INTRODUCTION

Welcome to PandemicPulse: COVID-19 Data Analysis
- **Purpose**: To provide a comprehensive analysis of the global COVID-19 pandemic using data visualization.

Key Focus Areas:
- Tracking the spread and impact of COVID-19 over time.
- Comparing the effects of the pandemic across different countries and continents.
- Analyzing the relationships between confirmed cases, deaths, and recoveries.
- Outcome: Gain insights to inform public health decisions and understand the pandemic's trajectory.

OBJECTIVES

To analyze the global spread of COVID-19 and its impact using data visualization techniques.

- **<u>Analyze Global Trends</u>**: Understand the overall trend of confirmed cases, deaths, and recoveries over time.
- **<u>Country-Specific Analysis</u>**: Compare the COVID-19 trends in different countries.
- **<u>Comparative Analysis</u>**: Identify and compare the most affected countries.
- **Growth Rate Analysis**: Calculate and visualize the growth rate of confirmed cases, deaths, and recoveries.
- **<u>Correlation Analysis:</u>** Examine the relationships between confirmed cases, deaths, and recoveries.
- **<u>Geographical Distribution</u>**: Visualize the distribution of cases by continent.
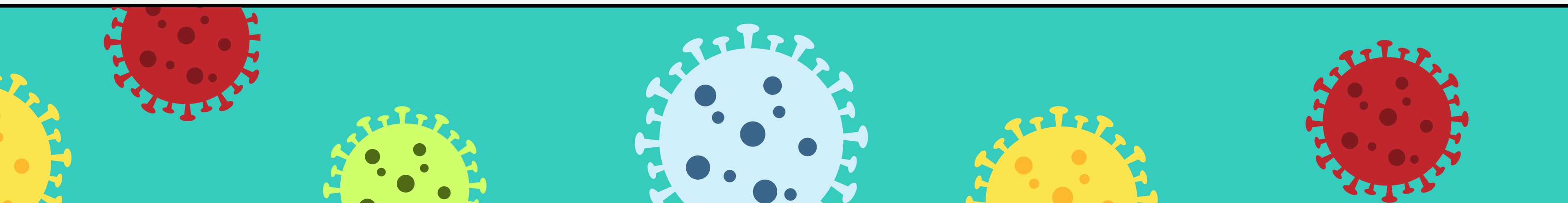
TECH STACK

- Programming Language: Python
- Libraries Used:
  - **Pandas**: Data manipulation and analysis.
  - **Matplotlib**: Plotting and visualization.
  - **Seaborn**: Statistical data visualization.
  - **Numpy**: Numerical operations.
- Data Source:
  - COVID-19 dataset from GitHub repository

https://raw.githubusercontent.com/datasets/covid-19/main/data/countries-aggregated.csv

CODE BREAKDOWN

**Data Loading & Preprocessing:**

- Load the dataset using Pandas.
- Handle missing values and convert the 'Date' column to datetime format.

Data Exploration & Cleaning:

- Display dataset information: number of rows and columns, data types.
- Check for outliers or inconsistencies and handle them appropriately.

Visualization:

- Use Matplotlib and Seaborn for creating line plots, bar plots, and heatmaps.
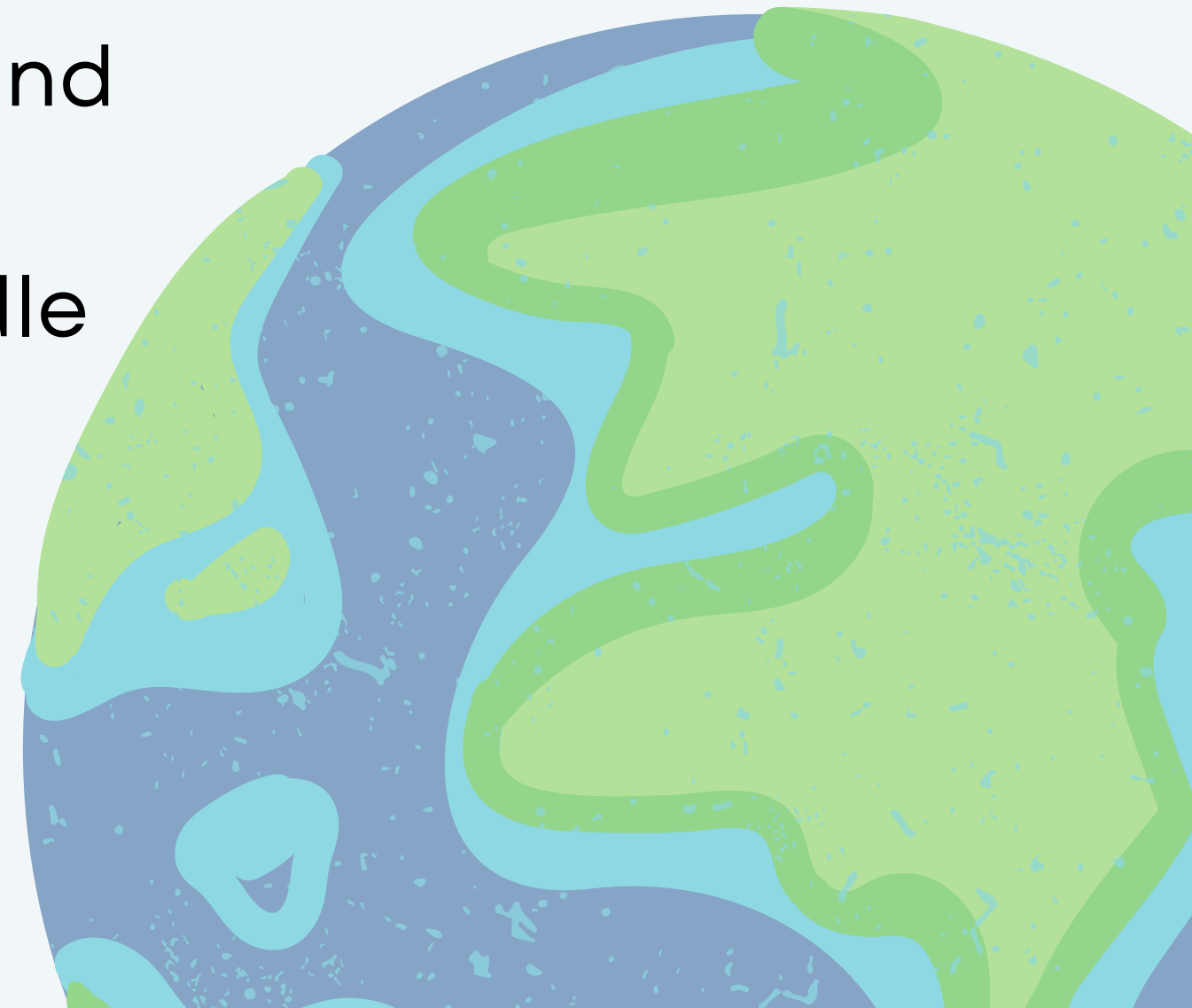
GRAPH VISUALIZATIONS

- **<u>Global Trends:</u>**
  - Line plots showing the trends of confirmed cases, deaths, and recoveries globally.
- **<u>Country-Specific Trends</u>**:
  - Line plots for specified countries to visualize their COVID-19 trends.
  - Comparative analysis of top 5 affected countries.
- **<u>Cumulative Analysis:</u>**
  - Bar plots for the top 10 most affected countries by confirmed cases, deaths, and recoveries.
- **<u>Correlation Matrix:</u>**
  - Heatmap to show the correlation between confirmed cases, deaths, and recoveries.

CONCLUSION

INSIGHTS

- Identified the overall trends and growth rates of COVID-19 globally and by country.
- Determined the countries with the highest number of confirmed cases, deaths, and recoveries.
- Analyzed the recovery rates and their variations across different countries.
- Visualized the geographical distribution of COVID-19 impact.

THANK YOU