The Superior University Lahore

Task-11

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Roll number

SU92-BSDSM-F23-019

Section

BSDS -4A

Program

BS-Data-Science

Lab 11

Topic: Differences between Key AI and ML Terms

1. LangChain

- **Type:** Framework
- **Purpose:** Helps in building applications using LLMs by connecting them with data sources, tools, and memory.
- **Use Case:** Creating chatbots that read and respond based on PDFs or databases.

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2. RAG (Retrieval-Augmented Generation)

- **Type:** AI Technique
- **Purpose:** Combines document retrieval with LLMs to generate more accurate and up-to-date answers.
- **Use Case:** Answering user queries based on real-time company documents.

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3. LLMs (Large Language Models)

- **Type:** AI Models
- **Purpose:** Understand and generate human-like text using deep learning.
- **Examples:** GPT-3, GPT-4, BERT
- **Use Case:** Writing, translating, summarizing, answering questions, etc.

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4. FAISS (Facebook AI Similarity Search)

- **Type:** Open-source Library
- **Purpose:** Efficiently searches for similar vectors from a large collection.
- **Use Case:** Used in search engines and recommendation systems to find related documents.

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5. Vector

- **Type:** Data Representation
- **Purpose:** Converts words or documents into numeric format that captures meaning.
- **Use Case:** Comparing meaning of texts like "cat" vs. "kitten".

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6. VectorDB (Vector Database)

- **Type:** Database
- **Purpose:** Stores and searches vector embeddings (numerical representations).
- **Use Case:** Used in RAG systems to find relevant information based on vector similarity.

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7. Generative AI

- **Type:** Artificial Intelligence
- **Purpose:** Creates new content such as text, images, audio, or code.
- **Examples:** ChatGPT, DALL·E, GitHub Copilot

- **Use Case:** Content creation, creative design, and software development.

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8. GANs (Generative Adversarial Networks)

- **Type:** Generative Model
- **Purpose:** Uses two neural networks (Generator and Discriminator) to create realistic data.
- **Use Case:** Generating human faces, deepfake videos, or art.

No.	Term	Type	Description	Use Case / Example
1	**LangChain**	Framework	Helps build applications using LLMs by connecting them with tools and data.	Chatbot that answers based on PDF or web data.
2	**RAG**	AI Technique	Combines retrieval of documents with LLMs to improve response accuracy.	Answers based on real-time company or academic data.

3	**LLMs**	AI Models	Large models trained to understand and generate human-like language.	ChatGPT, GPT-4, summarizing or translating text.
4	**FAISS**	Open-source Library	Fast search of similar vectors in large datasets.	Finding similar documents or images quickly.
5	**Vector**	Data Representation	A list of numbers representing meaning of text, images, etc.	"Car" and "Automobile" have similar vectors due to meaning.
6	**VectorDB**	Database	Stores and searches vector data using similarity measures.	Finds documents with similar meaning, not just keywords.
7	**Generative AI**	Artificial Intelligence	AI that creates new content (text, image, music, etc.).	ChatGPT, DALL·E, creating blog posts or digital art.
8	**GANs**	Generative Model	Uses Generator + Discriminator to create realistic fake data.	Generating realistic human faces or deepfake videos.

Programming For AI