

STUDENT MANAGEMENT SYSTEM

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AGENDA

- Project Overview
- Features & Data Structures
- OOP Concepts Used
- Class & Methods Breakdown (Step-by-Step)
- How to Run
- Sample Run / Console Output
- Improvements & Next Steps
- Conclusion

PROJECT OVERVIEW

- Console-based Student Management System written in core Python
- Stores student records (roll, name, age, marks) in-memory

KEY FEATURES

- Add new student records
- View all students
- Search student by roll number
- Update student information
- Delete student records
- Simple and easy to extend



DATA STRUCTURES USED

- List to store all student records:

```
self.students = []
```

- Each student is a dictionary: { 'roll':
..., 'name': ..., 'age': ..., 'marks': ... }

- Operations use list iteration (linear search)



OOP CONCEPTS DEMONSTRATED

- Object: sms = StudentManagementSystem()
- Encapsulation: data and methods inside the class
- Abstraction: simple methods hide internal details
- Inheritance & Polymorphism: not used (suggested as improvements)

CLASS & METHODS OVERVIEW

- class StudentManagementSystem:
 - `__init__()` -> initializes `self.students` list
 - `view_students()` -> print list contents
 - `search_student()`, `update_student()`, `delete_student()` -> CRUD helpers

HOW TO RUN (STEP-BY-STEP)

- 1) Save the code to a file: student_management.py
- 2) Open terminal / command prompt
- 3) Navigate to the folder containing the file
- 4) Run: python student_management.py
- 5) Use the numeric menu to operate the system

CONCLUSION

- Simple, clear, and extendable core-Python project
- Demonstrates Class, Object, Encapsulation, Abstraction
- Good starting point to add persistence and OOP refinements

THANK YOU