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= What is Generative AI
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== GenAI
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Generative AI (or GenAI) refers to artificial intelligence systems designed to create new content that resembles human-made data. The data could be text, images, audio, or code.

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These models, like GPT (for text) or DALL-E (for images), are trained on large datasets and use patterns learned from this data to generate new output.

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image::images/genai-model-process.svg[A diagram showing the process of Generative AI, where a model is trained on a large dataset, learns patterns, and generates new content based on those patterns.]

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Generative AI is widely used in applications such as chatbots, content creation, image synthesis, and code generation.

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== GenAI
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Generative AI models are not "intelligent" in the way humans are:

- They do not understand or comprehend the content they generate
- They rely on statistical patterns and correlations learned from their training data.

While Generative AI models can produce coherent and contextually relevant outputs, they lack understanding.

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== Large Language Models (LLMs)
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This course will focus on text-generating models, specifically Large Language Models (LLMs)

LLMs are a type of generative AI model designed to understand and generate human-like text.

These models are trained on vast amounts of text data and can perform various tasks, including answering questions, summarizing data, and analyzing text.

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== LLM Responses
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The response generated by an LLM is a probabilistic continuation of the instructions it receives.

The LLM provides the most likely response based on the patterns it has learned from its training data.

If presented with the instruction:

"Continue this sequence - A B C"

An LLM could respond:

"D E F"

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== Prompts
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To get an LLM to perform a task, you provide a ****prompt****.

A prompt should specify your requirements and provide clear instructions on how to respond.

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image::images/llm-prompt-interaction.svg["A user asks an LLM the question 'What is an LLM? Give the response using simple language avoiding jargon.', the LLM responds with a simple definition of an LLM."]
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== Precision
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Precision in the task description, potentially combined with examples or context, ensures that the model understands the intent and produces relevant and accurate outputs.

An example prompt may be a simple question.

What is the capital of Japan?

Or, it could be more descriptive:

You are a friendly travel agent helping a customer to choose a holiday destination. Your readers may have English as a second language, so use simple terms and avoid colloquialisms. Avoid Jargon at all costs.

Tell me about the capital of Japan.

The LLM will interpret these instructions and return a response based on the patterns it has learned from its training data.

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== Check Your Understanding
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include::questions/1-generative-ai.adoc[leveloffset=+1]
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== Lesson Summary
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In this lesson, you learned about Generative AI and Large Language Models (LLMs).

In the next lesson, you will learn about the limitations of LLMs, including hallucination, and access to data.