**Case Study: Student Attendance Management System**

Project Overview:

The aim of this project is to develop an efficient, user-friendly **Student Attendance Management System (SAMS)** that automates the process of recording, managing, and reporting student attendance. This system will replace traditional paper-based methods, enhancing accuracy and efficiency.

Users:

**Students:** Primary users whose attendance will be tracked.

**Teachers:** Users responsible for marking attendance.

**Administrators:** Users who will oversee the system, generate reports, and ensure data integrity.

**Tables:**

1. Student
2. Teacher
3. Class
4. Subject
5. Attendance
6. User (for authentication)

Database Schema:

**Users**

|  |  |  |
| --- | --- | --- |
| user\_id | Int | (Primary Key) |
| username | varchar (50) | UNIQUE, NOT NULL |
| Password | varchar (50) | NOT NULL |
| role (Student/Teacher/Admin) | Varchar (10) | NOT NULL |
| email | varchar (150) | NOT NULL |

**Students**

|  |  |  |
| --- | --- | --- |
| student\_id |  | (Primary Key) |
| user\_id |  | F.K. Users user\_id |
| first\_name |  |  |
| last\_name |  |  |
| class\_id |  | F.K. Classes class\_id |

**Classes**

|  |  |  |
| --- | --- | --- |
| class\_id |  | (Primary Key) |
| Class\_name |  |  |

**Teachers**

|  |  |  |
| --- | --- | --- |
| teacher\_id |  | (Primary Key) |
| first\_name |  |  |
| last\_name |  |  |

**Subjects**

|  |  |  |
| --- | --- | --- |
| subject\_id |  | (Primary Key) |
| subject\_name |  |  |
| class\_id |  | (F.K. Classes.class\_id) |
| teacher\_id |  | (F.K. Teachers. teacher\_id) |

**Attendance**

|  |  |  |
| --- | --- | --- |
| attendance\_id |  | (Primary Key) |
| student\_id |  | (F.K. Students.student\_id) |
| subject\_id |  | (F.K. Subjects.subject\_id) |
| attendance\_date |  |  |
| status  (Present/Absent) |  |  |