



A PROJECT REPORT

ON

Online quiz platform

Submitted By:

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In partial fulfilment for the award of the degree of

Bachelor of Engineering

IN

Computer Science

BONAFIDE CERTIFICATE

Certified that this project report **“Online-quiz platform”** is the bonafide work of **“Prapat Jain and Veshnavi Sharma”** who carried out the project work under my/our supervision.

SIGNATURE

SIGNATURE

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Submitted for the project viva-voice examination held on

INTERNAL EXAMINER

EXTERNAL EXAMINER

ACKNOWLEDGEMENT

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ABSTRACT

Mini project is the requirement for all engineering students in order to complete their Bachelor of Engineering degree at the GLA University, Mathura. This project is a very important for us, since it complements both the academic and professional aspects of the engineering education. It exposed us to the practical experience and actual working environment, where we were able to develop our skills and capabilities, as well as enhancing our intellectual and emotional personal. The Mini Project also provides strong linkages between university-industries that shall pave opportunities for "smart partnerships" and industrially driven research. The outcomes of the EIT that are mainly based on the assessment covering the company's and university's evaluation will provide the feedback for student's performance after 75% completion of their engineering study. The remarks from the companies on the students will very much helpful for the university to have a continuous quality improvement especially on curriculum practiced.

CHAPTER 7

INTRODUCTION

1.1. Client Identification/Need Identification/Identification of relevant

Our client here is every person who seeks the ability of becoming an expert and skilled individual. Our project scope encompasses the development of a user-friendly website with features such as user-login/signup, selection of quizzes and performance analysis. It excludes the development of a mobile application and focuses solely on the web-based platform.

1.2. Identification of Problem

The purpose of our project is to support the student community who seek a platform to showcase their knowledge along with an opportunity to gain or rather learn something new each time they try to test their skills and knowledge. Also, it would support the people as a whole who wish to learn something new irrespective of their domain to add to their skillset.

1.3. Identification of Task

The online-quiz website project aims to revolutionize our online presence, providing a seamless platform for students to select, attempt, and analyse their performance. In a rapidly evolving digital landscape, this project is pivotal to maintaining a competitive edge in the market.

1.4. Timeline

Task / Period	Week 1	Week 2	Week 3	Week 4	Week 5
Project Selection					
Mentor Allocation					
Project Planning					
Prototype and Designing					
Documentation					

1.5. Organization of the Report

GLA University

CHAPTER 2

LITERATURE SURVEY

The significance of online quiz platforms lies in their multifaceted impact on education, training, and learning experiences. Here are several key aspects that highlight their importance:

Active Learning and Engagement:

Online quiz platforms promote active learning by involving participants in the assessment process. Learners actively engage with the content, answer questions, and receive immediate feedback, fostering a more participatory educational experience.

Immediate Feedback and Learning Reinforcement:

The real-time feedback provided by online quizzes is invaluable. Learners can quickly identify their strengths and weaknesses, reinforcing learning by addressing misconceptions immediately. This iterative feedback loop enhances the learning process.

Flexibility and Accessibility:

Online quiz platforms offer flexibility in terms of when and where learners can access quizzes. This accessibility is particularly beneficial for remote or asynchronous learning scenarios, allowing individuals to study at their own pace.

Adaptive Learning and Personalization:

Many online quiz platforms incorporate adaptive learning technologies. These systems tailor quiz content based on the learner's performance, adapting difficulty levels and content to match individual needs and learning styles.

Efficient Assessment and Grading:

Automated grading in online quiz platforms streamlines the assessment process for educators. This efficiency allows instructors to focus more on personalized feedback and adapting teaching strategies rather than spending significant time on manual grading.

Gamification for Motivation:

Gamification elements, such as scoring systems, leaderboards, and badges, are often integrated into online quiz platforms. These features enhance learner motivation and engagement by introducing a competitive and rewarding aspect to the learning experience.

Data-Driven Insights:

Online quiz platforms generate data on user performance, allowing educators to gain insights into individual and collective strengths and weaknesses. This data-driven approach enables instructors to make informed decisions about adjusting teaching methods and content.

Cost-Effective and Scalable:

Online quiz platforms offer a cost-effective and scalable solution for educational institutions. They eliminate the need for physical materials, reduce printing costs, and can accommodate a large number of users simultaneously.

Preparation for Digital Literacy:

Engaging with online quiz platforms familiarizes learners with digital tools and technologies, contributing to the development of essential digital literacy skills. In today's technology-driven world, proficiency in digital tools is increasingly important.

Continuous Learning and Professional Development:

Beyond traditional education, online quiz platforms are utilized for continuous learning and professional development. Employees can take quizzes to enhance their skills and knowledge, contributing to ongoing career growth.

In summary, online quiz platforms play a crucial role in modern education by fostering active learning, providing immediate feedback, and offering flexible, adaptive, and scalable solutions. Their significance extends to various educational settings, from traditional classrooms to online courses and professional development environment

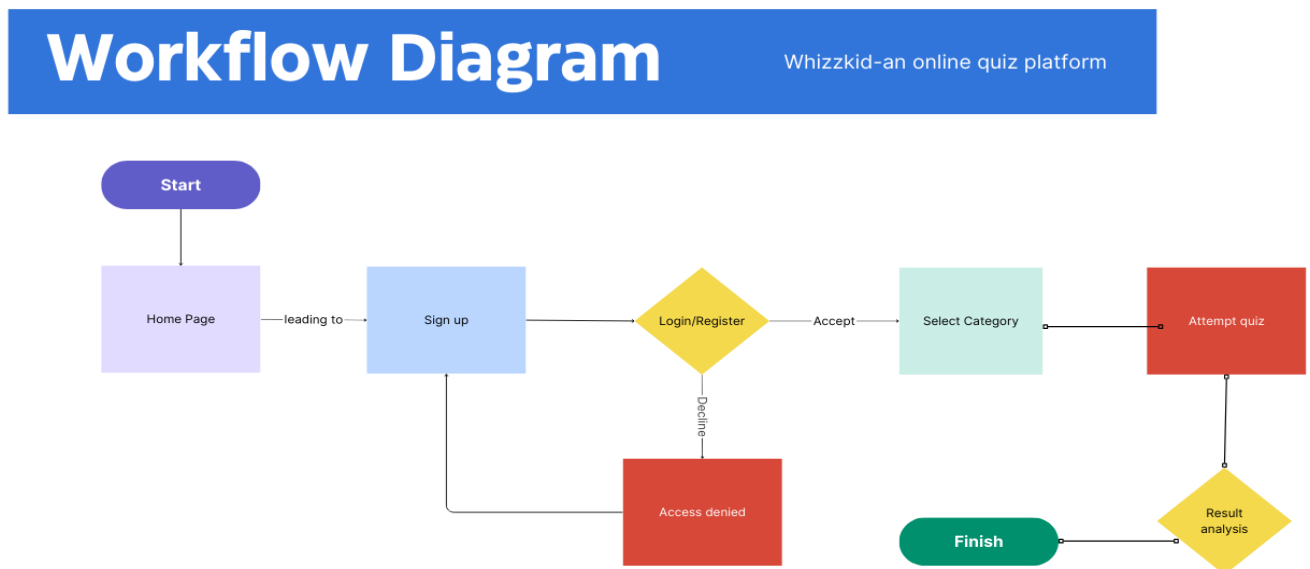
CHAPTER 3

DESIGN FLOW/PROCESS

3.1. Concept Generation

Online quiz platforms serve various purposes, including educational assessment, skill evaluation, engagement, training, and entertainment. They provide convenient, accessible, and gamified learning experiences, offering data-driven insights, competitive elements, and opportunities for personalized learning. The purpose can range from formative assessment in education to skill reinforcement and professional development in different contexts.

3.2. Evaluation & Selection of Specifications/Features



3.4. Design Flow

1. **Homepage** : It has a consistent layout across web and provides Quick access to login or sign up and various quiz selection categories.
- 2 **Quiz page**: It contains the questionnaire related to the domain opted by the user at the home page followed by a result page.
- 3.**Result page**: It contains a tabular comparison of the no. of questions attempted, no of questions answered and correct answer for each question with an option to view the final marks once the user is done with the analysis.

3.5. Implementation Plan

We have implemented the designing of our website with the latest tools available to maintain the compatibility of our website with the modern tech.

Below is the description of the tech stack that we have used in our project.

Technologies used:

Our project is based on front-end and back-end technologies.

3.5.1. For front-end we are using React JS.

React JS is a JavaScript library that is widely used for building user interfaces is one of the most popular front-end development frameworks, and it provides a rich set of tools and features that allow developers to customize the behavior and appearance of their user interfaces. With React, developers can create unique and engaging user experiences that are tailored to the needs of their users.

React is useful in a project because it allows developers to build complex user interfaces with ease. By using React, developers can create reusable UI components that can be combined to create a variety of different layouts and user experiences. This makes it easier to build *scalable* and *maintainable web applications*.

One of the key features of React is its ability to provide real-time updates to the user interface. By using a technique called "virtual DOM," React can update the user interface without having to reload the entire page. This helps to create a seamless user experience that is *faster* and *more responsive* than traditional web applications.

Another benefit of using React in a project is its ability to work with other JavaScript libraries and frameworks. React is designed to be modular and can be easily integrated with other libraries and frameworks, such as Redux, React Router, and Axios. This allows developers to build powerful and complex web applications that can meet the needs of their users.

React is also useful in a project because it is highly customizable. React provides a rich set of tools and features that allow developers to customize the behaviour and appearance of their user interfaces. With React, developers can create unique and engaging user experiences that are tailored to the needs of their users.

In conclusion, React is a powerful and flexible JavaScript library that is useful in a wide range of web development projects. Its ability to provide real-time updates, work with other libraries and frameworks, and provide a high degree of customization makes it an essential tool for building scalable and maintainable web applications. Whether you're building a small website or a large web application, React is a valuable tool that can help you create a great user experience for your audience.

3.5.2 For back-end, Node JS, Express JS, MongoDB and Mongoose are used.

1. **Node JS** is an open-source, cross-platform, back-end JavaScript runtime environment that allows developers to build fast and scalable applications. Node JS interacts with the server to handle the client requests while utilizing the commands that are being designed in Express JS.

It uses an event-driven, non-blocking I/O model that makes it highly efficient for building real-time applications, especially those that involve large amounts of data.

It is useful in a project in several ways, here are some of them:

- i. **High performance:** It is built on the V8 JavaScript engine, which is the same engine used by Google Chrome. This makes Node.js *highly efficient* and allows it to handle a large number of requests without affecting the performance of the application.
- ii. **Scalability:** It is highly scalable, which means *it can handle a large number of connections simultaneously without slowing down*. This makes it ideal for building applications that need to handle a large amount of traffic.
- iii. **Single language:** With Node.js, developers can use JavaScript on both the front-end and back-end, making it easy to develop full-stack applications using a single language.
- iv. **Large community:** Node.js has a large and active community of developers who contribute to the development of various libraries

and modules. This makes it easy for developers to find solutions to their problems and improve the quality of their applications.

Node.js is a powerful tool that can help developers build fast, scalable, and efficient applications. Its ease of use and large community make it an attractive choice for developers who want to build full-stack applications using a single language.

2. **MongoDB** is a popular NoSQL document-oriented database that provides a flexible, scalable, and high-performance solution for handling unstructured or semi-structured data. It stores data in JSON-like documents with dynamic schemas, making it easy to store and retrieve complex data structures. Unlike traditional relational databases, MongoDB does not requires predefined tables to store data, which makes it ideal for handling large amount of data.

Some of the key features of MongoDB are:

- i. **Schema-less Database:** It is the great feature provided by the MongoDB. A Schema-less database means one collection can hold different types of documents in it. Or in other words, in the MongoDB database, a single collection *can hold multiple documents and these documents may consist of the different numbers of fields, content, and size*. It is not necessary that the one document is similar to another document like in the relational databases. Due to this cool feature, MongoDB provides great flexibility to databases.
- ii. **Document Oriented:** In MongoDB, all *the data stored in the documents* instead of tables like in RDBMS. In these documents, the data is stored in fields (key-value pair) instead of rows and columns which make the data much more flexible in comparison to RDBMS. And each document contains its unique object id.
- iii. **Indexing:** In MongoDB database, every field in the documents is indexed with primary and secondary indices this makes easier and takes less time to get or search data from the pool of the data. If the data is not indexed,

then database search each document with the specified query which takes lots of time and not so efficient.

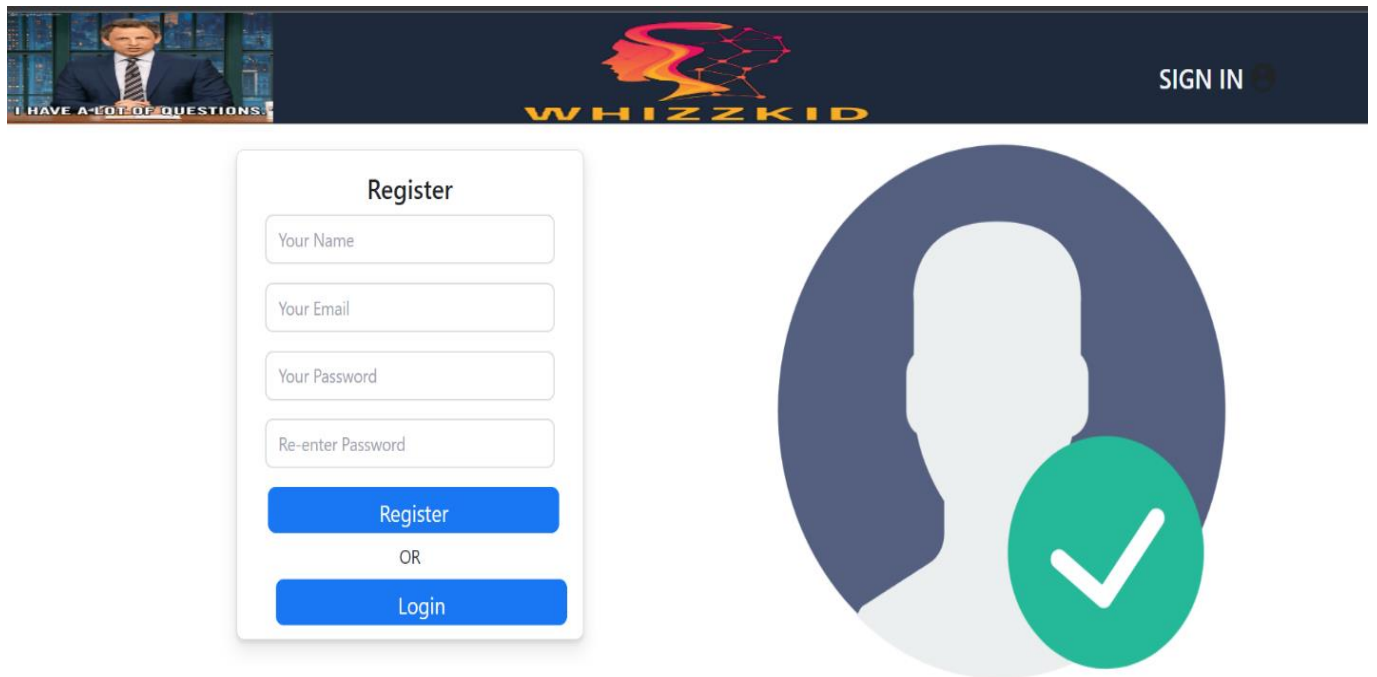
- iv. **Scalability:** MongoDB provides horizontal scalability with the help of sharding. Sharding means to distribute data on multiple servers, here a large amount of data is partitioned into data chunks using the shard key, and these data chunks are evenly distributed across shards that reside across many physical servers. It will also add new machines to a running database.
 - v. **Replication:** MongoDB provides high availability and redundancy with the help of replication, it creates multiple copies of the data and sends these copies to a different server so that if one server fails, then the data is retrieved from another server.
 - vi. **Aggregation:** It allows to perform operations on the grouped data and get a single result or computed result. It is similar to the SQL GROUPBY clause. It provides three different aggregations i.e, aggregation pipeline, map-reduce function, and single-purpose aggregation methods
 - vii. **High Performance:** The performance of MongoDB is very high and data persistence as compared to another database due to its features like scalability, indexing, replication, etc.
3. **Mongoose** is an Object Data Modeling (ODM) library for MongoDB. It defines a strongly-typed-schema, with default values and schema validations which are later mapped to a MongoDB document. It provides an incredible amount of functionality around creating and working with schemas. Mongoose currently contains eight Schema Types that a property is saved as when it is persisted to MongoDB. It manages relationships between data, provides schema validation, and is used to translate between objects in code and the representation of those objects in MongoDB.

4. **Redux-Saga** is a library primarily aimed to make application side effects like asynchronous data fetching and accessing impure browser cache. It is very easy to manage and efficient to execute. With Redux-Saga, it is easy to test and handle failure effortlessly.

It can be thought of as the organized way of helping the application made with Redux to communicate and stay in sync with external dependencies like API. In general terms, it is a middleware library that can be used to make HTTP requests to external services, execute I/O operations, and access browsers' storage. The power of Redux-Saga is to organize and manage the side effects in a way that becomes easier for the developer to manage.

CHAPTER 4

RESULT ANALYSIS AND VALIDATION



The image shows the top section of a website. The header is dark blue with a small image of a man in a suit on the left, the text "I HAVE A LOT OF QUESTIONS." below it, the "WHIZZKID" logo in the center, and a "SIGN IN" link with a user icon on the right. Below the header is a registration form titled "Register" with input fields for "Your Name", "Your Email", "Your Password", and "Re-enter Password". There are blue buttons for "Register" and "Login", with "OR" in between. To the right of the form is a large circular graphic containing a grey silhouette of a person and a green circle with a white checkmark.

Register

Your Name

Your Email

Your Password

Re-enter Password

Register

OR

Login

SIGN IN

Figure 4.1 : Sign up



[PROFILE](#) [LOGOUT](#)

Welcome to Whizzkid

"Embark on a journey of knowledge and discovery with Whizzkid, where interactive quizzes seamlessly blend learning with excitement, making education an engaging adventure."

ARE YOU READY?

Make your choice here

HTML



CSS



JavaScript



React




Redux



MongoDb




Figure 4.2 : Home page



[PROFILE](#)
[LOGOUT](#)

Attempted : 0/16



1) What is CSS ?

[Skip](#)
[Next](#)

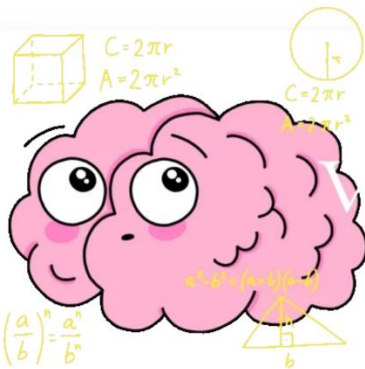
Figure 4.3 : Quiz page

QUESTIONS	YOUR ANSWER	CORRECT ANSWER
1) What is CSS ?	CSS is the language used to style the HTML documents	All of the mentioned
2) Which of the following tag is used to embed css in html page?	<script>	<style>
3) Which of the following CSS selectors are used to specify a group of elements?	class	class
4) Which of the following has introduced text, list, box, margin, border, color, and background properties?	CSS	CSS
5) Which of the following CSS framework is used to create a responsive design?	larawell	bootstrap

Figure 4.4 : Show all answers page



Attempt More Quizes



Here's your Score

Sorry!, You have failed to complete the Test! You need to Work Hard! and Keep Practicing hello

Total Marks: 3/16

Figure 4.5 : Results page

CHAPTER 5

CONCLUSION AND FUTURE WORK

6.1. CONCLUSION

In wrapping up our college project on the online quiz platform, we've built a user-centric digital environment that promotes learning and self-assessment. The platform provides a wide range of quizzes, log-in options and secure data handling to accommodate students who are eager to learn and enthusiastic. We also aim to deliver the project by keeping in mind all the necessary requirements and deadlines to our project supervisor as an authentic requirement of our work for this particular semester.

6.2. FUTURE WORK

AI-Powered Features: Integrating artificial intelligence (AI) for features like automated question generation, intelligent feedback, or predictive analytics to further enhance the platform's capabilities.

Localization and Internationalization: Expanding language support and adapting the platform to different cultural contexts to reach a more diverse user base.

Gamification Elements: Adding more gamification elements, such as badges, leaderboards, or virtual rewards, to motivate users and foster a competitive yet collaborative learning environment.

Feedback Mechanisms: Implementing advanced feedback mechanisms, including sentiment analysis, to understand user satisfaction and gather insights for continuous improvement.

Further we also plan to add an admin portal to this platform in order to provide the abilities of personalization and customization.

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