**Capstone Project**

**GenAI – Automated Research Usecase**

**👥 Team-5 Summary: Roles & Contributions**

**🧠 Akanksha Gupta: Repository & Retrieval Specialist**

**Focus:** Data collection, preprocessing, and vector datastores  
**Work Completed:**

* **Collected** and organized all research documents.
* Created and deployed **three vector stores** using FAISS.
* Implemented **LangSmith tracing** for search/debug visibility.
* Hosted vector store APIs on **Hugging Face** for access.

**🤖 Sruthika Chezhian: Content Synthesis Engineer**

**Focus:** Language model integration and content generation  
**Work Completed:**

* Selected and integrated an **LLM** (Groq-compatible) with the pipeline.
* Performed **fine-tuning** for domain-specific accuracy.
* Implemented **semantic chunking** for better content retrieval.
* Structured the content synthesis pipeline with predefined **report sections**.

**📝 Lakshmi Jaswanthi Nerella: Report Automation Specialist**

**Focus:** Report formatting and automation  
**Work Completed:**

* Designed customizable **report templates** (PDF & Word).
* Built an automation pipeline using **ReportLab** and python-docx.
* Integrated **Groq acceleration** for fast document generation.
* Implemented **fusion retrieval** (vector + keyword) to improve relevance.

**💻 Suravi Basu: Front-End & Integration Specialist**

**Focus:** UI development and full system integration  
**Work Completed:**

* Developed a user-friendly **Streamlit front end**.
* **Integrated APIs** for data retrieval, synthesis, and report generation.
* Enabled file downloads in PDF/Word format.
* Implemented **Corrective RAG** for improved factual accuracy.
* Coordinated end-to-end **system testing** and Groq-based optimizations.