

**Project Title: AI-Powered Interactive Dashboard**

**Team Name: VizGen Team**

**Your Name: S. Sathya Lakshmi**

**Date: 16-12-2024**

# INTRODUCTION

## 1. Overview:

- Introduction to the project: Combining AI-driven insights with interactive data visualizations.
- The goal is to provide a tool that assists users with AI-powered tasks and dynamic data exploration.

## 2. Key Components:

- Generative AI (Google Gemini)
- Interactive Visualizations (Panel, Holoviews, D3.js)

# PROBLEM STATEMENT

## PROBLEM:

Many data analysis tools and AI assistants are either static or disconnected, making it challenging for users to interact with both data and AI efficiently.

**Challenge:** How can we integrate AI and interactive data visualizations seamlessly?

**Solution:**

Our dashboard offers an integrated AI assistant for tasks like answering questions, summarizing text, and providing coding help, combined with dynamic visualizations to help users explore and interpret data.

# KEY FEATURES

## 1. AI Assistant Capabilities:

- **Answer Questions:** Users can ask any question, and the AI responds with relevant information.
- **Summarize Text:** Paste a paragraph, and the AI generates a concise summary.
- **Provide Coding Help:** Users describe coding issues, and the AI offers solutions.

## **2. Data Visualization:**

- **Interactive Plots:** Scatter plots, line charts, histograms.
- **Dynamic Adjustments:** Users can adjust axes, frequencies, and parameters via dropdowns and sliders.
- **AI Insights:** Real-time analysis such as correlations, means, and maxima alongside visualizations.

# TECHNOLOGY STACK

- **Google Gemini:** For AI-driven responses (question answering, summarization, coding help).
- **Panel:** For creating interactive dashboards.
- **Holoviews and HvPlot:** For data visualization.
- **D3.js:** For custom visualizations.
- **Python:** The programming language for integration and automation.

# DEMONSTRATION (LIVE OR SCREENSHOTS)

- **Live Demo:**

Show the dashboard in action, walking through the main features:

1. Asking a question to the AI assistant.
2. Summarizing a paragraph.
3. Generating a plot and adjusting it dynamically.
4. AI insights based on data.



# BENEFITS

- **What the Dashboard Accomplishes:**

1. **User-friendly:** An interactive, intuitive interface for users of all technical backgrounds.
2. **Scalable:** Suitable for a range of applications, from data analysis to AI-powered support tools.
3. **Efficiency:** Helps users quickly explore data, solve coding problems, and receive summaries with minimal effort.
4. **Actionable Insights:** AI-driven analysis and insights help users make data-driven decisions.

# FUTURE PLANS

- **Extend AI Functionality:** Integrate more advanced AI models for complex tasks.
- **Additional Visualizations:** Incorporate more data visualization types (e.g., heatmaps, 3D plots).
- **Collaboration Tools:** Allow users to collaborate on data analysis within the dashboard.
- **Deployment:** Plan to deploy the tool for broader use (web-based).

# CONCLUSION

## **Summary:**

The project demonstrates a powerful integration of AI and data visualization, offering a comprehensive solution for AI-driven assistance and real-time data analysis.

## **Call to Action:**

Explore the dashboard, see its capabilities in action, and imagine its potential for your work or projects!

# Q&A

Open the floor for questions and feedback.

**THANK YOU**