

IBM AICTE PROJECT

COURSE CONTENT SIMPLIFICATION AGENT

Presented By:

Student name : RAUNAK SINGH

College Name : MIT ACADEMY OF ENGINEERING

Department : SOFTWARE ENGINEERING

OUTLINE

- Problem Statement
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- Wow factor
- End users
- Result
- Conclusion
- Git-hub Link
- Future scope
- IBM Certifications

PROBLEM STATEMENT

Educational materials often vary in complexity and are not always accessible to learners with different levels of prior knowledge. Students may struggle to grasp key concepts due to jargon-heavy or overly advanced explanations in faculty notes and textbooks. The challenge is to develop an AI-powered agent that can intelligently analyze academic content and reframe explanations based on the learner's current proficiency—ranging from beginner to expert. This would support more inclusive learning and personalized education delivery at scale.

Proposed Solution:

An **AI Course Content Simplification Agent**, built using IBM Granite models on watsonx.ai. This agent will leverage Natural Language Processing (NLP) and Retrieval-Augmented Generation (RAG) to intelligently analyze academic content from an indexed knowledge base.

TECHNOLOGY USED

IBM cloud lite services

Natural Language Processing (NLP)

IBM Granite model

IBM CLOUD SERVICES USED

- IBM Cloud Watsonx AI Studio
- IBM Cloud Watsonx AI runtime
- IBM Cloud Agent Lab
- IBM Granite foundation model

WOW FACTORS

This agent boosts student comprehension and reduces study time by personalizing complex educational material for any learning level. It offers targeted support for students while helping educators manage diverse classroom needs.

Unique features:

Multi-Level Explanations: Instantly adapts any text for Beginner, Intermediate, or Expert understanding.

Factual & Grounded: Uses RAG to ensure answers are based only on the uploaded course documents, preventing errors.

Analogy & Jargon Engine: Creates simple analogies for abstract topics and defines technical terms on demand.

Auto-Quizzing: Generates questions from the content to reinforce and test knowledge.

END USERS

- University & College Students
- Professionals in Training
- Curriculum Developers
- Corporate Learning & Development (L&D) Departments

RESULTS

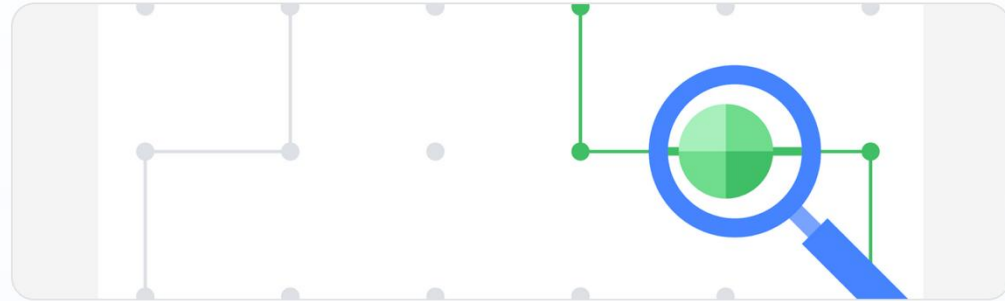
Agent preview



ClarityAI 12:24 AM

Welcome to ClarityAI

Complex concepts, simplified for your level of understanding.





Type something...




RESULTS

Agent preview

 You: 12:27 AM
Teach me about LVM

 ClarityAI 12:27 AM
I can certainly explain that. To give you the best explanation, could you tell me your current knowledge level: Beginner, Intermediate, or Expert?
► **How did I get this answer?**

 You: 12:27 AM
Beginner

 ClarityAI 12:27 AM
Alright, let's start with the basics. LVM stands for Logical Volume Management. It is a way to manage storage on your computer in a more flexible and efficient manner compared to traditional partitioning methods.

Imagine you have a big box of Lego blocks (this represents your hard drive). Traditional partitioning would be like dividing this box into several smaller boxes based on what type of Legos they contain - cars here, houses there, etc., once done it's difficult to change their sizes or combine them later if needed without breaking some blocks and starting over (like resizing partitions or moving data around).

LVM changes this by allowing you to group these Lego blocks together into larger 'logical volumes'. These logical volumes can then be resized dynamically as per your needs – add more Legos if you want bigger structures or take away some if space runs out. Plus, unlike fixed-size partitions, LVM lets you create new "structures" (volumes) from leftover pieces without having to reorganize everything from scratch. This makes managing storage much easier and less disruptive when requirements change.

In technical terms:

1. **Physical Volumes** are individual disks or disk parts that form the raw material for LVM – similar to our separate small boxes of Legos initially mentioned above.
 - Think PV = Physical Volume = Small Boxes/Lego Sets

Agent preview

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1. **Physical Volumes** are individual disks or disk parts that form the raw material for LVM – similar to our separate small boxes of Legos initially mentioned above.
 - Think PV = Physical Volume = Small Boxes/Lego Sets

2. **Volume Groups** aggregate physical volumes together so they can work as one large pool – combining multiple small boxes into one big container where we sort all types of Legos freely now instead of segregating them again manually each time we need different colors/types separately later on – VG = Volume Group = Big Container

3. **Logical Volumes**, which are essentially virtualized disks created within volume groups—these represent our final constructions using those combined sets of legos; they appear just like regular partitions but offer flexibility due to being managed logically rather than physically rigidly tied down—LV=Logical Volume=Final Construction Using Combined Set Of All Types Of Legos From Our Big Container

In summary, LVM simplifies storage management by providing an extra layer between physical hardware and how operating systems see available space through logical constructs that adapt better over time with changing demands!

► **How did I get this answer?**



Type something...



RESULTS

Agent preview

RS You: 12:43 AM

what is RAM

ClarityAI 12:45 AM

Hi, I'm ClarityAI, your personal learning assistant powered by watsonx.ai. How can I help you understand a topic today?

RAM stands for Random Access Memory. It's a type of computer memory that stores information your device is actively using so it can be accessed quickly. You can think of RAM as the workspace on your computer where programs and data are held so they're readily available to the central processing unit (CPU).

Here's an analogy: Imagine RAM like a desk in front of you while working on tasks such as writing documents or browsing the internet. The more applications and files open at once, the fuller your desk becomes until it reaches its limit – this limit is similar to what we call 'RAM capacity'. If there isn't enough space (or RAM), performance slows down because items have to be moved off-desk (to slower storage) just to make room for new ones being used actively right now.

► How did I get this answer?

RS You: 12:46 AM

Give me a nutrition plan

ClarityAI 12:46 AM

I'm sorry for any confusion, but as an AI developed to explain complex academic and technical subjects, I don't have the capability to create personalized nutrition plans. These require specific knowledge of individual health conditions, dietary restrictions, lifestyle factors, and goals that only a certified nutritionist or dietitian can provide after a thorough assessment.

For general information about balanced eating habits or understanding macronutrients (proteins, carbohydrates, fats), feel free to ask!

► How did I get this answer?



Type something...



RESULTS

Deployed AI Agent:

The screenshot displays the IBM watsonx ClarityAI interface. At the top, the header includes the IBM watsonx logo, an 'Upgrade' button, a help icon, a notification bell, and user account information for 'RAUNAK SINGH's Account' with a location dropdown set to 'Dallas' and a profile icon 'RS'. Below the header, the breadcrumb navigation shows 'Deployment spaces / ClarityAI / ClarityAI /'. The main content area features the 'ClarityAI' title with a green checkmark indicating it is 'Deployed' and a grey 'Online' status badge. There are three tabs: 'API reference', 'Test', and 'Preview', with 'Preview' being the active tab. A 'New chat +' button is located on the right. The chat history shows a conversation where the user asks to be taught about Large Language Models. The AI agent responds by asking for the user's knowledge level (Beginner, Intermediate, or Expert). The user replies 'Beginner', and the AI agent responds with 'Alright, let's start with the basics.' followed by a detailed explanation of what Large Language Models (LLMs) are, their design, and how they learn from data.

IBM watsonx Upgrade ⓘ 🔔 RAUNAK SINGH's Account ▾ Dallas ▾ RS

Deployment spaces / ClarityAI / ClarityAI /

ClarityAI ✔ Deployed Online

API reference Test **Preview**

New chat +

R You 12:33 AM
Teach me about Large Language Models

ClarityAI 12:33 AM
I can certainly explain that. To give you the best explanation, could you tell me your current knowledge level: Beginner, Intermediate, or Expert?

R You 12:33 AM
Beginner

ClarityAI 12:33 AM
Alright, let's start with the basics.

What are Large Language Models (LLMs)? Large Language Models, or LLMs for short, are a type of artificial intelligence model designed to understand and generate human-like text based on the input they receive. They're called "large" because they typically consist of millions—or even billions—of parameters that have been learned from vast amounts of data during their training process.

Think about it like this: Imagine you've read an enormous library filled with books on every topic imaginable. After reading all those books countless times, you'd develop a deep understanding of language structure, grammar rules, common phrases used in different contexts... essentially everything needed to write coherently and comprehensively on any subject under the sun. That's somewhat analogous to how large language models work! They 'read' through massive datasets (instead of physical books) and learn patterns within languages over time without explicit instruction on every rule or nuance — just as we humans do naturally by immersing ourselves in our environments from birth.

Type something... ➤

CONCLUSION

- **Personalizes Learning:** Instantly adapts complex academic texts into Beginner, Intermediate, or Expert explanations, allowing students to learn at their own pace and comprehension level.
- **Makes Concepts Intuitive:** Automatically generates simple analogies and defines technical jargon on demand, breaking down the biggest barriers to understanding difficult subjects.
- **Empowers Educators & Students:** Provides a scalable tool that acts as a 24/7 personal tutor for students while enabling educators to easily create differentiated learning materials for a diverse classroom.

FUTURE SCOPE

- Automated Curriculum Assistance
- Multilingual Support
- LMS Integration (Moodle, Canvas, etc.)
- Automated Diagram & Visualization
- Adaptive Learning Paths
- Voice-Enabled Learning

IBM CERTIFICATIONS

In recognition of the commitment to achieve professional excellence



Raunak Singh

Has successfully satisfied the requirements for:

Getting Started with Artificial Intelligence

Issued on: Jul 19, 2025
Issued by: IBM SkillsBuild



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Journey to Cloud: Envisioning Your Solution

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IBM **SkillsBuild**

Completion Certificate



This certificate is presented to

Raunak Singh

for the completion of

**Lab: Retrieval Augmented Generation with
LangChain**

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 24 Jul 2025 (GMT)

Learning hours: 20 mins

GITHUB LINK:

[Click here for the GitHub repository](#)

OR Go to:

<https://github.com/raunaksingh-20/ClarityAI>



THANK YOU