"LearnWit"
Second year Mini Project Report

Submitted in partial fulfillment of the requirements of the

degree

BACHELOR OF ENGINEERING IN COMPUTER ENGINEERING

By

Suryanarayan Panigrahy D7C/ 47

Hemant Satam D7C/ 56

Gaurav Gupta D7C/ 26

Harsh Patil D7C/ 50

Supervisor

Prof. Mrs. MANISHA MATHUR

Department of Computer Engineering

**Vivekanand Education Society's Institute of Technology
HAMC, Collector's Colony, Chembur,
Mumbai-400074
University of Mumbai
(AY 2023-24)**

CERTIFICATE

This is to certify that the Mini Project entitled " **LearnWit** " is a bonafide work of **Suryanarayan Panigrahy(47), Hemant Satam(56), Harsh Patil(50), Gaurav Gupta(26)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **"Bachelor of Engineering"** in **"Computer Engineering"** .

(Prof._Mrs Manisha Mathur___)

Supervisor

(Prof._____)   (Prof._____)

Head of Department   Principal

Mini Project Approval

This Mini Project entitled "_____LearnWit_____"

by **Suryanarayan(47), Hemant (56), Harsh(50), Gaurav (26)** is approved for the

degree of **Bachelor of Engineering** in **Computer Engineering.**

Examiners

1..
(Internal Examiner Name & Sign)

2..
(External Examiner name & Sign)

Date:

Place:

Contents

Abstract:
This project currently works on crafting an e-learning quiz platform utilizing HTML, CSS, and JavaScript. Its primary objective is to captivate learners with dynamic quizzes showcased in an intuitive interface. The design emphasizes delivering educational material in a visually attractive format that seamlessly adapts. By incorporating interactive elements, it aims to enrich the learning journey by offering instant feedback and scoring to sustain learner involvement and enthusiasm. Ultimately, the project aspires to equip users with knowledge and expertise while ensuring a smooth and delightful educational voyage.

1. Introduction:

1.1 Introduction:

E-learning, a system rooted in structured instruction but leveraging electronic tools, facilitates the dissemination of skills and knowledge via network connectivity. It enables education to reach a vast audience simultaneously or asynchronously. The advent of computers sparked this transformative shift, and as society increasingly embraces smartphones, tablets, and similar devices, they have become integral to the learning environment.

This project endeavors to address the limitations inherent in traditional e-learning methodologies, striving for innovation and improvement in the educational landscape.

1.2 Motivation:

The project quiz website is driven by three key principles:

1) **Simple UI:** It prioritizes a user-friendly, clutter-free interface for an optimal learning experience.
2) **Ad-Free Environment:** It provides an uninterrupted learning environment by eliminating ads.
3) **E-Learning Growth:** The project team continuously evolves to stay in line with e-learning trends and technologies.

These principles guide the commitment to delivering a valuable and evolving educational platform.

1.3 Problem Statement and Objectives:

Problem Statement:
In today's educational landscape, many students face a common challenge: boredom in their studies. Extensive research highlights this concerning trend, revealing that traditional study methods are often perceived as uninspiring. The predominant lecture-based approach is particularly at fault, as it fails to captivate students due to its static nature and limited interactivity. Consequently, students often find themselves disengaged, passively absorbing information without genuine interest or involvement.

To address this issue, educators and innovators must devise and implement innovative solutions that not only spark students' curiosity but also foster meaningful interaction and active participation. By embracing new approaches and leveraging technology, the aim is to create a dynamic and immersive learning experience that ignites students' passion for knowledge and empowers them to thrive academically and beyond.

Objectives:
- Develop an educational platform designed to combat boredom in studies and enhance student engagement.
- Implement features that promote user interactivity, such as interactive quizzes, discussions, and doubt solving.
- Create a dynamic learning and testing interface that combines educational content with assessment tools, fostering active participation and knowledge retention.

1.4 Organisation of the Report:

The report is structured as follows: It begins with an introductory section that outlines the motivation, problem statement, and objectives of the study, along with an overview of the report's organization. The subsequent section conducts a thorough literature survey, examining existing systems, highlighting limitations or research gaps, and discussing the contributions made by the mini project. The core of the report focuses on the proposed system, introducing a new approach to data summarization. This section covers the system's architecture, algorithm design, hardware and software details, and presents experimental results. It concludes with a summary of findings and outlines future work. This organized structure ensures a comprehensive exploration of the research and project.

2. LITERATURE SURVEY:

2.1 Survey of Existing System:

Name of Research paper	Reference	Summary of Research Paper
QuizFun: Mobile based quiz game for learning	M.I.T.C. Perera, K. Lokuge, H. Mudunkotuwa, N. Premarathne and M. Kularathna, "QuizFun: Mobile based quiz game for learning," 2009 International Workshop on Technology for Education, Bangalore, India, 2009, pp. 95-98,doi:10.1109/T4E.2009.5314125.	QuizFun is a research paper that explains how the software incorporates gaming elements, such as multiplayer mode, scoring system, feedback, and emoticons, to create an interactive and fun learning environment.
Developing a Desktop-based Offline Quiz Application	V. Mutiawani, N. Amrin, K. Saputra and D. H. Yunardi, "Developing a Desktop-based Offline Quiz Application," 2020 IEEE Conference on e-Learning, e-Management and e-Services (IC3e), Kota Kinabalu, Malaysia, 2020, pp. 98-103, doi: 10.1109/IC3e50159.2020.9288376.	This research paper shows that there can be Internet connection or network problem in between the Quiz which further affect the result of the students and students won't be able to attempt many of the questions in time.Therefore this paper focuses on developing a website of Quiz which can be accessed Offline by the user.

Development and Evaluation of Peer Feedback in the English Quiz Game Design in Social Network	J. -P. Hwang, T. -T. Wu, Y. -M. Huang and Y. -M. Huang, "Development and Evaluation of Peer Feedback in the English Quiz Game Design in Social Network," 2012 IEEE 12th International Conference on Advanced Learning Technologies, Rome, Italy, 2012, pp. 235-239, doi: 10.1109/IC ALT.2012.136	They developed a game-based learning system on a social network platform (then Facebook) to instruct customs and cultures in the English speaking countries in order to investigate the increase of learning willingness and motivation by using the digital game-based learning(DGBL) model.
"GAME QUIZ" - Implementing a serious game platform based in quiz games for the teaching of information and technology	J. Brandão and V. Carvalho, ""GAME QUIZ" - Implementing a serious game platform based in quiz games for the teaching of information and technology," 2014 11th International Conference on Remote Engineering and Virtual Instrumentation (REV), Porto, Portugal, 2014, pp. 47-50, doi: 10.1109/REV.2014.678421 8	This is an online platform based on serious games that aims to enhance the interest of children in learning about Information and Communication Technology (ICT) through the promotion of a quiz game called "Quern Quer Ser Informático?"1. The platform is designed to be used as a teaching tool for ICT subject based on the Portuguese National Educational Program . The paper suggests that this platform can contribute to a change in the present educational program into a more attractive and motivating program for students
Game-Based Digital Quiz as a Tool for Improving Students' Engagement and Learning in Online Lectures	K. P. Nuci, R. Tahir, A. I. Wang and A. S. Imran, "Game-Based Digital Quiz as a Tool for Improving Students' Engagement and Learning in Online Lectures," in IEEE Access, vol. 9, pp. 91220-91234, 2021, doi: 10.1109/ACCESS.2021.30 88583.	During the COVID-19 pandemic, educational institutions embraced online teaching. This study in Kosovo assesses student engagement and motivation during online learning using a game-based quiz tool. It reveals that systematic in-lecture quizzes significantly boost engagement and accelerate the learning curve (73% compared to 57.5%) compared to classes without such quizzes.

Quizzes (As a Tool for Self-Regulated Learning) in Software Engineering Education	J. B. Rocha, L. F. C. Costa, R. Prada, A. R. Silva, D. Gonçalves and P. Correia, "Quizzes (As a Tool for Self-Regulated Learning) in Software Engineering Education," 2020 IEEE 32nd Conference on Software Engineering Education and Training (CSEE&T), Munich, Germany, 2020, pp. 1-10, doi: 10.1109/CSEET49119.2020.9206235.	This paper discusses how quizzes in software engineering education boost student engagement and motivation. While various quiz formats are used, full integration with Zimmerman's cyclic model is lacking. We suggest that sharing quizzes can enhance self-regulation in this field. The paper also outlines steps taken by a Software Engineering Gamification project to create a quiz-sharing tool and future plans to integrate self-regulation using Zimmerman's model.
Effects of Gamified Quiz to Student's Motivation and Score	Y. Tanaka, H. Uwano, T. Ichinose and S. Takehara, "Effects of Gamified Quiz to Student's Motivation and Score," 2016 8th International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES), Barcelona, Spain, 2016, pp. 1-4, doi: 10.1109/VS-GAMES.2016.7590345.	The passage emphasizes the significance of student motivation in education, introduces the concept of gamification and its impact on motivation and performance, and presents the findings of an experiment using a ranking system as a gamification element in an e-learning platform. The results indicate that gamification can enhance motivation but may not necessarily lead to higher quiz scores, and it highlights the need to consider individual student characteristics and user IDs in the gamification process.

2.2 Limitation Existing System or Research Gap:

1. Content for High School and smaller children and not for Degree and Higher Studies Students
2. Made for teachers to assess their students, and not for the learning purposes of the student itself.
3. Formal Approach and less interactive, testing the user students but not educating.
4. Lack of a socially competitive sporting approach makes the learning process uninteresting.

2.3 Mini Project Contribution:

This platform has the capacity to enrich society by presenting captivating and informative quizzes covering diverse subjects, nurturing a sense of belonging through interactive elements, and actively integrating user input for continual enhancement. Its sustainable business model ensures the provision of valuable content and utilities to users in the long haul.

Furthermore, the platform holds promise in supporting lifelong education, aiding individuals of varying ages in acquiring fresh insights and competencies. It can also function as a venue for disseminating valuable knowledge and perspectives, fostering intellectual inquisitiveness and facilitating the exchange of thoughts. Ultimately, through delivering a seamless, user-centric interface and pertinent content, this platform can enhance the lives of its users and contribute meaningfully to society's shared pursuit of learning and knowledge exchange.

3.PROPOSED SYSTEM:

3.1 Introduction:
In today's digital age, the integration of e-learning and technology has revolutionized the way we approach education. Delving into this realm, the concept of quizzes emerges as a powerful learning platform, offering a dynamic and interactive avenue for knowledge acquisition. The proposed solution harnesses the synergy between e-learning and quizzes to create a transformative learning experience.

With the proposed platform, users have access to a diverse array of quizzes spanning various topics, catering to individual interests and learning objectives. Beyond mere assessment, the proposed quizzes empower users to evaluate their own understanding, facilitating self-assessment and reflection. Through innovative features, such as graphical analysis, users gain insights into their performance, allowing them to identify strengths and areas for improvement with clarity. By leveraging the interactive nature of quizzes, the solution equips learners with the tools to comprehend their shortcomings and embark on a journey of continuous growth and development.

3.2Architecture/ Framework:
The proposed architecture for the e-learning quiz website combines HTML, CSS, and JavaScript for frontend development, along with Node.js and Express.js for backend operations. MongoDB serves as the database for storing user authentication data and quiz data such as questions, options and answers. User authentication is implemented securely, with credentials stored in MongoDB. Upon selecting a topic and difficulty level, quiz questions are retrieved from JavaScript files or MongoDB. Users can attempt quizzes, with their responses validated and scored by the server. Finally, users can log out securely.
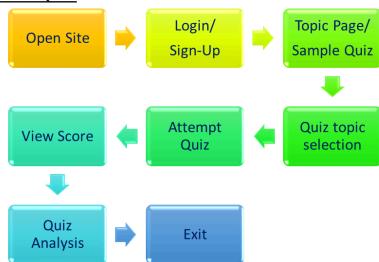
This architecture ensures a seamless user experience, allowing for efficient retrieval and display of quiz questions while maintaining robust user authentication and data storage. By leveraging a combination of frontend and backend technologies, the platform offers a dynamic and interactive learning environment for users to engage with quizzes tailored to their preferences and learning objectives.

3.3 Algorithm and Process Design
Algorithm:
Step 1: Sign Up Form - Input User Details
Step 2: Store the Details
Step 3: Login by entering the Details (Username and Password Verification)
Step 4: Select the various subjects on quizz
Step 5: Select Difficulty Level of the Quiz
Step 6: User will attempt the quiz (take answer input)
Step 7: Show the Result and analysis of the result of the Quiz
Step 8: Input review of the website
Step 9: User can download and print the result
Step 10: Return to the Home Page

Process Design of the Quiz:

3.4 Details of Hardware & Software
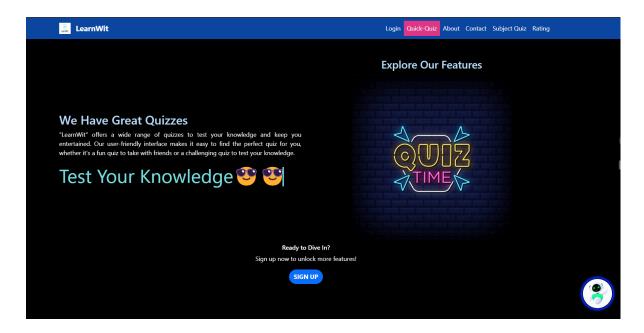**Hardware**
- Laptop (any OS and min 4GB RAM)

Software
- Front-end Technologies:HTML, CSS , Bootstrap , JavaScript ,Chart JS
- Backend Technologies: NodeJs , ExpressJs, Mongoose ,Nodemon used for backend connectivity
- Database: MongoDb used for user authentication.
- Text Editors/IDEs: Use tools like Visual studio code (VS code) for coding.
- We use Github for updating data and getting easily available our data for all.

3.5 Results

The objective of the project is to analyze user behavior, including site visit duration and quiz participation success rates, to enhance the website's user experience. With the ability for users to access the website at any time and from any location, they can seamlessly engage in their studies. Through the efforts taken, the team has effectively developed the LearnWit quiz website, which securely stores user data for quiz participants. Furthermore, it provides users with real-time access to their quiz scores, facilitating a comprehensive learning experience.
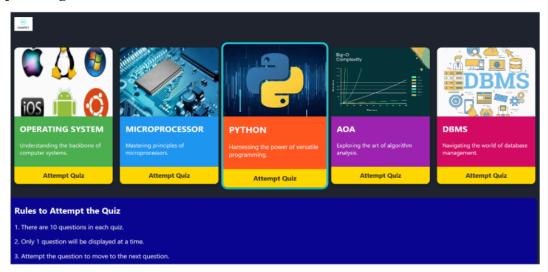
Landing Page:

Authentication:
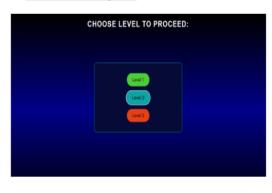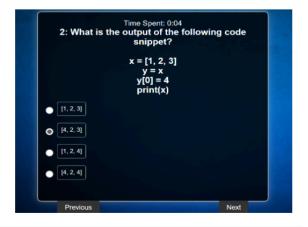
Signup:

Login:

Subjects Page:

Levels of Quiz:

Quiz:

Correct answers:

Incorrect answers:
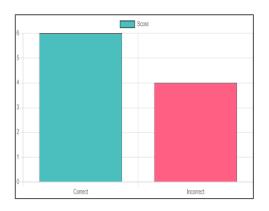
Pie Chart:

Bar Graph:

Downloaded result:

Contact us:

3.6 Conclusion and Future Work:

Conclusion:
- This project is a simple online based quiz website where user can give the quiz and view their performance.
- In modern times, E learning is the most efficient way of learning where students participate actively.
- This website displays the result of the quiz given by the user with graphical analysis of their responses.
- This website helps the students in tracking their studies based on their performance in different subjects helping in their academic progress.

Future Scope:
- The project aims to make more advancement in this website with different new features which includes:
  1.Shuffled question: Where the user will encounter a new question every time they give the quiz again.
  2.Dashboard: It includes a user dashboard where users can view their profile which contains all the details of the user.

3.Admin panel: It will be accessible to admin only where admin can add the questions from here instead of adding it manually into the database. And also they can customize the quiz as they want.

4.Competitive Environment: Adding negative marking on each wrong answers.Comparing the results of different users.

5.AI: The project team will add AI features to the website to make it flexible with current technology.

REFERENCES:

[1]. M. I. T. C. Perera, K. Lokuge, H. Mudunkotuwa, N. Premarathne and M.   Kularathna, "QuizFun: Mobile based quiz game for learning," 2009 International Workshop on Technology   for   Education,   Bangalore,   India,   2009,   pp.   95-98,   doi: 10.1109/T4E.2009.5314125.

[2].   J. -P. Hwang, T. -T. Wu, Y. -M. Huang and Y. -M. Huang, "Development and Evaluation of Peer Feedback in the English Quiz Game Design in Social Network," 2012 IEEE 12th International Conference on Advanced Learning Technologies, Rome, Italy, 2012, pp. 235-239, doi: 10.1109/ICALT.2012.136.

[3]. V. Mutiawani, N. Amrin, K. Saputra and D. H. Yunardi, "Developing a Desktop-based Offline Quiz Application," 2020 IEEE Conference on e-Learning, e-Management and e-Services   (IC3e),   Kota   Kinabalu,   Malaysia,   2020,   pp.   98-103,   doi: 10.1109/IC3e50159.2020.9288376.

[4]. J. Brandão and V. Carvalho, ""GAME QUIZ" - Implementing a serious game platform based in quiz games for the teaching of information and technology," 2014 11th International Conference on Remote Engineering and Virtual Instrumentation (REV), Porto, Portugal, 2014, pp. 47-50, doi: 10.1109/REV.2014.6784218.

[5].H. B. Dirgantara and N. Choiriyati, "Development of Interactive Quiz Game Prototype as A Learning Evaluation Media," 2022 IEEE 7th International Conference on Information Technology and Digital Applications (ICITDA), Yogyakarta, Indonesia, 2022, pp. 1-5, doi: 10.1109/ICITDA55840.2022.9971253.

[6].K. P. Nuci, R. Tahir, A. I. Wang and A. S. Imran, "Game-Based Digital Quiz as a Tool for Improving Students' Engagement and Learning in Online Lectures," in IEEE Access, vol. 9, pp. 91220-91234, 2021, doi: 10.1109/ACCESS.2021.3088583.

[7].J. B. Rocha, L. F. C. Costa, R. Prada, A. R. Silva, D. Gonçalves and P. Correia, "Quizzes (As a Tool for Self-Regulated Learning) in Software Engineering Education," 2020 IEEE 32nd Conference on Software Engineering Education and Training (CSEE&T), Munich, Germany, 2020, pp. 1-10, doi: 10.1109/CSEET49119.2020.9206235.

[8].Y. Tanaka, H. Uwano, T. Ichinose and S. Takehara, "Effects of Gamified Quiz to Student's Motivation and Score," 2016 8th International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES), Barcelona, Spain, 2016, pp. 1-4, doi: 10.1109/VS-GAMES.2016.7590345.