PARSHWANATH CHARITABLE TRUST'S

A.P. SHAH INSTITUTE OF TECHNOLOGY

Department of Computer Science and Engineering

Data Science

CSE DATA SCIENCE

"AttendEase"

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Project Guide
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Contents

- Introduction

- Objectives

- Scope

- Features / Functionality

- Project Outcomes

- Technology Stack

- Block Diagram if applicable

1. Introduction

- Introduce your project topic in 2 points as follows

- Problem Identified :

  - **Manual Attendance Management**: Traditional attendance systems often require manual logging, which is time-consuming and prone to human error. There is also a lack of automation, making the process inefficient.

  - **Difficulty in Tracking and Editing Records**: Manually maintaining attendance records makes it difficult to efficiently track attendance trends, update logs, or make edits to existing records. It also leads to challenges in real-time monitoring and analysis.

1. Introduction

- Solution Proposed :

  - **Digital Attendance System**: The proposed solution is a **Java-based Digital Attendance System** that automates the process of logging, updating, and displaying attendance records, thus reducing human errors and improving efficiency.

  - **Real-Time Record Management**: The system allows users to add and delete attendance records and show overall attendance % per student via a graphical user interface (GUI). The data is stored in a database, enabling real-time access, accurate tracking, and seamless record management.

2. Objectives

1. **To** automate the process of recording and managing student attendance digitally, reducing manual errors.

2. **To** develop a user-friendly desktop application for faculty members to easily input and retrieve attendance data.

3. **To** calculate attendance percentages based on total and attended classes automatically.

4. **To** enable editing and updating of attendance records in real-time for greater flexibility.

5. **To** store and retrieve attendance data from a database for efficient data management and long-term storage.

6. **To** provide a graphical interface that simplifies interaction and improves usability for non-technical users.

3. Scope

1. **Can be applied in** schools, colleges, and universities for managing student attendance records efficiently.

2. **Can be useful to** teachers for tracking and managing student attendance in real-time

3. **Can be useful to** students for monitoring their attendance and ensuring they meet the required percentage.

4. **Can be applied in** educational institutions for reducing manual effort and improving the accuracy of attendance tracking.

4. Feature /Functionality

Feature 1: Student Attendance Recording

Description: This feature allows teachers to add and update student attendance records, including the number of classes attended and the total classes held. It will calculate attendance percentages automatically based on the input data.

Feature 2: Attendance Report Generation

Description: The system will generate detailed attendance reports for each student, subject-wise. These reports can be used by teachers or administrators to monitor students' attendance trends and identify any attendance issues.

Feature 3: Data Sorting and Search

Description: Users will be able to sort attendance records by student name, subject, or attendance percentage. The search functionality will allow users to quickly find specific records by entering keywords related to student names or subjects.

5. Outcome of Project

1. User Can Add Attendance Records:
Users can input student details, including name, subject, total classes, and attended classes, to add new attendance records.

2. User Can View Attendance Records:
Users can view a list of all attendance records in a table format, sorted by student name, allowing easy tracking of attendance data.

3. User Can Delete Attendance Records:
Users can select an existing attendance record and delete the details if needed, ensuring accuracy in the attendance data

5. Outcome of Project

4. User Can Clear Input Fields:
Users can reset all input fields to default values for new entries without manually deleting existing data.

5. User Can Calculate Attendance Percentage:
The system will automatically calculate and display the attendance percentage based on the entered total and attended classes.

6. Technology Stack

1. Front End (GUI):

Swing Framework for Java:

The application will utilize the Java Swing framework to create a visually appealing and user-friendly interface. Swing provides a range of components for building responsive UIs, such as buttons, labels, text fields, and tables.

2. Main Components:

JFrame: A main window to hold all other components and serve as the application's primary interface.

JTextFields: Input fields for entering student name, total classes, and attended classes.

JComboBox: A dropdown menu for selecting subjects.

JTable: To display the list of attendance records with functionalities for editing and deleting.

JButtons: For actions like adding records, clearing fields, and editing existing records.

3. User Interaction Features:

Mouse Events: Implement mouse listeners to enable selection of table rows for editing.

Dialogs: Use JOptionPane to show confirmation and error messages, enhancing user feedback and interaction.

6. Technology Stack

2. Backend (Database):

1. Database Management System:

Use a relational database management system (RDBMS) such as MySQL or SQLite to store attendance records. This allows for efficient data management and retrieval.

2. Database Structure:

Attendance Table:

Fields will include id, student_name, subject, total_classes, attended_classes, and attendance_percentage.

Primary key: id (auto-incrementing).

3. Database Connectivity:

Utilize JDBC (Java Database Connectivity) to establish a connection between the Java application and the database.

Implement CRUD operations (Create, Read, Update, Delete) to manage attendance records in the database effectively.

Thank You...!!