# Assam Down Town University

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**Faculty Of Engineering**

**SUMMER PROJECT**

**TOPIC :** SIMPLE ATTENDANCE TRACKER

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# **Abstract**

This project aims to develop a simple console-based attendance tracker using the Java programming language. The objective is to create a basic system that allows teachers or administrators to manage student attendance without relying on manual paper-based records. The system provides functionalities such as adding student details, marking attendance, and viewing daily records.

The methodology involves object-oriented programming concepts using Java, including classes, lists, and input handling through the Scanner class. The project is structured around a Student class and a main menu-driven program that performs the required tasks.

Key outcomes include a functioning attendance system that operates via the console and handles student data efficiently. The project demonstrates the application of basic Java features and logical thinking in solving real-world administrative tasks. It is a suitable foundation for future enhancements, such as file storage, date-wise attendance, and a graphical interface.  
  
The relevance of this project lies in its simplicity and educational value, especially for students beginning with Java and project development. It also addresses the need for small institutions to track attendance digitally without complex software systems.

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# **1. Introduction**

## Background and Context

In educational institutions, attendance is a crucial record for maintaining discipline and monitoring student presence. Manual systems are prone to errors and time-consuming. Hence, a digital attendance solution was developed as a basic Java console application.

## Problem Statement

Manual attendance tracking is inefficient and susceptible to mistakes. There's a need for a simple, quick, and reliable method to manage attendance records.

## Objectives

- Create a console-based attendance system.  
- Allow adding students and marking attendance.  
- Display current attendance records.

## Scope and Limitations

Scope: Console-based attendance management for small student groups.  
Limitations: No GUI, no file storage, and no historical data tracking yet.

# 2. **Methodology / System Design**

## Tools & Technologies Used

- Java JDK 17+  
- IDE: IntelliJ IDEA or VS Code  
- Language: Java  
- Scanner class for input  
- ArrayList for data structure

## System Architecture

- Main class (`AttendanceTracker`)  
- `Student` class for data structure  
- ArrayList to store student records  
- Menu-driven interface using loops and Scanner

## Implementation Steps

1. Create Student class  
2. Initialize ArrayList for storing students  
3. Use Scanner for user input  
4. Add switch-case menu: Add Student, Mark Attendance, View List  
5. Loop until exit

## Sample Code Snippet

for (Student s : students) {  
 System.out.print("Is " + s.name + " present? (y/n): ");  
 s.isPresent = scanner.nextLine().equalsIgnoreCase("y");  
}

# 3. Results and Analysis

## Outcomes

- Real-time attendance marking  
- Menu-driven interface  
- Accurate list display

## Sample Output

========= Attendance Tracker =========  
1. Add Student  
2. Mark Attendance  
3. View Attendance  
4. Exit

## Example Report:

ID Name Status  
1 Alice Present  
2 Bob Absent

## Evaluation:

- Works as expected for basic attendance needs  
- Can be enhanced with persistent storage and GUI in the future

# Conclusion

This project successfully delivers a working model of a simple attendance tracker using Java. It fulfills the basic requirement of recording and displaying student attendance. The objective of demonstrating a functional mini project using object-oriented programming is achieved. The project serves as a strong base for building more complex systems and improving digital tools in educational settings.