Hack the Future: A Gen AI Sprint

Work at the heart of c*h*ange

Data and AI Week

Theme

“How can large healthcare institutions dismantle clinical data silos and implement an intelligent, GenAI-powered agentic system to improve personalized treatment, accelerate drug discovery, and enhance operational decision-making—while ensuring cost-efficiency and measurable ROI?”

Healthcare organizations like Memorial Sloan Kettering, AMN Healthcare, and leading pharmaceutical firms have historically faced severe data fragmentation. Patient notes, diagnostics, genomics, operational, and demographic data are often siloed across multiple systems—limiting AI applications in clinical decision-making and slowing research.
This creates inefficiencies in:

- Personalized treatment recommendation.
- Outcome prediction models.
- Drug R&D collaboration.
- Cost forecasting and planning.
- Real-time patient experience optimization.

Guidelines

The template should consist of the following and it is mandated to be used by your team for submitting your innovative ideas/solutions.

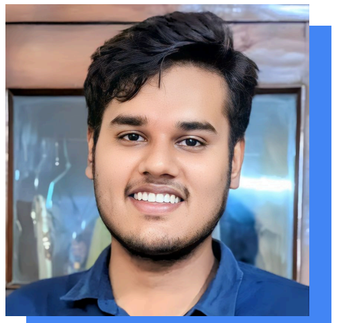
Follow file naming format: Team name_Idea Name.pptx

Hack the Future: A Gen AI Sprint Powered by Data

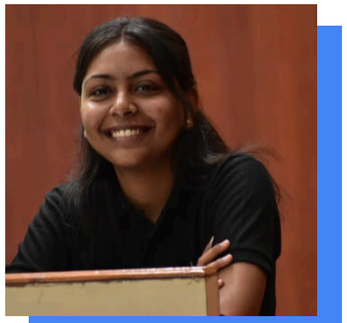
Data and AI Week

Team details

TEAM NAME: The Freakins	



Bharat Verma (Team Leader)



Ayushi Verma

Entry Submission Summary

Idea Title (Provide a concise and impactful title for your idea.)	GenAI-Powered Healthcare Intelligence for Real-Time Patient-Centric Decisions
Team Name	Thefreakins
Problem Statement	Healthcare institutions, including leading cancer centers like MSK and global healthcare providers, face immense challenges due to fragmented, siloed, and unstructured patient data spread across multiple systems. This hinders AI adoption, delays clinical insights, and impacts care quality. Even advanced facilities like MSK struggled to integrate genomic, demographic, and treatment data—limiting AI's effectiveness in delivering personalized care and outcome predictions.
Proposed Solution	Our GenAI-powered Healthcare Intelligence Framework leverages advanced NLP, predictive analytics, and agent-based automation to: 1. Unify structured and unstructured patient data from diverse clinical systems 2. Apply NLP to extract meaning from physician notes and pathology reports 3. Enable AI-driven insights for early diagnosis, biomarker discovery, and personalized treatment planning 4. Empower clinicians and decision-makers with real-time, data-driven intelligence for proactive interventions

Problem Statement (in detail)

Healthcare organizations are overwhelmed with vast volumes of siloed and unstructured data—from physician notes, treatment records, and genomics to billing, wearables, and imaging systems. Despite massive investments in digital health and AI, over 75% of clinical and operational data remains fragmented and underutilized, leading to:

1. Delayed Diagnosis & Treatment:

Lack of unified, real-time patient data restricts timely interventions and evidence-based care.

2. Inefficient Resource Utilization:

Disconnected systems and legacy infrastructures prevent efficient workforce planning, capacity utilization, and patient flow optimization.

3. Missed Clinical & Operational Insights:

Failure to integrate multi-source data hinders discovery of biomarkers, trends, and potential improvements in both care quality and cost-effectiveness.

Challenges Healthcare Organizations Face:

Even advanced institutions like Memorial Sloan Kettering Cancer Center (MSK) struggled to harmonize clinicogenomic data until they implemented MSK-CHORD to break silos. Similarly, AMN Healthcare faced high data lake costs before migrating to Snowflake's centralized platform, and major healthcare payers partnered with firms like Data Ideology to save millions through integrated data strategies.

To improve outcomes and efficiency, healthcare providers need a platform that autonomously structures and contextualizes data, enabling real-time, AI-powered decision-making across clinical, operational, and executive functions.

Proposed Solution Overview
(Applicability of GenAI and agentic AI in the proposed solution)

We propose an AI-powered Enterprise Data Intelligence Platform designed to help healthcare enterprises unlock the full value of their data by integrating Generative AI (GenAI) with agentic AI systems. This intelligent, agent-based architecture facilitates real-time decision-making, overcomes fragmented data silos, and delivers predictive and prescriptive insights for strategic business outcomes.

GenAI Capabilities

Our system uses Generative AI to process, contextualize, and communicate complex data with ease:

- **MedGPT (Medical Generative Processing Tool):** Parses unstructured data from EMRs, lab notes, and diagnostics, transforming them into structured, queryable formats. Enables natural language querying like “Summarize 2024 patient admission trends for Cardiology.”
- **Synthera (Synthetic Data Generator):** Generates privacy-safe synthetic data to train models, simulate rare patient events, and support research without compromising compliance or patient privacy.

Agentic AI Components

Autonomous agents drive operations and decision intelligence across the healthcare ecosystem:

- **DataWeave Agent:** Autonomously integrates and contextualizes structured and unstructured data from various sources (HIS, PACS, IoT devices, CRM). This agent ensures real-time ingestion and harmonization of siloed datasets across departments and geographies.
- **InsightX Agent:** Powers real-time analytics and predictive insights, identifying trends like patient readmission risks, equipment utilization rates, or seasonal disease surges. Offers intelligent alerts and proactive strategies.
- **OpsPilot Agent:** Acts as a virtual operations assistant, autonomously managing tasks such as resource planning, scheduling, and workflow optimization—based on predictive demand and capacity constraints.

Strategic Benefits

By combining the semantic depth of GenAI with the autonomous functionality of **agentic AI,** our platform empowers consulting teams and enterprises to:

- **Break down** internal and external data silos
- Enable real-time, context-aware **decision-making**
- Deliver personalized **recommendations** to executives and consultants
- Enhance productivity, reduce inefficiencies, and identify missed opportunities
- Strengthen **data-driven consulting services** across BFSI, healthcare, retail, and more

This integrated agent ecosystem transforms disconnected data into a proactive enterprise intelligence engine, positioning businesses to stay agile and competitive in today’s dynamic landscape.

Technologies Used
(Deployment readiness of the proposed solution and how well the solution is connected with the current technology)

Our solution is architected using scalable and production-ready technologies that integrate seamlessly with modern enterprise tech stacks. It ensures quick deployment, high interoperability, and adaptability across industries like healthcare, BFSI, and retail.

Core Technologies

Generative AI Frameworks
OpenAI GPT-4, LLaMA, and PaLM for natural language querying, summarization, and automated documentation.
Fine-tuned models for domain-specific tasks in healthcare and consulting contexts.

Agentic AI Architecture
LangChain / AutoGen to orchestrate task-specific autonomous agents (e.g., DataWeave, InsightX, OpsPilot).
Agent memory and context chaining via Vector Databases (FAISS, Pinecone) for persistent learning.

Knowledge Graphs
Built with Neo4j and Amazon Neptune for relational reasoning, entity mapping, and real-time knowledge retrieval.
Helps uncover hidden relationships in enterprise data for strategic insights.

ETL and Data Integration Tools
Apache NiFi / Airbyte for seamless data ingestion from disparate sources (HIS, CRM, ERP, IoT).
Integration-ready with common healthcare standards (FHIR, HL7) and enterprise data lakes.

Technologies Used

(Deployment readiness of the proposed solution and how well the solution is connected with the current technology)

Cloud & Infrastructure

AWS / Azure / GCP for scalable deployment, high availability, and compute resources.

Microservices architecture with Kubernetes, Docker, and RESTful APIs for modularity and integration.

Real-Time Analytics & BI

Apache Kafka and Spark Streaming for real-time data processing.

Power BI and Looker for dashboarding and interactive data visualization.

Deployment Readiness & Compatibility

- Plug-and-Play APIs ensure smooth integration with existing enterprise platforms.
- Cloud-native design allows multi-tenant SaaS deployment or on-premise customization.
- Compliance-ready (HIPAA, GDPR) for regulated industries.
- Extensive use of open-source and enterprise-grade tools enables rapid PoC and scalable production rollout.

Conclusion

Summarize the impact and effectiveness of your solution. Reiterate how it solves the problem statement.

Our AI-powered Enterprise Data Intelligence Platform directly tackles the core challenge of fragmented, siloed data by enabling real-time integration and contextualization across diverse enterprise systems.

At the heart of our solution are two agentic AI systems:

- **DataWeave** – autonomously ingests, integrates, and structures data from siloed sources
- **InsightX –** contextualizes this unified data and surfaces predictive insights for decision-makers

Together, these agents form a seamless pipeline that breaks down silos, enabling Accenture and its clients to move from data overload to data intelligence.

Key Impacts

- Eliminates delayed decisions by ensuring **always-on, real-time insights**
- Transforms underutilized data into a **strategic asset**
- Enhances operational agility with **automated**, intelligent decision support
- Scales across industries and aligns with current digital ecosystems and tech stacks

By bridging siloed data with agentic intelligence, our solution equips global enterprises to lead with faster, smarter, and more proactive strategies in today’s data-driven world.

CASE STUDY

MSK-CHORD (Memorial Sloan Kettering Cancer Center)

Problem: Fragmented clinical and genomic data limited AI accuracy.
Solution: Unified 25,000+ patient records using NLP & clinicogenomic integration.
Outcome:

- Improved cancer outcome predictions
- Discovered SETD2 as a new biomarker for immunotherapy
- AI-driven personalization in cancer treatment

AMN Healthcare + Snowflake

Problem: Siloed data systems blocked scalable analytics.
Solution: Migrated to a cloud-native, centralized Snowflake data platform.
Outcome:

- **93% reductio**n in data lake costs
- Boosted scalability & business intelligence
- Modernized infrastructure to empower data-driven decisions

Data Ideology + Healthcare Payer

Problem: Operational inefficiencies due to poor data integration.
Solution: Implemented a cross-departmental data strategy.
Outcome:

- Saved ~$4M annually
- Streamlined workflows and improved coordination
- Transformed legacy systems for efficiency & savings

Pharma Giant + ERNI

Problem: Data silos hindered collaboration in drug development.
Solution: Leveraged Big Data & AI for a unified research platform.
Outcome:

- Accelerated R&D timelines
- Enabled cross-functional research collaboration
- Faster innovation via centralized, clean datasets

References/Other details

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Thank You