

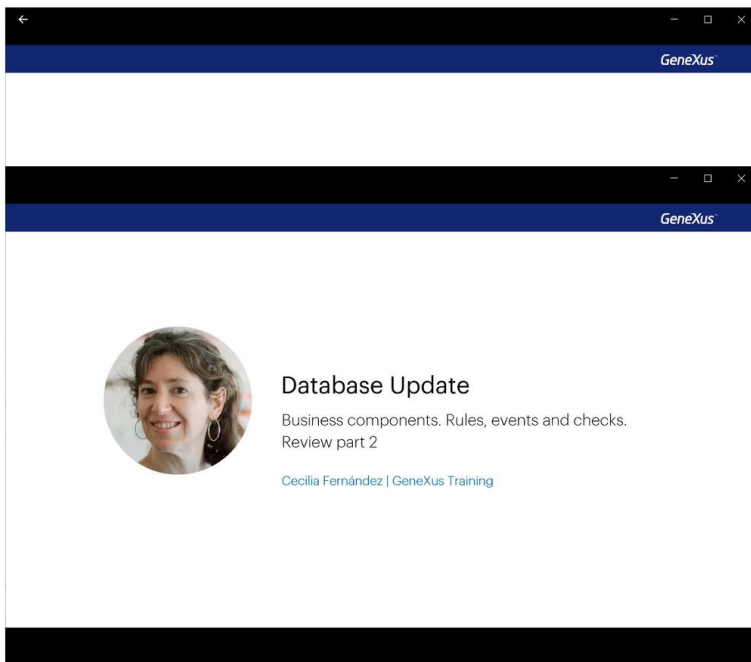
# Atualização da base de dados

Business Components. Update ou Insert (batch) e Data Provider

*GeneXus™*



Insert, Update, Delete



Focados em uma KB para um serviço de saúde, nos vídeos anteriores analisamos como inserir, atualizar e excluir por meio do Business Component de uma transação de dois níveis.

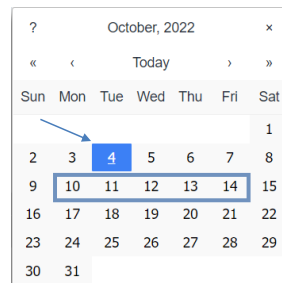
The screenshot displays the GeneXus IDE interface. On the left, the 'Structure' pane shows the 'OfficeVisit' entity with its attributes: OfficeVisitDate (Date), PhysicianId (Id), PhysicianName (Name), ShiftId (Id), ShiftName (Name), MedicalSpecialtyId (Id), MedicalSpecialtyName (Name), OfficeId (Id), OfficeVisitLastNumber (Number), Patient (Patient), PatientId (Id), PatientName (Name), and OfficeVisitPatientNum (Number). Below this, a 'Checks' table lists various database constraints and error messages.

Checks	Error Id	Error Description
FK Physician	ForeignKeyNotFound	No matching 'Physician'
error('Physician * = PhysicianId.ToString() * already has 2 shifts assigned for the date: * * OfficeVisitDate.ToString(), PhysicianAvailable) if ShiftId > 2 and Insert;	PhysicianNotAvailable	Physician... already has 2 shifts...
FK ShiftId	ForeignKeyNotFound	No matching 'Shift'
FK OfficeId	ForeignKeyNotFound	No matching 'Office'
CK: (OfficeVisitDate, ShiftId, OfficeId)		Office Visit Date, Shift Id, Office Id already exists
PK: (OfficeVisitDate, PhysicianId, ShiftId)	DuplicatePrimaryKey	Record already exists
FK PatientId	ForeignKeyNotFound	No matching 'Patient'
error('There is a pending office visit scheduled for this patient for the same specialty', PatientAlreadyScheduleIfOnMedicalSpecialty) if not Shift and Insert level PatientId;	PatientAlreadyScheduleIfOnMedicalSpecialty	There is a pending office visit scheduled...
PK: (OfficeVisitDate, PhysicianId, ShiftId, PatientId)	DuplicatePrimaryKey	Record already exists

On the right, the 'Web Layout' pane shows a form titled 'InsertOfficeVisit'. The form contains several input fields: Schedule Date (&ScheduleDate), Physician Id (&PhysicianId), Shift Id (&ShiftId), Office Id (&OfficeId), Patient Id (&patientId), patient2 Id (&patient2Id), and patient3 Id (&patient3Id). There are three buttons: 'Insert Office Visit', 'Update Office Visit', and 'Delete Office Visit'. Below the form is a 'GRID' section with columns for Id, Type, and Description, containing a single row with values: &messages.item(0).Id, &messages.item(0).Type, and &messages.item(0).Description.

Naqueles vídeos a partir da transação de consultas médicas, OfficeVisit, de dois níveis, que tinha uma série de regras declaradas, em particular algumas de erro, o que testamos foi inserir uma consulta com um paciente, atualizar uma consulta (alterando o consultório e modificando uma linha, excluindo uma e acrescentando outra) e excluir uma consulta médica, através de uma variável Business Component.

Next Monday Form Date	&NextScheduleDate	Weekly Schedule
Physician Id	&PhysicianId	1
Most Frequent Shift Id	&MostFrequentShiftId	
Usual Office Id	&usualOfficeId	1



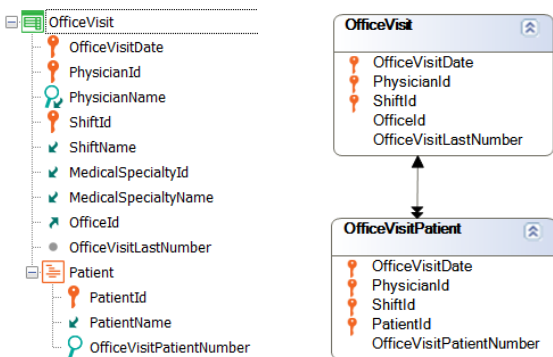
	Monday	Tuesday	Wednesday	Thursday	Friday
Shift 1 morning	Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
Shift 2 intermediate		Physician: 1 Office: 1		Physician: 1 Office: 1	
Shift 3 evening		Physician: 1 Office: 1		Physician: 1 Office: 1	
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022

Agora vamos querer atribuir de forma batch as consultas para um determinado médico na semana seguinte a uma determinada data, em seu consultório preferencial.

Por exemplo, para o médico 1, consultório 1, queremos este esquema de consultas: segundas, quartas e sextas-feiras no turno escolhido para esses dias, por exemplo, o 1...

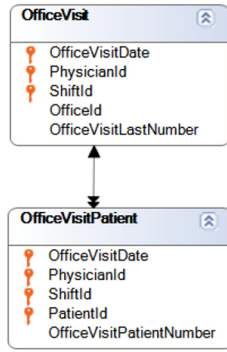
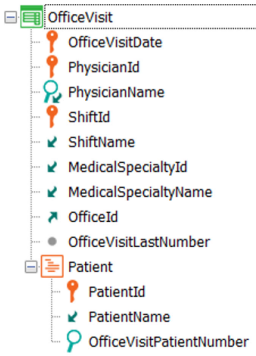
Terças e quintas-feiras no turno seguinte, o 2...

E terças e quintas-feiras, além disso, no turno restante, o 3.



Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	
10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022

A princípio, apenas queremos atribuir as consultas sem pacientes, ou seja, apenas os registros correspondentes aos 7 cabeçalhos da transação, ou seja, vamos operar na tabela OfficeVisit, e respeitando todas as verificações e regras da transação, assim faremos isso com um business component.



&officeVisit

OfficeVisitDate	10-10-2022
PhysicianId	1
PhysicianName	Doctor 1
ShiftId	1
ShiftName	Shift morning
MedicalSpecialtyId	1
MedicalSpecialtyName	Family Medicine
OfficeId	1
OfficeVisitLastNumber	0
Patient	

Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	
10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022

Por exemplo, utilizando uma única variável, preenchendo os dados necessários para o primeiro registro e aplicando o método Insert a ela; depois esvaziando-a e fazendo o mesmo para a próxima consulta, a de quarta-feira: ou seja, carregando os dados e aplicando Insert... E assim por diante...

Esvaziamos, carregamos os dados para sexta-feira, turno 1... inserimos.  
 Esvaziamos, carregamos dados para terça-feira turno 2... inserimos.  
 Esvaziamos, carregamos dados para quinta-feira turno 2... inserimos.  
 Esvaziamos, carregamos dados para terça-feira turno 3... inserimos.  
 Esvaziamos, carregamos dados para quinta-feira, turno 3... inserimos.

The screenshot shows a web layout editor with the following elements:

- Navigation tabs: OfficeVisit X, OfficeVisitsSchedule X, FirstDayOfWeek X
- Menu: Web Layout, Rules, Events, Conditions, Variables, Help, Documentation
- Panel: <No action group selected>
- Buttons: MainTable, Table1
- Form fields:
  - Next Monday Form Date: &NextScheduleDate
  - Physician Id: &PhysicianId
  - Most Frequent Shift Id: &MostFrequentShiftId
  - Usual Office Id: &usualOfficeId
- Table (GRID):
 

Id	Type	Description
&messages.item(0).Id	&messages.item(0).Type	&messages.item(0).Description

```

1 Event 'WeeklySchedule'
2   &messages.Clear()
3   &FirstDayOfWeek = FirstDayOfWeek(&NextScheduleDate)
4
5   // Most frequent Shift for Monday Wednesday, Friday
6   for &n = 0 to 2
7     &officeVisit = new()
8     &officeVisit.OfficeVisitDate = &FirstDayOfWeek+(2*&n)
9     &officeVisit.PhysicianId = &PhysicianId
10    &officeVisit.ShiftId = &MostFrequentShiftId
11    &officeVisit.OfficeId = &usualOfficeId
12    &officeVisit.Insert()
13    Do "GetMessages"
14  endfor
15
16  // Following Shift for Tuesday, Thursday
17  &nextShift = AnotherShift(&MostFrequentShiftId)
18  for &n = 0 to 1
19    &officeVisit = new()
20    &officeVisit.OfficeVisitDate = &FirstDayOfWeek + ((2*&n)+1)
21    &officeVisit.PhysicianId = &PhysicianId
22    &officeVisit.ShiftId = &nextShift
23    &officeVisit.OfficeId = &usualOfficeId
24    &officeVisit.Insert()
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28  // Resting Shift for Tuesday, Thursday
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31    &officeVisit.OfficeVisitDate = &FirstDayOfWeek + ((2*&n)+1)
32    &officeVisit.PhysicianId = &PhysicianId
33    &officeVisit.ShiftId = AnotherShift(&nextShift)
34    &officeVisit.OfficeId = &usualOfficeId
35    &officeVisit.Insert()
36    Do "GetMessages"
37  endfor

```

Aqui implementamos o requisito com um Web Panel onde solicitamos ao usuário os dados (aqui mostraremos a coleção de mensagens resultantes) e no evento... primeiro esvaziamos a coleção de mensagens que teriam sido mostradas em uma execução anterior, chamamos esta proc que retorna para esta data, a data da segunda-feira seguinte.

Hospital\_ - GeneXus 17  
 File Edit View Layout Insert Build Knowledge Manager Window Tools Help  
 CloudNET Release Android 1.2-SNAPSHOT  
 KB Explorer OfficeVisit x OfficeVisitsSchedule x FirstDayOfWeek x  
 Messages  
 Main Programs  
 Root Module  
 GeneXus  
 AnotherShift  
 Customer  
 DeleteOfficeVisits  
 FirstDayOfWeek  
 GetOfficeVisit  
 Gx0010  
 Gx0020  
 Gx0030  
 Gx0040  
 Gx0050  
 Gx0063  
 Gx0070  
 isPatientOk  
 MedicalSpecialty  
 Office  
 OfficeVisit  
 OfficeVisitsSchedule  
 Office/VisitTEST  
 Patient  
 Physician  
 PhysicianShifts  
 Shift  
 WeeklySchedule  
 WeeklyScheduleMockupData  
 Domains  
 Images  
 Backup  
 References  
 Customization  
 Documentation

Web Layout | Rules | **Events** | Conditions | Variables | Help | Documentation  
 'WeeklySchedule'  

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1 Event "WeeklySchedule"
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33    &officeVisit.ShiftId = AnotherShift(&nextShift)
34    &officeVisit.OfficeId = &usualOfficeId
35    &officeVisit.Insert()
36    Do "GetMessages"
37  endfor

```

Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	

KB Explorer Preferences  
 Output  
 (Models\GX17StableFon9\Hospital\_

E em vez de repetir 7 vezes a solicitação de memória para a variável, atribuir a ela os elementos correspondentes para cada um, e inserir, optamos por usar a estrutura repetitiva "for" para escrever apenas uma vez a inserção quando se trata de segunda, quarta e sexta-feira, onde muda apenas o dia, e todo o restante é mantido...



Hospital\_ - GeneXus 17

File Edit View Layout Insert Build Knowledge Manager Window Tools Help

CloudNET Release Android 1.2-SNAPSHOT

KB Explorer

OfficeVisit x OfficeVisitsSchedule x FirstDayOfWeek x

Web Layout Rules **Events** Conditions Variables Help Documentation

'WeeklySchedule'

```

1 Event 'WeeklySchedule'
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34    &officeVisit.OfficeId = &usualOfficeId
35    &officeVisit.Insert()
36    Do "GetMessages"
37  endfor

```

Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	

KB Explorer Preferences

Output

Ln 17 Col 29 Ch 25 INS

...Depois outra para terça e quinta, que é no próximo turno (calculado com esta proc), E aqui atribuímos...

File Edit View Layout Insert Build Knowledge Manager Window Tools Help

CloudNET Release Android 1.2-SNAPSHOT

KB Explorer

OfficeVisit x OfficeVisitsSchedule x FirstDayOfWeek x AnotherShift x

Web Layout Rules **Events** Conditions Variables Help Documentation

'WeeklySchedule'

```

1 Event "WeeklySchedule"
2   &messages.Clear()
3   &firstDayOfWeek = FirstDayOfWeek(&nextScheduleDate)
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5   // Most frequent Shift for Monday Wednesday, Friday
6   for &n = 0 to 2
7     &officeVisit = new()
8     &officeVisit.OfficeVisitDate = &firstDayOfWeek+(2*&n)
9     &officeVisit.PhysicianId = &physicianId
10    &officeVisit.ShiftId = &mostFrequentShiftId
11    &officeVisit.OfficeId = &usualOfficeId
12    &officeVisit.Insert()
13    Do "GetMessages"
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34    &officeVisit.OfficeId = &usualOfficeId
35    &officeVisit.Insert()
36    Do "GetMessages"
37  endfor

```

Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	

Ln 33 Col 43 Ch 35 INS

e depois outro "for" também para terça e quinta, mas no turno restante.

Vamos ver que além de melhorar o código, resumindo o que estamos fazendo é utilizar uma variável BC, atribuindo a ela os valores do cabeçalho, e utilizando o método Insert para tentar inserir na tabela correspondente.

```
File Edit View Layout Insert Build Knowledge Manager Window Tools Test Help
[Icons] CloudNET [Release] [Android] 1.2-SNAPSHOT [Icons]
KB Explorer
Messages
Main Programs
Root Module
GeneXus
AnotherShift
Customer
DeleteOfficeVisits
FirstDayOfWeek
GetOfficeVisit
Gx0010
Gx0020
Gx0030
Gx0040
Gx0050
Gx0063
Gx0070
isPatientOk
MedicalSpecialty
Office
OfficeVisit
OfficeVisitsSchedule
OfficeVisitTEST
Patient
Physician
PhysicianShifts
Shift
WeeklySchedule
WeeklyScheduleMockupData
Domains
Images
Backup
References
Customization
Documentation

OfficeVisit x OfficeVisitsSchedule x FirstDayOfWeek x AnotherShift x
Web Layout | Rules | Events | Conditions | Variables | Help | Documentation
'WeeklySchedule'
14   endfor
15
16   // Following Shift for Tuesday, Thursday
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18   for &n = 0 to 1
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31       &officeVisit.OfficeVisitDate = &FirstDayOfWeek + ((2*&n)+1)
32       &officeVisit.PhysicianId = &PhysicianId
33       &officeVisit.ShiftId = AnotherShift(&nextShift)
34       &officeVisit.OfficeId = &usualOfficeId
35       &officeVisit.Insert()
36       Do "GetMessages"
37   endfor
38   Commit
39 -Endevent
40
41 Sub "GetMessages"
42   &message = new()
43   &message.Type = MessageTypes.Info
44   &message.Description = &officeVisit.OfficeVisitDate.ToString() + " --- " + &officeVisit.ShiftName
45   &messages.Add(&message)
46   for &message in &officeVisit.GetMessages()
47       &messages.Add(&message)
48   endfor
49 -endsub
50
```

Em seguida, processamos as mensagens obtidas.

# Hospital Backoffice

by GeneXus

Recents Office Visit — Office Visits — Office Visits Sche...

Next Monday Form Date

Physician Id

Most Frequent Shift Id

Usual Office Id

Id	Type	Description
	Info	10/10/22 --- Shift morning
ForeignKeyNotFound	Error	No matching 'Physician'.
ForeignKeyNotFound	Error	No matching 'Medical Specialty'.
	Info	10/12/22 --- Shift morning
ForeignKeyNotFound	Error	No matching 'Physician'.
ForeignKeyNotFound	Error	No matching 'Medical Specialty'.
	Info	10/14/22 --- Shift morning
ForeignKeyNotFound	Error	No matching 'Physician'.
ForeignKeyNotFound	Error	No matching 'Medical Specialty'.
	Info	10/11/22 --- Shift intermediate
ForeignKeyNotFound	Error	No matching 'Physician'.

Vamos testar isto quando ainda não há nenhuma consulta na tabela.

Obviamente, se colocamos valores inexistentes de chaves estrangeiras, por exemplo, um médico inexistente, todas as tentativas de inserção falharão. Será tentada a inserção fazendo as mesmas verificações que através da transação.

# Hospital Backoffice

by GeneXus

Recents Office Visit — Office Visits — Office Visits Sche...

Next Monday Form Date 10/04/22 29

Weekly Schedule

Physician Id 1

Most Frequent Shift Id 1

Usual Office Id 1

Id	Type	Description
	Info	10/10/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/12/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/14/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/13/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift evening

Agora vamos ver o caminho de sucesso.

# Hospital Backoffice

Recents Office Visit — Office Visits Sche...



**HIDE FILTERS**

**Office Visits**

MEDICAL SPECIALTY NAME

OFFICE VISIT DATE

SHIFT NAME

Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	

+ INSERT

Visit Date	Physician Id	Physician Name	Shift Name	Medical Specialt...	Office Id	Last Number
10/10/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE
10/12/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE
10/14/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE
10/11/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0 UPDATE DELETE
10/13/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0 UPDATE DELETE
10/11/22	1	Doctor 1	Shift evening	Family Medicine	1	0 UPDATE DELETE
10/13/22	1	Doctor 1	Shift evening	Family Medicine	1	0 UPDATE DELETE

&officeVisits

<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>1</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>1</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>1</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(1)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	1	PhysicianName		ShiftId	1	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	1	OfficeVisitLastNumber		Patient		<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>1</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>1</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>1</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(2)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	1	PhysicianName		ShiftId	1	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	1	OfficeVisitLastNumber		Patient		<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>1</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>1</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>1</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(3)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	1	PhysicianName		ShiftId	1	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	1	OfficeVisitLastNumber		Patient		<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>1</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>2</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>1</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(4)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	1	PhysicianName		ShiftId	2	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	1	OfficeVisitLastNumber		Patient		<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>1</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>2</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>1</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(5)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	1	PhysicianName		ShiftId	2	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	1	OfficeVisitLastNumber		Patient		<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>3</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>3</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>3</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(6)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	3	PhysicianName		ShiftId	3	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	3	OfficeVisitLastNumber		Patient		<table border="1"> <tr><td>OfficeVisitDate</td><td>#2022-10-10</td></tr> <tr><td>PhysicianId</td><td>1</td></tr> <tr><td>PhysicianName</td><td></td></tr> <tr><td>ShiftId</td><td>3</td></tr> <tr><td>ShiftName</td><td></td></tr> <tr><td>MedicalSpecialtyId</td><td></td></tr> <tr><td>MedicalSpecialtyName</td><td></td></tr> <tr><td>OfficeId</td><td>1</td></tr> <tr><td>OfficeVisitLastNumber</td><td></td></tr> <tr><td>Patient</td><td></td></tr> </table> <p>(7)</p>	OfficeVisitDate	#2022-10-10	PhysicianId	1	PhysicianName		ShiftId	3	ShiftName		MedicalSpecialtyId		MedicalSpecialtyName		OfficeId	1	OfficeVisitLastNumber		Patient	
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&officeVisits.Insert()

Monday	Tuesday	Wednesday	Thursday	Friday
Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
	Physician: 1 Office: 1		Physician: 1 Office: 1	
	Physician: 1 Office: 1		Physician: 1 Office: 1	
10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022

Outra forma de programar isto seria carregar cada BC em um item de uma coleção, e só então dar a ordem de Insert para toda a coleção.

Sabemos que internamente será acessado cada item e será tentado um Insert desse item.

Name	Type	Is Collection	Description
Variables			
Standard Variables			
FirstDayOfWeek	Date	<input type="checkbox"/>	First Day Of Week
message	Messages.Message, GeneXus.Common	<input type="checkbox"/>	message
messages	Messages, GeneXus.Common	<input type="checkbox"/>	messages
MostFrequentShiftId	Attribute:ShiftId	<input type="checkbox"/>	Most Frequent Shift Id
n	Numeric(1,0)	<input type="checkbox"/>	n
NextScheduleDate	Date	<input type="checkbox"/>	NextMondayDate
nextShift	Attribute:ShiftId	<input type="checkbox"/>	next Shift
officeVisit	OfficeVisit	<input type="checkbox"/>	office Visit
officeVisits	OfficeVisit	<input checked="" type="checkbox"/>	office Visits
PhysicianId	Attribute:PhysicianId	<input type="checkbox"/>	Physician Id
usualOfficeId	Attribute:OfficeId	<input type="checkbox"/>	Office Id

```

1 Event 'WeeklySchedule'
2   &messages.Clear()
3   &firstDayOfWeek = FirstDayOfWeek(&nextScheduleDate)
4   &officeVisits.Clear()
5   // Most frequent Shift for Monday Wednesday, Friday
6   for &n = 0 to 2
7     &officeVisit = new()
8     &officeVisit.OfficeVisitDate = &firstDayOfWeek+(2*&n)
9     &officeVisit.PhysicianId = &PhysicianId
10    &officeVisit.ShiftId = &MostFrequentShiftId
11    &officeVisit.OfficeId = &usualOfficeId
12    &officeVisit.Insert()
13    // Do "GetMessages"
14    &officeVisits.Add(&officeVisit)
15  endfor
16
17  // Following Shift for Tuesday, Thursday
18  &nextShift = AnotherShift(&MostFrequentShiftId)
19  for &n = 0 to 1
20    &officeVisit = new()
21    &officeVisit.OfficeVisitDate = &firstDayOfWeek + ((2*&n)+1)
22    &officeVisit.PhysicianId = &PhysicianId
23    &officeVisit.ShiftId = &nextShift
24    &officeVisit.OfficeId = &usualOfficeId
25    &officeVisit.Insert()
26    // Do "GetMessages"
27    &officeVisits.Add(&officeVisit)
28  endfor
29
30  // Resting Shift for Tuesday, Thursday
31  for &n = 0 to 1
32    &officeVisit = new()
33    &officeVisit.OfficeVisitDate = &firstDayOfWeek + ((2*&n)+1)
34    &officeVisit.PhysicianId = &PhysicianId
35    &officeVisit.ShiftId = AnotherShift(&nextShift)
36    &officeVisit.OfficeId = &usualOfficeId
37    // &officeVisit.Insert()
38    // Do "GetMessages"
39    &officeVisits.Add(&officeVisit)
40  endfor
41  &officeVisits.Insert()
42  for &officeVisit in &officeVisits
43    Do "GetMessages"
44  endfor
45  Commit

```

Ou seja, definiríamos uma variável officeVisits, collection do BC OfficeVisit.

E carregariamos na variável &officeVisit a informação, mas em vez de já inserir na base de dados, pedimos para adicionar à coleção o BC. Isto para todas as instâncias do BC.

E só então solicitamos a inserção de toda a coleção.

Claro, aqui se quisermos obter as mensagens de cada Insert (a de cada item) teremos que percorrer a coleção e chamar a sub-rotina.

E nos convém limpar a coleção de BCs antes de começar.



# Hospital Backoffice



Recents Office Visit — Office Visits — Office Visits Sche...

Next Monday Form Date: 10/04/22 29 Weekly Schedule

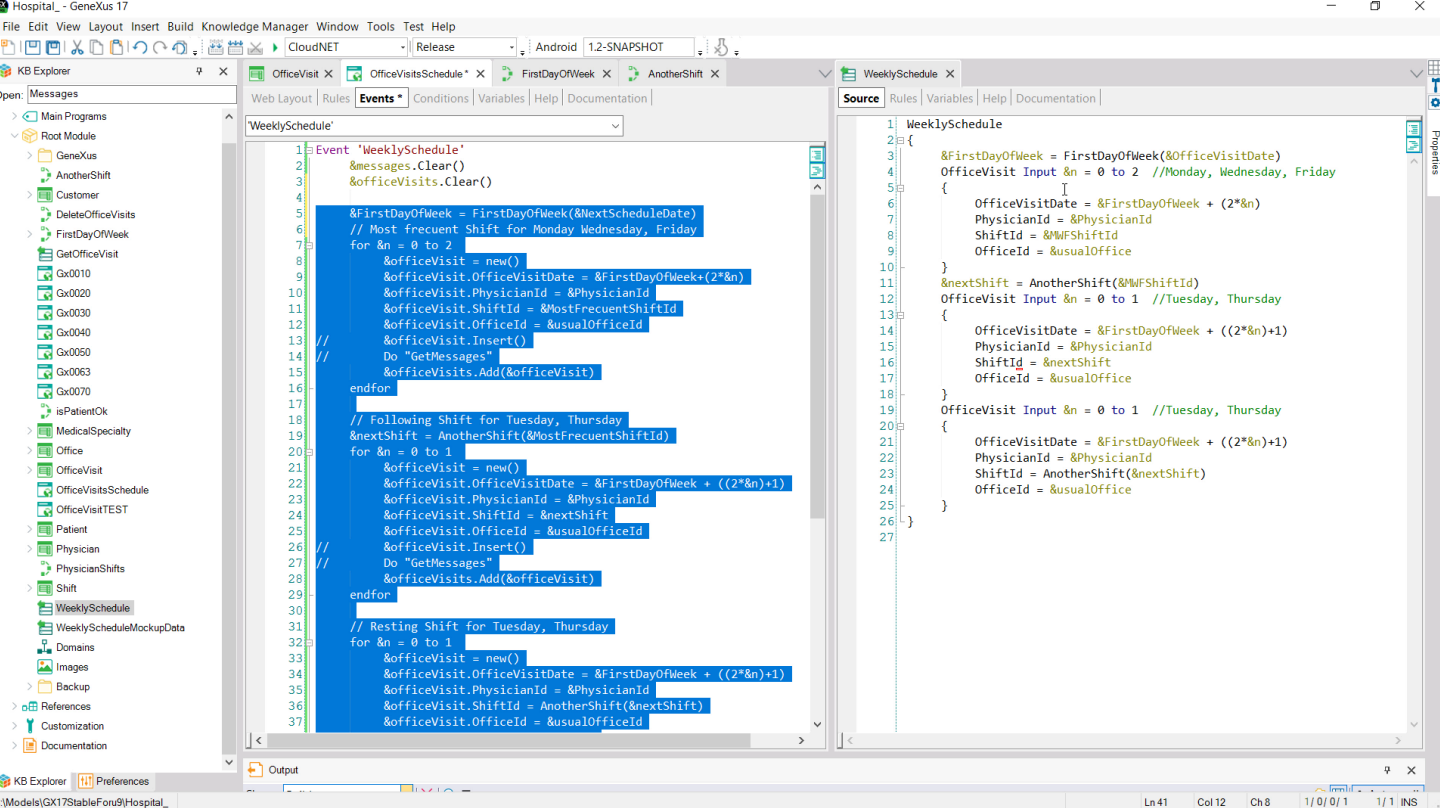
Physician Id: 1

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type	Description
	Info	10/10/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/12/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/14/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/13/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift evening

Se testarmos agora com a tabela vazia como antes, deveria nos dar exatamente o mesmo resultado...



Agora, não seria mais fácil em vez de carregar a coleção desta forma tão manual fazer isso utilizando um Data Provider?

Ou seja, substituir tudo isso...

File Edit View Layout Insert Build Knowledge Manager Window Tools Test Help

CloudNET Release Android 1.2-SNAPSHOT

KB Explorer Messages

Main Programs  
 Root Module  
 GeneXus  
 AnotherShift  
 Customer  
 DeleteOfficeVisits  
 FirstDayOfWeek  
 GetOfficeVisit  
 Gx0010  
 Gx0020  
 Gx0030  
 Gx0040  
 Gx0050  
 Gx0063  
 Gx0070  
 isPatientOk  
 MedicalSpecialty  
 Office  
 OfficeVisit  
 OfficeVisitsSchedule  
 OfficeVisitTEST  
 Patient  
 Physician  
 PhysicianShifts  
 Shift  
 WeeklySchedule  
 WeeklyScheduleMockupData  
 Domains  
 Images  
 Backup  
 References  
 Customization  
 Documentation

OfficeVisit x OfficeVisitsSchedule x FirstDayOfWeek x AnotherShift x WeeklySchedule x

Web Layout | Rules | **Events** | Conditions | Variables | Help | Documentation

'WeeklySchedule'

```

1 Event "WeeklySchedule"
2   &messages.Clear()
3   &officeVisits.Clear()
4
5   &firstDayOfWeek = FirstDayOfWeek(&nextScheduleDate)
6   // Most frequent Shift for Monday Wednesday, Friday
7   for &n = 0 to 2
8     &officeVisit = new()
9     &officeVisit.OfficeVisitDate = &firstDayOfWeek+(2*&n)
10    &officeVisit.PhysicianId = &physicianId
11    &officeVisit.ShiftId = &mostFrequentShiftId
12    &officeVisit.OfficeId = &usualOfficeId
13    //
14    Do "getMessages"
15    &officeVisits.Add(&officeVisit)
16  endfor
17
18  // Following Shift for Tuesday, Thursday
19  &nextShift = AnotherShift(&mostFrequentShiftId)
20  for &n = 0 to 1
21    &officeVisit = new()
22    &officeVisit.OfficeVisitDate = &firstDayOfWeek + ((2*&n)+1)
23    &officeVisit.PhysicianId = &physicianId
24    &officeVisit.ShiftId = &nextShift
25    &officeVisit.OfficeId = &usualOfficeId
26    //
27    &officeVisit.Insert()
28    Do "getMessages"
29    &officeVisits.Add(&officeVisit)
30  endfor
31  // Resting Shift for Tuesday, Thursday
32  for &n = 0 to 1
33    &officeVisit = new()
34    &officeVisit.OfficeVisitDate = &firstDayOfWeek + ((2*&n)+1)
35    &officeVisit.PhysicianId = &physicianId
36    &officeVisit.ShiftId = AnotherShift(&nextShift)
37    &officeVisit.OfficeId = &usualOfficeId

```

Source

```

1 WeeklySchedule
2 {
3   &firstDayOfWeek
4   OfficeVisit Inp
5   {
6     OfficeVisi
7     PhysicianI
8     ShiftId =
9     OfficeId =
10  }
11  &nextShift = Ar
12  OfficeVisit Inp
13  {
14    OfficeVisi
15    PhysicianI
16    ShiftId =
17    OfficeId =
18  }
19  OfficeVisit Inp
20  {
21    OfficeVisi
22    PhysicianI
23    ShiftId =
24    OfficeId =
25  }
26 }
27

```

Properties

Data Provider: WeeklySchedule

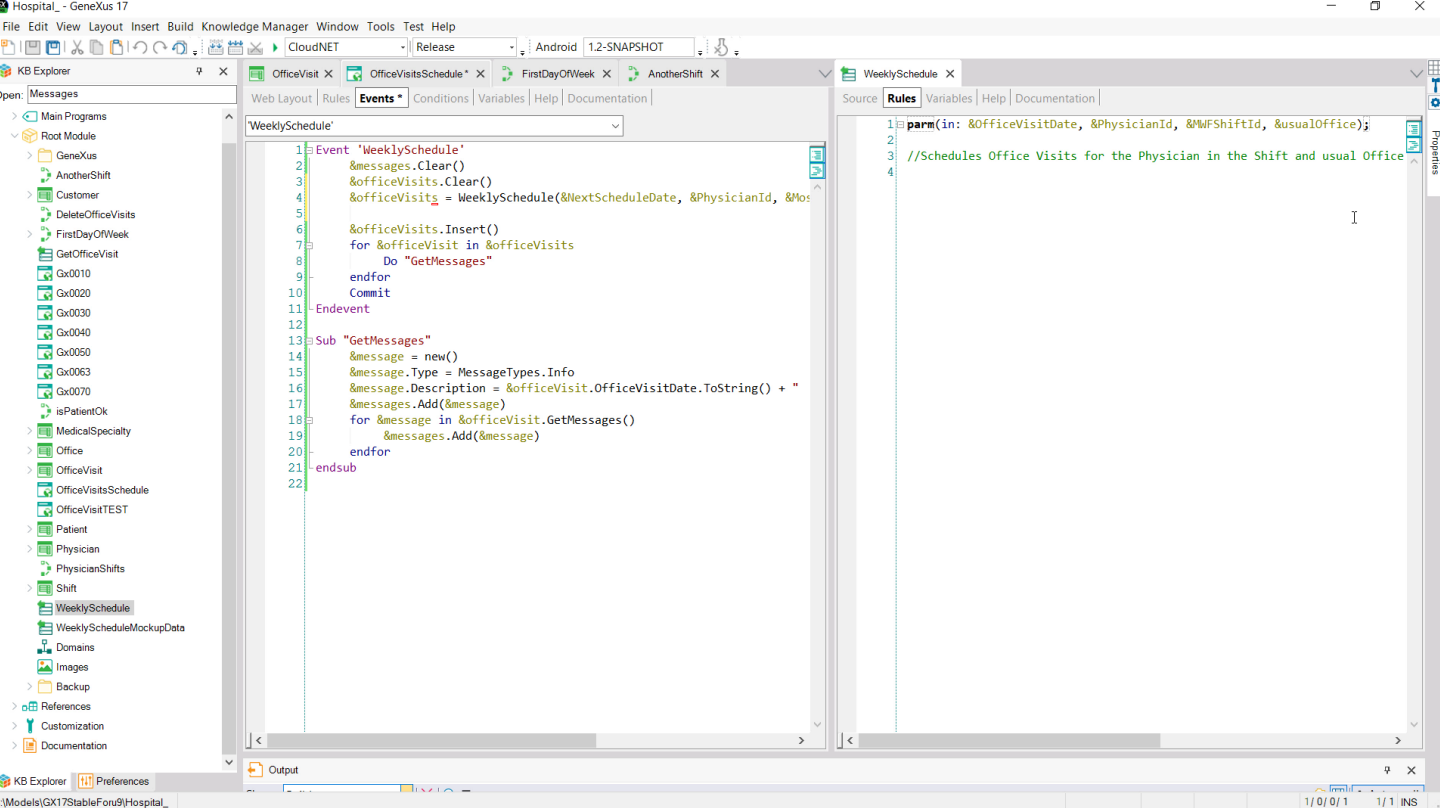
Name	WeeklySchedule
Description	Weekly Schedule
Expose as Web Service	False
Main program	False
Call protocol	Internal
Module/Folder	Root Module
Qualified Name	WeeklySchedule
Object Visibility	Public
<b>Output</b>	
Infer Structure	No
Output	OfficeVisit
Collection	True
Collection Name	WeeklySchedule
<b>Network</b>	
Connectivity Support	Inherit
<b>Warning messages</b>	
Disabled warnings	spc0096 spc0107 spc0142
<b>Miscellaneous</b>	
Generate Object	True

KB Explorer Preferences

Models\GX17\StableFon9\Hospital\_

1 / 0 / 0 / 1 1 / 1

...por uma invocação a este Data Provider, que retorna uma coleção do BC OfficeVisit...



...carregada da mesma forma que no evento do web panel, mas em mais alto nível.

Em seguida, carregamos a variável coleção com o resultado da invocação ao Data Provider, para o qual devemos passar todos os parâmetros.

GeneXus Developer Menu x Office Visits x Office Visits Schedule x +

apps5.genexus.com/Id9df182c70350001219afeaceeb30e8e2/officevisitschedule.aspx

GeneXus DL Portal

# Hospital Backoffice

by GeneXus

Recents Office Visit — Office Visits — Office Visits Sche...

Next Monday Form Date 10/05/22 29 Weekly Schedule

Physician Id 1

Most Frequent Shift Id 1

Usual Office Id 1

Id	Type	Description
	Info	10/10/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/12/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/14/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/13/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift evening

Vamos testar. Novamente, tendo esvaziado a tabela, vemos que nos dá exatamente o mesmo resultado.

```
parm(in: &OfficeVisitDate, in: &PhysicianId, in: &ShiftId, in: &OfficeId);
```

```

1 OfficeVisit
2 {
3   OfficeVisitDate = &OfficeVisitDate
4   PhysicianId = &PhysicianId
5   ShiftId = &ShiftId
6   OfficeId = &OfficeId
7 }
8

```

Data Provider: GetOfficeVisit	
Name	<b>GetOfficeVisit</b>
Description	Get Office Visit
Expose as Web Service	False
Main program	False
Call protocol	Internal
Module/Folder	Root Module
Qualified Name	GetOfficeVisit
Object Visibility	Public
<b>Output</b>	
Infer Structure	No
Output	<b>OfficeVisit</b>
Collection	False
<b>Network</b>	
Connectivity Support	Inherit
<b>Warning messages</b>	
Disabled warnings	spc0096 spc0107 spc0142
<b>Miscellaneous</b>	
Generate Object	True

Claro, tanto podemos utilizar o Data Provider para retornar uma coleção de Business components como fizemos aqui, que então atribuímos a esta variável coleção, como para retornar apenas um e fazer o Insert sobre esse único.

Por exemplo, aqui temos este outro Data Provider que retornará um BC único, este, OfficeVisit, vemos que collection está como False- E onde é carregado somente um cabeçalho de acordo com os valores recebidos nos parâmetros.

Next Monday Form Date	&NextScheduleDate	Weekly Schedule
Physician Id	&PhysicianId	Schedule One
Most Frequent Shift Id	&MostFrequentShiftId	
Usual Office Id	&usualOfficeId	

GRID		
Id	Type	Description
&messages.item(0).Id	&messages.item(0).Type	&messages.item(0).Description

& Variables			
Standard Variables			
● FirstDayOfWeek	Date		<input type="checkbox"/> First Day Of Week
● message	Messages.Message, GeneXus.Common		<input type="checkbox"/> message
● messages	Messages, GeneXus.Common		<input type="checkbox"/> messages
● MostFrequentShiftId	Attribute:ShiftId		<input type="checkbox"/> Most Frequent Shift Id
● n	Numeric(1.0)		<input type="checkbox"/> n
● NextScheduleDate	Date		<input type="checkbox"/> NextMondayDate
● nextShift	Attribute:ShiftId		<input type="checkbox"/> next Shift
● officeVisit	OfficeVisit		<input type="checkbox"/> office Visit
● officeVisits	OfficeVisit		<input checked="" type="checkbox"/> office Visits
● PhysicianId	Attribute:PhysicianId		<input type="checkbox"/> Physician Id
● usualOfficeId	Attribute:OfficeId		<input type="checkbox"/> Office Id

```

Event 'Schedule One'
  &messages.Clear()
  &officeVisit = GetOfficeVisit(&NextScheduleDate, &PhysicianId, &MostFrequentShiftId, &usualOfficeId)
  &officeVisit.Insert()
  Do "GetMessages"
  Commit
Endevent

```

Vamos adicionar um botão que permita inserir com as variáveis de tela uma única consulta, com esses valores. Então utilizamos a variável BC não coleção, &officeVisit, que já declaramos... e a carregamos com o que retorna este Data Provider, para o qual passamos as variáveis de tela como parâmetros.

Vemos que efetivamente a variável é do tipo de dados BC, no collection.

Depois, simplesmente pedimos que insira na base de dados e processamos as mensagens, adicionando o Commit, é claro.

**Office Visits**  + INSERT

**HIDE FILTERS**

- MEDICAL SPECIALTY NAME
- OFFICE VISIT DATE
- SHIFT NAME

Visit Date ▲	Physician Id	Physician Name	Shift Name	Medical Specialt...	Office Id	Last Number		
10/10/22	1	Doctor 1	Shift morning	Family Medicine	1	0	UPDATE	DELETE
10/11/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0	UPDATE	DELETE
10/11/22	1	Doctor 1	Shift evening	Family Medicine	1	0	UPDATE	DELETE
10/12/22	1	Doctor 1	Shift morning	Family Medicine	1	0	UPDATE	DELETE
10/13/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0	UPDATE	DELETE
10/13/22	1	Doctor 1	Shift evening	Family Medicine	1	0	UPDATE	DELETE
10/14/22	1	Doctor 1	Shift morning	Family Medicine	1	0	UPDATE	DELETE

Vamos testar. Por exemplo, para uma data anterior a esta primeira...



# Hospital Backoffice



Recents Office Visits Sche...

Next Monday Form Date	10/06/22	Weekly Schedule
Physician Id	1	Schedule One
Most Frequent Shift Id	1	
Usual Office Id	1	

Id	Type	Description
	Info	10/06/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.

...inserimos com sucesso.

GeneXus Developer Menu | Office Visits | Office Visits Schedule | +

apps5.genexus.com/ld9df182c70350001219afeaceeb30e8e2/wwofficevisit.aspx

GeneXus | DL Portal

# Hospital Backoffice

by GeneXus

Recents | Office Visits Sche... — Office Visits

× HIDE FILTERS | Office Visits | 🔍 Name | + INSERT

MEDICAL SPECIALTY NAME

OFFICE VISIT DATE

SHIFT NAME

Visit Date	Physician Id	Physician Name	Shift Name	Medical Specialt...	Office Id	Last Number
10/06/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE
10/10/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE
10/11/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0 UPDATE DELETE
10/11/22	1	Doctor 1	Shift evening	Family Medicine	1	0 UPDATE DELETE
10/12/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE
10/13/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0 UPDATE DELETE
10/13/22	1	Doctor 1	Shift evening	Family Medicine	1	0 UPDATE DELETE
10/14/22	1	Doctor 1	Shift morning	Family Medicine	1	0 UPDATE DELETE

Agora, vamos pensar se, no caso em que exista o registro, queremos atualizá-lo, por exemplo, colocamos a mesma chave primária, mas queremos mudar o consultório.

# Hospital Backoffice



Recents Office Visits Sche...

Next Monday Form Date: 10/06/22  Weekly Schedule

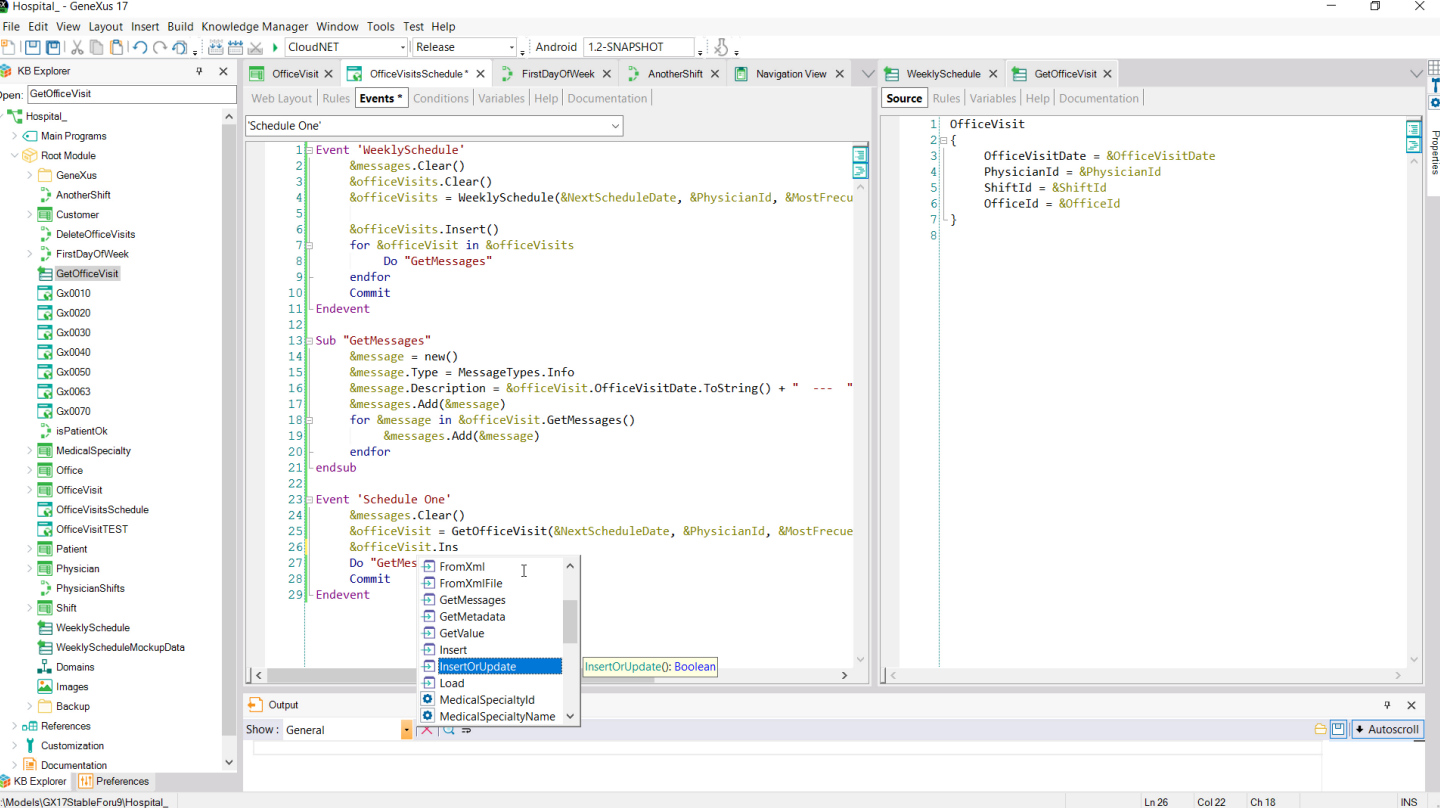
Physician Id:  Schedule One

Most Frequent Shift Id:

Usual Office Id:

Id	Type	Description
	Info	10/06/22 --- Shift morning
DuplicatePrimaryKey	Error	Record already exists

Claro, nos lançará o erro de chave primária duplicada, porque o que tentamos foi um Insert e o registro já existia.




Podemos pensar, então, que bastará para resolver isto, modificar o método que estamos invocando, alterando-o para InsertOrUpdate, para que tente primeiro inserir e, se falhar por chave duplicada, então tente atualizar.

# Hospital Backoffice



Recents Office Visits — Office Visits Sche...

Next Monday Form Date	10/06/22 	<input type="button" value="Weekly Schedule"/>
Physician Id	<input type="text" value="1"/>	<input type="button" value="Schedule One"/>
Most Frequent Shift Id	<input type="text" value="1"/>	
Usual Office Id	<input type="text" value="2"/>	

Id	Type	Description
	Info	10/06/22 --- Shift morning
SuccessfullyUpdated	Warning	Data has been successfully updated.

Se agora tentarmos novamente mudar o consultório desta consulta para o 2... vemos que efetivamente fez o que queríamos.

Office Visits

Q Name

+ INSERT

X HIDE FILTERS

MEDICAL SPECIALTY NAME

OFFICE VISIT DATE

SHIFT NAME

Visit Date	Physician Id	Physician Name	Shift Name	Medical Specialt...	Office Id	Last Number		
10/06/22	1	Doctor 1	Shift morning	Family Medicine	2	0	UPDATE	DELETE
10/10/22	1	Doctor 1	Shift morning	Family Medicine	1	0	UPDATE	DELETE
10/11/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0	UPDATE	DELETE
10/11/22	1	Doctor 1	Shift evening	Family Medicine	1	0	UPDATE	DELETE
10/12/22	1	Doctor 1	Shift morning	Family Medicine	1	0	UPDATE	DELETE
10/13/22	1	Doctor 1	Shift intermediate	Family Medicine	1	0	UPDATE	DELETE
10/13/22	1	Doctor 1	Shift evening	Family Medicine	1	0	UPDATE	DELETE
10/14/22	1	Doctor 1	Shift morning	Family Medicine	1	0	UPDATE	DELETE

Porém, observemos o que acontece se quisermos fazer a mesma coisa, mas por exemplo para esta consulta, deste dia no turno intermediário e o doctor 1, que tem outra consulta para o mesmo dia, em outro turno...

Recents Office Visits — Office Visits Sche...

Next Monday Form Date: 10/11/22 29

Physician Id: 1

Most Frequent Shift Id: 2

Usual Office Id: 2

Id	Type	Description
	Info	10/11/22 --- Shift Intermediate
PhysicianNotAvailable	Error	Physician 1 already has 2 shifts assigned for the date: 10/11/22

```
&officeVisit.InsertOrUpdate()
```

Então colocamos esse dia, o médico 1, turno 2 que é o intermediário e queremos mudar o consultório do 1 para o 2.

Oops, por que deu este erro que nos indica que o médico 1 já tem 2 consultas atribuídas para essa data?

É que primeiro tenta o Insert, e ali é onde vai ocorrer este erro.

GeneXus Developer Menu x Office Visits x Office Visits Schedule x +

apps5.genexus.com/ld9df182c70350001219afeaceeb30e8e2/officevisitschedule.aspx

GeneXus DL Portal

# Hospital Backoffice

by GeneXus

Recents Office Visits — Office Visits Sche...

Next Monday Form Date 10/11/22 29

Physician Id 1

Most Frequent Shift Id 2

Usual Office Id 2

Id

PhysicianNotAvailable

**INSERT**

`&officeVisit.Insert()`

Checks	Error Id	Error Description
FK: PhysicianId	ForeignKeyNotFound	No matching 'Physician'
error("Physician " + PhysicianId.ToString() + " already has 2 shifts assigned for the date: " + OfficeVisitDate.ToString(), PhysicianNotAvailable) If &shifts >= 2 and Insert;		
FK: ShiftId	ForeignKeyNotFound	No matching 'Shift'
FK: OfficeId	ForeignKeyNotFound	No matching 'Office'
CK: {OfficeVisitDate, ShiftId, OfficeId}		Office Visit Date, Shift Id, Office Id already exists
PK: {OfficeVisitDate, PhysicianId, ShiftId}	DuplicatePrimaryKey	Record already exists
FK: PatientId	ForeignKeyNotFound	No matching 'Patient'
error("There is a pending office visit scheduled for this patient for the same specialty", PatientAlreadyScheduledForMedicalSpecialty) if not &isOK and Insert Level PatientId;		
PK: {OfficeVisitDate, PhysicianId, ShiftId, PatientId}	DuplicatePrimaryKey	Record already exists

Se nos lembrarmos da ordem em que são disparadas as verificações, vemos que antes de controlar a unicidade da chave primária, primeiro disparará o procedimento que vai calcular a quantidade de turnos em que se encontra aquele médico e se o resultado for 2 ou mais, já será disparada a regra de erro.

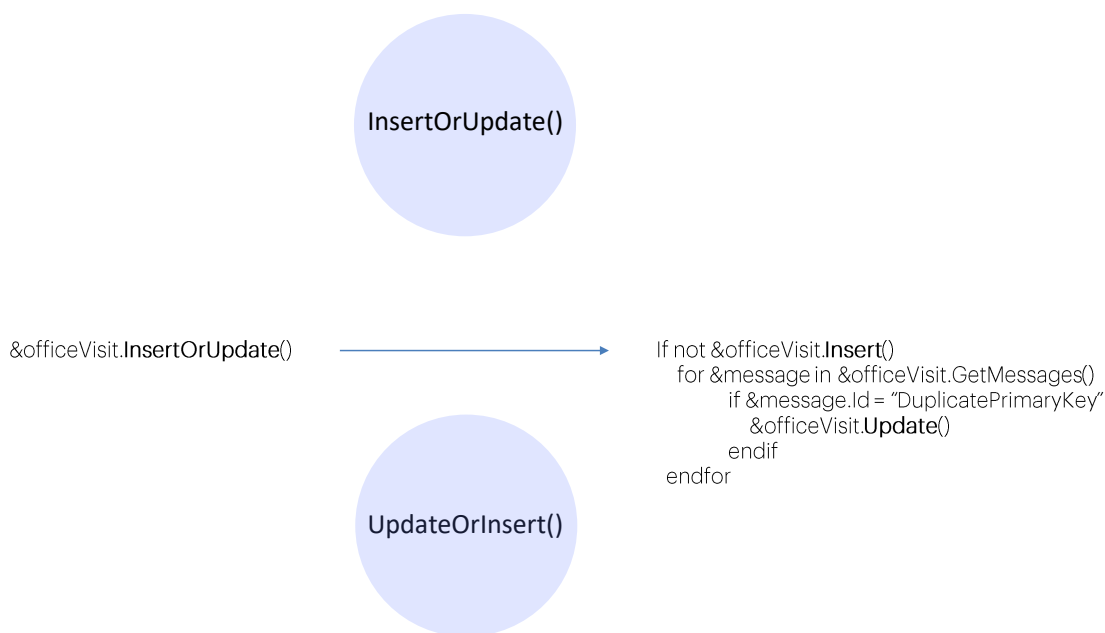
O interessante aqui é que nunca chegará a verificar a unicidade do registro. Por quê?

Aqui existe algo importante a saber: por questões de desempenho, assumindo uma estratégia otimista, supõe-se que na maioria dos casos a inserção não falhará por PK duplicada, então primeiro são realizadas todas as verificações para depois enviar ao DBMS o comando INSERT de base de dados. Ou seja, só é enviado o INSERT se estas verificações anteriores forem bem-sucedidas. E ali, ao tentar o Insert é que o DBMS poderá lançar o erro de chave duplicada. Só então ficamos sabendo se existia ou não outro registro com aquela chave.

Portanto, se alguma destas verificações anteriores falhar, por exemplo, por esta regra de erro, não é feita tentativa do Insert, e ficamos sem saber se, **além disso**, já existia um registro com essa chave e pelo que também devia falhar a inserção.

Neste caso, o Update não é tentado, pois ele só é executado se a falha de Insert foi por chave duplicada.



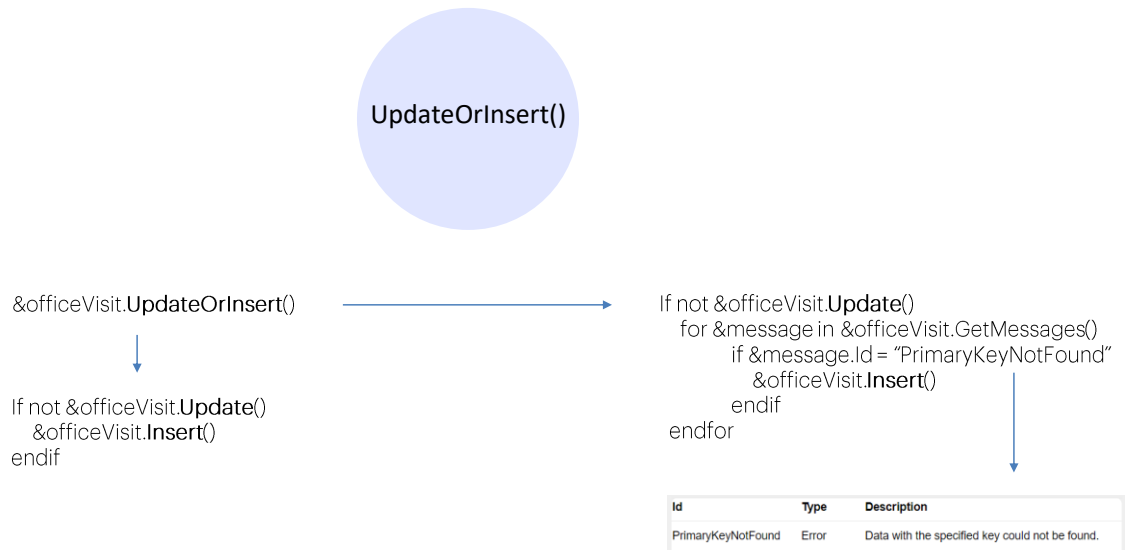


Se traduzirmos a lógica do método `InsertOrUpdate` para o que acontece por trás dele, seria algo assim:

Tenta o `Insert`, se funcionou, perfeito, continua com o código que vem depois. Se não funcionou, apenas no caso em que tenha sido por chave primária duplicada, tenta o `Update`, que por sua vez poderá funcionar ou não, é claro.

Mas temos que levar em conta o comportamento que descrevemos há pouco. Ou seja, se o `Insert` falhar por alguma outra coisa anterior à tentativa real de inserção, como nunca chega-se a saber se, além disso, o registo já existia, nunca executará o `Update`.

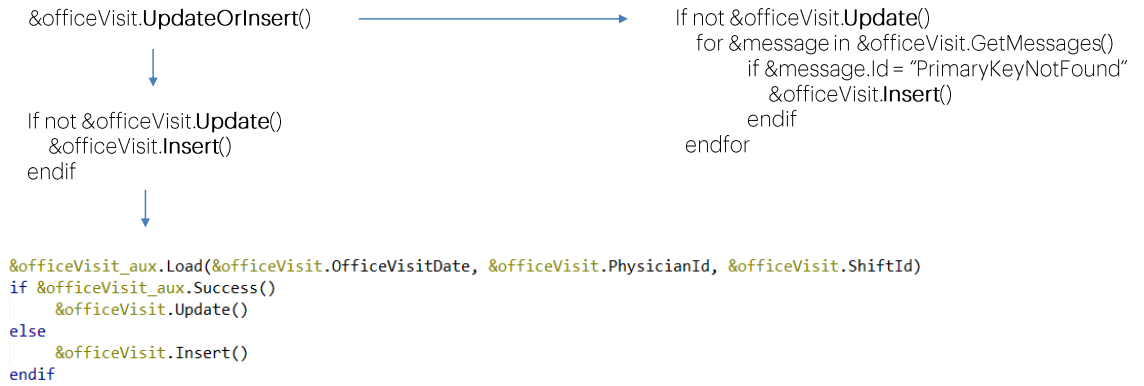
O método inverso ainda não foi implementado em GeneXus.



Mas deveria ser análogo, no sentido de que somente se não puder fazer o Update por inexistência do registro e não por qualquer outra coisa, tente o Insert.

Como ainda não temos este método, podemos tentar o Update e se ele falhar por qualquer motivo, de qualquer maneira tentar o Insert, sabendo que se a falha não foi porque a chave não existia, então o Insert falhará inevitavelmente.

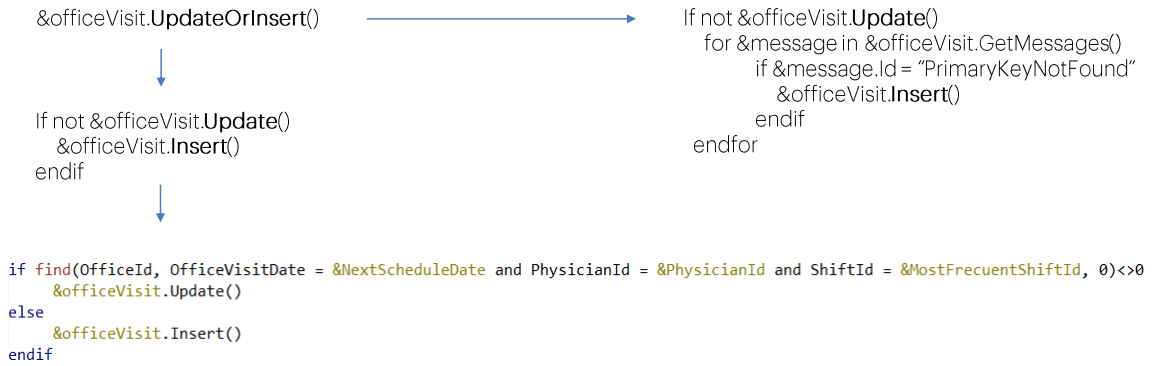
## UpdateOrInsert()



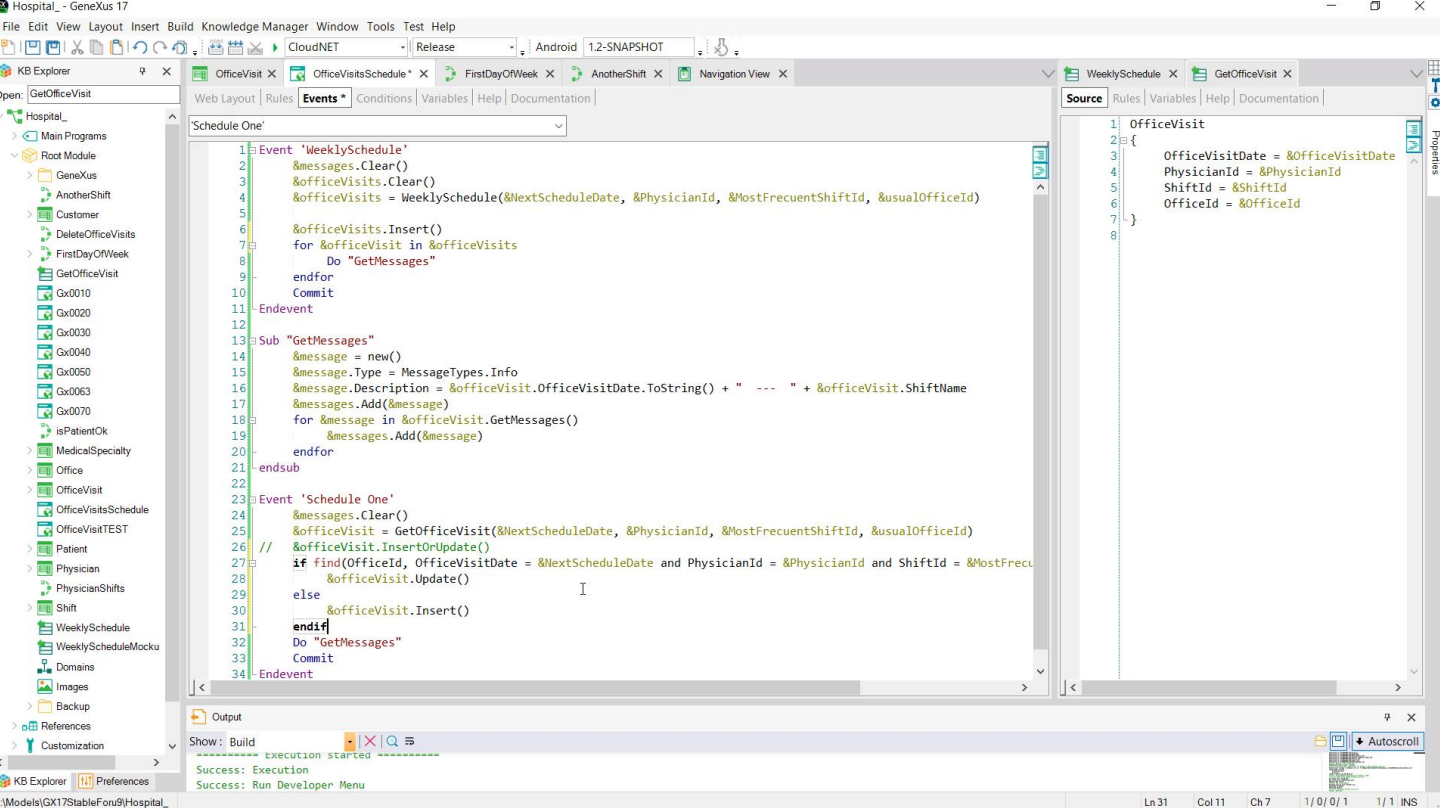
Ou, claro, também poderíamos ser mais específicos e tentar o método Load, e perguntar se foi bem-sucedido ou não, e só então pedir um Update ou um Insert respectivamente.



## UpdateOrInsert()



Ou, se quisermos ser mais eficientes, buscar a existência ou não do registro com uma fórmula find, por exemplo.



Vamos testar esta solução.

# Hospital Backoffice



Recents Office Visits — Office Visits Sche...

Next Monday Form Date: 10/11/22

Physician Id:

Most Frequent Shift Id:

Usual Office Id:

Id	Type	Description
	Info	10/11/22 ---
SuccessfullyUpdated	Warning	Data has been successfully updated.

Agora fomos capazes de modificar o consultório.

Next Monday Form Date	<input type="text" value="&amp;NextScheduleDate"/>	Weekly Schedule
Physician Id	<input type="text" value="&amp;PhysicianId"/> 1	
Most Frequent Shift Id	<input type="text" value="&amp;MostFrequentShiftId"/>	
Usual Office Id	<input type="text" value="&amp;usualOfficeld"/> 1	

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

	Monday	Tuesday	Wednesday	Thursday	Friday
Shift 1 morning	Physician: 1 Office: 1		Physician: 1 Office: 1		Physician: 1 Office: 1
Shift 2 intermediate		Physician: 1 Office: 1		Physician: 1 Office: 1	
Shift 3 evening		Physician: 1 Office: 1		Physician: 1 Office: 1	
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022

Vamos voltar para a inserção batch. Anteriormente havíamos inserido todos estes registros sem problemas porque não havia outros registros para essa semana na base de dados. Mas e se existissem?

	Monday	Tuesday	Wednesday	Thursday	Friday
Shift 1 morning	Physician: 1 Office: 2 → 1 Physician: 1 Office: 1 ↻		Physician: 2 Office: 1 Physician: 1 Office: 1 !	Physician: 1 Office: 2	Physician: 1 Office: 1 ↕
Shift 2 intermediate	Physician: 1 Office: 2	Physician: 1 Office: 1 ↕		Physician: 1 Office: 1 ↕	
Shift 3 evening		Physician: 1 Office: 2 → 1 Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 !	
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022

Por exemplo, suponhamos que já existiam estes registros para essa semana, quando queremos iniciar o processo batch.

Vamos querer fazer a mesma coisa que no caso individual anterior: ou seja, inserir se não existir um registro com essa chave e, caso contrário, atualizar.

Então, o que deveria acontecer com cada um? Para o primeiro, já existe registro com essa chave primária, é este, então tentará o Update, que funcionará, trocando o consultório por este, o 1.

Para o segundo, consulta se existe registro com essa chave, como não existe, tenta o Insert, mas falhará por chave candidata duplicada. É que o consultório 1 já está ocupado.

Para o terceiro, consulta se existe registro com essa chave; não existe, tenta o Insert, que será bem-sucedido.

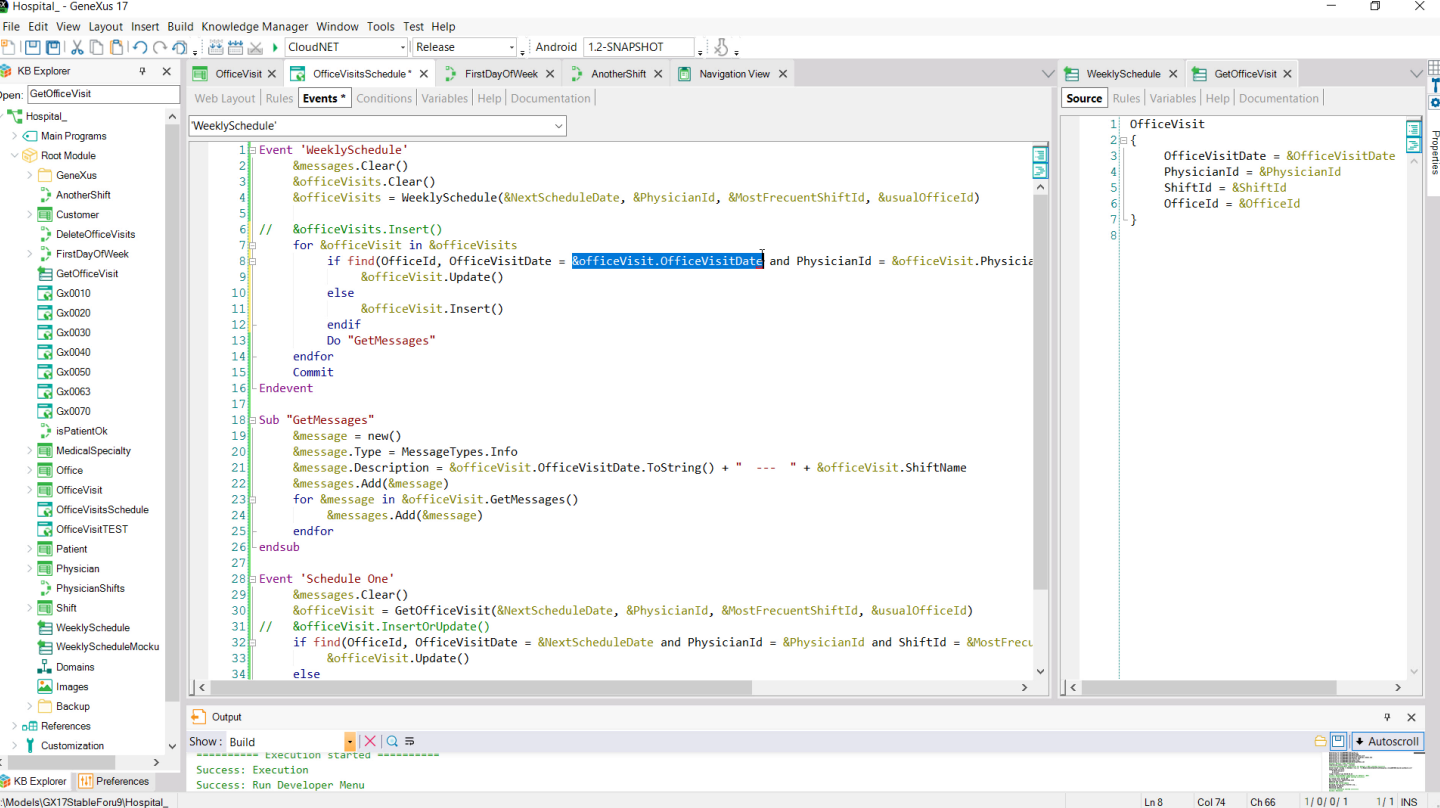
Para o quarto tenta o Insert, que contará quantas consultas já estão inseridas para esse dia para o médico, e como dará 1, não será disparado nenhum erro e poderá inserir sem problema.

Para o quinto acontecerá o mesmo, vai inserir sem inconveniente.

Agora vem o sexto e como já existe registro com essa chave, tenta o Update, que será bem-sucedido, modificando o consultório do registro existente.

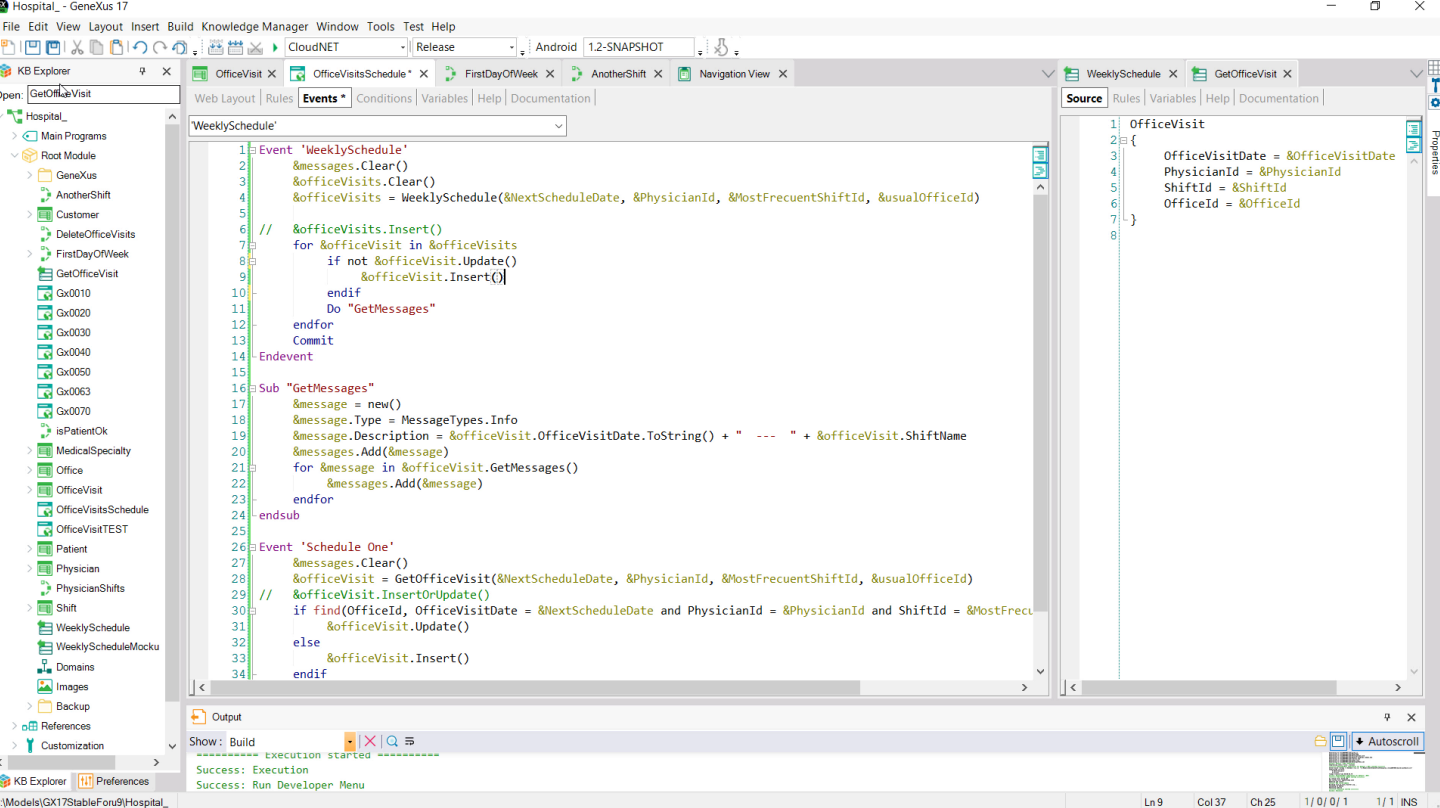
Para o último, como não existe registro com essa chave, tentará o Insert, mas falhará. Por quê? Porque encontrará que o médico 1 já tem 2 consultas agendadas esse dia.





Como alteramos o código que tínhamos para que funcione assim?

Já não é mais útil lançar operação massiva sobre a coleção dos 7 itens que nos devolveva o Data Provider. Teremos que operar individualmente, percorrendo-a toda e em cada caso perguntando sobre a existência ou não do registro com essa chave. Aqui devemos utilizar os dados de cada BC.



Ou, se quisermos testar de maneira mais fácil, tentamos o Update e se não funcionar, tentamos o Insert...

Vamos testar.

X HIDE FILTERS

## Office Visits

Q Name

+ INSERT

- MEDICAL SPECIALTY NAME
- OFFICE VISIT DATE
- SHIFT NAME

Visit Date	Physician Id	Physician Name	Shift Name	Medical Specialt...	Office Id	Last Number		
10/10/22	1	Doctor 1	Shift morning	Family Medicine	2	0	UPDATE	DELETE
10/10/22	1	Doctor 1	Shift intermediate	Family Medicine	2	0	UPDATE	DELETE
10/11/22	1	Doctor 1	Shift evening	Family Medicine	2	0	UPDATE	DELETE
10/13/22	1	Doctor 1	Shift morning	Family Medicine	2	0	UPDATE	DELETE
10/12/22	2	Doctor 2	Shift morning	Family Medicine	1	0	UPDATE	DELETE

Aqui temos os dados iniciais...

GeneXus Developer Menu | Office Visits | Office Visits Schedule

apps5.genexus.com/Id9df182c70350001219afeaceeb30e8e2/officevisitschedule.aspx

GeneXus DL Portal

# Hospital Backoffice

by GeneXus

Recents Office Visits — Office Visits Sche...

Next Monday Form Date: 10/06/22 29 Weekly Schedule

Physician Id: 1 Schedule One

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type	Description
	Info	10/10/22 ---
SuccessfullyUpdated	Warning	Data has been successfully updated.
	Info	10/12/22 --- Shift morning
	Error	Office Visit Date,Shift Id,Office Id already exists
	Info	10/14/22 --- Shift morning
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/13/22 --- Shift intermediate
SuccessfullyAdded	Warning	Data has been successfully added.
	Info	10/11/22 ---

E agora vamos tentar lançar a agenda batch, para a semana seguinte, médico 1, turno 1.

Vamos comparar as mensagens produzidas com o que esperávamos...

GeneXus Developer Menu x Office Visits x Office Visits Schedule x +

apps5.genexus.com/ld9df182c70350001219afeaceeb30e8e2/officevisitschedule.aspx

GeneXus DL Portal

Physician Id: 1 Schedule One

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
10/10/22 ---						10/10/22 ---
SuccessfullyUpdated						Data has been successfully updated.
	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/12/22 --- Shift morning
	Physician: 1 Office: 1		Physician: 1 Office: 1			Office Visit Date, Shift Id, Office Id already exists
						10/14/22 --- Shift morning
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1		Physician: 1 Office: 1		Data has been successfully added.
						10/11/22 --- Shift intermediate
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1		Data has been successfully added.
		Physician: 1 Office: 1		Physician: 1 Office: 1		10/13/22 --- Shift intermediate
SuccessfullyAdded		Physician: 1 Office: 1				Data has been successfully added.
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022	10/11/22 ---
SuccessfullyUpdated			Warning			Data has been successfully updated.
			Info			10/13/22 --- Shift evening
PhysicianNotAvailable			Error			Physician 1 already has 2 shifts assigned for the date: 10/13/22

O primeiro atualizou com sucesso, certo.

GeneXus Developer Menu x Office Visits x Office Visits Schedule x +

apps5.genexus.com/ld9df182c70350001219afeaceeb30e8e2/officevisitschedule.aspx

GeneXus DL Portal

Physician Id: 1 Schedule One

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
SuccessfullyUpdated	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/10/22 --- Data has been successfully updated.
	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		Physician: 1 Office: 1 ↻	10/12/22 --- Shift morning Office Visit Date, Shift Id, Office Id already exists
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ↻		10/14/22 --- Shift morning Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1 ⚠		10/11/22 --- Shift intermediate Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		10/13/22 --- Shift intermediate Data has been successfully added.
SuccessfullyUpdated	Warning					10/11/22 --- Data has been successfully updated.
PhysicianNotAvailable	Error					10/13/22 --- Shift evening Physician 1 already has 2 shifts assigned for the date: 10/13/22

O segundo falhou por chave candidata duplicada, certo.

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GeneXus DL Portal

Physician Id: 1 Schedule One

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
SuccessfullyUpdated	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/10/22 --- Data has been successfully updated.
	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠			10/12/22 --- Shift morning Office Visit Date, Shift Id, Office Id already exists
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1 ↕		Physician: 1 Office: 1 ↕		10/14/22 --- Shift morning Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1 ⚠		10/11/22 --- Shift intermediate
SuccessfullyAdded		Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		Data has been successfully added.
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022	10/11/22 ---
SuccessfullyUpdated			Warning			Data has been successfully updated.
			Info			10/13/22 --- Shift evening
PhysicianNotAvailable			Error			Physician 1 already has 2 shifts assigned for the date: 10/13/22

O terceiro foi inserido com sucesso, certo.

GeneXus Developer Menu x Office Visits x Office Visits Schedule x +

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GeneXus DL Portal

Physician Id: 1 Schedule One

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
SuccessfullyUpdated	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/10/22 --- Data has been successfully updated.
	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		Physician: 1 Office: 1 ↻	10/12/22 --- Shift morning Office Visit Date, Shift Id, Office Id already exists
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ↻		10/14/22 --- Shift morning Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1 ⚠		10/11/22 --- Shift intermediate Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		10/13/22 --- Shift intermediate Data has been successfully added.
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022	10/11/22 ---
SuccessfullyUpdated	Warning					Data has been successfully updated.
	Info					10/13/22 --- Shift evening
PhysicianNotAvailable	Error					Physician 1 already has 2 shifts assigned for the date: 10/13/22

O quarto foi inserido com sucesso, certo.



GeneXus Developer Menu | Office Visits | Office Visits Schedule | +

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Physician Id:  Schedule One

Most Frequent Shift Id:

Usual Office Id:

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
SuccessfullyUpdated	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/10/22 --- Data has been successfully updated.
	Physician: 1 Office: 1		Physician: 1 Office: 1			10/12/22 --- Shift morning Office Visit Date, Shift Id, Office Id already exists
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1		Physician: 1 Office: 1		10/14/22 --- Shift morning Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1		10/11/22 --- Shift intermediate Data has been successfully added.
SuccessfullyAdded		Physician: 1 Office: 1		Physician: 1 Office: 1		10/13/22 --- Shift intermediate Data has been successfully added.
	10-10-2022	10-11-2022	10-12-2022	10-13-2022	10-14-2022	10/11/22 ---
SuccessfullyUpdated	Warning					Data has been successfully updated.
	Info					10/13/22 --- Shift evening
PhysicianNotAvailable	Error					Physician 1 already has 2 shifts assigned for the date: 10/13/22

O quinto também foi inserido com sucesso, certo.

GeneXus Developer Menu | Office Visits | Office Visits Schedule | +

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Physician Id: 1 | Schedule One

Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
SuccessfullyUpdated	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/10/22 --- Data has been successfully updated.
	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		Physician: 1 Office: 1 ↻	10/12/22 --- Shift morning Office Visit Date, Shift Id, Office Id already exists
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ↻		10/14/22 --- Shift morning Data has been successfully added.
SuccessfullyAdded						10/11/22 --- Shift intermediate
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1 ⚠		Data has been successfully added. 10/13/22 --- Shift intermediate
SuccessfullyAdded		Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠		Data has been successfully added. 10/11/22 --- Data has been successfully updated.
SuccessfullyUpdated	Warning					10/13/22 --- Shift evening
PhysicianNotAvailable	Error					Physician 1 already has 2 shifts assigned for the date: 10/13/22

O sexto foi atualizado com sucesso, certo.

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apps5.genexus.com/ld9df182c70350001219afeaceeb30e8e2/officevisitschedule.aspx

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Physician Id: 1 Schedule One

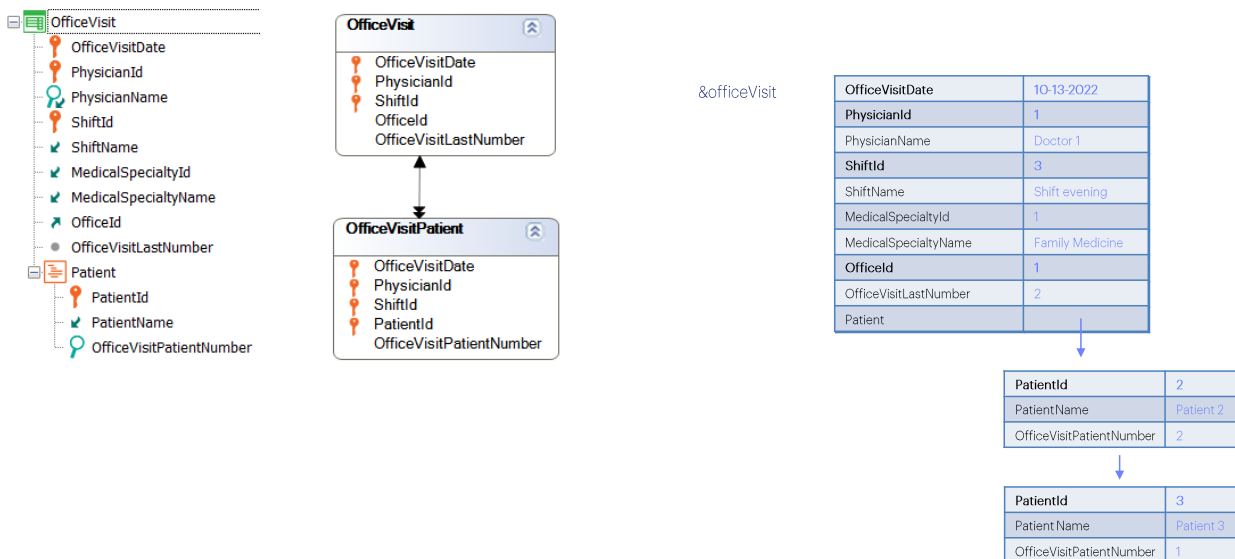
Most Frequent Shift Id: 1

Usual Office Id: 1

Id	Type					Description
	Monday	Tuesday	Wednesday	Thursday	Friday	
10/10/22 ---						10/10/22 ---
SuccessfullyUpdated						Data has been successfully updated.
	Physician: 1 Office: 2 → 1		Physician: 2 Office: 1	Physician: 1 Office: 2	Physician: 1 Office: 1	10/12/22 --- Shift morning
	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ⚠			Office Visit Date, Shift Id, Office Id already exists
10/14/22 ---						10/14/22 --- Shift morning
SuccessfullyAdded	Physician: 1 Office: 2	Physician: 1 Office: 1 ↻		Physician: 1 Office: 1 ↻		Data has been successfully added.
						10/11/22 --- Shift intermediate
SuccessfullyAdded		Physician: 1 Office: 2 → 1		Physician: 1 Office: 1 ⚠		Data has been successfully added.
		Physician: 1 Office: 1 ↻				10/13/22 --- Shift intermediate
SuccessfullyAdded						Data has been successfully added.
10/11/22 ---						10/11/22 ---
SuccessfullyUpdated			Warning			Data has been successfully updated.
			Info			10/13/22 --- Shift evening
PhysicianNotAvailable			Error			Physician 1 already has 2 shifts assigned for the date: 10/13/22

E o último falhou porque o médico já tinha 2 consultas para esse dia, certo.

Vamos ver que efetivamente mudou o consultório desta consulta... certo E desta outra... certo também.



Até aqui trabalhamos com BCs de dois níveis, mas que tinham vazio seu segundo nível. Em relação ao que estudamos aqui a respeito do Insert ou do Update não haverá nenhuma diferença com o caso em que tenhamos a coleção de pacientes não vazia.

A seguir, depois de abordar as diferenças entre métodos de business components, mostraremos como fazer as operações de Insert ou Update com um BC de dois níveis onde trabalharemos com as linhas, mas o faremos no mais alto nível, utilizando Data Provider.

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