



# Introduction to RAGs & AI Agents

A Beginner's Guide to Modern AI Systems

⌚ AGENDA

# What We'll Cover Today

01

## Understanding RAGs

Retrieval-Augmented Generation explained  
simply

02

## Understanding AI Agents

What they are and what they can do

03

## Real-world Applications

How these technologies are used today

# Large Language Models (LLMs)

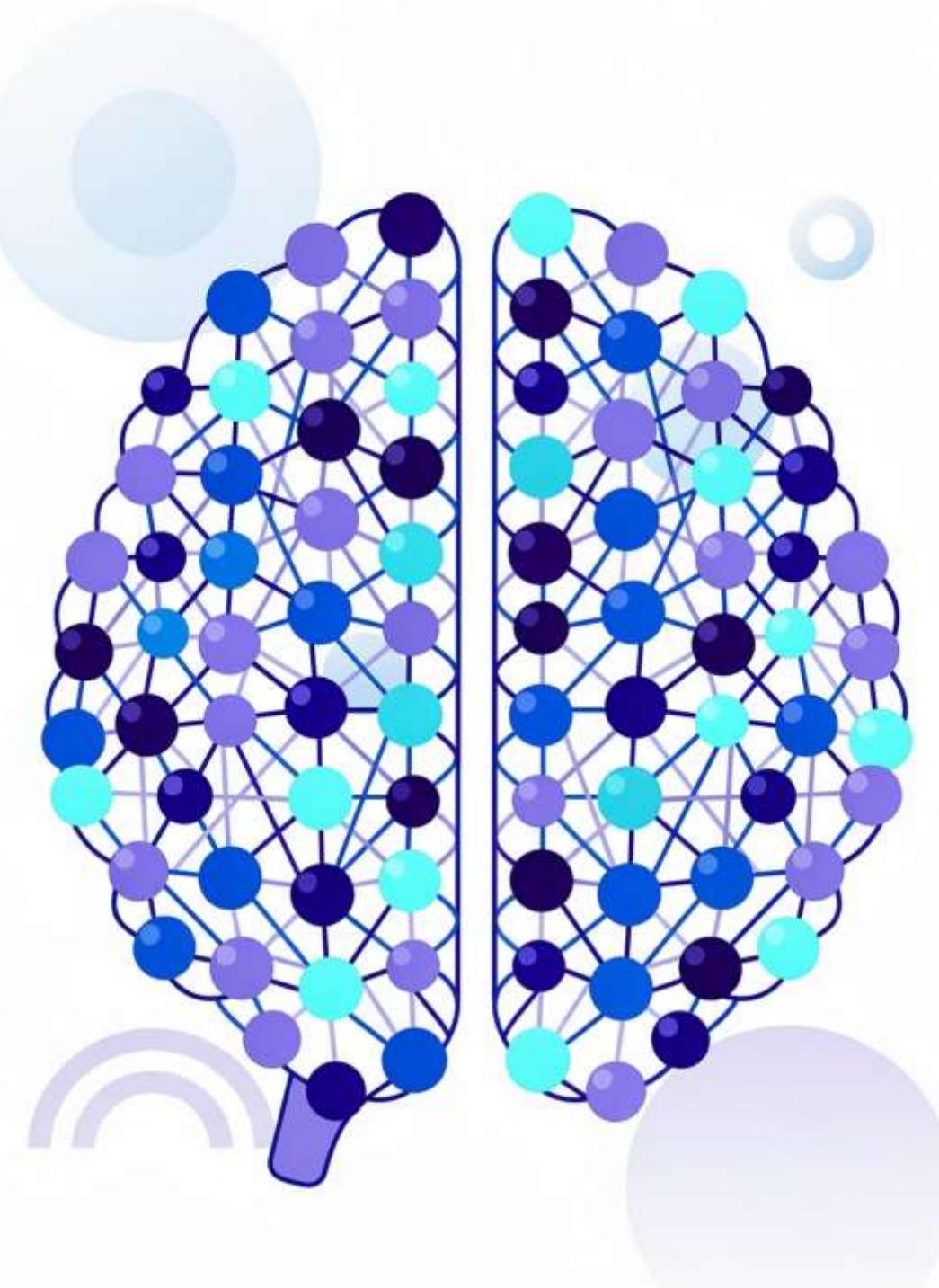
*The foundation of modern AI assistants*

## What is an LLM?

An AI model trained on massive amounts of text to understand and generate human language

## Think of it like this:

An LLM has read billions of pages and learned patterns in how language works. It can predict what words should come next, answer questions, write content, and more.



# But LLMs Have Limitations



## Knowledge Cutoff

Only knows information up to when it was trained



## No Memory

Doesn't remember previous conversations (unless designed to)



## No Access to Private Data

Can't access your company documents or databases



## Can Make Mistakes

Sometimes generates plausible-sounding but incorrect information



PART 1

# RAG

*Retrieval-Augmented Generation*

# What is RAG?

Retrieval-Augmented Generation

A technique that enhances LLMs by giving them access to external information

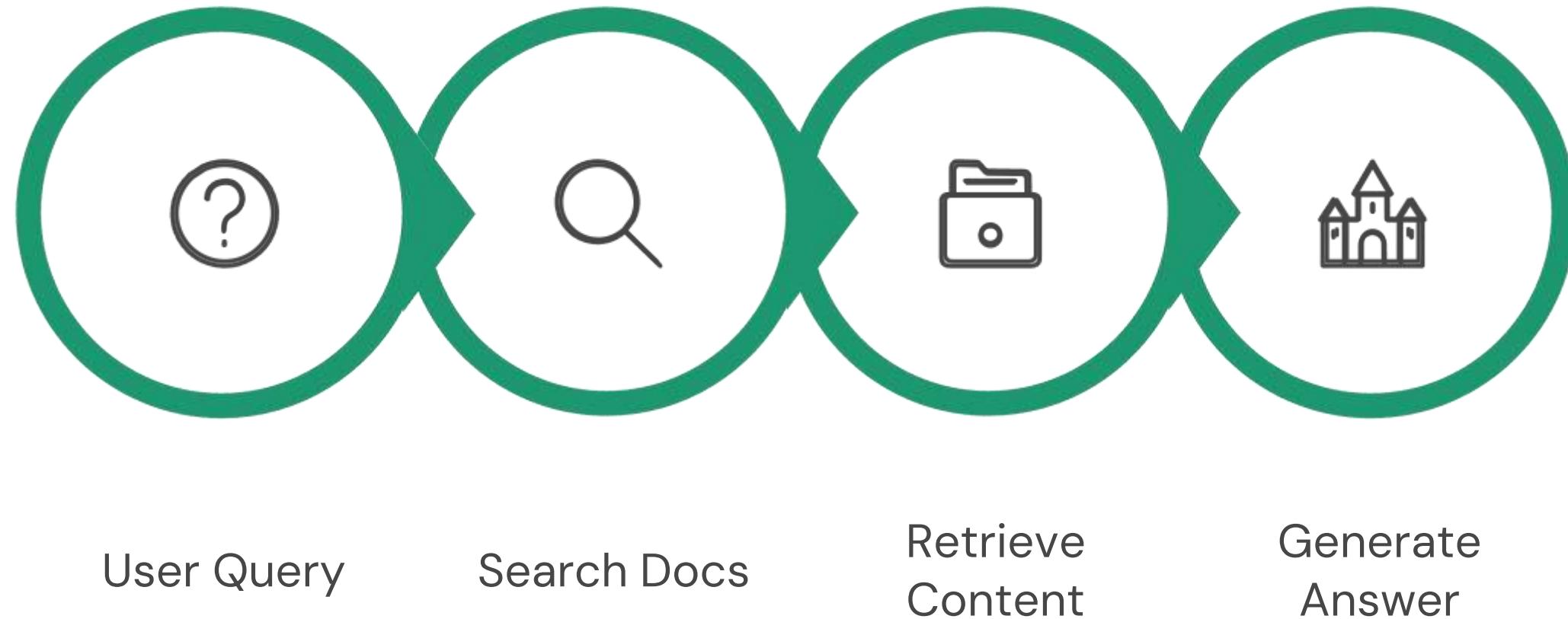
## Simple Analogy:

Imagine you're taking a test. Instead of answering from memory alone, you're allowed to search through your textbook first, find relevant information, and then use that to answer the question.

That's basically what RAG does for AI!



# How RAG Works



The system acts as an intelligent intermediary, finding the right information and helping the AI provide accurate, contextual responses based on real data rather than just training memory.

# Why Use RAG?



## Up-to-Date Information

Access current data beyond the model's training cutoff



## Domain-Specific Knowledge

Use your company's documents, policies, or specialized content



## Improved Accuracy

Answers based on actual documents, not just model memory



## Transparency

Can show sources and cite where information came from

# RAG in Action: Example

Question: "What is our company's vacation policy?"

Without RAG

*"I don't have access to your company's specific policies."*

With RAG

*"According to your employee handbook, full-time employees receive 15 days of paid vacation per year..."*

RAG searched your company documents and found the answer!



PART 2

# AI Agents

*AI that takes action*

# What is an AI Agent?

An AI system that can take actions to achieve goals

Regular AI vs AI Agent

## Regular AI

- Responds to questions
- Provides information
- Waits for instructions

## AI Agent

- Takes actions
- Uses tools
- Works toward goals

Key difference: Agents can perform tasks autonomously, not just answer questions

# How AI Agents Work



# Tools AI Agents Can Use



Search the web  
Find current  
information



Send emails  
Communicate on  
your behalf



Manage  
calendars  
Schedule meetings



Access  
databases  
Read and update  
data



Run calculations  
Perform complex  
math



Create reports  
Generate  
documents

# AI Agent in Action: Example

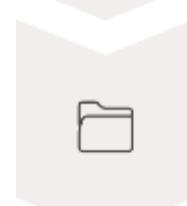
Goal: "Research competitors and create a summary report"



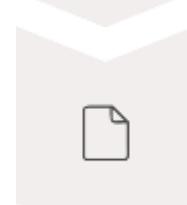
Search the web for competitor information



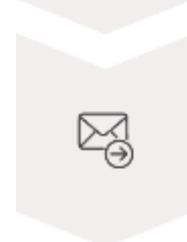
Visit competitor websites and gather data



Organize findings into categories



Create a formatted report document



Email you the completed report

All from a single instruction!



# RAG + AI Agents

*The power of combining both technologies*

## Example: Customer Support Agent

- Uses RAG to access your knowledge base and documentation
- Acts as an agent to perform tasks like creating support tickets
- Can search for solutions, apply them, and follow up with customers
- Combines accurate information with autonomous action

# Real-World Applications



## Customer Service

Chatbots that access company info and resolve issues



## Research Assistants

Gather data from multiple sources and create reports



## Code Assistants

Help developers by searching docs and writing code



## Personal Assistants

Manage schedules, emails, and tasks autonomously



## Content Creation

Research topics and generate articles or presentations



## Data Analysis

Query databases and generate insights

# Key Takeaways



1

RAG enhances AI with access to external knowledge and current information



2

AI Agents can take autonomous actions to achieve goals using various tools



3

Combining RAG and Agents creates powerful systems that are both informed and capable



4

These technologies are already being used across many industries to automate and enhance work



Thank You!  
Questions?

*Ready for the exercises!*