A Mini Project Report on

Knowledge Evaluator – A Performance Assessment Tool

S.E. - D.S. Engineering

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CERTIFICATE

This to certify that the Mini Project report on Knowledge Evaluator - A Performance Assessment Tool has been submitted by <u>Tushar Zaware</u> (23107089), <u>Aditya Sharma</u> (23107111), <u>Varunkumar L.</u> (23107101) and <u>Himanshu Kalwa</u> (23107102) who are Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **<u>CSE(DATA SCIENCE)</u>**, during the academic year **<u>2024-2025</u>** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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<u>ACKNOWLEDGEMENT</u>

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Chapter 1

Introduction

The project " Knowledge Evaluator - A Performance Assessment Tool " discussed in this report focuses on the development of a Java application designed to assist organizations with managing their academic activities, such as assignments, notes, tests, and notifications of upcoming tasks. The primary goal of this project is to create a tool that streamlines academic management, making it easier for students, teachers, and educators to organize their academic duties in an efficient and structured manner. The problem of fragmented information, where students and teachers often have to refer to different sources for various academic needs, is tackled in this system by integrating all tasks into one comprehensive platform.

This Java-based application will allow users to add, edit, and delete assignments, organize and store notes, schedule tests, and set reminders for upcoming tasks. The development of this application reflects the growing demand for easy-to-use educational tools that cater to the needs of students and teachers alike. By consolidating several academic tasks into one system, the application provides a seamless experience for users, ensuring better organization and time management.

1.1. Purpose

The purpose of this document is to present a detailed report on the development and design of a Java application that facilitates the management of assignments, notes, tests, and task notifications for its users. The report is intended for readers who are interested in understanding the design principles, functionalities, and outcomes of the application. This includes potential users like students and educators, as well as developers who wish to build upon or adapt the application for their own needs.

1.2 Problem Statement

In the current academic environment, students and educators face several challenges when it comes to managing their academic tasks. The process of organizing assignments, keeping notes, scheduling tests, and staying on top of deadlines often involves using multiple tools or platforms, which can be confusing and time-consuming. Some of the key problems include:

<u>Fragmented Information</u> : Students often have to use different tools or platforms to manage assignments, take notes, and keep track of upcoming tests. This fragmentation makes it difficult to stay organized and focused.

<u>Lack of Timely Reminders</u> : Without a reliable reminder system, students may forget about deadlines, resulting in missed assignments or poorly managed study time.

<u>Difficulty in Centralizing Data</u> : With notes stored in one place, assignments tracked elsewhere, and test schedules maintained separately, students and educators struggle to centralize their academic data in one place for easy access.

The proposed application seeks to address these problems by providing an integrated solution where users can manage all aspects of their academic tasks within a single system, improving productivity and time management.

1.3. Objectives

The objectives of this project are to create a user-friendly standalone Java application that addresses the academic management needs of both students and educators. The application aims to facilitate efficient tracking of assignments, deadlines, and test schedules, ultimately enhancing organizational skills and academic performance. Additionally, it seeks to provide customizable features that cater to the diverse requirements of users, ensuring broad applicability across various educational settings. By focusing on intuitive design and robust functionality, the project intends to support a wide range of users, from individual students to educational institutions.

The primary objectives of this project are -

1. **To combine test evaluations, student report generation, and assignment updates through tables from the database by using MySQL** : The aim is to integrate various student-related data, such as test results, reports, and assignment statuses, into a centralized system using MySQL to simplify management.

2. **To create student records & test reports, making them easier to find, group, and analyze using data normalization** : This objective focuses on organizing and streamlining student data through normalization, ensuring efficient data storage, retrieval, and analysis for reporting purposes.

3. **To generate student performance reports via predefined evaluator in the Evaluation table** : This involves automating the generation of performance reports by leveraging an evaluator that calculates and stores test results in a specific MySQL evaluation table.

4. **To provide updates about upcoming assignments/tests by implementing an instance of the calendar in MySQL** : The goal is to set up a calendar system within MySQL to notify students about scheduled assignments and tests, keeping them informed of important academic events.

1.4. Scope

The scope of this project includes the design and development of a standalone Java application that can be used by individuals or educational institutions. The application is intended to be deployed on personal computers, laptops, or servers, and can serve a wide audience, from students who need to manage their personal academic responsibilities to teachers and msessors who wish to keep track of their students' work and upcoming tests.

The application will cover the following functionalities -

Assignment Management: A feature where users can add, edit, and delete assignments, with the ability to mark deadlines and completion status.

Notes Management: A dedicated section where users can create, store, and retrieve notes for various subjects or topics.

Test Scheduling: A feature that allows users to input test details, set reminders, and notify users of upcoming exams or quizzes.

Task Notifications: The application will include a notification system to alert users of important deadlines and upcoming tasks.

While the initial scope focuses on providing these core features, the application can be extended to include additional functionalities like integration with other educational tools or cloud storage solutions, depending on the users' evolving needs.

Difficulty in Centralizing Data : With notes stored in one place, assignments tracked elsewhere, and test schedules maintained separately, students and educators struggle to centralize their academic data in one place for easy access.

The proposed application seeks to address these problems by providing an integrated solution where users can manage all aspects of their academic tasks within a single system, improving productivity and time management.

Chapter 2

Proposed System

The proposed system is a Java-based application that consolidates the management of assignments, notes, tests, and task notifications into a single platform. This solution aims to eliminate the issues associated with fragmented tools by offering a comprehensive application that is intuitive, user-friendly, and highly functional.

2.1. Features and Functionality

1. User Authentication : The application will include a secure login system to ensure that user data is protected, and only authorized users can access the system. This will be particularly useful for educational institutions where multiple users may need access to the same platform.

2. Assignment Management : Users can input details of their assignments, including deadlines, descriptions, and priority levels. The system will allow users to edit, update, or delete assignments as needed. Assignments can be marked as "completed" once finished, providing a visual representation of progress.

3. Notes Section : A well-organized notes management system will allow users to create and save notes under different categories or subjects. Notes will be easily accessible, editable, and deletable.

4. Test Scheduling and Notifications : Users can schedule their tests and input relevant details such as the date, time, and subject. The system will send notifications to remind users of upcoming tests, helping them prepare in advance.

5. Task Notifications : A notification system will alert users about pending tasks, upcoming deadlines, and other important events.

6. User Interface : The application will feature a clean, easy-to-navigate interface that ensures users can access all features with minimal effort. Icons and labels will guide users to different sections like assignments, notes, and tests. The interface will be designed for clarity, minimizing the learning curve for new users.

Chapter 3

Project Outcomes

The outcome of the project is the development of a fully functional Java application that successfully addresses the challenges faced by students and educators in managing academic tasks. The system will enable users to handle their assignments, notes, tests, and task notifications efficiently, reducing the complexity of academic management.

Key outcomes include –

1. A user-friendly platform that integrates multiple academic management tools into one system.
2. Improved time management for users through timely task notifications and test reminders.
3. A scalable system that can potentially be adapted for use by larger educational institutions or integrated with existing learning management systems.
4. This project contributes to improving productivity and organization in the academic sphere, providing a modern solution for the challenges posed by fragmented information and lack of centralized task management tools.

Chapter 4

Software Requirements

To ensure the successful development and deployment of the Java-based academic management application, it is crucial to define the necessary software requirements. This chapter outlines the specific hardware and software prerequisites, libraries, and dependencies essential for the system's smooth operation.

Front-end:

Java Development Kit (JDK): Version 8.

GUI Design: Apache Netbeans IDE 24 - For designing the graphical user interface (GUI) & managing project dependencies.

Functionality: User Interface (UI) for interacting with the application's features. This includes displaying information, receiving user input, and presenting processed responses/recommendations.

Back-end:

Database: MySQL Workbench 8.0 CE - For data persistence.

Functionality: The back-end will handle all data storage and retrieval processes, ensuring reliable management of user information, assignments, and test schedules. It will support efficient querying and updates to maintain up-to-date records while ensuring data integrity and security. Additionally, the back-end will facilitate seamless interaction between the user interface and the database, enabling real-time access to relevant information and enhancing overall application performance.

Chapter 5

Project Design

This chapter focuses on the architectural and design decisions that shape the system's development, covering both the architecture and the system components.

5.1. User Interface Design

The user interface is designed with simplicity and efficiency in mind. Key sections include:

Dashboard: The home page where users see an overview of their tasks, notes, and upcoming tests.

Assignments Page: A table format displaying all assignments with options to add, edit, or delete entries.

Notes Page: A searchable list of user notes organized by categories.

Test Schedule Page: A calendar view showing upcoming tests with options for setting and customizing reminders.

5.2. Database Design

The database is designed to store user information, assignments, notes, and test schedules. The system uses MySQL (or SQLite for local storage) as the database. The key tables include:

User Table: Stores user credentials and msile details.

Assignment Table: Holds information about assignments, including deadlines and status (completed or pending).

Notes Table: Stores notes written by users, categorized by subjects or topics.

Test Schedule Table: Keeps track of upcoming tests, their dates, and any reminders set by users.
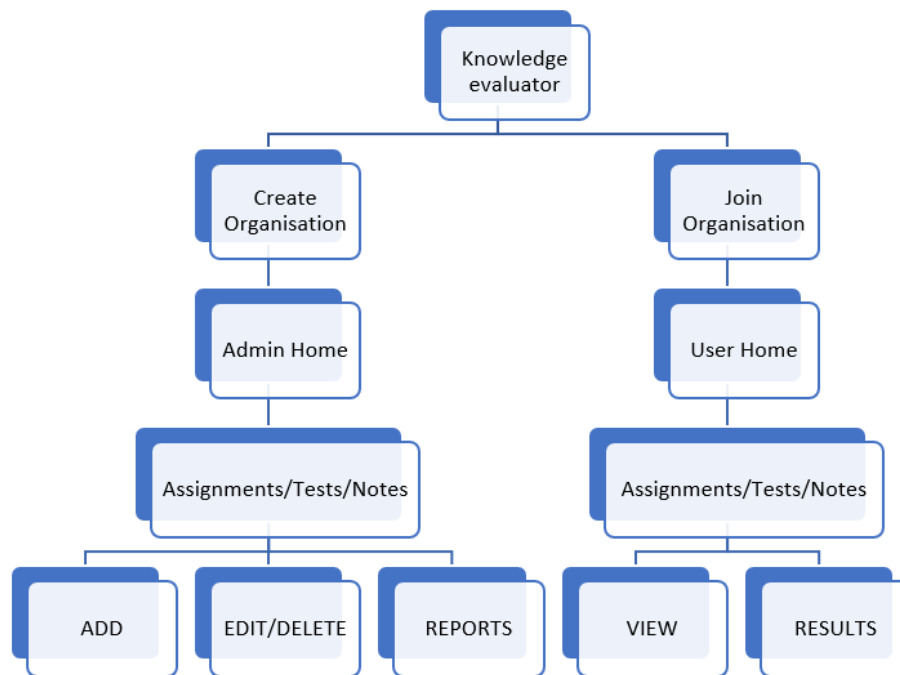
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Fig 3.1 – Block Diagram for the program flow

The diagram represents a flowchart for a "Knowledge Evaluator" system with two main pathways:

1.Create Organisation (Admin Path):

  Admin Home: This is where the administrator manages the organization.

  Assignments/Tests/Notes: The admin can add, edit/delete, and generate reports related to these activities.

2. Join Organisation (User Path):

  User Home: This is where users interact with the system after joining an organization.

  Assignments/Tests/Notes: Users can view the content and see their results.

The flowchart illustrates a structure for managing and evaluating knowledge within an organization, with separate roles for administrators and users.

Chapter 6

Project Scheduling

The project scheduling phase outlines the timeline for developing the Java application, detailing key milestones and deliverables. A Gantt chart has been employed to visualize the project timeline, providing a clear overview of tasks, their duration, and dependencies. This tool facilitates effective tracking of progress, ensuring that deadlines are met and resources are allocated efficiently. By breaking down the project into manageable segments, the Gantt chart enhances collaboration among team members and helps identify potential bottlenecks early in the development process.

Fig 6.2 – Gantt Chart
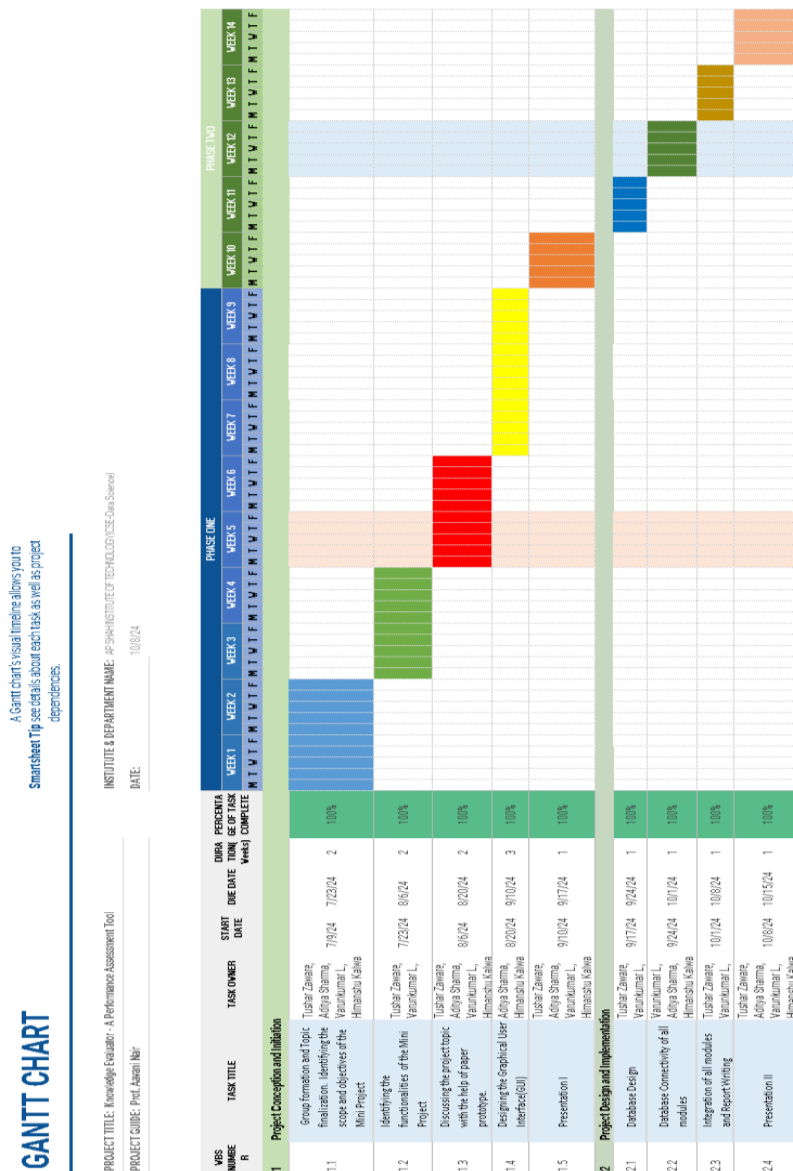
Following is the detail of the Gantt chart –

In the s e c o n d & third week of July, Tushar Zaware, Aditya Sharma, Varunkumar L., Himanshu Kalwa formed a group for our mini project. We have discussed and finalized the project's topic, scope, and objectives during this meeting. In the following weeks, Tushar Zaware, Aditya Sharma, Varunkumar L., Himanshu Kalwa used a paper prototype to explore and refine project ideas, completing this phase by the 2nd week of August.

In late August, Aditya Sharma, Himanshu Kalwa executed the design and integration of the graphical user interface (GUI). Afterward, on 12th of September, the first project review took place, and the faculty suggested some changes to the GUI, which were subsequently approved. Following this, Aditya Sharma, Varunkumar L., Himanshu Kalwa collaborated to create a structured database system, facilitating the systematic storage of information.

This, in turn, made it easier for Tushar Zaware and Varunkumar L. to connect the database to the project. This database work was completed by end of september. Finally, the team integrated all modules and completed the report writing, resulting in our final presentation on 8th october, which was approved by the faculty.

Chapter 7

Results

The anticipated results of this project include the successful development and deployment of a fully functional standalone Java application that effectively meets the academic management needs of users. The application is expected to provide an intuitive and engaging user interface, allowing students and educators to efficiently track assignments, deadlines, and test schedules. Additionally, it will demonstrate reliable data persistence through the integration of MySQL, ensuring users can access and update their information seamlessly. Ultimately, the project aims to enhance users' organizational skills and academic performance, evidenced by positive user feedback and measurable improvements in task management.

Fig. 7.1. Login Page

This fig.7.1. describes the Login page which has connectivity to the credentials table in database and linked to the password reset, signup and Home page. Fetches the user details for redirecting to the homepage.

This fig.7.2. describes the Sign Up page which has connectivity to the credentials table in database and linked to the Login page. Stores the values for the user.
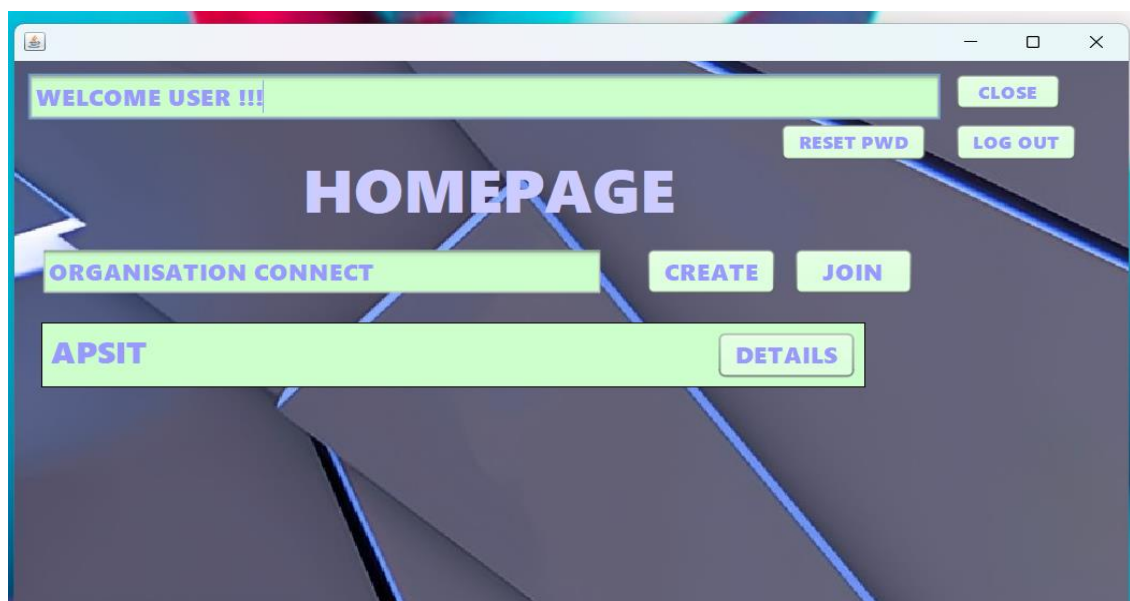

Fig. 7.3. Home Page

This fig.7.3. describes the Home Page which has connectivity to the organization table in database and linked to the Login page, Org create/join page & Password reset.

Fig. 7.3.1. Organization Connect Page

This fig.7.3.1. describes the Organization Connect page which has connectivity to the org create/join table in database and linked to the Login page. Stores the values for the user.

Fig. 7.4. Admin Page

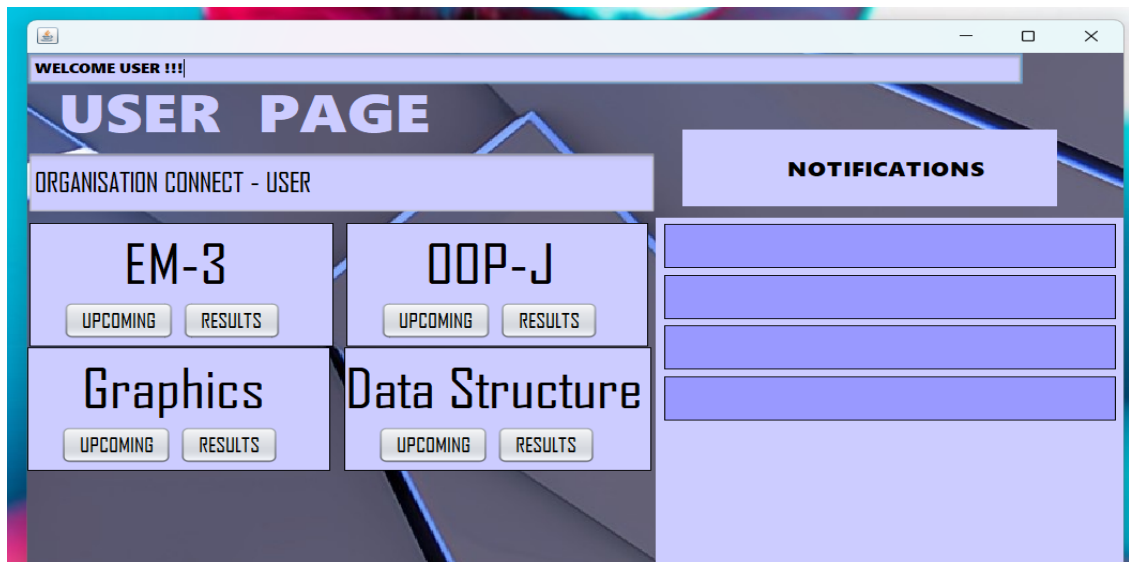This fig.7.4.1. describes the Admin page which is linked to the Home page, Section page, Upcoming & Reports.

Fig. 7.5. User Page

This fig.7.5. describes the User page which has connectivity to the assign table in database and linked to the Home page, upcoming & results.
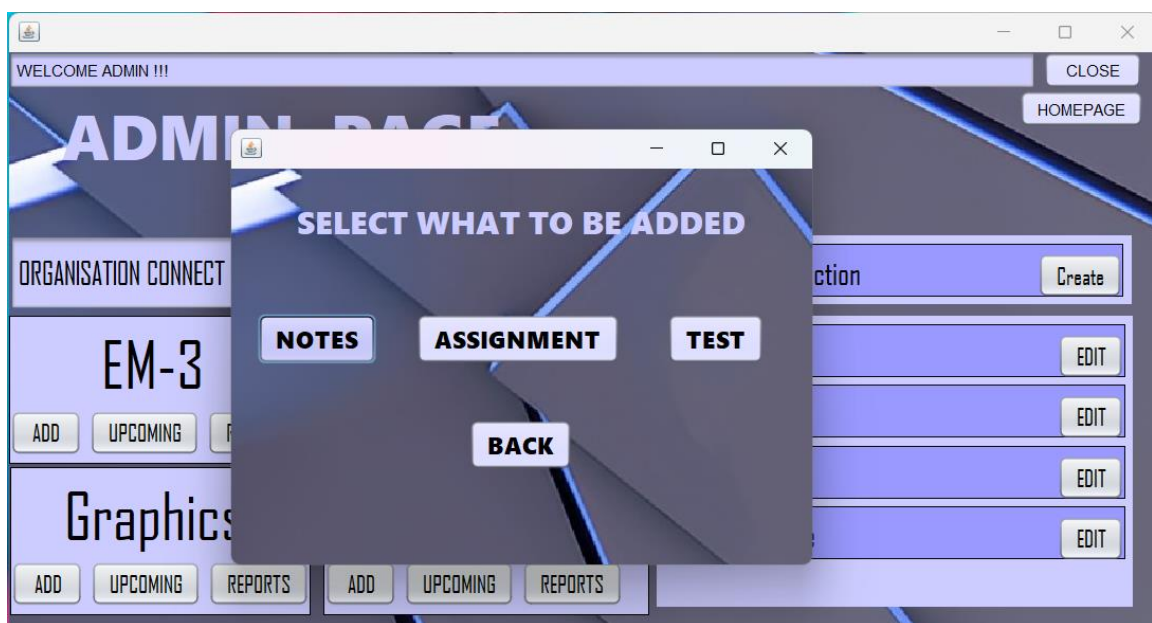

Fig. 7.6. Selection Page

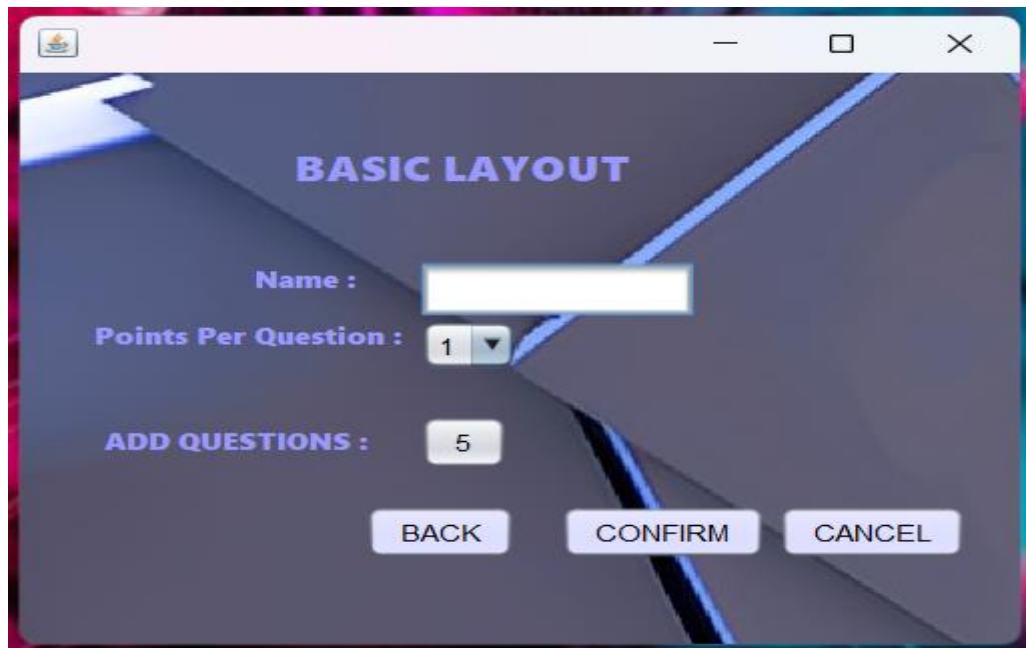This fig.7.6. describes the Selection page which linked to the Assign page, Test page and Notes.

Fig. 7.6.1 Basic Layout Page

This fig.7.6.1. describes the Basic Layout page which has connectivity to the assign table in database and linked to the section page & assignment add page.
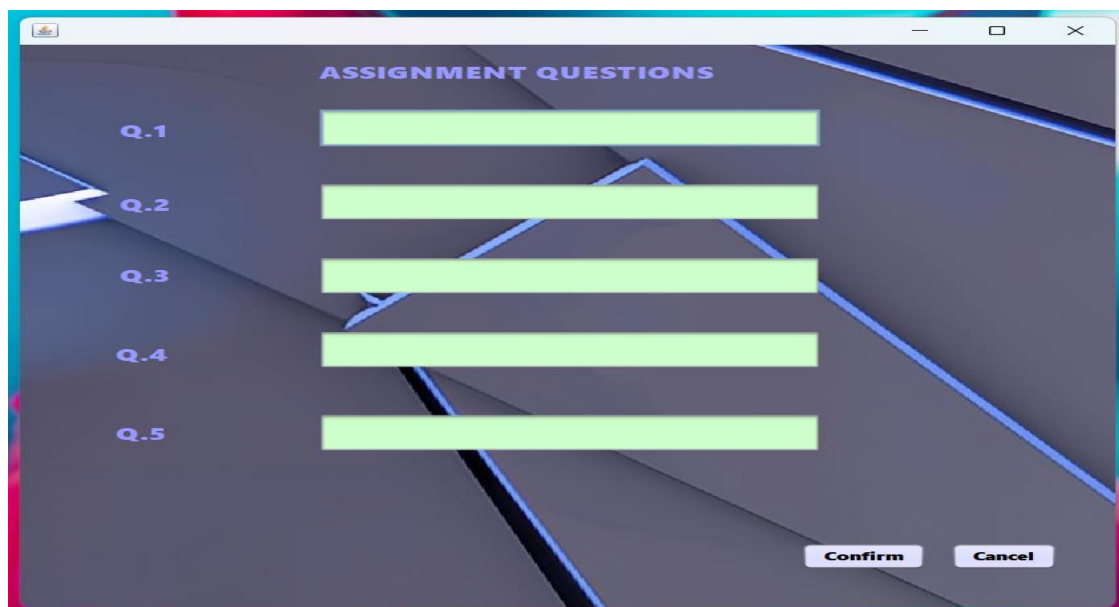

Fig. 7.6.2.Assignment Add Page

This fig.7.6.2. describes the Assignment Add page which has connectivity to the assign table in database and linked to the basic layout page, admin page. Stores the values for the user.
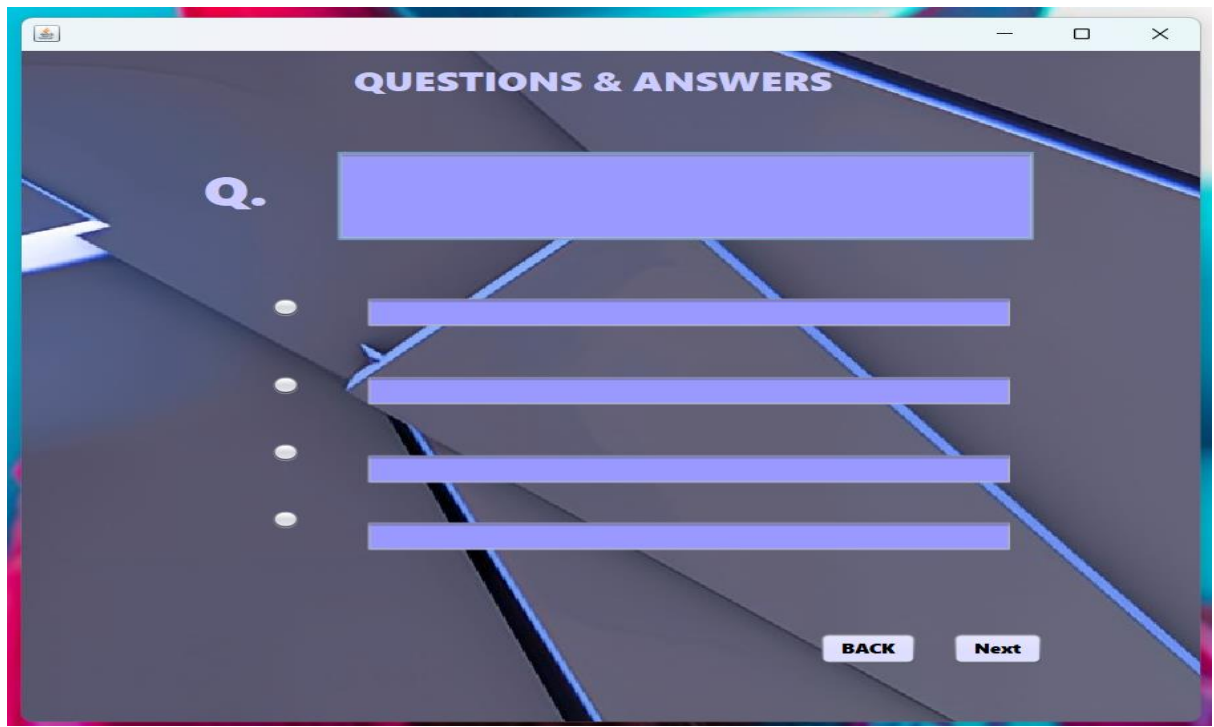
Fig. 7.6.3. Basic Test Page

This fig.7.6.3. describes the Basic Test page which has connectivity to the credentials table in database and linked to the section page & admin page. Stores the values for the user.
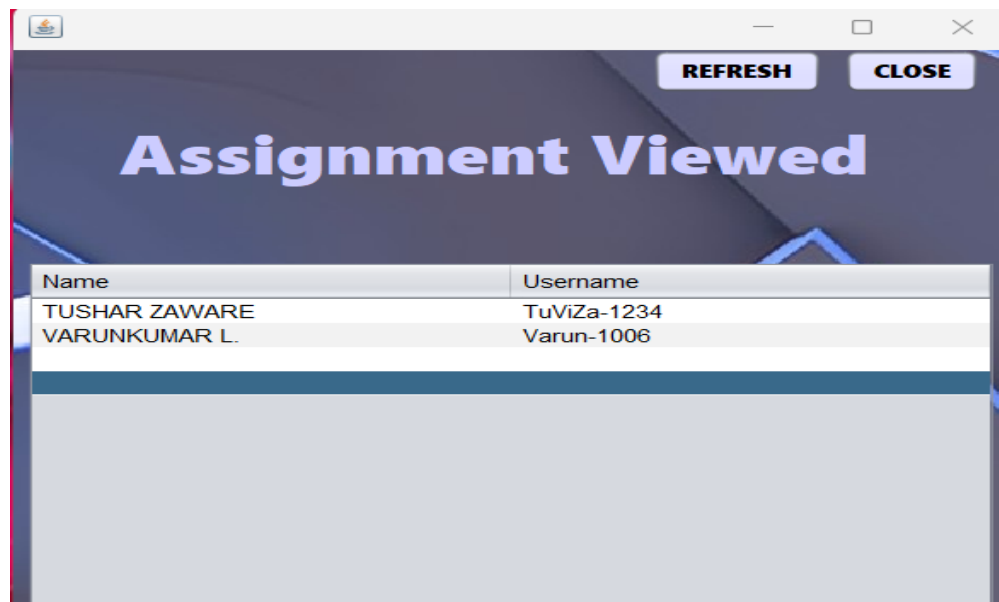

Fig. 7.7. Reports Page

This fig.7.7. describes the Reports page which has connectivity to the assign table in database and linked to the Admin page. Fetches the values for the user.

Chapter 8

Conclusion

The project successfully achieved its primary goal of developing a Java-based application for managing academic activities. This system integrates various educational management tools, such as assignment tracking, notes organization, and test scheduling, into a single, user-friendly platform. By eliminating fragmented information sources and offering reliable notifications, the application helps users streamline their academic responsibilities.

The final product addresses the challenges of poor time management and fragmented tools that students and educators often face. With its intuitive interface and scalable architecture, the system offers room for future expansion, such as cloud integration and support for larger educational institutions.

In conclusion, this project demonstrates the potential of Java applications in educational management, showcasing an efficient solution to a common problem in the academic world. Future iterations could focus on enhancing the system with additional features like mobile compatibility and collaborative tools for group projects and shared assignments.

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