

Generative AI In Software Development

System and Information technology



Virtual



40 hours



EGP 35,000

Course Description:

- Generative AI In Software Development Program designed for professionals who want to pursue their careers in Machine Learning and Artificial Intelligence. Through the Program, they will have a great platform to enhance their skills and capabilities of core components of Generative AI.
- Through this Program, Professionals will get to know about core topics such as code generation, natural language interfaces, bug identification, and AI ethics specific to software development contexts.
- Professionals who earn this Program demonstrate their ability to leverage generative AI tools for code automation, documentation enhancement, and software optimization.
- In the marketplace, the demand for AI-Powered Software Development is continuing to grow, and here, generative AI software development Program plays an essential role in shaping the future

Target Audience:

- Development
- Chief Technical Officers
- Chief Information Officers
- Change Practitioners and Managers
- Service Architects
- Program/ Project Head
- Web Developers
- Engineers
- Scientists
- Business Consultants
- Portfolio Strategists

Course Objectives:

- The Program helps professionals with AI skills for code automation.
- It enables professionals to use generative AI in Natural Language Interfaces and Documentation.
- This Program improves the understanding of ethical considerations in Generative AI for Software Development.
- It supports professionals to boost their software development efficiency and quality with the help of Generative AI techniques.
- It fosters innovation in software development with the help of integration of Generative AI.
- It validates expertise in harnessing generative AI for software development processes.
- It offers hands-on experience in using Generative AI models for code generation and augmentation

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Curriculum:

1. Introduction to Generative AI:

- Exploring the Fundamentals of Generative AI
- Significance in Software Development
- A Historical Perspective
- Key Terminology and Concepts

2. Probability and Information Theory:

- Delving into Probability Distributions
- Grasping the Essentials of Information Theory
- Understanding Kullback-Leibler Divergence

3. Generative Models:

- Unpacking Generative Model Basics
- Navigating the World of Autoencoders
- Diving into Variational Autoencoders (VAEs)
- Exploring Generative Adversarial Networks (GANs)

4. Deep Learning Essentials:

- Leveraging generative AI for fraud detection and prevention
- The Role of Activation Functions
- Differentiating Loss Functions
- Strategies for Regularization

5. Training Generative Models:

- The Art of Data Preprocessing
- Designing an Effective Training Loop
- Specialized Loss Functions for Generative Models
- Evaluating the Performance of Generative Models

6. Variational Autoencoders (VAEs):

- Unveiling VAE Architecture
- Grasping the Variational Inference Framework
- Hands-On VAE Implementation
- Realizing VAE Applications in Software Development

7. Generative Adversarial Networks (GANs):

- Exploring the Inner Workings of GAN Architecture
- Mastering the Training Process for GANs
- Harnessing the Power of Conditional GANs
- Utilizing GANs for Software Development Applications

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8. Sequence Generation Models:

- Introducing Sequence Models
- Navigating Recurrent Neural Networks (RNNs)
- Unlocking Long Short-Term Memory (LSTM) Networks
- Examining Gated Recurrent Units (GRUs)

9. Transformer Models:

- Deep Dive into the Transformer Architecture
- Embracing the Attention Mechanism
- Unleashing BERT and Its Variants
- Applying Transformers in Software Development Scenarios

10. Ethical Considerations:

- Addressing Bias and Fairness in Generative AI
- Tackling Privacy Concerns
- Frameworks for Ethical AI
- Guidelines for Ethical AI Development

Prerequisites:

Basics of Machine Learning and Python is recommended