

Student Management System Documentation

Overview

This project is a comprehensive **Student Management System** written in C++. It manages **students, courses, marks, attendance, fees, and teachers** in a single console-based application. Data is stored in **CSV files**, which can be opened in Excel for reporting.

Features

- **Student Module:** Add, View, Update, Delete student records.
- **Course Module:** Add, View, Update, Delete courses.
- **Marks Module:** Add, View, Update, Delete marks for students in courses.
- **Attendance Module:** Add, View, Update, Delete attendance records.
- **Fees Module:** Add, View, Update, Delete student fee records.
- **Teacher Module:** Add, View, Update, Delete teacher records.

File Storage

Each module uses a separate CSV file:

- Students: students.csv
- Courses: courses.csv
- Marks: marks.csv
- Attendance: attendance.csv
- Fees: fees.csv
- Teachers: teachers.csv

Modules & Operations

1. Student Module

- **Add Student:** ID, Name, Age, Class, Section.
- **View Students:** Displays all students.
- **Update Student:** Modify student data by ID.
- **Delete Student:** Remove student record by ID.

2. Course Module

- **Add Course:** Course ID, Name, Student ID.
- **View Courses:** List all courses.
- **Update Course:** Modify course data by ID.
- **Delete Course:** Remove course record by ID.

3. Marks Module

- **Add Marks:** Assign marks to a student for a course.
- **View Marks:** Show all marks.
- **Update Marks:** Modify marks for a student-course.
- **Delete Marks:** Delete marks record.

4. Attendance Module

- **Add Attendance:** Mark Present/Absent for a date.
- **View Attendance:** Display records.
- **Update Attendance:** Modify attendance status.
- **Delete Attendance:** Remove record.

5. Fees Module

- **Add Fee:** Record fee amount and status (Paid/Unpaid).
- **View Fees:** Show fee records.
- **Update Fee:** Modify fee or status.
- **Delete Fee:** Delete fee record.

6. Teacher Module

- **Add Teacher:** Teacher ID, Name, Course ID.
- **View Teachers:** Display teachers.
- **Update Teacher:** Modify teacher data.
- **Delete Teacher:** Remove teacher record.

How to Use

1. Compile main.cpp using a C++ compiler.

2. Run the executable.
3. Navigate modules via the main menu.
4. Perform CRUD operations.
5. CSV files are automatically updated.
6. Open CSV files in Excel for reports.

Technical Details

- **Language:** C++
- **File Handling:** fstream
- **Data Storage:** CSV files
- **Interface:** Console-based
- **Design:** Modular with functions per entity.

Notes

- CSV format ensures Excel compatibility.
- Minimal input validation; enter correct data types.
- Updates/deletes overwrite old files to maintain integrity.