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.