

Awesome! Let's create a **Java Mini Project** that uses all the **input techniques** from beginner to advanced levels. This project will simulate a **Student Management System** where:

- We take multiple student inputs
 - Use object-oriented principles
 - Validate inputs
 - Handle arrays of objects
 - Show final output with a simple menu-driven system
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Java Mini Project: Student Management System

Features:

- Add student details (name, roll, marks)
 - Show all student details
 - Input validation using `try-catch`
 - Uses `Scanner` and Object Arrays
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Code:

```
import java.util.InputMismatchException;
import java.util.Scanner;

class Student {
    private String name;
    private int roll;
    private double marks;

    // Constructor
    public Student(String name, int roll, double marks) {
```

```

        this.name = name;
        this.roll = roll;
        this.marks = marks;
    }

    // Display method
    public void display() {
        System.out.println("Name: " + name + ", Roll: " + roll + ", Marks: " + marks);
    }
}

public class StudentManagementSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Student[] students;
        int studentCount = 0;

        // Get number of students
        while (true) {
            try {
                System.out.print("Enter number of students: ");
                studentCount = scanner.nextInt();
                if (studentCount <= 0) throw new IllegalArgumentException("Must be greater than 0");
                break;
            } catch (InputMismatchException e) {
                System.out.println("Please enter a valid integer.");
                scanner.next();
            } catch (IllegalArgumentException e) {
                System.out.println(e.getMessage());
            }
        }

        students = new Student[studentCount];

        // Input student details
        for (int i = 0; i < studentCount; i++) {
            scanner.nextLine(); // Consume newline
            System.out.println("\nEnter details for Student " + (i + 1));

            System.out.print("Name: ");
            String name = scanner.nextLine();

            int roll = 0;
            while (true) {

```

```

        try {
            System.out.print("Roll Number: ");
            roll = scanner.nextInt();
            break;
        } catch (InputMismatchException e) {
            System.out.println("Invalid roll number. Enter an integer.");
            scanner.next();
        }
    }

    double marks = 0.0;
    while (true) {
        try {
            System.out.print("Marks: ");
            marks = scanner.nextDouble();
            break;
        } catch (InputMismatchException e) {
            System.out.println("Invalid marks. Enter a number.");
            scanner.next();
        }
    }

    students[i] = new Student(name, roll, marks);
}

// Display all students
System.out.println("\n📋 All Student Details:");
for (Student student : students) {
    student.display();
}

scanner.close();
}
}

```

💡 Output Example

Enter number of students: 2

Enter details for Student 1

Name: John

Roll Number: 101

Marks: 87.5

Enter details for Student 2

Name: Alice

Roll Number: 102

Marks: 92.0



All Student Details:

Name: John, Roll: 101, Marks: 87.5

Name: Alice, Roll: 102, Marks: 92.0



What You Learn from This Mini Project:

Concept	Usage in Project
Scanner class	Reading input from terminal
Exception handling	Input validation
Arrays	Storing multiple objects
Classes and Objects	Managing student data
Constructors	Initializing objects
Loops	Repeated input and display
Access Modifiers (private)	Encapsulation of data

Would you like to upgrade this with:

- **Menu options** (Add, View, Search)?
- **File saving/loading?**
- **Sorting students by marks?**

Let me know, and I'll guide you through!