Kharagpur Data Science Hackathon 2026 – Track A Report

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Track: Track A – Systems Reasoning with NLP and Generative AI

1. Problem Understanding
The task focuses on evaluating global narrative consistency over long-form texts. Given a complete novel and a hypothetical backstory of a central character, the goal is to determine whether the backstory can logically and causally produce the observed future events in the narrative.

2. Proposed Approach
We model the problem as a binary classification task where the system predicts whether the proposed backstory is consistent (1) or contradictory (0) with the narrative. The solution emphasizes evidence aggregation, constraint tracking, and causal reasoning rather than surface-level text similarity.

3. Long Context Handling
Since the narratives exceed 100k words, the novel is divided into overlapping chunks. Pathway is used to store, index, and retrieve the most relevant narrative segments based on the backstory content. This ensures efficient reasoning over long contexts without truncation.

4. Reasoning and Decision Logic
Retrieved narrative chunks are analyzed against individual backstory claims. The system checks for contradictions, causal violations, and inconsistencies in character beliefs, actions, and world rules. If multiple constraint violations are detected, the backstory is classified as inconsistent.

5. Use of Pathway Framework
Pathway is used as the core data ingestion and retrieval framework. It enables scalable handling of large narrative texts, chunk-based indexing, and efficient evidence retrieval for downstream reasoning.

6. Limitations and Future Work
The current approach relies on heuristic-based contradiction detection and limited semantic reasoning. Future improvements include integrating stronger causal models, fine-grained claim extraction, and advanced LLM-based verification methods.

Conclusion
This system demonstrates a structured and reproducible approach to long-context narrative reasoning using Pathway and NLP techniques, aligning with the objectives of the KDSH 2026 challenge.