



## GAME BASED DIGITAL QUIZ AS A TOOL FOR IMPROVING STUDENT'S ENGAGEMENT LEARNING IN ONLINE LECTURES

N.S. Kavitha<sup>1</sup>, G.K. Arjun Annamalai<sup>2</sup>, J. Deeparaja<sup>3</sup>, M. Jeeva Anandh<sup>4</sup>

<sup>1</sup>Associate Professor, Department of CSE, Sri Ramakrishna Institute of Technology,

<sup>2,3,4</sup>Student, Department of CSE, Sri Ramakrishna Institute of Technology, Coimbatore, Tamil Nadu, India

**ABSTRACT:** The outbreak of the COVID 19 crisis has given rise to online classes that have changed the way of learning. EDUTEACH E-learning platform has been carefully designed to enhance the learning and teaching process to meet different learning styles and needs. It uses python anaconda scripts to provide a learning environment that supports personal development and learning success with an easy-to-use user interface. It provides unparalleled flexibility in training programs through prioritization, efficiency and customer reach. With good understanding, users can find, store, export, save, use and visualize information to benefit a dynamic business. EDUTEACH offers comprehensive courses and easy-to-use templates so students can easily search and enroll. By using rich online resources and classroom libraries, students can step outside the traditional classroom and embark on an independent learning journey. It also offers an alternative to traditional teaching, making quality education free and accessible to everyone.

Keywords – Learning Platform, sequential convolutional neural network, deep learning.

### I. INTRODUCTION

Due to the global impact of COVID-19, students and teachers have adapted to a new environment by interacting through various online platforms. The spread of online learning and education in India has helped bridge the gap created by physical distance learning. Available for Android and iOS, these apps offer a variety of learning options and tools to meet the needs of today's students.

In the context of behavior based on memory and learning materials, modern educational methods only promote changes in learning. This flexibility provides individualized teaching and learning strategies based on each student's unique learning needs. This approach not only promotes a deeper understanding of the content but also creates a harmonious classroom environment that benefits both students and teachers.

The essence of the concept of personalized learning is the integration of technologies that facilitate the design, implementation, and evaluation of educational interventions. Using multimedia materials such as videos, audio clips, and interactive games, teachers can present content in ways that suit different learning styles. Students can further demonstrate their understanding with a variety of options, from demonstrations to interactive simulations.

An important aspect of personalized learning is its ability to keep students interested, interested, and engaged in meeting individual needs. In traditional classrooms, there is frequent interaction between teachers and students, resulting in poor communication. For example, a personalized learning model encourages interaction, which not only enhances learning but also supports personal growth and development. Research shows that integrating technology into personalized learning plans can improve student outcomes, including test scores and academic achievement.

In response to the changing nature of education, the use of e-learning has become an important tool to promote personal development, that is, teaching to learn. These platforms have many designs designed to facilitate learning engagement and accessibility. From interactive multimedia content to instant feedback, e-learning allows teachers to create a dynamic learning environment that works for their students.

This next article explores the role of technology in redefining traditional education models by focusing on personalized learning. By analyzing the latest trends and developments in e-learning technology, we aim to demonstrate the evolution of digital platforms to promote equity and efficiency in education.

## II. SCOPE OF THE PROJECT

- Overview:** The scope of this project includes an in-depth investigation of the role of technology in reforming traditional education models, focusing on the integration of personal teaching with the participation of e-learning platforms. This project aims to gain a deeper understanding of the changing nature of teaching and learning today by examining the development of digital tools to promote equity and excellence in education.
- Online Education Research:** The program will focus specifically on examining emerging trends in online education in response to the global impact of the COVID-19 pandemic. Through a comprehensive review of literature and research, significant changes in educational practices will be identified, and factors contributing to the use of e-learning platforms will be explored, with particular attention to their practicality and effectiveness.
- Understanding Personalized Learning:** The essence of the program is self-directed learning, requiring appropriate learning skills to meet students' unique needs and interests. By delving into the principles and practices of self-directed learning, we will examine how technology can be used to transform teaching, assessment, and learning skills, improving student engagement and learning outcomes.
- Researching e-learning applications:** The project will also examine e-learning applications and their potential to support independent learning. By comparing different platforms, we evaluate the features and tools these applications provide, such as interactive content, real feedback strategies, and adaptive learning algorithms. The platforms will also be evaluated for usability and accessibility across different devices and user groups.
- Education Technology Trends:** Another important part of the plan is to look at technological processes that create the future of education, such as mobile learning, augmented reality, gamification, artificial intelligence, and microlearning. The potential impact of technology on teaching practices and their impact on morality, ethics, and collaboration, published by industry publications and expert opinions, will be reviewed.
- Recommendations for future research and practice:** In addition to a comprehensive review of current trends and practices in online and self-directed learning, recommendations for future research and practice will be presented. By identifying areas for further research and innovation, we will foster ongoing dialogue about the role of technology in improving equity, usability, and performance in education.

- Overall, the program aims to deepen understanding of the intersection of technology and education, with the goal of teaching decision-making, policy, curriculum design, and practice in the digital age. Through rigorous research and evaluation, we will seek to explore the potential of e-learning platforms and personalized learning plans to transform the learning outcomes of many students around the world.

## III. PROPOSED SYSTEM

E-learning represents a revolution in education by providing rapid access to knowledge and information. Using a variety of electronic learning tools, such as online courseware, facilitates asynchronous teaching and provides access anytime and anywhere. E-learning overcomes geographic barriers and supports the integration of virtual learning, which is vital for today's organizations striving to be competitive.

To realize e-learning projects, organizations need to pay attention to different channels and offer good products and services for a good cause. Key decisions include determining the overall goals of the e-learning solution, including selecting students, demonstrating excellence in teaching and research, and publishing timely and accurate information. Moreover, a good platform for customers is important in terms of user experience, promoting interaction between students and parents, as well as functions such as designing courses, studies, student registration, and program management.

Features such as "Class Stories" increase parent involvement and help track student progress. Additionally, creating a competitive learning environment can motivate students and make them successful, thus increasing the effectiveness of e-learning.

## IV. SYSTEM ARCHITECTURE

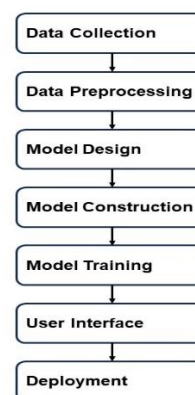


Figure 1: System architecture of the proposed system

### Data Collection

Data collection is the process of gathering and organizing information for a specific purpose, usually for research, analysis, or other information studies. A database is a structured collection of information or content that is organized and stored together. Collect data and gather valuable insights from a variety of sources including research, testing, monitoring, web scraping, sensors and more.

## Data Preprocessing

Data preprocessing is an important step in searching and analyzing data. Involves cleaning, transforming and shuffling raw data. The goal is to diversify the dataset and increase variance while minimizing error that can occur in the model.

## Model Design

Design is the process of creating model representation to understand, analyses, simulate or communicate the characteristics, behavior or operation of a system, process or concept. Modelling plays an important role in problem solving, decision making and prediction.

## Model Construction

Model Construction refers to the design of a training model by defining specific parameters and constraints that affect the way the model is trained. This step is usually done after the architectural model has been decided during the design process. Rendering is a necessary step before training the model on specific data.

## Model Training

Model Training refers to the process of correcting the parameters of a model to minimize the difference between its predicted properties and their actual values for given data. This technique is an important part of many topics such as statistics and computer modelling.

## User Interface

Learning platform's user interface (UI) has been meticulously designed to ensure an enjoyable and user-friendly experience. The user interface (UI) is designed for ease of use and readability, making it accessible to people with varying degrees of technical experience. The interface allows users to easily access course, provide information, and use Category for easily accessing similar courses.

## Deployment

In a software environment, deployment is the process of making software programs and designs available for users to use and run. It requires moving production and test code or prototypes from a development environment to a production environment where end users can access and use them.

## V. EXISTING SYSTEM

Offline education is often called traditional education and has been around since ancient times. It is a face-to-face interaction between student and teachers in a physical location. Offline courses may not have the same access to online courses as digital books and other online tools. This will limit the types of learning students can have and make it difficult for them to stay abreast of new topics in their field.

Distance education and training are gaining popularity, especially amid the COVID-19 crisis in early 2020. As a result, many schools and universities around the world have switched to online teaching mode. The basic design of the Frontend has been completed and a literature review has been performed. Many surveys have been conducted regarding e-learning content.

## VI. LITERATURE REVIEW

Krenare Pireva Nuci et al., proposed the differences in the results of using cognitive strategies such as This study is about e-learning and this study presents different research that uses e-learning systems to create exercises. E-learning faces many problems such as how to preserve the main content, how to change e-learning. Advances in Machine Learning Computing Enabled by Deep Learning Neural Network Models.[1]

L.R. kearns et al., presented the e-learning ecosystem provides effective ways to manage teaching and learning by integrating technology, supporting ideas and expertise, and transforming learning and assessment. The rate of research on adolescents and adults with autism is low. Therefore, the authors believe that it is important to direct future studies to these individuals. To implement e-learning adaptations, developers need to create powerful representation tools regarding user data and their state or change processes in applications.[2]

C. Damsa et al., discussed different students interact with video quizzes in different ways, and the motivation behind these interactions varies. Complete, find challenges, comment and review. These motivations should be taken into account when creating questions to facilitate student learning and encourage greater engagement with the film content. [3]

C.J.Bonk et al., demonstrates integration into a presentation view using elements of test game mechanics along with tracking data and interactive content. Drawing art concepts. This test application is designed to determine the purpose of presentation purposes only. The application and its console combine the content of the mechanics asked, the idea of the subject of presentation, the content of installation art and the research question.[6]

## VII. RESULT AND ANALYSIS

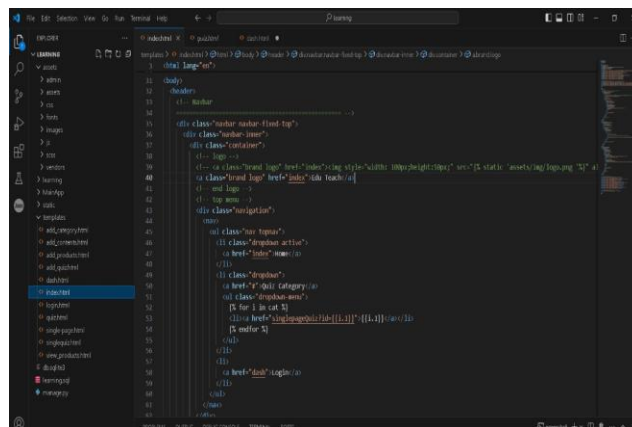


Figure 2: Random code of Learning Platform

VIII. CONCLUSION

During the designing and implementing a good E-learning program, it is important to know the suitability of different vendors' products and services, hence the need for an internal core integration platform. To begin this process, it is recommended to explain the specific goals and objectives of the desired solution. The future efforts will be directed towards creating a suitable website and a strong query platform. A significant part of our efforts is improving our ability to integrate infrastructure with the frontend. The next phase will require the integration of database servers and the introduction of new measurement capabilities. By addressing these issues, The aim is to foster an E-learning environment that improves participation and knowledge retention. This iteration reflects our commitment to fine-tuning and expanding the capabilities of our education platform, making it useful and effective in meeting students' needs.

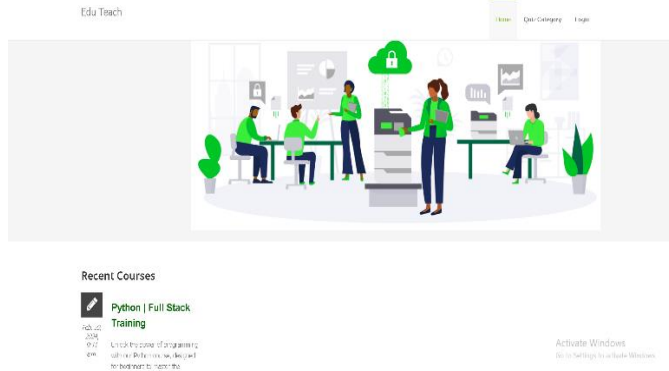


Figure 3: Home page of E-Learning Platform

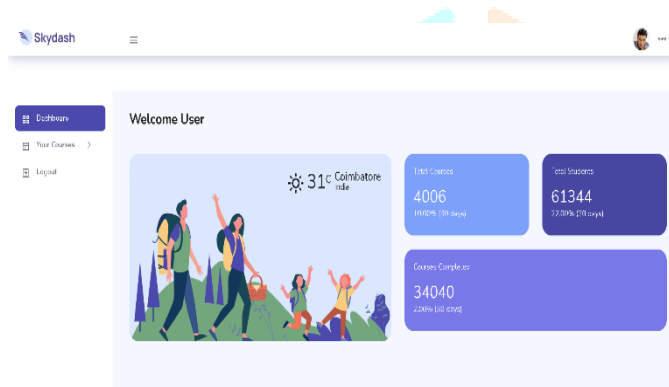


Figure 4: Dashboard page of E-Learning Platform

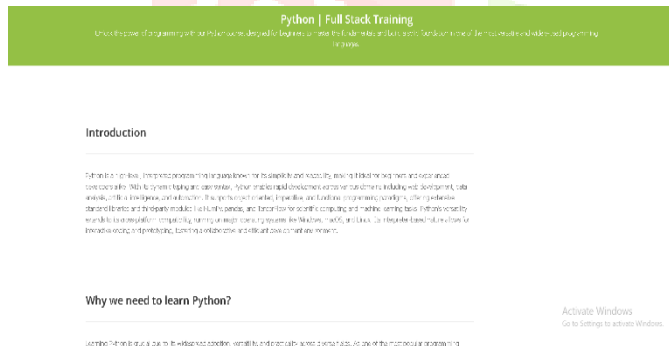


Figure 5: Content page of E-Learning Platform

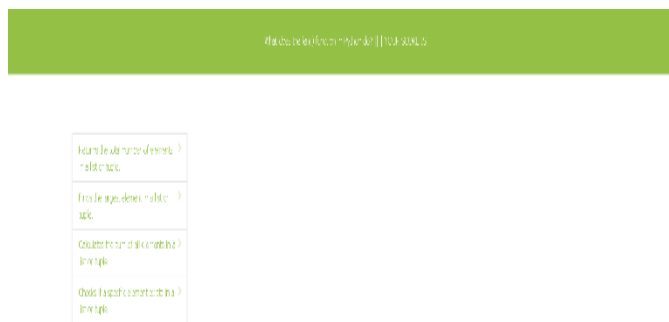


Figure 6: Quiz page of E-Learning Platform

IX. ACKNOWLEDGEMENT

The authors are deeply grateful to The Honorable Principal and Faculties of Sri Ramakrishna Institute Of Technology, Coimbatore for providing the necessary support, guidance and facilities for the preparation of the paper.

X. REFERENCES

- [1] Krenare Pireva Nuci, Rabail Tahir, Alf Inge Wang and Ali Shariq Imran , “Game-Based Digital Quiz as a Tool for Students’ Engagement and Learning in Online Lectures”, vol 9, 2021.
- [2] L. R. Kearns, “Student assessment in online learning: Challenges and effective practices,” J. Online Learn. Teach., vol. 8, no. 3, p. 198, 2012
- [3] M. Langford and C. Damsa, “Online teaching in the time of COVID19: Academic teachers’ experience in Norway,” Centre Experiential Legal Learn., Univ. Oslo, Oslo, Norway, Feb. 2020.
- [4] WorldBank. (2020). Guidance Note on Education Systems’ Response to COVID19 How Does COVID19 Impact Education. pp. 1–6.
- [5] WorldBank. (Apr. 2020). The COVID-19 Crisis Response: Supporting Tertiary Education for Continuity, Adaptation, and Innovation.
- [6] K.-J. Kim and C. J. Bonk, “The future of online teaching and learning in higher education,” Educause Quart., vol. 29, no. 4, pp. 22–30, 2006.
- [7] J. Keengwe and T. T. Kidd, “Towards best practices in online learning and teaching in higher education,” MERLOT J. Online Learn. Teach., vol. 6, no. 2, pp. 533–541, 2010.



- [8] L. Peña-Lévano, "Personalizing online classes: The use of evaluation and participation tools," *Appl. Econ. Teach. Resour. (AETR)*, vol. 2, no. 2, pp. 51–58, 2020.
- [9] R. Säljö, "Digital tools and challenges to institutional traditions of learning: Technologies, social memory and the performative nature of learning," *J. Comput. Assist. Learn.*, vol. 26, no. 1, pp. 53–64, 2010.
- [10] [10] D. Laurillard, *Rethinking University Teaching: A Conversational Framework for the Effective Use of Learning Technologies*. Evanston, IL, USA: Routledge, 2013.
- [11] [11] C. R. Graham, W. Woodfield, and J. B. Harrison, "A framework for institutional adoption and implementation of blended learning in higher education," *Internet Higher Educ.*, vol. 18, pp. 4–14, Jul. 2013.
- [12] E. Alqurashi, "Technology tools for teaching and learning in real time," in *Educational Technology and Resources for Synchronous Learning in Higher Education*. Hershey, PA, USA: IGI Global, 2019, pp. 255–278.
- [13] K. Beidler and L. Panton, "Incorporating the virtual into the physical classroom: Online mastery quizzes as a blended assessment strategy," *J. Interact. Technol. Pedagogy*, vol. 3, no. 3, May 2013.
- [14] D. Cohen and I. Sasson, "Online quizzes in a virtual learning environment as a tool for formative assessment," *JOTSE*, vol. 6, no. 3, pp. 188–208, 2016.
- [15] W. S. Ng and K. S. Cheng, "A collaborative blended learning approach for learning Web programming," in *Proc. Int. Conf. Inf. Commun. Technol. Educ. (ICICTE)*, 2018, pp. 49–58.
- [16] T. Brothen and C. Wambach, "Effective student use of computerized quizzes," *Teach. Psychol.*, vol. 28, no. 4, pp. 292–294, Oct. 2001.
- [17] D. B. Daniel and J. Broida, "Using Web-based quizzing to improve exam performance: Lessons learned," *Teach. Psychol.*, vol. 31, no. 3, pp. 207–208, Jul. 2004.
- [18] M. G. Urtel, R. E. Bahamonde, A. E. Mikesky, E. M. Udry, and J. S. Vessely, "On-line quizzing and its effect on student engagement and academic performance," *J. Scholarship Teach. Learn.*, vol. 6, no. 2, pp. 84–92, 2006.
- [19] A. I. Wang and R. Tahir, "The effect of using Kahoot! For learning—A literature review," *Comput. Educ.*, vol. 149, May 2020, Art. no. 103818.
- [20] A. I. Wang, "The wear out effect of a game-based student response system," *Comput. Educ.*, vol. 82, pp. 217–227, Mar. 2015.
- [21] A. I. Wang and A. Lieberoth, "The effect of points and audio on concentration, engagement, enjoyment, learning, motivation, and classroom dynamics using Kahoot," in *Proc. Eur. Conf. Games Based Learn.*, vol. 20, Academic Conferences International Limited, 2016, pp. 737–748.
- [22] B. S. Horvitz, A. L. Beach, M. L. Anderson, and J. Xia, "Examination of faculty self-efficacy related to online teaching," *Innov. Higher Educ.*, vol. 40, no. 4, pp. 305–316, 2015.
- [23] T. Drange, I. Sutherland, and A. Irons, "Challenges of interaction in online teaching: A case study," in *Proc. Int. Conf. E-Technol. Bus. Web*, vol. 3, 2015, pp. 35–42.
- [24] C. J. Navarrette and R. A. Guthrie, "Challenges in teaching large online sections," in *Proc. AMCIS*, 2008, p. 377.
- [25] S. Liu, K.-J. Kim, C. J. Bonk, and R. Magjuka, "What do online MBA professors have to say about online teaching," *Online J. Distance Learn. Admin.*, vol. 10, no. 2, p. 2, 2007.