Study Stream Website using Java Spring Boot

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Abstract: *Earlier students were facing issues to learn new courses by using multiple web applications such as Udemy, Coursera etc. or to attend live sessions in the different applications such as Google Meet, Zoom etc. Students always wanted a software in which this all the features are available which will help them to stay committed towards their learning the skills. This proposed web application will provide the students to overcome all the problems faced by them in this web application such as they can be provided with courses here and they also can attend the live sessions. This web application is developed over Spring Boot - a powerful Java framework which is used to develop the stand alone web applications and can be easily deployed over the web application as it contains all the pre-defined Java frameworks.*

Keywords: Online courses, Virtual classrooms, Digital education, Web-based training, E-learning platforms.

I. INTRODUCTION

The project is focused on building a web application for selling courses and hosting live sessions. E-learning is a popular means of education, which has gained significant traction, generating job opportunities. The application provides a flexible framework, including a variety of tools for learning and communication, making it easier for instructors to design and deliver their courses. The platform supports both live and static sections, providing students with multiple options on a single platform. Students can attend classes according to their convenience and can interact with instructors via chat, live discussion sections, and raising doubts. The application also features a dashboard with information on course completion percentage, attendance, notes, quizzes, personal information, badges, etc. The key features of the application include schedule, announcements, syllabus, modules, assignments, discussion board, chat, and tests.

II. ONLINE LEARNING

A digital platform that allows online learning and education via the internet is known as an e-learning platform. It provides a virtual learning environment in which students from all around the world can access course materials, attend live sessions, and engage in discussions and examinations. Video lectures, interactive quizzes, online assignments, discussion forums, and messaging tools are common elements that allow students to connect with instructors and classmates in real time. E-learning platforms are designed to be adaptable, easy, and accessible to a diverse variety of learners, including working professionals, students, and people with different learning styles.

III. KEY FEATURES

The key feature of this e-learning web application is its flexibility and convenience. Students can attend classes and interact with instructors at their own pace and convenience, either via live sessions or recorded sections. The application also provides a dashboard that keeps track of the progress made by the student in terms of course completion percentage, attendance, notes, quizzes, personal information, and badges. Additionally, the platform supports a variety of features such as a schedule for posting and viewing deadlines, events, and announcements, a syllabus for creating and posting the course content, and modules for publishing and viewing course content in sections. The application also provides tools such as assignments, chats, and tests, making it easier for students to collaborate and interact with instructors and peers in real-time. Overall, the key feature of this e-learning web application is its ability to

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provide a flexible and collaborative learning environment that supports student-centered learning.

IV. LITERATURE SERVEY

A literature survey is an evaluative report of information found in the literature related to your selected area of study. The review should describe, summarise, evaluate, and clarify this literature. It should give a theoretical base for the research and help to determine the nature of your research. "Dacast: live streaming and video and video hosting platform", launched in Oct 2010, Since then, Dacast has been offering the best online video platform that simplifies the distribution of premium media content. The company's goal is to offer the highest quality streaming solutions available at the most competitive pricing. More than 300,000 professional broadcasters and businesses have trusted Dacast to deliver their live and video content. On March 13, 2019, Dacast announced the acquisition of vzaar , a video hosting platform trusted by businesses worldwide, further establishing Dacast's position as an uncontested leader in the OTT industry . Dacast currently provides video and audio content distribution based on industry standard HTML5 technology. The stream ingest is RTMP and the stream delivery is supported in HLS and HDS formats. Hassan M Selim (2007) led an exploratory investigation on the factors which affect the perception on e-learning. Information Technology (IT) and intense competition are reshaping universities worldwide. Universities have begun to utilise and integrate IT in teaching and learning in order to meet the instructors' and students' needs. E-learning, one of the tools that has emerged from IT, has been integrated into many university programmes. There are several factors that need to be considered while developing or implementing university curriculums that offer e-learning-based courses. Since e-learning is a relatively new learning technology, this paper is intended to identify and measure its Critical Success Factors (CSFs) from student perceptions. "Udemy Inc. – courses selling website" launched on May 2010 by Eren Bali, Gagan Biyani, and Oktay Caglar. Udemy is a platform that allows instructors to build online courses on their 5 preferred topics. Using Udemy's course development tools, instructors can upload videos, source code for developers, PowerPoint presentations, PDFs, audio, ZIP files and any other content that learners might find helpful. Instructors can also engage and interact with users via online discussion boards. Courses are offered across a wide breadth of categories, including business and entrepreneurship, academics, the arts, health and fitness, language, music, and technology. Most classes are in practical subjects such as AWS and Azure training, Excel software or using an iPhone camera. Udemy also offers Udemy Business (formerly Udemy for Business), enabling businesses access to a targeted suite of over 7,000 training courses on topics from digital marketing tactics to office productivity, design, management, programming, and more. With Udemy Business, organizations can also create custom learning portals for corporate training. For smaller companies, Udemy offers a Udemy Team Plan that is a limited seat license but identical content to that of Udemy Business. Udemy uses 90 technology products and services including HTML5 , jQuery , and Google Analytics , according to G2 Stack. Udemy is actively using 88 technologies for its website, according to BuiltWith. These include LetsEncrypt , Font Awesome , and Wordpress Plugins . contains wide range of video courses on HTML/CSS and JavaScript. One of many courses can be found here. PHP(Hypertext Preprocessing) is one of the most widely used server-side programming language. Karl L Smart, James J Cappel (2006) In search of better, more cost effective ways to deliver instruction and training, universities and corporations have expanded their use of e-learning. Although several studies suggest that online education and blended instruction (a blend of online and traditional approaches) can be as effective as traditional classroom models, few studies have focused on learner satisfaction with online instruction , particularly in the transition to online learning and traditional approaches. The study examines students' perceptions of integrating online components in two undergraduate business courses where students completed online learning modules prior to class discussions.

V. METHODOLOGY

E-learning has become a popular means of education due to the advancements in technology and the shift towards remote work and learning. An e-learning website typically offers a range of tools for learning and communication, making it easier for instructors to design and deliver their courses. The platform is user-friendly and accessible, with easy navigation and intuitive interfaces that facilitate the learning process. Overall, e-learning websites offer a modern and convenient approach to education, enabling learners to acquire knowledge and skills at their own pace and from the comfort of their own homes.

The structure of the modules of project are as follows:
1. Administrator Module
2. Tutors Module
3. Students Module

5.1 Administrator Module

Administrator module plays very important role in every aspects in the website. It is basically the administrator's interface and allows to process all the operations related to the website. It looks over every activity going in within the website. It provides control over the website & manages all the information and data inserted in the website.

The functionalities in this module are as follows:

1) Profile Updation of Self, Tutors & Students

This functionality provides the administrator to view the number of students and tutors registered into the website and the administrator can update and delete the information of the students and tutors and can also update self information in the website.

2) Courses Visibility and Deletion

The administrator can to view the courses created by the tutors into the website and the courses can also be deleted by the user if administrator found any type of inappropriate content in the courses.

3) Coupon Code Generation

This operation can help the administrator to generate the coupon codes for the courses provided by the tutors to the students where students will be provided with the coupons to students so that they can access the courses for free or can avail the discount on the courses.

4) Multiple Administrators Creation

Administrators can be one or many in the websites. This functionality will help the administrator to add more administrators to this web application by which easy maintenance of the website can be done.

5) Activity Dashboard

Activity panel is provided in the dashboard of administrator module where administrator can view all the activities such as new registrations of tutors and students, enrolling of students to the courses, issues raised by students in the courses, and all the history of the activities occurred in the website.

5.2 Tutor Module

Tutor module demonstrates an ability to build a curriculum and maintain student interests and growth mind-set towards the courses provided by them. The module facilitates with issue faced by the students in the courses and overcome them for the further completion of the course.

The functionalities in this module are as follows:

1) Profile Updation

Profile updation is an important factor so that all the information related to tutor can be saved in the web application. This functionality helps the tutor to keep the information regarded to them up to date.

2) Courses Creation, Visibility and Deletion

In this section, Tutors have access to create their courses according to them. Here, they can also view the courses which have been created by them individually and can also delete the courses if required.

3) Hosting Live Sessions

Live sessions plays an important role to maintain the interactions between tutors and students. Tutors can easily host

their live sessions for the classes in this section of the module. Students can easily ask queries at the time of live sessions where tutors can interact with them properly.

4) Enrolled Students Data
In this section of the Tutors' Module, tutors can easily view the students list those who enrolled into their courses. For every courses individually the list will be shown to the respective tutors.

5) Publishing Courses
After the completion of the creation of certain courses, tutor will have to publish the courses into the website. If the courses are only created and stored in the section, then it will not be visible in the courses section for the students.

6) Reply to Complaints / Issues
If any issues are faced by the students within any specific courses, the students can raise their issue or ask any problem in the courses chat section where tutor can easily reply and any other student getting same problem can recognize and fix it.

7) Personal Message Section with Student
Tutors will have a personal chat section where they can easily interact with the students more conveniently and can resolve their issues and queries about the courses individually.

5.3 Student Module
Student Module is very important module because this whole project is made for them so that they can avail benefits by enrolling into the courses where they want to upgrade their skills. This module helps students easily to track their records with the user friendly UI of the website.
The functionalities in this module are as follows:

1) Profile Updation
Profile updation is an important factor so that all the information related to students can be saved in the web application. This functionality helps the students to keep the information regarded to them up to date.

2) Enrolling to Courses
Students can enrol to the courses of their interests and in the field they want to complete their certifications. They can easily enrol to the courses of their choices by using coupon codes generated by admin or by purchasing the required courses of their choices.

3) Live Course Tracking
Students can track their live progress about how much they have completed courses or what are the watch hours they have completed in the enrolled courses.

4) Certificate of Course Completion
Certification for the courses are very much important in this new era of online learning. Students must complete the given task and assignments to get the completion certificate of the courses they have enrolled for.

5) Notes / Study Materials Download
 Main points in the video lectures cannot always be kept in mind at the time of learning, some of the points are always skipped out. Students can download the notes and study materials conveniently which will be attached with the courses they have enrolled for.

6) Personal Chat Section with Tutor

Students can also individually contact to their respective tutors of the courses for their queries or issues about the courses in this section of the student module. This will help in maintaining friendly interactions between them.

VI. RESULT

The creation of an E-Learning platform with integrated live sessions can revolutionize the way we learn and teach. This project aims to provide an online education platform that is accessible, user-friendly, and provides students with the opportunity to learn and improve their skills from the comfort of their homes. The objective of the project is to provide knowledge and development of skills for students through the courses provided in the application, with the added benefit of live sessions and certification courses.

In recent years, online education has become increasingly popular due to its convenience, accessibility, and flexibility. The COVID-19 pandemic has further accelerated the demand for online learning, as more students and educators have had to adapt to remote learning environments. The benefits of online education are clear: it provides a more cost-effective option for students, allows for self-paced learning, and enables students to access courses from anywhere in the world.

This Java Spring Boot based E-Learning Web Appplication proposed in this project aims to capitalize on these benefits and create an educational platform that is both comprehensive and accessible. With the integration of live sessions, students can interact with their tutors and peers in real-time, ask questions and receive immediate feedback, and engage in collaborative learning activities. This feature ensures that students do not feel isolated and that they can benefit from the collective knowledge of their peers.

The platform includes a administrator dashboard panel so that all the activities over the web application will be tracked easily and all the malicious/vulgar activities to be tracked down so that the website can remain clean and free from bad content and to provide students with a friendly environment.

The platform also includes certification courses that can help students acquire new skills and advance their careers. These courses includes mock tests, study materials, and assignments to ensure that students are adequately prepared for the certification exam. The courses covers a range of subjects, including technology, finance, marketing, healthcare, and more.

The user-friendly UI of the application ensures that students can navigate the platform easily and have access to all the necessary resources. The platform includes a schedule for posting and viewing deadlines and events, announcements for posting current information to all students, a syllabus for creating and posting the course syllabus, modules for publishing and viewing course content in sections, assignments for posting, submitting, and grading student work, discussion boards for asynchronous discussions, group work, and collaboration, chat for real-time, synchronous conversation in written form, and tests for authoring and administering exams, quizzes, surveys, and more.

The platform also provides students with a dashboard where they can view their course progress, including their course completion percentage, attendance in live sessions, notes provided, tests or quizzes taken, and personal information. This feature proposed in the platform helps students keep track of their progress and ensure that they are on track to completing their courses.

In conclusion, the creation of an E-Learning platform with integrated live sessions can provide a convenient and accessible way for students to learn and improve their skills. The objective of the project is to provide knowledge and development of skills for students through the courses provided in the application, with the added benefit of live sessions and certification courses. With the user-friendly UI of the application and comprehensive features, students can navigate the platform easily and have access to all the necessary resources. The platform has the potential to revolutionize the way we learn and teach and provide students with the opportunity to access quality education from anywhere in the world.

VII. CONCLUSION

In conclusion, the development of an e-learning platform integrated with live sessions is a timely and necessary solution for students to continue their education in a flexible and accessible way. The popularity of online education has grown rapidly in recent years, and this trend is expected to continue in the future. Our platform provides a user-friendly

interface for students to access courses, a dashboard for both tutos and the administrators where tutors panel with contain the access for generating live sessions links, tests studenst reports and administrator panel will include tutors id creations and keeping tracks over the web application , study material and assignments for students to complete, as well as the ability to interact with tutors through live sessions, discussion boards, and chats. The inclusion of certification courses and mock tests will also ensure that students can measure their progress and receive recognition for their achievements. The platform is developed to help to bridge the gap between traditional classroom learning and the needs of modern-day students who require flexibility and convenience. In essence, this e-learning platform enables students to acquire new skills, enhance their knowledge, and achieve their goals without being constrained by time, location, or other barriers.

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