

Dashboard Creation

Johnson&Johnson

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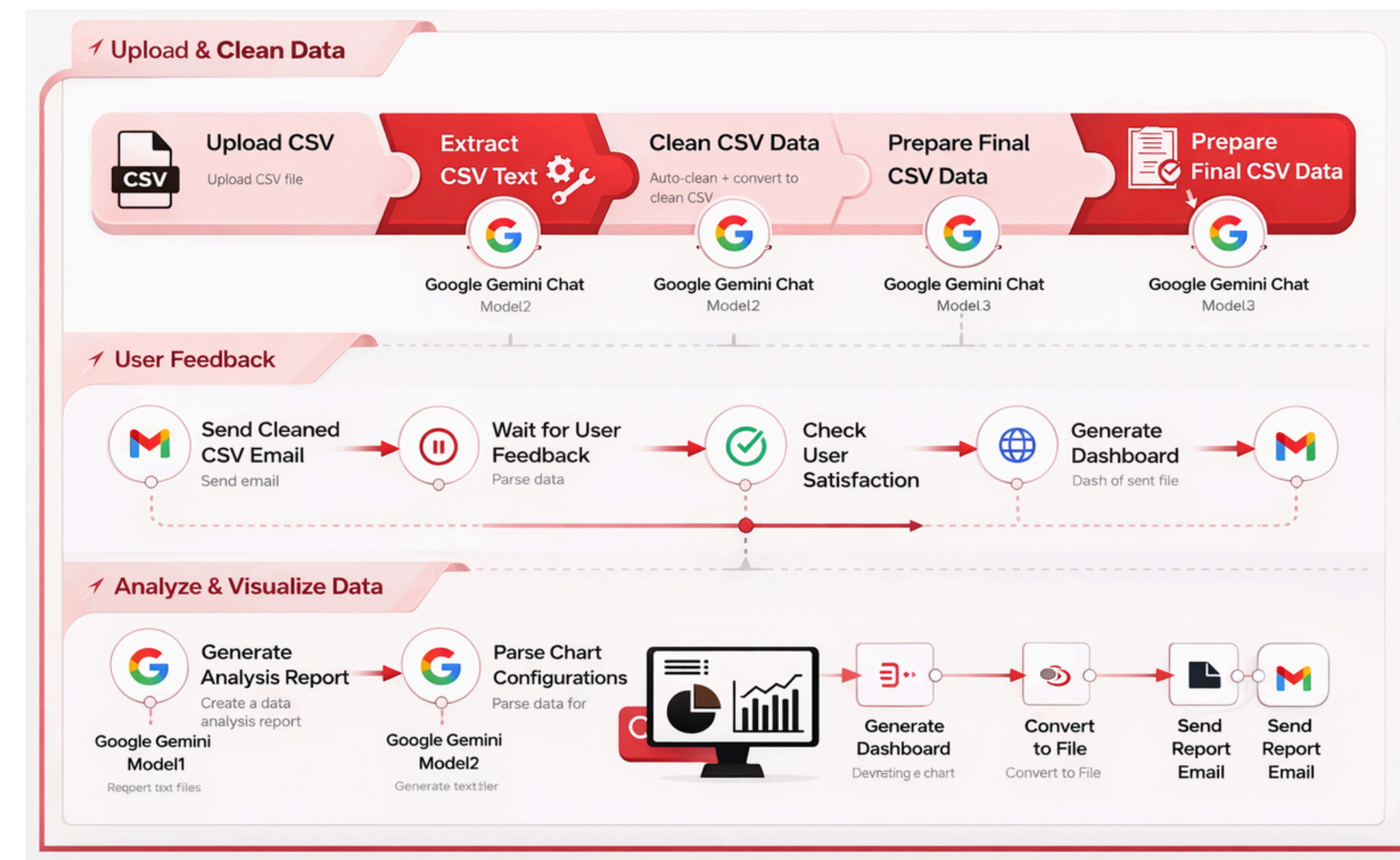
01 Introduction

Our project focuses on the creation of a pipeline using GenAI and open-source tools that can automatically generate the most relevant dashboard to explore datasets effectively, from finance to healthcare data.

Every day organizations collect massive amounts of data, and automation is crucial for efficiency and decision-making. By streamlining data preparation and analysis, we can reduce complexity and make insights more accessible, faster.

GOAL: Create an LLM-driven automated dashboard to inform strategy, improve efficiency, and drive better decision making for CME (Continuing Medical Education) data.

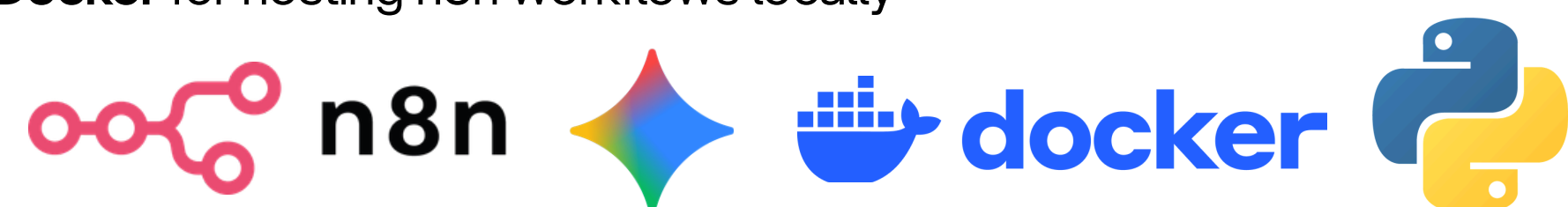
02 Methodology



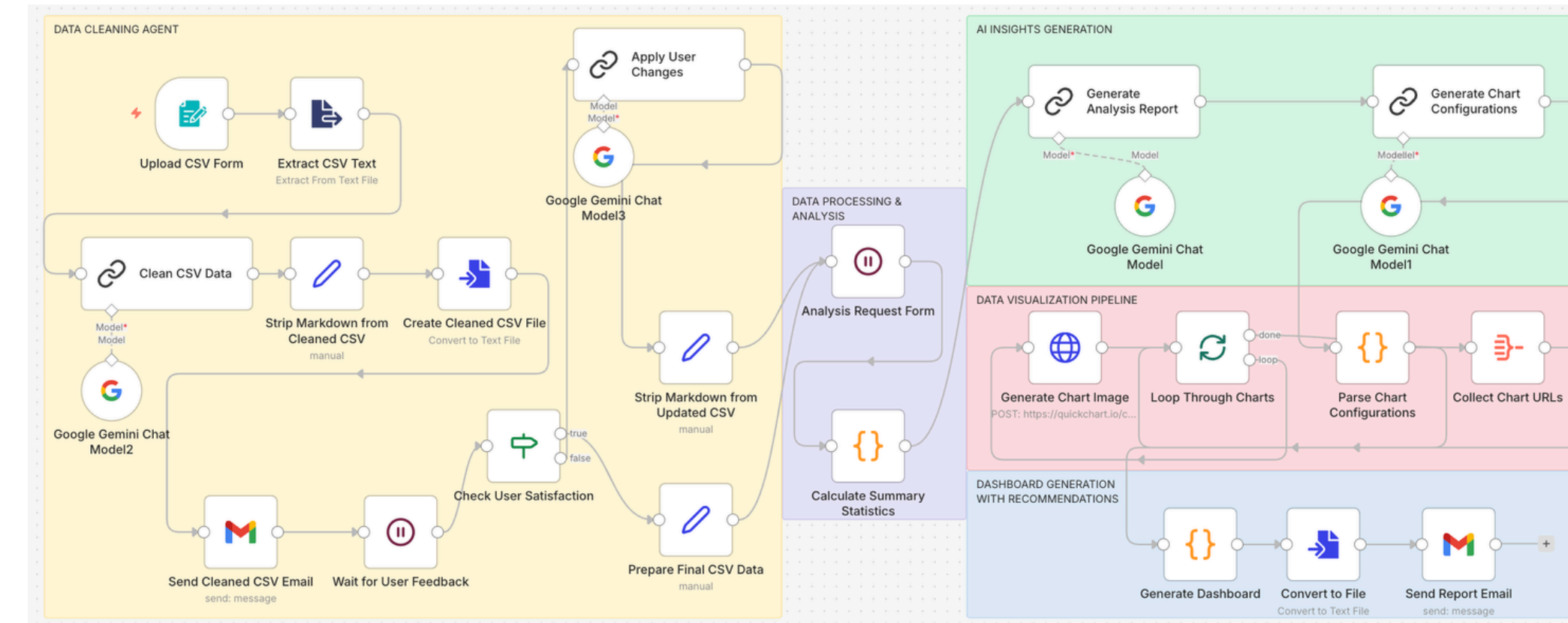
03 Tools Used

Over the course of the year, we used:

- **n8n** for automated workflow creation and seamless integration between our data sources and AI tools.
- **Gemini CLI** to assist development, find oversights, and generate rules-based Python code
- **Python** for cleaning complex datasets and programmatically creating automated dashboards for CME data.
- **Docker** for hosting n8n workflows locally



04 Final Workflow



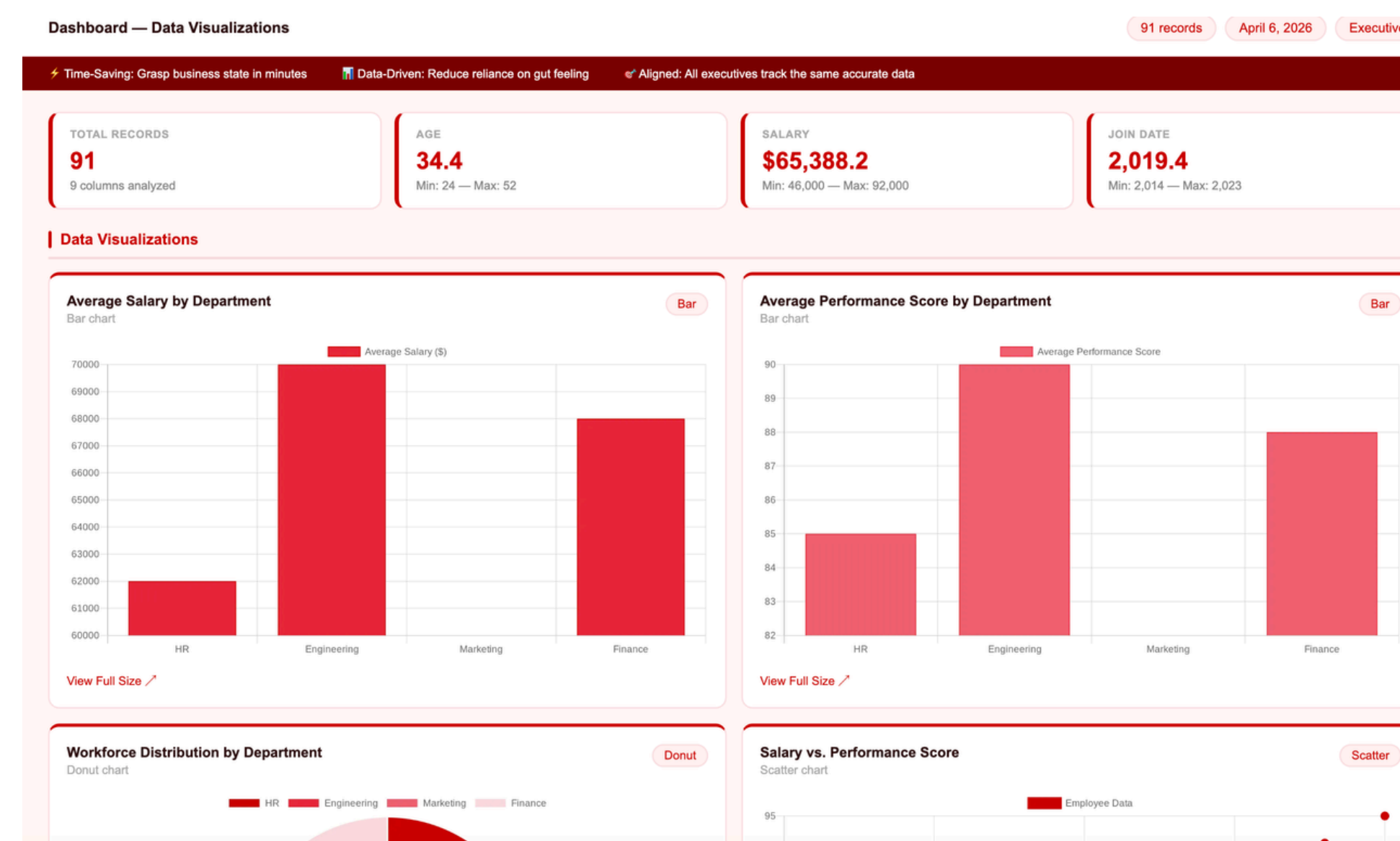
Final workflow on n8n

Our workflow is divided into four automated stages:

- **Data Cleaning Agent:** The user uploads a raw CSV file, which is cleaned using Google Gemini to fix inconsistencies and missing values, with a feedback loop to ensure data quality
- **AI Insights Generation:** Google Gemini analyzes the cleaned data to identify key trends and correlations and produces chart configurations
- **Data Visualization Pipeline:** Generates chart images from the configurations and collects the final chart URLs for the dashboard
- **Dashboard Generation:** Compiles all visualizations and insights into a formatted dashboard and delivers the report via email

The final dashboard is organized into three interactive tabs:

- **Dashboard:** Displays key summary statistics alongside automatically generated bar charts, scatter plots, and line charts
- **Recommendations:** Provides AI-generated strategic recommendations such as optimizing headcount and addressing underperforming departments
- **Report:** Delivers a full written analysis including an executive summary, key metrics, and notable findings



Final dashboard

05 Conclusions

By leveraging a multi-agent generative AI workflow, our system automates the entire pipeline from raw data to actionable insights, eliminating manual processing and making data analysis accessible without technical expertise.

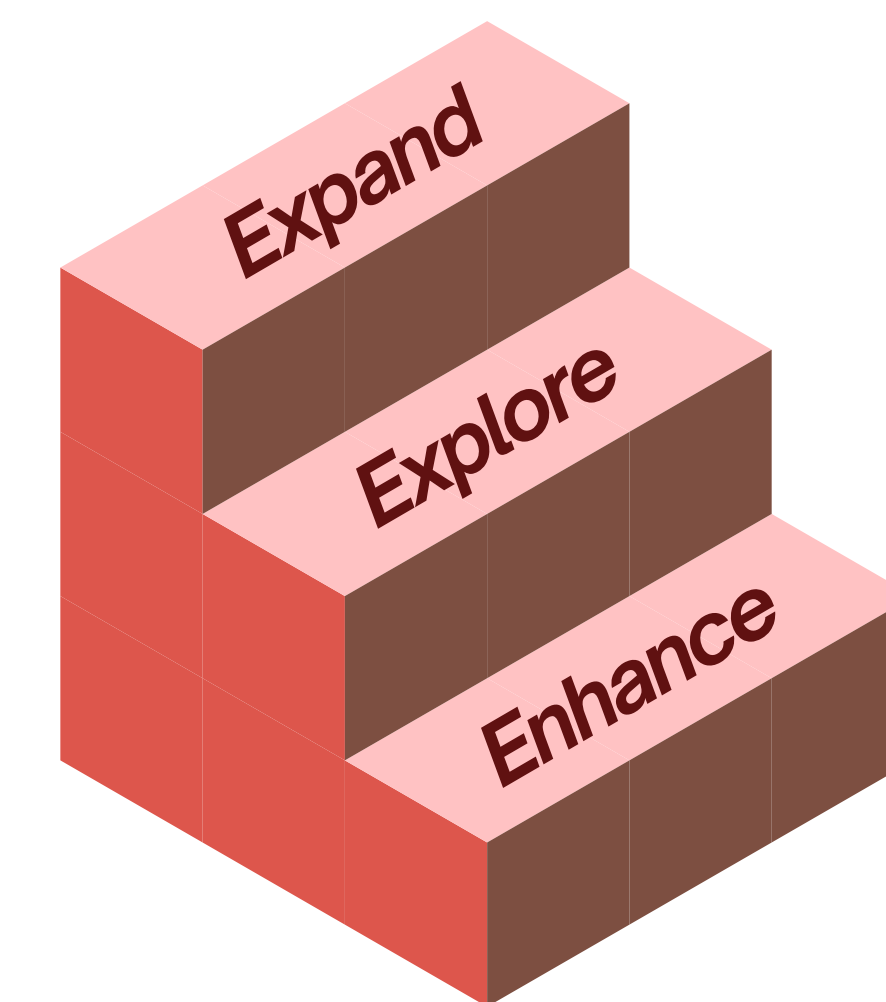
- Used generative AI agents to automate end-to-end data cleaning, preparation, and dashboard generation
- Identifies patterns, trends, and correlations while offering predictions and recommendations
- Reduces the time between collecting data and acting on it
- Applicable across industries: healthcare, finance, and research

Our approach demonstrates that AI can fundamentally transform how organizations interact with their data faster than ever before.



06 Future Steps

Our vision is focused on analyzing and interpreting raw data effectively and efficiently to create an easy interactive dashboard.



Expand machine data coverage: Increase the data dashboard to analyze all different types of machine data.

Explore more tools: Research visualization and processing tools that can improve efficiency and readability.

Enhance AI agents: Train and refine generative AI agents to improve accuracy in data cleaning.

07 Acknowledgements

We would like to sincerely thank our Johnson & Johnson mentors, **Fei Chen** and **Sudheer Rani**, along with the Data Mine Corporate Partners staff, **Nicholas Lenfesty** and **Ashley Arroyo**, for their guidance, mentorship, and support throughout this project.