deerwalk training center

DTA-AIML-101

Advanced Prompt Engineering with AI

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Program Information

Nature of the Course
Theory + Practical

Total Hours per Day
2 hours

Course Duration
24 Hours

Course Summary

"Engineering Essentials" provides a comprehensive overview of core engineering principles, spanning disciplines like mechanical, electrical, and civil engineering. Covering key concepts such as problem-solving methodologies, design processes, and technological advancements, the course equips students with a foundational understanding of engineering. Practical applications and case studies enhance learning, preparing participants for real-world challenges in diverse engineering fields

Course Details

Python Scripting

Lesson 1

Introduction to Python

- Installing Python and an IDE (Integrated Development Environment)
- Writing your first "Hello, World!" program

Lesson 2

Basic Syntax and Variables

- Understanding Python syntax and indentation
- Working with variables and data types (integers, strings, floats)

Lesson 3

Control Flow

- Using if statements for decision making
- Using loops: while and for loops
- Using break and continue statements

Lesson 4

Lists and Loops

- Creating and manipulating lists
- Iterating over lists using loops
- Basic list methods (append, insert, remove)

Lesson 5

Functions and Modules

- Defining and calling functions
- Parameters and return values
- Using built-in functions and importing modules

Lesson 6

String Manipulation

- String concatenation and formatting
- Common string methods (upper, lower, split)
- Basic string manipulation exercises

Lesson 7

User Input and Simple Programs

- Getting user input using the input() function
- Writing simple interactive programs (e.g., calculator)

Lesson 8

Error Handling and Debugging

- Handling exceptions with try-except blocks
- Debugging techniques and using print statements

Lesson 9

Dictionaries and Sets

- Creating and using dictionaries
- Dictionary methods and iteration
- Introduction to sets and their uses

Course Details

Introduction to Large Language Models (LLM)

Lesson 1

Introduction to Language Models

- What are language models?
- History and evolution of language models
- Importance and applications of language models

Lesson 2

Basics of Natural Language Processing (NLP)

- Introduction to natural language processing
- Tokenization, stemming, and lemmatization
- Part-of-speech tagging and syntactic analysis

Lesson 3

Introduction to Transformer Architecture

- Motivation behind the Transformer architecture
- Self-attention mechanism
- Encoder and decoder components

Lesson 4

Pre-training and Fine-tuning

- Pre-training language models on large text corpora
- Transfer learning and fine-tuning for specific tasks
- Case studies of popular pre-trained models (BERT, GPT, etc.)

Lesson 5

GPT (Generative Pre-trained Transformer) Models

- Introduction to GPT models
- GPT architecture and its components
- Applications and use cases of GPT models

Lesson 6

Language Model Evaluation and Metrics

- Common evaluation metrics for language models
- Challenges in evaluating language generation tasks
- Human evaluation vs. automated metrics

Lesson 7

Handling Bias and Ethical Considerations

- Understanding bias in language models
- Mitigating bias during model development
- Ethical considerations in language model application

Lesson 4

Pre-training and Fine-tuning

- Pre-training language models on large text corpora
- Transfer learning and fine-tuning for specific tasks
- Case studies of popular pre-trained models (BERT, GPT, etc.)

Course Details

Prompt Engineering

Lesson 1

Introduction to Prompt Engineering

- Introduction to prompt engineering: Concepts and importance
- Understanding AI model capabilities and limitations
- Ethical considerations in prompt engineering

Lesson 2

Foundations of Effective Prompts

- Identifying use cases for prompt engineering
- Structuring prompts for various tasks
- Crafting clear and concise prompts

Lesson 3

Contextual Understanding and Specificity

- Contextualizing prompts with relevant details
- Balancing specificity and generality

Lesson 4

Iterative Refinement and Evaluation

- Importance of iterative prompt refinement
- Evaluating AI-generated responses
- Refining prompts based on model outputs

Practical Exercises

Series of exercises in using prompt engineering for different tasks, such as iterating, summarizing, inferring, transforming, expanding, creating a chatbot etc. in the Python programming language.

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