Student Management System

# 1. Project Title

Student Management System using Python

# 2. Objective

The objective of this project is to implement a basic Student Management System that allows users to add, view, update, search, and delete student records. It is built using Python and demonstrates key programming concepts such as functions, classes, objects, lists, and user input validation.

# 3. Technologies Used

- Python (Core concepts: functions, lists, dictionaries, class and object, inheritance, loops, conditionals)

# 4. Key Features

1. Add Student: Takes student roll number, name, and marks and stores them.  
2. Display All Students: Displays the list of all student records.  
3. Search Student: Finds and shows details of a student by roll number.  
4. Update Student: Allows editing of a student's name and marks.  
5. Delete Student: Removes a student from the system.  
6. Input Validation: Ensures that roll number is numeric and marks are within 0-100.

# 5. How It Works

- A `Student` class stores individual student information.  
- A `StudentManager` class manages a list of students and includes functions to perform operations like add, update, delete, etc.  
- The `main()` function provides a simple menu for users to interact with the system.  
- Roll number input is validated to be numeric using `isdigit()`.  
- Marks input is validated to be between 0 and 100.

# 6. Learning Outcome

- Understanding and implementation of Object-Oriented Programming (OOP).  
- Practical use of Python collections (lists).  
- Input validation and user-friendly error messages.  
- Designing a menu-driven console application.

# 7. Future Enhancements

- Add data saving and loading from files (using JSON or CSV).  
- GUI implementation using Tkinter or PyQt.  
- Add admin/user login system.