Understanding RAG – Retrieval-Augmented Generation

Explaining RAG to Bihar State Pollution Control Board Employees

What is RAG?

- RAG = Smart AI Assistant that searches BSPCB documents and gives intelligent answers.
- Traditional AI: Guesses answer based on general training.
- RAG AI: Finds real info from BSPCB files, then writes the answer.

👷‍♂️❓ Real BSPCB Example 1

- You ask: 'What action did we take against polluting factories in Muzaffarpur in 2023?'

- RAG does:

- 1. Searches BSPCB 2023 reports.

- 2. Reads the case summaries.

- 3. Writes: 'BSPCB fined 2 textile units ₹5 lakhs in April 2023 – Order Ref: BSPCB/MUZ/ENV23/56'.

🏭 Real BSPCB Example 2

- You ask: 'What are the current limits for PM2.5 in Bihar?'

- RAG fetches the official standard from the latest notification.

- RAG replies: 'As per BSPCB circular dated Feb 2024, PM2.5 emission limit is 50 µg/m³ for red-category industries.'

🎁 Where Does RAG Get Information?

- BSPCB circulars and memos

- Pollution inspection reports

- RTI replies and notices

- Internal PDFs, Excel, Word files

⍰ Simple Analogy

- You ask: 'Did we inspect Gaya last year?'
- RAG searches: Finds Gaya 2023 report.
- RAG answers: 'Yes, on Sept 4, 2023, 2 sites inspected.'

How to Remember

- RAG is like a smart clerk who opens the file cabinet, reads the right page, and answers you in your own language.