

Advanced Quiz Test and Preparation Application



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Submitted by

Anas Saahi	2023-CS-26
Mobeen Butt	2023-CS-28
Muhammad Talha	2023-CS-169

Supervised by

Mr. Nazeef Ul Haq & Mr. Waseem

Course

CSC200 Data Structures and Algorithms

**Department of Computer Science
University of Engineering and Technology
Lahore Pakistan**

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1. Introduction

The **Advanced Quiz Generator** is an innovative application designed to simplify the process of quiz creation, management, and evaluation. It caters to educators, corporate trainers, and institutions looking for an efficient and effective way to manage quizzes and assessments. By providing an easy-to-use platform, the application enables users to browse through a wide range of questions, save their favorite ones, create customized quizzes, and track quiz results.

The application aims to address the challenges associated with quiz management, offering features that streamline the process, save time, and improve user experience. With a focus on usability and accessibility, the **Advanced Quiz Generator** supports various functions such as browsing questions, creating quizzes, and saving and reviewing favorite questions, making it a valuable tool for anyone involved in education or training.

This report will explore the key features, strengths, areas for improvement, and recommendations for enhancing the application, providing a detailed overview of its functionality and potential improvements for better performance.

2. Background

The **Advanced Quiz Generator** is a comprehensive software application created to simplify the process of quiz management. It is primarily targeted towards educators, corporate trainers, and institutions who need a platform for creating, managing, and analyzing quizzes. This tool allows users to browse through a wide array of questions, create custom quizzes, and track progress. By offering a user-friendly interface, the application helps reduce the complexity and time required to manage quizzes, making it a valuable resource for educational and training purposes.

The primary goal of the **Advanced Quiz Generator** is to provide an efficient and scalable platform that can cater to different educational and corporate needs. It allows users to access features such as saving favorite questions, generating reports on quiz performance, and ensuring a smooth experience for both quiz creators and participants.

3. Summary

The Advanced Quiz Generator Admin Panel is a useful tool designed to efficiently manage quizzes, users, and performance metrics. It provides administrators with a user-friendly interface to perform key tasks such as creating, editing, and deleting questions, organizing user accounts, tracking progress, and generating detailed reports. The panel also includes features for analyzing statistics through visual data representations, enabling better decision-making and insights into user performance. With its streamlined navigation and functionality, the Admin Panel serves as an all-in-one solution for educational institutions and training programs, ensuring effective and tension free quiz management.

4. Use Case

- **Admin**
- **User**

4.1 Admin Panel

The Advanced Quiz Generator Admin Panel is a complete tool for managing all parts of a quiz system. It is designed to be simple and easy to use, allowing administrators to create, edit, and organize quizzes effortlessly. Key features include sorting questions into categories, setting difficulty levels, managing users, tracking performance, and generating detailed reports. The panel also provides clear visuals for analyzing user progress and quiz results, making it easier to identify trends and improve outcomes. With its wide range of features and user-friendly design, the Admin Panel is an all-in-one solution for efficient and effective quiz management.

4.1.1 Admin's Background

Quizzes and assessments are important for measuring knowledge and skills in education and workplaces. Traditional methods often involve manual work, which can be slow and leads to mistakes. The Advanced Quiz Generator solves these problems with a digital system that simplifies and automates quiz management. A key part of this system is the Admin Panel, designed to meet the needs of educators, trainers, and administrators. It makes creating, managing, and analyzing quizzes quick, easy, and reliable.

5. Motivation

The Admin Panel was designed to create a reliable, scalable, and user-friendly system for managing quizzes and assessments. The main motivations behind its development include:

Streamlining Administrative Tasks

Traditional quiz management often involves manual processes that are time-consuming and complex. The Admin Panel simplifies these tasks by providing easy-to-use tools for creating, editing, and organizing quizzes, managing user accounts, and tracking performance. This reduces the workload for administrators and saves valuable time.

5.1.1 Improving Accuracy

Manual processes are the cause of human errors, such as data entry mistakes or mismanagement of quiz content. By enhancing key functions like question categorization, scoring, and performance tracking, the Admin Panel ensures greater precision and reliability in quiz management.

5.1.2 Enhancing User Engagement

Understanding how users perform on quizzes is crucial for improving learning outcomes. The Admin Panel includes tools for analyzing performance data and generating detailed

reports, which help educators and trainers tailor their content and delivery methods to keep users engaged and motivated.

5.1.3 Meeting Diverse Needs

Quizzes are used in a variety of contexts, from schools and universities to corporate training programs. The Admin Panel is built with flexibility in mind, offering features that fulfill the unique requirements of both educational and corporate environments, such as customizable quiz templates, difficulty-level tagging, and support for multiple question formats.

6. Objective

The objectives of the Admin Panel focus on simplifying and enhancing the quiz management process. These include

6.1 Simplifying Quiz Management

The Admin Panel makes it easy for administrators to create and delete questions without needing complex tools or systems. The platform is designed to be intuitive, reducing the learning curve for new users.

6.2 Enhancing User Management

Managing users is crucial for effective quiz administration. The Admin Panel provides tools to create and manage user accounts, set permissions, and track individual progress, ensuring a smooth and secure user experience.

6.3 Facilitating Report Generation

Generating reports is essential for analyzing quiz performance. The Admin Panel allows administrators to create detailed reports with just a few clicks, providing insights into user performance, question effectiveness, and overall quiz success.

6.4 Providing Insights

To improve learning and training outcomes, the Admin Panel includes features to visualize quiz performance. It offers statistical data and graphical representations, making it easier to identify trends, strengths, and areas for improvement.

6.5 Ensuring Scalability

As organizations grow, so do their quiz and user management needs. The Admin Panel is designed to handle many users, quizzes, and data, ensuring that it remains efficient and functional even as demands increase.

7. Target Audience

The Admin Panel is designed to meet the needs of the following groups:

7.1.1 Educators

Teachers and instructors need an efficient way to create and manage quizzes, track student performance, and analyze results to improve learning outcomes.

7.1.2 Corporate Trainers

Professionals responsible for employee training and skill assessment. They can use the Admin Panel to design, manage, and evaluate training quizzes to help track employee development and performance.

7.1.3 Educational Institutions

Schools, universities, and training centers require a centralized platform to manage assessments for large numbers of students or trainees. The Admin Panel helps streamline quiz management across different courses and subjects.

7.1.4 Administrators

IT and system administrators who handle the technical setup and operational management of quiz systems. They are responsible for maintaining the system, ensuring its security, and managing user access and permissions.

8. User Panel

The **User Panel** of the Advance Quiz App serves as an informative section that provides users with details about the application's functionality, including its core features, user interfaces, and other essential components. It is designed to help users understand the various functionalities of the app, such as how to browse questions, create quizzes, save their favorite questions, and access previously saved quizzes. This page aims to enhance the user experience by providing a clear, concise explanation of how the app operates and its key features.

8.1.1 Browse Questions

The ability to search for questions based on topics and how the app suggests similar topics if no exact match is found.

Favorite Questions

Users can save their favorite questions and view them later with the option to remove them from the favorites list.

8.1.2 Quiz Creation and Results

How users can create quizzes by selecting topics and difficulty levels, navigate through questions, and save and view results.

8.1.3 Saved Quizzes

A section for users to access and review previously saved quizzes.

8.1.4 Settings and Logout

An area for users to change their password and log out of the app.

9. Summary

The **User Panel** of the **Advance Quiz App** provides users with a clear and easy-to-understand description of how the application works. It describes the following:

1. **Quiz Browsing:** Explains how users can search for questions based on topics, view answers, and add questions to their favorites.
2. **Favorite Questions:** Describes how users can view and manage their favorite questions.
3. **Quiz Creation and Test Management:** Outlines how users can create quizzes, navigate questions, and track results.
4. **Saved Quizzes:** Provides an overview of how users can access saved quizzes.
5. **Settings and Logout:** Highlights user account management features, such as changing the password and logging out.

10.Data Structures Used:

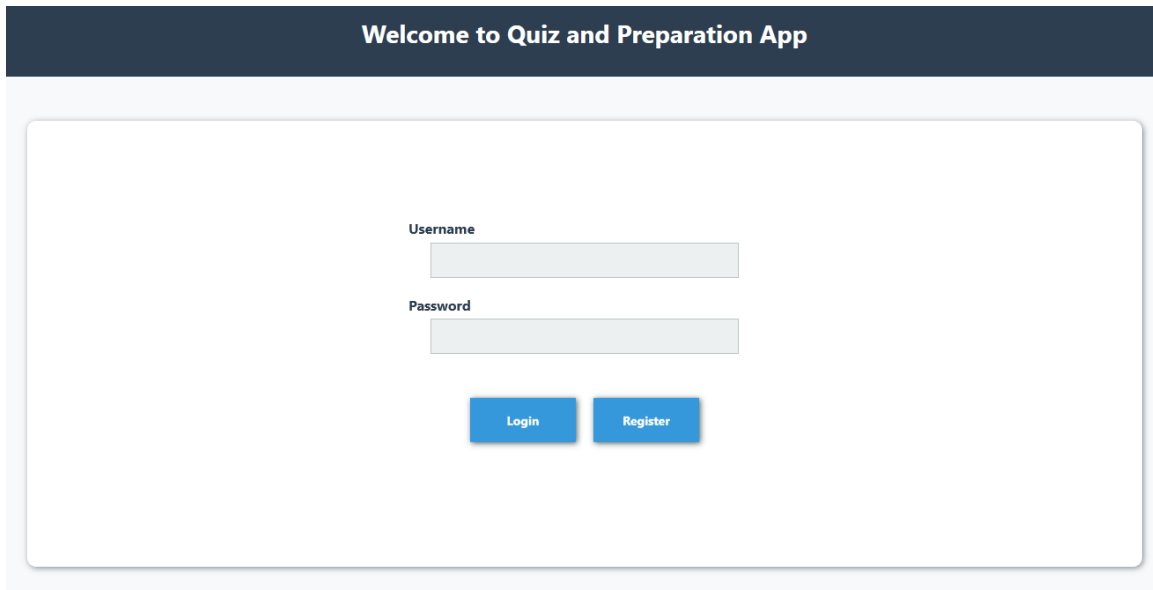
- Priority Queue
- BST
- AVL Tree
- Stack & Queue using Linked List

11. Wire Frames

11.1.1 Login Form

Easily enter username and password and login or register option.

The unique Password of admin is set “admin123”.

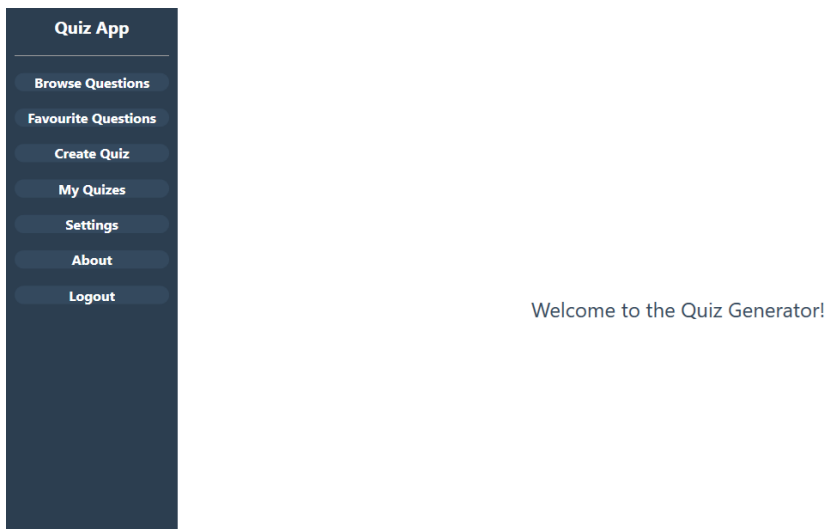


The image shows a wireframe for a login page. At the top, there is a dark blue header bar with the text "Welcome to Quiz and Preparation App" in white. Below the header, there is a light gray rectangular area containing the login form. The form has two input fields: "Username" and "Password", each with a light gray rectangular input box. Below the input fields, there are two blue buttons: "Login" and "Register".

Figure: Wire Frame of Login

11.1.2 User Form

User can do many functionalities like browse questions, check favorite questions, quiz creation and test management, view saved previous quizzes and Logout.



The image shows a wireframe for a user window. On the left, there is a dark blue sidebar with the title "Quiz App" at the top. Below the title, there is a list of menu items: "Browse Questions", "Favourite Questions", "Create Quiz", "My Quizzes", "Settings", "About", and "Logout". Each menu item is represented by a dark blue button with white text. To the right of the sidebar, there is a light gray area with the text "Welcome to the Quiz Generator!" centered.

Figure: Wire Frame of User Window

11.1.3 Browse Questions

User can easily browse for questions and topics-based questions by entering the topic.

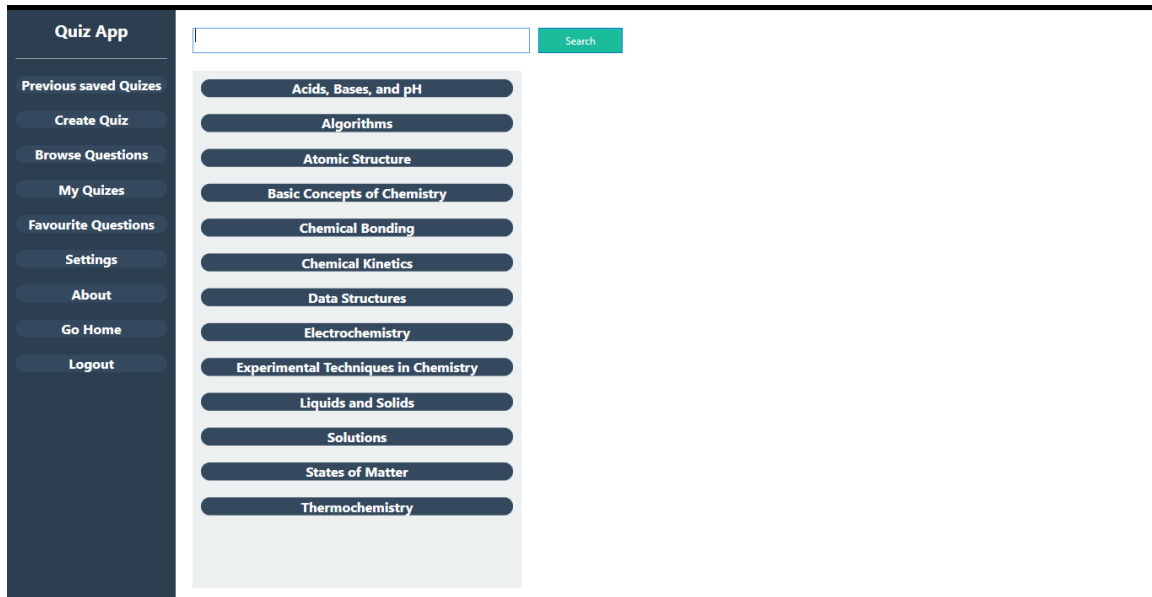


Figure: Wire Frame of Browse Questions

11.1.4 Testing of Browse Questions

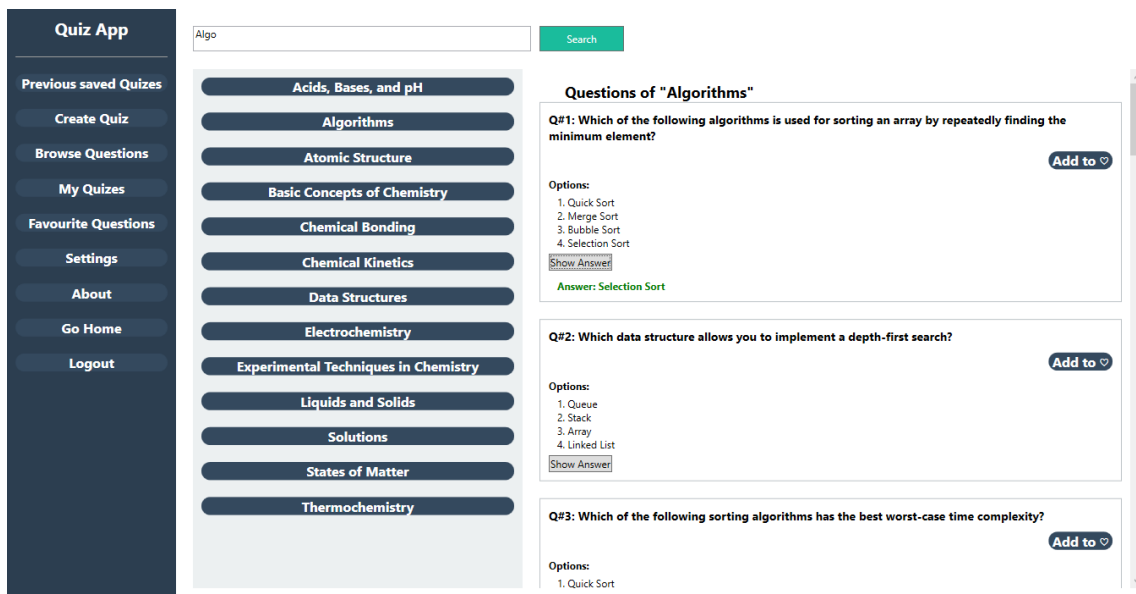
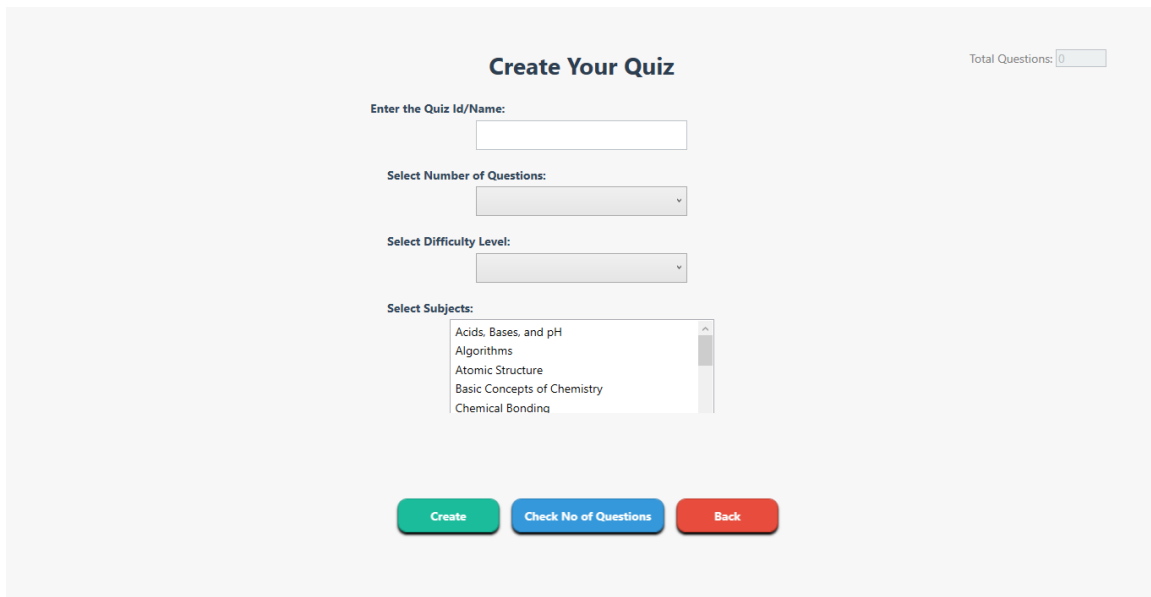


Figure: Wire Frame of Testing of Browse Questions

11.1.5 Create Quiz

User can create their own quiz by entering name of topic, number of questions selected, Difficulty level, and subjects.



Create Your Quiz

Total Questions: 0

Enter the Quiz Id/Name:

Select Number of Questions:

Select Difficulty Level:

Select Subjects:

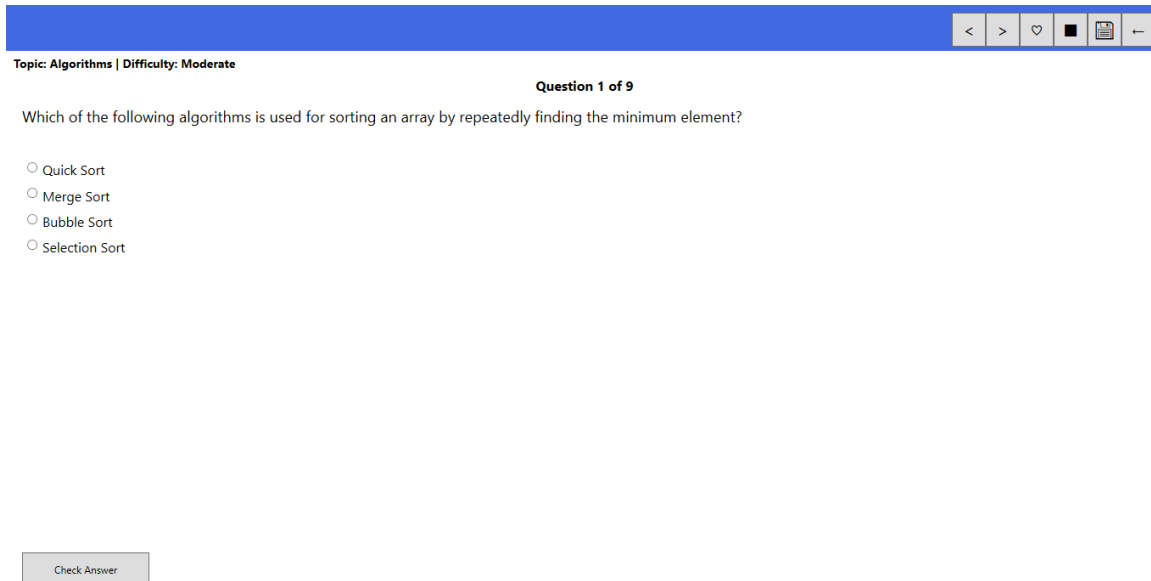
- Acids, Bases, and pH
- Algorithms
- Atomic Structure
- Basic Concepts of Chemistry
- Chemical Bonding

Create Check No of Questions Back

Figure: Wire Frame of Create Quiz

11.1.6 Create Test

My user creates their quiz then desired test is created according to the inputs provided.



< > ♥ ■ 📄 ↶

Topic: Algorithms | Difficulty: Moderate

Question 1 of 9

Which of the following algorithms is used for sorting an array by repeatedly finding the minimum element?

☐ Quick Sort

☐ Merge Sort

☐ Bubble Sort

☐ Selection Sort

Check Answer

Figure: Wire Frame of Create Test

11.1.7 End Quiz

When the user takes the test score is stored accordingly.

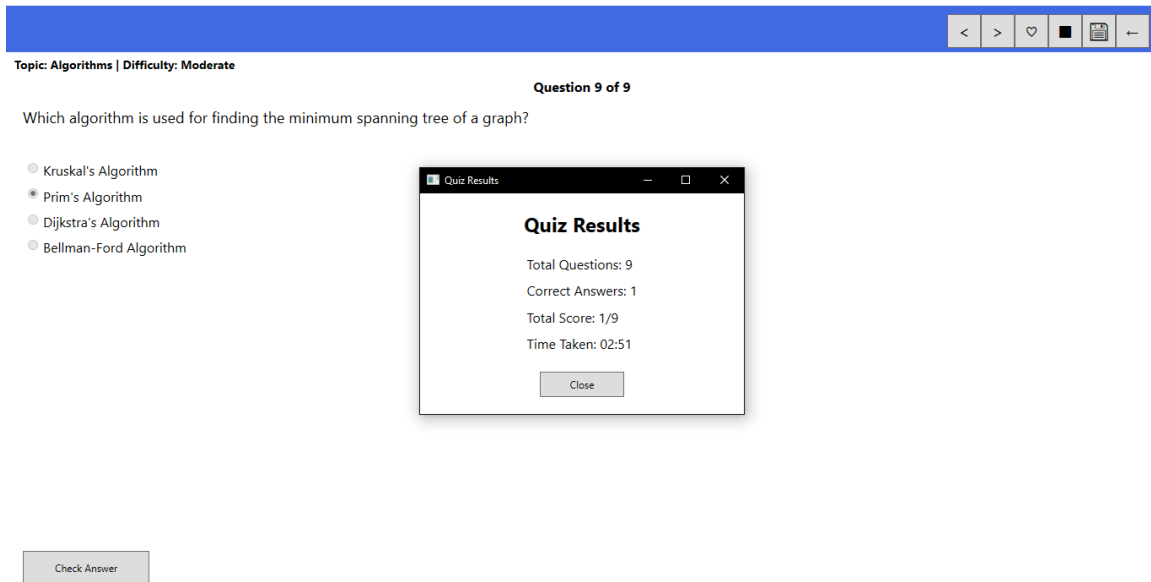


Figure: Wire Frame of End Quiz

11.1.8 Testing Quiz

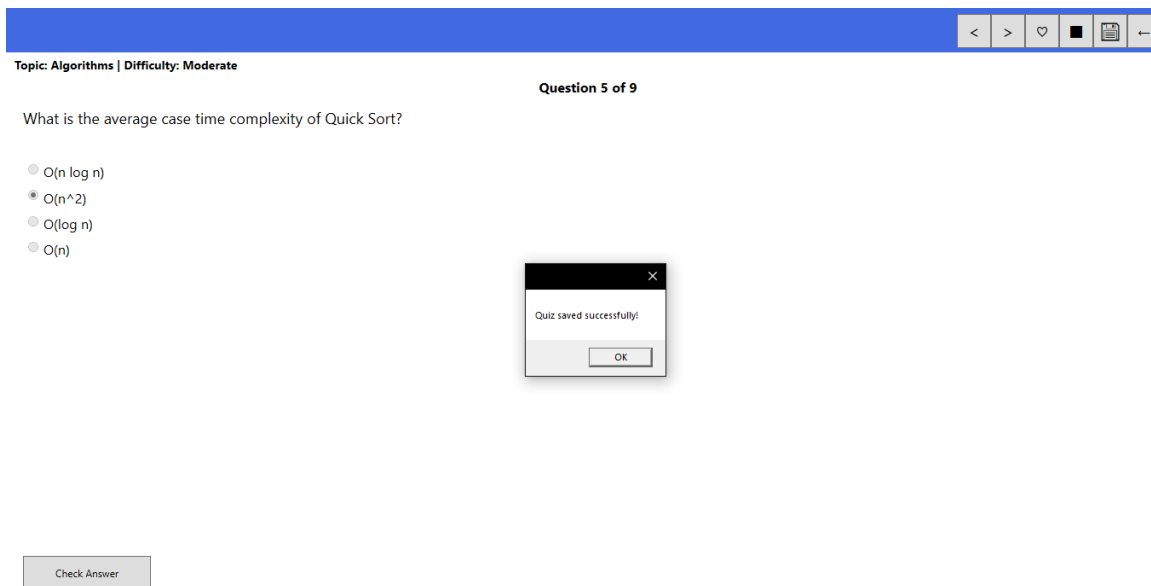


Figure: Wire Frame of Testing Quiz

11.1.9 Previous Quizzes

Previous Quizzes taken by user are stored as a name of quiz and when clicked open a complete test.

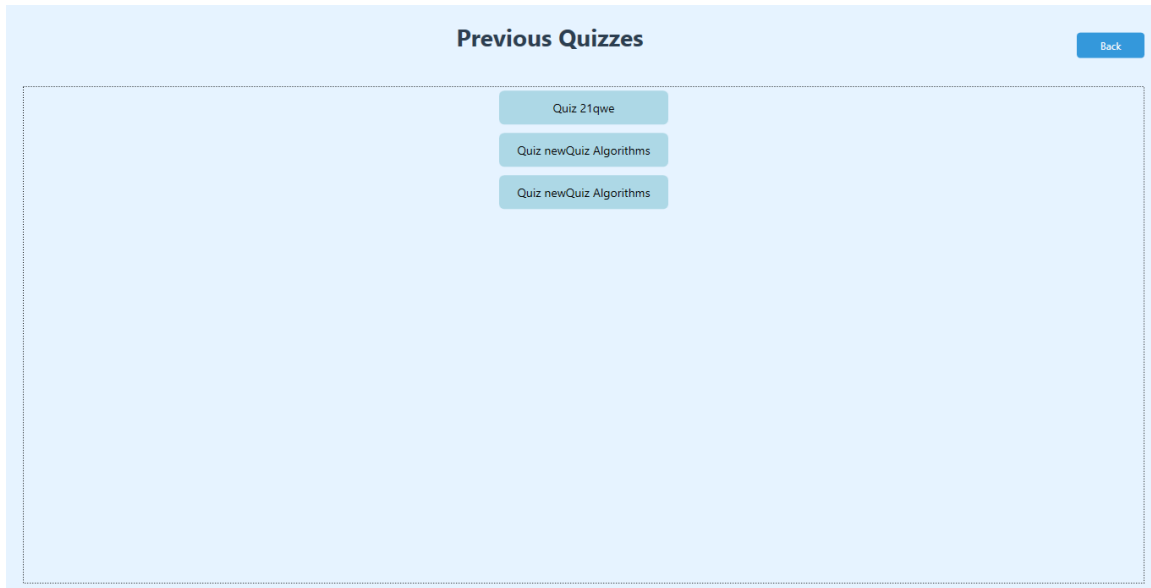


Figure: Wire Frame of Previous Quizzes

11.1.10 Favorite Questions

When taking the tests users marked questions to their favorites and stored and visible for future importance.

Your Favourite Questions

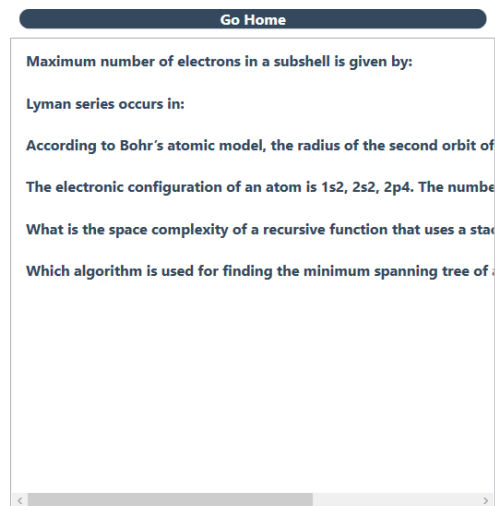


Figure: Wire Frame of Favorite Questions

11.1.11 Settings

Users can easily edit its password for security purposes.

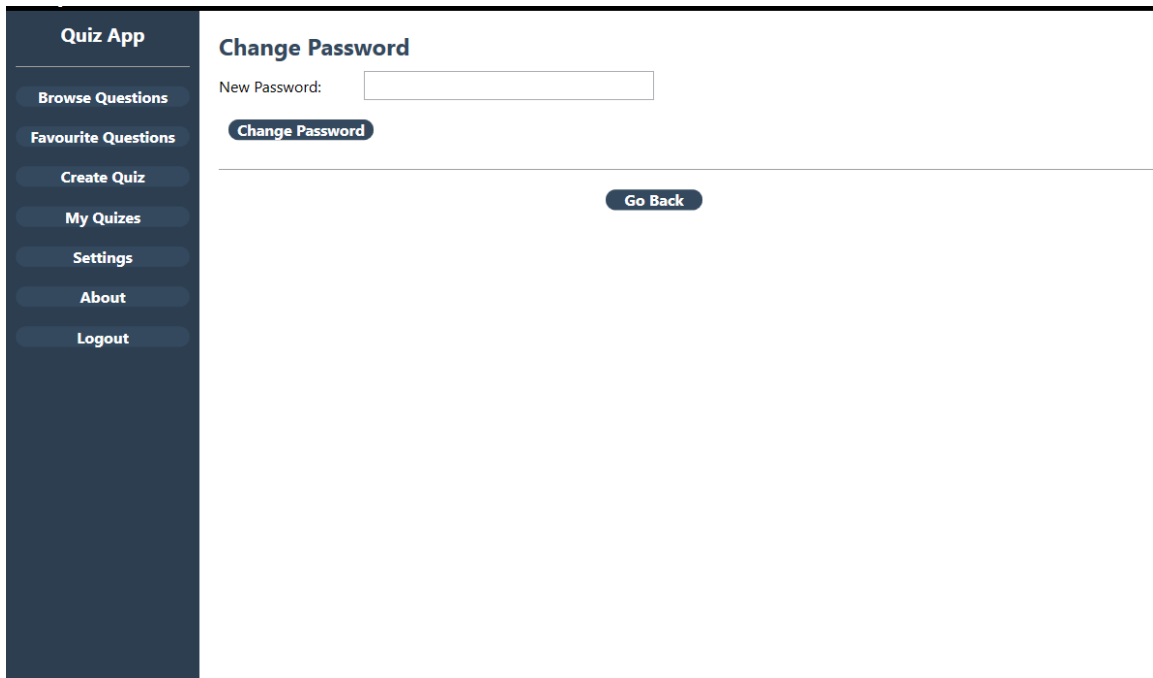


Figure: Wire Frame of Security

11.1.12 About

This is a static page about our quiz generator system and guidelines for users how to use the system.

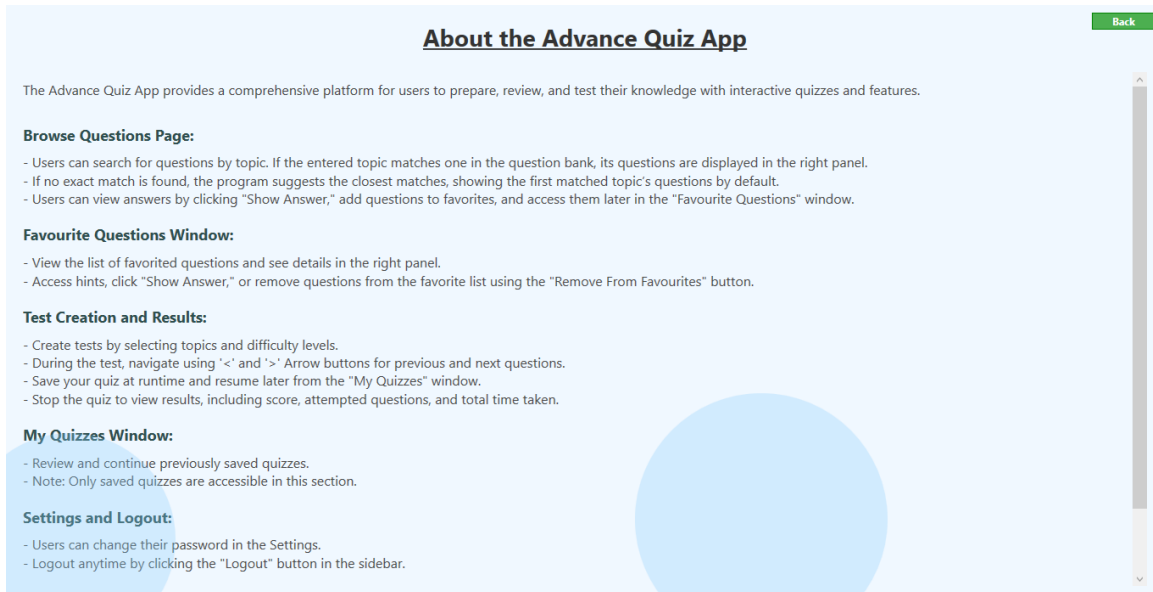


Figure: Wire Frame of About

11.1.13 Admin Panel

The Admin Panel was designed to create a reliable, scalable, and user-friendly system for managing quizzes and assessments.

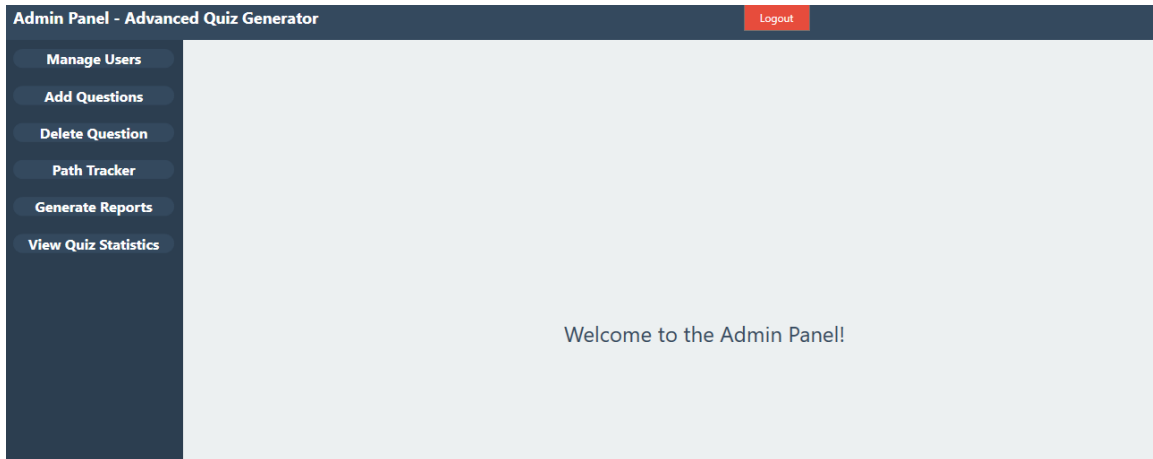


Figure: Wire Frame of Admin

11.1.14 Manage Users

Admin can easily delete a user or edit its password for security reasons and needs.

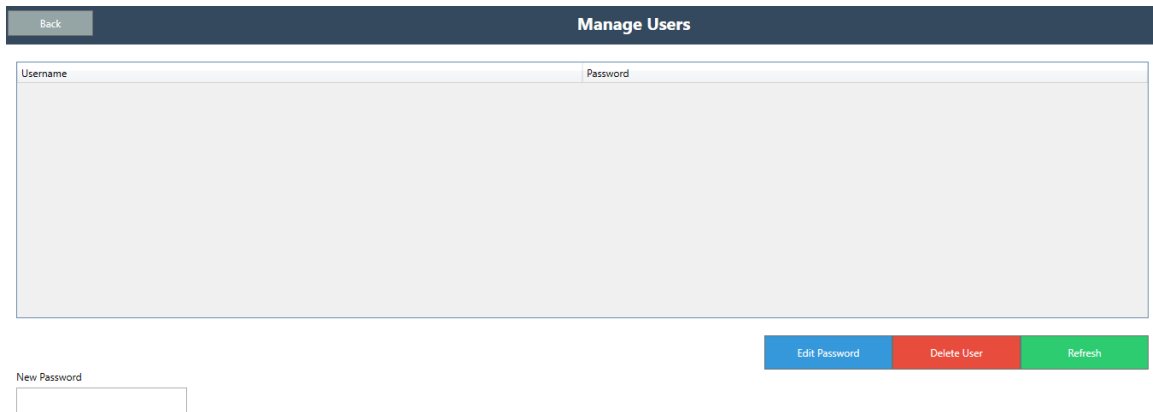


Figure: Wire Frame of Manage Users

11.1.15 Add Questions

Admin add questions according to text, options, corrected answers, topic and difficulty for the creation of test.

Add Question

[Back](#)

Question Text:

Options:

Correct Answer:

Topic:

Difficulty:

[Save](#)
[Cancel](#)
[Add Question](#)

Figure: Wire Frame of Add Questions

11.1.16 Delete Questions

Admin deletes the useless or wrong questions for the user betterment.

Delete Question

[Back](#)

Select a question to delete from the list below:

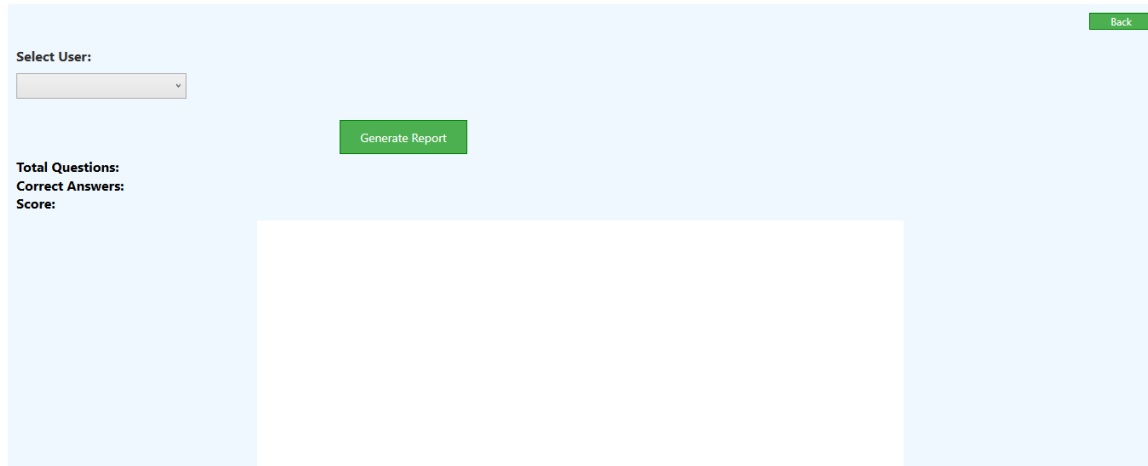
Question ID	Question Text	Topic
1	Which of the following compounds has the highest % age of oxygen by weight?	Basic Concepts of Chemistr
2	Formula mass of $MgSO_4$ is g/mole:	Basic Concepts of Chemistr
3	Electrometer is also called:	Basic Concepts of Chemistr
4	In combustion analysis H_2O vapors are absorbed by:	Basic Concepts of Chemistr
5	Height of peak in mass spectrum shows:	Basic Concepts of Chemistr
6	The volume occupied by 1.4 g of N_2 at S.T.P is:	Basic Concepts of Chemistr
7	Molecular mass of $CaCO_3$ is:	Basic Concepts of Chemistr
8	Percentage of oxygen in water is:	Basic Concepts of Chemistr
9	A limiting reactant is one which:	Basic Concepts of Chemistr
10	Tin has isotopes:	Basic Concepts of Chemistr
11	In paper chromatography, the point to which the solvent rises to maximum extent is called:	Experimental Techniques in
12	Which one of the following substances is used as decolorizing agent:	Experimental Techniques in
13	The iodine present in water can be separated by which one of the following techniques:	Experimental Techniques in
14	Chromatography in which the stationary phase is liquid is called:	Experimental Techniques in
15	Rate of filtration can be increased using:	Experimental Techniques in
16	A component having small value of K (distribution coefficient) mostly remains in:	Experimental Techniques in
17	Direct conversion of solid into vapors is called:	Experimental Techniques in

[Delete Selected Question](#)
[Refresh List](#)

Figure: Wire Frame of Delete Questions

11.1.17 Generate Reports

Admins generate reports for the users that take tests accordingly.



The wire frame for the 'Generate Reports' page is set against a light blue background. In the top right corner, there is a green button labeled 'Back'. On the left side, there is a 'Select User:' label above a light gray dropdown menu with a small downward arrow. Below this, there is a green button labeled 'Generate Report'. Further down on the left, the text 'Total Questions:', 'Correct Answers:', and 'Score:' is displayed. A large, empty white rectangular area occupies the center of the page, intended for the report content.

Figure: Wire Frame of Generate Reports

11.1.18 Statistics

Admins generate statistics of the system according to the quizzes and test taken.



The wire frame for the 'Statistics' page has a light blue background. In the top right corner is a green 'Back' button. On the left side, the statistics are listed: 'Total Questions: 0', 'Correct Answers: 0', and 'Score: 0%', where the numbers are in green. The rest of the page is a large, empty white rectangular area for displaying the statistics.

Figure: Wire Frame of Statistics

11.1.19 Path Tracker

Admin tracks the path from different cities to quiz center.

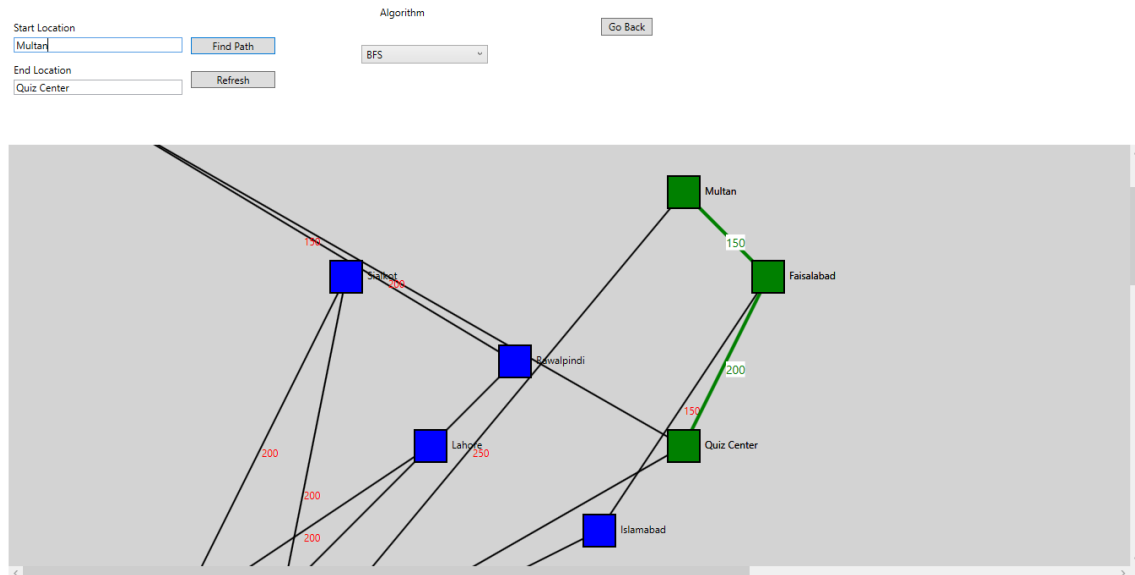


Figure: Wire Frame of Path Tracker

12. Conclusion

The **Advanced Quiz Generator** application offers a comprehensive and user-friendly platform for educators, trainers, and institutions to create, manage, and evaluate quizzes efficiently. This system addresses the challenges of traditional quiz management by automating key tasks, reducing errors, and providing tools for tracking and analyzing quiz performance.

The **Admin Panel** simplifies administrative tasks, offering features like quiz creation, user management, report generation, and performance tracking. It enhances efficiency, improves accuracy, and promotes engagement by providing insights into user performance and quiz effectiveness. The system's scalability ensures that it can meet the needs of both small educational institutions and large corporations.

The **User Panel** is designed to provide a seamless and intuitive experience for users. With features like browsing questions, creating quizzes, saving favorite questions, and managing quizzes, users can easily engage with the platform and improve their learning or training outcomes. The ability to view past quizzes, save favorite questions, and track progress enhances the overall experience, making the application valuable for both individuals and organizations.

The system is built to cater to the needs of a wide audience, including educators, corporate trainers, and educational institutions. Its flexibility and ease of use make it an essential tool for anyone involved in quiz-based learning and training.

Overall, the **Advanced Quiz Generator** provides a powerful, efficient, and scalable solution for managing quizzes, offering both administrative control and user-friendly features that enhance the learning and assessment process. By streamlining quiz creation

and management, the system improves the efficiency of educational and training programs, helping users achieve better learning outcomes and facilitating more effective assessments.

13. Github Repo Link

Users can also visit this link clone our system

<https://github.com/MobeenButt/Advance-Quiz-Generator>