

Home Assignment <2>: Analysis of Covid Cases Extension

Learning Objective:

The objective of this assignment is to extend the previously implemented COVID-19 dataset analysis project by incorporating **Exploratory Data Analysis (EDA)** techniques and **data visualization** using Matplotlib and Pandas plotting.

Expected Completion Time:

Best Case: 60 minutes Average Case: 90 minutes

Assignment Details:

You have already built a project that analyzes the **COVID-19 dataset** (country wise latest.csv) using classes, inheritance, Pandas, and NumPy.

Now, extend your project by creating a new class for data visualization and EDA.

Step 1: Class Design

- Create a new class CovidVisualization that inherits from your existing analysis class (CovidAnalysis).
- This class should focus on generating **charts** and providing **EDA insights**.

Step 2: Visualization & EDA Tasks

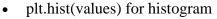
Add the following methods inside CovidVisualization:

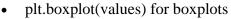
- 1. Bar Chart of Top 10 Countries by Confirmed Cases
- 2. Pie Chart of Global Death Distribution by Region
- 3. Line Chart comparing Confirmed and Deaths for Top 5 Countries
- 4. Scatter Plot of Confirmed Cases vs Recovered Cases
- 5. Histogram of Death Counts across all Regions
- 6. Stacked Bar Chart of Confirmed, Deaths, and Recovered for 5 Selected Countries
- 7. Box Plot of Confirmed Cases across Regions
- 8. Trend Line: Plot Confirmed cases for India vs another chosen country (side by side comparison).

Hints to Solve:

☐ Use **Matplotlib**:

- plt.bar(x, y) for bar charts
- plt.pie(values, labels=...) for pie chart
- plt.plot(x, y) for line plots
- plt.scatter(x, y) for scatter plots







• Use Pandas .plot(kind="bar") or .plot(kind="line") for quick visualizations.

☐ Use .head(), .nlargest(), and .groupby() to prepare data before plotting.

☐ Always include **titles**, **labels**, **legends** for readability.

Expected Outcome:

Upon completion of this assignment, you should be able to:

- Extend the earlier COVID analysis project with visualization capability.
- Use inheritance to add a dedicated visualization class.
- Apply EDA techniques to explore dataset patterns.
- Generate bar, pie, line, scatter, histogram, stacked bar, and box plots.
- Present insights visually, not just numerically.