

It's **TIME** to give
WINGS to your **CAREER**

About Our Company

Techdata Solutions, No.1 Full Stack Developer Training Institute in Mumbai & Pune.

We help the trainees to develop excellent skills in analytics and thereby enable them to come forth as professionals who are ready to take up the challenges of the industry.



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Call Us Now



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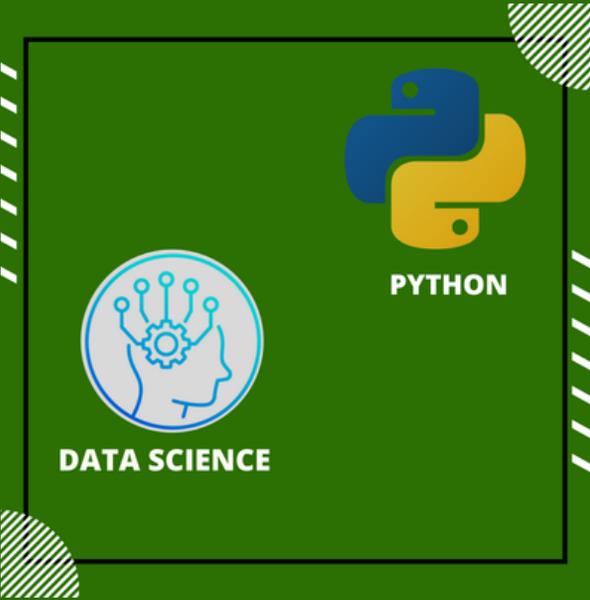


www.techdatasolution.co.in



info@techdatasolution.co.in

Generative AI & Data Science Course



We Are Known For

- Industry Relevant courses and interactive teaching
- Distinctive members of the faculty who have experience
- Career support and providing the opportunities that the trainees need
- Offering the trainees the chance to learn at their own pace with ease.

Our Course Benefits

- Free Demo classes
- Weekend classes
- Live online classes
- Revision classes
- 24*7 industry expert guidance
- Real-time projects
- Get 100% Placement Support

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WHAT OUR HAPPY LEARNERS SAY..

Innovative way of teaching. I found the training to be a lot of value packed! The trainer has really given his best to make me understand the topics. I would recommend this institute to everyone.



Chaitanya
Student

The Training gives in depth learning of Technology and the concepts are very much clear in the sessions. Really a great Training.



Rohit
Software Engineer

I'm glad that I've made the right decision by joining Techdata. I was bit skeptical in the beginning before joining for the course, the trainer is the best with very good practical knowledge. He helped us understand the subject right from the basics to complex in the simplest possible way. Thank you so much "Techdata Solution" for the support and help.



Yasar
Team Lead

This is one of the best institute with experienced trainer and flexible timings. The staff at Techdata Solution was very thoughtful and considerate of my schedule.



Mahesh M
IT Manager

Complex terms explained in a very elegant and simpler way makes it very easy to understand. The knowledge regularly the trainer shares by connecting the technology with the current trends, is really outstanding



Girish
Web Developer

Institute offers customized trainings on high end software technologies including Microsoft technologies, test automation tools, Business Intelligence etc.



Kiran S
Web Analyser

This is one of the best institute with experienced trainer and flexible timings. The entire staff at Techdata Solution was very thoughtful and considerate of my schedule.



Nitin M
Web Developer

I had great experience with Techdata Solution and received great coaching. My special thanks to trainer & Institute.



Ganesh K
Software Engineer

CAREER JOURNEY AT TECHDATA



Generative AI & Data Science

Course Curriculum

Duration: 10 Weeks | Mode: Weekend | Total Hours: ~60

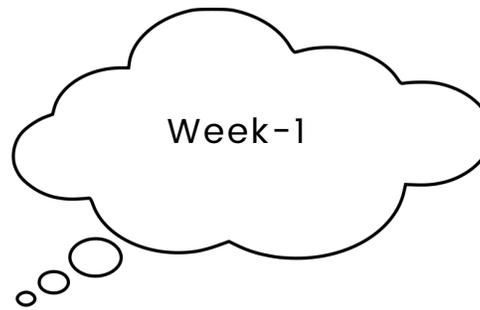
Target Audience: Working professionals, final-year students, early-career ML engineers

Prerequisites:

- **Python basics (functions, loops, OOP)**
- **Numpy, Pandas, Matplotlib/Plotly**
- **Basics of Machine Learning (regression, classification, metrics)**
- **Basic understanding of neural networks**

Introduction to Generative AI

- Overview of Generative AI & its applications
- Difference between traditional ML, DL, and Generative AI
- Types of Generative AI:
 - Text → Text (LLMs)
 - Text → Image (Stable Diffusion, DALL·E)
 - Text → Audio & Video
- Transformer architecture: high-level understanding
- Intro to OpenAI, Hugging Face, Google Gemini, Meta LLaMA
- Setting up the development environment



Hands-On

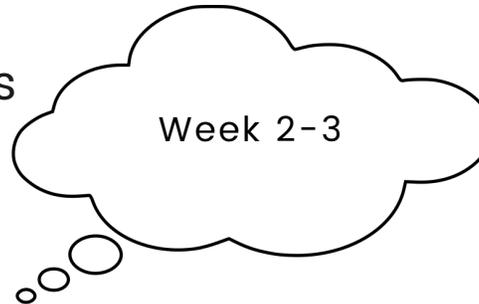
- Installing essential libraries: transformers, datasets, langchain, openai
- First LLM API call using OpenAI GPT & Hugging Face

Generative AI & Data Science

Course Curriculum

Foundations of LLMs & Transformers

- Tokenization & embeddings
- Transformer architecture step-by-step:
 1. Self-attention mechanism
 2. Positional encodings
 3. Multi-head attention
 4. Feed-forward networks
- Pre-training vs fine-tuning vs instruction tuning
- Understanding LLM evaluation metrics: Perplexity, BLEU, ROUGE, METEOR



Working with Hugging Face Transformers

- Hugging Face Hub overview
- Using pre-trained models (GPT-2, BERT, Falcon, Mistral)
- Zero-shot, few-shot, and fine-tuned inference
- Prompt engineering basics:
 1. Zero-shot prompting
 2. Few-shot prompting
 3. Chain-of-thought prompting

Hands-On

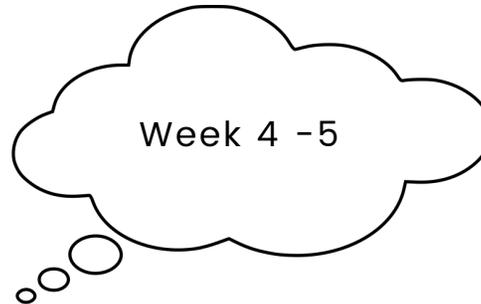
- Visualizing tokenization & embeddings using Hugging Face
- Inspecting Transformer internals using PyTorch hooks

Hands-On

- Build a Q&A chatbot using Hugging Face pipelines
- Experiment with prompt engineering for different tasks

Generative AI & Data Science

Course Curriculum



Hands-On

- Fine-tune GPT-2 on a custom dataset using LoRA
- Evaluate model performance & save artifacts

Hands-On

- Build a PDF-based RAG chatbot using LangChain
- Connect Hugging Face + FAISS + OpenAI API

Fine-Tuning & LoRA / QLoRA

- Why fine-tune? Use cases & challenges
- Full fine-tuning vs LoRA vs QLoRA
- Quantization for efficiency
- PEFT (Parameter Efficient Fine-Tuning) with Hugging Face
- RLHF basics (Reinforcement Learning from Human Feedback)

RAG (Retrieval-Augmented Generation)

- Why RAG is needed for enterprise GenAI apps
- RAG architecture explained
- Vector embeddings & vector databases (FAISS, Pinecone, ChromaDB)
- LangChain & LlamaIndex basics

Generative AI & Data Science

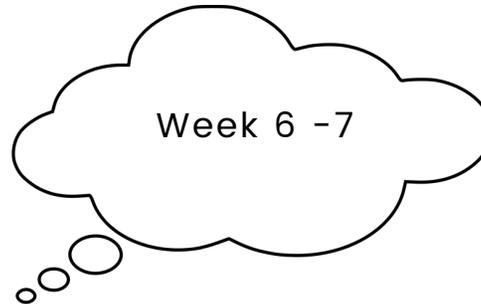
Course Curriculum

Building Agentic AI Systems

- What are AI Agents? How they differ from RAG
- LangChain agents vs CrewAI vs LangGraph
- Tools, memory, and planning in agents
- Autonomous vs semi-autonomous agents

Multimodal Generative AI

- Multimodal models: CLIP, Flamingo, Gemini, LLaVA
- Text → Image generation (Stable Diffusion, DALL·E, MidJourney)
- Text → Speech & Speech → Text (Whisper, Bark, TTS)
- Text → Video generation (Sora, Pika, Runway)



Hands-On

- Build an AI Agent that:
 1. Searches Google
 2. Extracts real-time stock data
 3. Summarizes insights into a report

Hands-On:

- Build an image captioning app using CLIP + Stable Diffusion
- Generate AI images with custom prompts

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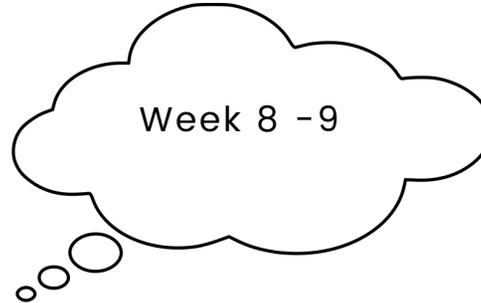
Course Curriculum

MLOps for Generative AI

- Challenges of deploying LLMs
- Model serving frameworks: FastAPI, Streamlit, Gradio
- Using AWS/Azure/GCP for LLM deployment
- Monitoring LLM performance (latency, cost, accuracy)
- Prompt injection & jailbreak defenses

Enterprise Use Cases & Projects

- Capstone Project Options
- AI Resume Analyzer & Generator (LLM + RAG)
- Financial Insights Agent (LangChain + OpenAI + Yahoo Finance API)
- Multimodal Medical Assistant (LLaVA + RAG)
- AI-Powered Marketing Copywriter (GPT + Custom Dataset)



Hands-On

- Deploy a RAG chatbot on AWS using FastAPI + Streamlit
- Integrate OpenAI API keys securely

Future of Generative AI + Final Project Demo

- Latest research in LLMs (Mistral, Claude, Gemini, etc.)
- Open-source vs closed-source LLMs
- Ethical, legal, and societal implications
- Building a GenAI portfolio for jobs & startups

Hands-On

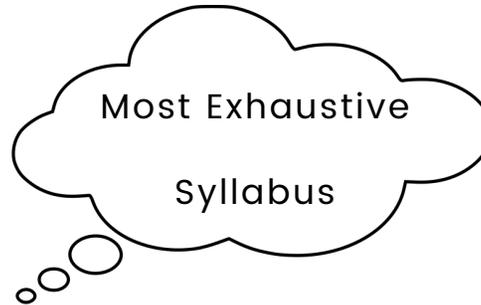
- Showcase capstone projects
- Personalized roadmap for further learning

Generative AI & Data Science

Course Curriculum

📌 Deliverables & Extras

- Assignments: Weekly coding exercises
- Quizzes: To test conceptual clarity
- Cheat Sheets: For Transformers, LoRA, RAG, LangChain
- Mini Projects: 1-2 hours hands-on every weekend
- Capstone Project: End-to-end GenAI app
- Certification: On successful completion



📌 Tools & Tech Stack

- LLMs: GPT-4, LLaMA 3, Mistral, Falcon, Gemini
- Libraries: transformers, datasets, peft, langchain, llama-index
 - Vector DBs: FAISS, Pinecone, Chroma
 - Frameworks: FastAPI, Streamlit, Gradio
 - Deployment: AWS, Azure, Hugging Face Spaces
 - Version Control & Tracking: GitHub, DVC, MLflow



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