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Description automatically generated**

**NAME:**

**Basit Abbas**

**ROLL NUMBER:**

**SU92-BSDSM-F23- 013**

**PROGRAM:**

**BS DATA SCIENCE**

**SUMBITTED TO:**

**SIR RASIKH**

***TASK : 11***

**LangChain**

* **What it is**: A framework for developing applications powered by large language models (LLMs).
* **Purpose**: Helps connect LLMs with external data sources, tools, and memory for building complex applications like chatbots, document search, etc.
* **Think of it as**: A toolkit for building LLM-based pipelines.

**2. RAG (Retrieval-Augmented Generation)**

* **What it is**: A technique that improves the response of LLMs by retrieving relevant data from external sources before generating an answer.
* **Purpose**: To make LLMs more accurate and up-to-date by grounding their responses in real documents or databases.
* **Think of it as**: "Look up before you answer" for LLMs.

**3. LLMs (Large Language Models)**

* **What it is**: AI models trained on massive text data to understand and generate human-like language.
* **Examples**: GPT-4, BERT, Claude, etc.
* **Think of it as**: The brain behind chatbots and other language-based AI.

**4. FAISS (Facebook AI Similarity Search)**

* **What it is**: A library for fast similarity search in high-dimensional data.
* **Purpose**: Commonly used for searching through vector embeddings.
* **Think of it as**: A fast search engine for finding similar data points.

**5. Vector**

* **What it is**: A numeric representation of data (like text, image, etc.) in a multi-dimensional space.
* **Purpose**: Encodes semantic meaning for machine learning tasks.
* **Think of it as**: Coordinates in AI's world to compare how "similar" things are.

**6. VectorDB (Vector Database)**

* **What it is**: A database designed to store and search vector embeddings efficiently.
* **Examples**: Pinecone, Weaviate, Milvus, etc.
* **Think of it as**: A specialized database for similarity search and semantic retrieval.

**7. Generative AI**

* **What it is**: A type of AI that can create new content like text, images, music, or code.
* **Examples**: ChatGPT (text), DALL·E (images), Jukebox (music).
* **Think of it as**: AI with a creative spark.

**8. GANs (Generative Adversarial Networks)**

* **What it is**: A type of generative AI with two models — a Generator and a Discriminator — that compete to improve content generation.
* **Use cases**: Image synthesis, deepfakes, art generation.
* **Think of it as**: AI playing a game of "make it and fake it" until it gets good.