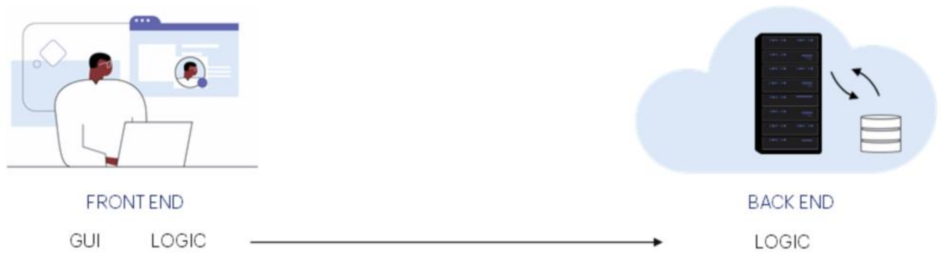
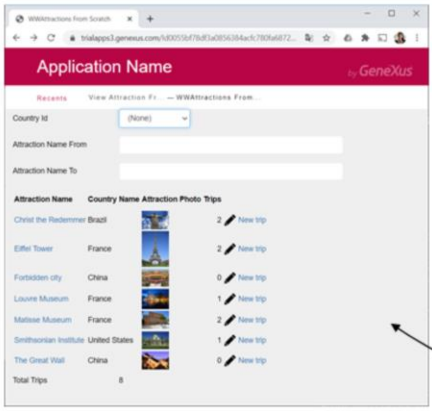
Web Screens with Back-office Focus

Web Panel Object Event Execution Scheme

GeneXus™




WWAttractions From Scratch

trialapps3.genexus.com/Id0055bf78df3a0856384acfc780fa6872...

Application Name

by GeneXus

Recents   View Attraction Fr... — WWAttractions From...

Country Id (None)

Attraction Name From

Attraction Name To

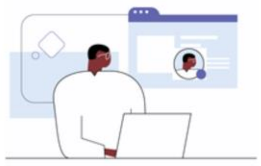
Attraction Name	Country Name	Attraction Photo	Trips	
Christ the Redemmer	Brazil		2	New trip
Eiffel Tower	France		2	New trip
Forbidden city	China		0	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip
Smithsonian Institute	United States		1	New trip
The Great Wall	China		0	New trip

Total Trips 8

```
Event Start
      &update.FromImage(updateIcon)
      &newTrip = "New trip"
Endevent

Event Refresh
      &totalTrips = 0
Endevent

For each Attraction
     order CountryId, AttractionName when not &CountryId.IsEmpty()
     order AttractionName
     where CountryId = &CountryiId when not &CountryiId.IsEmpty();
     where AttractionName >= &AttractionNameFrom when not &AttractionNameFrom.IsEmpty();
     where AttractionName <= &AttractionNameTo when not &AttractionNameTo.IsEmpty();

        Event Load
              &trips = Count(TripDate)
              &totalTrips = &totalTrips + &trips
        Endevent
endfor
```

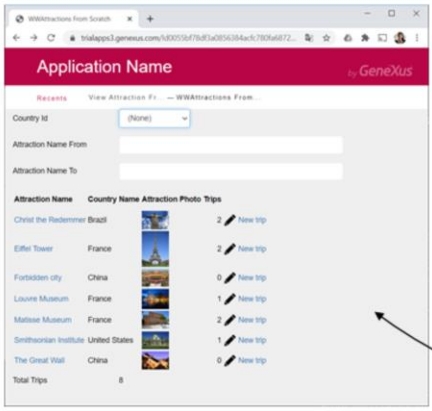
If we translate all this logic that we've seen into front end and back end interaction, then…

When the web panel is executed for the first time, from the front end logic layer, the web panel logic is invoked in the back end, where it is executed: the Start event, the Refresh event. If the grid has a base table, within the logic GeneXus has transparently programmed a sort of For Each command to access the base table, keeping the order and conditions specified in the grid; for each record found, it executes the Load event, adding at the end a line to the data to be returned to the front end. The line is also automatically added, and the developer doesn’t have to specify a Load command for it. At the end, the answer is sent to the front end, which will display the information on the screen.



FRONT END

GUI LOGIC → BACK END LOGIC



WWAttractions From Scratch

trialapps3.genexus.com/Id0055bf78df3a0856384acfc780fa6872...

Application Name *by GeneXus*

Recents View Attraction Fr... — WWAttractions From...

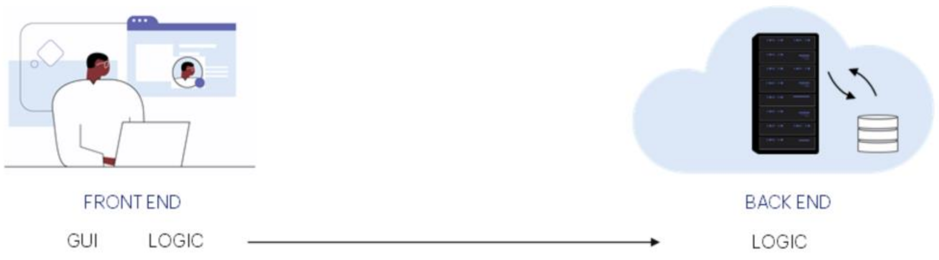
Country Id	(None)
Attraction Name From	
Attraction Name To	

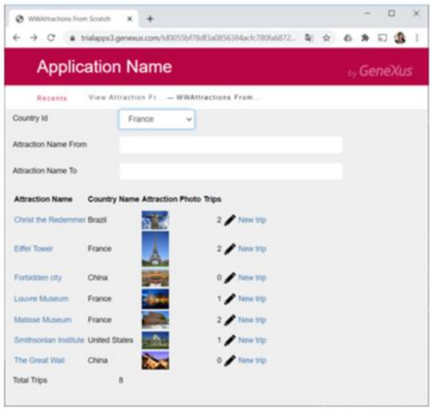
Attraction Name	Country Name	Attraction Photo	Trips		
Christ the Redemmer	Brazil		2	✎	New trip
Eiffel Tower	France		2	✎	New trip
Forbidden city	China		0	✎	New trip
Louvre Museum	France		1	✎	New trip
Matisse Museum	France		2	✎	New trip
Smithsonian Institute	United States		1	✎	New trip
The Great Wall	China		0	✎	New trip

Total Trips 8

```
Event Start
      &update.FromImage(updateIcon)
      &newTrip = "New trip"
Endevent

Event Refresh
      &totalTrips = 0
Endevent

Event Load
      For each Attraction
            order CountryId, AttractionName when not &CountryId.IsEmpty()
            order AttractionName
            where CountryId = &CountryiId when not &CountryiId.IsEmpty();
            where AttractionName >= &AttractionNameFrom when not &AttractionNameFrom.IsEmpty();();
            where AttractionName <= &AttractionNameTo when not &AttractionNameTo.IsEmpty();
            &AttractionId = AttractionId
            &AttractionName = AttractionName
            &CountryName = CountryName
            &AttractionPhoto = AttractionPhoto
            &trips = Count(TripDate)
            Load
            &totalTrips = &totalTrips + &trips
      endfor
Endevent
```

On the other hand, if there were no base table, this part of the code would not exist, but it would directly trigger the Load event, just once, where the database access must be programmed explicitly; that's why the For Each command programmed by the developer is displayed here. For a line to be loaded in the grid, the developer must **explicitly** indicate it with the Load **command** because GeneXus cannot know what our intention is. After completing all this, exactly as in the other case, the answer is sent to the front end, which will display the information on the screen.





Application Name

Recents — View Attraction Fr... — WWAttractions From...

Country Id	France
Attraction Name From	
Attraction Name To	

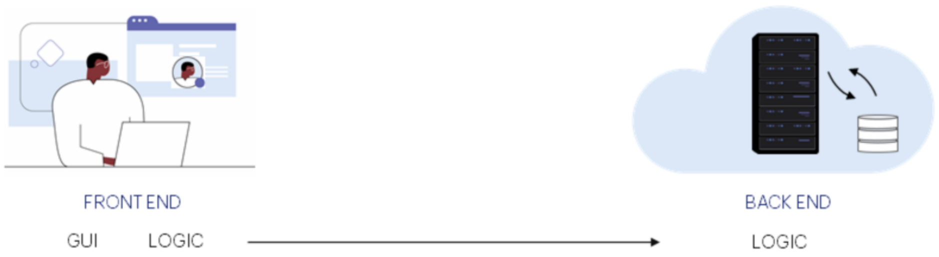
Attraction Name	Country Name	Attraction Photo	Trips	
Christ the Redemmer	Brazil		2	New trip
Eiffel Tower	France		2	New trip
Forbidden city	China		0	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip
Smithsonian Institute	United States		1	New trip
The Great Wall	China		0	New trip

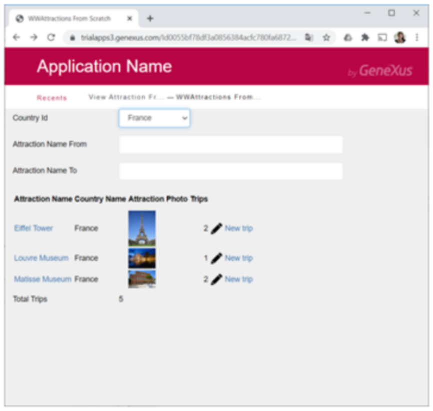
Total Trips 8

```
Event Refresh
    &totalTrips = 0
Endevent

For each Attraction
    order CountryId, AttractionName when not &CountryId.IsEmpty()
    order AttractionName
    where CountryId = &CountryiId when not &CountryiId.IsEmpty();
    where AttractionName >= &AttractionNameFrom when not &AttractionNameFrom.IsEmpty();
    where AttractionName <= &AttractionNameTo when not &AttractionNameTo.IsEmpty();

      Event Load
          &trips = Count(TripDate)
          &totalTrips = &totalTrips + &trips
      Endevent
endfor
```

Now the user will interact with the screen. What will happen depends on this interaction.

For example, if you enter a value in one of the filter variables of a grid's data, the back end will be invoked from the logic layer of the front end, passing it the values of the variables. There, the Refresh and Load events will be executed to reload the information of that grid. Again, if the grid has a base table, then this will be the code that will be executed on the server...




WWAttractions From Scratch
trialapps3.genexus.com/Id0055bf78df3a0856384acfc780fa6872...

Application Name

Recents   View Attraction Fr... — WWAttractions From...

Country Id	France
Attraction Name From	
Attraction Name To	

Attraction Name	Country Name	Attraction Photo	Trips	
Eiffel Tower	France		2	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip

Total Trips 5

```
Event Refresh
      &totalTrips = 0
Endevent

Event Load
     For each Attraction
          order CountryId, AttractionName when not &CountryId.IsEmpty()
          order AttractionName
          where CountryId = &Countryild when not &Countryild.IsEmpty();
          where AttractionName >= &AttractionNameFrom when not &AttractionNameFrom.IsEmpty();
          where AttractionName <= &AttractionNameTo when not &AttractionNameTo.IsEmpty();
          &AttractionId = AttractionId
          &AttractionName = AttractionName
          &CountryName = CountryName
          &AttractionPhoto = AttractionPhoto
          &trips = Count(TripDate)
          Load
          &totalTrips = &totalTrips + &trips
     endfor
Endevent
```

... otherwise, it'll be this other one.

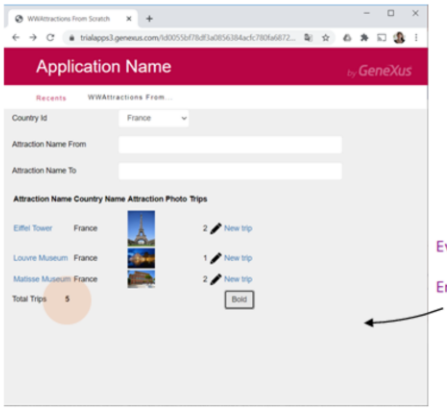
In any case, when the database is queried again, some records will not pass the filter. Again, the front end will be answered and will now display the grid with the resulting data, among which is the &TotalTrips variable.

FRONT END

GUI LOGIC

BACK END

LOGIC


WWAttractions From Scratch
trialapps3.genexus.com/id0055bf78df3a0856384acfc780fa6872...
Application Name
by GeneXus
Recents
WWAttractions From...

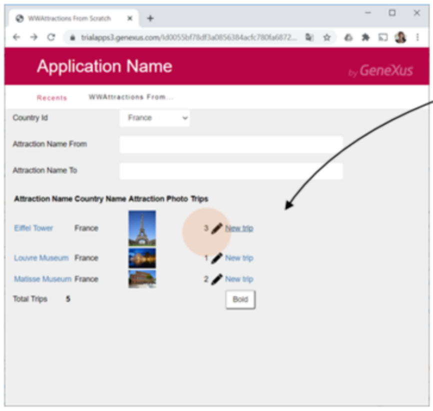
Country Id	France
Attraction Name From	
Attraction Name To	

Attraction Name	Country Name	Attraction Photo	Trips	
Eiffel Tower	France		2	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip

Total Trips 5

```
Event 'Bold'
      &totalTrips.FontBold = True
Endevent
```

If we had an event whose code could be resolved in the client, such as changing the font to bold for a form control, that code would be directly executed in the front end itself, without any trip to the server.


WWAttractions From Scratch
trialapps3.genexus.com/Id0055bf78df3a0856384acfc780fa6872...
Application Name
by GeneXus
Recents
WWAttractions From...

Country Id	France
Attraction Name From	
Attraction Name To	

Attraction Name	Country Name	Attraction Photo	Trips	
Eiffel Tower	France		3	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip

Total Trips 5

Bold

```
Event &newTrip.Click
      &trips = NewTrip(AttractionId)
endevent
```

```
parm(in:&AttractionId, out:&trips);
new
      TripDate = Today()
      TripDescription = "Created automatically"
endnew
&tripId = TripId
new
      TripId = &tripId
      AttractionId = &AttractionId
endnew
&trips = Count(TripDate, AttractionId = &AttractionId)
```

On the other hand, if it needs to be executed on the server, as in the example where we invoked a procedure to create a trip with the attraction, then from the front end the back end is invoked where the associated event is programmed, which invokes the procedure that is executed there, inserts the records, and returns the execution to the event that called it.

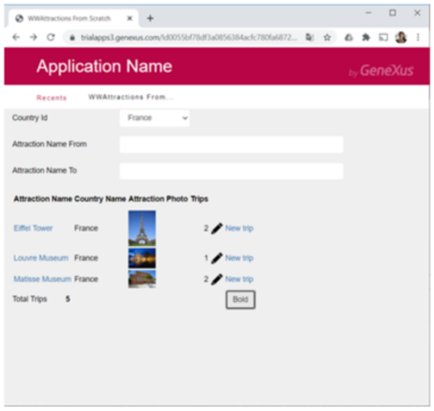
In this case, as the result of the procedure is assigned to a grid variable, then the front end is sent information indicating that it must change the value of that line, which is done there.

FRONT END

GUI LOGIC

BACK END

LOGIC



WWAttractions From Scratch

trialapps3.genexus.com/Id0055bf78df3a0856384acfc780fa6872...

Application Name

Recents WWAttractions From...

Country Id: France

Attraction Name From

Attraction Name To

Attraction Name	Country Name	Attraction Photo	Trips	
Eiffel Tower	France		2	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip

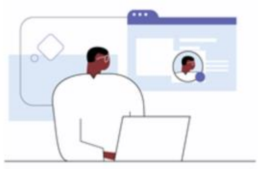
Total Trips 5

Bold

```
Event &newTrip.Click
      &trips = NewTrip(AttractionId)
      Refresh
endevent
```

```
new
      TripDate = Today()
      TripDescription = "Created automatically"
endnew
&tripId = TripId
new
      TripId = &tripId
      AttractionId = &AttractionId
endnew
&trips = Count(TripDate, AttractionId = &AttractionId )
```

But if after the invocation it finds a Refresh command,

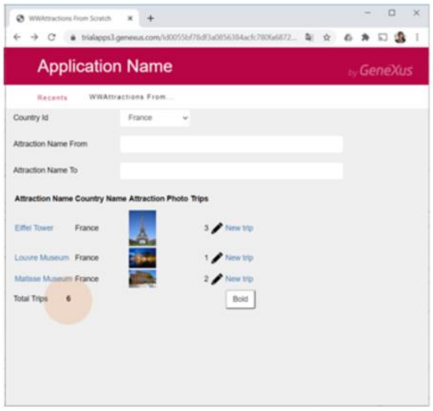


FRONT END

GUI LOGIC

BACK END

LOGIC


WWAttractions From Scratch
trialapps3.genexus.com/Id0055bf76df3a0856384acfc780fa6872...
Application Name
by GeneXus
Recents
WWAttractions From...
Bold

Country Id France

Attraction Name From

Attraction Name To

Attraction Name	Country Name	Attraction Photo	Trips	
Eiffel Tower	France		3	New trip
Louvre Museum	France		1	New trip
Matisse Museum	France		2	New trip

Total Trips 6

```
Event &newTrip.Click
     &trips = NewTrip(AttractionId)
     Refresh
endevent

Event Refresh
     &totalTrips = 0
Endevent
For each Attraction
     order CountryId, AttractionName when not &CountryId.IsEmpty()
     order AttractionName
     where CountryId = &CountryiId when not &CountryiId.IsEmpty();
     where AttractionName >= &AttractionNameFrom when not &AttractionNameFrom.IsE
     where AttractionName <= &AttractionNameTo when not &AttractionNameTo.IsEmpty

          Event Load
               &trips = Count(TripDate)
               &totalTrips = &totalTrips + &trips
          Endevent

endfor
```

before sending a response to the client, it executes the Refresh and Load events (here we see the code for the grid with a base table). After that, it returns all the grid lines that meet the conditions to the front end, again, and the &totalTrips variable, which the user sees with the expected values.

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