TASK 5: Arrays & Basic Data Analysis Program

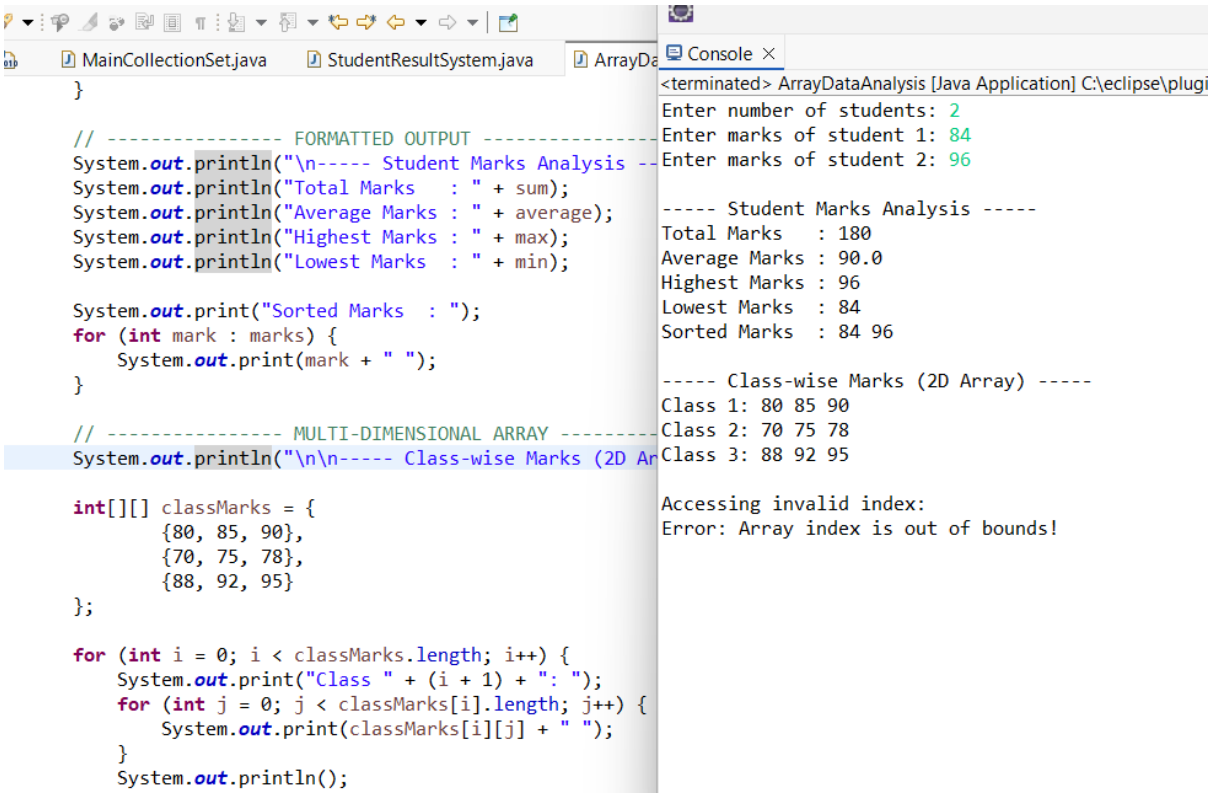
📌 Objective

To understand and implement **arrays in Java** for storing numerical data and performing **basic data analysis operations** such as **sum, average, maximum, minimum, sorting**, and **exception handling** using efficient loops.

Tools Used- Eclipse

🧩 Concepts Covered

- Single-Dimensional Arrays
- Multi-Dimensional Arrays
- Loop Traversal (for, nested for)
- Manual Sorting (Bubble Sort)
- Exception Handling (ArrayIndexOutOfBoundsException)
- Formatted Output
- Code Readability & Comments



💡 Practical Example

🎯 *Student Marks Analysis System*

We store marks of students in an array and perform:

- Total Marks
- Average Marks
- Highest & Lowest Marks
- Sorting marks in ascending order
- Displaying marks of multiple classes (2D array)

📊 Sample Output

pgsql

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```
----- Student Marks Analysis -----
Total Marks   : 420
Average Marks : 84.0
Highest Marks : 95
Lowest Marks  : 70
Sorted Marks  : 70 75 78 80 85 88 90 92 95

----- Class-wise Marks (2D Array) -----
Class 1: 80 85 90
Class 2: 70 75 78
Class 3: 88 92 95

Error: Array index is out of bounds!
```