1. Artificial Intelligence (AI) is the branch of computer science that aims to create intelligent machines.

2. Machine Learning (ML) is a subset of AI that enables systems to learn from data.

3. Deep Learning uses neural networks with multiple layers to analyze complex patterns.

4. Natural Language Processing (NLP) helps computers understand and generate human language.

5. Large Language Models (LLMs) like IBM Granite can answer questions and process text.

6. Semantic search improves accuracy by understanding the meaning behind queries.

7. PDF-based Q&A; systems help students quickly find information from textbooks and notes.

8. FAISS is used for fast similarity search among text embeddings.

9. SentenceTransformers help convert text chunks into numerical embeddings.

10. StudyMate combines these technologies to create an AI-powered academic assistant.