**USER INTERACTION GUIDE**

Welcome to our AI-powered Interactive Dashboard!

This document explains how users can effectively interact with the application to explore data, generate insights, and leverage AI capabilities.

**1. Launching the Application:**

* Open the application in a web browser after starting it via the appropriate command (e.g., panel serve app.py).
* The dashboard will display a clean and interactive interface with sections for AI assistance and dynamic data visualizations.

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**2. Navigating the Dashboard:**

The dashboard is divided into two main components:

**A. AI Assistant Panel**

* Users can choose from **4 main options**:
  1. **Ask a Question**: Input any query you have, and the AI will provide a relevant response.
  2. **Summarize a Paragraph**: Paste a paragraph, and the AI will generate a concise summary.
  3. **Get Coding Help**: Describe your coding issue, and the AI will suggest solutions or explanations.
  4. **Exit**: End the session.

**How to interact:**

* Select the task by entering a number (1–4).
* Provide input as prompted (question, paragraph, or coding issue).
* View the AI-generated response instantly.

**B. Data Visualization Panel:**

* The interactive panel allows users to create **custom visualizations** using sample or uploaded data.

**Steps to interact:**

1. **Select the Plot Type**: Choose between Scatter Plot, Line Chart, or Histogram.
2. **Configure X and Y Axes**: Use dropdown menus to choose columns for the axes.
3. **Adjust Parameters Dynamically**:
   * For line charts, sliders allow you to adjust frequencies or values interactively.
   * Histograms come with an optional **KDE (Kernel Density Estimation)** for enhanced visualization.

**Outputs:**

* Visualizations update in real-time based on your selections.
* AI-generated insights (like means, correlations, or maxima) appear alongside visualizations to help interpret the data.

**3. Customization and Interactivity:**

* Use interactive sliders and dropdowns to dynamically adjust plots.
* Hover over visualizations to view tooltips and data values.

**4. Exiting the Application:**

* For AI interactions, simply select the **"4. Exit"** option when prompted.
* To stop the dashboard, use Ctrl + C in the terminal where the application is running.

**5. System Requirements:**

* **Python 3.9+** with libraries: panel, holoviews, hvplot, google-generativeai, numpy, and pandas.
* A web browser (e.g., Chrome, Firefox).