**What Is a Prompt?**

* A **prompt** is any input or instruction given to a generative AI model to guide it in producing a desired output.
* Well-structured prompts consist of four key elements: **instruction, context, input data, and output indicators**.

**Prompt Engineering Overview**

* **Prompt engineering** is the practice of designing and refining prompts to fully harness the potential of generative AI.
* It's essential for:
  + Enhancing model performance
  + Ensuring relevant, logical responses
  + Supervising tone, style, and content
  + Understanding model limitations
  + Improving efficiency and security

**Best Practices for Writing Prompts**

Organized around four dimensions:

1. **Clarity** – Be specific and avoid ambiguity
2. **Context** – Provide background or situational data
3. **Precision** – Use exact instructions
4. **Role-play** – Assign roles to guide model behavior (e.g., “Act as a tutor”)

**Prompt Engineering Tools**

* Tools like **IBM watsonx Prompt Lab, Spellbook, Dust, and PromptPerfect** assist in:
  + Suggesting improvements
  + Understanding context
  + Refining iteratively
  + Mitigating bias
  + Offering domain-specific help
  + Using libraries of predefined prompts

**Advanced Prompting Techniques**

1. **Zero-shot prompting** – No examples; model answers based only on the instruction
2. **Few-shot prompting** – Includes examples within the prompt for better performance
3. **Interview pattern** – Dynamic Q&A flow to drive deeper, interactive AI responses
4. **Chain-of-Thought** – Encourages step-by-step reasoning in model responses
5. **Tree-of-Thought** – A structured, hierarchical prompting approach to improve complex reasoning

**Why It Matters**

* Boosts **reliability**, **explainability**, and **user trust**
* Enables **customized**, **ethical**, and **domain-specific** outputs
* Supports iterative feedback loops to continually refine prompt performance