

Specialized Tools and Systems

Core AI/ML Concepts

1 PHASE

1. Python Basics

- Data types, control structures, functions, and basic libraries (NumPy, Pandas).
- Exercises and projects: Small scripts to manipulate data and perform simple calculations.

2. SQL Basics

- Understanding of SQL syntax, queries, joins, and database design.
- Practice: Build and query a small database.

Foundation Skills

1. AI/ML Basics

- Understand regression, classification, and prediction models.
- Hands-on: Implement basic machine learning models using scikit-learn.

2. Version Control with Git

- Basics of Git: Commits, branches, merges, and workflows.
- Collaboration: Working on group projects using GitHub or Hugging Face Space

3. Introduction to Streamlit

- Building interactive data applications.
- Project: Create a dashboard for an ML model.

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3 PHASE

1.NLP Concepts and Deep Learning

- NLP, Encoding, Bag of words, TFIDF, Word2vec
- Learn tokenization, text embeddings, and fundamental deep learning models.
- Project: Develop a sentiment analysis tool.

2.GenAl Fundamentals and Transformer Architectures

- Detailed study of transformer models and their applications in GenAl.
- Starting the Journey Towards Generative AI (GPT4,Mistral 7B, LLAMA, Hugging Face Open Source LLM Models,Google Palm Model)
- Practical: Implement a simple chatbot using transformers.

1.Langchain Fundamentals

- Introduction to LangSmith and LangServe.
- Use case: Automate a customer service process using Langchain.

2.Vector Databases and Semantic Search

- Learn about embeddings, cosine similarity, and indexing.
- ChromaDB, FAISS, pgvector, HANA Vector Engine
- Exercise: Build a semantic search engine for product descriptions.

3.Local LLM (Llama3, Mistral)

- Deploying local language models and understanding proprietary indices.
- Hands-on: Set up and query a local LLM.

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Advanced AI Techniques





Resume Scanning and Scoring System

Design an Al-driven system that scans, evaluates, and scores candidate resumes, optimizing the recruitment process and candidate selection.

Vendor Recommendation Engine

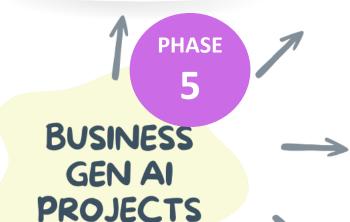
Develop a tool to evaluate and recommend vendors based on various criteria, streamlining procurement and supplier selection processes.

Customer Segmentation and Recommendation Systems

Create systems that analyze customer data to segment users and provide personalized recommendations, enhancing customer engagement and satisfaction.



Learn to create an ultra-responsive Al chatbot using Groq hardware and Streamlit for an intuitive user interface, demonstrating rapid response capabilities.



Detecting Duplicate Invoices with Google Gemini

Implement Google Gemini to identify and manage duplicate invoices, increasing the efficiency and accuracy of financial processes.

Local PDF Interaction and Financial Data Analysis

Explore how to communicate with PDFs and analyze financial data offline using Ollama, enhancing local data processing without relying on internet connectivity.

Intelligent Database Query Engine

Develop a natural language processing application that converts user queries into SQL commands, facilitating user-friendly database interactions.

Research Augmented with Azure Al

Utilize Azure OpenAl's capabilities to integrate enriched search functionalities into applications, allowing for comprehensive data retrieval and analysis.





Enterprise Data Anonymization

Focus on the techniques for anonymizing enterprise data to safely transfer sensitive information from production to QA environments, securing data across various use cases.



PHASE 6

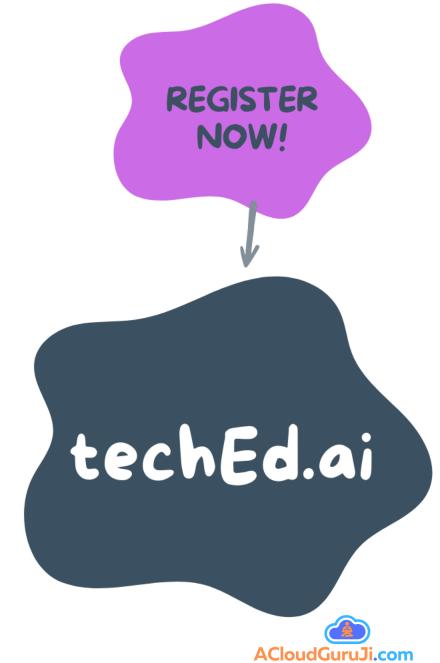
MLOps and Production

MLOps Essentials

- Learn API basics, containerization with Docker, orchestration with Kubernetes, and CI/CD pipelines.
- Implement: Deploy an ML model with FastAPI and manage it using Docker and Kubernetes.

Cloud Platforms and Enterprise Integration

- Training on AWS, Azure, and SAP AI solutions (AI Core, AI Launchpad, AI SDK).
- Capstone project: Integrate an ML model into SAP environment using SAP AI tools.







Sample Use case Implementation Architecture

