Program Schedule:

Rest of the week - Watch session recordings, join community/Jamming sessions, attempt assignments, clarify doubts through Teaching Assistants and attend guest sessions from Engineering leaders (once a month)

Week	Module	Session	Topics	Date & Time IST (India Participants)	Date & Time ET (Rest of the world participants)
Week 0	Onboarding/Kickoff Call	Session 1	- Get introduced to thhe program structure - Understand LMS and community features - Meet your fellow cohort members.	07 Jun i.e Saturday 7 PM to 10 PM IST	07 Jun i.e Saturday 09: 30 AM - 12:30 PM ET
	Base Camp 1 - Environment Setup	Session 2	- Setting Up Your Development Environment - Installing & configuring essential tools: Groq, Virtual Environments, VS Code, Jupyter Lab, GitHub, GitHub Copilot, Gradio/Streamlit, Google Colab notebook, and Docker - Best practices for managing dependencies and optimizing your workspace	08 Jun i.e Sunday 7 PM to 10 PM IST	08 Jun i.e Sunday 09:30 AM - 12:30 PM ET
	Base Camp 2 - Python Refresher	Session 1	- Write and execute basic Python programs - Learn about the virtual environment - Learn about Function, Module, Package - Learn basic file handling	14 Jun i.e Saturday 7 PM to 10 PM IST	14 Jun i.e Saturday 09: 30 AM - 12:30 PM ET
		Session 2	- Python data structures - String handling in Python - Iterators and Generators - Exceptions - Introduction to numpy and pandas - Threads and processes	15 Jun i.e Sunday 7 PM to 10 PM IST	15 Jun i.e Sunday 09:30 AM - 12:30 PM ET
	Base Camp 3 - FastAPI and App building	Session 1	- Intro to FastAPI: Creating RESTful APIs for AI services - Streamlit/Gradio basics for rapid prototyping of interactive UIs	21 Jun i.e Saturday 7 PM to 10 PM IST	21 Jun i.e Saturday 09: 30 AM - 12:30 PM ET
		Session 2	- Building a basic web app using FastAPI + Streamlit/Gradio - Integrating simple NLP or classification endpoints	22 Jun i.e Sunday 7 PM to 10 PM IST	22 Jun i.e Sunday 09:30 AM - 12:30 PM ET
Program – 24-Week Plan					
Week 1	NLP Processing with Python & Capstone Project Identification	Session 1	- Text Data Techniques: Tokenization, String manipulation, Basic encodings (one-hot, multi-label), Intro to embeddings - Working with structured data (Pandas): Selecting, filtering, aggregations, joins - File Operations & Web Crawling (CSV, JSON, PDF, etc.)	28 Jun i.e Saturday 7 PM to 10 PM IST	28 Jun i.e Saturday 09: 30 AM - 12:30 PM ET
		Session 2	Capstone Project framework introduction	29 Jun i.e Sunday 7 PM to 10 PM IST	29 Jun i.e Sunday 09:30 AM - 12:30 PM ET
Week 2	Hugging Face Models	Session 1	- Hugging Face: Overview of pre-trained models - Use cases: Classification, generation, summarization, translation, QA, image processing, Diffusion models	05 Jul i.e Saturday 7 PM to 10 PM IST	05 Jul i.e Saturday 09: 30 AM - 12:30 PM ET

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		Session 2	- Customizing a pre-trained model with your own data - Best practices for Customizing	06 Jul i.e Sunday 7 PM to 10 PM IST	06 Jul i.e Sunday 09:30 AM - 12:30 PM ET
Week 3	LLMs, Prompt Engineering & Chatbot Building	Session 1	- LLM Choices: GPT, LLaMA, and others - Prompt Engineering: Zero-shot, few-shot learning strategies, Code Generation	12 Jul i.e Saturday 7 PM to 10 PM IST	12 Jul i.e Saturday 09:30 AM - 12:30 PM ET
		Session 2	- LLM responses with user-defined functions - Building a Conversational Chatbot using Groq + LLaMA - Handling context, memory, and multi-turn dialogue flows	13 Jul i.e Sunday 7 PM to 10 PM IST	13 Jul i.e Sunday 09:30 AM - 12:30 PM ET
Week 4	RAG for Text Data – Chunking, Vector Embedding, and Search	Session 1	- Chunking Strategies for large documents - Keyword Search fundamentals - Vectorization (transformers, embeddings)	19 Jul i.e Saturday 7 PM to 10 PM IST	19 Jul i.e Saturday 09:30 AM - 12:30 PM ET
		Session 2	- Storing embeddings in a Vector Database (FAISS/QDrant) - Keyword-based vs. Semantic Search - Intro to Retrieval-Augmented Generation (RAG)	20 Jul i.e Sunday 7 PM to 10 PM IST	20 Jul i.e Sunday 09:30 AM - 12:30 PM ET
Week 5	Advanced RAG Concepts	Session 1 & 2	- Chunking Strategies: Overlapping, Augmented, fixed-size, content-aware, KG - Embedding Strategies: Comparing various embedding models - Retrieval Strategies: Similarity search, hybrid search, filtering - RAG Fusion: Combining search results for improved accuracy - Retrieval Ranking: Tuning for best results - GuardRails, Response Evaluation & Explanation (DeepEval-like tools)	26 Jul i.e Saturday 7 PM to 10 PM IST 27 Jul i.e Sunday 7 PM to 10 PM IST	26 Jul i.e Saturday 09:30 AM - 12:30 PM ET 27 Jul i.e Sunday 09:30 AM - 12:30 PM ET
Week 6	RAG for Tabular Data	Session 1	- Introduction to RDBMS - Extracting information from relational databases	02 Aug i.e Saturday 7 PM to 10 PM IST	02 Aug i.e Saturday 09:30 AM - 12:30 PM ET
		Session 2	- Strategies for embedding tabular data or augmenting with text-based RAG - Best practices for storing and querying structured data	03 Aug i.e Sunday 7 PM to 10 PM IST	03 Aug i.e Sunday 09:30 AM - 12:30 PM ET
Week 7	Multimodal AI	Session 1 & 2	- Introduction - Opportunities of Multimodal AI - Comparing multimodal AI and its evolution - Multimodal AI applications and business case - Implementation Challenges of multimodal AI	09 Aug i.e Saturday 7 PM to 10 PM IST 10 Aug i.e Sunday 7 PM to 10 PM IST	09 Aug i.e Saturday 09:30 AM - 12:30 PM ET 10 Aug i.e Sunday 09:30 AM - 12:30 PM ET

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Week 8	GPT's visual capabilities	Session 1 & 2	- Multimodal Representation - Alignment and fusion - Multimodal understanding - Multimodel generation - Diffusion model	16 Aug i.e Saturday 7 PM to 10 PM IST 17 Aug i.e Sunday 7 PM to 10 PM IST	16 Aug i.e Saturday 09:30 AM - 12:30 PM ET 17 Aug i.e Sunday 09:30 AM - 12:30 PM ET
Week 9	RAG with Image/Video/Audio	Session 1 & 2	- RAG in multimodal AI - Visual Question answering - Image and video captioning - Audio processing - Capstone Projects - Conclusion	23 Aug i.e Saturday 7 PM to 10 PM IST 24 Aug i.e Sunday 7 PM to 10 PM IST	23 Aug i.e Saturday 09:30 AM - 12:30 PM ET 24 Aug i.e Sunday 09:30 AM - 12:30 PM ET
Week 10	LLM Use Cases – BrainStorming for Capstone	Session 1 & 2	- Summarization Techniques: Extractive vs. Abstractive - Text Generation with LLMs - Real-World Applications: Translation, report generation, document summarization, content writing etc - Customizing models with custom data	30 Aug i.e Saturday 7 PM to 10 PM IST 31 Aug i.e Sunday 7 PM to 10 PM IST	30 Aug i.e Saturday 09:30 AM - 12:30 PM ET 31 Aug i.e Sunday 09:30 AM - 12:30 PM ET
Week 11	Introduction to Agentic AI	Session 1	- Understanding AI Agents - How Agentic AI extends traditional AI systems with autonomy and decision-making	06 Sep i.e Saturday 7 PM to 10 PM IST	06 Sep i.e Saturday 09:30 AM - 12:30 PM ET
		Session 2	- Agent Framework Overviews: CrewAI, phiData, LangChain, Haystack, LlamaIndex - Benefits and pitfalls of using AI agents in enterprise solutions	07 Sep i.e Sunday 7 PM to 10 PM IST	07 Sep i.e Sunday 09:30 AM - 12:30 PM ET
Week 12	Building AI Agents with CrewAI	Key Focus & Tools	- Multi-Agent Collaboration: Coordinating specialized AI agents - Role-Based Agent Design: Assigning specific capabilities to agents - Workflow Automation: Defining business-specific workflows and task sequencing - Custom Tool Integration: Developing specialized tools tailored for agent tasks		
		Session 1	- Setting up the CrewAI environment and defining agent attributes - Assigning tools to agents and sequencing task execution - Integrating CrewAI agents into an existing RAG-based chatbot	13 Sep i.e Saturday 7 PM to 10 PM IST	13 Sep i.e Saturday 09:30 AM - 12:30 PM ET
		Session 2	- Incorporating external tools from frameworks like LangChain - Designing and implementing custom tools for AI agents - Testing and debugging multi-agent workflows	14 Sep i.e Sunday 7 PM to 10 PM IST	14 Sep i.e Sunday 09:30 AM - 12:30 PM ET
	Building AI Agents with phiData	Key Focus & Tools	- Data-Centric AI Agents: Managing structured and unstructured data - Data Pipeline Integration: Connecting to diverse data sources - Retrieval Ranking: Optimizing knowledge base search with LanceDB - Response Explainability: Enhancing AI explanations for tabular data		

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Week 13	Building AI Agents with phiData	Session 1	- Deploying phiData and defining agent structures - Setting up data ingestion from databases (RDBMS, CSV, JSON) - Exploring the built-in phiData playground	20 Sep i.e Saturday 7 PM to 10 PM IST	20 Sep i.e Saturday 09: 30 AM - 12:30 PM ET
		Session 2	- Developing an AI-powered analytics agent for financial or stock data - Building a custom toolkit for advanced data handling and retrieval-augmented generation (RAG)	21 Sep i.e Sunday 7 PM to 10 PM IST	21 Sep i.e Sunday 09:30 AM - 12:30 PM ET
Week 14	Building AI Agents with LangChain/LangGraph	Key Focus & Tools	- LLM-Centric Pipelines: Optimizing memory, context, and prompt chaining - Tool & API Integrations: Connecting to external services and databases - Conversation-Driven Agents: Implementing multi-functional agents (e.g., summarizer, ranker, translator) - Response Evaluation: Assessing outputs using chain-of-thought reasoning		
		Session 1	- Understanding LangChain components: Prompts, Chains, Memory, and Agents - Building a dynamic AI assistant with contextual awareness	27 Sep i.e Saturday 7 PM to 10 PM IST	27 Sep i.e Saturday 09: 30 AM - 12:30 PM ET
		Session 2	- Integrating a RAG pipeline with LangChain for enhanced retrieval and ranking - Testing agent performance using DeepEval-style evaluations	28 Sep i.e Sunday 7 PM to 10 PM IST	28 Sep i.e Sunday 09:30 AM - 12:30 PM ET
		Task	Develop a LangChain-powered AI agent as part of your capstone project		
Week 15	Building AI Agents with Haystack	Key Focus & Tools	- Scalable RAG Pipelines: Pre-built templates for advanced Q&A systems - Document Indexing & Retrieval: Implementing BM25 and Dense Passage Retrieval - Performance Evaluation: Using built-in ranking and accuracy metrics - Explainability Modules: Enhancing transparency in retrieval scoring		
		Session 1	- Creating a Haystack-powered search and Q&A pipeline - Integrating Haystack with existing data sources for retrieval optimization	04 Oct i.e Saturday 7 PM to 10 PM IST	04 Oct i.e Saturday 09: 30 AM - 12:30 PM ET
		Session 2	- Customizing retrieval strategies (keyword-based, dense, or hybrid search) - Measuring pipeline quality with built-in evaluation tools	05 Oct i.e Sunday 7 PM to 10 PM IST	05 Oct i.e Sunday 09:30 AM - 12:30 PM ET
		Task	Enhance your capstone project with Haystack-based retrieval and generation		
Week 16	Building AI Agents with LlamaIndex	Key Focus & Tools	- Scalable RAG Pipelines: Pre-built templates for advanced Q&A systems - Document Indexing & Retrieval: Implementing BM25 and Dense Passage Retrieval - Performance Evaluation: Using built-in ranking and accuracy metrics - Explainability Modules: Enhancing transparency in retrieval scoring		
		Session 1	- Setting up a LlamaIndex-based pipeline with your project data - Exploring different index types and trade-offs	11 Oct i.e Saturday 7 PM to 10 PM IST	11 Oct i.e Saturday 09: 30 AM - 12:30 PM ET

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		Session 2	- Integrating LlamaIndex with RAG pipelines - Evaluating indexing and query performance using DeepEval metrics	12 Oct i.e Sunday 7 PM to 10 PM IST	12 Oct i.e Sunday 09:30 AM - 12:30 PM ET
Week 17-20	Captone Phase 1 - AI App Development & Deployment	Key Focus	- Designing user journeys, UI/UX, and selecting the tech stack - Architecting AI solutions and high-level software design - Software development, testing, and refining the application	13th Oct to 9th Nov	13th Oct to 9th Nov
Week 21 - 24	Capstone Phae 2 - Scaling & Production Deployment	Key Focus	- Implementing CI/CD pipelines with GitHub Actions and Docker - Monitoring AI agent performance, retrieval ranking, and explanation metrics - Finalizing documentation and preparing for presentations	10th Nov to 7th Dec	10th Nov to 7th Dec
Program Ends	Final Capstone Project + Demo day	Key Focus	- Deploy your capstone AI agent as a production-ready service - Present an end-to-end AI solution covering retrieval ranking, response evaluation, and explainability	Dates to be finalised soon	