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= GenAI Frameworks
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== Frameworks

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A variety of open-source and community-supported frameworks are available
to help you integrate Neo4j with generative AI and large language models
(LLMs).

These frameworks support use cases such as:

* Retrieval-augmented generation (RAG).
* Agentic workflows.
* Knowledge graph construction.
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Typically these frameworks include:

* LLM usage, prompt and output management.
* Embedding model integration .
* Vector and database integration (including Neo4j).
* RAG (Retrieval-Augmented Generation) workflows.
* Agentic workflows and orchestration.
* Monitoring, observability, and deployment tools.
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== Popular GenAI Frameworks for Neo4j

* link:https://www.langchain.com/[LangChain (Python)^] - A leading
open-source framework for building LLM-powered applications, with strong
support for Neo4j as a vector store and knowledge graph.
* link:https://www.langchain.com/[LangChainJS^] - The
JavaScript/TypeScript version of LangChain, enabling GenAI workflows in
Node.js and browser environments.
* link:https://www.llamaindex.ai/[LlamaIndex^] -  A data framework for
connecting LLMs to external data, with connectors for Neo4j to support RAG
and knowledge graph use cases.
* link:https://spring.io/projects/spring-ai[Spring AI^] - A Spring
ecosystem project for integrating AI capabilities into Java applications,
including Neo4j support.
* link:https://docs.langchain4j.dev/[Langchain4j^] - A Java version of
LangChain, supporting Neo4j integration for LLM and RAG workflows.
* link:https://haystack.deepset.ai/[Haystack^] - An open-source framework
for building search and question-answering systems, with Neo4j integration
for graph-based retrieval.
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link:https://learn.microsoft.com/en-us/semantic-kernel/overview/[Semantic Kernel^] - A Microsoft open-source orchestration library for AI workflows, supporting Neo4j as a data source.
* link:https://dspy.ai/[DSPy^] - A framework for programming and optimizing LLM pipelines, with Neo4j connectors.

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You can learn more in the link:https://neo4j.com/labs/genai-ecosystem/genai-frameworks/[Neo4j GenAI Frameworks documentation^].
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Frameworks support your GenAI application development and help you build complex workflows that integrate Neo4j with LLMs and other AI components.

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== Check Your Understanding

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== Lesson Summary

In this lesson, you learned about some of the popular GenAI frameworks that integrate with Neo4j, including LangChain, LlamaIndex, and Spring AI.

In the last lesson, you will review your progress and explore some of the next steps to continue your learning.