19.	Get certificate	Upon completion of a course, certificate gets generated automatically	R2

Use Case Diagram



User Case Description

User case number	UC -1
Use case Name	Registering a student

Overview	Student will be asked for some details for registration
Actors	Student
Pre-condition	None
Flow	1. Registration credentials will be saved in the backend.
Post Condition	1. After successful registration it prompts like a Registration successful as student, 2. Else already registered

User case number	UC -2
Use case Name	Registering a teacher
Overview	Teacher will be asked for some details for registration
Actors	Teacher
Pre-condition	None
Flow	2. Registration credentials will be saved in the backend.
Post Condition	1. After successful registration it prompts like a Registration successful as student, 2. Else already registered

User case number	UC -3
Use case Name	Students login
Overview	Student will be able to register and login.Existing students will be logged in based on authentication
Actors	Students
Pre-condition	None
Flow	1. Login credentials will be taken as and passed on to

	<p>the backend.</p> <ol style="list-style-type: none"> 2. A database query verifies whether the particular details are registered or not. 3. If authentication fails then it prompts to register
Post Condition	After a successful login, then it moves on to the home page, where one can access the courses.

User case number	UC - 4
Use case Name	Teachers login
Overview	Student will be able to register and login.Existing students will be logged in based on authentication
Actors	Registration credentials will be saved in to the backend.
Pre-condition	None
Flow	<ol style="list-style-type: none"> 1. Login credentials will be taken as and passed on to the backend. 2. A database query verifies whether the particular details are registered or not. 3. If authentication fails then it prompts to register
Post Condition	After a successful login, then it moves on to the home page, where one can access the courses.

User case number	UC - 5
Use case Name	View student profile
Overview	Student will be able to view his/her profile
Actors	Student
Pre-condition	Login
Flow	<ol style="list-style-type: none"> 1. The credentials of student will be taken from backend

Post Condition	1. If we click the student profile then it should show the credentials of the student and the courses which the student is accessing or completed.
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User case number	UC - 6
Use case Name	View teacher profile
Overview	Teacher will be able to view his/her profile
Actors	Teacher
Pre-condition	Teacher login
Flow	1. The credentials of Teacher will be taken by backend from database and sent to the frontend for displaying
Post Condition	None

User case number	UC - 7
Use case Name	Edit student profile
Overview	Student will be able to edit his/her profile
Actors	Student
Pre-condition	Student login
Flow	1. The edits which will be done on edit student profile should get updated in the database, and updated data should be shown in the profile page
Post Condition	Once you edit the student profile, it should show the updated profile

User case number	UC - 8
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Use case Name	Edit Teacher Profile
Overview	Teacher will be able to edit his/her profile
Actors	Tutor/teacher
Pre-condition	Teacher login
Flow	1. The edits which will be done on edit teacher profile should be updated .in the database, and the data should be updated in the profile page of teacher
Post Condition	Once you edit the Teacher profile, it should show the updated profile

User case number	UC - 9
Use case Name	Register a course
Overview	Teacher should be able to add a course
Actors	Tutor/teacher
Pre-condition	Teacher login
Flow	Course uploaded by the teacher should be saved in the database, and should be visible to the students
Post Condition	None

User case number	UC - 10
Use case Name	View Courses
Overview	Student should be able to view the courses he/she has registered for

Actors	Student
Pre-condition	Student login
Flow	Courses registered by the particular student should be saved in the database.
Post Condition	All courses that the student has registered for should be displayed

User case number	UC -11
Use case Name	Select course
Overview	Student should be able to select a course from the given list of courses
Actors	Student
Pre-condition	Login
Flow	The student can see the list of courses available on the platform and selects by clicking on that course.
Post Condition	None

User case number	UC -12
Use case Name	Break modules
Overview	For a certain course, the teacher should be able to break it into modules
Actors	Teacher/Tutor
Pre-condition	Login
Flow	The teacher can create new modules by filling required details by sending API requests to the backend.
Post Condition	None

User case number	UC -13
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Use case Name	View course modules
Overview	Student should be able to view the course contents upon selecting a course
Actors	Student
Pre-condition	Student Login
Flow	On clicking a particular course, all the details about the modules of the course are fetched from the backend and displayed.
Post Condition	None

User case number	UC -14
Use case Name	Upload content
Overview	Teacher should be able to upload content for a particular module in a course
Actors	Teacher/Tutor
Pre-condition	Teacher login
Flow	On clicking upload content, the content like docs or videos should be uploaded and should be stored in the database.
Post Condition	None

User case number	UC -15
Use case Name	Update content
Overview	Teacher should be able to update content for a particular module in a course
Actors	Teacher/Tutor
Pre-condition	Teacher login
Flow	After updating the content, upon clicking the update content, the content should be updated and the data stored previously should be updated in the database

Post Condition	None
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User case number	UC -16
Use case Name	Complete a course
Overview	Once a student has completed all the modules and attempted the quiz, the course gets completed
Actors	Student
Pre-condition	Login
Flow	We check if all the modules and quizzes which are mandatory in the course are completed by the student by sending a request to the backend and retrieving data from the database.
Post Condition	We can see the course in the list of completed courses by the student in his profile

User case number	UC -17
Use case Name	Track status
Overview	The student should be able to track his/her status of a particular course like what percentage of the course has been completed till that time
Actors	Student
Pre-condition	Login
Flow	The student can see the percentage of course completed by him by getting the number of modules completed from backend and performing some simple calculations in frontend
Post Condition	None

User case number	UC -18
Use case Name	Track student progress
Overview	Tracking student performance based on questions answered in a questionnaire
Actors	Tutor/teacher
Pre-condition	Login
Flow	The tutor can analyse the performance of the student based on the questions answered by him in the exam (get the data from database through the backend by making an API request and perform the analytics)
Post Condition	None

User case number	UC -19
Use case Name	Generating certificate
Overview	Once a student completes a course a certificate must be automatically generated
Actors	Tutor/teacher
Pre-condition	Student should have completed the course
Flow	Make a request to the backend to get the data of the student in that particular course and analyse the performance to give some grades and generate the certificate
Post Condition	None

Test Backlog

Use case	Test case
Registering a student	Test if the student is able to register successfully
Registering a teacher	Test if the teacher is able to register successfully
Teacher login	Test if the teacher is able to login successfully
Student login	Test if the student is able to login successfully
View student profile	Test if the student is able to view his/her profile successfully
View teacher profile	Test if the teacher is able to view his/her profile successfully
Edit student profile	Test if the student is able to edit his/her profile successfully
Edit teacher profile	Test if the teacher is able to edit his/her profile successfully
Register a course	Test if the teacher is able to add a course successfully
View courses	Test if the student is able to view his/her courses successfully
Select course	Test if the student is able to select a course by clicking on it successfully
Break modules	Test if the teacher is able to break the course into modules successfully
View course modules	Test if the student is able to view course modules successfully
Upload content	Test if the teacher is able to upload course contents successfully
Update content	Test if the teacher is able to update course contents successfully
Complete a course	Test if the student is notified upon successful completion of a course
Track status	Test if the student is able to track the status of %

	of course completed successfully
Track student progress	Test if the teacher is able to track student's progress successfully
Get certificate	Test if the certificate gets auto generated upon completing a course