**## Exercises for Students**

Now it's your turn! Below are some exercises to reinforce what you've learned. Try to complete them without looking at the solutions.

**### Exercise: Compare Rainfall Between London and Seattle**

- **\*\*Objective\*\***: Compare the total weekly rainfall between London and Seattle over a full year.

- **\*\*Tasks\*\***:

1. **\*\*Fetch Data\*\***: Retrieve hourly precipitation data for London and Seattle for the year 2022.

- **\*\*London Coordinates\*\***: Latitude `51.5074`, Longitude `-0.1278`

- **\*\*Seattle Coordinates\*\***: Latitude `47.6062`, Longitude `-122.3321`

2. **\*\*Data Cleaning\*\***: Convert the time columns to datetime objects and set them as the index. Handle any missing values.

3. **\*\*Resample Data\*\***: Resample the hourly data to weekly totals.

4. **\*\*Visualization\*\***: Plot the weekly total precipitation for both cities on the same graph.

5. **\*\*Analysis\*\***: Determine which city had more rainfall overall and identify any interesting patterns.

**\*\*Note\*\***: Remember to handle any API limitations, such as data availability or rate limits, and to be mindful of the size of the data you're requesting.

**### Tips:**

- **\*\*API Parameters\*\***: Make sure to adjust the parameters like `latitude`, `longitude`, `start\_date`, `end\_date`, `hourly`, and `timezone` as needed.

- **\*\*Error Handling\*\***: Always check if your API requests are successful before proceeding.

- **\*\*Data Storage\*\***: Consider saving your DataFrames to CSV files for future analysis.

- **\*\*Visualization\*\***: Customize your plots with titles, labels, legends, and gridlines for better readability.

Happy coding!