Project 1 Dataset (Pure NumPy Array)

Assume this is loaded as:

```
import numpy as np

data = np.array([
    [78, 85, 90, 92],
    [45, 50, 40, 75],
    [88, 92, 85, 96],
    [60, 65, 70, 80],
    [95, 98, 94, 99],
    [30, 40, 35, 60],
    [72, 75, 70, 85],
    [85, 80, 88, 90],
    [55, 58, 60, 78],
    [91, 89, 93, 97]
])
```

Column Meaning:

- Column 0 → Math
- Column 1 → Science
- Column 2 → English
- Column 3 → Attendance

Shape = (10, 4)

Level 1 – Basic Analytical Thinking

1. Find total marks of each student.
2. Find average marks of each student (exclude attendance).
3. Find topper using NumPy functions only.
4. Find subject-wise average marks.
5. Find student with highest attendance.
6. Count students scoring above 80 in Math.
7. Extract students with attendance below 75%.

Project 2 Dataset: Company Sales Analytics

Assume:

- 100 Days of Sales
- 5 Products
- 3 Regions

We simulate a **3D NumPy array**

Shape = **(100, 5, 3)**

Meaning:

- Axis 0 → Days (100 days)
- Axis 1 → Products (5 products)
- Axis 2 → Regions (North, South, West)

Example

```
import numpy as np

np.random.seed(42)

sales = np.random.randint(1000, 10000, size=(100, 5, 3))
```

Project-Level NumPy Interview Questions (Large Dataset)

Level 1 – Basic Data Understanding

1. What is the shape of dataset?
2. Total sales of entire company?
3. Total sales per product (across all days & regions).
4. Total sales per region.
5. Average daily sales.
6. Which product generated highest overall revenue?
7. Which region generated lowest revenue?

Level 2 – Multi-Dimensional Thinking

8. Find daily total sales (sum across products & regions).
9. Find best sales day.
10. Find worst sales day.
11. Find average sales per product per region.
12. Find which product performs best in North region.
13. Extract sales data of Product 3 across all days.
14. Extract last 10 days sales.
15. Find standard deviation of sales for each product.