📄 Canvas Submission Links & Self-Assessment

🔗 Project Resources

GitHub Repository (Public)

The complete project repository contains all instructional materials, source code, notebooks, documentation, and media links required to evaluate this submission.

- **GitHub Repository:**
  https://github.com/KaushikNEU/ADS_Assignments/tree/main/RAG_Assignment

The repository includes:

- End-to-end RAG implementation notebook
- Starter templates for learners
- Visualizations and debugging utilities
- Professional README with usage instructions
- Academic integrity statement
- Links to all demonstration videos

Project Videos

The project includes multiple videos designed to support different learning styles and pedagogical goals.

1. **Full Technical Walkthrough (Screen Recording – VEED)**
   A detailed explain-and-show walkthrough of the RAG pipeline, covering ingestion, chunking, embedding, retrieval, prompting, and debugging.

   - YouTube:
     https://youtu.be/MjZJ504GH30

2. **Story-Style Concept Explanation (NotebookLLM)**
   A narrative, intuition-building explanation of Retrieval-Augmented Generation to support conceptual understanding.

    - YouTube:
      https://youtu.be/dxeSDckNEsE

3. **Short-Form AI-Generated Explainer (QuickFrame AI, 15 seconds)**
   A concise visual explainer highlighting the core idea of RAG for quick onboarding and summary.

    - QuickFrame Preview:
      https://ai.quickframe.com/preview/55d8c6bb-0820-43ba-81be-2c40533e2c13

Together, these videos demonstrate the **Explain** → **Show** → **Try** pedagogical model from multiple perspectives.

📘 Pedagogical Report

The accompanying pedagogical report (included in this PDF) contains:

- Teaching Philosophy
- Concept Deep Dive (technical and mathematical foundations)
- Implementation Analysis
- Assessment & Effectiveness

The report explains both **what was built** and **why it was designed this way**, explicitly connecting the project to course themes such as GIGO, Botspeak, computational skepticism, and real-world data science workflows.

📊 Self-Assessment: Relative Quality Score

Self-Assessed Percentile: Top 25% (20 Points)

I believe this project falls within the **Top 25%** category based on the following criteria:

- **Exceptional technical depth:**
  A complete Retrieval-Augmented Generation system was implemented from scratch, without relying on high-level frameworks, demonstrating deep understanding of embeddings, retrieval, chunking, similarity search, and prompt grounding.
- **Strong pedagogical design:**
  The project is explicitly structured as a teaching module with progressive exercises,

visual diagnostics, and debugging workflows designed to surface failure modes and tradeoffs.

- **Custom learning features:**
  Includes retrieval visualizations, similarity threshold analysis, multi-document handling, and an automated debugging suite—features that significantly enhance learning beyond a basic tutorial.
- **Professional documentation and presentation:**
  The repository contains a polished README, academic integrity statement, multiple explanatory videos, and a structured pedagogical report suitable for both academic evaluation and real-world demonstration.
- **Beyond course requirements:**
  The project integrates instructional design, system architecture, evaluation tooling, and multimedia explanations, going beyond a minimal implementation to create a reusable educational resource.

✅ Submission Checklist

- Public GitHub repository
- Working implementation
- Tutorial notebook and starter template
- Show-and-Tell videos
- Pedagogical report
- Self-assessment statement