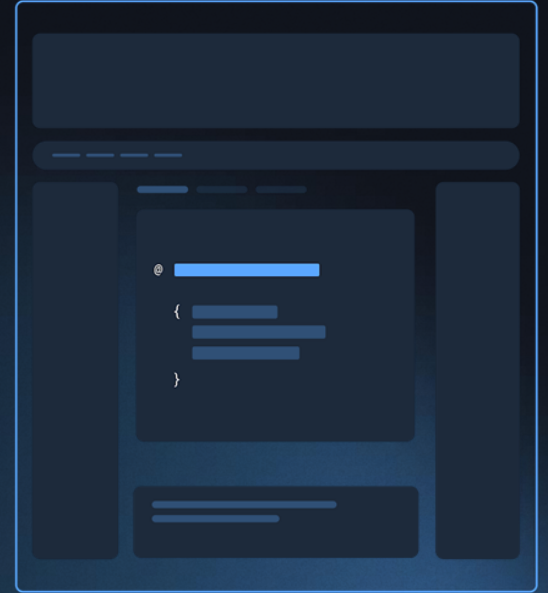


Native Agentic Development for Mission-Critical Systems



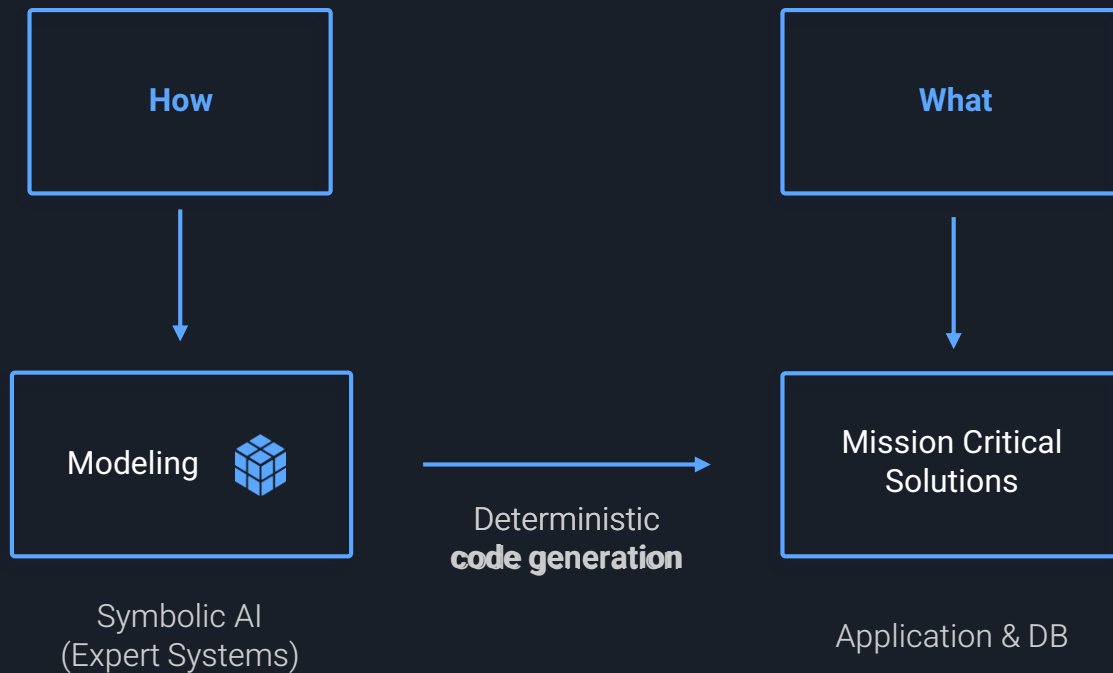
Armin Bachmann
Product Manager - GeneXus

“Simplifying software development, **automating everything** that can be automated.”

How
to develop software

What
software to develop

The GeneXus approach





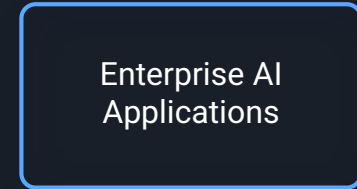
AI Assistants
(TuringBots)



Symbolic AI
(Expert Systems)



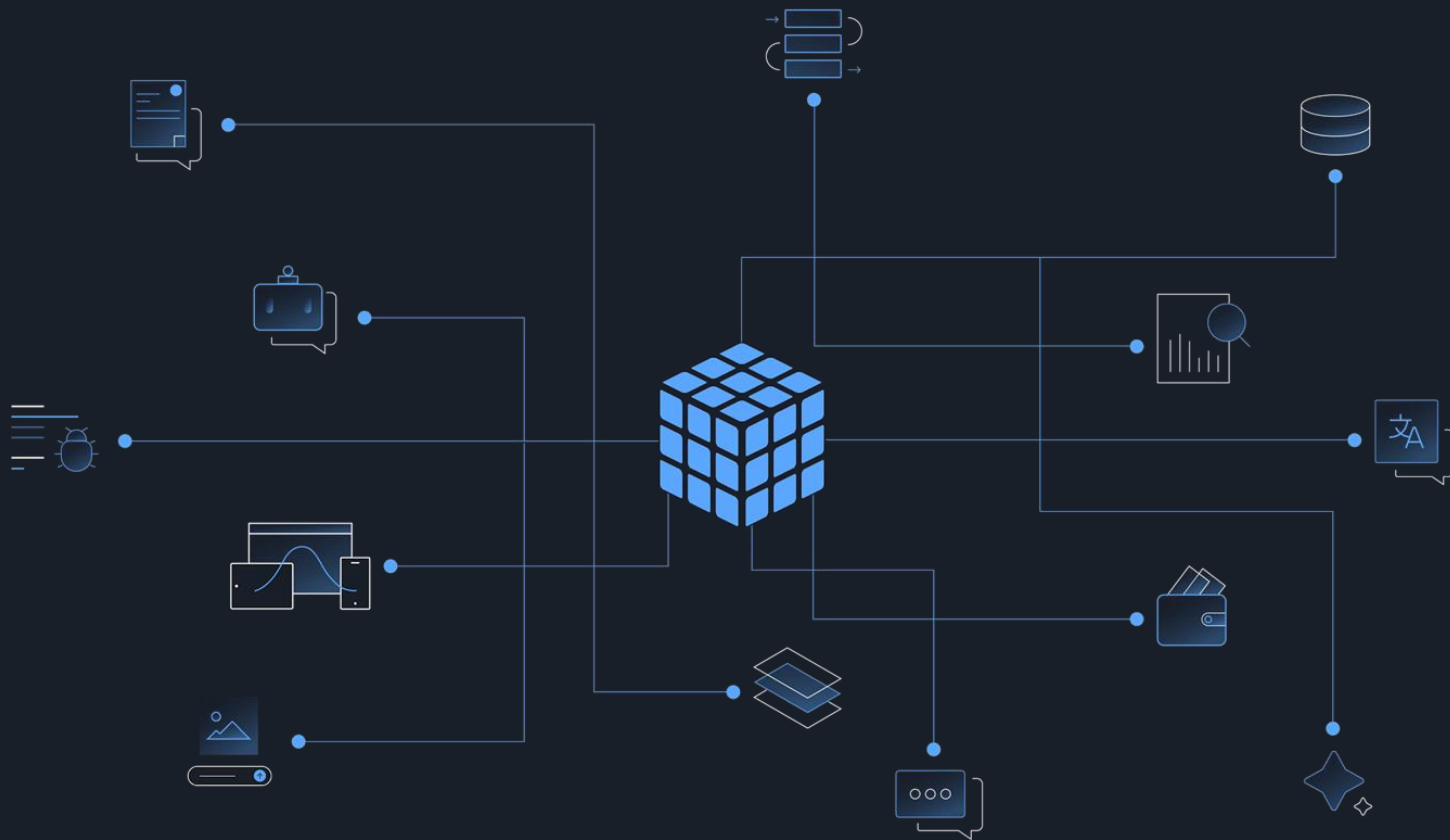
Deterministic
code generation



Application
& DB & AI



What makes us unique: Knowledge (the model) in the center



Future-Proof

GeneXus Next

The Native Agentic Low-Code Platform
for the Enterprise



With GeneXus Next you:

Define and model your systems and solutions end to end with AI Assistants and Agents....

Design, integrate, and deploy Mission-critical Applications and AI Agents that learn, collaborate with people, and autonomously execute tasks and workflows across your organization.

GeneXus Next is the new iteration of GeneXus, combined with Globant Enterprise AI to build intelligent enterprise systems and next-generation experiences, without writing code, losing control of your data, or relying on black-box AI.

GeneXus Next main components

**GeneXus Next
Start**

GeneXus Next
Design Assistant

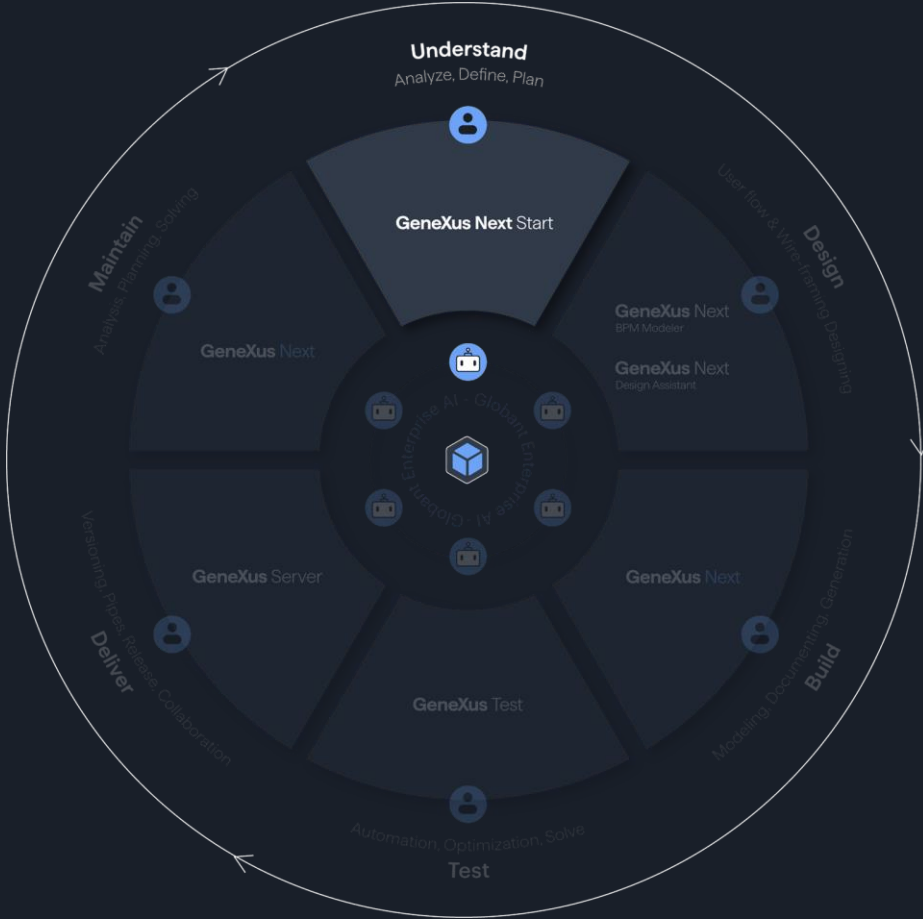
GeneXus Next
Design Prototyper

**GeneXus Next
(Desktop)**

Globant Enterprise AI

GeneXus Next Start

Analyze, Define, Plan



Describe the back office you need and let our AI Assistants and GeneXus deliver it for you

Welcome to the playground of our AI Assistant for Back Office generation.

Log in

Sign Up

GeneXus Next





What does GeneXus Next Start generate?



Backoffice



Native Mobile App



Web App



Data Base



Security



API's



Design Systems

It is the beginning of a revolution in the way of creating software...

The most innovative thing is that you don't need to know how to program to do it.



next.genexus.ai

GeneXus Next Start: Other facts

Only Cloud: next.genexus.ai

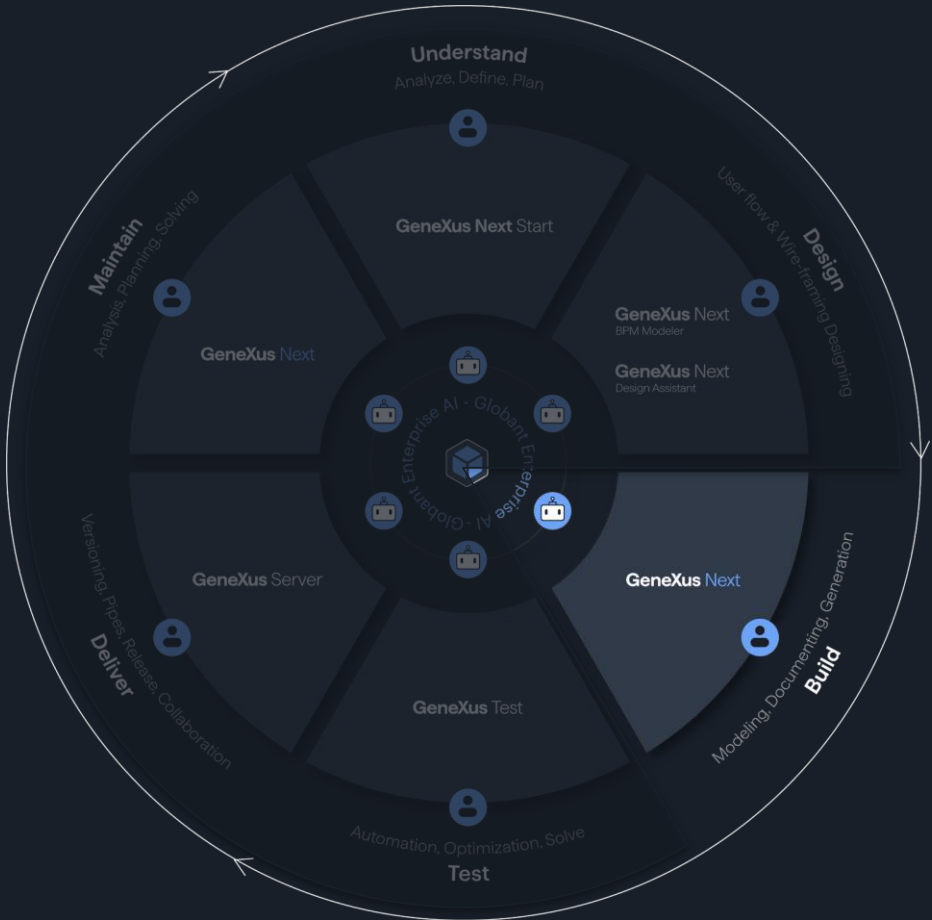
Only for Starting a Project or
showcasing GeneXus power

Projects (KBs) are stored in GeneXus
Server for further evolution with
GeneXus Next Desktop

GeneXus Next

GeneXus Next Desktop is the most important component of GeneXus Next and the evolution of GeneXus for this era.

Build, Test, Deliver, Maintain
Turn Prototypes into Production



Feature:

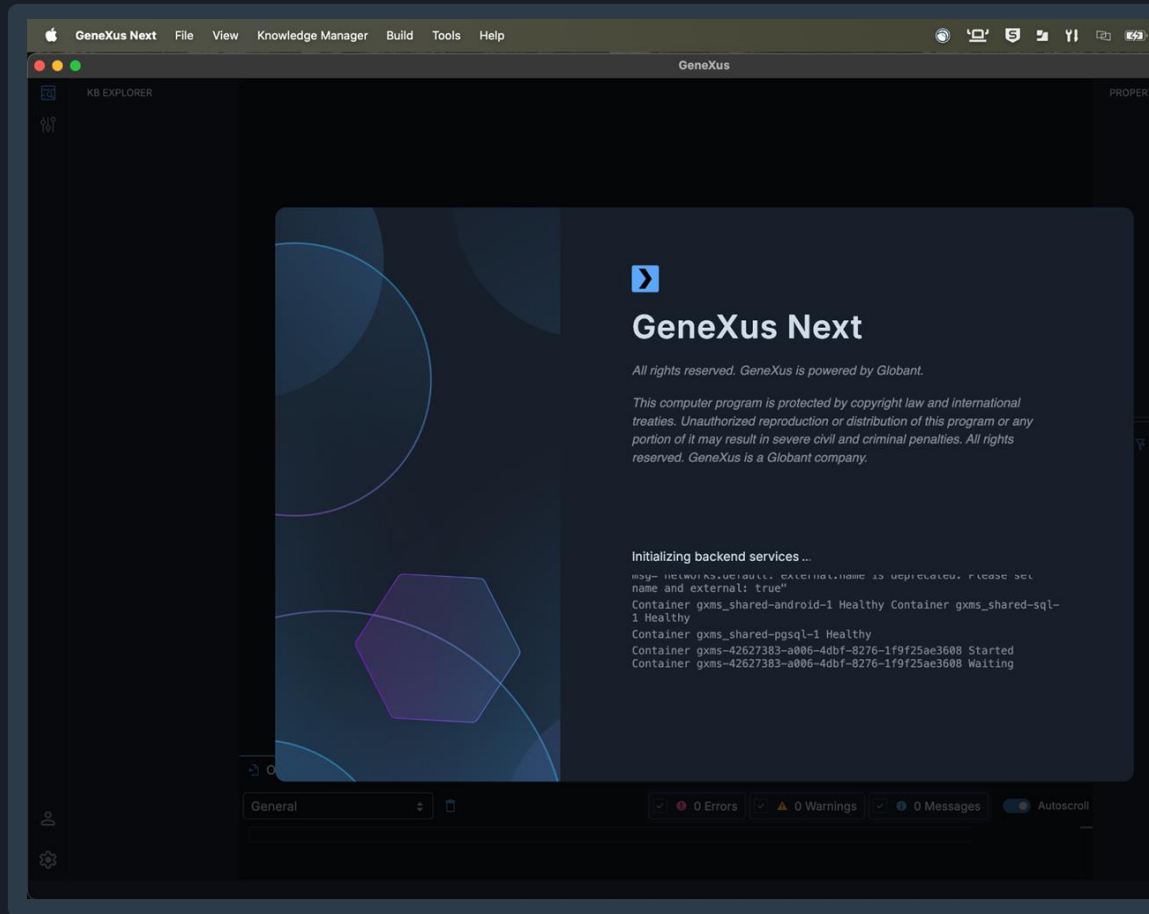
Local, Cross Platform

GeneXus Next

Desktop: Cross Platform



GeneXus Next Desktop - Native App



GeneXus Next

Desktop - Local Architecture



Docker

GeneXus Next Desktop - Local Architecture

Host (Mac, Linux, Windows)



Cloud for
Prototyping

iOS (Mac)
execution
environment

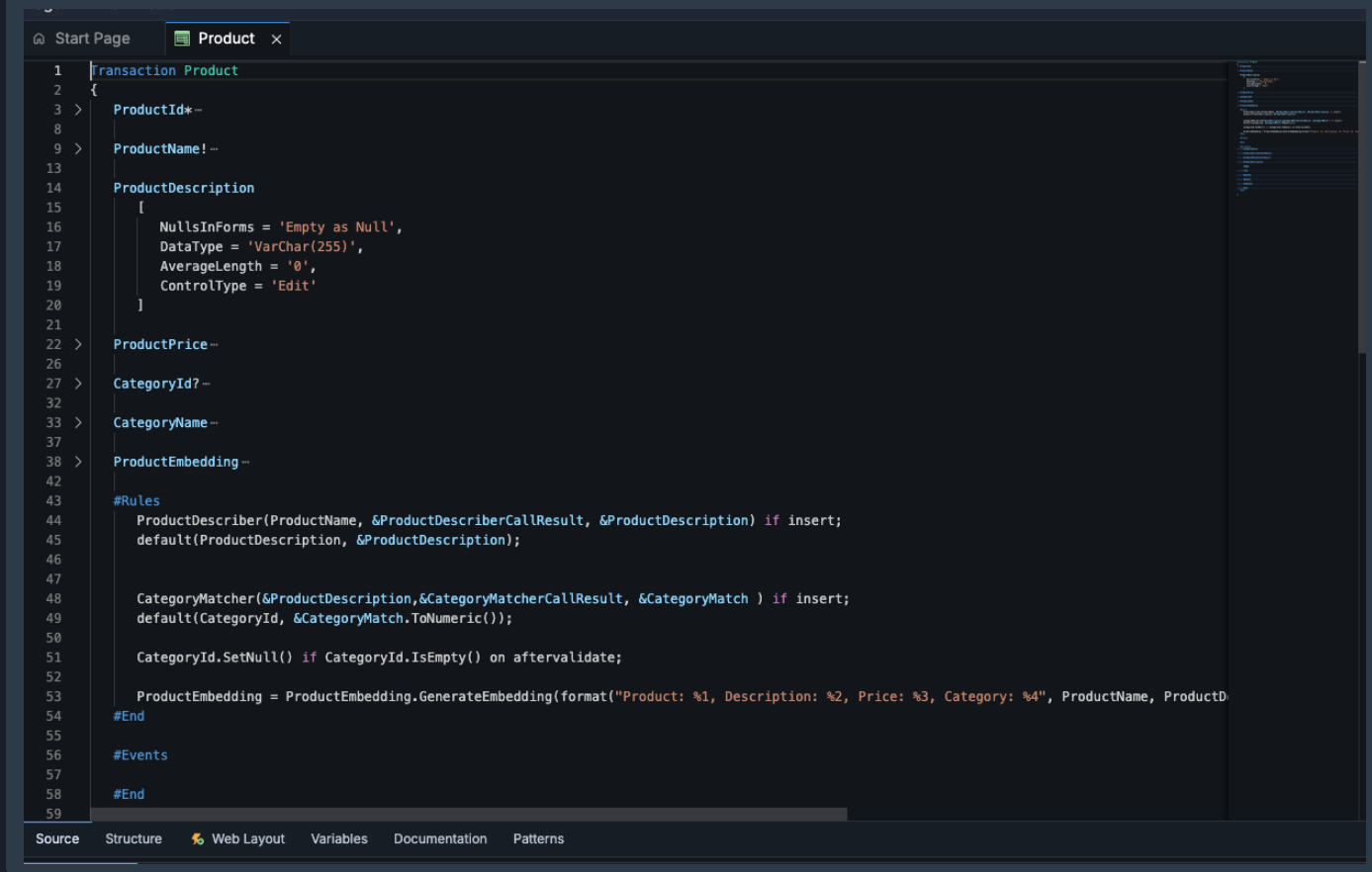
Android
execution
environment

Other DBMS

Feature:

UI Layer Redesign

GeneXus Next Text Editors



The screenshot displays the GeneXus Next Text Editor interface. The top bar shows a 'Start Page' button and a tab for the 'Product' file. The main editor area contains a code file with the following structure:

```
1 Transaction Product
2 {
3   > ProductId*--
4
5   > ProductName!--
6
7   ProductDescription
8   [
9     NullsInForms = 'Empty as Null',
10    DataType = 'VarChar(255)',
11    AverageLength = '0',
12    ControlType = 'Edit'
13  ]
14
15  > ProductPrice--
16
17  > CategoryId?--
18
19  > CategoryName--
20
21  > ProductEmbedding--
22
23  #Rules
24    ProductDescriber(ProductName, &ProductDescriberCallResult, &ProductDescription) if insert;
25    default(ProductDescription, &ProductDescription);
26
27    CategoryMatcher(&ProductDescription,&CategoryMatcherCallResult, &CategoryMatch ) if insert;
28    default(CategoryId, &CategoryMatch.ToNumeric());
29
30    CategoryId.SetNull() if CategoryId.IsEmpty() on aftervalidate;
31
32    ProductEmbedding = ProductEmbedding.GenerateEmbedding(format("Product: %1, Description: %2, Price: %3, Category: %4", ProductName, ProductD
33  #End
34
35  #Events
36
37  #End
38
39
```

The bottom bar of the editor includes tabs for 'Source', 'Structure', 'Web Layout', 'Variables', 'Documentation', and 'Patterns'. The 'Source' tab is currently selected.

GeneXus Next Struct Editors

anager Build Tools

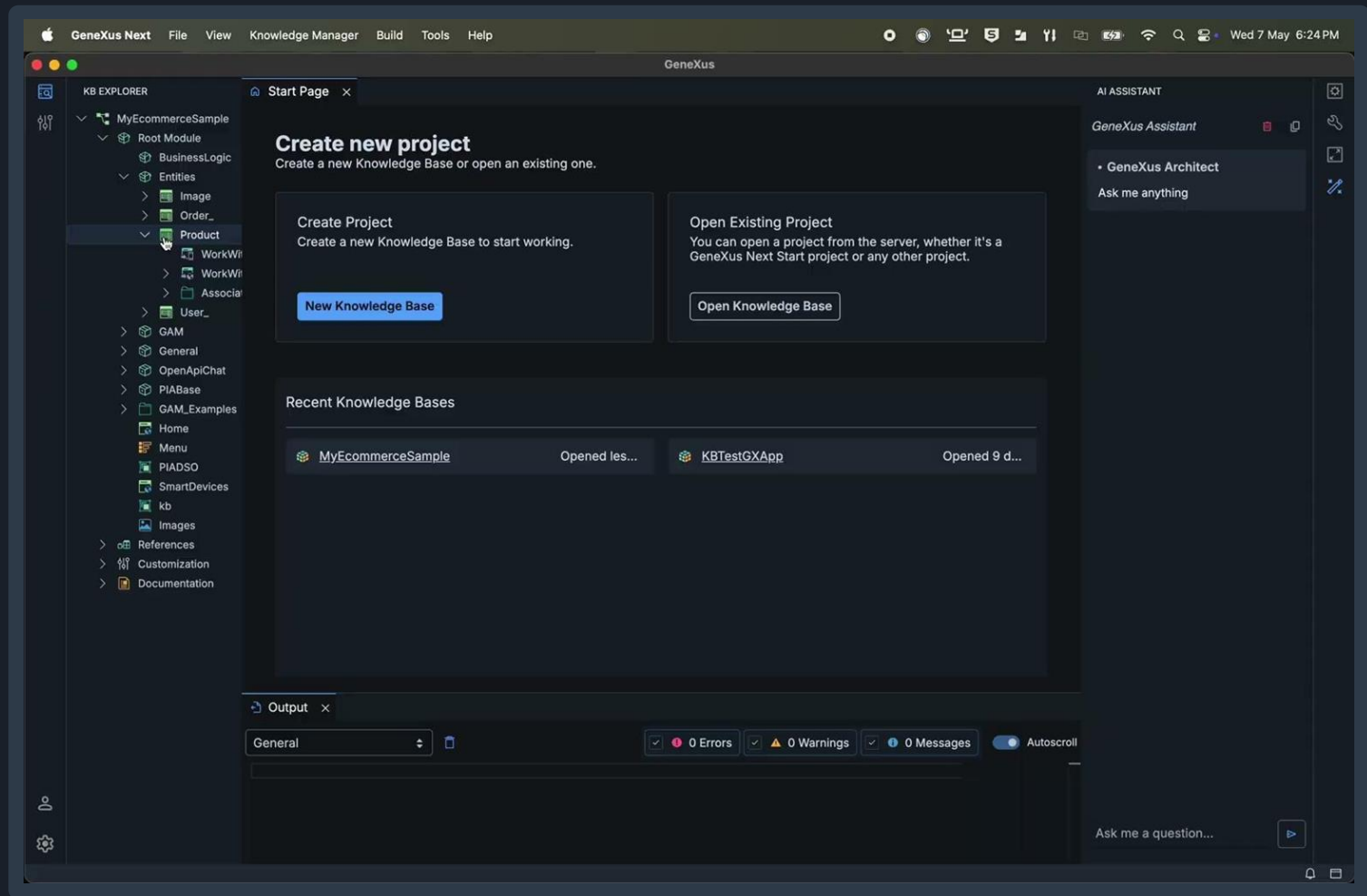
Start Page **Product** x

PROPE

Name	Type	Description	Formula	Nullable
Product		Product		
ProductId	Numeric(10.0)	Product Id		No
ProductName	VarChar(100)	Product Name		No
ProductDescription	VarChar(255)	Product Description		No
ProductPrice	Numeric(10.2)	Product Price		No
CategoryId	Numeric(10.0)	Category Id		Yes
CategoryName	VarChar(100)	Category Name		
ProductEmbedding	Embedding	Product Embedding		No

Feature:

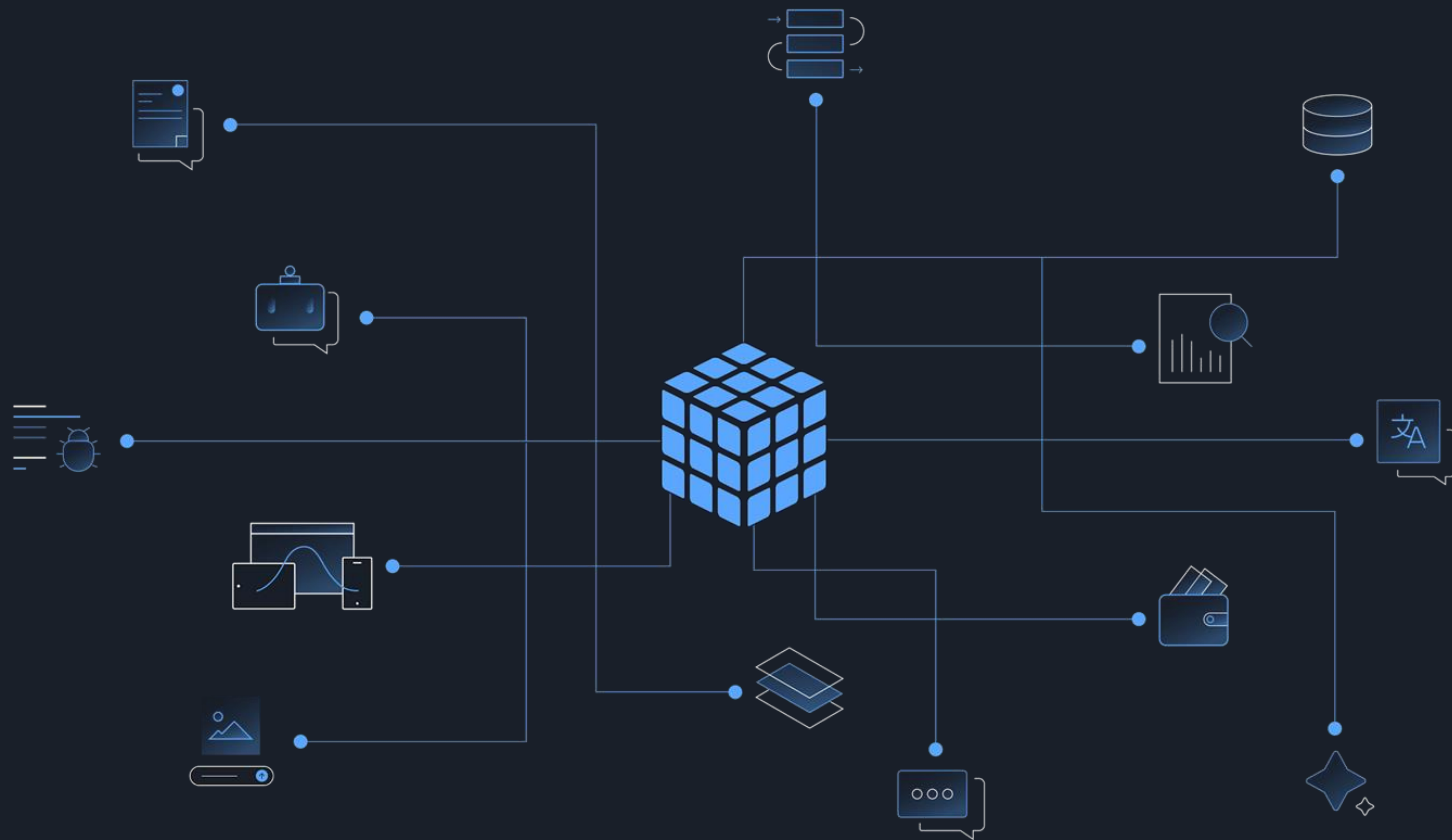
AI Agents assisting Development



Feature:

Build Agentic Apps

An Evolving Knowledge Base



New User Experiences Powered by AI

Agent Object

Chat Interfaces

Agentic Processes

Embedding Data Type

Product

Product Name

Low-Sugar Banana Nut Cupcake

Product Category

Healthy Choices

Product Description

A moist, banana-flavored cake with crunchy walnuts, naturally sweetened with ripe bananas and topped with a light vanilla frosting—perfect for a healthier, guilt-free treat!

+ Add Product

Id

Name

Description

Category

AI

AI Applications

Agent Object

New Object

Select a category

Artificial Intelligence

Data Management

BPM


Deploy

User Interface

Documentation

Extensibility

Artificial Intelligence Types

 Agent

Agent


Name


DescriptionAgent

Description

DescriptionAgent

Module/Folder

 Root Module

 ...

Cancel

Create

AI Applications

Agent Object Syntax

```
Agent <AgentName>
{
    <Natural language prompt Agent Instructions>

    #Rules
        parm(<Parameters>);
        [context(<DataProviders> <Procedures>);]
        [use(<List of Tools: APIs, Procedures, Agents or External Tools or Agents>);]
    #End

    #Variables
        <Variable Definitions>
    #End
}
```

AI Applications

Agent Object

```
Agent DescriptionAgent
```

```
{
```

```
    Expand the following short text into a detailed description:
```

```
    “{{&ShortText}}”
```

```
    #Rules
```

```
        parm(&ShortText, out: &ExpandedText);
```

```
    #End
```

```
}
```

AI Applications

Agent Object

```
&ProductDescription = DescriptionAgent(&ProductName)
```

Product

Product Name

Low-Sugar Banana Nut Cupcake

Product Category

Healthy Choices

Product Description

A moist, banana-flavored cake with crunchy walnuts, naturally sweetened with ripe bananas and topped with a light vanilla frosting—perfect for a healthier, guilt-free treat!

+ Add Product

Id

Name

Description

Category

AI

AI Applications

Agent Object

Agent CategoryMatcher

{

Determine the best matching category for the product description:

"{{&ProductDescription}}" using the provided categories: \$context.

Return just the value of the Id of the category.

#Rules

parm(in:&ProductDescription, out: &MatchedCategory);

context(GetCategoryCollection());

#End

AI Applications

Nesting Agents

Agent MessiFan

```
{  
    Return 3 arguments why Messi  
    is the best soccer player  
#Rules  
    parm(out: &Argument);  
#End
```

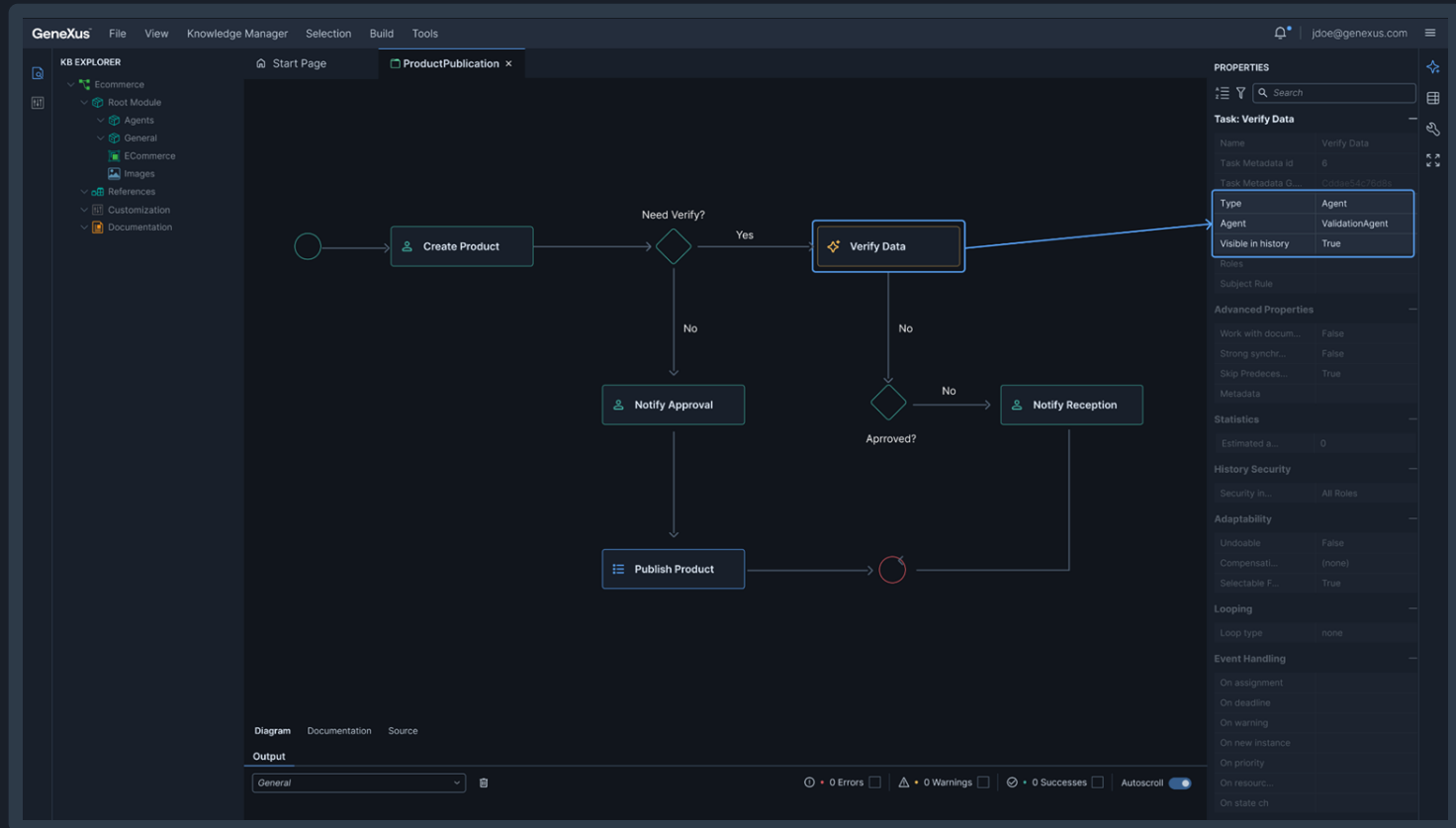
Agent CristianoFan

```
{  
    Return 3 arguments why Cristiano  
    Ronaldo is the best soccer player  
#Rules  
    parm(out: &Argument);  
#End
```

Agent Reporter

```
{  
    You are a reporter that asks CristianoFan and MessiFan for their arguments on who  
    is the best Soccer player and then give your own opinion on whom is the best  
#Rules  
    parm(out: &Argument);  
    use(MessiFan, CristianoFan);  
#End
```


AI Applications Agentic Processes



Chat User Control

Hi! How can I help you today?

where is my last order?

Your order is in transit and will arrive on Tuesday, October 24, between 10:00 a.m. and 2:00 p.m. Would you like to change the delivery date?

Yes, I need to change it

The new available dates are:

1. Wednesday, October 25, from 1:00 p.m. to 5:00 p.m.
2. Thursday, October 26, from 9:00 a.m. to 12:00 p.m.

Which one do you prefer?

thursday

Done! Your delivery has been rescheduled for Thursday, October 26, between 9:00 a.m. and 12:00 p.m.

Write here your question ...

ECommerceAssistant

```
1 Assistant ECommerceAssistant
2 {
3
4
5   #Rules
6   |   parm(in:&UserId);
7   |   use(UserOrdersAPI, AvailableDeliveryDatesAPI, UpdateDeliveryAPI);
8   |   #End
9
10  #Variables
11  |   UserId
12  |   #End
13
14 }
15
```

AI Application

Embeddings & Semantic Search

Product

Name	Type	Description	Formula	Nullable
Product		Product		
ProductId	Numeric(4,0)	Product Id		No
ProductName	Character(20)	Product Name		No
ProductDescription	Description, GeneXusUnanimo	Product Description		No
ProductPrice	Numeric(4,0)	Product Price		No
ProductEmbedding	Embedding	Product Embedding		No

PROPERTIES

Search

Attribute: ProductEmbedding

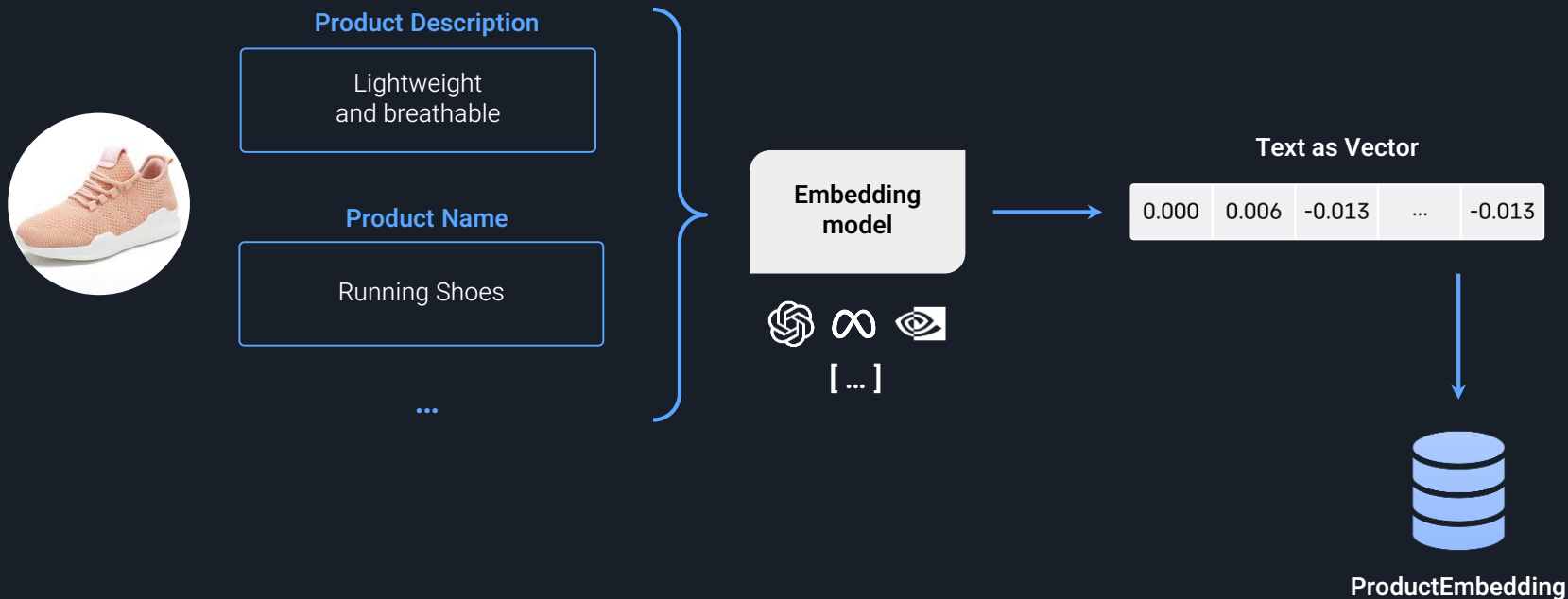
KBObject: Artech.Genexus.Common.Objects.Tra

Name	ProductEmbedding
Description	Product Embedding
Title	Product Embedding
Column title	Product Embedding
ContextualTitle	Embedding
Formula	
Nulls in Forms	Empty as Null
Class	Attribute
Qualified Name	ProductEmbedding

Type Definition

Supertype	
Based on	(none)
Data Type	Embedding
Embedding Model	openai/test-embedding-3-small
Embedding Dimensions	512
Initial value	

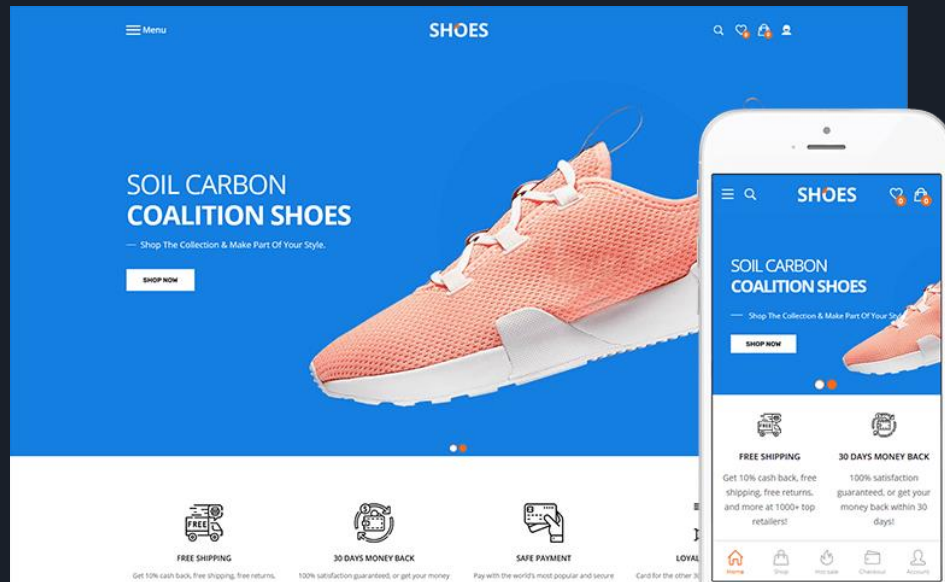
AI Application Embeddings



```
ProductEmbedding = ProductEmbedding.GenerateEmbedding(ProductName +  
ProductDescription);
```

AI Application

Semantic Search



marathon running gear

For each Count 5
order ProductEmbedding.**Distance**(&search
msg(ProductName)
Endfor

marathon running gear

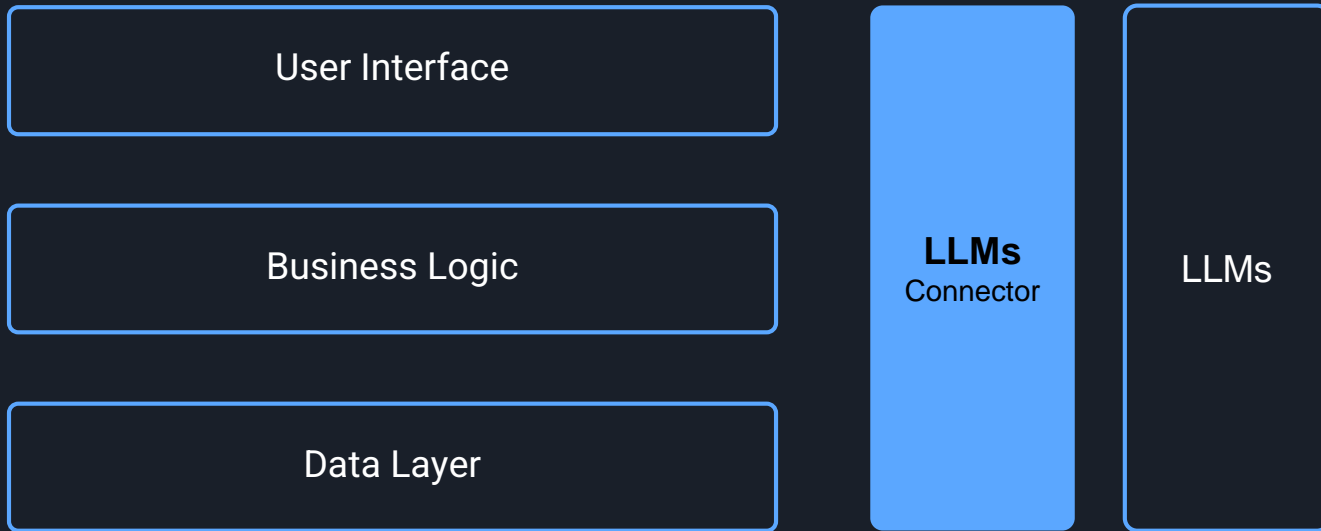
Embedding
model

0.000 0.006 -0.013 ... -0.013

User Interface

Business Logic

Data Layer



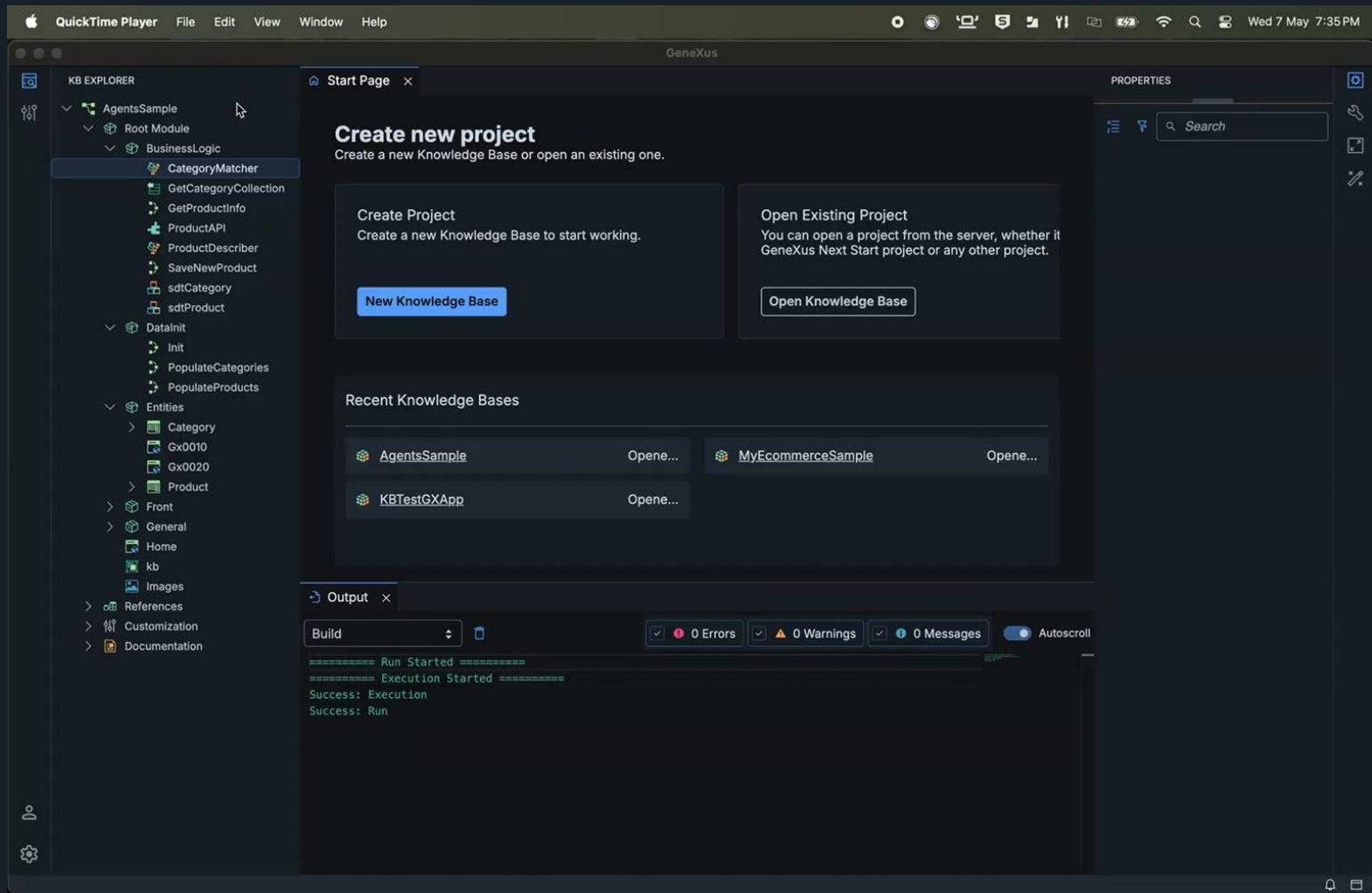
Feature:

Integration with Globant Enterprise AI

GeneXus™



Globant▶
Enterprise AI



User Interface

Business Logic

Data Layer

Connection
to
Globant
Enterprise
AI

Globant Enterprise AI
(Agents definition and execution,
LLMs connectors, etc)

LLMs

Generated Application

Globant Enterprise AI & LLMs

Other Features

Support for Expressions in Order clause

```
&SearchEmbedding = ProductEmbedding.GenerateEmbedding(&Search, &Messages)
```

```
for each Product
```

```
    Order ProductEmbedding.Distance(&SearchEmbedding)
```

```
        msg(ProductName)
```

```
Endfor
```

Sample Order Clause with Expressions

The following examples show possible uses of the Order clause by applying expressions with different attribute data types:

- `order (len(ProductName))`

ProductName is an attribute of VarChar type, and len() calculates the length of the string. This expression allows you to sort the records based on the number of characters in the product name.

- `order (abs(ProductPrice))`

ProductPrice is an attribute of Numeric type. The abs() function is used to sort records by the absolute value of the price, useful for cases where the price includes negative values (such as discounts) and you want to sort by the magnitude of the value.

- `Order dow(ProductDate)`

ProductDate is an attribute of Date type. The dow() function extracts the day of the week from this date, allowing you to sort records by day of the week.

Other Features

Extensibility

User Interface
(StencilJS, typescript)

Business Logic
(.NET 8)

AI Assistants
(Prompting, Globant Enterprise AI)

GeneXus Next SDK

It's a set of resources to extend its User Interface, Services, or Business Logic.

- [Extensibility sample](#)
- BL and services
 - [Reference Assemblies](#) (.NET 8)
- UI
 - Mercury Design System [showcase](#) and [sources](#),
 - [Chameleon controls library](#)

Technology stack

Extending GeneXus Next requires tough skills on different technologies, from front to back. Some are: NodeJS, Typescript, HTML Web Components (StencilJS), and .NET 8.

State of Art

- Beta for
 - Exploring Knowledge bases using Natural Language
 - Using AI Assistants to suggest improvements to the KB
 - Building
 - Agentic Backends (.NET, Java)
 - customer-facing web and mobile apps (Angular)
 - native mobile apps, super apps and mini apps (iOS, Android)
 - Agentic Backoffices, Agentic Workflows
- With Platform partner extensions & patterns included (Beta)

Get free GeneXus Next access!

Beta ready to Download

Visit our Wiki to learn more:



How to: Install and run GeneXus
Next Desktop



Sample: Building Agentic
Applications with GeneXus Next