Revolutionize education with Generative AI on AWS

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Today's agenda

1. Generative AI on AWS

2. Generative AI in Education

3. Demo on student use-case

Generative AI on AWS

Innovation can
transform industries

Code generation

Document processing

GENERATIVE AI

Personalization

Summarization
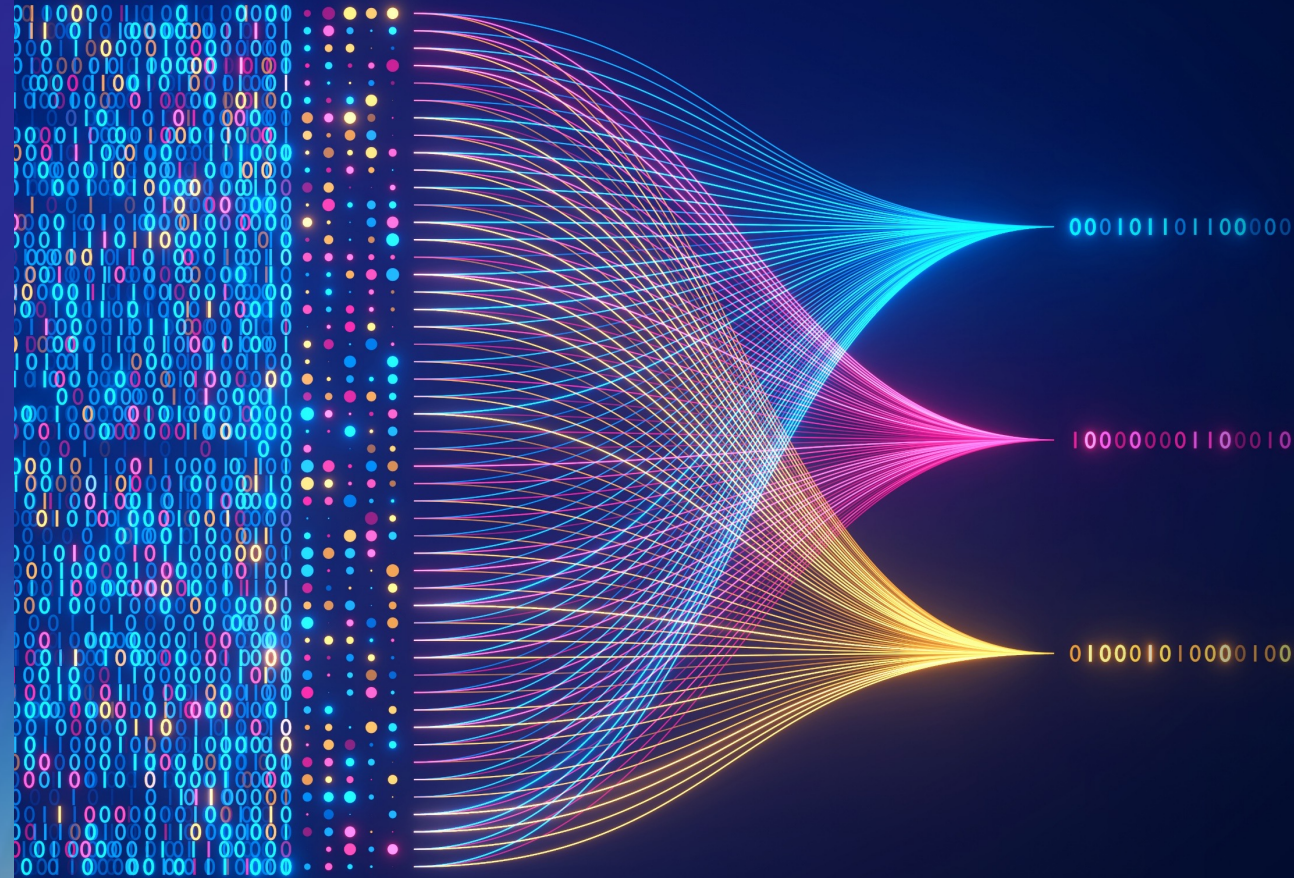
Transforming data into insights

Generative AI is powered by foundation models

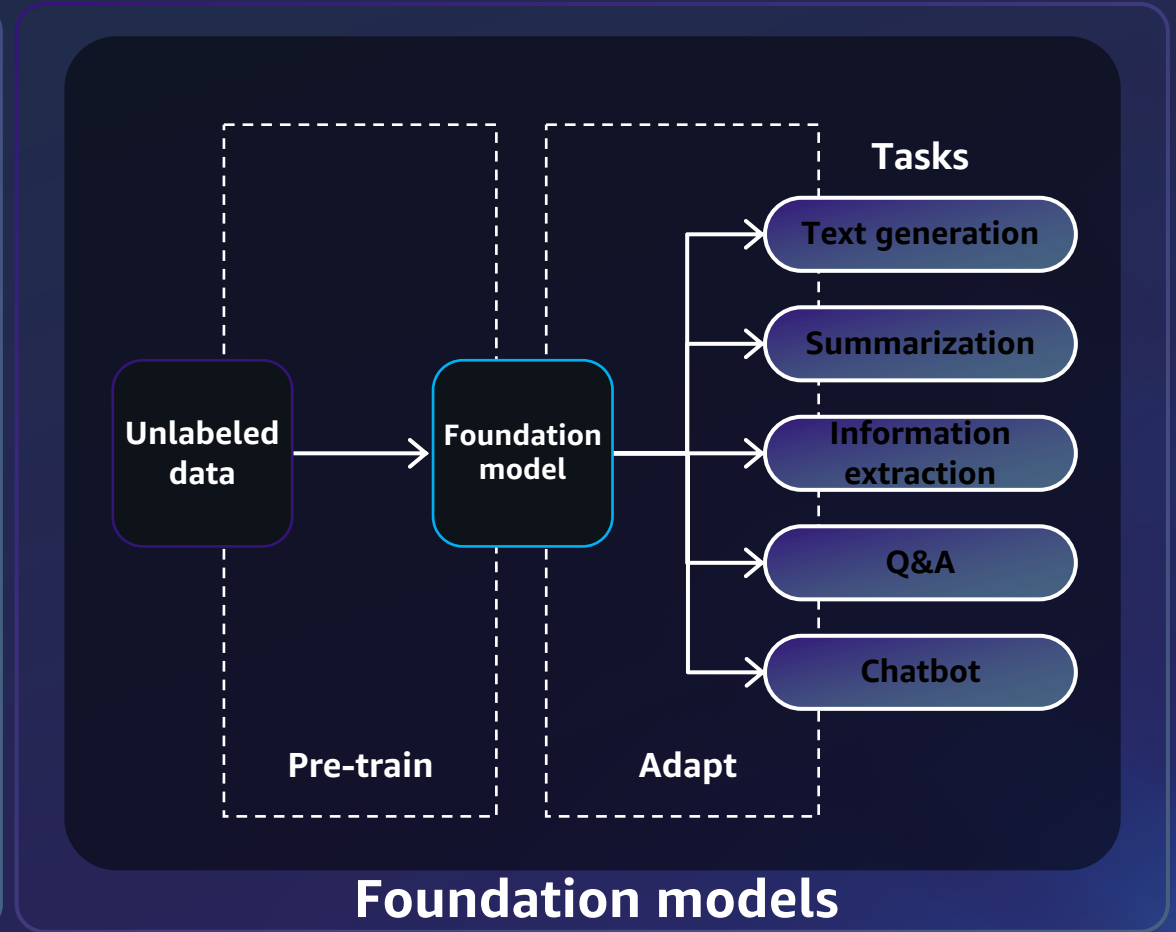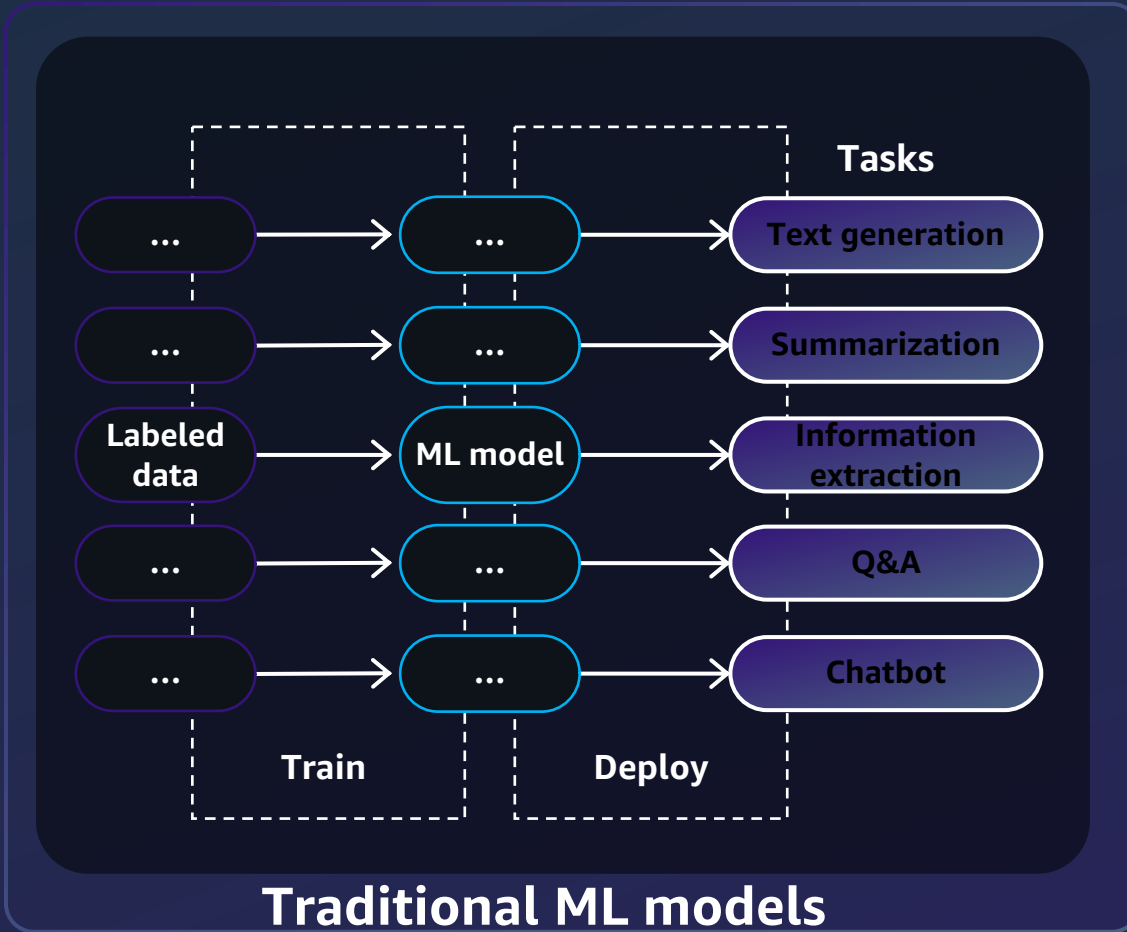Pretrained on vast amounts of unstructured data

Contain large number of parameters that make them capable of learning complex concepts

Can be applied in a wide range of contexts

Customize FMs using your data for domain specific tasks

Why foundation models?

Traditional ML models

- Labeled data
- ... → ... → Text generation
- ... → ... → Summarization
- Labeled data → ML model → Information extraction
- ... → ... → Q&A
- ... → ... → Chatbot

Train | Deploy

Tasks

Foundation models

- Unlabeled data → Foundation model → Text generation
- Summarization
- Information extraction
- Q&A
- Chatbot

Pre-train | Adapt

Tasks

Generative AI Application

Storage
Structured and unstructured data

Operational databases
SQL, NoSQL, document, graph, vector

Analytics and data lakes
Search, streaming, batch, interactive

Data integration
Capture, transformation, streaming

Data governance
Catalog, quality, privacy, access controls

aws

Make generative AI work with **your data**

RETRIEVAL-AUGMENTED GENERATION (RAG)

Specialized knowledge through prompt augmentation

Enterprise knowledge corpus

No change to the foundation model

FINE-TUNING

Specialized knowledge for specific tasks

Small number of labeled examples

Change a copy of the foundation model

CONTINUED PRE-TRAINING

Generalized and specialized knowledge for your domain

Unlabeled, unstructured enterprise data

Change a copy of the foundation model

Generative AI Stack

APPLICATIONS THAT LEVERAGE LLMs AND OTHER FMs

Amazon Q Business   Amazon Q Developer   Amazon Q in QuickSight   Amazon Q in Connect

TOOLS TO BUILD WITH LLMs AND OTHER FMs

Amazon Bedrock

Guardrails | Agents | Customization Capabilities

INFRASTRUCTURE FOR FM TRAINING AND INFERENCE

GPUs   Trainium   Inferentia   SageMaker

UltraClusters   EFA   EC2 Capacity Blocks   Nitro   Neuron

Amazon Bedrock

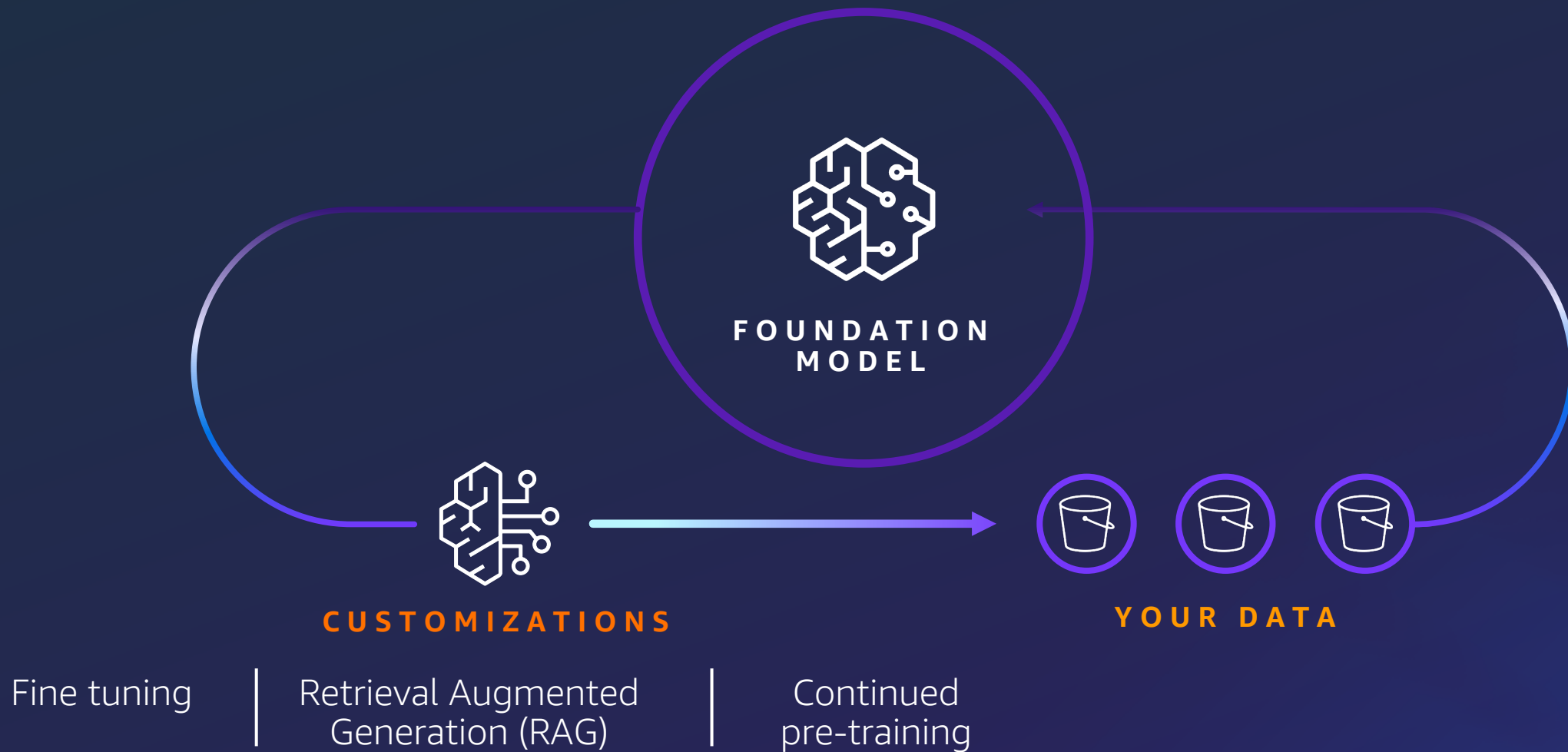The easiest way to build and scale generative AI applications with LLMs and other FMs

- Choice of industry-leading FMs from AI21 Labs, Amazon, Anthropic, Cohere, Meta, Mistral AI, and Stability AI

- Customize FMs using your organization's data

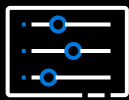- Enterprise-grade security and privacy

- Agents enable generative AI applications to take action in just a few clicks

Amazon Bedrock

FOUNDATION MODEL

CUSTOMIZATIONS

YOUR DATA

Fine tuning | Retrieval Augmented Generation (RAG) | Continued pre-training

Guardrails for Amazon Bedrock

IMPLEMENT SAFEGUARDS
CUSTOMIZED TO YOUR
APPLICATION REQUIREMENTS
AND RESPONSIBLE AI POLICIES

Apply guardrails to multiple foundation models and Agents for Amazon Bedrock

Configure harmful content filtering based on your responsible AI policies

Define and disallow denied topics with short natural language descriptions

Redact or block sensitive information such as PIIs, and custom Regex
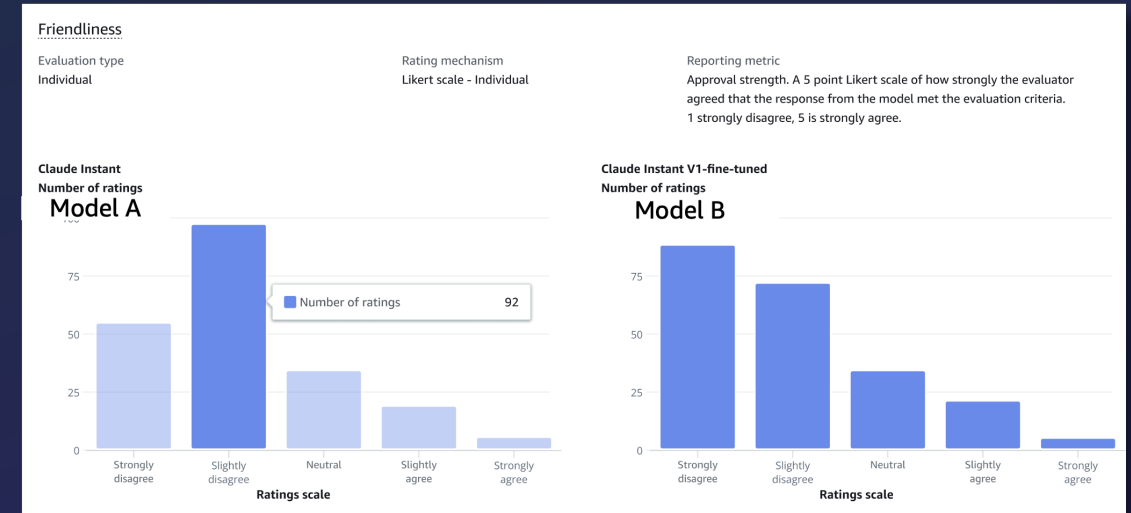
Model evaluation in Amazon Bedrock

EVALUATE FMS TO SELECT THE BEST ONE FOR YOUR USE CASE

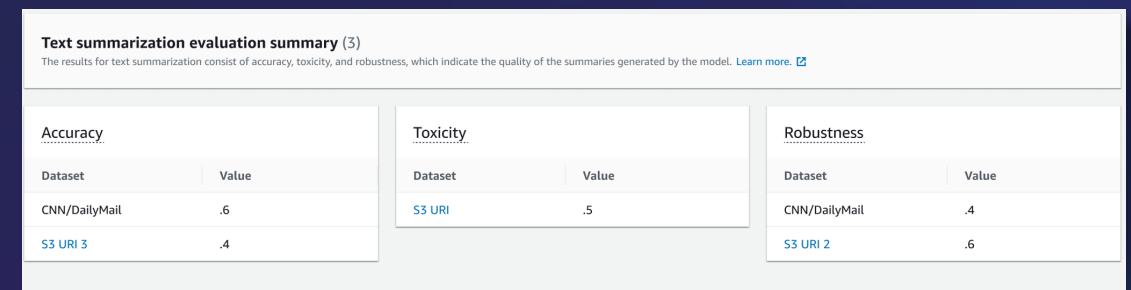Automatic or human evaluation method

Curated datasets or bring your own

Predefined and custom metrics

Human evaluation report

Automatic evaluation report

Generative AI in education

Education is built on AWS

Generative AI enables innovation and unlocks new institutional value

NEW EXPERIENCES
Create new innovative and engaging ways of interacting with your students and employees

PRODUCTIVITY
Radically improve productivity across the institution

INSIGHTS
Extract insights and clear answers from all your institutional data, enabling faster and better decisions

CREATIVITY
Create new content and ideas, including conversations, stories, images, videos, and music

Enhance experiences

STUDENT ASSISTANTS

VIRTUAL TUTORS

AUTOMATIC ESSAY FEEDBACK

LESSON PERSONALIZATION

MITIGATE AT RISK STUDENTS

Boost productivity & creativity

COURSE RECOMMENDATION

CONVERSATIONAL SEARCH

TOPIC SUMMARIZATION

LESSON CONTENT CREATION

DATA TO INSIGHTS

Optimize processes

PERSONALISED STUDENT SERVICES

DOCUMENT PROCESSING

DATA AUGMENTATION

CYBERSECURITY

OPTIMIZE RESOURCE ALLOCATION

Your data is the differentiator

Generic
generative AI

→

Generative AI that knows
your context and community

STUDENT SUCCESS

- STUDENT BEHAVIOUR & PERFORMANCE INSIGHTS
- IMPROVED STUDENT RETENTION
- IDENTIFYING 'AT RISK' STUDENTS
- PERSONALIZED LEARNING & ADAPTIVE EDUCATION

ORGANIZATIONAL SUCCESS

- OPTIMIZED COURSE OFFERINGS
- IMPROVED TEACHER EFFECTIVENESS
- PREDICTING STUDENT SUCCESS
- ENHANCING OVERALL INSTITUTIONAL PERFORMANCE

FOUNDATION MODEL

YOUR DATA

Build a data foundation to fuel generative AI

The objective
Provide curriculum-specific answers to your students to increase knowledge retention

The data

Learning Management System interaction data

Video lecture viewing data
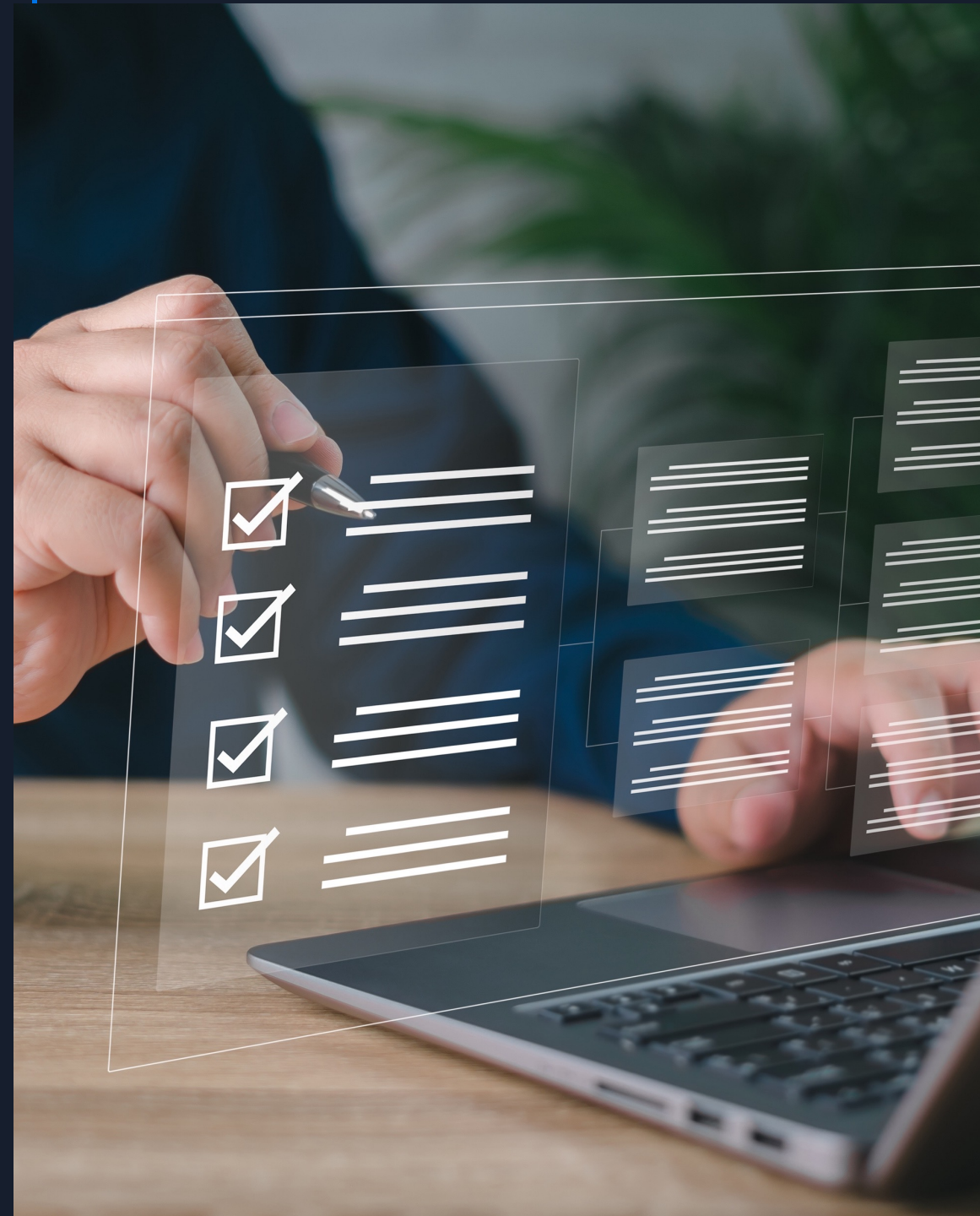
Student library transactions

Textbook content

Integrate students from diverse backgrounds

The objective

Provide multi-lingual version of pre-populated forms, applications and native language Q & A to improve inclusivity and sense of belonging

The data

Student Records

Internal guides

University website information

A more personal and relevant learning path

The objective

University wants to generate personalized learning paths

The data

Student profile

🗺 Past courses

💻 Known interests

📋 Learning preferences

Student Information System

📖 Course and lesson catalogue

📣 Promotions

👥 Similar student details

GenAI demo & use-case

Current situation

Fast-paced society with high performance standards

Multiple personas, all with different needs and ways of working

Demand for content accessibility and globalization

From student's perspective

- **Accessibility and inclusivity**

- **Productivity**

- **Boost learning outcomes**

Demo use-case

Built for students

- **Accessibility and inclusivity**
  - **Translating** content to different languages – localization!
  - Transcribing audio into text for users who can't or prefer not to listen to the content
  - **Text-to-voice** for those who prefer to listen
- **Productivity**

  - **Summarizing** and **transcribing** content

  - Preferred learning mechanism

- **Boost learning outcomes**

  - Generating **flashcards** to review content

  - **Chatbot assistant** that is able to answer questions based on uploaded content
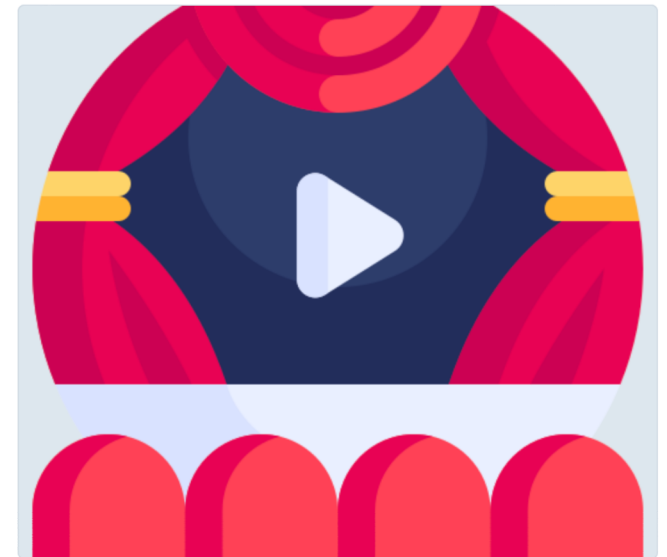
Architecture

Demo

The New Auditorium

Sign Out

Welcome to a new auditorium experience

Get more out of your class presentation. Upload your class recording in the form below and let us show you what is possible.

Get Started →

Start your generative AI journey today

Generative AI readiness assessment

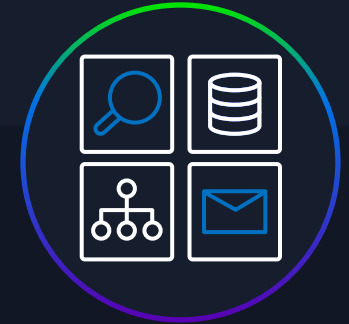Get a sense of your institution's preparedness for strategic AI initiatives

Experiment with LLMs

Build an experimentation playground to learn about power of different LLMs with the context of your institutional data

Learn about generative AI

Discover AI features with step-by-step tutorials upskilling your teams

Identify use case and build a PoC

Work with our experts to engage in an immersive experience

Thank you!

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