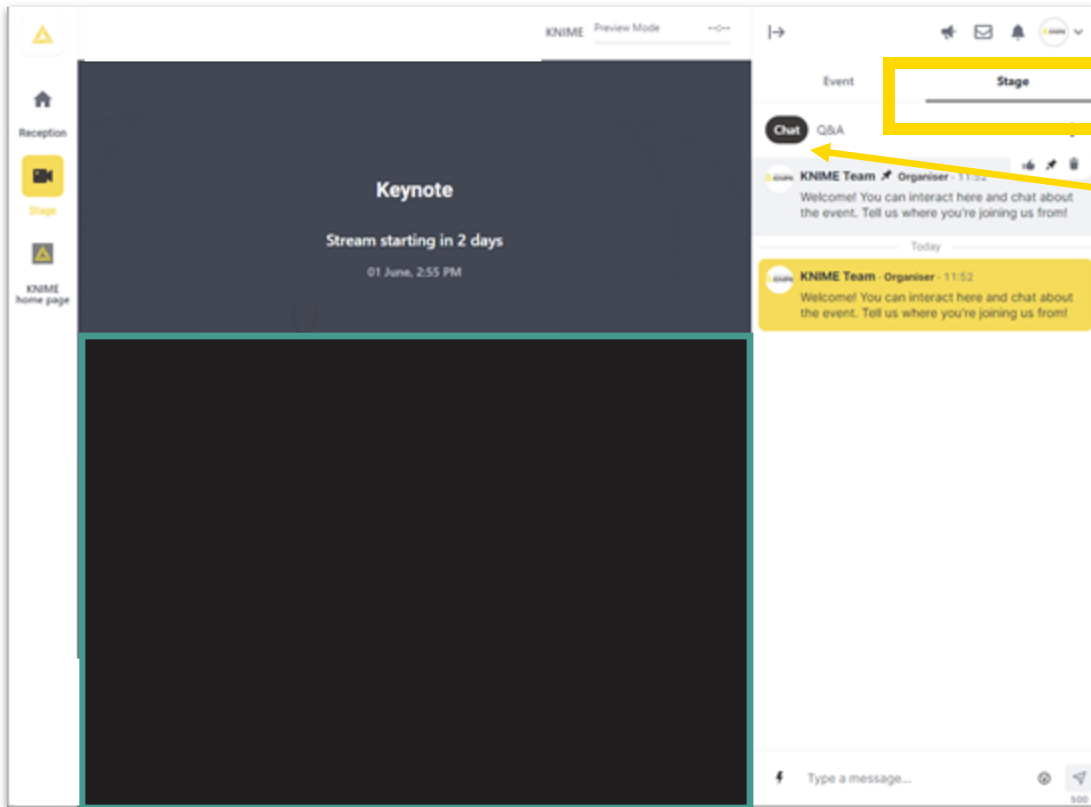




How to Bring GenAI Use-Cases to your Enterprise

November 26, 2024

Welcome! Use the live CHAT

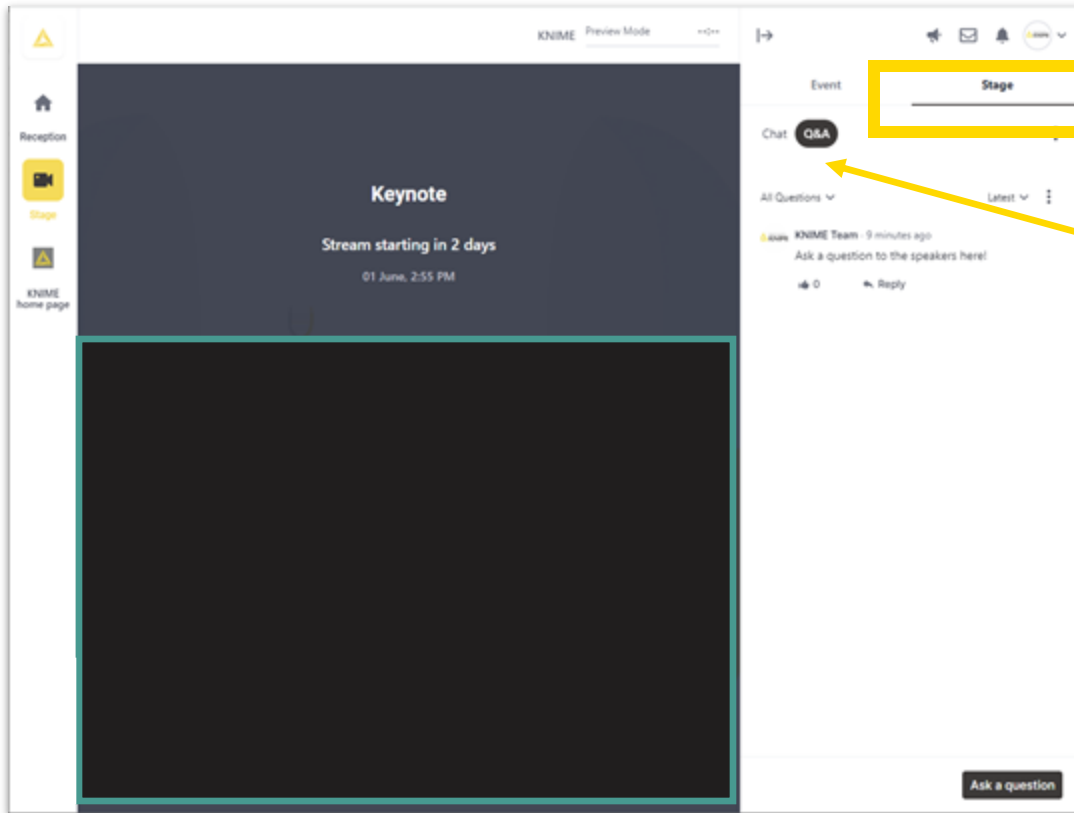


Here you can interact with others about the event!

Post where you are joining us from in the chat!



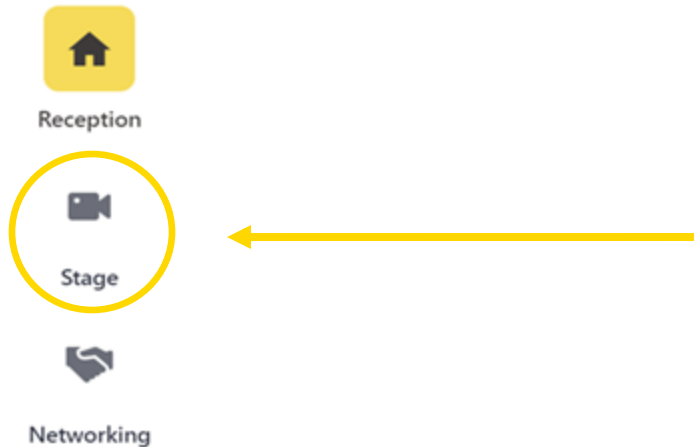
Questions? Use the Q&A Tab



Here you can ask questions to the KNIME team and speakers!

Your question will be answered Live or during "Questions to the Speaker" session.

Streaming Problems? Got Lost?



- Use Chrome or Firefox web browser for the best experience
- Try refreshing your browser
- Use a cabled internet connection if you have poor WiFi
- Try private browser mode
- Click on **'Stage'** to go back to the stream

Please fill out the poll



Speakers



Swantje Schulze
VP Revenue EMEA,
KNIME



Julian Bunzel
Practice Lead,
KNIME



Ellen Amodei
Solution Engineer,
KNIME



Dashiell Brookhart
Data Scientist
KNIME

About KNIME

Foundation



Founded in 2008
Origin in Life Science
Built for Production Environments

Business Model

No barrier to entry


Users start free, no strings or limitations
Once proven, pay to scale

Ecosystem

Open & Integrative

Open software, integrates all new tech
Open source, no black box
10,000+ Community-Built Workflows

Numbers at-a-Glance

 **+230**
Headcount

 **5000+**
Organizations Across 40+
Industries & Solution Areas

 **+350k**
Active Users¹
in 60 countries

 **+350**
Enterprise
Customers

 **Global**

A Complete Platform for All Data Workers

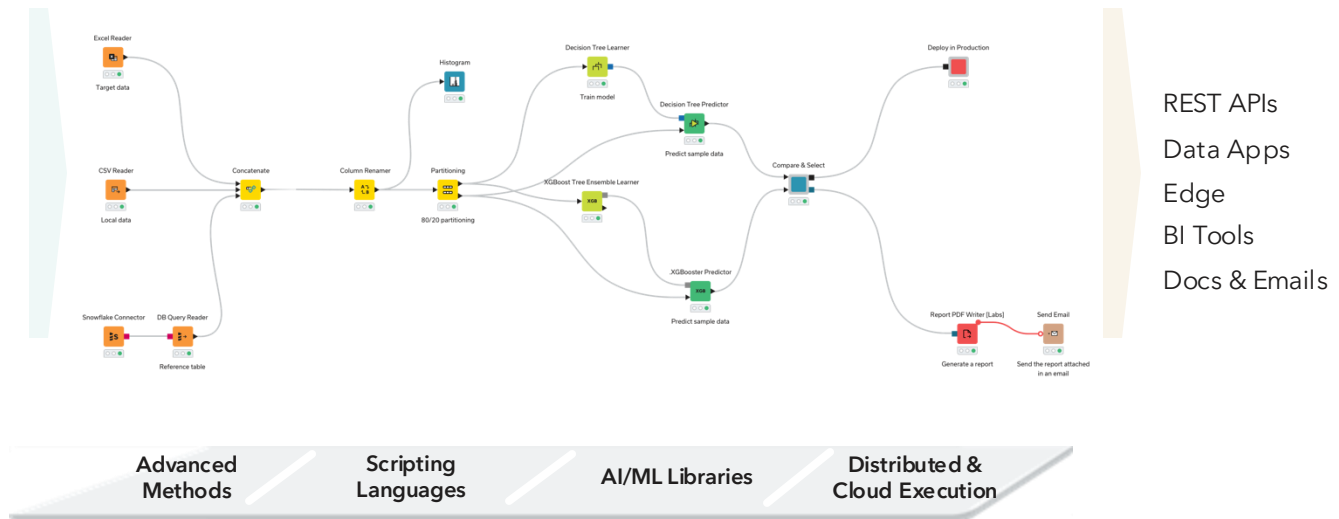
300+ Data Sources

Files, Docs
Audio, Images
Databases
Apps
Cloud
SAP
APIs
Sensor data

Blend & Transform

Model & Visualize

Deploy & Manage



REST APIs
Data Apps
Edge
BI Tools
Docs & Emails

Agenda

Challenges with GenAI

How KNIME can help

Common use cases

What's underneath the hood?

A closer look at a KNIME workflow

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Abstract geometric lines in the top right corner, consisting of several overlapping white outlines of triangles and polygons on a yellow background.

Challenges with GenAI

Are you innovating with data & AI?

26%

of organizations are reporting that they're creating tangible value from data & AI.¹

57%

of leaders report a data and AI literacy skill gap among employees.²

42%

report inaccurate & slow decision-making, due to poor data skills.²

“

Few organizations are currently implementing AI literacy programs. While the skills and capabilities of AI are concentrated to highly technical roles, the status of AI is rapidly changing as industry executives begin to realize the **importance of a workforce knowledgeable in data, analytics and AI.**

To build such a workforce, organizations require data literacy and AI literacy as core competencies.

- Melissa Davis, VP Analyst at Gartner

”

Key challenges for organizations to adopt GenAI

IT

- Data Privacy & Security
- Governance
- Cost

Users

- Data & AI Literacy
- Accessibility & Automation
- Trust & Reliability

Internal Audit, Legal, Compliance

- Data Privacy & Security
- Ethical Concerns
- Regulatory & Legal Challenges

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Samsung Bans ChatGPT
Among Employees After
Sensitive Code Leak

Forbes 03/23

Risks

- Shadow AI Use
- Security Incidents
- High Cost
- Unreliable Results

AI Services

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How KNIME Can Help

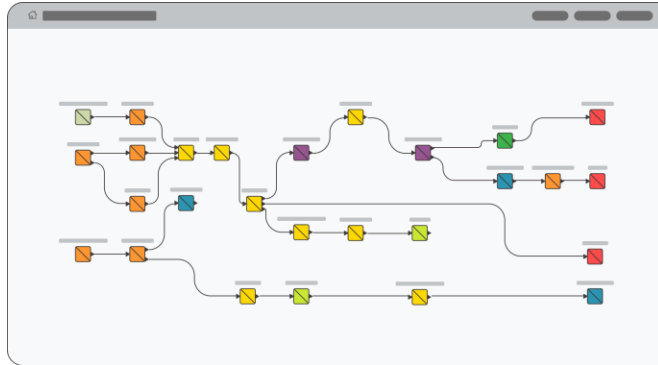
KNIME Software:

Balance Innovation & Control



KNIME Analytics Platform

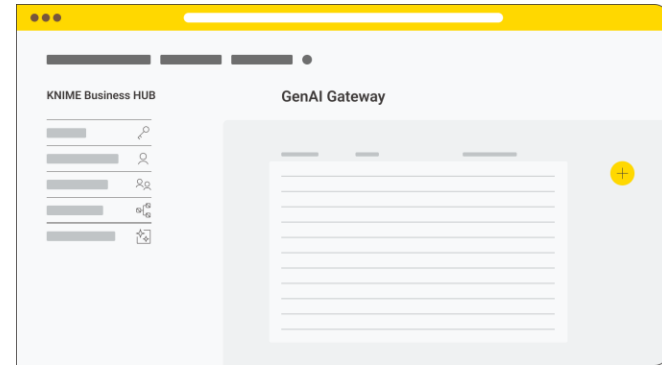
Bring the power of intuitive workflows to your entire organization



- Build & execute workflows of any complexity
- 1000s of blueprints & workflows for a fast start
- AI assistant (K-AI) for onboarding & high efficiency

KNIME Business Hub

Safeguard data work at scale to accelerate innovation



- Govern centrally, workflows & AI models
- Ensure safe automation & deployment
- Roll out best practices, globally



AP Users

- **AI Extensions**
 - Enable users to access and connect to various service providers to build AI-powered applications

The KNIME Toolkit: **KNIME AI Extension**

AP Users

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- Authenticators
- LLM Connectors
- Vector Store
- Embeddings Connectors
- Agents

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The image displays the KNIME AI Extension toolkit interface, which is organized into several categories of connectors and tools:

- Models:** Includes GPT4All (LLM Connector, Chat Model Connector, Embeddings Connector), LLM Promoter, Chat Model Promoter, Text Embedder, and OpenAI DALL-E View.
- Vector Stores:** Includes Chroma (Vector Store Creator, Reader) and FAISS (Vector Store Creator, Reader), along with a Vector Store Retriever.
- Authentication:** Includes Hugging Face (Authenticator, LLM Connector, Chat Model Connector, Embeddings Connector), OpenAI (Authenticator, Chat Model Connector), and Azure OpenAI (Authenticator, LLM Connector, Chat Model Connector).
- Agents:** Includes Tools and Agent Prompter.

The main interface shows a workflow canvas with a large dashed box containing the text: "Start building your workflow by dropping your data or nodes here." Below this, there is a "KNIME AI Assistant" chat window with a "Build" button. The chat window contains the following text:

KNIME AI Assistant [Build]

K-AI
Hi! I am K-AI, your KNIME Build Assistant. What would you like to build?

User
Use a csv file to read data. Build a pivot table and assign a rowID. Sort the rows and finally rename columns.

K-AI
Analyzing requirements...

To show the node output, please select a configured or executed node.

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- **PII Detection**
 - Safeguard personally identifiable information through the Presidio Extension

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Business Hub Users

- **Safe Automation & Deployment**
 - Through Schedules, Services or DataApps
- **Access Control**
 - Restrict who on your team can develop and use these models
- **Central Governance**
 - CDDS
- **Sharing Best-Practices**
 - Components, workflow services and onboarding material such as collections

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 - Route all of your enquiries to a specific provider including a self-hosted model
 - **KNIME AI Service**
 - Restrict where and how prompts coming from the KNIME AI assistant are managed.

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Common Use Cases



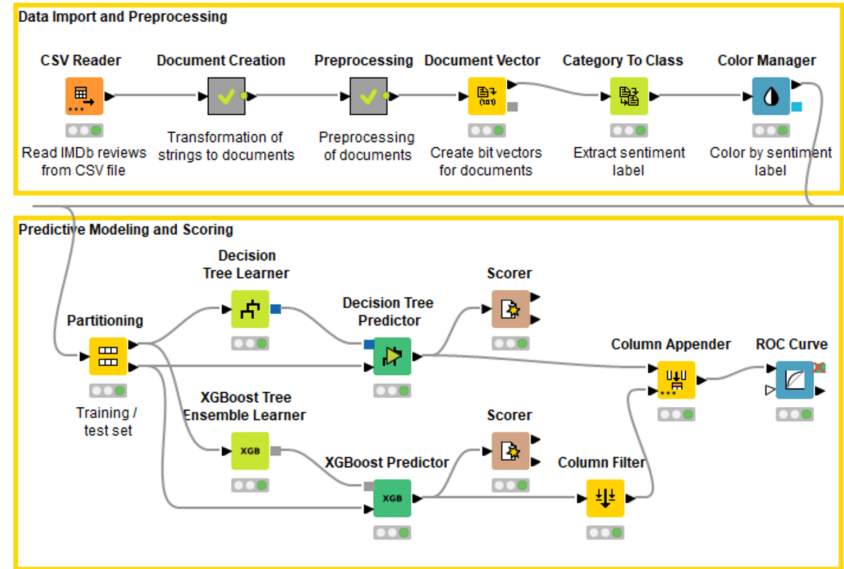
Analytic Breadth

Means Complete Use Case Coverage

| MARKETING | CUSTOMER SERVICE | FINANCE | HUMAN RESOURCES | OPERATIONS | IT & SECURITY | LEGAL | R & D | PRODUCT |
|--------------------------|-----------------------------------|-------------------------------------|----------------------------------|---------------------------------|-------------------------------|----------------------------------|------------------------------------|--------------------------------|
| Customer Segmentation | Ticket Prioritization | Fraud Detection | Employee Churn Prediction | Inventory Optimization | Network Anomaly Detection | Regulatory Compliance Monitoring | Experiment Analysis | Product Usage Analysis |
| Churn Prediction | Response Time Analysis | Credit Scoring | Recruitment Analytics | Supply Chain Optimization | System Performance Monitoring | Contract Analysis | Drug Discovery | Feature Adoption Tracking |
| Sentiment Analysis | Staff Forecasting | Expense Forecasting | Employee Sentiment Analysis | Demand Forecasting | Access Control Analysis | Litigation Risk Prediction | Clinical Trial Data Analysis | User Feedback Analysis |
| Campaign Effectiveness | Sentiment Analysis | Revenue Forecasting | Training Needs Assessment | Predictive Maintenance | User Activity Analysis | Intellectual Property Analysis | Product Development Tracking | Competitive Analysis |
| CLV | Escalation Prediction | Portfolio Optimization | Diversity and Inclusion Analysis | Logistics Route Optimization | Incident Response Automation | Data Privacy Compliance | Innovation Process Optimization | Innovation Pipeline Management |
| Personalization | Service Satisfaction Analysis | Anomaly Detection in Financial Data | Employee Productivity Analysis | Warehouse Space Utilization | Malware Detection | Case Management Optimization | Patent Analysis | Product Testing Analysis |
| Attribution | Chatbot training & Monitoring | Investment Analysis | Compensation Benchmarking | Quality Control Analysis | Log Analysis | Due Diligence Analysis | Manufacturing Process Optimization | Feature Request Prioritization |
| KYC (Know your Customer) | Upsell Opportunity Identification | Variance Analysis | Succession Planning | Supplier Performance Monitoring | Patch Management Optimization | Legal Document Automation | Scientific Data Modeling | Defect Detection |

Common Use Cases: Sentiment Analysis

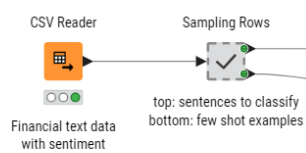
- Sentiment analysis can assist with:
 - Tracking customer satisfaction
 - Prioritizing customer service issues
 - Making data-driven decisions to improve products and services
- With GenAI, sentiment analysis workflows can be scaled up to classify the sentiment of large volumes of text in a fast and efficient way.



Common Use Cases: Sentiment Analysis

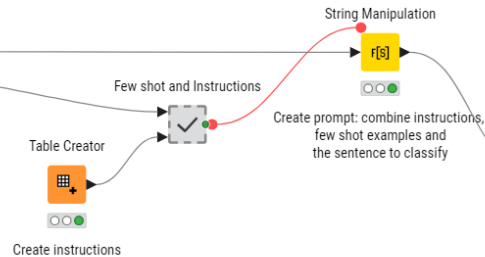
Step 1. Data Sampling

1. Import the data and extract 10 rows which you want to classify.
2. Choose any reasonable amount of few shot examples to allow for in-context learning.



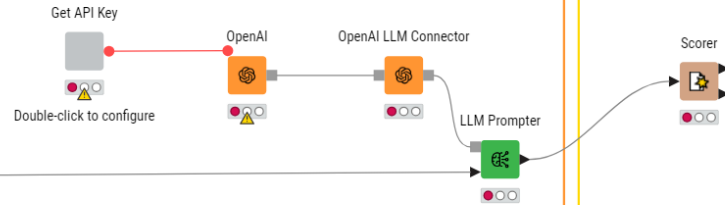
Step 2. Create the prompt

1. In the Table Creator, insert the instructions for the task i.e. what should the LLM do?
2. The provided metanode creates two flow variables, containing the instructions and the few shot learning sentences.
3. Using a String Manipulation node, create the prompt for each of the 10 sampled sentences. The prompt contains the instructions, the few shot example sentences and the sentence to classify.



Step 3. Send the prompt to the LLM

1. Configure the provided component to get the key as a credential variable
2. Authenticate using the OpenAI Authenticator node and the credential variable.
3. Connect to the service with the OpenAI LLM Connector node. Select one of the available models.
4. With the LLM Prompter node, send the prompts to the model and get the classification.



Step 4. Evaluate the results

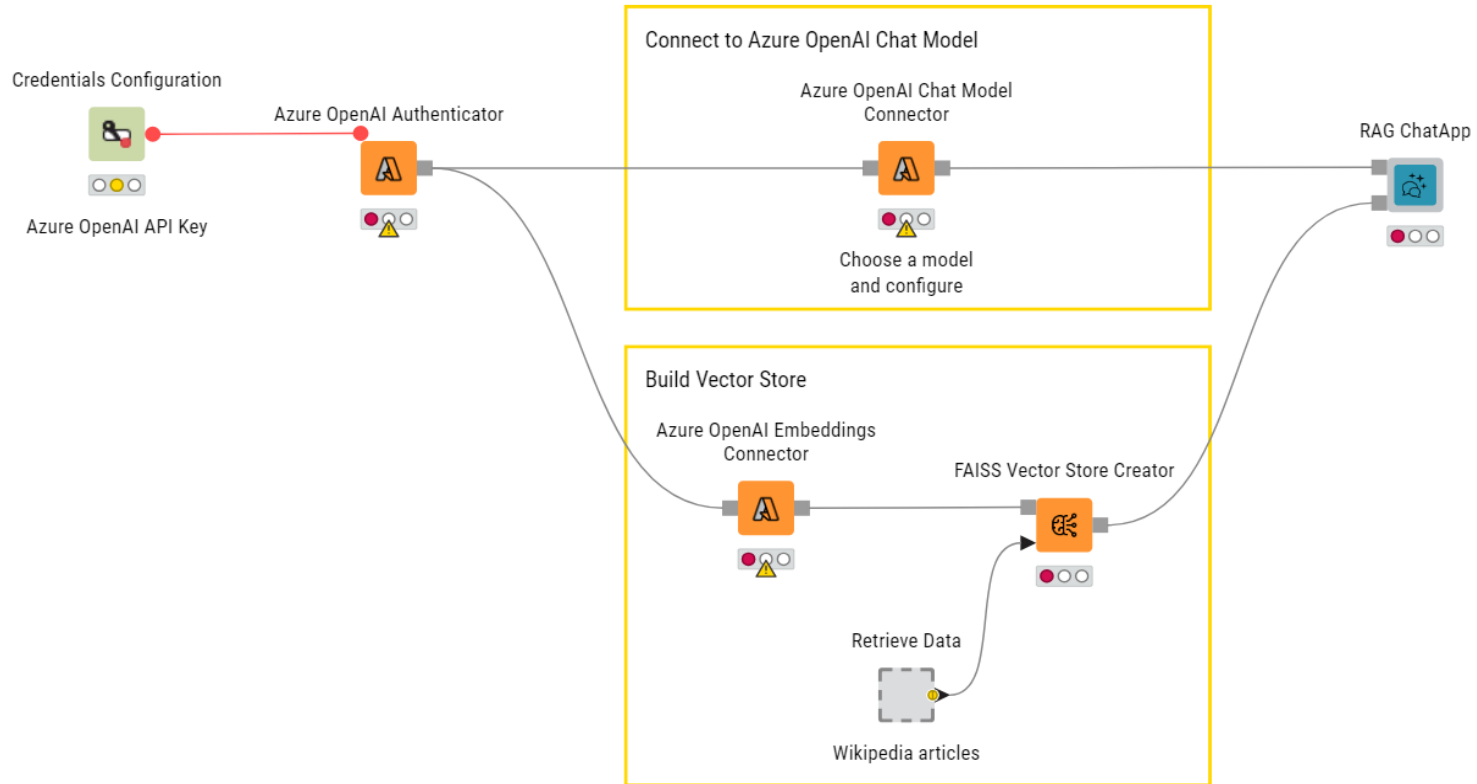
1. Compare the sentiment predicted by the model with the ground truth using a Scorer node and determine the accuracy of the model.

Common Use Cases: Question Answering

- With aid of GenAI, you can build self-service chatbots to assist with:
 - Instant and 24/7 customer support
 - Gathering crucial customer data to convert potential customers into active ones
 - Streamlining HR operations by addressing FAQs quickly

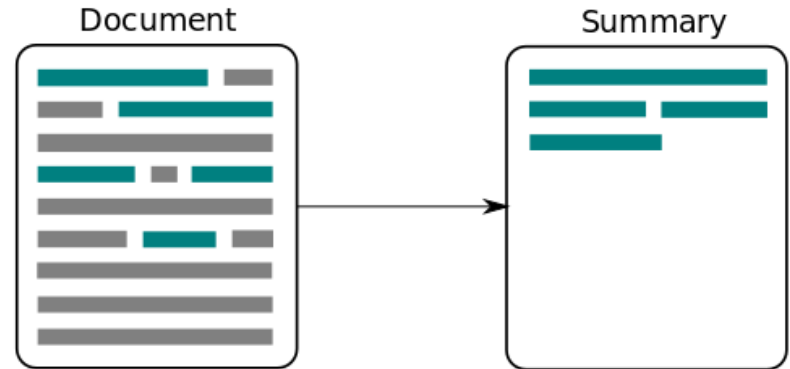
The image shows a workflow diagram at the top and a chatbot interface below. The workflow consists of three nodes: 'Table Writer' (save chat as .table with timestamp), 'chat with GPT4all model' (Add comment), and 'Table Reader' (reload the current saved chat with GPT4All). The chatbot interface is titled 'chat with GPT4all model' and features the KNIME logo and 'GPT4All model: ggml-model-gpt4all-falcon-q4_0'. The input field contains the text 'Can you write Python code?' and the output shows a response: 'KNIME is a platform for data analysis and visualization that allows users to create workflows using nodes, which are pre-built components of various data analysis tools.'

Common Use Cases: Question Answering



Common Use Cases: Text Summarization

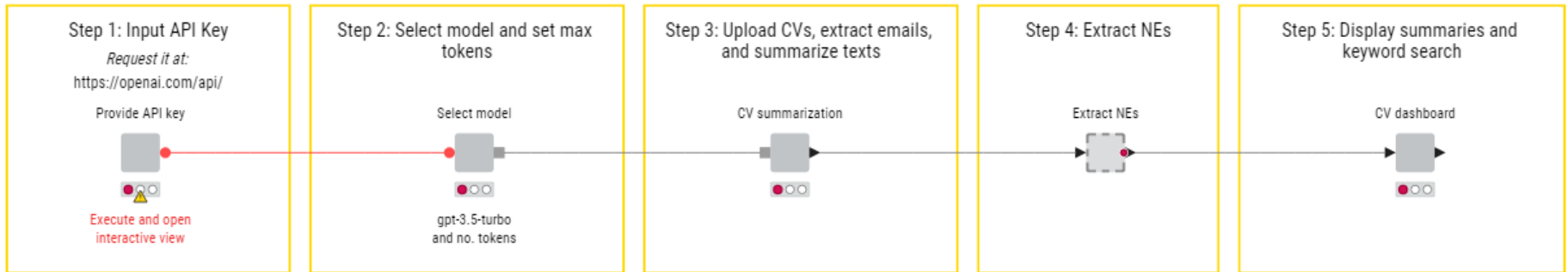
- Text summarization can help distill critical information from:
 - Financial reports
 - Internal documents
 - Extensive research papers
 - Clinical trial reports
 - Legal documents
- Users can save time, aid in research, and improve information consumption efficiency.



Common Use Cases: Text Summarization

LLMs for CV summarization

This workflow is a CV summarizer that relies on LLMs to summarize candidates' CVs and help the HR Team screen candidates' profile faster. Information such as profile pics, candidates' names and emails are extracted and organized in an interactive dashboard. The dashboard also allows for interactive filtering (e.g., filter by keyword, or rows) to facilitate the work of the HR manager and streamline the identification of suitable candidates.



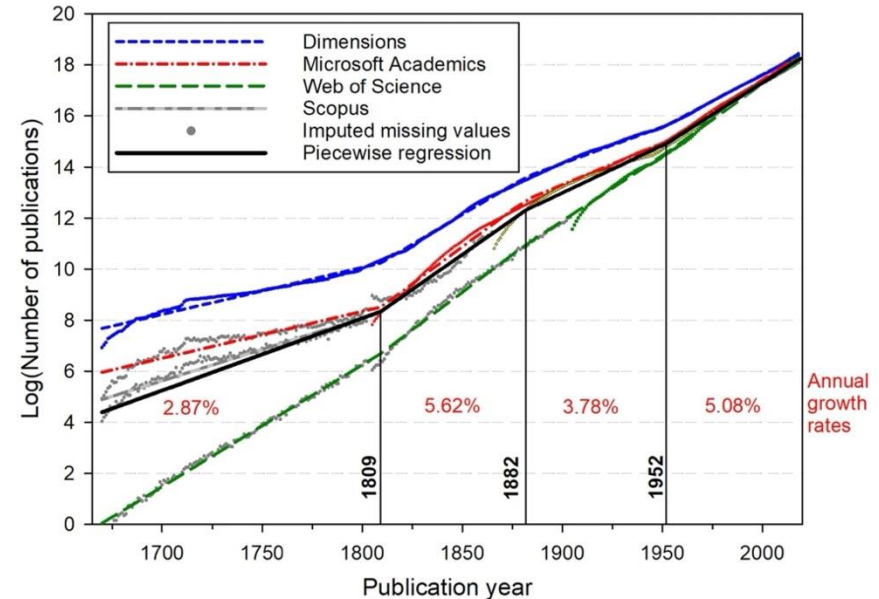
Customer Use Case: Wave Life Sciences

- Wave Life Sciences is a leading RNA Medicines Company
- Headquartered in Cambridge, MA (R&D) and Lexington, MA (ClinOps & Manufacturing)
- Currently sponsoring clinical trials in:
 - Huntington's disease
 - Duchenne's Muscular Dystrophy
 - Alpha-1 Antitrypsin Deficiency
 - Clinical trial initiation for INHBE silencing for the treatment of obesity planned Q1 2025.



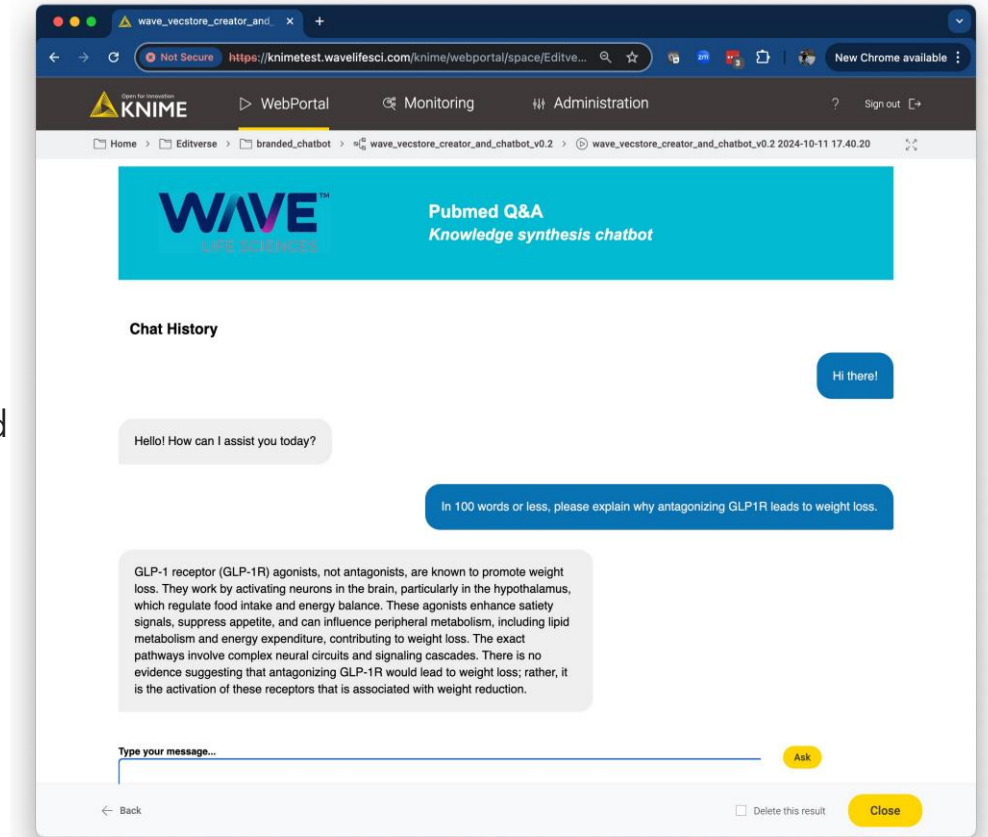
The Problem

- They are constantly bombarded with information, making it challenging to synthesize and create useful knowledge.
- For instance, the overwhelming amount and constant growth rate of biomedical literature can hinder scientific progress and slow down drug discovery efforts.



The Solution

- They built a workflow which does the following:
 - Collects information from PubMed based on a user's area of interest
 - Embeds the text using the OpenAI API
 - Uses a vector store for retrieval-augmented generation (RAG) to respond to user questions in a chatbot-like format.



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What's underneath the hood?
A closer look at a KNIME workflow

Abstract geometric lines in the top right corner, consisting of several overlapping, thin white lines forming a complex, angular shape against the yellow background.

**What's underneath?
A closer look at a KNIME workflow**

Upcoming Events

✦ KNIME DataHop Singapore

✦ Singapore, December 10, 2024 – Sign up [here](#)

✦ KNIME Spring Summit Berlin

✦ Berlin, March 18 – 20, 2025 – Sign up [here](#)

A promotional banner for the KNIME Spring Summit 2025. The background features a wooden shelf with a yellow backdrop. On the shelf, there are two small signs: one that says "You have to know the KNIME!" and another that says "EQUINOXYS x KNIME = magic code". A network diagram with white nodes and lines is overlaid on the scene. The text "KNIME Spring Summit 2025" is prominently displayed in white on the left. Below it, "Berlin, Germany" and "Selected Sessions Available Online" are written. On the right, a yellow box contains the text "Register now" and "March 18 - 20, 2025".

KNIME Spring Summit 2025

Berlin, Germany
Selected Sessions Available Online

Register now
March 18 - 20, 2025

GenAI Strategy Workshop

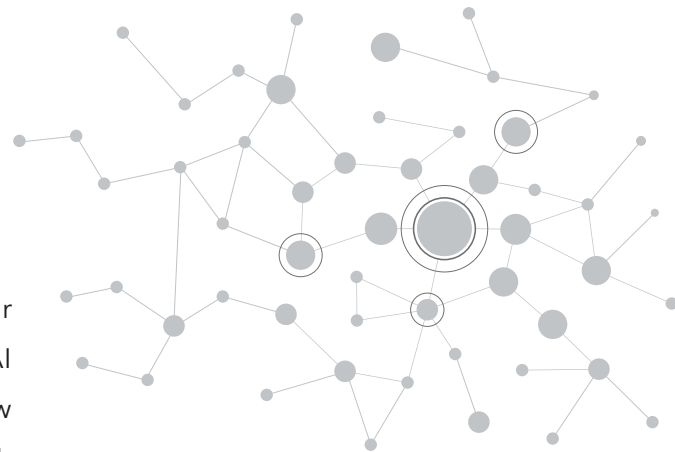
Explore how Generative AI (GenAI) can drive impact within your organization through a personalized, 1:1 workshop with KNIME.

Overview

Request a personalized GenAI workshop to uncover impactful use cases for your industry, assess your current processes, and find practical steps for secure GenAI implementation. Learn best practices in governance, workforce training, and how KNIME can support a customized, secure approach to GenAI. Walk away with actionable insights tailored to your organizational needs.

Who should attend

- IT managers
- Department leads
- Analytics managers
- Individuals or teams responsible for the deployment and management of GenAI strategies



Scan the QR code or click below to sign up for the workshop.



[Request Workshop](#)

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 KNIMETV



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