Exercise Questions

🐼 Pandas

1. Load a CSV file containing student data (Name, Age, Marks, City).
    - Display the first 10 rows.
    - Show the shape, column names, and info.
2. From a sales dataset (OrderID, Product, Quantity, Price, City):
    - Find total sales (Quantity × Price).
    - Group sales by City and find the highest.
    - Find the top 3 products sold.
3. Create a DataFrame of employees (EmpID, Name, Department, Salary).
    - Filter employees with salary greater than 50,000.
    - Sort by Salary in descending order.
    - Find the average salary per department.

🔢 NumPy

4. Create a NumPy array of integers from 1 to 20.
    - Reshape it into a 4×5 matrix.
    - Find the mean, max, and min.
    - Extract all even numbers.
5. Generate two random 3×3 matrices.
    - Perform matrix multiplication.
    - Find the transpose and determinant.
    - Add and subtract the two matrices.
6. Create a 1D NumPy array of size 10 with random numbers between 0 and 1.
    - Normalize the array (values between 0 and 1).
    - Find the index of the maximum value.

📊 Matplotlib

7. Plot the function y=x2y = x^2y=x2 for x in range -10 to 10.
    - Add labels, title, and grid.
    - Plot with red dashed line.
8. Using sample sales data (Months vs Revenue):
    - Create a line chart of Revenue per month.
    - Highlight the maximum point with a marker.
9. Create a bar chart for product sales:
    - Products = [‘A’, ‘B’, ‘C’, ‘D’], Sales = [50, 80, 30, 90].
    - Add different colors to bars.
    - Add values on top of bars.

🎨 Seaborn

10. Load the tips dataset from seaborn.
    - Show distribution of total_bill using a histogram.
    - Create a boxplot of total_bill by day.
11. Using the iris dataset:
    - Create a scatter plot of sepal_length vs sepal_width with species as hue.
    - Plot pairplot for all numeric columns.
12. Using flights dataset:
    - Create a heatmap showing passengers by month and year.
    - Add annotations to show exact values.