Xerxez Solutions
Cooperate Training Road Map
On
Generative AI and Full Stack App Deployment

(Learn ChatGPT, LLM, Prompt Engineering, Create GenAI App and Deploy as Microservice Based Application)

This document provides the curriculum outline of the Knowledge, Skills, and Abilities that a **AI Consultant**, **Architect and Developer, DevOps and DevSecOps** can be expected to demonstrate on Microservice Platform.

Prerequisite:

- Understanding of Python Programming, Git and GitHub.
- Basic understanding of Machine Learning and EDA.
- Learn about Generative Adversarial Networks (GANs).
- A solid foundation in mathematics, particularly linear algebra, and calculus, is Beneficial.

Out Come:

This program is crafted for individuals enthusiastic about delving into the realm of Generative AI (GenAI) and leveraging its revolutionary capabilities. Meticulously designed, the course combines essential principles, practical applications in various industries, and interactive learning experiences. It caters to aspiring AI enthusiasts, professionals, and those intrigued by this state-of-the-art technology. Moreover, we offer ongoing query support throughout your learning journey, ensuring you have assistance for any uncertainties, making the experience even more valuable.

Why Learning Generative AI is Important:

- **Career Advancement:** Generative AI skills are increasingly in demand across various industries. Mastering Generative AI can open doors to new career opportunities and advancements in tech, marketing, retail, and more.
- **Innovation at Your Fingertips:** Understanding Generative AI empowers you to create innovative solutions, from chatbots to personalized customer experiences, driving efficiency and creativity in your projects or workplace.

- **Stay Ahead in a Tech-Driven World:** As AI continues to shape our future, possessing knowledge in Generative AI ensures you stay ahead of the curve, understanding and leveraging the latest advancements.
- **Solve Complex Problems:** Generative AI offers unique approaches to problem-solving, enabling you to tackle complex challenges with AI-driven solutions, enhancing both personal and professional growth.

Local setup (Physical Mode)	General Requirement	Cloud Account
Laptop/Desktop with high-speed internet connection, Windows 10 and above	64-bit kernel and CPU support for virtualization.	Amazon Web Service (AWS), ChatGPT API Token
Memory: 4 GB RAM	Graphics Card	
CPU: 1 CPU Cores	Visual Studio, PgAdmin4	
Storage: 20 GB	Git/GitHub Account	

Topics Covered:

1. Introduction to Generative AI

- Overview of Generative AI
- Large Language Models and Conversation AI (GAN, VAEs, etc).
- Prompt Engineering – Prompt for Generative AI.
- Generative Vs Discriminative Models.
- Real World Applications of Generative AI in various fields (art, image synthesis, text generation, etc.).
- Major Players in the Domain, Future Trends and Opportunity.

Hands-on:

Lab No. 1: Generative AI – No Code Software as a Service Platforms – Multimodality

2. Prompt Engineering

- Introduction to Prompt Engineering and Guidelines.
- Basic Architecture and Components of a Prompt
- Types of Prompts: Iterative, summarizing and inferring prompt.
- Types of Prompts: Transforming, Expanding and Chatbot Prompt
- Model Prompt Parser, Memory, Chains and QnA.

- Chat with Data.

Hands-on:

Lab No. 2: Real world Application – Web Based Applications and Software Based Application

3. ChatGPT – OpenAI

- OpenAI's ChatGPT Large Language Model (LLM).
- Creating an OpenAI Account and Installing ChatGPT.
- Generating Content with ChatGPT, Architecture and Components.
- OpenAI Playground App, Parameters, Usage.
- Fine Tune and Data Preparation in Fine – Tuning ChatGPT.
- Multimodal ChatGPT and Data Centric AI for Optimizing Generative AI.

Hands - on:

Lab 3: ChatGPT for Developer, Marketers and Researchers

4. Google Gemini Pro

- Google Gemini API Vs. Google Vertex Gemini API
- Gemini Ultra Vs. Gemini Pro Performance
- Working with Pro Vision – Structure Prompt with Images.
- Chat Prompt with Images, Multiple Images in Prompt.
- Gemini Parameters – Temperature, Max Tokens, Stop Sequence, Safety Settings, Top K and Top P.
- Multimodal Application Development.

Hands-on:

Lab 4: Design and Develop Calories App – Calorie Detection, Healthier Alternatives, and Ingredient Suggestions

Lab 5: Application for text-to-text, text-to-image, image-to-audio, image-to-video.

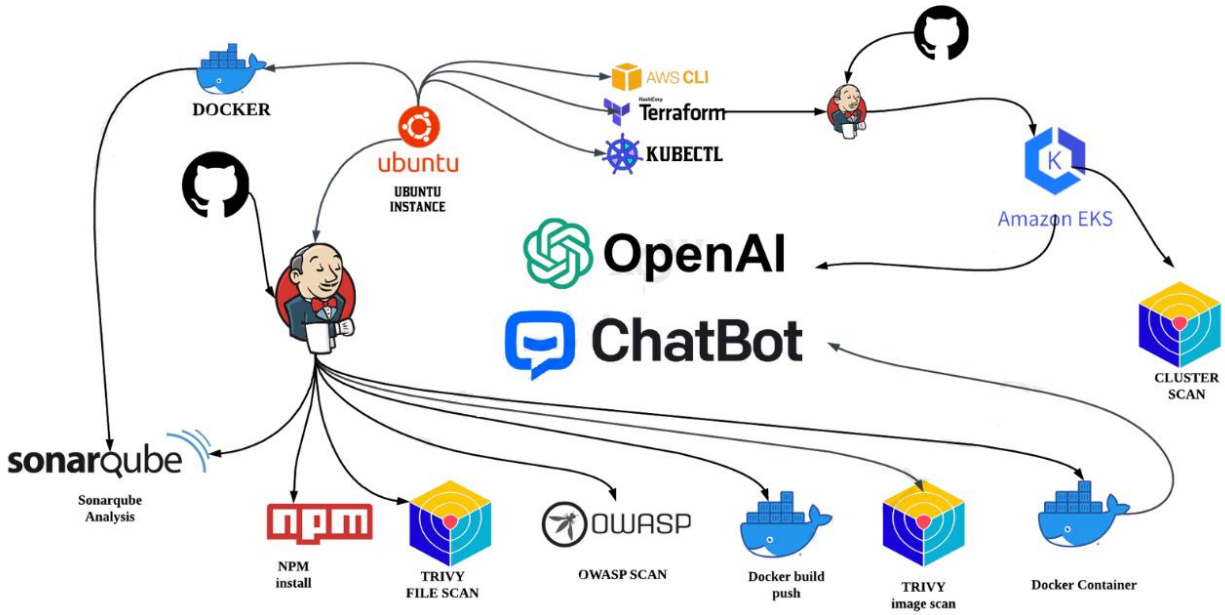
5. Integrating Generative AI with Docker and Kubernetes

- Containerizing Generative AI applications
- Deploying Generative AI models using Docker
- Scaling and managing Generative AI applications with Kubernetes or AWS EKS.
- Troubleshooting and optimizing containerized Generative AI applications
- Case studies and practical examples.

Hands-on:

Lab 6: Dockize Gen AI Application designed using Python, Streamlit, and Database.

6. Gen AI Full Stack Development using Multiple Platform – A Complete Product Design



FRAMEWORK AND TECHNOLOGIES

Google Gemini/OpenAI	Amazon Web Service	Django/Flask/Streamlit
SaaS Based Gen AI App	MLFlow / DagsHub	Microservice Application
Python, Yaml	SonarQube	LangSmith/LangServe
PostgreSQL/PgAdmin4	Trivy – Image Scanner	Git/Github/Github Action
Docker/Kubernetes	Slack - Notification	Hugging Face

CONTACT US

Email: info@xerxez.in
WhatsApp: 9164315460
Website: www.xerxez.in