A

Project Report On

"STUDY STREAM – JAVA SPRING BOOT BASED E-LEARNING WEBSITE"

Submitted to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** in the partial fulfilment of the requirements of the Degree of

Bachelor of Engineering

in

INFORMATION TECHNOLOGY

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Session: 2022-2023

Priyadarshini Bhagwati College of Engineering, Nagpur

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Session: 2022-2023

Certificate

This is to certify that the project report entitled ***"Study Stream – Java Spring Boot Based E-Learning Website"*** is a bonafide work done by **Rajlaxmi Meshram, Ankush Wadode, Ayush Khodankar, Ayush Wandhare** and **Jaykumar Zade** under our guidance and is submitted to **Rashtrasant Tukadoji Maharaj Nagpur University,Nagpur** in the partial fulfilment of the requirements for the Degree of **Bachelor of Engineering** in **Information Technology.**

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ACKNOWLEDGEMENT

Many people have contributed in bringing this seminar report to its present form. We are the Presenter ascribe our success in this venture to our guide **Ms. S. H. Chaflekar**, Assistant Professor of Information Technology Department, P.B.C.O.E. Their endeavours for perfection, indefatigable zeal, enthusiasm, foresight and innovation contributed in a big way in completing this report with considerable ease in the stipulated time.

We are also grateful to **Dr. M. S. Chaudhari**, H.O.D. of Information Technology Department, P.B.C.O.E. The enthusiastic feedback from him was instrumental in improving the presentation and in establishing our confidence in the structuring of the material. We also thank the entire teaching and the non-teaching staff of the Department for their cooperation.

We also express our admiration for **Dr. (Mrs) A. R. Chaudhari**, Academic In charge, P.B.C.O.E. for her valuable advice and support throughout this venture.

Our sincere thanks are extended to **Dr. N. K. Choudhari**, Principal, P.B.C.O.E. for constantly encouraging and helping me during the course.

Last but not least, our thanks are extended to all my friends and colleagues, those who gave us inspiration, those who gave their constructive ideas and also those who criticized us for our flaws, which finally made this report see the light of the day.

Projectees,

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ABSTRACT

Earlier students were facing issues to learn new courses by using multiple web applications suchas 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 whichis 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.

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CHAPTER 1

INTRODUCTION

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INTRODUCTION

In this project, we are going to make a web application based on selling courses and hosting live sessions. The online learning is another form of the education which take place over the internet. This is often referred to as e-learning among other terms. However, the is the one of the types of the distance learning which is the umbrella term for the any learning take place over and across the distances not like the traditional classrooms.

In present time it is the most popular means of education present which is growing rapidly which generating many jobs for peoples. Over 92 million students were registered for the online education in the fall of 2021. In years past, instructors had to create their "virtual classrooms" from scratch which was difficult and often led to poor results. Today, an entire industry has emerged to do this for us. A software is utilized by all colleges today. Which allow instructors to design and deliver their courses within a flexible framework that includes a number of different tools to enable learning and communication to occur.

In today's digital world people are getting less habitual to the older learning methods People like to get everything at their figure tips so most of the students are leaning towards the online education which fairly easy to enroll in the course without any extra procedure and paperwork. The pre- requisites of the online education are minimum knowledge or no knowledge and people are free to choose from the courses available. As there is less written work to read andto do, most of the part is in the form of the video's which keep the learner interest for the longer time. Unlike traditional education the learner can attend the class according to their comfort either they can join the live lecture or they can watch recorded section later. The notes are also point to point which make it easier to understand it and interactive test are conductedto test the knowledge of the learner. Teacher can hold the live section if they want to instead of providing the recorded section. They can interact with students in the live class thorough the chat, live discussion section, or student can raise a doubt. There is constant support for the technical issues faced by both student and teachers the classes are under constantmoderation of the moderators which make it easier to conduct live classes and problem solving. The moderator have the power to examine the student behavior and the test conducted after the course completion of the course. As the platform support live and static sections teachers got multiple options on a single platform which doesn't make them to use another platform for the different things. The present of the

students are maintained by the application itself when they join the class so no extra efforts are need to put for it which give teacher to fully utilize the given time for the class. On the other the notesare maintained according to the module so is fairly easy to get them according to modules or the units. Students can get the fully summery of their course path on their student dashboard which the course completion in percentage, their present in the class, how many class has been conducted live, doubt sections taken, notes provided, test or quiz taken, also include the personal information and course eligibility, badges they have got for completion the test which shows the progress done.

Some of the key features of the application are:

Schedule	For posting and viewing deadlines, events, etc.
Announcements	For posting current information to all students.
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 Board	For asynchronous discussions, group work, and collaboration
Chat	For real-time, synchronous conversation in written form.
Tests	For authoring and administering exams, quizzes, surveys etc.

CHAPTER 2

AIMS AND OBJECTIVES

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AIMS AND OBJECTIVES

2.1 AIM:

In this project, we will be creating an E-Learning platform – "Study Stream" integrated along with live session which will help the students to provide online education to develop and learn new skills at home and make interactions between students and tutors easy and more convenient.

2.2 OBJECTIVE OF PROJECT:

- The main objective of this project is to provide knowledge for development and improvement of skills for the students with the help of the courses provided in the application.
- Live sessions facility will also be included in the application for tutors and students.
- Certification courses will be also included in the application along with the mock tests, study materials & assignments.
- With the user-friendly UI of the application students will have easy accessibility and reliability on the application.

CHAPTER 3

LITERATURE SURVEY

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LITERATURE SURVEY

A literature survey is an evaluative report of information found in the literature related to your selected area of study. The review should describe, summaries, evaluate, and clarify thi 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 utilize 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 progr ammes. 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 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 an Udemy TeamPlan 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 complete online learning modules prior to class discussions.

CHAPTER 4

REQUIREMENT ANALYSIS

CHAPTER 4

REQUIREMENT ANALYSIS

Hardware Requirement:

Devices	Specification
➢ Computer	• ROM : 512 GB or more • RAM : minimum 4GB (6 or more for better experience)Operating System : Windows 10 • Processor : Intel Core Dual or higher • Internet Connectivity

Software Requirement

- ➢ Spring Boot - Java
- ➢ HTML5 / CSS3
- ➢ JavaScript
- ➢ VS Code
- ➢ Eclipse IDE - 2022-12

CHAPTER 5

PROJECT DESIGN AND METHODOLOGY

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PROJECT DESIGN AND METHODOLOGY

The proposed system is designed for students so that they can learn various skills at their own pace.

Study Stream, an E-learning web application is built with **Java – Spring Boot & Agile Methodology** using different frameworks involved in Java and Agile methodology concepts. Students can attend live seminars as well as video lectures. Agile methodology basically breaks up the project in different parts and to work upon each one alternately as per requirements. In Agile projects, the main project is broken into many parts/ components as per the development requirements so that each component can be constructed.

This project work upon 3 main modules i.e. Administrator module, Tutors Module and Students Module but the project is developed upon certain features integrated upon this website as they are live sessions, courses integration, chat system between tutors and students, complain panel for the students, activity log for the administrator panel.

Software development using the agile technique is flexible and iterative. In order to produce high-quality software that satisfies user needs, it promotes collaboration between the development team and stakeholders. Here is an illustration of an agile design process used to create an online learning application with the features you mentioned:

1. Define User Stories:

- I want to join live sessions to interact with the instructor and other students as a student.
- As a student, I want to have access to courses and study materials in a single location.
- I want the opportunity to speak with tutors and ask questions as a student.
- I want to be able to complain if there are any problems as a student.
- As an administrator, I want to maintain tabs on everything going on with the platform.
- As an administrator, I want to have the ability to keep track of and address student issues.

2. Prioritize User Stories:

In order to rank user stories according to priority and urgency, the team should consult with stakeholders. As an illustration, although the functionality for live sessions and course integration are required, the capability for activity logs is optional. Iterative feature development should be done by the team. As an instance, they may begin by creating a basic live session feature and gradually add more features. To monitor progress and handle tasks later, they might utilize an agile board.

3. Develop Iteratively:

The group should iteratively create features. For instance, they may start by creating a basic live session feature and then add more features. To coordinate tasks and measure progress, they might utilize an agile board.

4. Continuous Testing and Feedback:

The development team should test new features often and get input from stakeholders. The programme may be improved using this feedback, and future development can be given higher priority.

5. Deploy and Maintain:

The team should deploy the programme to the production environment once it is complete and keep an eye out for any problems. The programme should be maintained, and any reported issues should be fixed.

6. Iterative Improvements:

The team should continue to gather feedback and make iterative improvements to the software based on user needs and changing requirements.

By following an agile design process, the team can deliver a high-quality e-learning web application that meets user needs and is flexible enough to adapt to changing requirements.

5.1 MODULES:

The structure of the modules of project are as follows:

1. Administrator Module
2. Tutors Module
3. Students Module

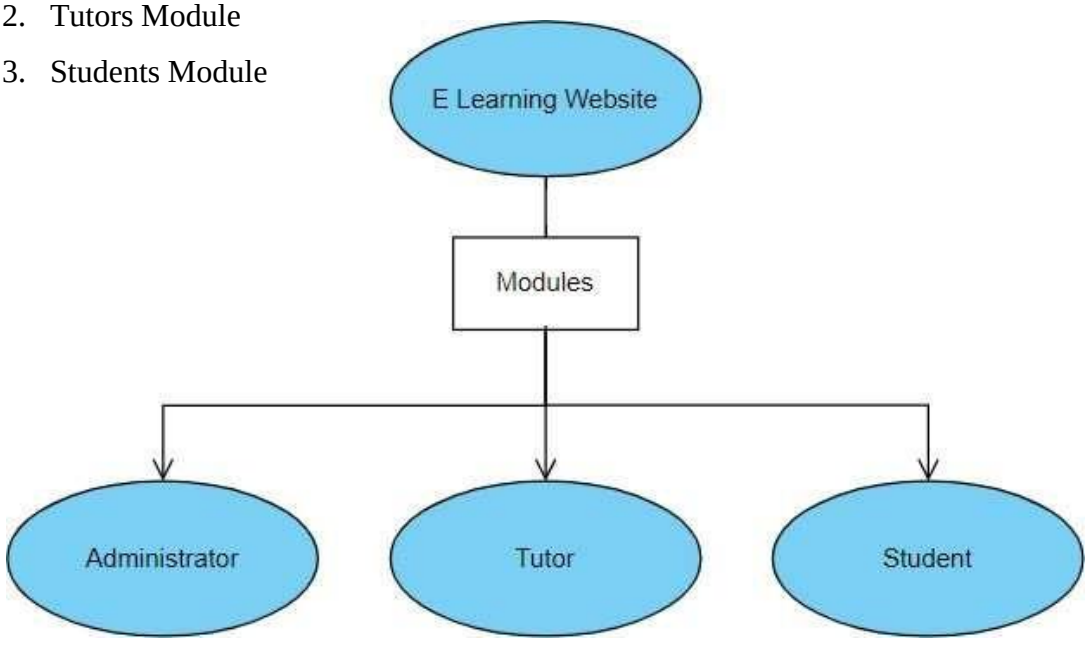

Fig.5.1.1. Demonstration of Project Modules

MODULE 5.1.1: 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 couponsto 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 historyof the activities occurred in the website.

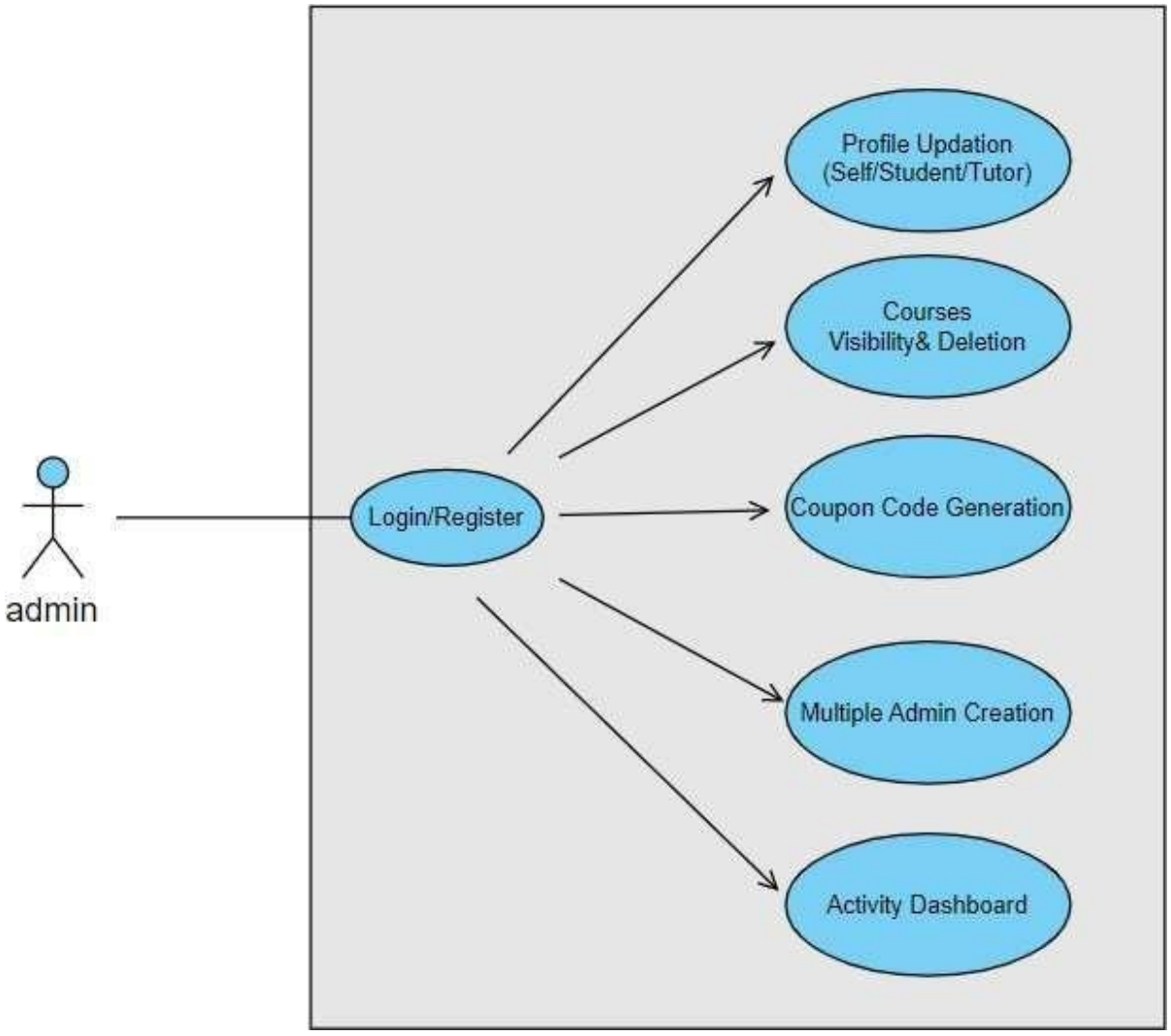

Fig. 5.1.1. Use Case Diagram of Administrator Module

MODULE 5.1.2: 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.

1) 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.

2) Hosting live sessions :-

Live sessions play's 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 sessionswhere tutors can interact with them properly.

3) 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 course's individually the list will be shown to the respective tutors.

4) 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.

5) 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.

6) 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 thecourses individually.

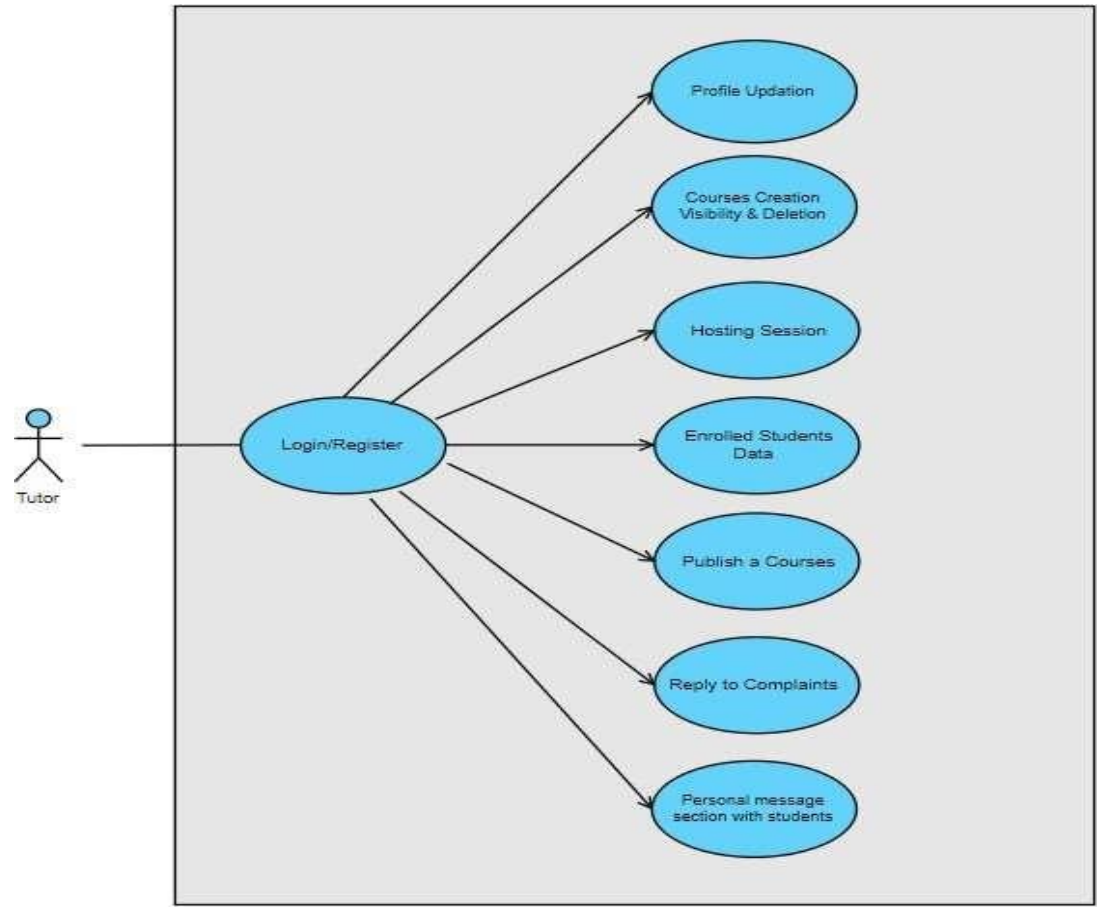

Fig. 5.1.2. Use Case Diagram of Tutor Module

MODULE 5.1.3: STUDENT MODULE

Student Module is very important because this whole project is made for them so that they can avail benefits by enrolling into the course where they want to upgrade their skills. This module helps students easily to track records with 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 enroll to the courses of their interests and in the field they want to complete their certifications. They can easily enroll 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.

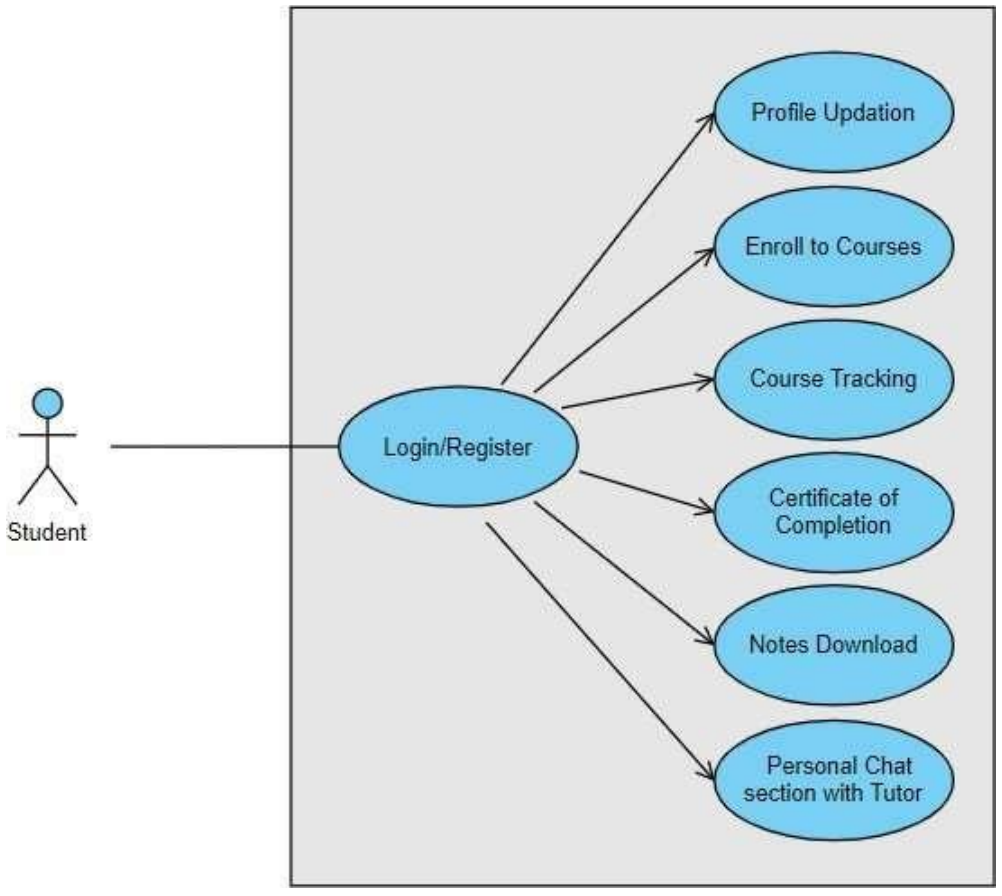

Fig. 5.1.3. Use Case Diagram of Student Module

5.2 RELATED METHODOLOGIES:

➢ Java

- Java is an object-oriented, class-based, general-purpose programming language. Since Sun Microsystems originally made it available in 1995, it has grown to rank among the most popular programming languages worldwide.
- The ability to "write once, run anywhere" is one of Java's core strengths. This implies that any platform with a Java Virtual Machine (JVM) installed may run Java code by compiling it into bytecode.
- Java is renowned for its robustness as it comes with features like type safety, exception handling, and automated memory management (garbage collection). These aspects aid in ensuring the dependability and absence of typical programming faults in Java programs.
- Java is used for a wide variety of applications, including enterprise software, web-based platforms, desktop and mobile apps, and mobile apps. Additionally, it plays a significant role in the creation of Android mobile applications.
- Many open-source libraries and frameworks are available for use with Java, which has a sizable and vibrant developer community. New updates and versions of the language are periodically published to introduce new features and enhance functionality.

➢ Spring Boot

- Spring Boot is a well-liked Java framework for creating web applications. With a focus on simplicity and usability, it offers a streamlined and effective method for creating online applications.
- Reducing the time and effort needed to start up and setup a new project is one of Spring Boot's primary benefits. It has a lot of pre-built parts and configurations that are simple to alter to fit the needs of a certain project.
- Various technologies, such as web applications, RESTful services, batch processing, and more, are supported by Spring Boot. It also interfaces with other spring projects, such Spring Data and Spring Security, without any issues.
- Support for embedded servers, which enables developers to package their programmes as self-contained executable JAR files, is another crucial aspect of Spring Boot. Without the need for complicated deployment parameters, this makes it simple to deploy and execute programmes in any environment.
- Spring Boot has a sizable and vibrant developer community, and there are numerous open-source tools and libraries available for use. Additionally, a wide variety of third-party tools and services support it, making it a popular option for creating scalable sites.

➢ HTML5

- The most recent version of HTML (Hypertext Markup Language), which is used to organize and present content on the web, is HTML5. Since its debut in 2014, it has evolved into the industry standard for web development.

- HTML5's capability to handle multimedia material, such audio and video, without the requirement for third-party plugins is one of its important characteristics. Because of this, creating rich, interactive online applications has become simpler and the user experience has substantially enhanced.
- Additionally, HTML5 comes with new markup tags and attributes that make it simpler to create intricate layouts and designs, like responsive web design that adjusts to various screen sizes and devices.
- HTML5's support for offline storage and web workers, which allow web applications to function even when the user is not connected to the internet, is another crucial feature. The usability and functionality of web apps have been significantly improved as a result.
- Additionally, HTML5 offers improved accessibility support, making it simpler to produce web content that is usable by people with disabilities. This has aided in promoting inclusivity and ensuring that all users, regardless of their ability, can access and enjoy web material.

➢ CSS3

- The most recent version of the CSS standard, known as CSS3 (Cascading Style Sheets 3), is used to style and layout web pages. Since its 1999 debut, it has undergone a number of modifications and enhancements.
- Support for responsive design, which enables web pages to adjust to various screen sizes and devices, is one of CSS3's core features. Media queries and flexible layout approaches are used to achieve this.
- CSS3 also adds additional selectors and attributes, such support for multiple backgrounds, border-radius, and text-shadow, which make it simpler to style and manage web content.
- The capability for animation and transitions provided by CSS3 allows web designers to construct dynamic and interactive user interfaces without the usage of cumbersome JavaScript code.
- CSS3 also offers new features like @font-face and web fonts that increase support for typography. As a result, there is now a much wider selection of typefaces accessible for usage on the web, which makes it simpler to produce stunning and understandable writing.

➢ JavaScript

- JavaScript is a dynamic, interpreted, high-level programming language that is mostly employed in client-side scripting for websites. Netscape Communications Corporation initially presented it in 1995.
- JavaScript's capability to dynamically change the content and functionality of web pages makes it one of its primary characteristics and enables a more engaging and responsive user experience. The creation of online games and animations also frequently makes use of it.
- JavaScript is a versatile language that supports a wide range of programming paradigms, including object-oriented, functional, and imperative programming. This makes it a popular choice for a variety of applications, from simple scripting to complex web applications.

- JavaScript also supports asynchronous programming, which enables web developers to run numerous processes concurrently without delaying the main thread. This is a crucial feature. This may significantly increase the responsiveness and speed of web apps.
- There is a sizable and vibrant community of JavaScript developers, and there are several open-source tools and frameworks that may be used. jQuery, React, and AngularJS are some of the most well-liked libraries and frameworks that offer effective tools for creating intricate and scalable online applications.

CHAPTER 6

OUTPUTS

CHAPTER 6

OUTPUTS

The main 4 sections in our projects are:

1. Index Page
2. Administrator Dashboard
3. Tutor Dashboard
4. Students Dashboard

- **Index Page of the project:**
  This is the main pain of the web applications for the students where they can view all the courses provided and can access them by registering and signing up into the application.

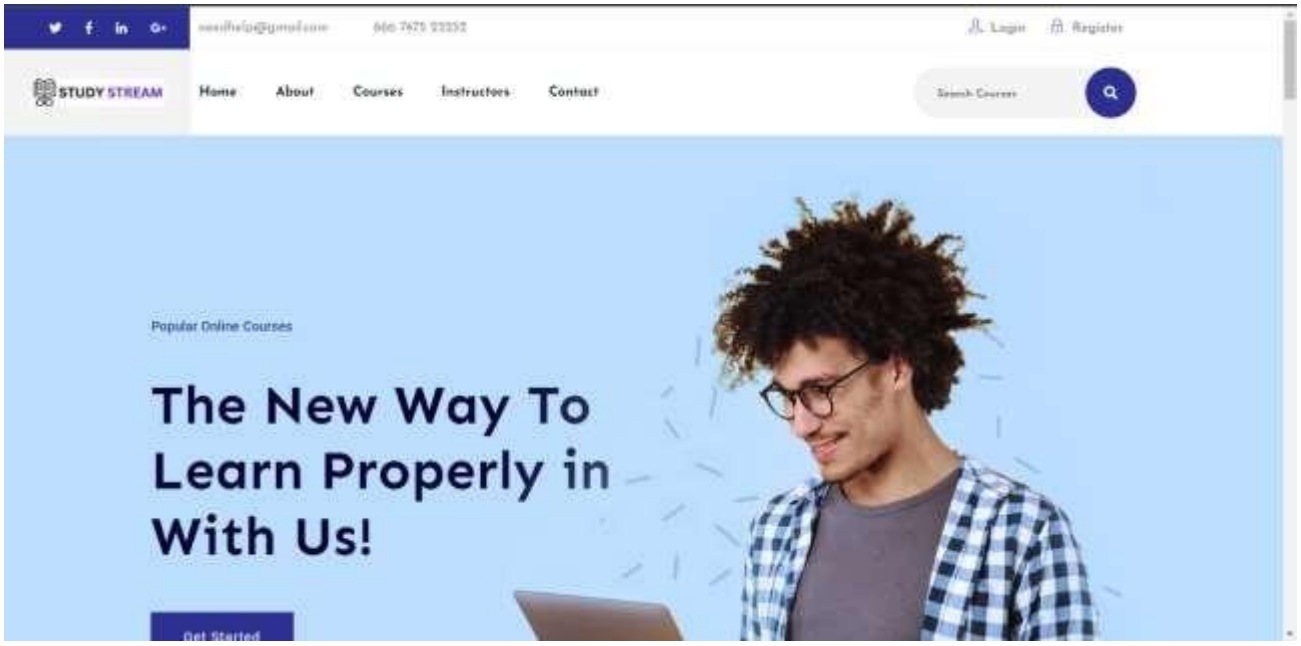

Fig.6.1: Index Page of the project

- **Administrator Dashboard In The Website**

  This is the main dashboard section of the administrator in this website where he can view all the activities occurred in the website and have full control over them update, delete and review them.

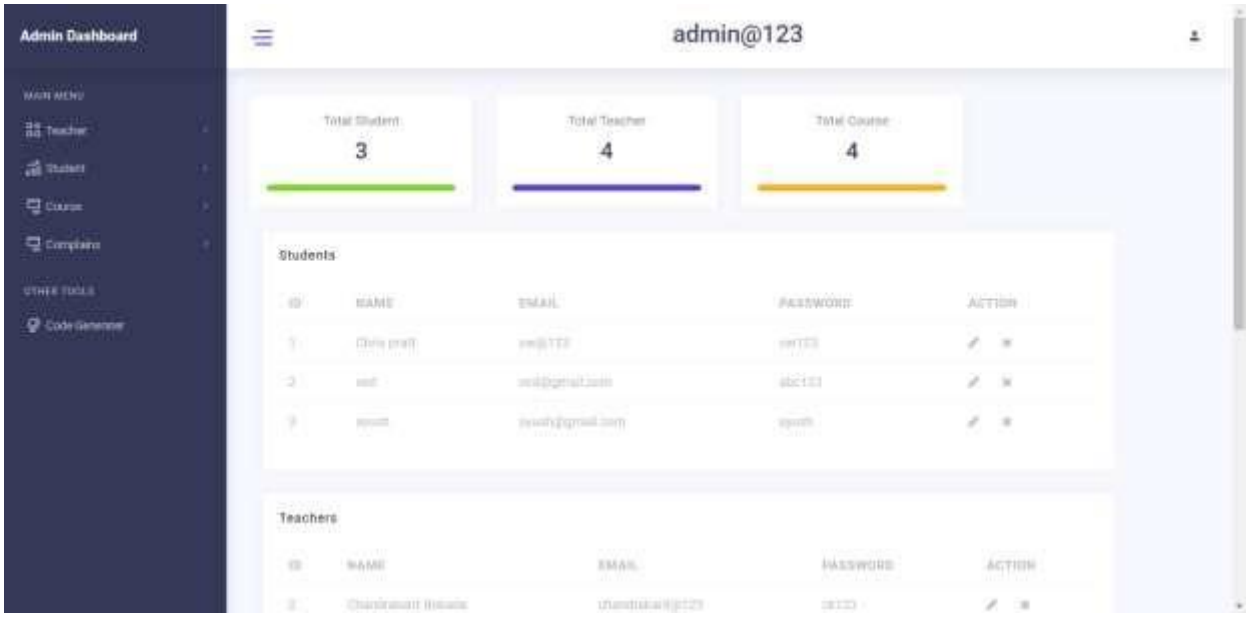

Fig.6.2: Administrator dashboard of the website

- **Tutor Dashboard In The Website**

  This is the dashboard of the tutor where he can view the enrolled students, view the information about the courses and can add the courses and can host a live session from this section of the website.

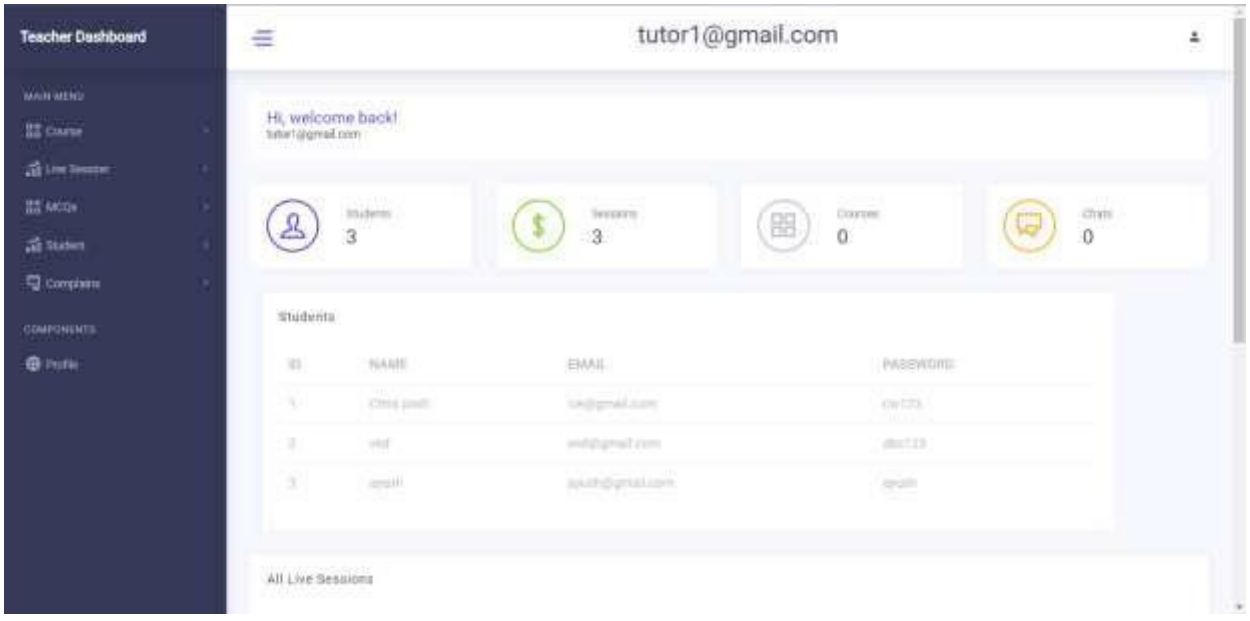

Fig.6.3: Tutor dashboard of the website

- **Students Dashboard In The Website**

  This is the student dashboard where the students can check their progress in the courses they have enrolled and can update their own profiles in it can view the hosted live sessions they attended.

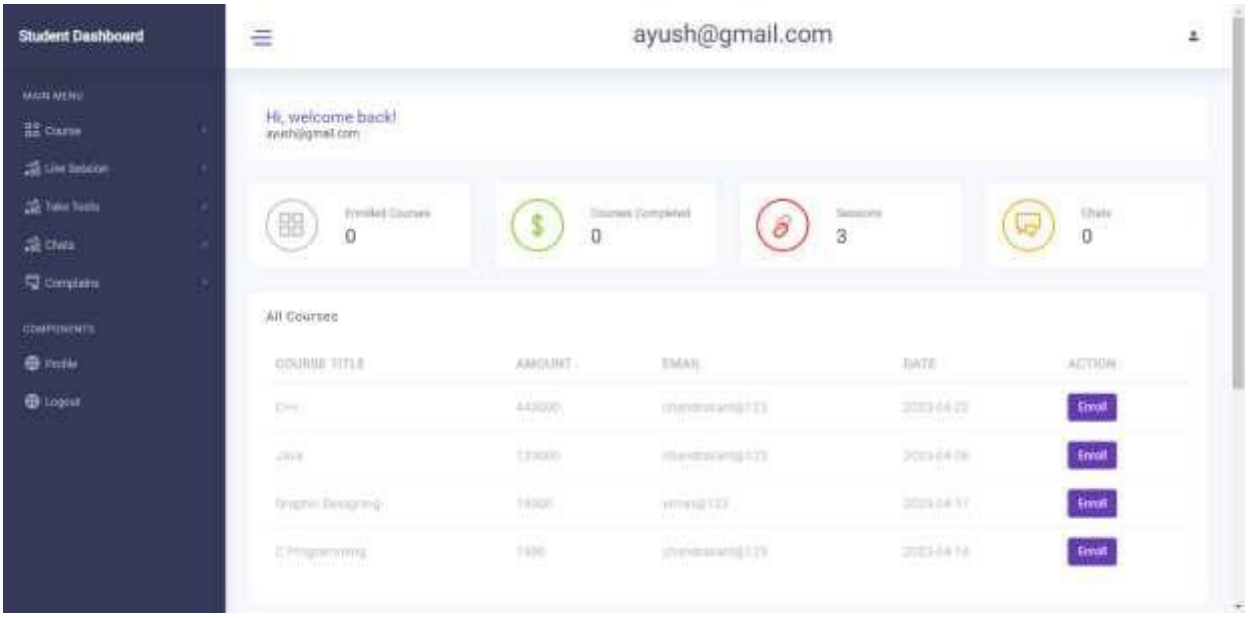

Fig.6.4: Students dashboard of the website

CHAPTER 7

APPLICATIONS

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APPLICATIONS

The Study Stream has the following applications:

1. E-Learning Platform:
   Using the application's online classes, study guides, homework assignments, and mock exams, students will be able to acquire and hone new abilities. The platform will be handy for students to learn at their own speed because it will be accessible from anywhere.

2. Live Session Facility:
The programme will include a live session capability that enables users to communicate in real time with tutors and other users. Learning will become more interesting and participatory thanks to this feature.

3. Certification Courses:
The programme will provide certification courses that, following successful completion, will award students with a recognized certificate. Students will be able to demonstrate their abilities and expertise to potential employers in this way.

4. User-Friendly UI:
The application will feature an intuitive user interface (UI) that makes it simple for students to use and navigate. This will increase the application's use and dependability, which will appeal to students more.

5. Convenient Learning:
Students will be able to study and hone new abilities from the comfort of their homes with the aid of the application. They will have the freedom to access the courses whenever and whenever they choose and to learn at their own speed.

Overall, the initiative will provide a unique and practical method of learning while bridging the gap between students and teachers. It will provide students with a one-stop shop for improving their abilities and knowledge.

CHAPTER 8

ADVANTAGES

CHAPTER 8

ADVANTAGES

Benefits of Study Stream include:

1. Convenience: Because the platform is online, students may study without leaving their homes and without having to make a trip to a real classroom.

2. Flexibility: The platform enables learners to proceed at their own speed, giving them the freedom to fit their coursework around other obligations like job or family.

3. Enhanced Interactivity: The live sessions function gives students the chance to speak with instructors and ask questions in real time, resulting in a more interesting and involved educational experience.

4. Customizable Learning: The platform provides a range of courses so that students may select one that best suits their requirements and interests.

5. Certification: The certification courses offered by the platform provide students with recognized credentials that might improve their professional chances and show potential employers their expertise.

6. Easily Accessible Study Materials: The platform provides a variety of study resources, such as assignments and mock examinations, which may be utilized to reinforce learning.

7. User-Friendly: Students are more likely to be satisfied with the platform as a whole thanks to the platform's user-friendly UI, which makes it simple for them to browse and access the learning resources.

8. Economical: The platform provides a reasonably priced substitute for conventional classroom instruction, making it available to a larger spectrum of pupils.

CHAPTER 9

FUTURE SCOPE

CHAPTER 9

FUTURE SCOPE

Future scopes that could be possible based on Study Stream include:

1. Integration with Learning Management Systems: To give students and institutions a seamless learning experience, we may eventually combine the E-Learning platform with well-known Learning Management Systems (LMS) like Moodle or Blackboard.

2. AI-Powered Learning: The use of AI and machine learning algorithms might personalize the educational experience for each student, giving them feedback and information that is specifically customized to help them learn more effectively.

3. Virtual Reality: Thanks to technological improvements, we may look at incorporating VR into the E-Learning platform. Students could benefit from an immersive learning environment as a result of being able to engage and explore virtual worlds relevant to their studies.

4. Gamification: Including gamification strategies in the E-Learning platform may boost motivation and engagement among students. Based on how well they do in classes, assignments, and examinations, students may be given points, badges, and other awards.

5. Expansion to more Languages: Adding more languages to the E-Learning platform might broaden its audience and make it more accessible to students who do not speak English as their first language.

CHAPTER 10

CONCLUSION

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CONCLUSION

In conclusion, Study Stream, a live-session-integrated e-learning platform, is a very useful instrument for offering education and training to students all over the world. It enables students to advance their abilities from the convenience of their homes thanks to its user-friendly design and wide selection of courses.

The learning process is made more dynamic and engaging by the presence of live sessions and the availability of instructor interaction. Students receive a thorough education that equips them for real-world situations through certification courses, practice exams, and projects.

The project's future potential is also enormous. The need for these platforms will only grow as more and more individuals choose online learning. This platform can stand out from the competition with the addition of more courses and features like AI-assisted learning and personalized learning paths.

Overall, this initiative has the potential to completely transform the education sector by improving accessibility, usability, and engagement. We can assist students all around the world in releasing their full potential and achieving their objectives in whichever technologies and techstacks they are interested in by offering a seamless learning experience.

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ANNAXTURE

IJARSCT
Impact Factor: 7.301
Scientific Journal Impact Factor
www.sjifactor.com

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

ISSN No. : 2581-9429

A Double Blind Peer-Reviewed Refereed Monthly Journal

Volume 3, Issue 3, April 2023

SCOPE DATABASE INDEXED

www.ijarsct.co.in

DOI: 10.48175/568

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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, summarize, 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 utilize 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

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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, issuesraised 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

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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 helpsstudents 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 upto 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.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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 Application 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

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

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 cannavigate 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 hasgrown rapidly in recent years, and this trend is expected to continue in the future. Our platform provides a user-friendly

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 3, Issue 3, April 2023
Impact Factor: 7.301

interface for students to access courses, a dashboard for both tutors and the administrators where tutors panel with contain the access for generating live sessions links, tests students 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 wellas 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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International Journal of Advanced Research in Science, Communicationand Technology (IJARSCT)

ISSN No. : 2581-9429

Impact Factor: 7.301

Scientific Journal Impact Factor

www.sjifactor.com

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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

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INTERNATIONAL STANDARD SERIAL NUMBER
ISSN NO: 2581-9429

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HAS PUBLISHED A IMPLEMENTATION PAPER ENTITLED

Study Stream Website using Java Spring Boot

IN IJARSCT, VOLUME 3, ISSUE 3, APRIL 2023

Certificate No: 042023-A1003
www.ijarsct.co.in

Crossref
DOI: 10.48175/IJARSCT-9226
www.doi.org
www.crossref.org

7.301
Scientific Journal Impact Factor
Journal Impact Factor
www.sjifactor.com

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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

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INTERNATIONAL STANDARD SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

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HAS PUBLISHED A IMPLEMENTATION PAPER ENTITLED

Study Stream Website using Java Spring Boot

IN IJARSCT, VOLUME 3, ISSUE 3, APRIL 2023

Certificate No: 042023-A1001
www.ijarsct.co.in

Crossref
DOI: 10.48175/IJARSCT-9226
www.doi.org
www.crossref.org

7.301
Scientific Journal Impact Factor
Journal Impact Factor
www.sjifactor.com

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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

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CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Ayush Khodankar

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HAS PUBLISHED A IMPLEMENTATION PAPER ENTITLED

Study Stream Website using Java Spring Boot

IN IJARSCT, VOLUME 3, ISSUE 3, APRIL 2023

Certificate No: 042023-A1000
www.ijarsct.co.in

Crossref
DOI: 10.48175/IJARSCT-9226
www.doi.org
www.crossref.org

7.301
Scientific Journal Impact Factor
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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH IN SCIENCE, COMMUNICATION AND TECHNOLOGY

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CERTIFICATE OF PUBLICATION

INTERNATIONAL STANDARD SERIAL NUMBER
ISSN NO: 2581-9429

THIS IS TO CERTIFY THAT

Ayush Wandhare

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HAS PUBLISHED A IMPLEMENTATION PAPER ENTITLED

Study Stream Website using Java Spring Boot

IN IJARSCT, VOLUME 3, ISSUE 3, APRIL 2023

Certificate No: 042023-A1002
www.ijarsct.co.in

Crossref
DOI: 10.48175/IJARSCT-9226
www.doi.org
www.crossref.org

7.301
Scientific Journal Impact Factor
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International Journal of Advanced Research in Science, Communication and Technology

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INTERNATIONAL STANDARD SERIAL NUMBER
ISSN NO: 2581-9429

This is to certify that

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has published a implementation paper entitled

Study Stream Website using Java Spring Boot

in IJARSCT, Volume 3, Issue 3, April 2023

Certificate No: 042023-A1004
www.ijarsct.co.in

Crossref
DOI: 10.48175/IJARSCT-9226
www.doi.org
www.crossref.org

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