

# **Aquarium Express Primer**

Aquarium Express is a new standard code generator project provided as an introduction to the capabilities of Data Aquarium Framework. This project can be used as a solid foundation for Web 2.0 applications of any complexity. Your application will be built with the state-of-the-art *ASP.NET 3.5* and *Ajax Control Toolkit*.

*Aquarium Express Primer* will showcase the capabilities of Data Aquarium Framework and includes complete source code in *VB.NET* and *Visual C#*. We will be developing a web order management application for a mail order company Northwind with Microsoft SQL Server 2005 and Code OnTime Generator. You have to have *Visual Studio 2008* or free Visual Web Developer Express 2008 installed on your computer to work with the generated application.

Corder Details - Windows Internet Explorer - 0 X 🚱 💿 💩 http://localhost:S1923/Northwind/Forms/Details.aspx?OrderII 🔹 🐓 🗶 Google ρ. 😭 🐼 🍘 Order Details 🖓 • 🔯 • 📾 • 🔂 Page • 🕥 Tools • Data Controllers Master/Detail Extravaganza Customer Orders Inventory Order Details NORTHWIND Please review orders information below. Click Edit to change this record, click Delete to delete the record, or click Cancel/Oose to return back. 
 Order@ • Customer
 Employee
 Ship Via

 10643
 Alfreds Futterkiste Ø
 Suyama Ø
 Speedy Express •
 Freight ns Total Total Iten \$29.46 \$689.50 \$718.96 Order Date Ship Region Ship Name 8/25/1997 Alfreds Futterkiste Required Date Ship Address Ship Postal Code 9/22/1997 Obere Str. 57 12209 Shipped Date Ship City Ship Country 9/2/1997 Berlin Germany \* - indicates a required field OK Delete Cancel This is a list of order details New • Actions • Ven: Order Details New Order Details ount Product Category Name Product Suppler Company Name Extended Price 4 Order Details record. Beverages Aux toyeux ecclésiastiques \$283,50 7 0 \$31.00 Seafood Tokyo Traders \$217.00 Rossie Sauerkraut \* \$45.60 5 0.25 Produce Plutzer Lebensmittelgroßmärkte AG \$171.00 nesid \$12.00 2 0.25 Seafood Lynabysid \$18.00 Showing 1-4 of 4 items | Refresh Local intranet | Protected Mode: On ₹100% ·

Click here to see a live demo of Aquarium Express Primer.

Start the code generator and create new Aquarium Express project named Northwind. Leave default settings and complete project source code generation. A browser window will open up with a default sample page. Close the browser and run your version of *Visual Studio*. Select *File* | *Open Web Site* menu option and browse to [My Documents]\Code OnTime\Aquarium Express\Northwind folder. Click Open button to open the project.

### Selection of Customers

Create *Forms* folder in the root of the web site. Right-click *Forms* folder and select *Add New Item* option. Create a *web form* with name *Customers* and make sure to select its master page *MasterPage.master* available in the root of the web site. Change the page as shown below.

```
<%@ Page Language="C#" MasterPageFile="~/MasterPage.master"</pre>
AutoEventWireup="true"
   CodeFile="Customers.aspx.cs" Inherits="Forms Customers" Title="Customers"
응>
<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="Server">
</asp:Content>
<asp:Content ID="Content2" ContentPlaceHolderID="Header1Placeholder"
runat="Server">
    Customers
</asp:Content>
<asp:Content ID="Content3" ContentPlaceHolderID="Header2Placeholder"
runat="Server">
   Northwind
</asp:Content>
<asp:Content ID="Content4" ContentPlaceHolderID="BodyPlaceholder"
runat="Server">
    <div id="CustomerList" runat="server" />
    <aquarium:DataViewExtender ID="CustomerExtender" runat="server"
Controller="Customers"
```

```
View="grid1" TargetControlID="CustomerList" />
</asp:Content>
```

Control *DataViewExtender* is a cornerstone of web applications created with Data Aquarium Framework. Two key properties *Controller* and *TargetControlID* are providing data controller descriptor and presentation container target accordingly. If you view the page in a browser then the following presentation is rendered.

								-	
* *	Customers			1	<u>@</u> •		(1997) - C	E Page	• 🕥 Tgols •
Data Contro	ilers Master/Detail Extrava	ganza							
Custon	ners							NOR	THWIND
This is a list	of customers.							-	
New *	Actions •						W	ent Cus	tomers •
Customer #	Company Name	Contact Name	Contact Title	Address	City	Report	Postal Code	Country	Phone
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin	n/a	12209	Germany	030-0074321
ANATR	Ana Trujilo Emparedados y helados	Ana Trujilo	Owner	Avda. de la Constitución 2222	México D.F.	n/a	05021	Mexico	(5) 555-4729
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México D.F.	n/a	05023	Mexico	(5) 555-3932
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London	n/a	WA1 1DP	UK	(171) 555- 7788
BERGS .	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvägen 8	Luleð	$\pi/a$	5-958 22	Sweden	0921-12 34 65
Edt	er See Delikatessen	Hanna Moos	Sales Representative	Forsterstr. 57	Marrheim	n/a	68306	Germany	0621-08460
X Delete	desddsl père et fils	Frédérique Oteaux	Marketing Manager	24, place Kléber	Strasbourg	n/a	67000	France	88.60.15.31
BOLID	Bólido Comidas preparadas	Martin Sommer	Owner	C/ Araquil, 67	Madrid	n/a:	28023	Spain	(91) 555 22 82
BONAP	Son app <sup>1</sup>	Laurence Lebihan	Owner	12, rue des Bouchers	Marselle	n/a	13008	France	91.24.45.40
BOTTM	Bottom-Dollar Markets	Elzabeth Lincoln	Accounting Manager	23 Tsawassen Blvd.	Tsawassen	BC	T2F 8M4	Canada	(604) 555- 4729
Previous	Page: 1 2 3 4 5 6 7 8 9	10   Next		Items per pa	ge: 10, 15,	20, 25	Showing 1-	10 of 91	tens   Refresh

Notice that whenever you click on any link in the left-most column the grid view is switch into form mode and customer details are presented. Let's change this behavior and have the page redirect to another web form and pass along ID of a selected *customer*. Open ~/*Controllers/Customers.aspx* page and change the actions with *Grid* scope to read as shown in example.

```
<actionGroup scope="Grid">
<action commandName="Navigate" headerText="Show Orders"
commandArgument="Orders.aspx?CustomerID={CustomerID}"/>
```

```
<action commandName="Select" commandArgument="editForm1" headerText="View
Customer Information"/>
<action commandName="Edit" />
<action commandName="Delete" confirmation="Delete?" />
<action whenLastCommandName="Edit" commandName="Update" headerText="Save"
/>
<action whenLastCommandName="Edit" commandName="Cancel" />
</actionGroup>
```

Reference to the *CustomerID* field in the curly brackets will be replaced with an actual value when the first action is executed in a web browser. This happens if user clicks on a link or selects *Show Orders* context menu option.



## Order List

Add *Orders* web form to the ~/*Forms* folder while following the same routine described above. Make the page markup look like this.

```
<%@ Page Language="C#" MasterPageFile="~/MasterPage.master"
AutoEventWireup="true"
    CodeFile="Orders.aspx.cs" Inherits="Forms_Orders" Title="Orders" %>
<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="Server">
  </asp:Content>
<asp:Content ID="Content2" ContentPlaceHolderID="Header1Placeholder"
runat="Server">
    Orders
  </asp:Content></asp:Content>
```

```
<asp:Content ID="Content3" ContentPlaceHolderID="Header2Placeholder"
runat="Server">
Northwind
</asp:Content ID="Content4" ContentPlaceHolderID="BodyPlaceholder"
runat="Server">
<div id="Customer" runat="server" class="CustomerInfo" />
<aquarium:DataViewExtender ID="CustomerExtender" runat="server"
Controller="Customers"
View="editForm1" TargetControlID="Customer" ShowActionBar="false" />
<div id="OrderList" runat="server" />
<aquarium:DataViewExtender ID="OrderExtender" runat="server"
Controller="customers"
View="editForm1" TargetControlID="Customer" ShowActionBar="false" />
<aquarium:DataViewExtender ID="OrderExtender" runat="server"
Controller="orders"
View="grid1" TargetControlID="OrderList" />
</asp:Content>
```

Open *Customers* form in a web browser and select any customer. The following views will be presented.

ta Controllers Master Orders José review Customers Justomers Jese ars the fields of the	/Detail Extra	ivaganza			_				
Orders lease review customers ustomers wase are the fields of the	nformation 1								
lease review customers : ustomers lese are the fields of the	information 1							NORTH	IWIND
ustomers Vese are the fields of the			s charice this reco	vi. da	Delete to delete the	riecord, o	r dek Cancel/Osse to	seturn back.	
iese are the fields of the					Company home				
	e customers	record that can be	r edited.		Alfreds Futterlo	ste			
					Contact Name Maria Anders				
					Conitact Title Sales Represent	tative			
					Address Obere Str. 57				
					Ony Berlin				
					Regon N/A				
					Postal Code 12209				
					Country Germany				
					Phone				
					030-0074321				
					030-0076545				
					1000000				Class
hs is a list of orders.						_			CONT
eve . Actors .								Vex: Or	ders •
ngloyee Last Name	Order Date	Required Date	Shoped Date	5hp %	Company Name	Freight	Ship Name	Ship Address	She City
uyama a	8/25/1997	9/22/1997	9/2/1997	Speedy	Express	\$29.46	Alfreds Futterkiste	Obere Str. 57	Berin
eacock 1	10/3/1997	10/31/1997	10/13/1997	United	Package	\$61.02	Alfred's Futterkiste	Obere Str. 57	Berlin
eacock 1	10/13/1997	11/24/1997	10/21/1997	Speedy	Express	\$23.94	Alfred's Futterkiste	Obere Str. 57	Berlin
evolo 1	1/15/1998	2/12/1998	1/21/1998	Federal	Shipping	\$69.53	Alfred's Futterkiste	Obere Str. 57	Berlin
evolio	3/16/1998	4/27/1998	3/24/1998	Speedy	Express	\$40.42	Alfred's Futterkiste	Obere Str. 57	Berlin
evering	4/9/1998	5/7/1998	4/13/1998	Speedy	Express	\$1.21	Alfred's Futterkiste	Obere Str. 57	Berin
	the state of the	S Sector Sector							

The form automatically filters orders to match the customer ID in the URL of the browser. You can immediately edit customer information and make all sorts of changes to the orders . As good as this screen looks there are quite a few deficiencies. The form is too long and we don't know what is the total amount of each order. Plus we don't really want to allow any order changes and would rather use a dedicated order edit form.

First, we will make the form shorter. Add the following markup anywhere in the *Content4* in *Orders* web form.

```
<div id="Customers editForm1" style="display: none">
  {CustomerID}
       {CompanyName}
       \langle t.d \rangle
         {ContactName}
       {ContactTitle}
       {Phone}
       {City}
       {Country}
```

This creates an invisible form templates, which is automatically used by *Web.DataView* java script component of Data Aquarium Framework. The component will use the field names in the curly brackets as placeholders for the data fields rendered in a browser. Refresh *Orders* page and the following view will be displayed.

							ALC: THE REAL PROPERTY.	100000000000000000000000000000000000000
sta Controllers Mas	ter/Detal Extra	ivaganza						
Orders							NORT	HWIND
lease review custome	rs information b	below. Circle Edit to	o change this rec	ord, click Delete to delete the	e record, a	dick Cancel/Close to	return back.	
Customer# Com ALPIQ Allo	pany Name reds Futterki	ste M	stact Name Iaria Anders	Contact Title Sales Representative	P	one C 30-0074321	ity Court Berin Ger	7.y nariy
						Edit De	siete	Close
his is a list of orders.								
New * Actions *							View: Or	ders •
mployee Last Name	Order Date	Required Date	Shipped Date	Ship Via Company Name	Freight	Ship Name	Ship Address	Ship City
kiyama	8/25/1997	9/22/1997	9/2/1997	Speedy Express	\$29.46	Alfreds Futterkiste	Obere Str. 57	Berlin
eacock.	10/3/1997	10/31/1997	10/13/1997	United Package	\$61.02	Alfred's Futterkiste	Obere Str. 57	Berlin
eacock	10/13/1997	11/24/1997	10/21/1997	Speedy Express	\$23.94	Alfred's Futterkiste	Obere Str. 57	8erlin
avolo	1/15/1998	2/12/1998	1/21/1998	Federal Shipping	\$69.53	Alfred's Futterkiste	Obere Str. 57	Berlin
lavolio	3/16/1998	4/27/1998	3/24/1998	Speedy Express	\$40.42	Alfred's Futterkiste	Obere Str. 57	Berlin
evening	4/9/1998	5/7/1998	4/13/1998	Speedy Express	\$1.21	Alfred's Futterkiste	Obere Str. 57	Berlin
uchanan	9/9/2008	9/30/2008	n/a	Speedy Express	\$3.95	n/a	n/a	n/a
					40.14	Sho	who 1-7 of 7 iter	na i Refresh

Notice that template ID is matched to *editForm1* view when rendered for *Customers* controller. You can read additional discussion about form templates here.

This new look is a substantial improvement over the previous version. Let's take out the row with the buttons under the customer form and descriptive text above the form. This will leave a clean panel with customer information above the orders.

Create a CSS style sheet with name *Northwind.css* in ~/*App\_Themes/MyCompany* folder. Enter the following text in the style sheet body.

```
.CustomerInfo .HeaderTextRow, .CustomerInfo .BottomButtonsRow
{
    display:none;
}
```

The first *Div* element of the form is defined with a CSS class name.

```
<div id="Customer" runat="server" class="CustomerInfo" />
```

Class *CustomerInfo* allows us to customize presentation of the header row with descriptive text and the bottom action buttons row. Customization is quite simple - we are not displaying either of them. Refresh the page to see it like that.

🦉 🐼 🏀 Orde	6					G • 5 • #	• • Esge •	Tgols
lata Controllers Mas	ter/Detai Extra	waganza						
Orders							NORT	HWIND
Customer# Com ALFIQ All	pany Name reds Futterki	ste	iontact Name Maria Anders	Contact Title Sales Representative	24	one 030-0074321	City Courr Berlin Ger	try many
This is a list of orders. New • Actions •							View: Or	rders •
Employee Last Name	Order Date	Required Date	Shipped Date	Ship Via Company Name	Freight	Ship Name	Ship Address	Ship Oity
Suyama	8/25/1997	9/22/1997	9/2/1997	Speedy Express	\$29.46	Alfreds Futterkiste	Obere Str. 57	Berlin
Peacock	10/3/1997	10/31/1997	10/13/1997	United Package	\$61.02	Alfred's Futterkiste	Obere Str. 57	Berlin
Peacodk	10/13/1997	11/24/1997	10/21/1997	Speedy Express	\$23.94	Alfred's Futterkiste	Obere Str. 57	Berlin
Davolo	1/15/1998	2/12/1998	1/21/1998	Federal Shipping	\$69.53	Alfred's Futterkiste	Obere Str. 57	Berlin
Davolo	3/16/1998	4/27/1998	3/24/1998	Speedy Express	\$40.42	Alfred's Futterkiste	Obere Str. 57	Berlin
Levering	4/9/1998	5/7/1998	4/13/1998	Speedy Express	\$1.21	Alfred's Futterkiste	Obere Str. 57	Berlin
Buchanan	9/9/2008	9/30/2008	n/a	Speedy Express	\$3.95	nja	n/a	n/a
						54	ong 1-7 of 7 de	ns   Kettesh

Now let's add a total amount to each order line. Data Aquarium Framework automatically parses the queries in your data controller to construct *select*, *update*, *insert*, and *delete* SQL statements. We will create an additional view in *Northwind* database and join this view to the query in *~/Controllers/Orders.xml* file. Please create the following SQL view with *SQL Management Studio* or your favorite database management tool.

```
CREATE view [dbo].[OrderTotals]
as
select
    "OrderDetails"."OrderID",
    sum("OrderDetails"."UnitPrice" * "OrderDetails"."Quantity" *
        (1 - "OrderDetails"."Discount")) "ItemsTotal"
from "dbo"."Order Details" "OrderDetails"
group by "OrderDetails"."OrderID"
```

Then open the data controller file and change the text of *command1* as shown below.

### <text>

<! [CDATA[

#### select

```
"Orders"."OrderID" "OrderID"
,"Orders"."CustomerID" "CustomerID"
,"Customer"."CompanyName" "CustomerCompanyName"
,"Orders"."EmployeeID" "EmployeeID"
,"Employee"."LastName" "EmployeeLastName"
,"Orders"."OrderDate" "OrderDate"
,"Orders"."RequiredDate" "RequiredDate"
,"Orders"."ShippedDate" "ShippedDate"
,"Orders"."ShipVia" "ShipVia"
,"ShipVia"."CompanyName" "ShipViaCompanyName"
,"Orders"."Freight" "Freight"
,"Orders"."ShipName" "ShipName"
,"Orders"."ShipAddress" "ShipAddress"
,"Orders"."ShipCity" "ShipCity"
,"Orders"."ShipRegion" "ShipRegion"
,"Orders"."ShipPostalCode" "ShipPostalCode"
,"Orders"."ShipCountry" "ShipCountry"
```

```
,(cast("OrderTotals"."ItemsTotal" as money)) "ItemsTotal"
,(cast("OrderTotals"."ItemsTotal" + "Orders"."Freight" as money))
"OrderTotal"
from "dbo"."Orders" "Orders"
    left join "dbo"."Customers" "Customer" on "Orders"."CustomerID" =
"Customer"."CustomerID"
    left join "dbo"."Employees" "Employee" on "Orders"."EmployeeID" =
"Employee"."EmployeeID"
    left join "dbo"."Shippers" "ShipVia" on "Orders"."ShipVia" =
"ShipVia"."ShipperID"
    left join "OrderTotals" on "Orders"."OrderID" = "OrderTotals"."OrderID"
]]>
```

The main points of interest are the *left join* at the bottom of the query and two fields at the end of the *field clause*. Both fields are defined as expression, which must be enclosed with parenthesis to help the regular expressions of Data Aquarium Framework to correctly identify the expression and the corresponding alias. The *left join* is linking in the new view.

Add two new fields into /dataController/fields element.

```
<field name="ItemsTotal" type="Decimal" readOnly="true" label="Items Total"
dataFormatString="c"/>
<field name="OrderTotal" type="Decimal" readOnly="true" label="Total"
dataFormatString="c"/>
```

Make sure to mark both fields as read-only. The data format string will ensure that both fields are displayed as currency. You can use alternative syntax for the data format string: {0:c}, which is compatible with *String.Format* function that you know and love.

Move the grid view *grid1* to be after the form view *editForm1* to ensure that the edit form will become the default presentation view for *Orders* controller. Format fields in *grid1* as displayed here.

We have introduce the primary key field *OrderID*, which you would likely want to serve as a visual reference for end users. Fields with item and order totals at at the end of the list. Refresh *Orders* page to see the following. Make sure that you can sort by *order* and *items* total.

1 91	Corders @					0.0	- m	* (1) Bag	e 🕶 🌍 Tgols
ata Con	tolers Master/DetailEx	travagariza							
Orde	rs							NOF	THWIND
Custon ALFK	er F Company Ram Alfreds Futter	r rkiste	Contact Name Maria Anders	Contect Title Sales Represe	ntative	Phone 030-0074321	0	ty C Berlin	ounitry Germany
This is a	let of orders.								
INDER .	Actions •							Veteri	Orders *
Order#	Employee Last Nome	Order Date	Required Date	Shipped Date	Ship Via Cong	ony Name	Freight	Chema Sol	# T018/4
15011	Levelor.	4/0/1008	5/3/1999	4/13/1008	Creaty Furne		81.74	4011 05	6934.71
10835	Omolo	1/11/1008	2/12/1998	1/31/1998	Eaderal Chang		669 53	45.45.90	4515 13
10643	Suma	8/35/1997	9/22/1997	9/3/1997	Speedy Fune		129.46	\$677.50	\$706.96
10953	Devolo	3/16/1998	4/27/1998	3/24/1998	Speedy Expre		\$40.42	#514.55	\$554.97
10702	Peacock	10/13/1997	11/24/1997	10/21/1997	Speedy Expre		\$23.94	\$330.00	\$353.94
11080	Buchanan	5/9/2008	9/30/2008	nia	Speedy Expre	96	\$3.95	\$342.00	\$345.95
							500	ing 1-7 of 2	items (Refresh

The last step is to change the actions available in the context menu of the grid view. Also take out all actions that are supposed to be displayed on action bar with header text *Actions*.

```
<actionGroup scope="Grid">
  <action commandName="Navigate"
  commandArgument="~/Forms/Details.aspx?OrderID={OrderID}" headerText="Order
  Details"/>
  </actionGroup>
```

This will present itself as illustrated in the picture.



## **Order Details**

Add *Details.aspx* web form following the same steps that were explained when we were creating *Customers.aspx* and *Orders.aspx* forms. Format the page as explained in the example.

```
% @ Page Language="C#" MasterPageFile="~/MasterPage.master"
AutoEventWireup="true"
    CodeFile="Details.aspx.cs" Inherits="Forms_Details" Title="Order Details"
%

<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="Server">
  </asp:Content>
<asp:Content ID="Content2" ContentPlaceHolderID="Header1Placeholder"
runat="Server">
    Order Details
<//asp:Content>
</asp:Content>
```

```
<asp:Content ID="Content3" ContentPlaceHolderID="Header2Placeholder"
runat="Server">
Northwind
</asp:Content ID="Content4" ContentPlaceHolderID="BodyPlaceholder"
runat="Server">
<div id="Order" runat="server" class="Order" />
<aquarium:DataViewExtender ID="OrderExtender" runat="server"
Controller="Orders"
View="editForm1" TargetControlID="Order" ShowActionBar="false" />
<div id="Details" runat="server" />
<aquarium:DataViewExtender ID="DetailsExtender" runat="server"
Controller="OrderBails" runat="server" />
<aquarium:DataViewExtender ID="DetailsExtender" runat="server"
Controller="OrderDetails"
View="grid1" TargetControlID="Details" />
```

</asp:Content>

As we've seen before, the page is fully functional but is somewhat difficult to use.

0 10	Order Det	ails				1	9 · 10 · #	• 💮 Bage • 🔘 Tgols •
te Controllers	Master/C	etal Extra	iagarusa					
rder Det	ails							NORTHWIND
nase seview or	Sera inflam	uton bela	w. Chái đá	it to change this record, do	is Delete to delete the	recoril, or did. Canoli/Oo	se to return back. Edit De	elete Close
eders esc are the fie	th of the i	vrders (waa	ind that ca	n be edited.		atore Concern New Sur Se Oblahemen Sur Se Oblahemen Solene Lat Tane Solene Service Solene Service Sole Date Sole Date Sole Date Sole Service Sole Service Sole Service Sole Sole Sole Service Sole Sole Sole Sole Sole Sole Sole Sole Sole Sole Sole Sole		
s a a lat of o	ter detaik			Order Customer Concustry	Order Deployee Last	Coder Ship Na Consult	Edit De	nete Close
Rodnev/s	Price	quantity	Decourt	Name	Name	Hame	Name	Hane
ones	\$30.00	3	e	(tauer See Delkatessen	Dodeworth	Pederal Shipping	Confectional	Specialty Baculta, Ltd.
format	\$34.00	21	0	Blauer See Delikatessen	Dodeworth	Federal Shoping	Dary Products	Gei päturage
				and the second	and the second sec	When the second second second second	Concentration of the second se	Realized Principles

We will start with the template for the *order* form.

```
<div id="Orders_editForm1" style="display: none">
 >
   {OrderID}
      {CustomerID}
      {EmployeeID}
      {ShipVia}
      {Freight}
      {ItemsTotal}
      {OrderTotal}
```

```
<div>
              {OrderDate}</div>
            <div>
               {RequiredDate}</div>
           <div>
               {ShippedDate}</div>
         <div>
               {ShipName}</div>
            <div>
              {ShipAddress}</div>
            <div>
              {ShipCity}</div>
        <div>
               {ShipRegion}</div>
           <div>
               {ShipPostalCode}</div>
            <div>
               {ShipCountry}</div>
        </div>
```

This template breaks the order fields in three groups. This provides instant improvement in presentation.

	-	() AUCENING	HUJIJEJ!	reprovemble r v	orms per	and apply of dec	~   ~   ~	11 0003	yie.	
A 6	Order [	Details					0.		- # - G	Page • 🕥 Tgols
ta Controllers	Maste	r/Detail Ex	travagaru	za				_		
order De	tails								1	NORTHWIND
ease review o	rders info	ormation be	elow. Clid	Edit to change	e this reco	rd, dick Delete ti	o delete the re	cord, or	dick Cancel/Cl	use to return back.
							Edit		Delete	Ciose
Order# 11058	Custon Blaue	ner Comp er See Del	any Nar likatesse	ne E en	mployee Dodswo	Last Name rth	Ship Via Federal	Compa I Shippi	ny Name ing	Freight \$31.14
Order Date 4/29/1998			5	hip Name Blauer See Del	likatessen			Ship I N/A	Region	
Required Date 5/27/1998			9	hip Address Forsterstr. 57				Ship 7 683	Postal Code 106	
Shipped Date N/A			5	hip Oty Mannheim				Ship ( Ger	Country many	
							Edit		Delete	Close
visisalistofo ew ∗ Acto	nder detu ns •	sis.							View:	Order Details •
oduct Name	Unit Price	Quantity	Discount	Order Custom Company Nam	er o ke L	order Employee ast Name	Order Ship W Company Na	ia i me (	Product Category Name	Product Supplier Company Name
r Rodney's	\$10.00	3	0	Blauer See Delikatessen	D	odsworth	Federal Shipp	ping (	Confections	Speciality Biscuits, Ltd.
amembert errot	\$34.00	21	0	Blauer See Delikatessen	D	odsworth	Federal Shipp	ing (	Dairy Products	Gai påturage
rop d'érable	\$28.50	4	0	Blauer See Delikatessen	D	odsworth	Federal Shipp	ing (	Condiments	Forêts d'érables
									Showing 1-	3 of 3 items   Refresh

Fields *ItemsTotal* and *OrderTotal* are missing in the rendered presentation. Make the following changes to *editForm1* in *Orders.xml* to add the missing fields to the form.

```
<view id="editForm1" type="Form" commandId="command1" label="Order">
```

<headerText>Please review orders information below. Click Edit to change
this record, click Delete to delete the record, or click Cancel/Close to
return back.</headerText>

<categories>

```
<category headerText="Orders">
```

```
<dataFields>
```

```
<dataField fieldName="CustomerID"</pre>
```

```
aliasFieldName="CustomerCompanyName" />
```

```
<dataField fieldName="EmployeeID" aliasFieldName="EmployeeLastName"</pre>
/>
        <dataField fieldName="OrderDate" columns="10" />
        <dataField fieldName="RequiredDate" columns="10" />
        <dataField fieldName="ShippedDate" columns="10" />
        <dataField fieldName="ShipVia" aliasFieldName="ShipViaCompanyName" />
        <dataField fieldName="Freight" dataFormatString="c" columns="15" />
        <dataField fieldName="ShipName" columns="40" />
        <dataField fieldName="ShipAddress" />
        <dataField fieldName="ShipCity" columns="15" />
        <dataField fieldName="ShipRegion" columns="15" />
        <dataField fieldName="ShipPostalCode" columns="10" />
        <dataField fieldName="ShipCountry" columns="15" />
        <dataField fieldName="ItemsTotal"/>
        <dataField fieldName="OrderTotal"/>
      </dataFields>
    </category>
  </categories>
</view>
```

We will change behavior of the action buttons by replacing definitions for *Cancel* and

*Close* commands.

```
<actionGroup scope="Form">
  <action commandName="Edit" />
  <action commandName="Delete" confirmation="Delete?" />
  <action commandName="Back" headerText="Close"/>
  <action whenLastCommandName="Edit" commandName="Update" headerText="OK" />
  <action whenLastCommandName="Edit" commandName="Delete"
  confirmation="Delete?" />
   <action whenLastCommandName="Edit" commandName="Select"
  commandArgument="editForm1" headerText="Cancel" />
   <action whenLastCommandName="New" commandName="Insert" headerText="OK" />
   <action whenLastCommandName="New" commandName="Lisert" headerText="OK" />
   <action whenLastCommandName="New" commandName="Lisert" headerText="OK" />
   <action whenLastCommandName="New" commandName="Cancel" />
   <action whenLastCommandN
```

### </actionGroup>

*Close* button simply directs the browser to go back one step in the history, which will bring user back to the list of orders. Button with *Cancel* header selects the current record and displays it in *editForm1*, which replaces the standard behavior of displaying the first view defined in the data controller.

Also change the item presentation style of field *ShipVia* from *Lookup* to *DropDownList*. There are only three shippers in the database and it makes little sense to display a popup window to select a shipper. Cosmetic changes to the labels of the lookup fields will make the form similar to the one in the picture when you edit any order.

	9	-									. Il sought	-
1	*	1	On	der D	letail	5				0	• 🖾 • 🖷 •	Erge · O Tools
	Contr	olers	N	laste	/Det	al Ex	drava	eganza				
e	ler	De	tai	ls								NORTHWIND
80	ere	ien o	róe	sinfo	rnat	ion b	elo».	Click Edit to change this record	l, dick Delete to del	ete the record, or click	Cancel/Oose to retu	m back.
n	ścati	ts a r	ngui	ed fie	eld					0	K Delet	e Cancel
1	deri 105	8	ust Bla	ome ver S	r ee Dr	eikat	esser	Employee Si	hip Via Federal Shippin	Freight 9 • \$31.14	Iten \$8	ns Total Total 58.00
9	ler De	te				5	hp N	ane			Ship Rega	0
4	/29/	199	5				Bla	uer See Delikatessen				
iq.	sired	Dati	-			13	hp A	ddress .			Ship Poets	il Code
5	/27/	199	8	18			For	sterstr. 57			68306	
	red	Date				3	hpo	Ry.			Ship Court	try .
_	_		_	21	2		Mar	nnheim			Germa	any .
	•	Se	pten	nber	, 200	8	1					
	30	1	2	we a	A	5	58			0	K Delet	e Cancel
	7	8	9	10	11	12	13					
	14	15	16	17	18	19	20					
	21	22	23	24	25	26	27				No.	Order Details
	28	29	30	1	2	3	. 4	ount Order Customer	Order Employee Last Name	Order Ship Via Company Name	Product Category Name	Product Supplier Company Name
	5	6	7		9	10	11	No. of Contraction	Contraction (	Endered Director	and an	Country Description 144
	T	oday	Sep	temb	e (	Thur	sday,	October 09, 2008	COOLENIOLD/	rederal shipping	Contections	speciary escure, Ltd.
	_	rt	\$3	4.00	21		0	Blauer See Deikatessen	Dodsworth	Federal Shipping	Dairy Products	Gai pāturage
	anbe pt		\$2	8.50	4		0	Blauer See Delikatessen	Dodsworth	Federal Shipping	Condiments	Forêts d'érables
R H P	at dén	sble										
2 2 2	anbe d'én	sbie									Spend	1-3 of 3 dems   Refresh

Next we will introduce *ExtendedPrice* field to *Order Details* and get rid of order customer, employee, and shipping information, which is already being displayed above

the details. Open ~/*Controllers/OrderDetails.xml* data controller descriptor and make the following changes.

1. Change *text* element to *command1* to calculate the extended item price by taking into account item quantity and discount. Make sure to use parenthesis around the expression.

```
<text>
    <! [CDATA[
select
    "OrderDetails"."OrderID" "OrderID"
    ,"Order"."CustomerID" "OrderCustomerID"
    , "OrderCustomer". "CompanyName" "OrderCustomerCompanyName"
    ,"OrderEmployee"."LastName" "OrderEmployeeLastName"
    , "OrderShipVia". "CompanyName" "OrderShipViaCompanyName"
    ,"OrderDetails"."ProductID" "ProductID"
    ,"Product"."ProductName" "ProductProductName"
    , "ProductCategory". "CategoryName" "ProductCategoryCategoryName"
    , "ProductSupplier". "CompanyName" "ProductSupplierCompanyName"
    ,"OrderDetails"."UnitPrice" "UnitPrice"
    ,"OrderDetails"."Quantity" "Quantity"
    ,"OrderDetails"."Discount" "Discount"
    ,("OrderDetails"."UnitPrice" * "OrderDetails"."Quantity" * (1 -
"OrderDetails"."Discount")) "ExtendedPrice"
from "dbo"."Order Details" "OrderDetails"
    left join "dbo"."Orders" "Order" on "OrderDetails"."OrderID" =
"Order"."OrderID"
    left join "dbo"."Customers" "OrderCustomer" on "Order"."CustomerID" =
"OrderCustomer"."CustomerID"
    left join "dbo"."Employees" "OrderEmployee" on "Order"."EmployeeID" =
"OrderEmployee"."EmployeeID"
    left join "dbo"."Shippers" "OrderShipVia" on "Order"."ShipVia" =
```

"OrderShipVia"."ShipperID"

left join "dbo"."Products" "Product" on "OrderDetails"."ProductID" =
"Product"."ProductID"

left join "dbo"."Categories" "ProductCategory" on "Product"."CategoryID"
= "ProductCategory"."CategoryID"

left join "dbo"."Suppliers" "ProductSupplier" on "Product"."SupplierID" =
"ProductSupplier"."SupplierID"

]]></text>

2. Add extender price field to *fields* element in *OrderDetails.xml*.

<field name="ExtendedPrice" type="Decimal" allowNulls="true" readOnly="true" label="Extended Price" dataFormatString="c"/>

3. Change view *grid1* to display the data fields as in this snippet.

4. Add the following CSS class definition to *Northwind.css* to hide the top row of action buttons. Here we are taking advantage of *Orders* class name attribute of the first *div* element of the form.

```
.Order .TopButtonsRow {
```

```
display: none;
```

}

The order details are nicely presented to the viewer with the extended price in the last column.

🔗 🌈 Or	der Details				👌 • 🖾 • 🖶 • 🕻	🔂 Page 🔹 🔘 Tools
ta Controllers M	laster/Detail I	Extravagan	2a			
order Detai	ls					NORTHWIND
lease review order	rs information	below, Clic	k Edit to ch	ange this record, click Dele	te to delete the record, or dick Cance	el/Close to return back.
Order# Cu 10643 A	stomer lfreds Futte	erkiste	Emplo Suya	yee Ship Via ma Speedy Expre	Freight Items Tot \$29.46 \$677.50	al Total \$706.96
Order Date 8/25/1997			Ship Name Alfreds Fu	utterkiste	Ship Region N/A	
Required Date 9/22/1997			Ship Addres Obere Str	15 . 57	Ship Postal Code 12209	
Shipped Date 9/2/1997			Ship City Berlin		Ship Country Germany	
his is a list of orde	r datale				Edit Delete	Close
New • Actions					View:	Order Details •
roduct Name	Unit Price	Quantity	Discount	Product Category Name	Product Supplier Company Name	Extended Price
chang	\$19.00	1	0	Beverages	Exotic Liquids	\$19.00
kura	\$31.00	6	0	Seafood	Tokyo Traders	\$186.00
lössle Sauerkraut	\$45.60	5	0.25	Produce	Plutzer Lebensmittelgroßmärkte A	G \$171.00
hartreuse verte	\$18.00	21	0.25	Beverages	Aux joyeux ecdésiastiques	\$283.50
	\$12.00	2	0.25	Seafood	Lyngbysld	\$18.00
ipegesild						

Automatic Refreshing When Order Details are Changed

Changes to the order freight are instantly reflected on screen when you save changes. Not so when order details are changed. Order totals must be recalculated whenever a new item is ordered, existing item is modified, or deleted. The product price is not being transferred to the *UnitPrice* of *Order Details* record when you add a new item . You have enter the product unit price in on your own. It will default to zero if you leave the field blank. Field *UnitPrice* can be safely omitted from the view *createForm1* if we automatically copy the product price as soon as *order details* record has been inserted into database. Change *createForm1* in *OrderDetails.xml* as follows.

```
view id="createForm1" type="Form" commandId="command1" label="New Order
Details">
  <headerText>Please fill this form and click OK button to create a new order
details record. Click Cancel to return to the previous screen.</headerText>
  <categories>
    <category headerText="New Order Details">
      <description>Complete the form. Make sure to enter all required
fields.</description>
      <dataFields>
        <dataField fieldName="OrderID" aliasFieldName="OrderCustomerID" />
        <dataField fieldName="ProductID" aliasFieldName="ProductProductName"</pre>
/>
        <!--<dataField fieldName="UnitPrice" dataFormatString="c"
columns="15" />-->
        <dataField fieldName="Quantity" columns="15" />
        <dataField fieldName="Discount" columns="15" />
      </dataFields>
    </category>
  </categories>
</view>
```

This will result in the following presentation when you add a new item. Note that field *OrderID* is not displayed since it is being filtered by in *Details.aspx* via *OrderID* parameter in the page URL.

	View:	New Order Details
New Order Details Complete the form. Make sure to enter all required fields.	Product Name * (select) Quantity * Discount *	
* - indicates a required field		DK Cancel

Next we will write some code. Right-click *App\_Code* folder in the project tree and add *Class1* class to the web site code base. This class will implement a custom action handler for *OrderDetails* data controller. Change *OrderDetails.xml* to link the custom action handler to Data Aquarium Framework.

```
<dataController .... xmlns="urn:schemas-codeontime-com:data-aquarium"
actionHandlerType="Class1">
```

Here is *C*# code that you need to enter.

```
findPrice.AddParameter("@ProductId",
args["ProductID"].Value);
                price = Convert.ToDouble(findPrice.ExecuteScalar());
            }
            using (SqlText updatePrice = new SqlText(
                "update [Order Details] set UnitPrice=@UnitPrice where
OrderID=@OrderID and ProductId=@ProductID"))
            {
                updatePrice.AddParameter("@UnitPrice", price);
                updatePrice.AddParameter("@OrderID", args["OrderID"].Value);
                updatePrice.AddParameter("@ProductID",
args["ProductID"].Value);
                updatePrice.ExecuteNonQuery();
            }
        }
        if (args.ContextKey.EndsWith("DetailsExtender"))
            result.ClientScript =
                "Web.DataView.find('OrderExtender').goToPage(-1);" +
                "this.set lastCommandName(null);" +
                "this.goToView('grid1');";
    }
}
```

Here is *VB.NET* equivalent of the same class.

```
Imports Microsoft.VisualBasic
Imports MyCompany.Data
Public Class Class1
Inherits ActionHandlerBase
Protected Overrides Sub AfterSqlAction(ByVal args As
MyCompany.Data.ActionArgs, ByVal result As MyCompany.Data.ActionResult)
If args.CommandName = "Insert" Then
```

```
Dim price As Double = 0
           Using findPrice As SqlText = New SqlText(
                "select UnitPrice from Products where ProductId =
@ProductID")
               findPrice.AddParameter("@ProductID", args("ProductID").Value)
               price = Convert.ToDouble(findPrice.ExecuteScalar())
           End Using
           Using updatePrice As SqlText = New SqlText(
                "update [Order Details] set UnitPrice=@UnitPrice where
OrderID=@OrderID and ProductId=@ProductID")
                updatePrice.AddParameter("@UnitPrice", price)
                updatePrice.AddParameter("@OrderID", args("OrderID").Value)
                updatePrice.AddParameter("@ProductID",
args("ProductID").Value)
               updatePrice.ExecuteNonQuery()
           End Using
       End If
        If args.ContextKey.Contains("DetailsExtender") Then
            result.ClientScript =
                "Web.DataView.find('OrderExtender').goToPage(-1);" +
                "this.set lastCommandName(null);" +
                "this.goToView('grid1');"
       End If
    End Sub
```

### End Class

Let's analyze the code.

Our action handler is automatically invoked by the framework whenever an action execution is requested by java script *Web.DataView* component in a browser and *OrderDetails* data controller is involved.

We want to intercept each *Insert* command and will copy *UnitPrice* from *dbo.Products* table to *dbo.[Order Details]* table. Data Aquarium Framework provides two utility classes, *SqlStoredProcedure* and *SqlText*, to simplify execution of SQL stored procedures and arbitrary SQL commands. You can use your favorite data access library to interact with the database.

The purpose of the second conditional statement is to intercept any actions coming from client java script *Web.DataView* component that was instantiated by *DataViewExtender* with the name *DetailsExtender*. This conditional statement simply assigns client-side java script statements to the *CientScript* property of the *result* parameter. This java script will be executed in the browser when the action returns control from the server code.

The first java script statement will find *OrderExtender* and ask it to navigate to page with index -1. This will cause *order* summary view to refresh itself.

Next the last executed command is cleared to allow action state machine of *Web.DataView* to continue correct operation. Actions are always executed in the context of last action command name. Here we want to clear the last action command name as it is being done by default.

The last java script statement will force the order details view to display the grid view *grid1. Insert* and *Update* commands are initiated from the form view and this statement is required to make sure that the form view is switched to the grid presentation style.

If there is no client script returned form the server upon completion of action execution then java script statements two and three are automatically performed by *Web.DataView*. We have decided to force the *order* view to be refreshed and now we have to take care of the low level details on our own.

Try playing with order details to make that order summary is automatically updated to reflect the order changes.

## **Inventory Manager**

Now we will put together an inventory manager for our mail order company. Create a new page *Inventory.aspx* in *~/Forms* folder of the web site. Format the page to include a *TabContainer* with a few *TabPanel* components. Both controls are a part of *Ajax Control Toolkit*. Tag prefix *act* is registered in *web.config* file of your web site. Data Aquarium Framework relies on the toolkit for a significant portion of its client-side functionality.

```
<%@ Page Language="C#" MasterPageFile="~/MasterPage.master"</pre>
AutoEventWireup="true"
    CodeFile="Inventory.aspx.cs" Inherits="Forms Inventory" Title="Inventory"
응>
<asp:Content ID="Content1" ContentPlaceHolderID="head" runat="Server">
</asp:Content>
<asp:Content ID="Content2" ContentPlaceHolderID="Header1Placeholder"
runat="Server">
    Inventory
</asp:Content>
<asp:Content ID="Content3" ContentPlaceHolderID="Header2Placeholder"
runat="Server">
   Northwind
</asp:Content>
<asp:Content ID="Content4" ContentPlaceHolderID="BodyPlaceholder"</pre>
runat="Server">
    <act:TabContainer ID="InventoryTabs" runat="server">
        <act:TabPanel ID="ProductsTab" runat="server" HeaderText="Products">
            <ContentTemplate>
                <div id="Products" runat="server" />
                <aquarium:DataViewExtender ID="ProductsExtender"
runat="server"
                    Controller="Products"
                    TargetControlID="Products" />
```

</ContentTemplate> </act:TabPanel> <act:TabPanel ID="SuppliersTab" runat="server"</pre> HeaderText="Suppliers"> <ContentTemplate> <div id="Suppliers" runat="server" /> <aquarium:DataViewExtender ID="SuppliersExtender" runat="server" Controller="Suppliers" TargetControlID="Suppliers" PageSize="5" /> <br /> <div id="SupplierProducts" runat="server" /> <aquarium:DataViewExtender ID="SupplierProductsExtender" runat="server" Controller="Products" TargetControlID="SupplierProducts" FilterSource="SuppliersExtender" FilterFields="SupplierID" PageSize="5" /> </ContentTemplate> </act:TabPanel> <act:TabPanel ID="CategoriesTab" runat="server"</pre> HeaderText="Categories"> <ContentTemplate> <div id="Categories" runat="server" /> <aquarium:DataViewExtender ID="CategoriesExtender" runat="server" Controller="Categories" TargetControlID="Categories" PageSize="5" /> <br /> <div id="CategoryProducts" runat="server" /> <aquarium:DataViewExtender ID="CategoryProductsExtender" runat="server" Controller="Products" TargetControlID="CategoryProducts"

Open *Inventory.aspx* in a web browser.

A C Inventor	Y				@ •	D · 0	• - B	ige • 🔘 T <u>o</u> ols •
ta Controllers Master/	Detail Extravaganza	Customer Orde	ma Inventory					
ventory							NO	RTHWIND
voducts Suppliers	Categories							
This is a list of products.								
New • Actions •							Vev: 1	roducts •
Product Name	Suppler Company Name	Category Nome	Quantity Per Unit	Unit Price	Units In Stock	Units On Order	Reorder Level	Decontinued
Chai	Exotic Liquids	Beverages	10 boxes x 20 bags	\$18.00	29	0	10	No
Chang	Exotic Liquids	Beverages	24 - 12 oz bottles	\$19.00	17	40	25	No
Aniseed Syrup	Exotic Liquids	Condiments	12 - 550 mi bottles	\$10.00	13	70	25	No
Chef Anton's Cajun Seasoning	New Orleans Cajun Delights	Condments	48 - 6 oz jars	\$22.00	53	0	0	No
Chef Anton's Gunbo Mix	New Orleans Cajun Delights	Condiments	36 boxes	\$21.35	0	0	0	Yes
Grandma's Boysenberry Spread	Grandma Kelly's Homestead	Condiments	12 - 8 oz jars	\$25.00	120	0	25	No
Unde Sob's Organic Dried Pears	Grandma Kelly's Homestead	Produce	12 + 1 lb pkgs.	\$30.00	15	0	10	No
Northwoods Cranberry Sauce	Grandma Kelly's Homestead	Condiments	12 - 12 oz jars	\$40.00	6	0	0	No
Mshi Kobe Niku	Tokyo Traders	Meat/Poultry	18 - 500 g pkgs.	\$97.00	29	0	0	Yes
Bura	Tokyo Traders	Seafood	12 - 200 ml jars	\$31,00	31	0	0	No
Previous   Page: 1 2 1	1 4 5 6 7 8   Next		Items pe	r paget 1	10, 15, 20,	25   Showing	1-10 of 77	items   Reitesh

*Products* tab is displaying a list of products, while *Suppliers* and *Categories* tabs are presenting the corresponding entities with products linked to them in master-detail relationship. Users can quickly create new inventory entities and browse them as they wish.

🔗 🍘 Invento	ory			9	- 🖾 - 6	E+9	e = 🔘 Tgols
ta Controllers Maste	r/Detai Extravaganza O	ustomer Orders	ventory				
iventory						NOR	THWIND
roducts Supplier	s Categories						
This is a list of categor	WS.						
New - Actions -						Vent Cate	gories •
Cabegory Name	Description						11/10/10/2
Beverages	Soft drinks,	coffees, teas, been	s, and ales				
Condmenta	Sweet and	savory sauces, relish	es, spread	s, and seasoni	ngs		
Confections	Desserts, c	andies, and sweet b	reads				
Dary Products	Cheeses						
Dairy Products Grains/Cereals	Cheeses Breads, cra	okers, pasta, and ce	real				
Dairy Products Grains/Cereals Previous (Page: 1 2	Cheeses Breads, cra 1   Next	ickers, pasta, and ce	real Items	per pagei 10,	15, 20, 25   Sho	ning 1-5 of 8 it	tems   Refresh
Dairy Products Grans/Cereals Previous (Page: 1 2 This is a list of product	Cheeses Breads, cra I   Next S.	ckers, pasta, and ce	real Itens	per page: 10,	15, 20, 25 [ Show	ning 1-5 of 8 it	ems   Aefresh
Dary Products Grans/Cereals Previour   Page: 1 2 This is a list of product New • Actions •	Oreeses Breads, σa I ] Next I.	ckers, pasta, and ce	real Itens	per page: 10,	15, 20, 25   Sho	ving 1-5 of 8 it	ens (Refresh oducts •
Dairy Products Grains/Cereals Previous (Page: 1 2 This is a list of product New • Actions • Product Name 5	Cheeses Breads, cra I / Next s.	duers, pasta, and ce Quantity Per Unit	real Items Unit Price	per page: 10, Units In Stock	15, 20, 25   Sho Units On Order	ving 1-5 of 8 it View: Pri Reorder Level	oducts •
Dary Products Grains/Cereals Previous (Page: 1-2 This is a list of product New - Actions - Product Name 5 Chai E	Cheeses Breads, cra I   Next s. i.cppler Company Name Xxoto Liquida	ckers, pasta, and ce Quantity Per Linit 10 boxes x 20 bags	real Items Unit Price \$18.00	per page: 10, Units In Stock <b>39</b>	15, 20, 25   Sho Units On Order 0	View: Pri Reorder Level 10	oducts • Discontinued No
Dary Products Grains/Cereals Previous   Page: 1 2 This is a list of product New • Actions • Product Name 5 Chai E Chang E	Cheeses Breads, cra I   hext s. Lepter Company Name Xotic Liquids Xotic Liquids	ckers, pasta, and ce Quantity Per Linit 10 boxes x 20 bags 24 - 12 or bottles	Unit Price \$18.00 \$19.00	per page: 10, Units In Stock 39 17	15, 20, 25   Shin Units On Order 0 40	Vews Pro Reorder Level 30 25	oducts • Discontinued No No
Dary Products Grans/Cereals Previous (Page: 1-2 This is a list of product New - Actions - Product Name - S Chai - E Chai - E Guaraná Fantástica R	Cheeses Breads, cra I   Next s. Luppler Company Name Xotic Liquids Xotic Liquids Infrescos Americanas LTDA	Quantity Per Unit 10 boxes x 20 bags 24 - 12 oz bottles 12 - 355 ml cans	real Items Unit Price \$18.00 \$19.00 \$4.50	per page: 10, Units In Stock 39 17 20	15, 20, 25   Shee Units On Order 0 40 0	Vext: Pro Reorder Level 30 25 0	educts • Discontinued No No Yes
Dary Products Grans/Cereals Previous (Page: 1:2 This is a list of product New Actions • Product Name S Chai E Chang E Guaraná Fantástica R Sasquatch Ale B	Cheeses Breads, cra I:   Next s. uppler Company Name xotic Liquids xotic Liquids toffescos Americanas LTDA ligfoot Breweries	Quantity Per Unit 10 boxes x 20 bags 24 - 12 oz bottles 12 - 355 ml cans 24 - 12 oz bottles	Linit Price \$18.00 \$19.00 \$4.50 \$14.00	per peget 10, Units In Stock 39 17 20 111	15, 20, 25   Shee Units On Order 0 40 0	Next: Per Reorder Level 30 25 0 15	oducts • Discontinued No No Yes No
Dary Products Grans/Cereals Previous (Page: 1:2 This is a list of product New Actions • Product Name S Chai E Chang E Guaraná Fantástica R Sasquatch Ale B Steeleye Stout B	Cheeses Breads, cra I:   Next s. Luppler Company Nome xotic Liquids ixotic Liquids ixotic Liquids laffescos Americanas LTDA ligfoot Breweries ligfoot Breweries	Quantity Per Unit 10 boxes x 20 bags 24 - 12 oz bottles 12 - 355 ml cans 24 - 12 oz bottles 24 - 12 oz bottles 24 - 12 oz bottles	Unit Price \$18.00 \$19.00 \$4.50 \$14.00 \$18.00	per page: 10, Units In Stock 39 17 20 111 20	15, 20, 25   Sher Units On Order 0 40 0 0	Next: Per Reorder Level 30 25 0 15 15	oducts • Discontinued No No Yes No No

We can make few more enhancements to the product management by introducing additional product views. Open *~/Controllers/Products.xml* and add two commands just after *command1*.

```
<command id="command2" type="Text">
        <text>
        <![CDATA[
select
    "Products"."ProductID" "ProductID"
    ,"Products"."ProductName" "ProductName"
    ,"Products"."SupplierID" "SupplierID"
    ,"Supplier"."CompanyName" "SupplierCompanyName"
    ,"Products"."CategoryID" "CategoryID"
    ,"Category"."CategoryName" "CategoryCategoryName"
    ,"Products"."QuantityPerUnit" "QuantityPerUnit"
    ,"Products"."UnitPrice" "UnitPrice"</pre>
```

,"Products"."UnitsInStock" "UnitsInStock"

,"Products"."UnitsOnOrder" "UnitsOnOrder"

,"Products"."ReorderLevel" "ReorderLevel"

,"Products"."Discontinued" "Discontinued"

from "dbo"."Products" "Products"

left join "dbo"."Suppliers" "Supplier" on "Products"."SupplierID" =

"Supplier"."SupplierID"

left join "dbo"."Categories" "Category" on "Products"."CategoryID" =
"Category"."CategoryID"

where

"Products"."Discontinued" = 0

#### ]]>

```
</text>
```

</command>

<command id="command3" type="Text">

```
<text>
```

<! [CDATA[

#### select

"Products"."ProductID" "ProductID" ,"Products"."ProductName" "ProductName" ,"Products"."SupplierID" "SupplierID" ,"Supplier"."CompanyName" "SupplierCompanyName" ,"Products"."CategoryID" "CategoryID" ,"Category"."CategoryName" "CategoryCategoryName" ,"Products"."QuantityPerUnit" "QuantityPerUnit" ,"Products"."QuantityPerUnit" "QuantityPerUnit" ,"Products"."UnitPrice" "UnitPrice" ,"Products"."UnitsInStock" "UnitsInStock" ,"Products"."UnitsOnOrder" "UnitsOnOrder" ,"Products"."ReorderLevel" "ReorderLevel" ,"Products"."Discontinued" "Discontinued" from "dbo"."Products" "Products" left join "dbo"."Suppliers" "Supplier" on "Products"."SupplierID" = "Supplier"."SupplierID"

Command *command2* selects products that are not discontinued. Command *command3* selects current products with low stock. Notice that all three commands are having the same set of output columns. This is very important and allows *Web.DataView* component and supporting server code of the framework to correctly display multiple views of the same data. The *where* clause allows you to limit the data according to some predefined criteria. You can also add an *order by* clause to provide a default sort order for each command if you wish.

Next insert two views with type *grid* just above the grid view *grid1*.

```
<headerText>This is a list of products with low stock. </headerText>
<dataFields>
<dataField fieldName="ProductName" columns="40" />
<dataField fieldName="SupplierID" aliasFieldName="SupplierCompanyName" />
<dataField fieldName="CategoryID" aliasFieldName="CategoryCategoryName"
/>
<dataField fieldName="QuantityPerUnit" columns="20" />
<dataField fieldName="UnitPrice" dataFormatString="c" columns="15" />
<dataField fieldName="UnitsInStock" columns="15" />
<dataField fieldName="UnitsOnOrder" columns="15" />
<dataField fieldName="ReorderLevel" columns="15" />
</dataField fieldName="ReorderLevel" columns="15" />
</dataFields>
</view>
```

Both views do not display *Discontinued* field since only active products are included in the record set produced by corresponding commands. We have also provided alternative header text and label for each view to make it easier to understand the purpose of each of them. Data views can have a different set of fields unlike the commands that must return the same set of columns at all times.

This is how the view selector is presented now to users on all tabs of the *inventory* manager.

A Dinver			Q -	÷.	• Bage • O Tgols		
Controllers Man	ster/Detail Extravagariza Custome	Orders Inve	ntory				
ventory							NORTHWIND
oducts Supple	ers Categories						
is is a list of produ	cts with low stock.						
en + Actions •				Veut	Prod	lucts To Order •	
took of time	Surviver Company Name	Category	Quantity Per	UNI.	Units In		Current Products
wite	Evote Linuds	Name Beverages	24 - 12 oz	Frice.	Stock		Products To Order
			12 - 550 mi			-	AS PTODUCTS
viseed Syrup	Exotic Liquids	Condments	bottles	\$10.00	13	70	3
ueso Cabrales	Cooperativa de Quesos Las Cabrasí	Dairy Products	1 kg pkg.	\$21.00	22	30	30
Rodney's Scones	Specialty Biscuits, Ltd.	Confections	24 pkgs. x 4 pieces	\$10.00	3	40	5
ord-Ost atjeshering	Nord-Ost-Fisch Handelsgesellschaft mbH	Seafood	10 - 200 g glasses	\$25.89	10	0	15
orgonzola Telino	Formaggi Fortini s.r.l.	Dairy Products	12 - 100 g pilgs	\$12.50	0	70	20
ascarpone Fabiol	Formaggi Fortni s.r.J.	Dairy Products	24 - 200 g pilgs.	\$32.00	9	40	25
avad lax	Svensk Sjöföda A8	Seafood	12 - 500 g pkps.	\$26.00	11	50	25
oh Coffee	Leka Trading	Beverages	26 - 500 g tins	\$46.00	17	10	25
ogede sid	Lyngbysid	Seafood	Sk pkg.	\$9.50	5	70	15
evious  Pager 1	2   Next	D	ierns per page: 10	0, 15, 20,	25   Show	0.1-1	b of \$8 items   Refresh
	The second s	_	_	_	_	-	
oa MyCompany. A	Al rights reserved.						

The same views are also available in order management screens when user adds a new product or changes existing order details.

armalies Name D	tal fate-torus Catave	Orders Drawn	and the second sec					
er Details							NORTHV	
				11 FM 790				
This is a list of prod	acts with low stock.						× Close	
				1	lent	Products	To Order •	
Product Name	Supplier Company Name	Category	Quantity Per Unit	Unit Price	Unit	Curre	nt Products	
Chocolade	Zaanse Snoepfabriek	Confections	10 pkgs.	\$12.75	15	Al Produ	Products To Order	
Maxdaku	Karkiti Oy	Confections	24 - 50 g pkgs.	\$20.00	10	60	15	
Grocchi di nonna Alce	Pasta Buttri s.r.l.	Grains/Cereals	24 - 250 g pkgs.	\$38.00	21	30	30	
Wimmers gute Semmelknödel	Plutzer Lebensmittelgroßmärkte AG	Grains/Cereals	20 bags x 4 pieces	\$33.25	22	80	30	
Louisiana Hot Spice Okra	<sup>5</sup> New Orleans Cajun Delights	Condiments	24 - 8 oz jars	\$17.00	4	100	20	-
Scottish Longbread	Speciality Biscuits, Ltd.	Confections	10 boxes x 8 pieces	\$12.50	6	10	15	
Outback Lager	Pavlova, Ltd.	<b>Beverages</b>	24+355 mi bottles	\$15.00	15	10	30	
Longlife Tofu	Tokyo Traders	Produce	5 kg pkg.	\$10.00	4	20	5	
Previous (Pager 1	2   Next	Items per p	spe: 10, 15, 20	, <u>25   S</u> h	wing	11-18 of 18	8 /tens   Refresh	1

# Conclusion

Few products on the market allow you to create modern *AJAX* applications as Aquarium Express does. Data Aquarium Framework provides additional tools for professional developers making it possible to use the framework for many aspects of web application development.