

## Project Synopsis

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# **Intelligent Recommendation System for Online Learning**

## **1.0.0. Problem Statement**

In the digital age, the proliferation of online courses presents a double-edged sword for learners. On one hand, the wealth of available options signifies boundless opportunities for knowledge acquisition. However, this abundance often proves overwhelming, as learners grapple with the daunting task of discerning which courses best suit their unique interests and learning objectives. Navigating this labyrinth of information becomes further complicated by the absence of clear guidance or structured pathways within many online learning platforms. Without a roadmap to steer them, learners may find themselves adrift amidst a sea of course offerings, struggling to chart a coherent learning trajectory.

Moreover, amidst the vast array of resources scattered across the internet, learners frequently overlook valuable opportunities for free courses. Amidst the cacophony of paid offerings, these free resources often go unnoticed, depriving learners of potentially enriching educational experiences. This disparity in resource awareness underscores the need for a more streamlined approach to online learning, one that not only assists learners in identifying courses aligned with their interests but also ensures accessibility to a diverse array of learning opportunities, regardless of financial constraints.

Frequently, learners fail to notice revisions made to the roadmap, missing out on crucial updates. Additionally, they grapple with uncertainty regarding the duration required for completing the roadmap, lacking clarity on the time investment necessary for their learning journey. This lack of awareness and ambiguity regarding timelines can hinder their progress and lead to inefficiencies in their learning endeavours.

### 2.0.0. Objectives of the Project

- **Create a Smart Recommendation System:** Our main goal is to build a smart system that helps people find the right online courses easily. This system will use smart technology to suggest courses based on what each person likes and wants to learn. By doing this, we want to make it easier for people to choose courses and enjoy learning online.
- **Make Free Courses Easier to Find:** We also want to make sure that people know about free courses available online. Often, these free courses are hidden among many paid ones. We'll make sure to highlight these free options so that everyone can access a wide range of learning opportunities without worrying about money.
- **Offer Clear Directions:** Lastly, we aim to give clear directions to learners. Many people feel lost when trying to figure out where to start or how long it will take to finish a course. We'll provide easy-to-follow guides and timelines so that learners know exactly what to do and how long it might take. This way, they can learn with confidence and avoid wasting time.

### 3.0.0. Project Methodology

#### 3.1.0. Project Modules:

##### 3.1.1. User Registration:

- Description: Allows visitors to register as users in the system.
- Actors: Visitor, System
- Preconditions: Visitor wants to access the system's features.
- Basic Flow:
  - Visitor navigates to the registration page.
  - Visitor fills out the registration form with required information.
  - System validates the information and creates a new user account.

### **3.1.2. User Login:**

- Description: Allows registered users to log in to the system.
- Actors: Lerner, System
- Preconditions: Lerner has registered and wants to access the system.
- Basic Flow:
  - Lerner navigates to the login page.
  - Lerner enters their username/email and password.
  - System verifies the credentials and grants access to the learner's account.
  - Lerner gains access to the system's features and functionalities.

### **3.1.3. Create Education Roadmap:**

- Description: Allows Lerner's to create a personalized roadmap for acquiring education and certifications in IT fields.
- Actors: Lerner, System
- Preconditions: Lerner is logged in and wants to plan their education journey.
- Basic Flow:
  - Lerner selects the desired IT field(s) for which they want to create a roadmap.
  - Lerner specifies their learning objectives, goals, and preferences.
  - System generates a personalized roadmap with recommended courses, certifications, and milestones.

#### **3.1.4. Communication with Peers:**

- Description: Allows Lerner's to communicate with other Lerner's who have similar interests or are pursuing education in the same IT field.
- Actors: Lerner, Alumi, System
- Preconditions: Lerner is logged in and wants to interact with peers.
- Basic Flow:
  - Lerner selects the option to communicate with peers within the same IT field.
  - System displays a list of Lerner's or groups with similar interests.
  - Lerner initiates communication with selected peers through messaging or discussion forums.
  - Lerner's exchange ideas, share experiences, and provide support to each other.

#### **3.1.5. Provide Feedback/Suggestions:**

- Description: Allows Lerner's to provide feedback or suggestions to improve the system's features and functionalities.
- Actors: Lerner, Alumi, System
- Preconditions: Lerner is logged in and wants to provide feedback.
- Basic Flow:
  - Lerner accesses the feedback/suggestions section of the system.
  - Lerner provides feedback or suggestions regarding the system's usability, content, or features.
  - System collect and acknowledges the feedback and may implement relevant suggestions in future updates.

#### **3.1.6. Notification System:**

- Description: Sends notifications to Lerner's regarding updates or checkpoints on their education roadmap.
- Actors: Lerner, System
- Preconditions: Lerner is logged in and has an active education roadmap.
- Basic Flow:
  - System monitors Lerner's' progress on their education roadmap.
  - When a milestone or update is reached, the system sends a notification to the Lerner.

### 3.2.0. Technology to be used:

#### 3.2.1. Platform:

- **Software:**
  - **Front-end:** Html, CSS, JavaScript
  - **Back-end:** React, Node
  - **Database:** Mysql Workbench
- **Hardware** (Minimum requirement):
  - **RAM:** 8 GB
  - **Processor:** Intel i5 7<sup>th</sup> generation
  - **Hard Disk:** 500 GB SSD
  - **OS:** 64-Bit Windows 10
- **Tools used:**
  - Vs code (for designing and implementation purpose)
  - MySQL workbench (for storage purpose)
  - Google Chrome (for execution of the project)

### 3.3.0. Advantages of this project:

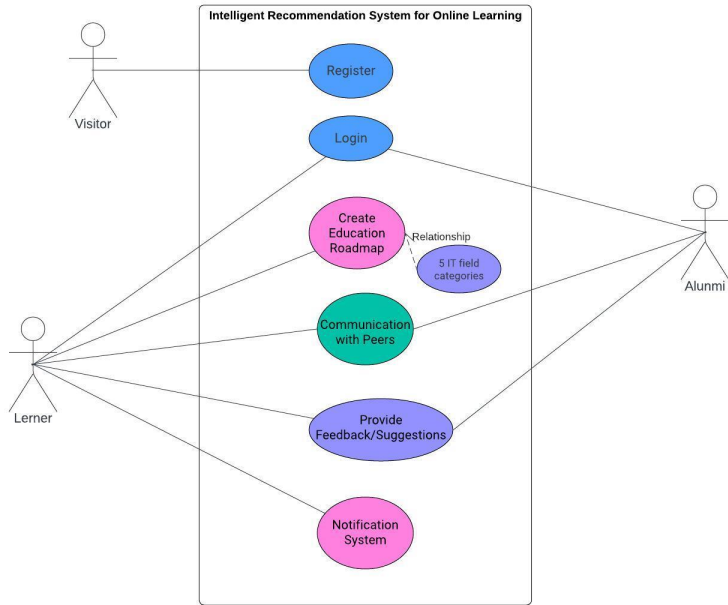
- Addresses this issue by offering clear learning pathways for users to follow as they progress through their chosen courses, providing them with a roadmap for their learning journey.
- Establish bridges the gap by presenting learners with a comprehensive list of both free learning materials and paid certifications.
- Streamline the process by providing personalized recommendations tailored to each user's preferences, thereby reducing information overload.

### 3.4.0. Future Scope of this project:

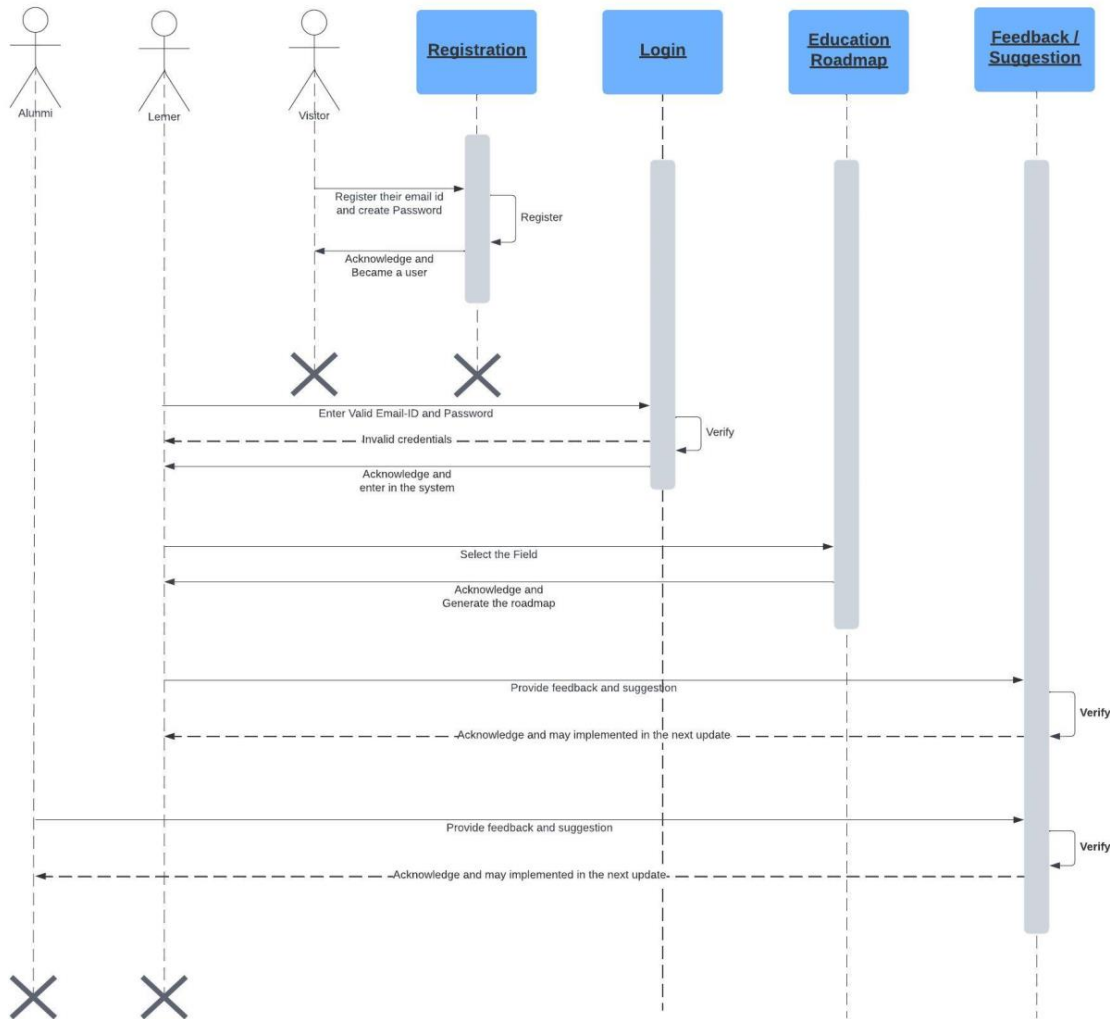
- Expanding the system involving various actors to represent stakeholders within the website ecosystem. That include administrators responsible for managing system operations, faculty members delivering courses, and student advisors offering guidance on academic matters.
- Additionally, external partners, support staff, parents/guardians, and prospective students play essential roles in the college community, contributing to networking, collaboration, and support services.

3.5.0. Diagrams:

3.5.1. Use-Case Diagram:



3.5.2. Sequence Diagram:



### 3.6.0. Additional Information:

<b>Type of Project</b>	Application-based project
<b>Data Collection Method</b>	
• <b>Primary Data Collection</b>	User full name, email address and field of interest, feedback suggestion
• <b>Secondary Data Collection</b>	Courses and certification of the chosen field
<b>Reference:</b>	
• <b>YouTube:(code with harry)</b> • <b>LinkedIn Learning</b>	

### 4.0.0. Limitation

The project's scope is constrained by several limitations that need acknowledgment. Firstly, while the project offers a roadmap for five prominent IT fields, it focuses primarily on courses provided by well-known IT companies like IBM, Nvidia, Google, Microsoft, and AWS, as well as platforms such as LinkedIn, Coursera, and YouTube. Consequently, the project may not cater to individuals seeking courses outside of these specific domains or platforms.

Furthermore, the absence of a mentorship component is a notable limitation. Despite the potential benefits of mentorship in enhancing learning outcomes, the project does not include provisions for connecting learners with mentors. Additionally, the lack of communication channels between individuals enrolled in the same course poses a constraint. Collaborative learning and peer interaction can significantly contribute to the learning experience; however, this aspect is not addressed within the project.

These limitations highlight areas where the project may fall short in providing comprehensive support and resources for learners. While it offers valuable guidance and resources within its specified domains, individuals seeking mentorship or peer interaction may need to explore additional avenues outside the scope of the project.



- **Work Plan (Week 1 to Week 8)**

- Provide an outline of planned project tasks that will be conducted during eight weeks of the project.

Week No.	Activities Completed
Week 1	a) Making an overview of the project b) Generating the synopsis of the project c) Download all the required resources
Week 2	a) Making webpage designee of Registration and login b) Generate the backend of the following webpage c) Test the following webpage
Week 3	a) Making webpage designee of Roadmap viewing and selecting of all 5 IT field. b) Generate the backend of the following webpage c) Test the following webpage
Week 4	a) Generate the API key of youtube and LinkedIn. b) Implement those API in the project c) Test the output of those API curl commands.
Week 5	a) Making webpage designee of field community and chat box. b) Generate the backend of the following webpage c) Test the following webpage
Week 6	d) Making webpage designee of feedback and suggestion. e) Generate the backend of the following webpage f) Test the following webpage
Week 7	a) Run the entire project and find bugs if present.
Week 8	