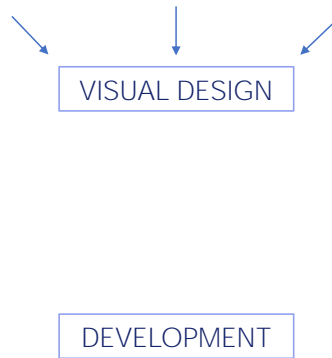


UX Design

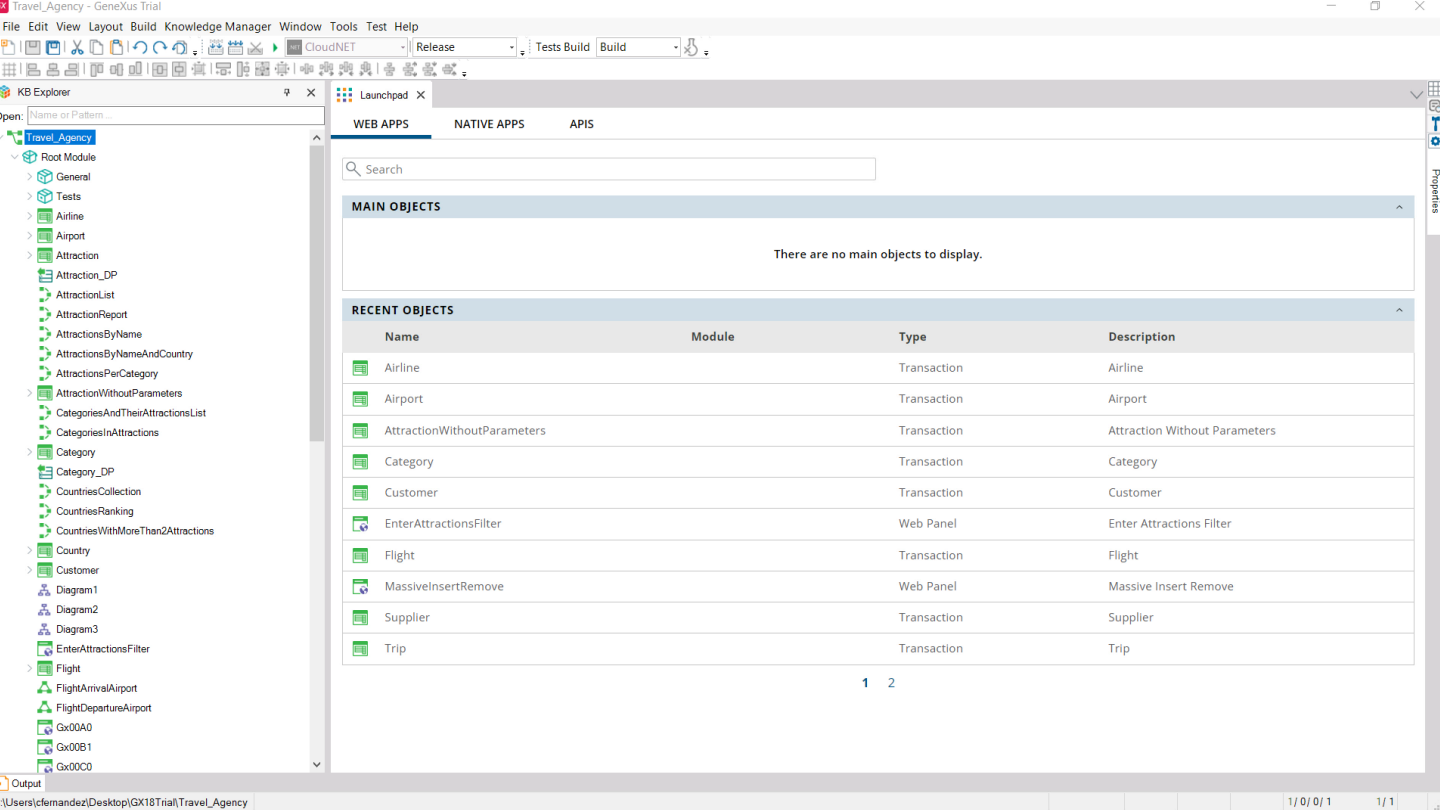
Introduction

GeneXus[™]



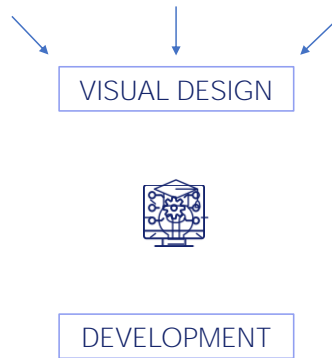
So far, we have focused only on the data model and behavior, and we have not been concerned at all with the visual design of the application.

We could say that we have been doing only development tasks.



Thus, we have created and developed a set of objects: some transactions, some lists, some web panels created automatically by applying the Work With pattern, and others that we created from scratch.

However, we don't have an organized application yet, and we haven't even started to envision it that way.

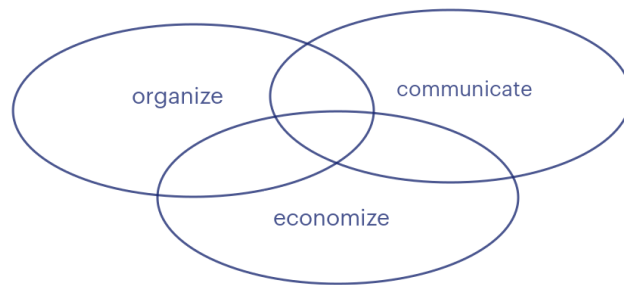


That is because we have been learning the basics of GeneXus, focusing on some parts, but, understandably, this is not the approach we will take when we start developing a real-life application.

UX DESIGN



DEVELOPMENT



In fact, the development of an application does not start with the development itself; it begins after a very important previous stage, which is the **user experience design**. There, the conceptual structure of the application as a whole is organized first. The objective is to obtain a product that meets the expectations of both the user and the business, and that communicates exactly what it should in the most effective and economical way possible.

UX DESIGN

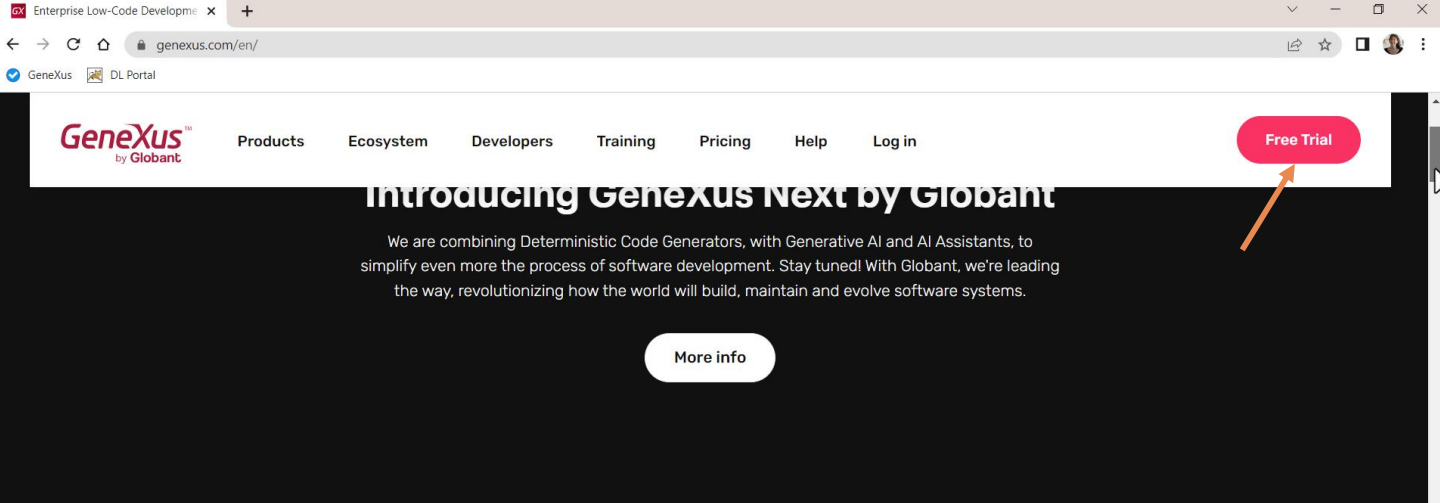


5	Surface	VISUAL DESIGN		
4	Skeleton	Interface design	Navigation design	Information design
3	Structure	Interaction design		Information architecture
2	Scope	Functional specification		Content requirements
1	Strategy	User needs & Business objectives		

DEVELOPMENT

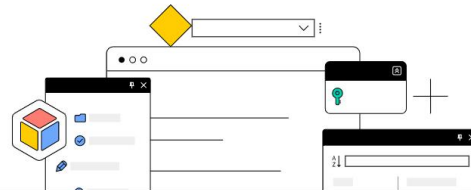
This includes the interface design as well as the navigation and information design. The visual design we see in the finished product is built on this organizational skeleton. Although we will not go into the details of this very important task here, we can realize that we will end up viewing the result of the foundations laid by these previous stages: each one is the basis for the next.

Only with the resulting surface stage will we have the visual design to start the actual development.



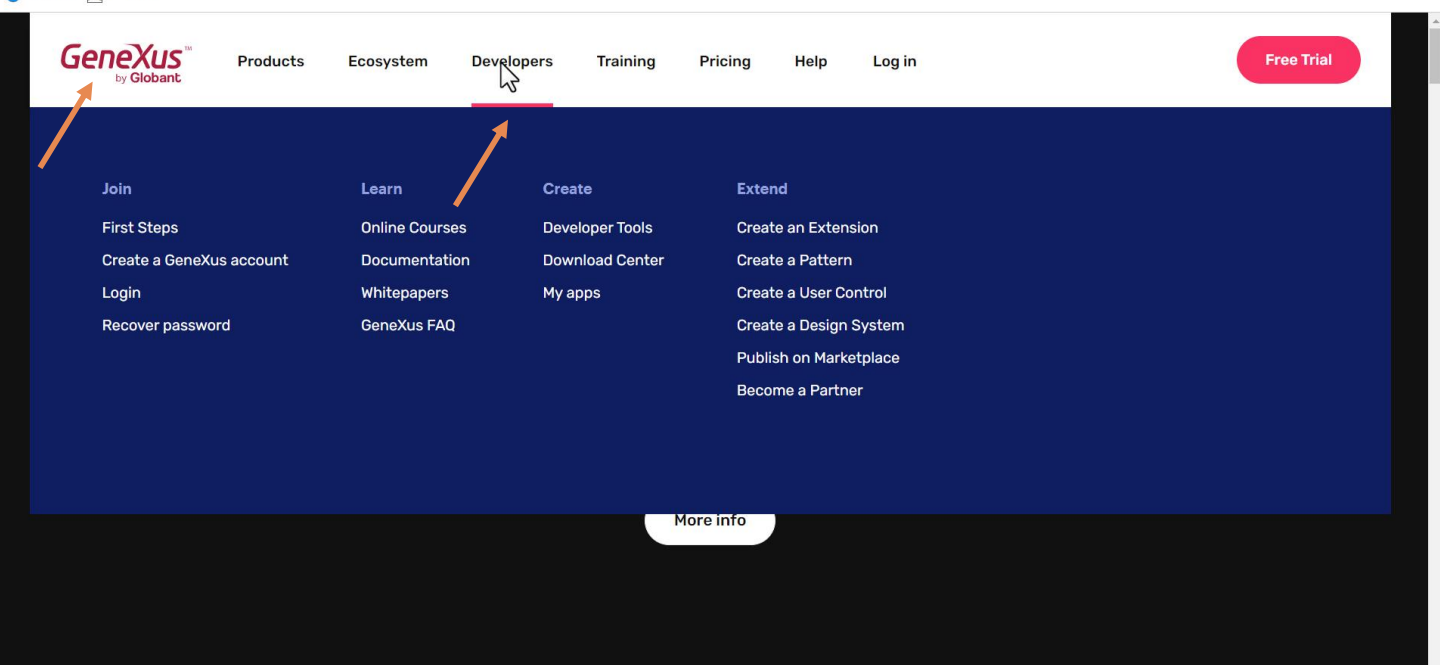
Eternal youth of your code

GeneXus is the Enterprise Low-Code Software Development Platform that provides the eternal youth of your code by leveraging the power of AI to automate and simplify the creation, evolution and maintenance of software solutions, in any given environment.

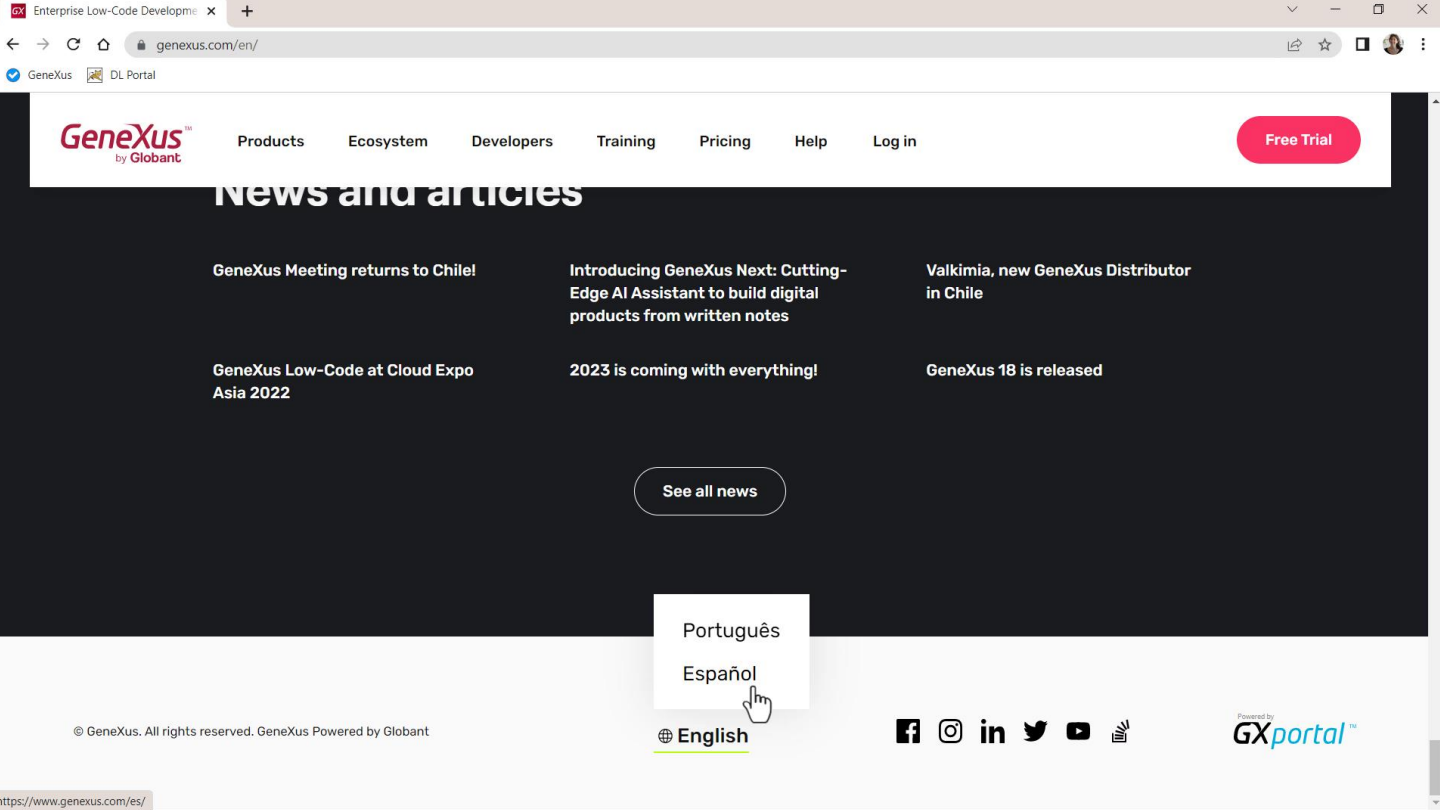


Looking at the GeneXus website we can quickly grasp the **User eXperience** decisions that were made when designing this web application: a basic principle is to achieve a good contrast, and here we see that it was done with white, black, gray, and red.

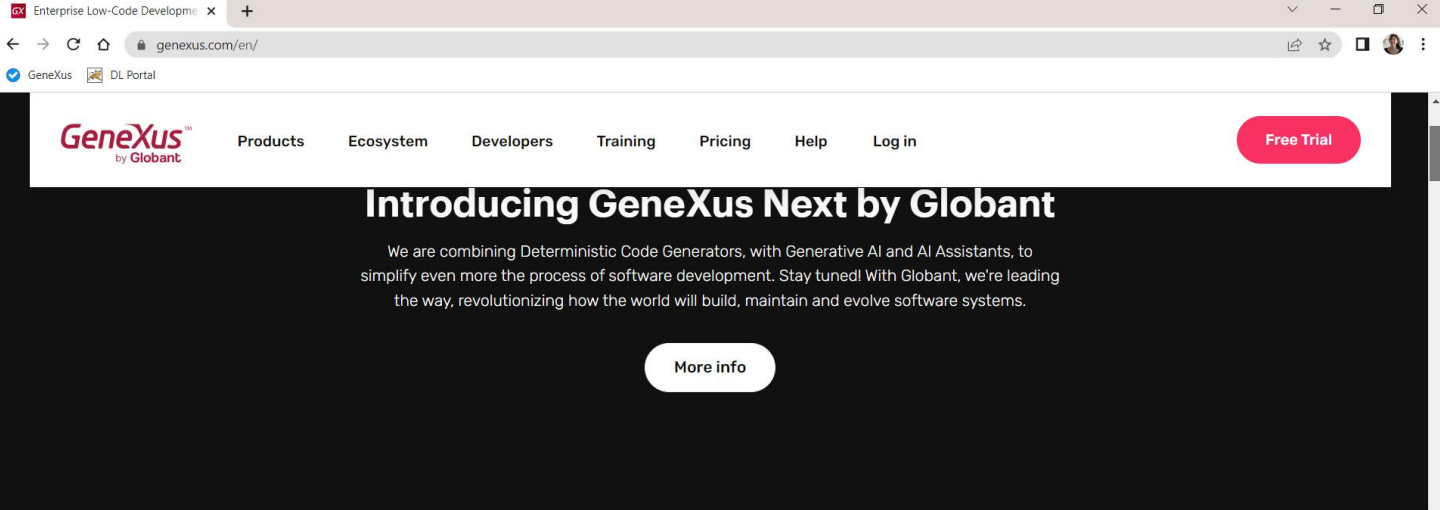
The most important actions that the user can do are shown as buttons, which have a consistent style and therefore can be easily recognized. Their color depends on the background (black or white), but clearly the main color for actions and highlights is this one.



In fact, if we look at the main navigation menu that will appear as a header on all pages, the submenus are displayed when going through the options and this is the color that indicates the active option, which looks similar to that of the company's brand.

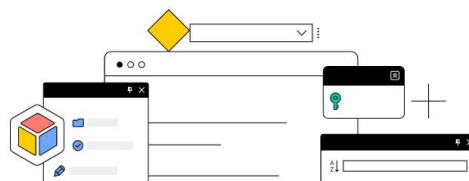


We can also see that there will be a footer repeated on all pages, which is where the language can be changed, following a convention that all internet users are familiar with: the language can be changed in the header or footer.



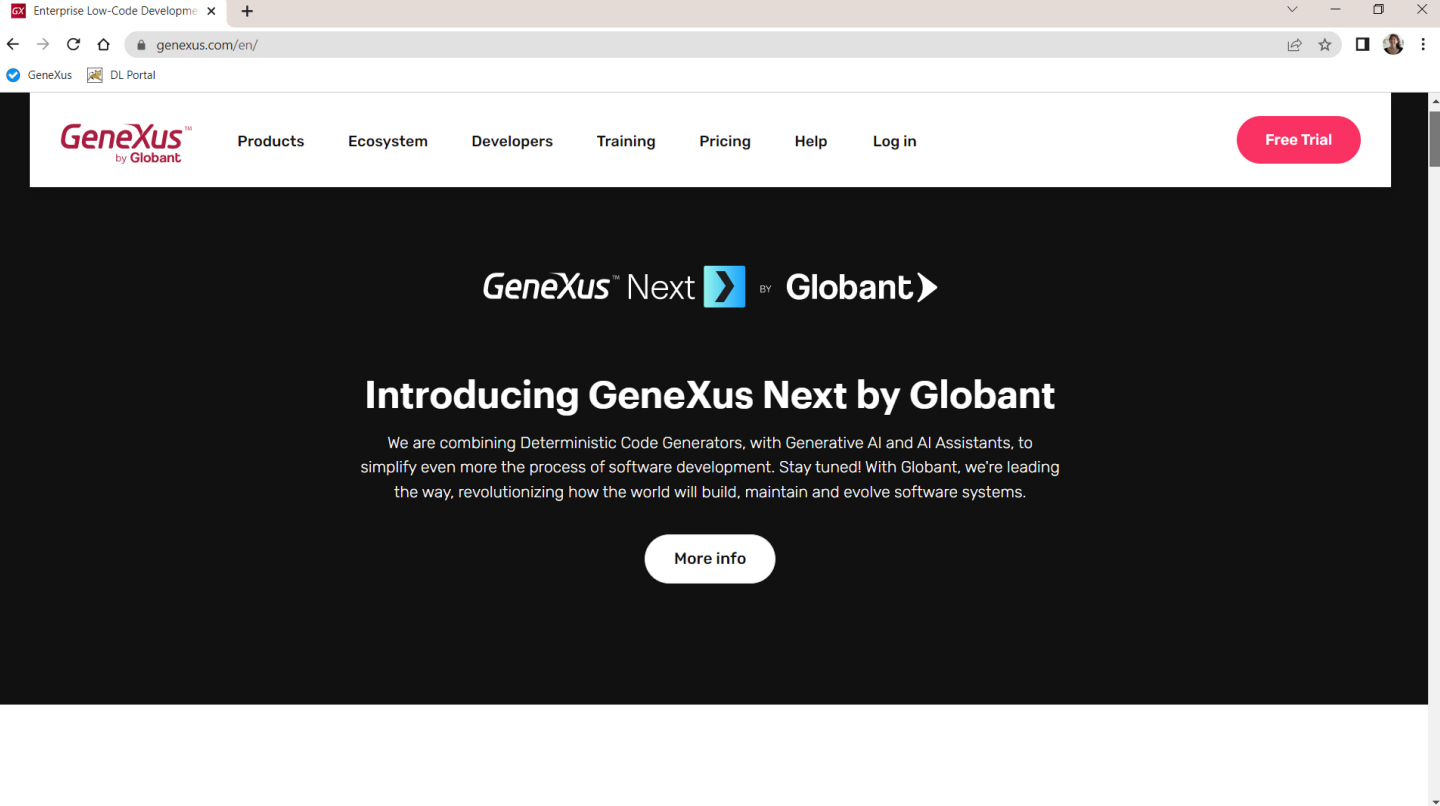
Eternal youth of your code

GeneXus is the Enterprise Low-Code Software Development Platform that provides the eternal youth of your code by leveraging the power of AI to automate and simplify the creation, evolution and maintenance of software solutions, in



Also, note that the font families are consistent, and that they are used in the same way: the same sizes for the titles, descriptions, and so on.

In addition, it is possible to indicate which information is related and must therefore be interpreted as a whole, based on how closely the controls are placed and the spacing in relation to the others, and by alternating the background color.

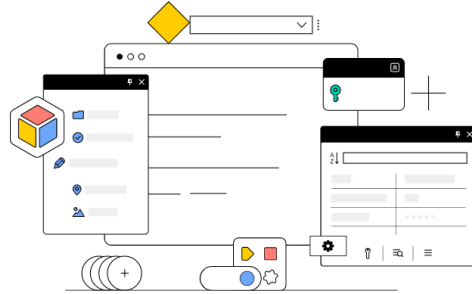


So, here we have the first set of information....

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Explore GeneXus



...here is another...

Enterprise Low-Code

GeneXus 18 is here!

Relive the event and access the content created by our experts to explain what's new in GeneXus 18.

Learn more



The future is coming, be prepared.

... and another one with a light gray background, and so on.

Enterprise Low-Code Developme x +

genexus.com/en/

GeneXus DL Portal


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Companies

These are some testimonials of the more than 9,000 companies in 50 countries that decided to embrace digital transformation and prepare for the future with GeneXus Low-Code platform.




#GeneXusStories

Manuel Esquivel

Head of Applications and Systems Development at Mitta

[Watch video](#)




#GeneXusStories

Raúl G. Hinojosa

CIO Worls Express Cargo México

[Watch video](#)



#GeneXusStories

Julio González

Deputy Systems Manager at Fondo Esperanza

[Watch video](#)

If we look down here, we see that this all corresponds to a block of related information, with this repetitive pattern indicating that there are 3 subunits of information that are at the same level.

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Leading customer satisfaction


[Read success stories →](#)



"Fast and robust solutions to address the new way of working"

★★★★☆


4.5/5



"The ease to evolve to new technologies is one of the unique advantages of GeneXus".

★★★★☆

4.5/5



"It's very flexible and supports a wide range of programming languages"

★★★★☆

4.7/5

<https://www.capterra.com/p/158074/GeneXus/>

Here we see another block where the user will infer a little bit the same as before. There are cognitive patterns that every user will recognize.

Enterprise Low-Code Developme x +

genexus.com/en/

GeneXus DL Portal

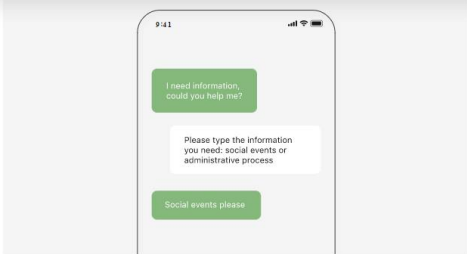
GeneXus™
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Go Live!

Use an Agile methodology for development and pair it with DevOps Services like Testing, Continuous Integration, Continuous Delivery, Containers for Deployment and Monitoring Services.

Achieve continuous integration and delivery across platforms, apps and experiences.



9:41

I need information, could you help me?

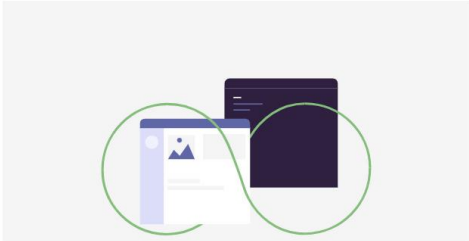
Please type the information you need: social events or administrative process

Social events please

Start again

Evolve and Maintain

Evolve and maintain your modeled applications and experiences and let GeneXus automatically refactor every technical aspect of it, to respond quicker to changes.

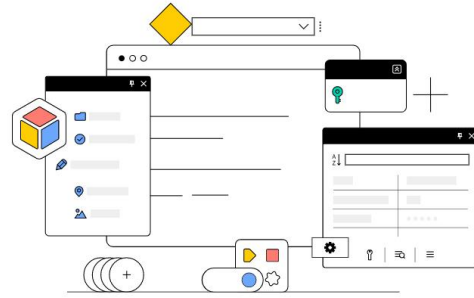


For example, let's look at another one: here we find another block of information, where blocks of information alternate with text on the left, an image, and then the same two things but inverted, to alternate again. Clearly this is a narrative block of information.

Eternal youth of your code

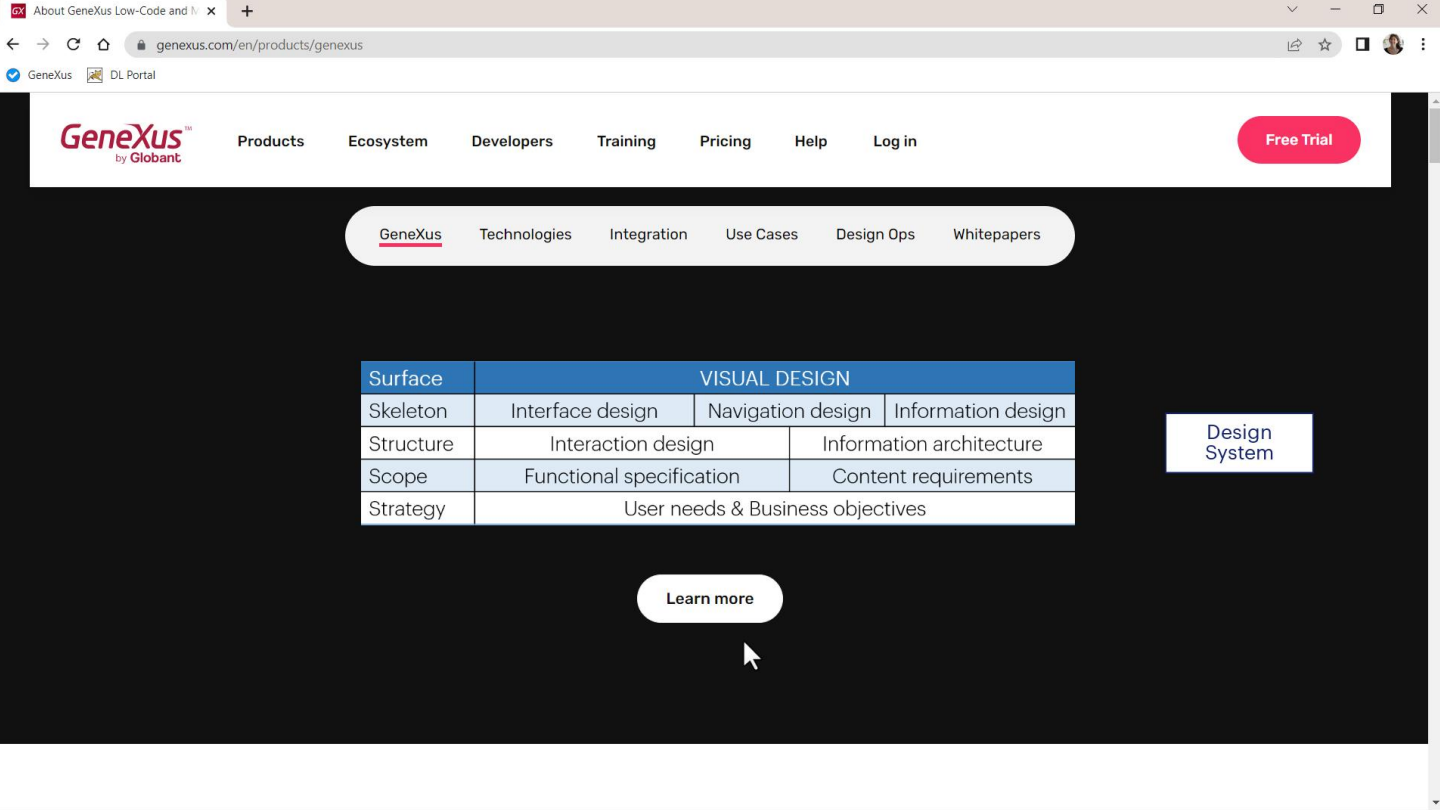
GeneXus is the Enterprise Low-Code Software Development Platform that provides the eternal youth of your code by leveraging the power of AI to automate and simplify the creation, evolution and maintenance of software solutions, in any given environment.

Explore GeneXus



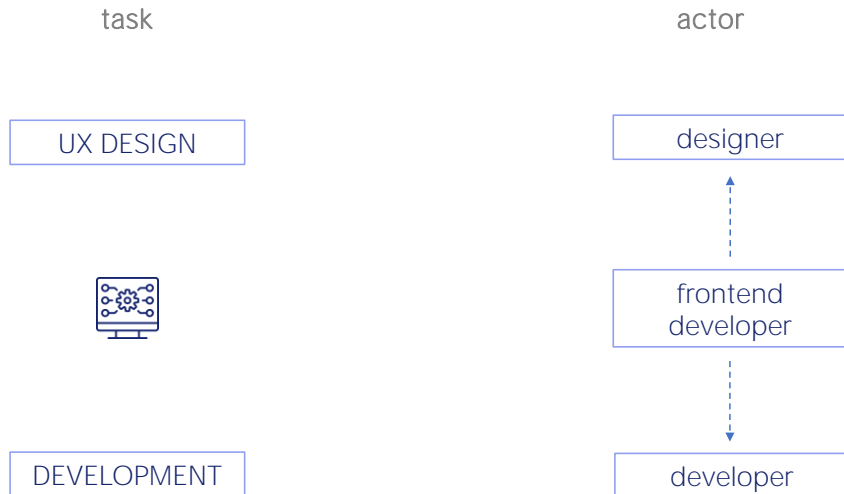
alignment
spacing
proximity
repetition
contrast

Therefore, alignment, spacing, and grouping of controls will be essential and we must know how to implement them in a layout.



Everything **we've** analyzed corresponds to both the design skeleton and to the visual design itself, where the choices of colors, fonts, and so on are materialized.

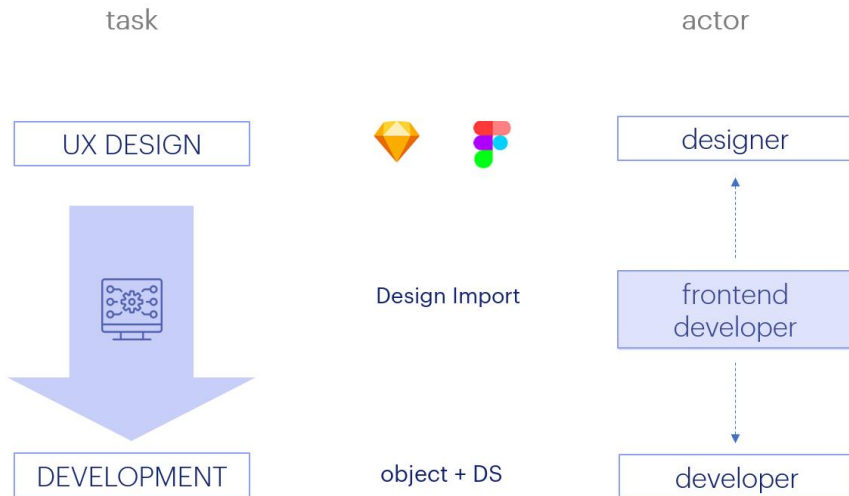
Behind a given design there is a number of fairly abstract decisions aimed at providing standardization, consistency, and ease of use. We speak of Design Systems because the design of an application or family of applications works as an interrelated system.



Until now, we have focused on a single role—the developer—who is in charge of development.

But if we look at this new task, that of user experience design, we find another role that takes the lead in this stage: the designer. He/she usually makes decisions such as the ones we have seen in the example regarding the specification of the Design System.

We would be missing the intermediary role that is the frontend developer, who is in charge of the effective and specific implementation of the design IN the application. In this case, in GeneXus using the tools provided by GeneXus to work with Design Systems.



Since we only want to see an introduction here, we will not address the ways to directly import into GeneXus the design created by the designer in his/her preferred tool, but we say that this is possible: the designer designs the screens with a tool such as Sketch or Figma and the frontend developer imports it into GeneXus, which will automatically build the objects with all the design incorporated. There the frontend developer will have minimal work to do.

DESIGN SYSTEM

UNANIMO

What we will do next is to see how GeneXus already provides a default Design System that we can customize: Unanimo.

Attractions Countries

trialapps3.genexus.com/Id6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

GeneXus DL Portal

Application Name

UNANIMO










Attractions

Countries

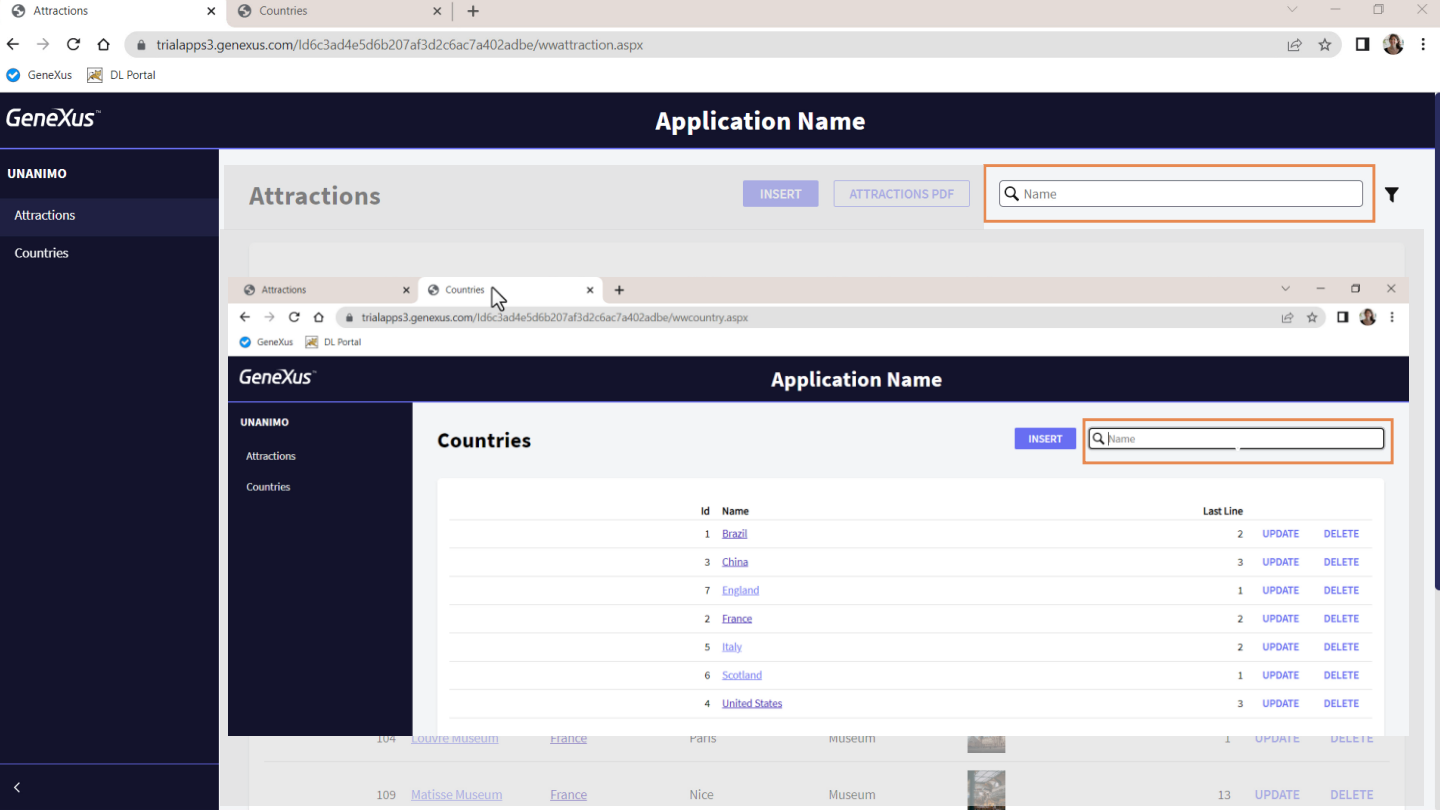
Attractions

INSERT ATTRACTIONS PDF

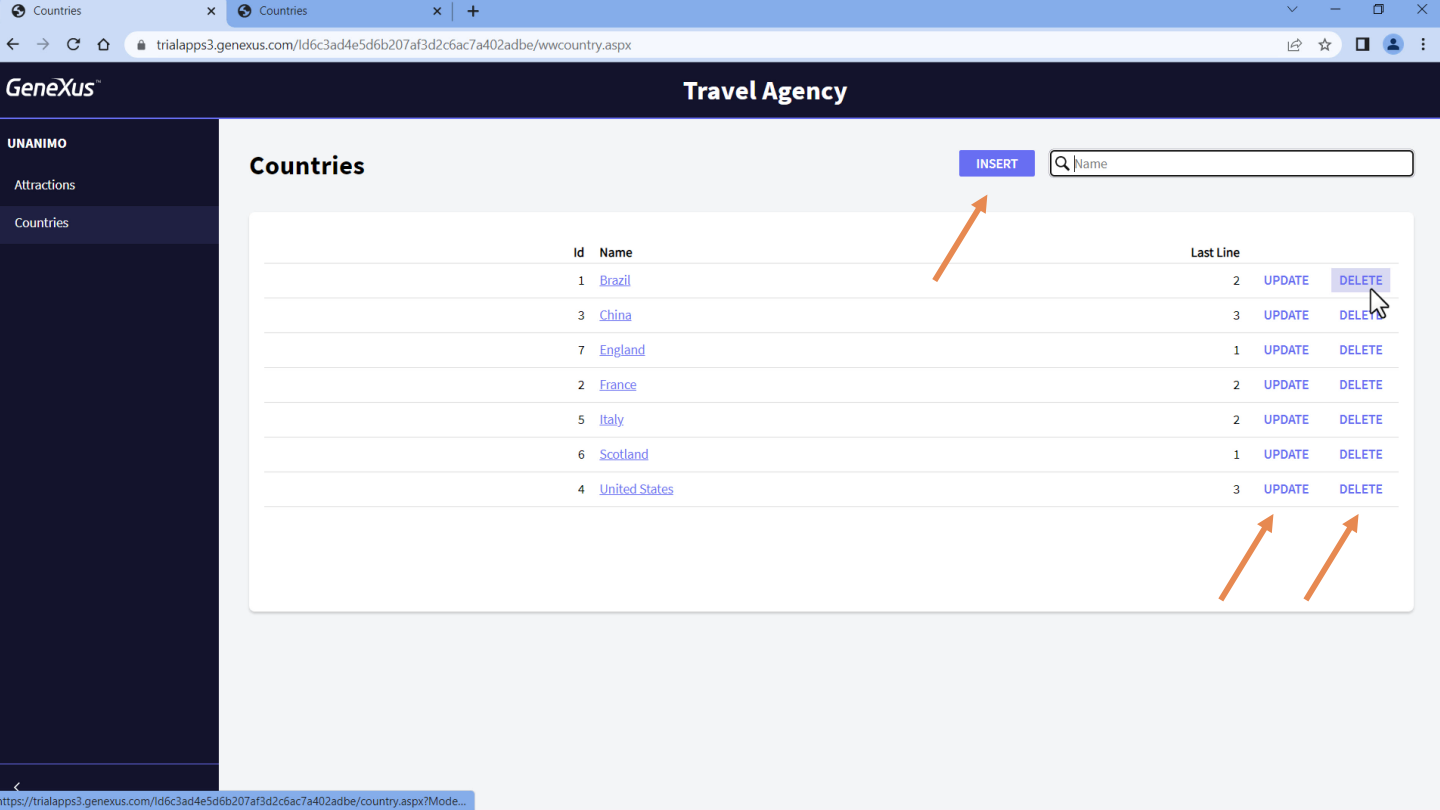
Q Name

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
106	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

We have seen it in action all the time; for example, let's take a close look at the running Work With. In the central area of the page, there is information from the attractions Web panel created by the pattern, with uniform criteria in relation to the countries Work With.



Note, for example, that in both cases a search field is available, where information is filtered by name: here for attractions... and here for countries. Both fields look identical, and they behave in the same way.



We can also notice another similarity: in both screens the same actions are offered to insert, update, and delete, with the same appearance.

Attractions Countries

trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

Travel Agency

UNANIMO

Attractions

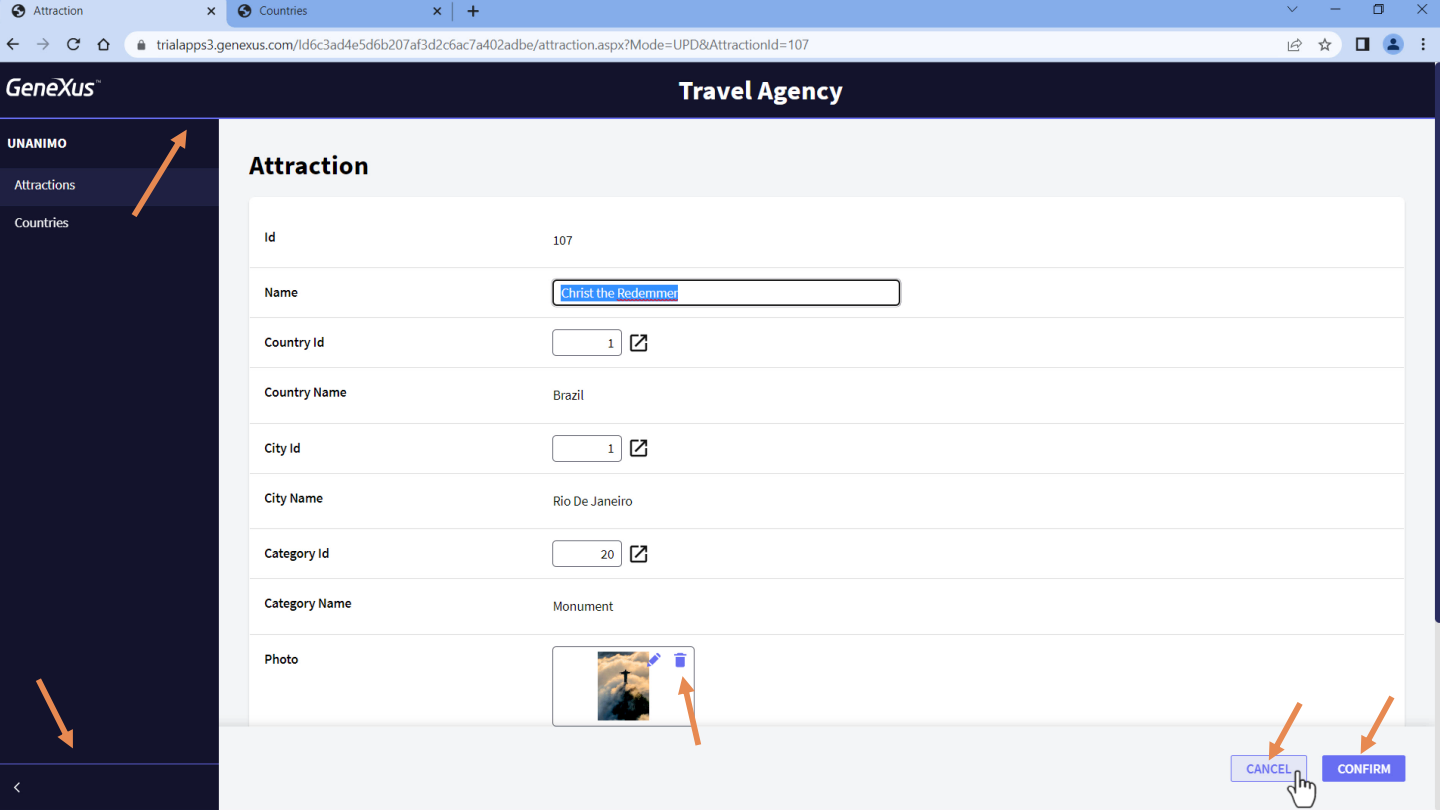
Countries

Attractions

[INSERT](#) [ATTRACTIONS PDF](#)

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
106	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

Here we see the same 3 actions, and we had also added another one, outside the grid, to invoke a PDF list. However, note that it is less highlighted than the Insert button. It is a more subtle button. That is a design decision.



If we go to the transaction to update this attraction we can also see that the Confirm button is the relevant one, and the Cancel button is more subtle.

The actions are displayed with a predominant color, which is also used for other things.

Christ the Redemmer x Countries x | +

trialapps3.genexus.com/Id6c3ad4e5d6b207af3d2c6ac7a402adbe/viewattraction.aspx?AttractionId=107&TabCode=

GeneXus™ Travel Agency

UNANIMO

Attractions

Countries


< ATTRACTIONS

Christ the Redemmer

General Supplier Trip

Id	107
Name	Christ the Redemmer
Country Id	1
Country Name	Brazil
City Id	1
City Name	Rio De Janeiro
Category Id	20
Category Name	Monument

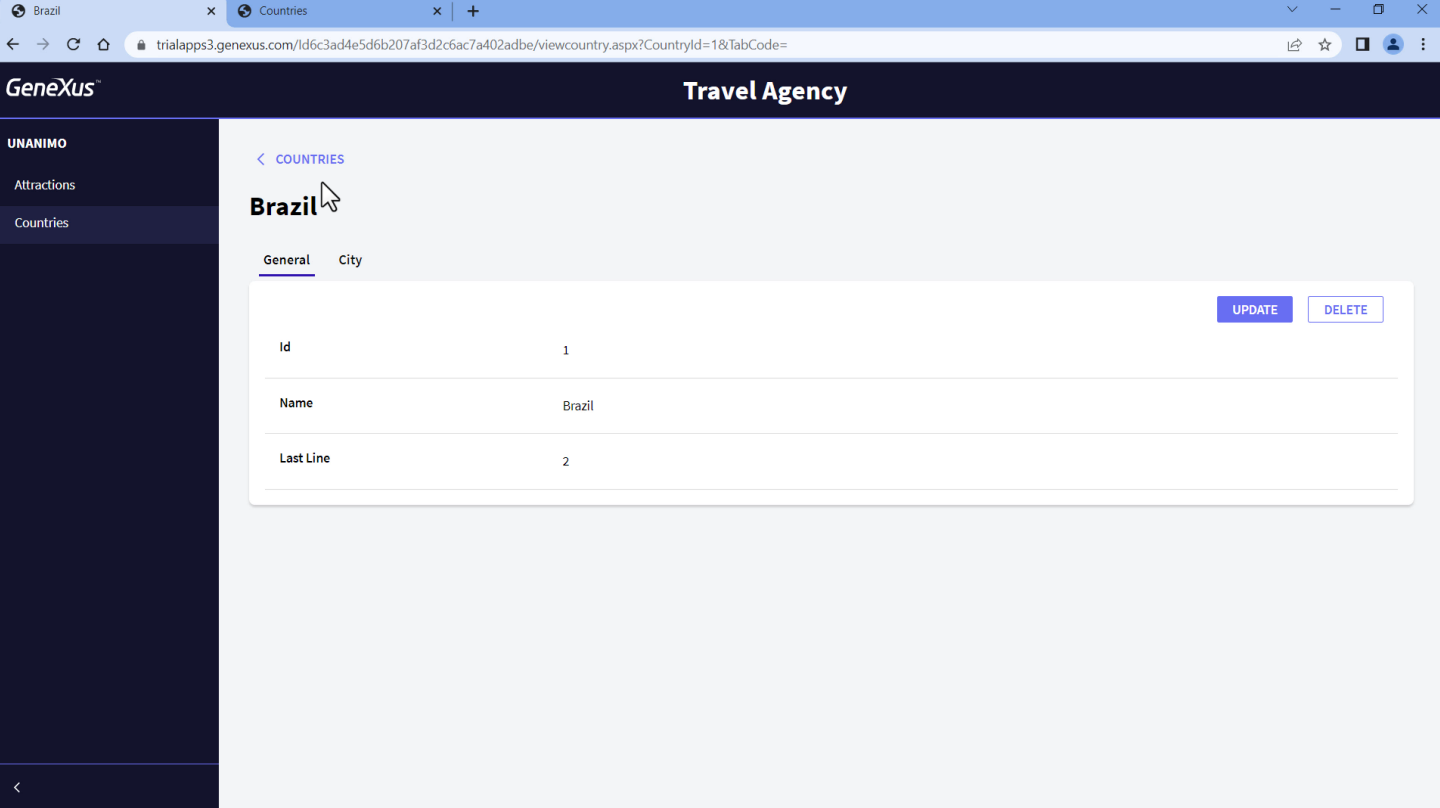
UPDATE DELETE



Address

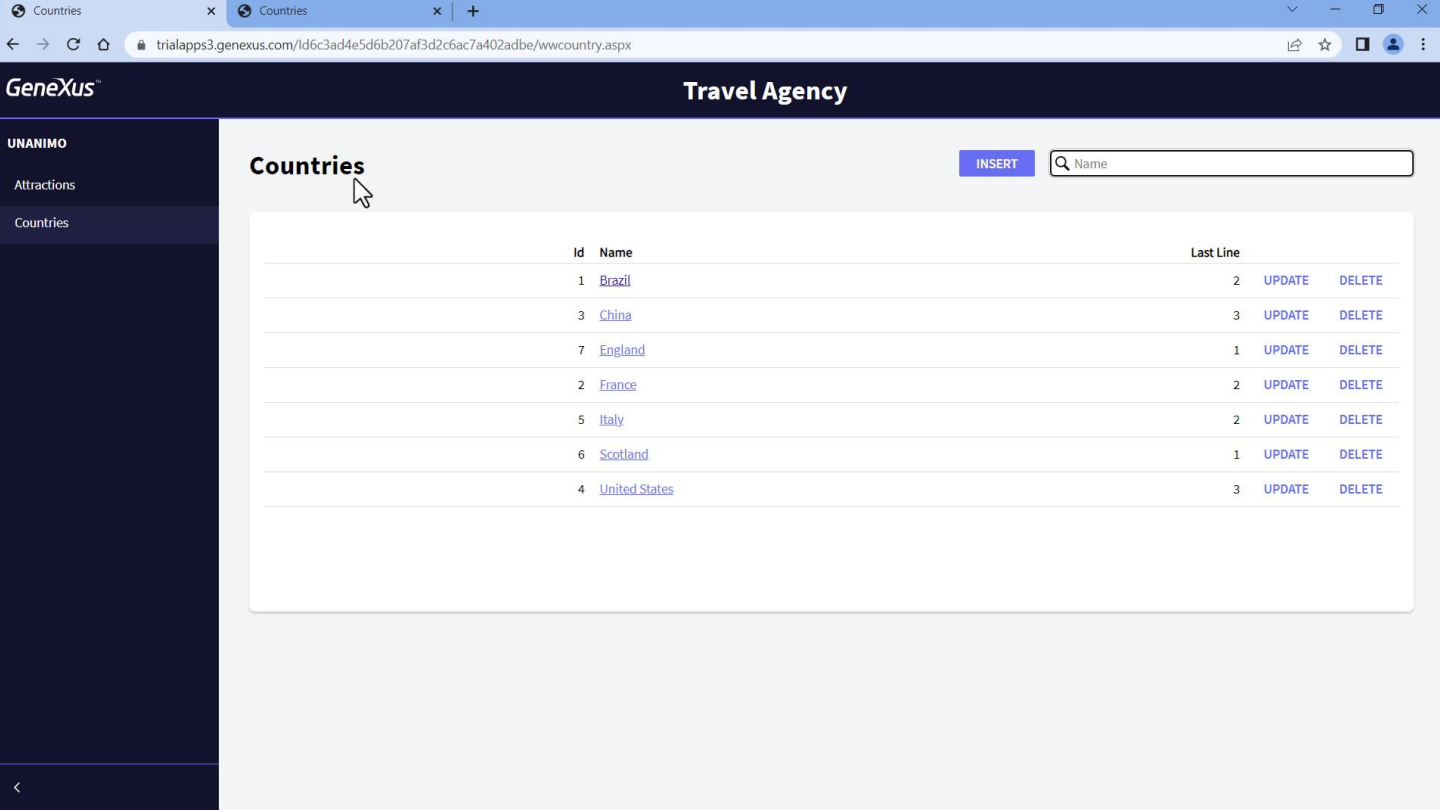
https://trialapps3.genexus.com/Id6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

Now let's notice that when we navigate deeper and choose to see one of the attractions, it offers the option to go back to the parent.



And this navigation is also a consistent pattern. Throughout the application we will expect this pattern of returning to the screen from which we arrived at the current one.

Now let's notice that all screens have text that clearly indicates where we are. Here we are in Brazil's information screen. Let's take a look at its appearance.



Here we are in Countries, with the same appearance.

Attractions x Countries x +

trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

GeneXus™ Travel Agency

UNANIMO

Attractions

Countries

Attractions

INSERT ATTRACTIONS PDF

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
106	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

https://trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/attraction.aspx?Mo...

Here in Attractions. And if we choose to update one...

Attraction x Countries x +

trialapps3.genexus.com/Id6c3ad4e5d6b207af3d2c6ac7a402adbe/attraction.aspx?Mode=UPD&AttractionId=107

GeneXus™ Travel Agency

UNANIMO

Attractions

Countries

Attraction

Id	107
Name	<input type="text" value="Christ the Redeemer"/>
Country Id	<input type="text" value="1"/>
Country Name	Brazil
City Id	<input type="text" value="1"/>
City Name	Rio De Janeiro
Category Id	<input type="text" value="20"/>
Category Name	Monument
Photo	

CANCEL CONFIRM

...here we are in the Attraction transaction.

The question that comes up: where has the appearance of these texts been defined (that is, their font, font size, color)? And so, what if we want to change it, for example, to red? How do we go about it?

The screenshot shows a software development environment with a web layout editor. The main workspace displays a table with columns for various attributes of an attraction, such as ID, Name, Country, City, and Category. An orange arrow points from the 'Attraction' header in the table to the 'Class' property in the 'Appearance' section of the Properties panel on the right. The Properties panel shows the 'Class' property set to 'heading-01'.

Control Name	Title
Caption	Attraction
On Click Event	
Return On Click	False

Appearance	
Class	heading-01
Format	Text
Tooltip Text	

Cell information	
Cell Control Name	
Cell Class	
Horizontal Alignment	Default
Vertical Alignment	Default

Row information	
Row Height	
Row Class	

Class	
Theme class for the attribute.	

Let's edit the transaction layout, and let's see the text block that implements the text that we see at runtime. If we look at its properties this one appears: Class. The class with this name has been associated with it. It is here, in this class, where most of the design properties will be defined.

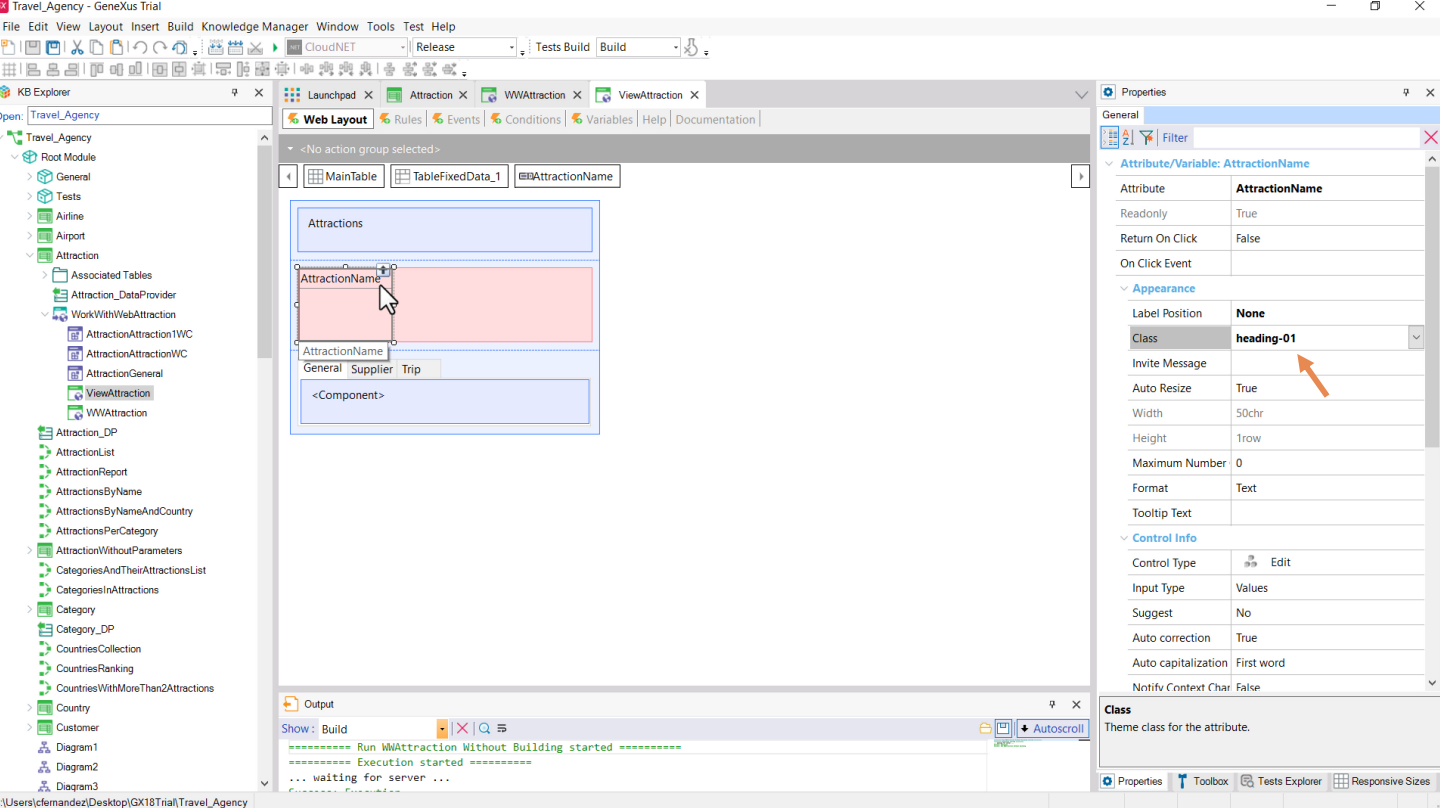
The screenshot shows the DevExpress Web Layout Designer interface. The main workspace displays a table with the following columns: Id, Name, Country Name, City Name, Category Name, Photo, Trips, &trips, &Update, and &Delete. The table is rendered within a grid control. Above the table, there is a title block with the text "Attractions" and a search filter. The Properties panel on the right shows the configuration for the selected "TitleText" control. The "Appearance" section is expanded, showing the "Class" property set to "heading-01" and the "Cell information" section showing the "Cell Class" property set to "ww_title-cell".

Id	Name	Country Name	City Name	Category Name	Photo	Trips	&trips	&Update	&Delete
AttractionId	AttractionName	CountryName	CityName	CategoryName					

Properties Panel (textblock: TitleText):

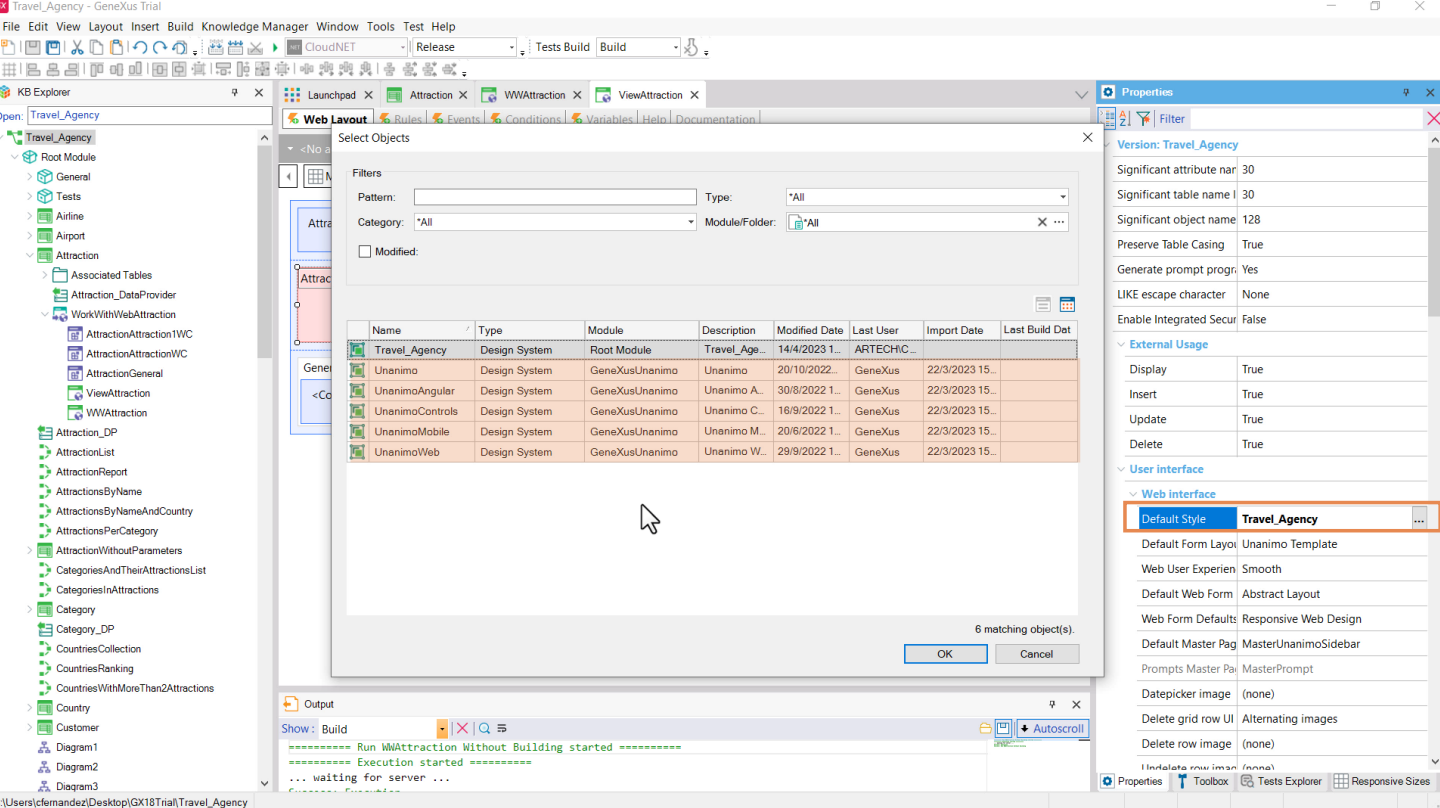
- Control Name: TitleText
- Caption: Attractions
- On Click Event:
- Return On Click: False
- Appearance:
 - Class: heading-01
 - Format: Text
 - Tooltip Text:
- Cell information:
 - Cell Control Name:
 - Cell Class: ww_title-cell
 - Horizontal Alignment: Default
 - Vertical Alignment: Default
- Layout Behavior:
 - Flex Grow: 1
 - Flex Shrink: 1
 - Align Self: Auto
 - Width:
 - Height:
 - Min Width:
 - Min Height:
- Class: Theme class for the attribute.

If we go to see the text in the attractions Work With, it is also a text block control, which also has the same class assigned to it. It also has a class assigned for the cell where the control is located in the table. For now, we will not pay attention to it.



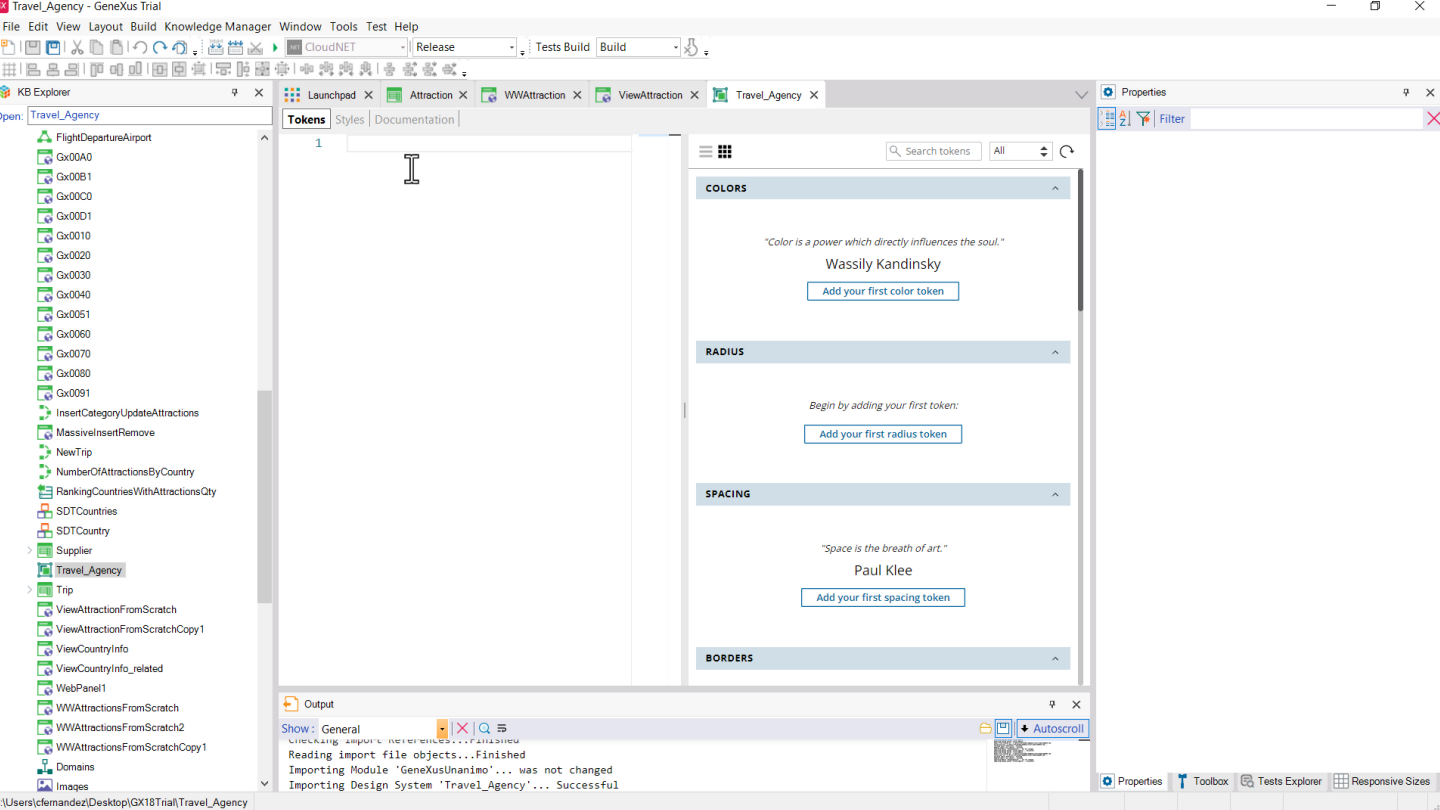
If we now see the view of an attraction, it is the `AttractionName` attribute control that marks the page where we are, and it is not a coincidence that it has this class associated with it.

The question now is this: where are the style definitions of that class located?

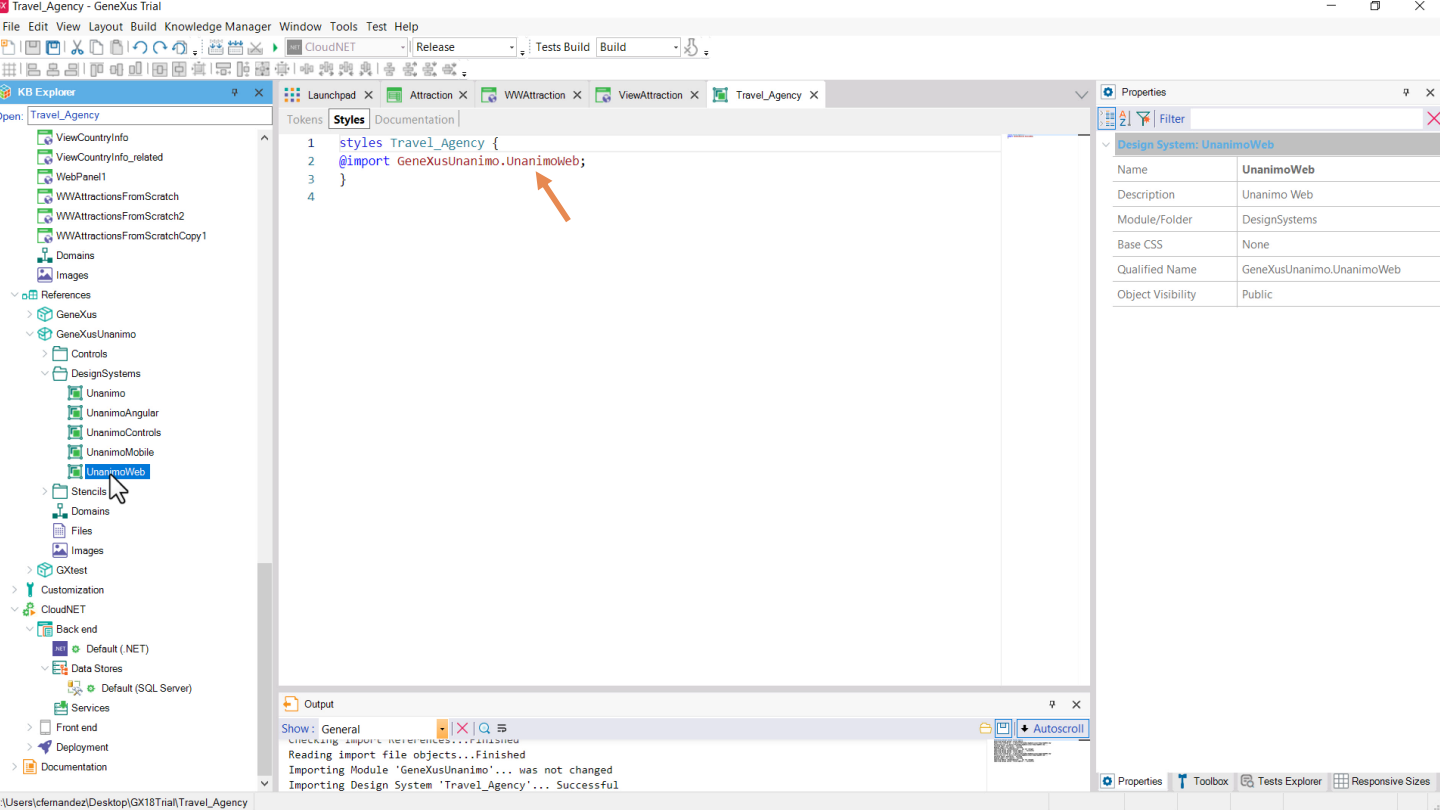


If we go to see the properties of the version of the KB we are working with, among them we see one, Default Style. It has an associated object, which happens to have the same name as the KB. When we open the window to make a selection, we see that the types of objects of the KB that could be specified here are of the Design System type. In our KB we have one that is created by default in the root module, and that we can modify: it is the default one, precisely. In addition, there are these other ones in the GeneXusUnanimo module that come by default in every KB we create, and will be read-only objects: that is to say, they can be used but not modified.

Let's look for our default object, the Design System that will govern most of the design of the controls and layouts of our KB. We open it.

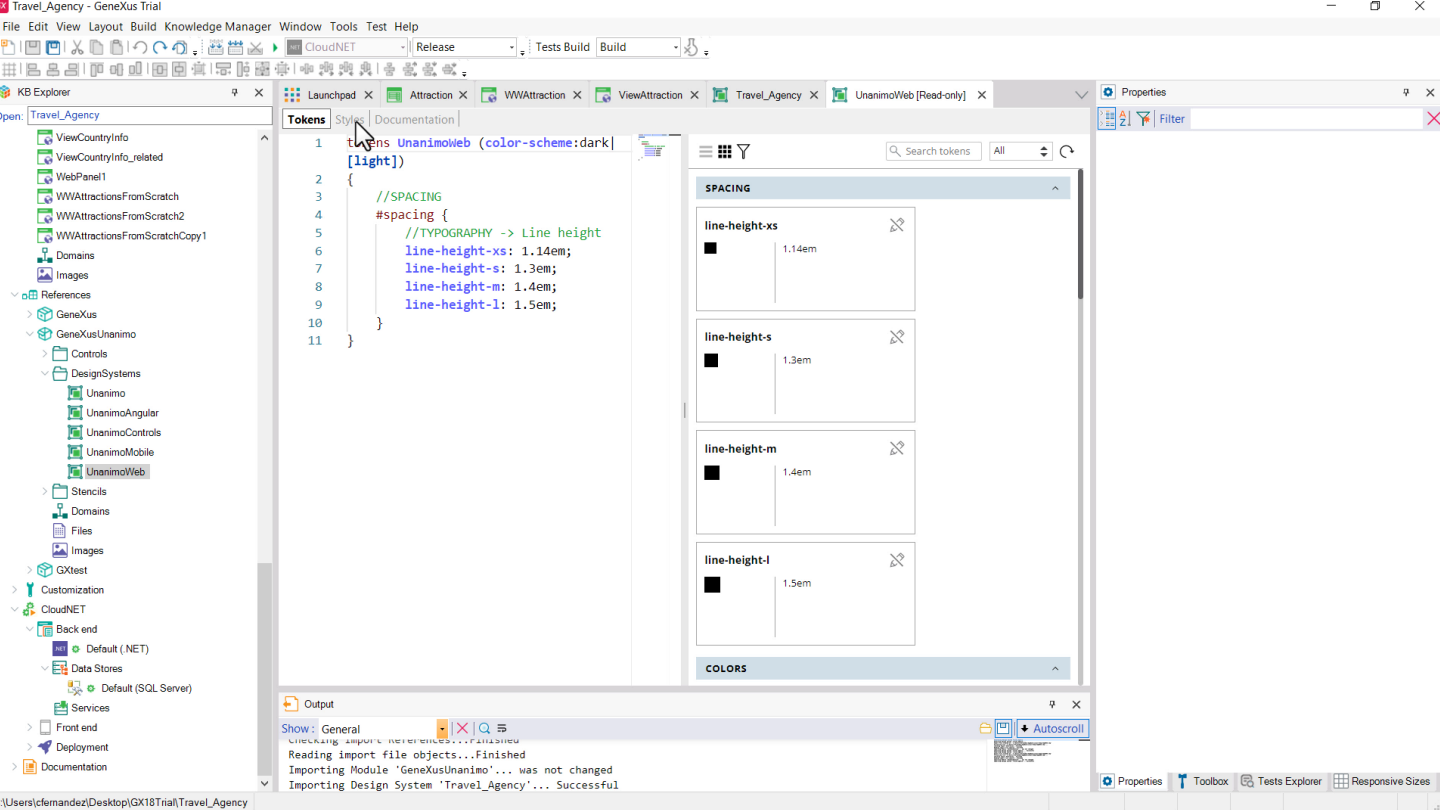


We have this Tokens tab, and later we will see what it is used for...



...and this other one, Styles, which is the most relevant one. It seems to be empty, but it is not. Note that it is asking to import everything that comes from this other Design System object, which is one of the Design System objects that come with every KB and that implement the Unanimo Design System.

It can be found in the GeneXusUnanimo module, under the References node.



Here the Tokens section is no longer empty.

The screenshot shows a development environment with a code editor and a class hierarchy diagram. The code editor displays the following styles for the 'Unanimoweb' class:

```

1 styles Unanimoweb
2 {
3   @import GeneXusUnanimoweb.Unanimoweb;
4   @import GeneXusUnanimoweb.UnanimowebControls;
5
6   #region GENERAL
7     //hide submit button in iPhone/iPad
8     input [title="submit"] [disabled] {
9       -webkit-appearance: none;
10    }
11    html, body {
12      background-color: $colors.alt-surface !important;
13      margin: 0px;
14      font-family: $fonts.primary-regular,Helvetica,Arial,sans-serif;
15      font-size: $fontSizes.s;
16      line-height: 1.42857143; //bootstrap-based value
17      height: 100%;
18      scrollbar-width: thin;
19      scrollbar-color: $colors.secondary-active $colors.gray01;
20    }
21    1 reference
22    .MainContainer {
23      padding-right: 15px;
24      padding-left: 15px;
25      margin-right: auto;
26      margin-left: auto;
27    }
28    0 references
29    .gx-ajax-error {
30      width: 100%;
31      background-color: $colors.error-light;

```

The class hierarchy diagram on the right shows the following structure:

```

graph TD
    Travel_Agency --> Unanimoweb
    Unanimoweb --> Unanimoweb
    Unanimoweb --> UnanimowebControls
    Unanimoweb --> Unanimoweb

```

An arrow points from the text "heading-01 class?" to the 'Travel_Agency' box in the diagram.

And the styles section is much less so. This is where the classes that are later associated with the controls are defined. We see that this DSO (Design System Object) is not starting from scratch either. It is importing all the definitions of these two. Therefore, we have the DSO of our KB built from this DSO tree.

We are looking for the characteristics of the heading-01 class....

Travel_Agency - GeneXus Trial

File Edit View Layout Build Knowledge Manager Window Tools Test Help

CloudNET Release Tests Build Build

KB Explorer

Travel_Agency

- ViewCountryInfo
- ViewCountryInfo_related
- WebPanel1
- WWAttractionsFromScratch
- WWAttractionsFromScratch2
- WWAttractionsFromScratchCopy1
- Domains
- Images
- References
- GeneXus
- GeneXusUnanimo
 - Controls
 - DesignSystems
 - Unanimo
 - UnanimoAngular
 - UnanimoControls
 - UnanimoMobile
 - UnanimoWeb
 - Stencils
 - Domains
 - Files
 - Images
 - GXtest
 - Customization
 - CloudNET
 - Back end
 - Default (.NET)
 - Data Stores
 - Default (SQL Server)
 - Services
 - Front end
 - Deployment
 - Documentation

Tokens Styles Documentation

```

83      gx-button-disabled-clas
84    }
85
86    //BUTTON ROUNDED
87    .Button.Rounded {
88      @include button-rounded;
89      gx-button-hovered-class: button-rounded--hover;
90      gx-button-focused-class: button-rounded--focused;
91      gx-button-highlighted-class: button-rounded--active;
92      gx-button-disabled-class: button-rounded--disabled;
93    }
94    #endregion
95
96    #region Textblock
97      0 references
98      .heading-01 {
99        display: inline-block;
100       font-family: $fonts.primary-bold;
101       font-size: $fontSizes.xl;
102       color: $colors.on-background;
103       letter-spacing: 0.25px;
104       line-height: 32px;
105     }
106     .heading-02 {
107       @include heading-01;
108       font-size: $fontSizes.l;
109       letter-spacing: 0.6px;
110       line-height: 18px;
111     }
  
```

Output

Show: General

Checking import references... Finished

Reading import file objects... Finished

Importing Module 'GeneXusUnanimo'... was not changed

Importing Design System 'Travel_Agency'... Successful

Properties

Filter

heading-01 class → UnanimoWeb

```

graph TD
    Travel_Agency --> UnanimoWeb
    UnanimoWeb --> Unanimo
    UnanimoWeb --> UnanimoControls
  
```

Properties

Toolbox

Tests Explorer

Responsive Sizes

\\Users\cfernandez\Desktop\GX18Trial\Travel_Agency

...so we can search for it by pressing Ctrl + F. Classes are selected with a period. Here we find it.

The screenshot shows a development environment with a code editor and a dependency diagram. The code editor displays the following CSS and markup:

```

83 }
84 }
85
86 //BUTTON ROUNDED
87 .Button.Rounded {
88     @include button-rounded;
89     gx-button-hovered-class: button-rounded--hover;
90     gx-button-focused-class: button-rounded--focused;
91     gx-button-highlighted-class: button-rounded--active;
92     gx-button-disabled-class: button-rounded--disabled;
93 }
94 #endregion
95
96 #region Textblock
97
98     0 references
99     heading-01 {
100         display: inline-block;
101         font-family: $fonts.primary-bold;
102         font-size: $fontSizes.xl;
103         color: $colors.on-background;
104         letter-spacing: 0.25px;
105         line-height: 32px;
106     }
107
108     0 references
109     heading-02 {
110         @include heading-01;
111         font-size: $fontSizes.l;
112         letter-spacing: 0.6px;
113         line-height: 18px;
114     }
115
116 }

```

The dependency diagram on the right shows a hierarchy:

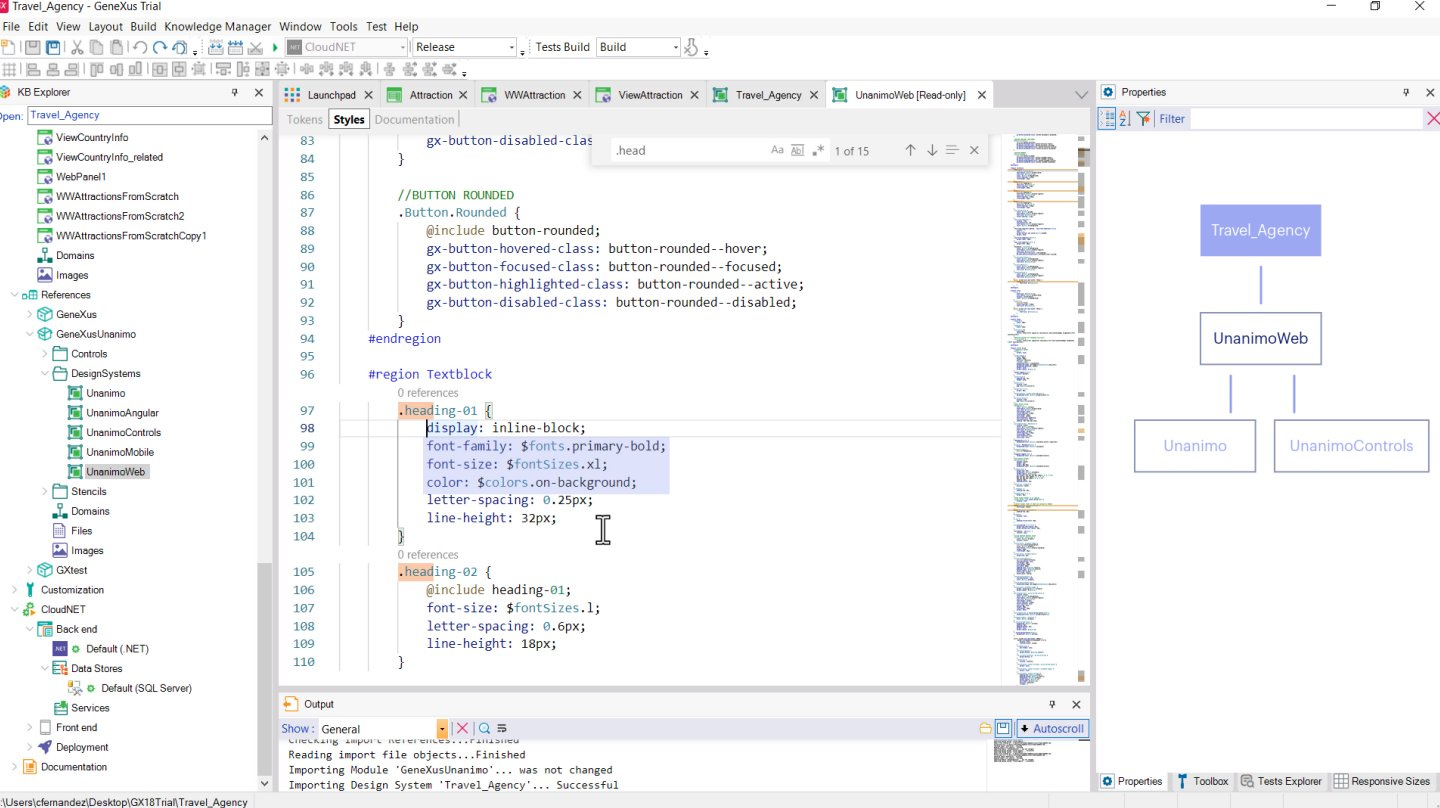
```

graph TD
    Travel_Agency --> Unanimoweb
    Unanimoweb --> Unanimoweb
    Unanimoweb --> Unanimoweb

```

Arrows in the image indicate that the 'heading-01 class' in the code is linked to the 'Unanimoweb' node in the diagram.

Before going on, let's review what we were doing: the textblock or attribute controls of web panels and transactions whose function was to show a title on each screen to indicate where we are had this associated class. These web panels and transactions have a Design System object defined by default. It is that of the KB, so they will look for the class properties there. But for now this object does not have its own classes. It only has the ones imported from this DSO. It is as if they were copied. That is why we look for them here.



Let's look at the properties it has configured. They include the font family, font size, and color. What do the dollar signs before fonts, fontSizes, and colors mean? They are references to **tokens**. And what are tokens? Names given to values. In programming, we call them constants. For example, let's analyze the color property. We are indicating that the color will be taken from the value of the color constant named "on-background." Where should we look for it? In the Tokens tab.

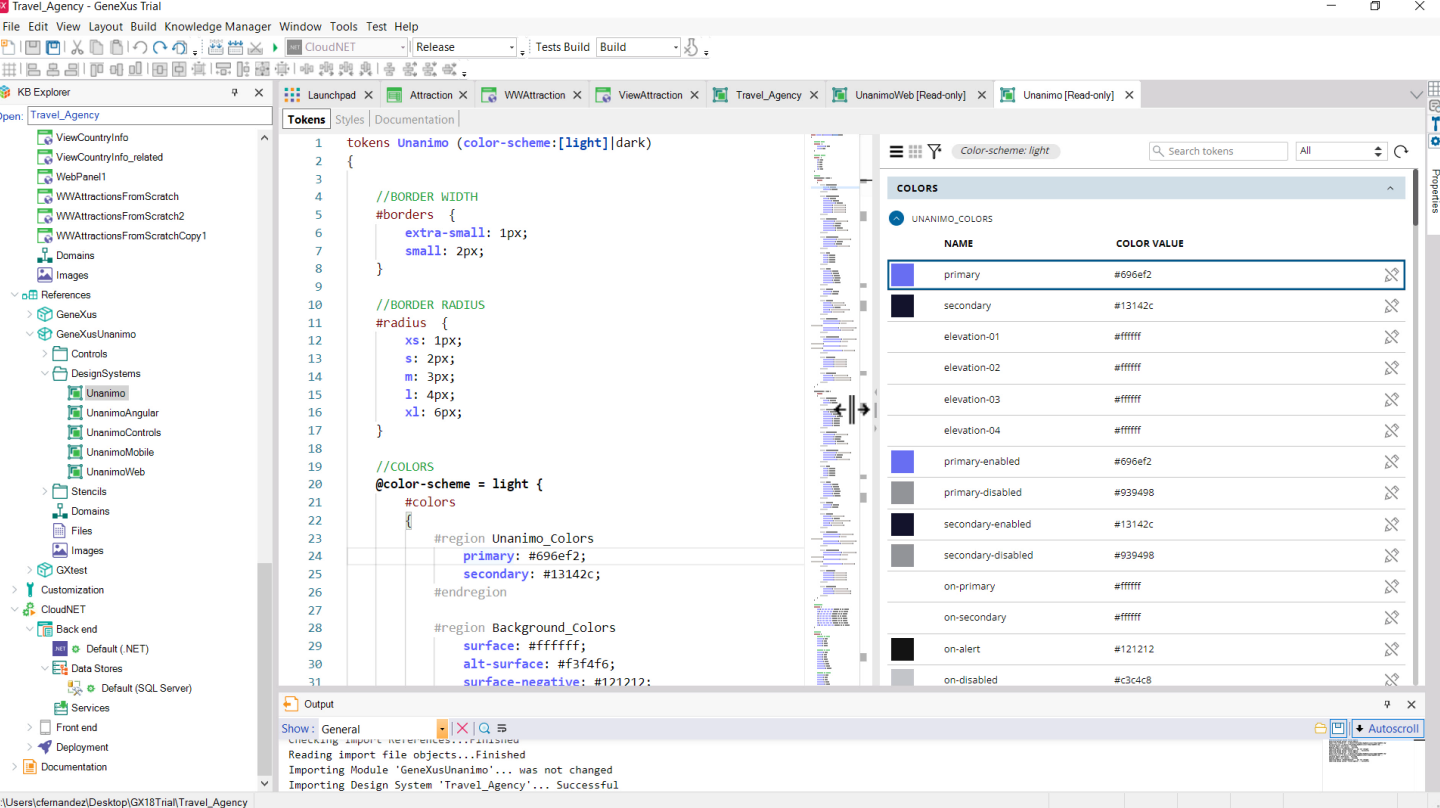
```
tokens Unanimoweb (color-scheme:dark|
[light])
{
  //SPACING
  #spacing {
    //TYPOGRAPHY -> Line height
    line-height-xs: 1.14em;
    line-height-s: 1.3em;
    line-height-m: 1.4em;
    line-height-l: 1.5em;
  }
}
```

Output

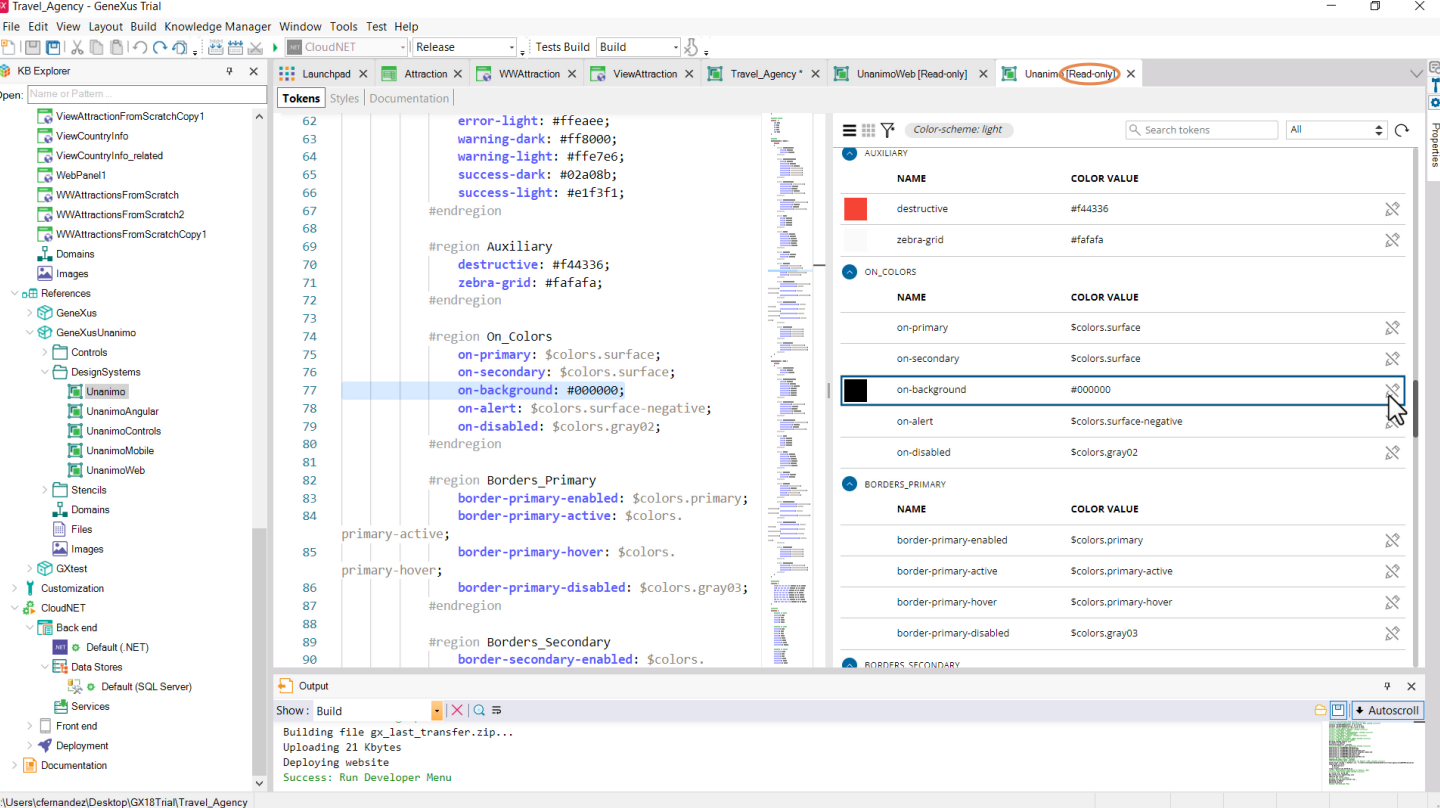
```
Show: General
Checking import references...Finished
Reading import file objects...Finished
Importing Module 'GeneXusUnanimoweb'... was not changed
Importing Design System 'Travel_Agency'... Successful
```

But it is not here! So?

Oh, that's right, this DSO is importing two others. Among those that matter are the tokens. Let's look for our color token in one of those two DSOs, because it will have to be in one of them.



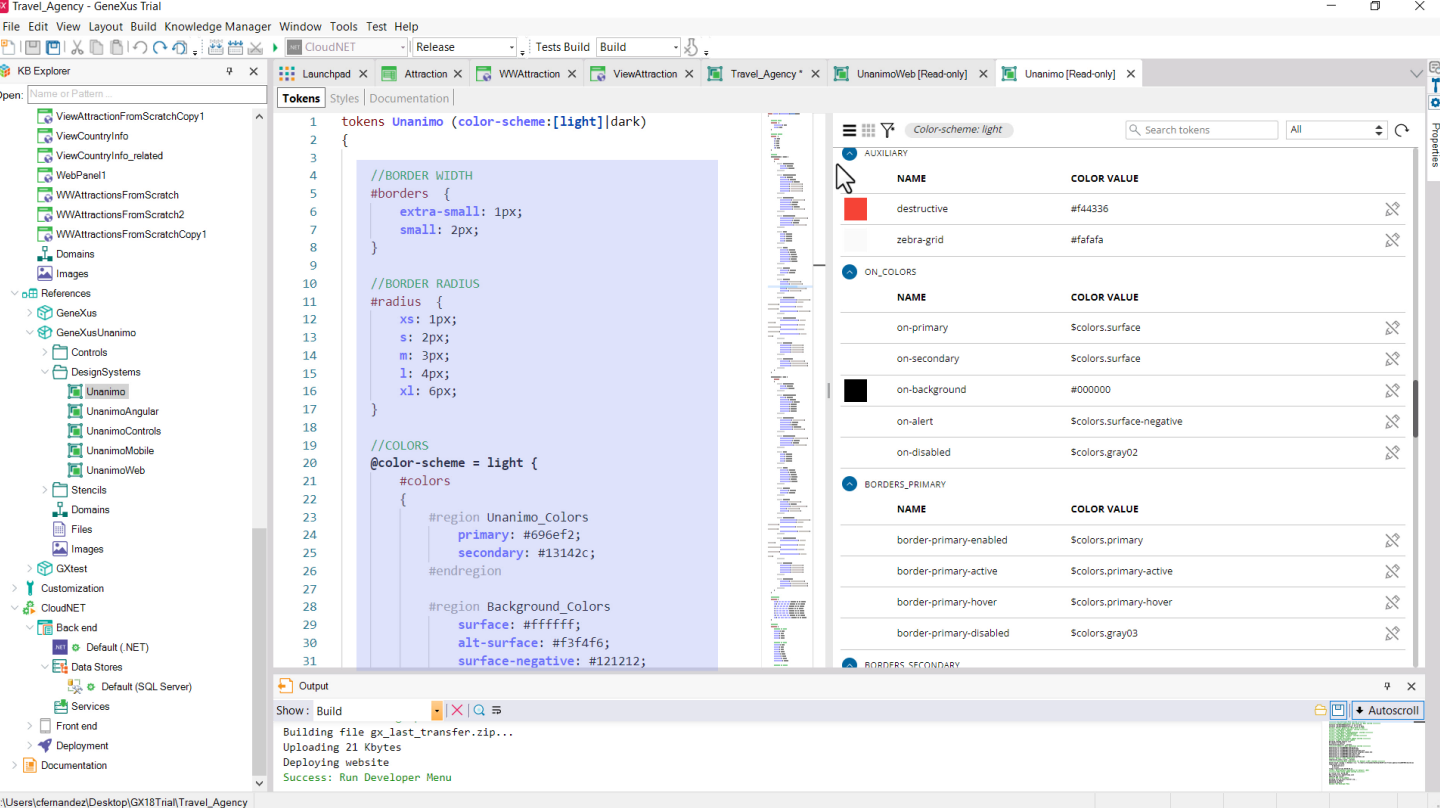
Here the Tokens tab appears very crowded. It is possible that here we will find what we are looking for. Let's see that the editor is double. And so, if we select this color token, the one named "primary," in the graphical editor on the right we see a color that on the left is defined with a hexadecimal value. This color looks familiar, doesn't it? It is the one we have seen repeatedly in the actions and buttons. It has not been named "primary" just for the sake of it.



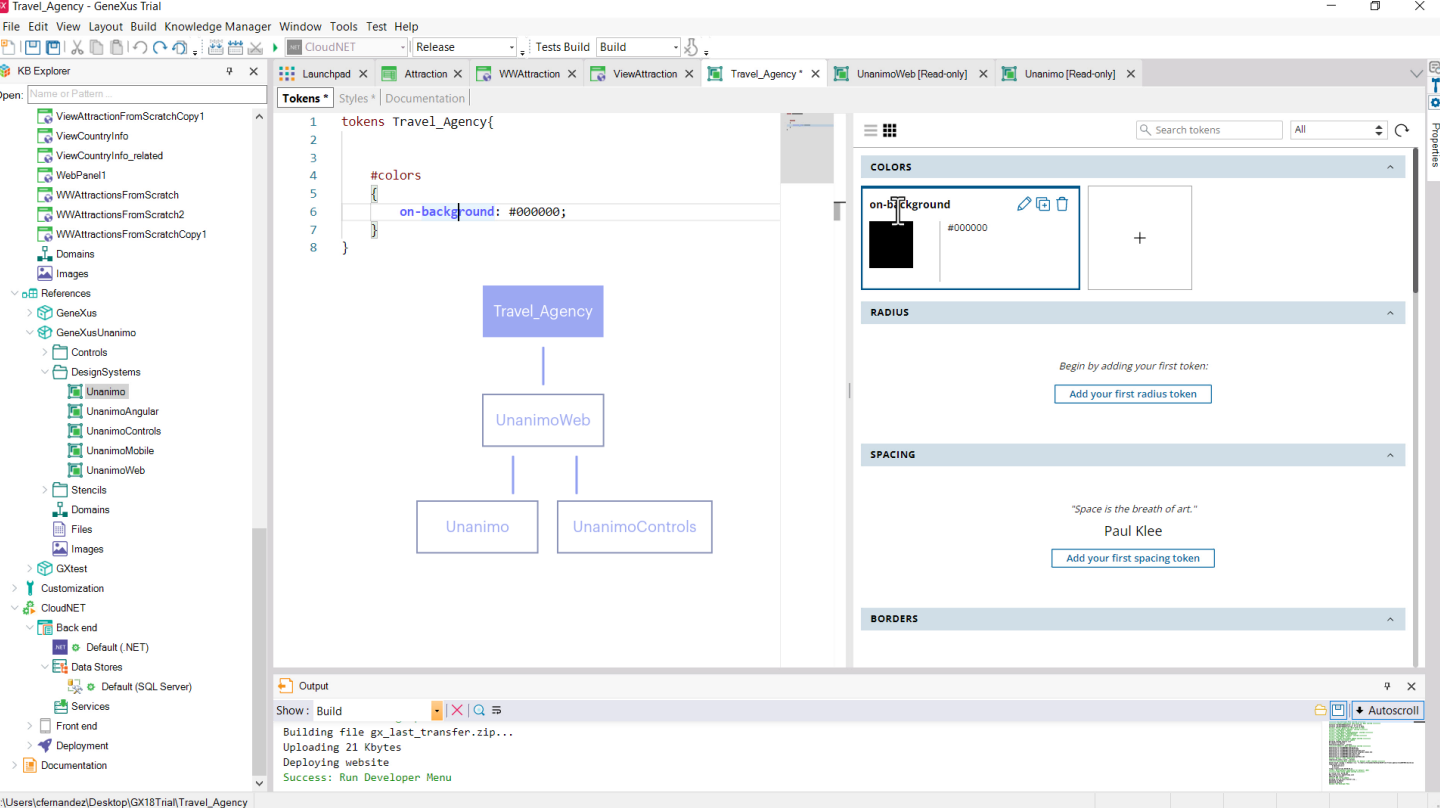
The one we are looking for is the color token named “on-background.” If the token was given a semantically clear name, we can assume it is the color that will be used to contrast against the background. Here we have it.

What happens if we change the value of the token, so that it goes from black to red? Supposedly, with that we will be able to change the color of the texts that we were interested in, those of the heading_01 class. **Let's** try it.

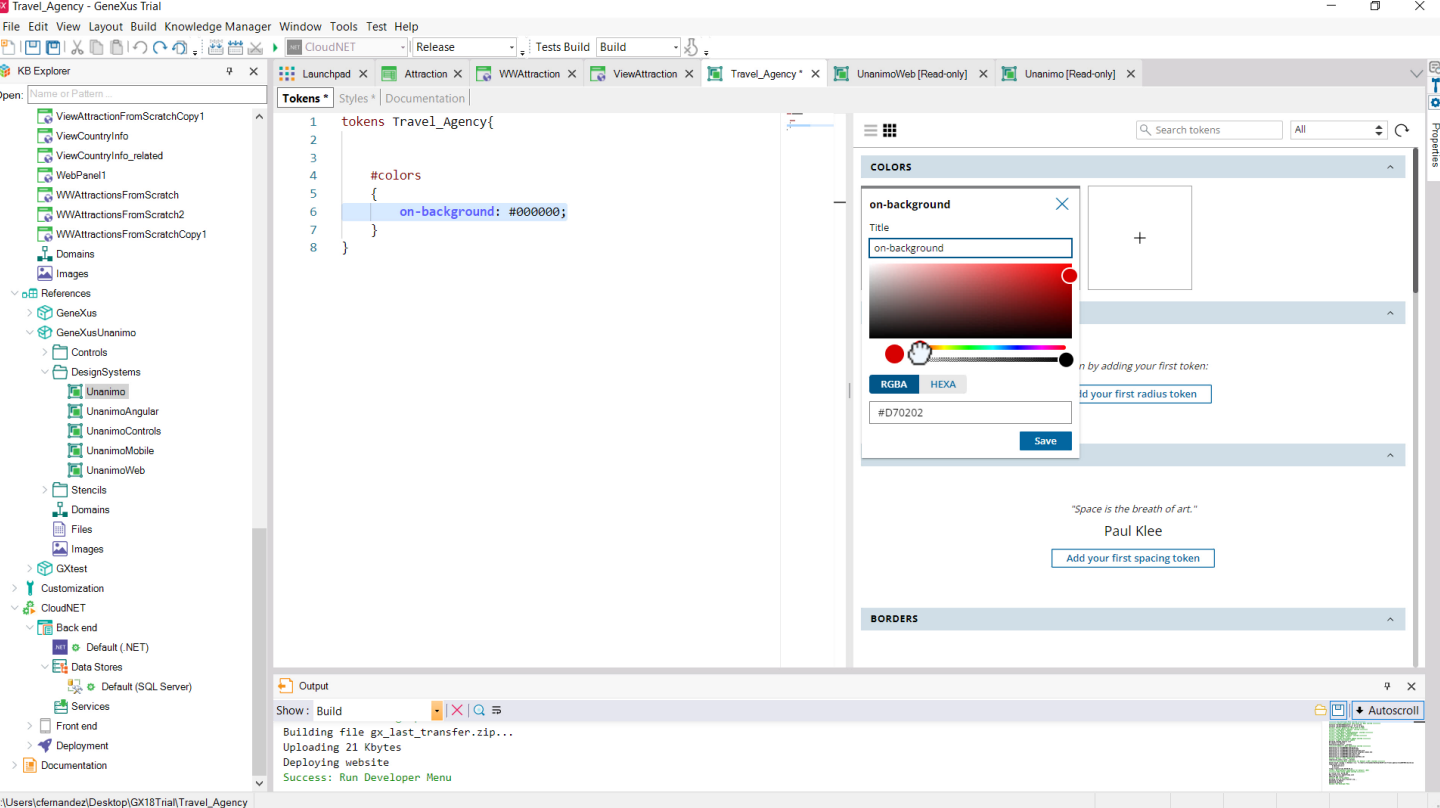
We want to modify its value, but we do not have the change enabled. The reason is that this object is read-only. So, this customization will have to be done in our Design System object, that of our application. Let's copy the definition of the token.



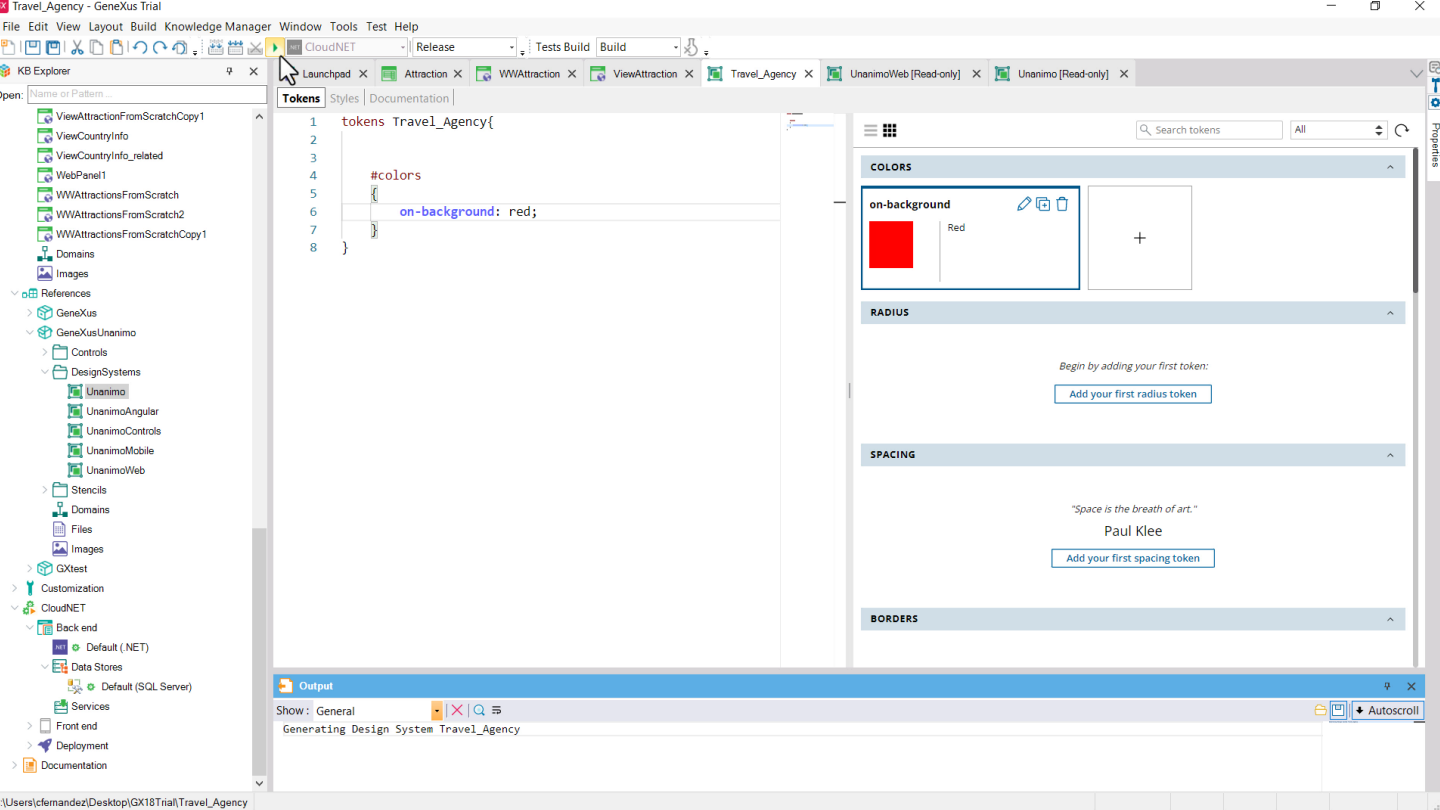
Note that tokens are specified within a set of all the tokens of the object. We will not go into details about the light and dark options here. We will only say that the token definitions can vary according to these parameters.



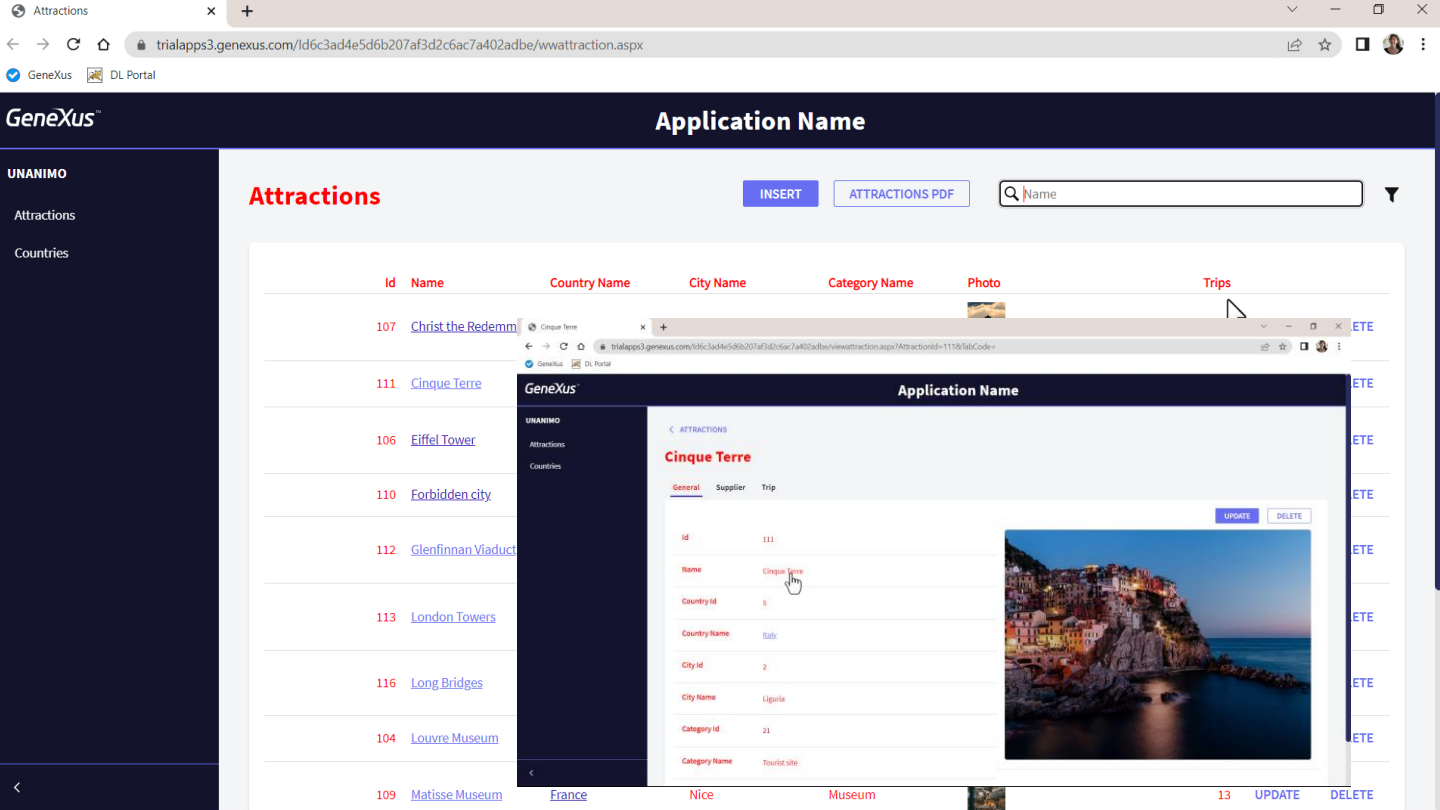
Therefore, in the Tokens tab of our Design System object we define the set following the syntax. What we do is simply overwrite the color token that will be imported along with all the others of the DSO that in turn imports those of the other ones.



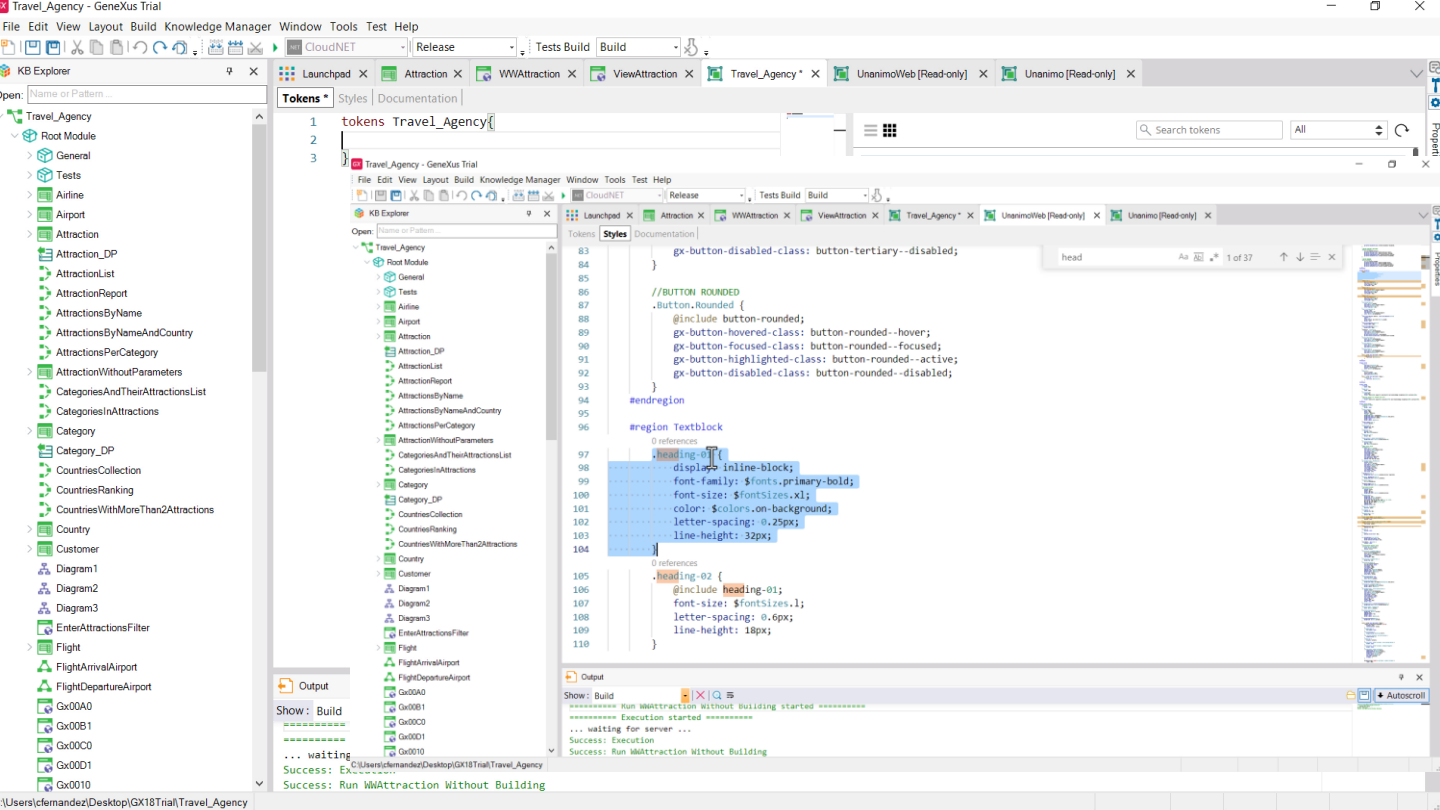
We change the color value here, with this hexadecimal...



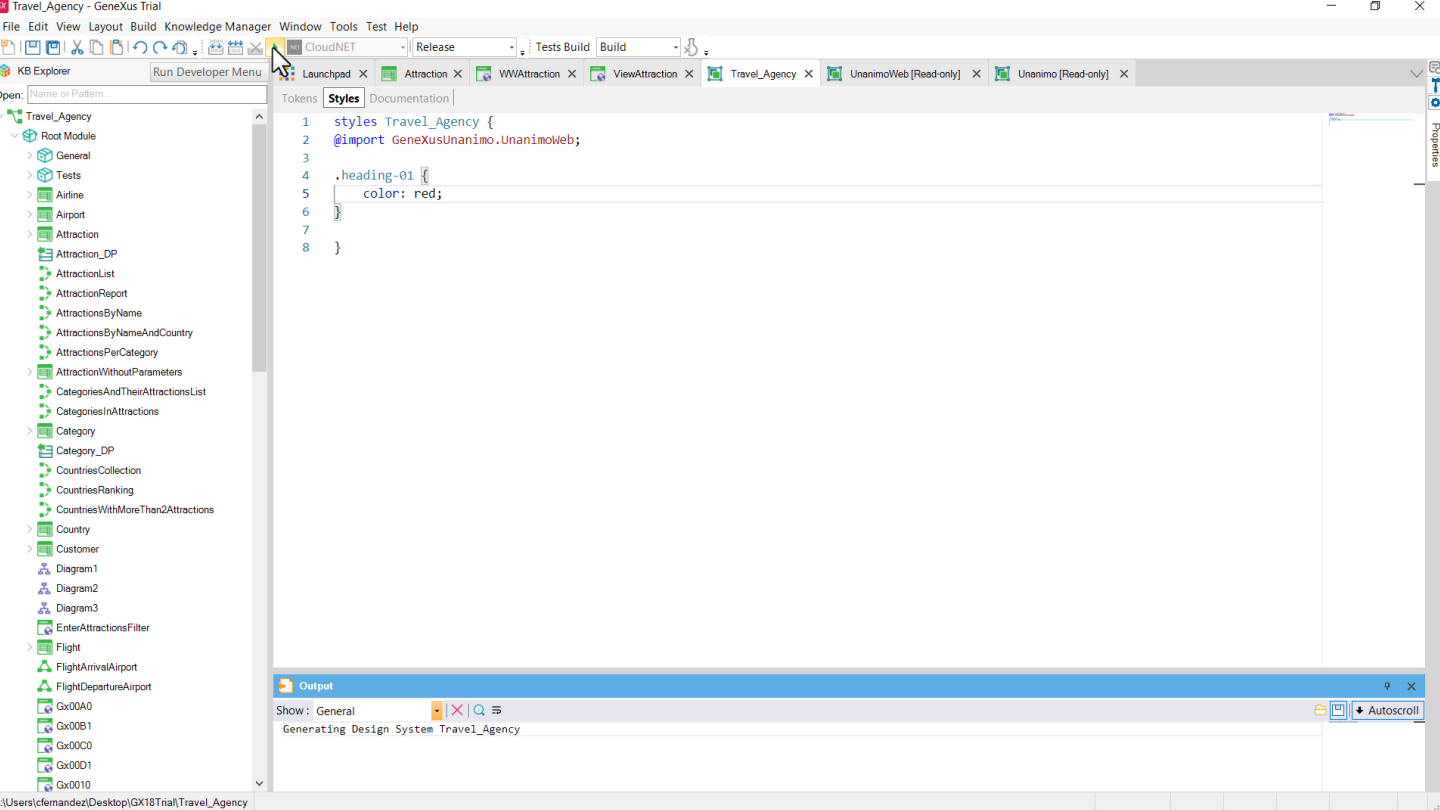
...or, directly, with the value red. Let's save and run.



We managed to change the color of the title of each page, but not just that. We changed the color of many more controls than we wanted. It is that, of course, the “on-background” color token is used in the class of these controls, but obviously it is also used in many others.



If we only want to change it for that class, then... what we have to overwrite is the class (here we can't, it's read-only). So we copy it...



...and paste it into our DSO. But actually, since it is imported we don't need to overwrite everything, but only the property that we are interested in changing. We save and run...

Attraction x Attractions x Attractions x +

trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

GeneXus DL Portal










GeneXus Application Name

UNANIMO

Attractions

Countries

Attractions [INSERT](#) [ATTRACTIONS PDF](#)

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
110	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

We press Ctrl + F5 so that it is refreshed... and now it does. Only the color of the controls that have the heading-01 class associated with them changed.

< ATTRACTIONS

Christ the Redemmer

General Supplier Trip

Id	107
Name	Christ the Redemmer
Country Id	1
Country Name	Brazil
City Id	1
City Name	Rio De Janeiro
Category Id	20
Category Name	Monument

UPDATE DELETE



- UNANIMO
- Attractions
- Countries

Attraction

Id	107
Name	<input type="text" value="Christ the Redemmer"/>
Country Id	<input type="text" value="1"/>
Country Name	Brazil
City Id	<input type="text" value="1"/>
City Name	Rio De Janeiro
Category Id	<input type="text" value="20"/>
Category Name	Monument
Photo	

The screenshot shows the GeneXus IDE interface. On the left is the KB Explorer showing a project structure for 'Travel_Agency'. The main editor displays a code snippet for a token configuration:

```
1 tokens Travel_Agency{
2
3
4
5   #colors
6   {
7     primary: #D7A10A;
8   }
9 }
```

On the right, the 'Tokens' panel shows the configuration for the 'primary' color token, with a value of '#696ef2'. Below this, a preview of a web page is shown, featuring a blue button labeled 'Add your first radius token', a quote 'Space is the breath of art.' by Paul Klee, and another blue button labeled 'Add your first spacing token'. A yellow square in the code editor is highlighted with a blue arrow pointing to the 'primary' token configuration in the Tokens panel.

At the bottom, the Output window shows the following text:

```
Show: Build
===== Run WAttraction Without Building started =====
===== Execution started =====
... waiting for server ...
Success: Execution
Success: Run WAttraction Without Building
```

Considering everything we've seen so far, what should happen if we change the value of the "primary" color token?

Attractions

trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

GeneXus™

Application Name

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Attractions










Countries

Attractions

INSERT

ATTRACTIONS PDF

Q Name

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
106	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

Note how the color of the buttons and actions in general have changed.

Christ the Redemmer

trialapps3.genexus.com/Id6c3ad4e5d6b207af3d2c6ac7a402adbe/viewattraction.aspx?AttractionId=107&TabCode=

GeneXus™ Application Name

UNANIMO

Attractions

Countries

< ATTRACTIONS

Christ the Redemmer


General Supplier Trip

< ATTRACTIONS

Christ the Redemmer

UPDATE DELETE

Id	107
Name	Christ the Redemmer
Country Id	1
Country Name	Brazil
City Id	1
City Name	Rio De Janeiro
Category Id	20
Category Name	Monument



Here we can see that the hover action changes the color and we can assume that this will be a property of the class that controls the hover effect. The same goes for the buttons.

Attractions

trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

GeneXus™

Application Name

UNANIMO

Attractions

Countries

Attractions

INSERT ATTRACTIONS PDF

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
106	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

Even here the visited link is shown in this color, something that we can also change in the DSO.

The screenshot displays a development environment with a file explorer on the left, a central code editor, and a right-hand panel showing a 'COLORS' token list. The code editor contains the following CSS tokens:

```

203 #shadows {
204   xxxs: 0px 1px 1px 0px rgba(0, 0, 0, 0.14);
205   xxs: 0px 2px 2px 0px rgba(0, 0, 0, 0.14);
206   xs: 0px 3px 4px 0px rgba(0, 0, 0, 0.14);
207   s: 0px 4px 5px 0px rgba(0, 0, 0, 0.14);
208   m: 0px 6px 10px 0px rgba(0, 0, 0, 0.14);
209   l: 0px 8px 10px 1px rgba(0, 0, 0, 0.14);
210   xl: 0px 9px 12px 1px rgba(0, 0, 0, 0.14);
211   xxl: 0px 12px 17px 2px rgba(0, 0, 0, 0.14);
212 }
213
214 //SPACING
215 #spacing {
216   //LAYOUT -> Inset
217   inset-xs: 4px;
218   inset-s: 8px;
219   inset-m: 16px;
220   inset-l: 32px;
221
222   //LAYOUT -> Stack
223   stack-xs: 2px;
224   stack-s: 4px;
225   stack-m: 8px;
226   stack-l: 16px;
227   stack-xl: 24px;
228   stack-xxl: 32px;
229   stack-xxxl: 64px;
230   stack-xxxxl: 128px;
231
232   //LAYOUT -> Inline
233   inline-xs: 2px;

```

The right-hand panel shows a 'COLORS' token list with the following data:

NAME	COLOR VALUE
UNANIMO_COLORS	
primary	#696ef2
secondary	#13142c
elevation-01	#ffffff
elevation-02	#ffffff
elevation-03	#ffffff
elevation-04	#ffffff
primary-enabled	#696ef2
primary-disabled	#939498
secondary-enabled	#13142c
secondary-disabled	#939498
on-primary	#ffffff
on-secondary	#ffffff
on-alert	#121212
on-disabled	#c3c4c8

The bottom panel shows the output of a build process:

```

Output
Show: Build
===== Run WVAAttraction Without Building started =====
Execution started
... waiting for server ...
Success: Execution
Success: Run WVAAttraction Without Building

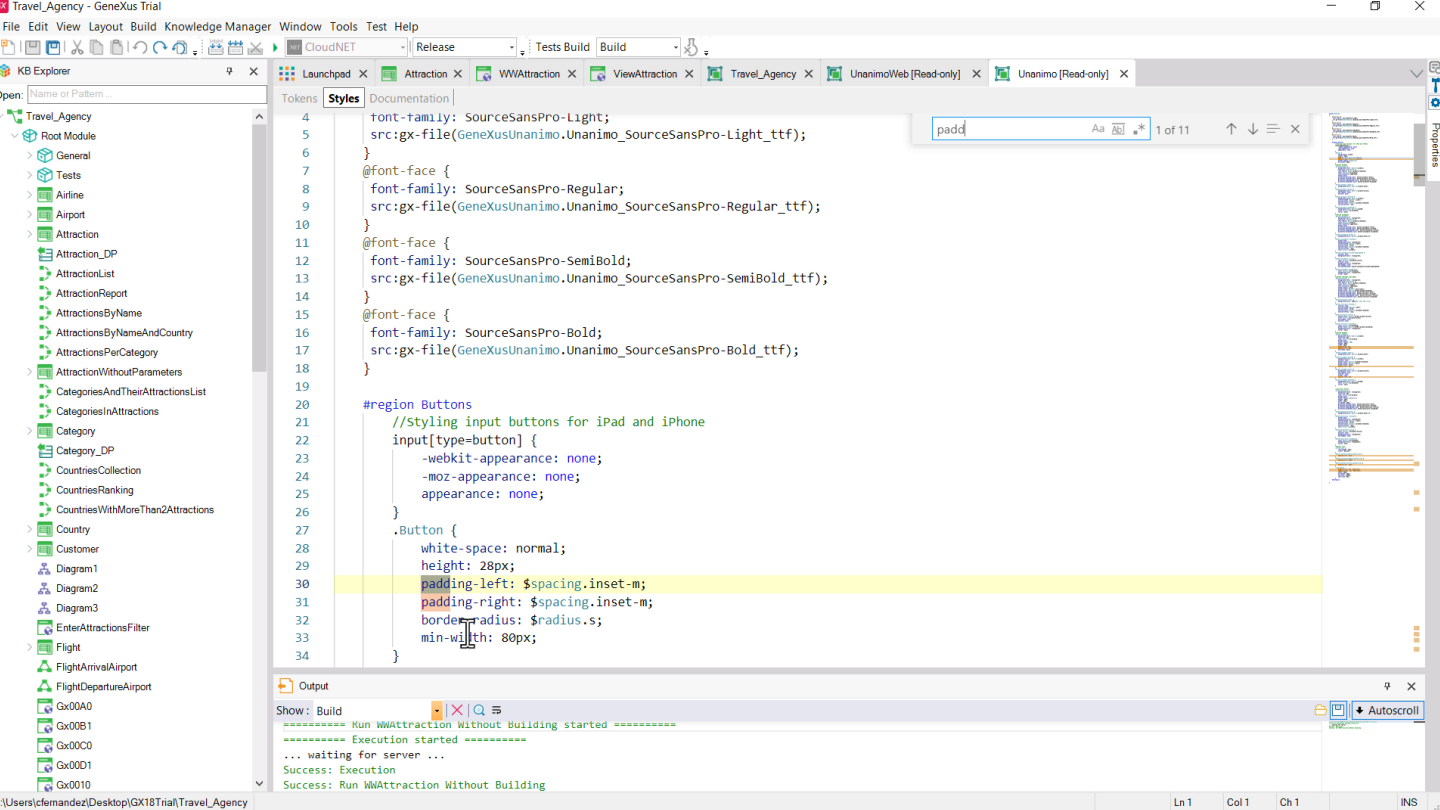
```

We talked about the importance of spacing, for example, and of defining appropriate font families and sizes to be used consistently in the application. We will not be surprised to find these tokens in Unanimoo...

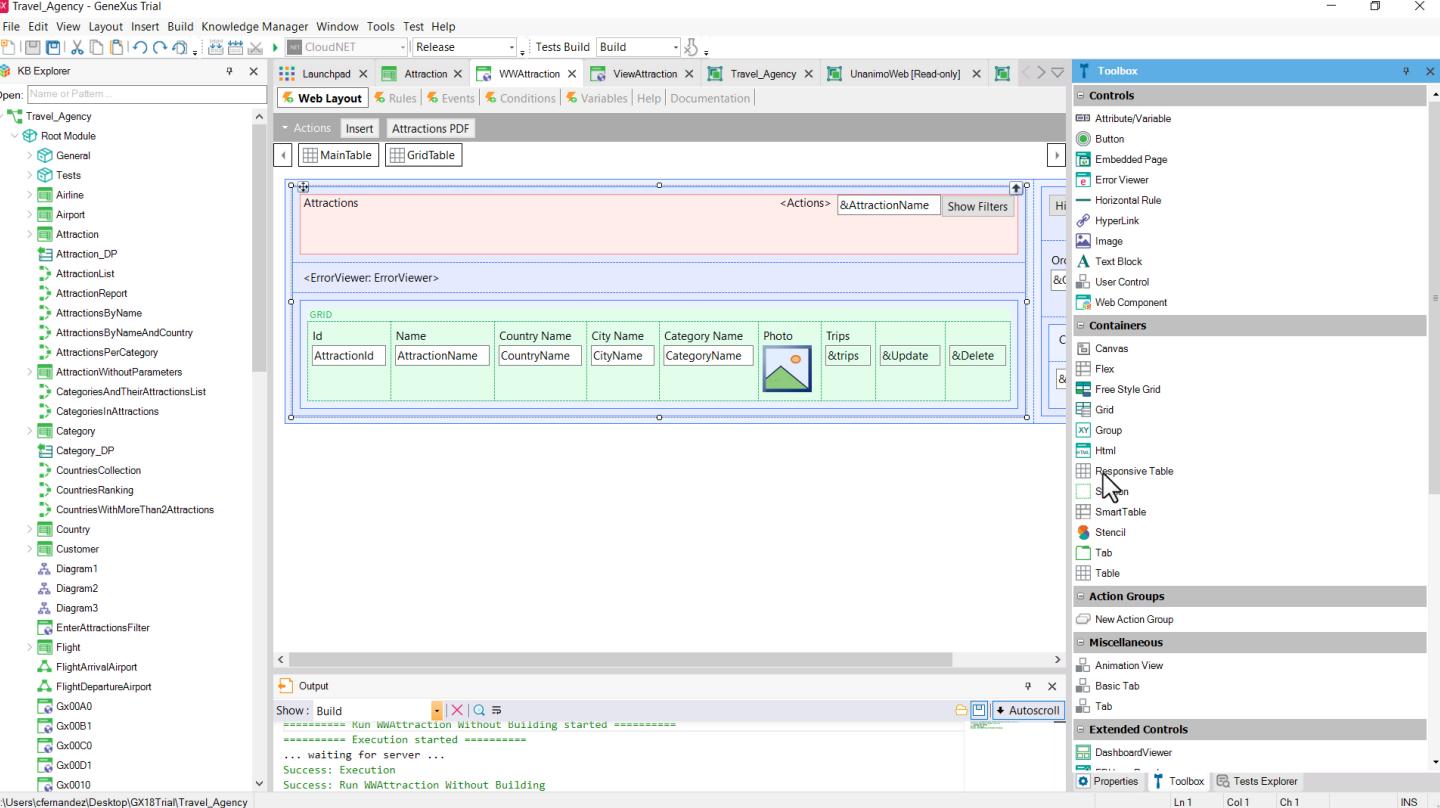
```
235 inline-l: 8px;
236 inline-xl: 16px;
237 inline-xxl: 24px;
238 inline-xxxl: 32px;
239
240 //TYPOGRAPHY -> Letter spacing
241 letter-spacing-xs: 0.2px;
242 letter-spacing-s: 0.4px;
243 letter-spacing-m: 0.8px;
244 letter-spacing-l: 1.6px;
245 letter-spacing-xl: 3.2px;
246 }
247
248 //TYPOGRAPHY -> Font
249 #fonts {
250   primary-light: SourceSansPro-Light;
251   primary-regular: SourceSansPro-Regular;
252   primary-semibold: SourceSansPro-SemiBold;
253   primary-bold: SourceSansPro-Bold;
254 }
255
256 //TYPOGRAPHY -> Font Sizes
257 #fontSizes {
258   xs: 11px;
259   s: 14px;
260   m: 18px;
261   l: 22px;
262   xl: 28px;
263 }
264
265
```

NAME	COLOR VALUE
primary	#696ef2
secondary	#13142c
elevation-01	#ffffff
elevation-02	#ffffff
elevation-03	#ffffff
elevation-04	#ffffff
primary-enabled	#696ef2
primary-disabled	#939498
secondary-enabled	#13142c
secondary-disabled	#939498
on-primary	#ffffff
on-secondary	#ffffff
on-alert	#121212
on-disabled	#c3c4c8

```
Output
Show: Build
----- Run WWAttraction Without Building started -----
----- Execution started -----
... waiting for server ...
Success: Execution
Success: Run WWAttraction Without Building
```

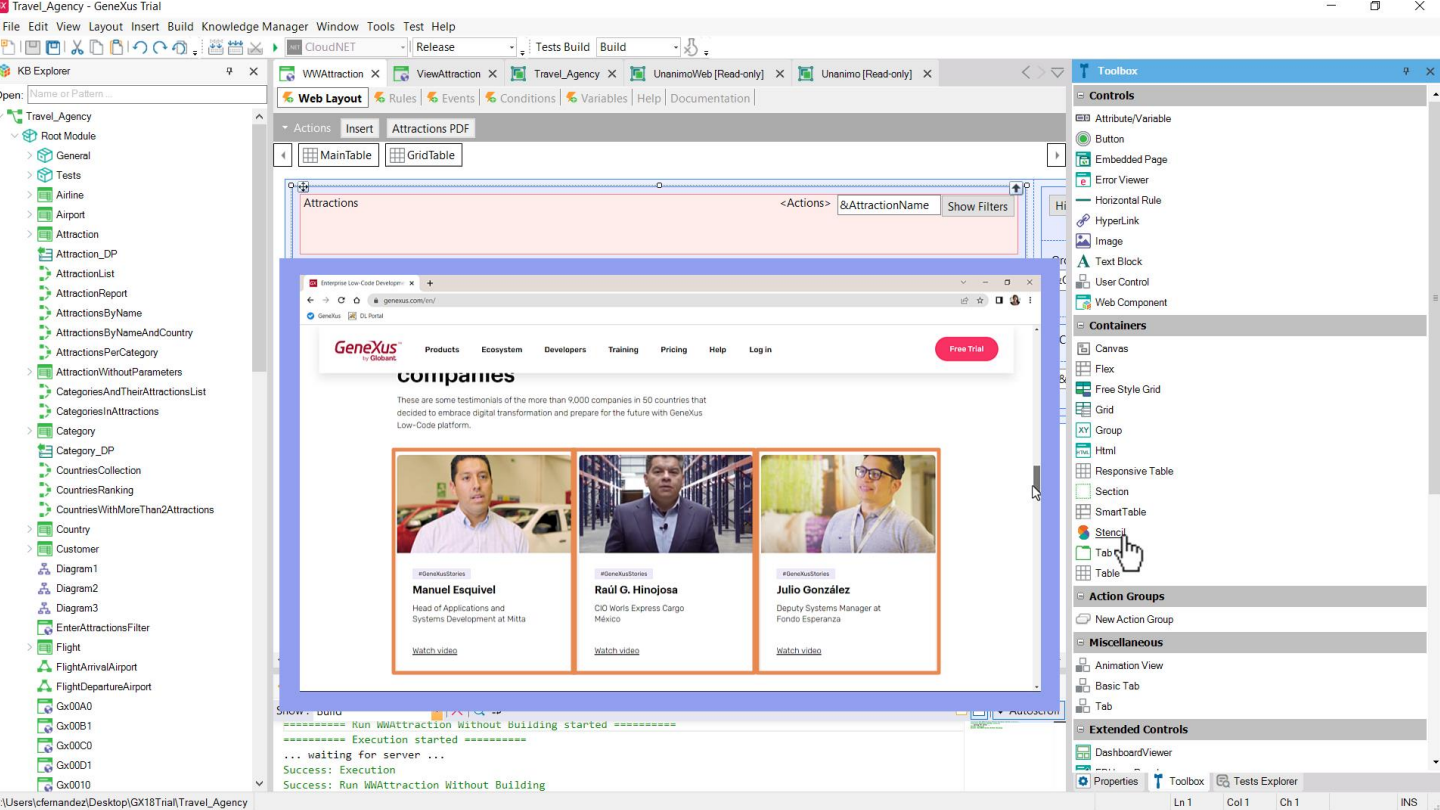


... they will be used in the classes assigned to the properties to give space or to choose fonts.

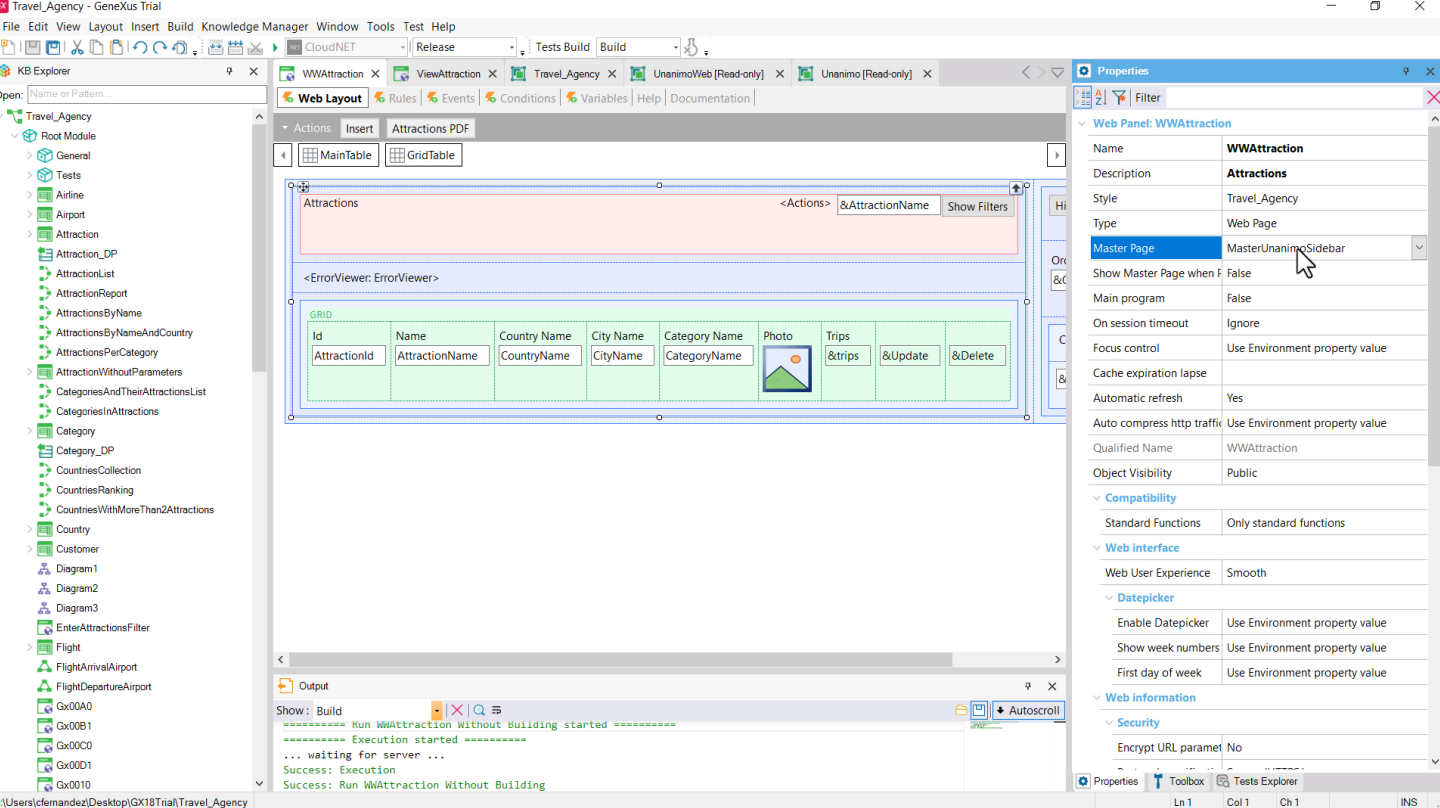


On the other hand, how do you achieve alignment and combine information elements so that they work as a block? That is where GeneXus controls are involved. Mainly the tables.

In other words, two key players will be involved: the controls in layouts and their classes in the DSO.



In addition, in order to save resources, we will be able to encapsulate repetitive information units in independent objects that can then be inserted in the layouts, such as stencils or web components.



Even the header and footer are separated in another object, the Master Page.

The screenshot displays a web development environment with the following components:

- KB Explorer:** A tree view on the left showing a project structure for 'Travel_Agency', including folders like 'Root Module', 'General', 'Security', 'UI', and various data models.
- Web Layout Editor:** The central workspace showing a grid layout. At the top, there are tabs for 'MainTable', 'Header', and 'ApplicationHeader'. The main area contains a red rectangular block with the text '<Image=list_view_white> <Image=genexus_logo> Application Name'. Below this are two blue rectangular blocks labeled '<Sidebar: SidebarMenu>' and '<ContentPlaceholder>'. An 'Output' window at the bottom shows build logs.
- Properties Window:** On the right, the 'Properties' window is open for the selected 'ApplicationHeader' control. It shows:

Control Name	ApplicationHeader
Caption	Travel Agency
On Click Event	
Return On Click	False
Appearance	
Class	header_title
Format	Text
Tooltip Text	
Cell information	
Cell Control Name	
Cell Class	
Horizontal Alignment	Center
Vertical Alignment	Default
Layout Behavior	
Flex Grow	1
Flex Shrink	1
Align Self	Auto
Width	
Height	
Min Width	
Min Height	20
Max Width	
Max Height	

Here it is. Let's see what happens when we change this text block.

Attractions

trialapps3.genexus.com/ld6c3ad4e5d6b207af3d2c6ac7a402adbe/wwattraction.aspx

GeneXus™

Travel Agency

UNANIMO

Attractions










Countries

Attractions

INSERT

ATTRACTIONS PDF

Q Name

Id	Name	Country Name	City Name	Category Name	Photo	Trips		
107	Christ the Redemmer	Brazil	Rio De Janeiro	Monument		24	UPDATE	DELETE
111	Cinque Terre	Italy	Liguria	Tourist site		0	UPDATE	DELETE
106	Eiffel Tower	France	Paris	Monument		24	UPDATE	DELETE
110	Forbidden city	China	Beijing	Tourist site		0	UPDATE	DELETE
112	Glenfinnan Viaduct	Scotland	Glenfinnan	Tourist site		0	UPDATE	DELETE
113	London Towers	England	London	Monument		1	UPDATE	DELETE
116	Long Bridges	United States	San Francisco	Tourist site		0	UPDATE	DELETE
104	Louvre Museum	France	Paris	Museum		1	UPDATE	DELETE
109	Matisse Museum	France	Nice	Museum		13	UPDATE	DELETE

In this way, we start to understand how to use a Design System in GeneXus.

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