

Trabalho Prático 1 – 1ª Parte

Engenharia de Dados e do Conhecimento

Motivação

- Programação do lado do servidor e do lado do cliente (2ª parte)
- Revisão da utilização de base de dados relacional
- Familiarização com as ferramentas de trabalho
 - Visual Studio
 - SQL Server

Objetivo

- Desenvolvimento de uma aplicação web
 - Desenvolvimento de um site web com gestão de utilizadores
 - Integração de uma base de dados SQL

1ª Parte – 2 aulas

- Integração de dados remotos – aplicação cliente
 - Integração de dados em formato JSON

2ª Parte – 1 aula

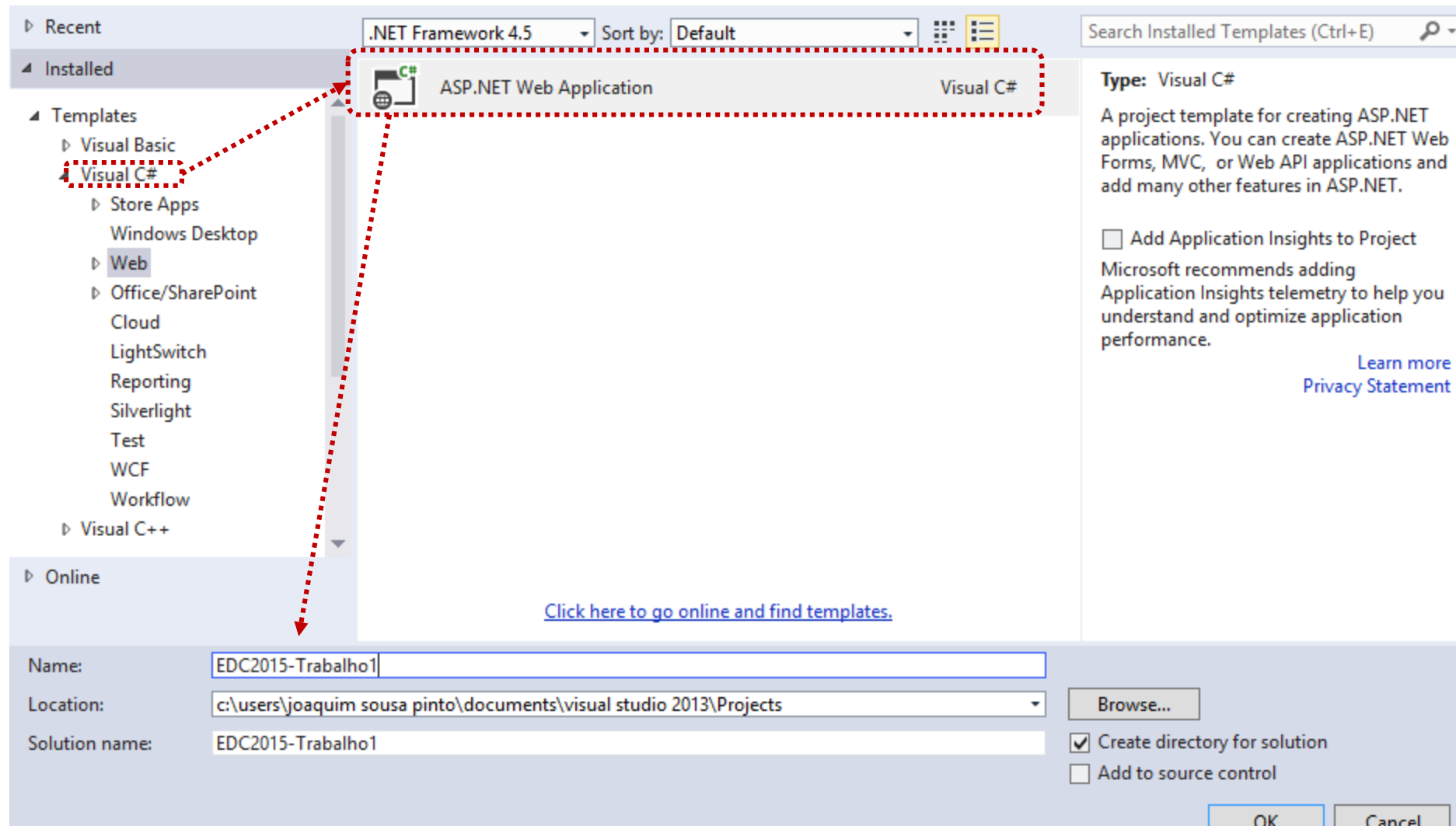
- Base de dados a utilizar nos dois casos:
 - Pubs.mdb da Microsoft

Programação do lado do servidor

Tarefas


- Criar uma aplicação web em VisualStudio
- Instalar novos componentes
- Alterar o design da aplicação


Criação da aplicação web





Criação da aplicação web


Select a template:


 Empty


 Web Forms

 MVC

 Web API

 Single Page Application

 Azure API App (Preview)

 Azure Mobile Service

Add folders and core references for:

☒ Web Forms ☐ MVC ☐ Web API

☐ Add unit tests


Test project name:


A project template for creating ASP.NET Web Forms applications. ASP.NET Web Forms lets you build dynamic websites using a familiar drag-and-drop, event-driven model. A design surface and hundreds of controls and components let you rapidly build sophisticated, powerful UI-driven sites with data access.

[Learn more](#)

[Change Authentication](#)

Authentication: **Individual User Accounts**

 **Microsoft Azure**

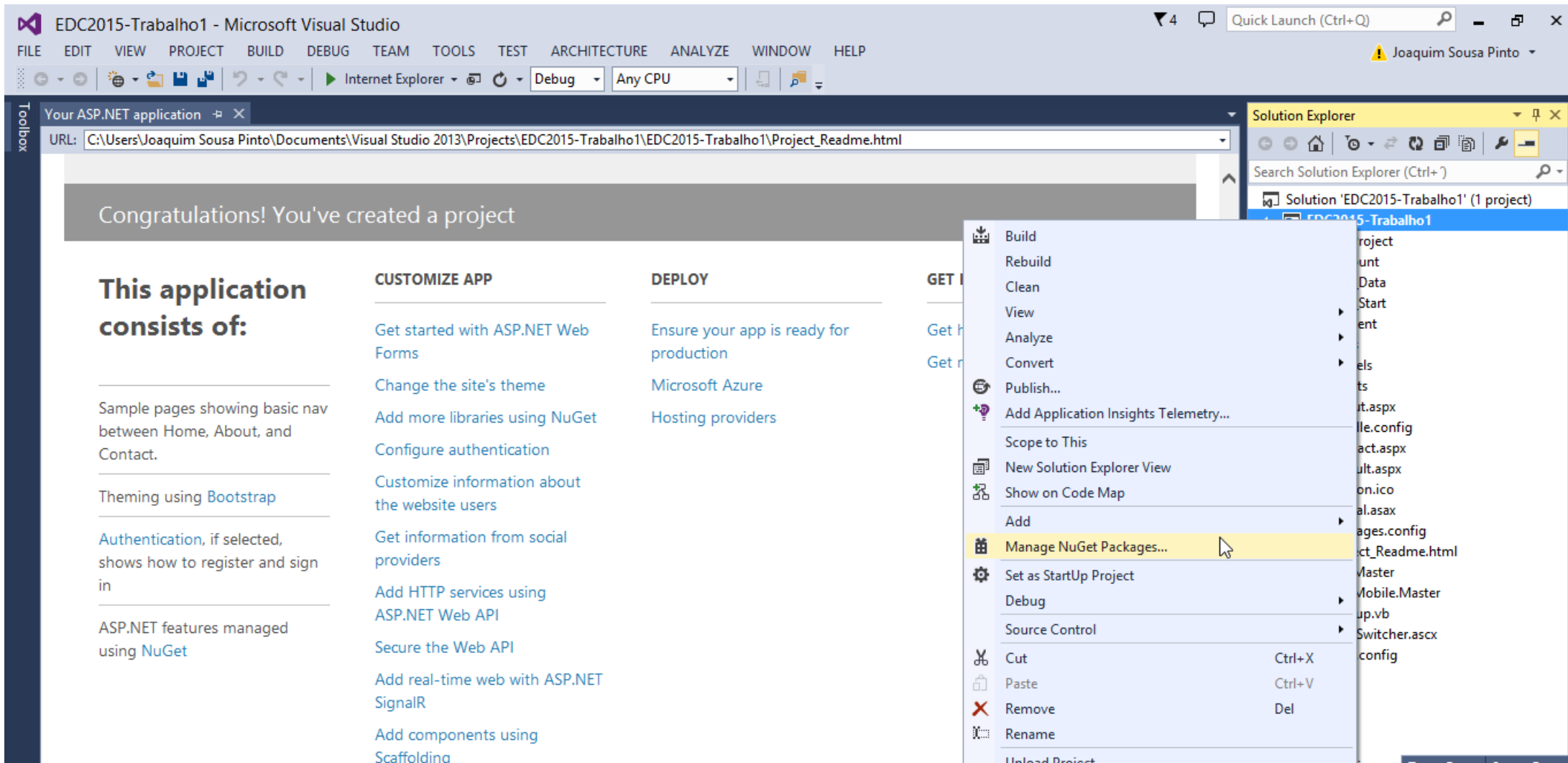
 ☐ Host in the cloud

Web App

[Manage Subscriptions](#)

OK Cancel

Atualização do projeto



Atualização do projeto

The screenshot shows the NuGet Package Manager interface. On the left, the 'Updates' tab is selected and highlighted with a red dashed box. A red arrow points from this tab to the 'Update All' button, which is also highlighted with a red dashed box. The main area displays a list of packages with updates available:

- Json.NET**: A popular high-performance JSON framework for .NET. [Update]
- jQuery**: jQuery is a new kind of JavaScript Library. jQuery is a fast and concise JavaScript Library that simplifies...
- WebGrease**: Web Grease is a suite of tools for optimizing javascript, css files and images.
- Modernizr**: Modernizr is a small and simple JavaScript library that helps you take advantage of emerging web technologies (CSS3, HT...
- ANTLRv3**: ANOther Tool for Language Recognition, is a language tool that provides a framework for constructing recognizers, inter...
- Bootstrap CSS**: Bootstrap framework in CSS. Includes fonts and JavaScript
- Respond JS**: A fast & lightweight polyfill for min/max-width CSS3 Media Queries (for IE 6-8, and more)

At the bottom left, a disclaimer states: "Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages."

On the right, the details for the selected package (Json.NET) are shown:

- Created by:** James Newton-King
- Id:** [Newtonsoft.Json](#)
- Version:** 7.0.1
- Installed version:** 6.0.4
- Last Published:** 22-Jun-15
- Downloads:** 17388768
- License:** [View License](#), [Project Information](#), [Report Abuse](#)
- Description:** Json.NET is a popular high-performance JSON framework for .NET
- Tags:** json
- Dependencies:** No Dependencies

Instalação de novos packages

Exemplo: font awesome (<http://fontawesome.github.io/Font-Awesome/icons/>)

The screenshot displays the NuGet Package Manager interface. On the left, the 'Online' tab is selected under 'Installed packages'. The search bar at the top right contains the text 'awesome'. The search results list several packages, with 'FontAwesome' (Font Awesome for Twitter Bootstrap) highlighted at the top. A red dashed box highlights the search bar and the 'FontAwesome' package. The details for the 'FontAwesome' package are shown on the right, including its version (4.4.0), last published date (15-Sep-15), and download count (402989). The package description states it is an iconic font designed for use with Twitter Bootstrap. The interface also shows a list of other packages like 'font-awesome', 'jQuery Awesome', 'Font Awesome', 'AweSome', 'awesome-bootstrap-checkbox', and 'Font Awesome dot net'.

Installed packages

Online

All

nuget.org

Microsoft and .NET

Search Results

Updates

Stable Only

Sort by: Relevance

awesome

FontAwesome
Font Awesome for Twitter Bootstrap - <http://fontawesome.io> **Install**

font-awesome
Font Awesome - The iconic font designed for Bootstrap

jQuery Awesome
Want to add some awesome to your site? Can't find the words? Now you can!

Font Awesome
Font Awesome, the iconic font and CSS toolkit.

AweSome
Package description

awesome-bootstrap-checkbox
Font Awesome Bootstrap Checkboxes and Radios. Pure css way to make inputs look prettier.

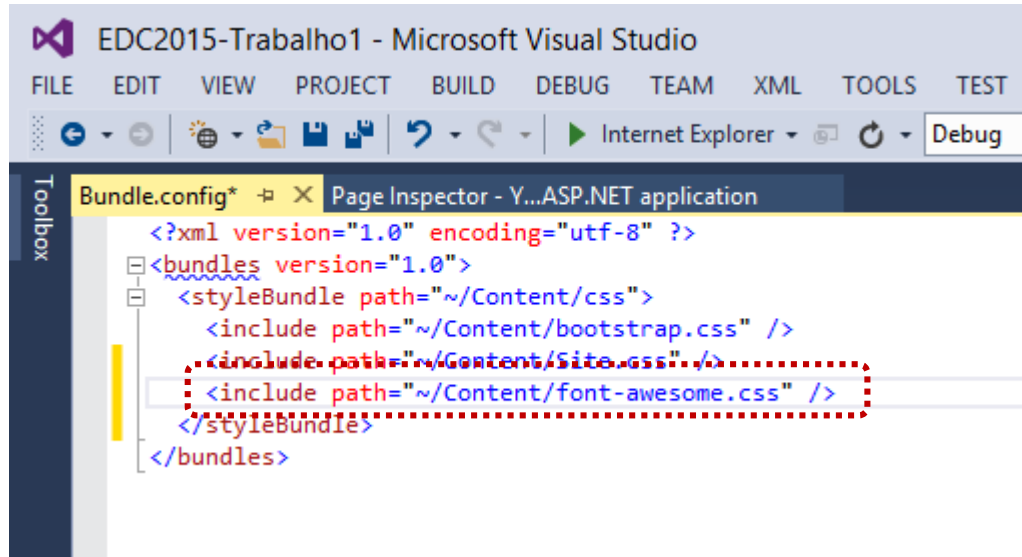
Font Awesome dot net
A simple Font Awesome wrapper.

Created by: Dave Gandy
Id: FontAwesome
Version: 4.4.0
Last Published: 15-Sep-15
Downloads: 402989
License
[View License](#)
[Project Information](#)
[Report Abuse](#)
Description:
Iconic font designed for use with Twitter Bootstrap. Package Issues? Post them to <https://github.com/JustLikelcarus/Font-Awesome-NuGet/issues>
Tags: FontAwesome FontAwesome Font Awesome Iconic Twitter Bootstrap
Dependencies:
No Dependencies

Each package is licensed to you by its owner. Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.

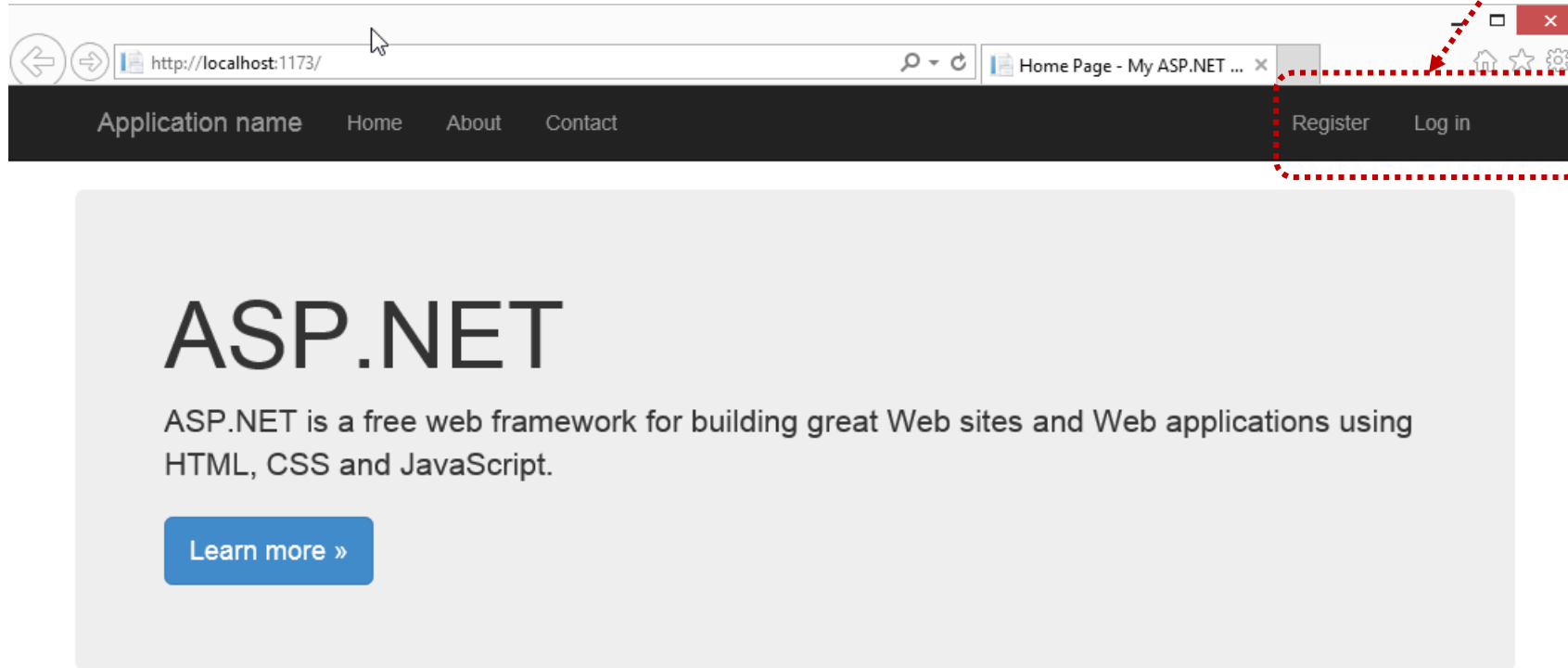
1 2 3 4 5 ▶

Incluir a nova fonte no projeto existente



Gestão de utilizadores ...

A aplicação web a funcionar...



Getting Started

ASP.NET Web Forms lets you build dynamic websites using a familiar drag-and-drop, event-driven model. A design surface and hundreds of controls and components let you rapidly build sophisticated, powerful UI-driven sites with data access.

Get more libraries

NuGet is a free Visual Studio extension that makes it easy to add, remove, and update libraries and tools in Visual Studio projects.

[Learn more »](#)

Web Hosting

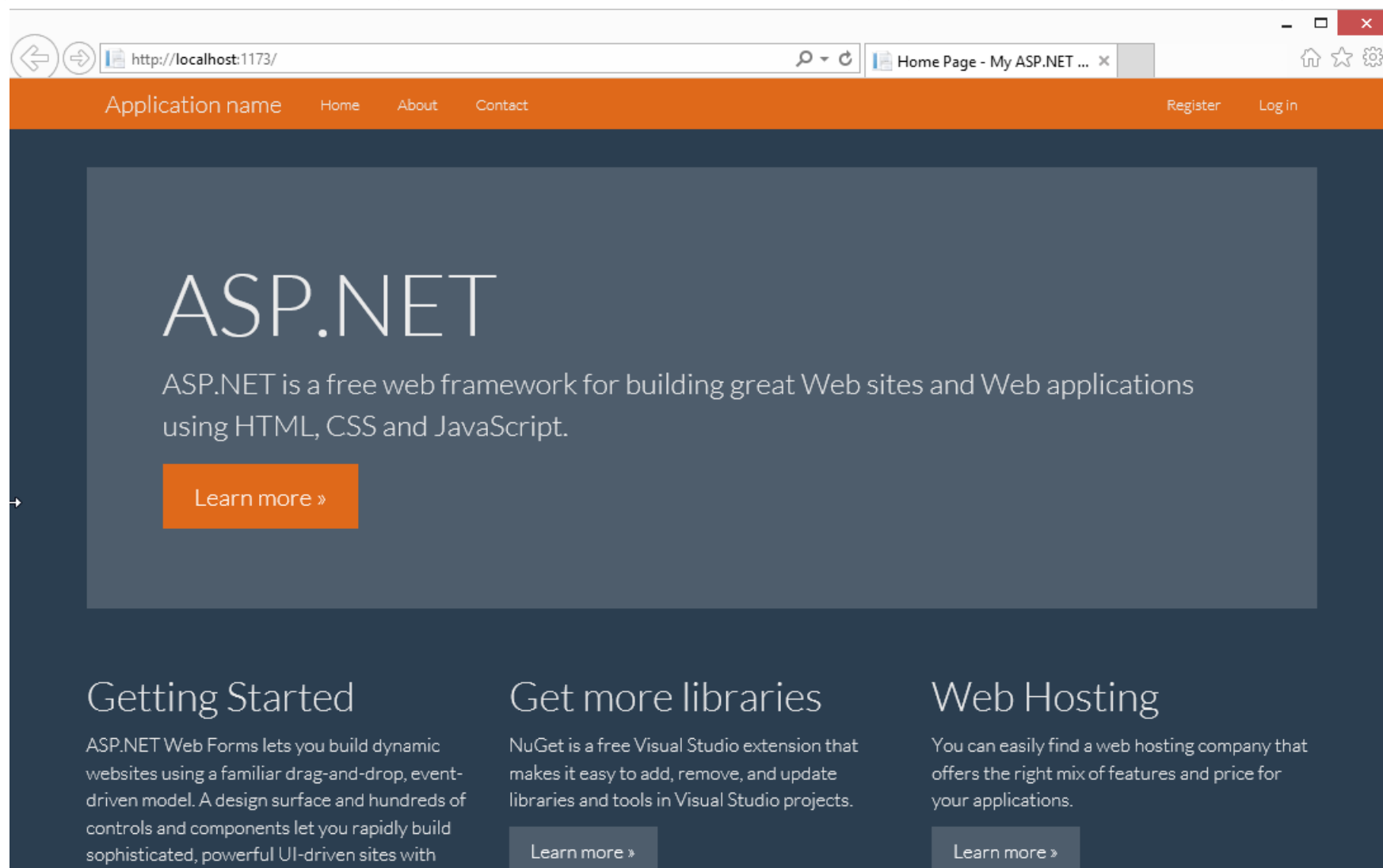
You can easily find a web hosting company that offers the right mix of features and price for your applications.

[Learn more »](#)

Alteração do design

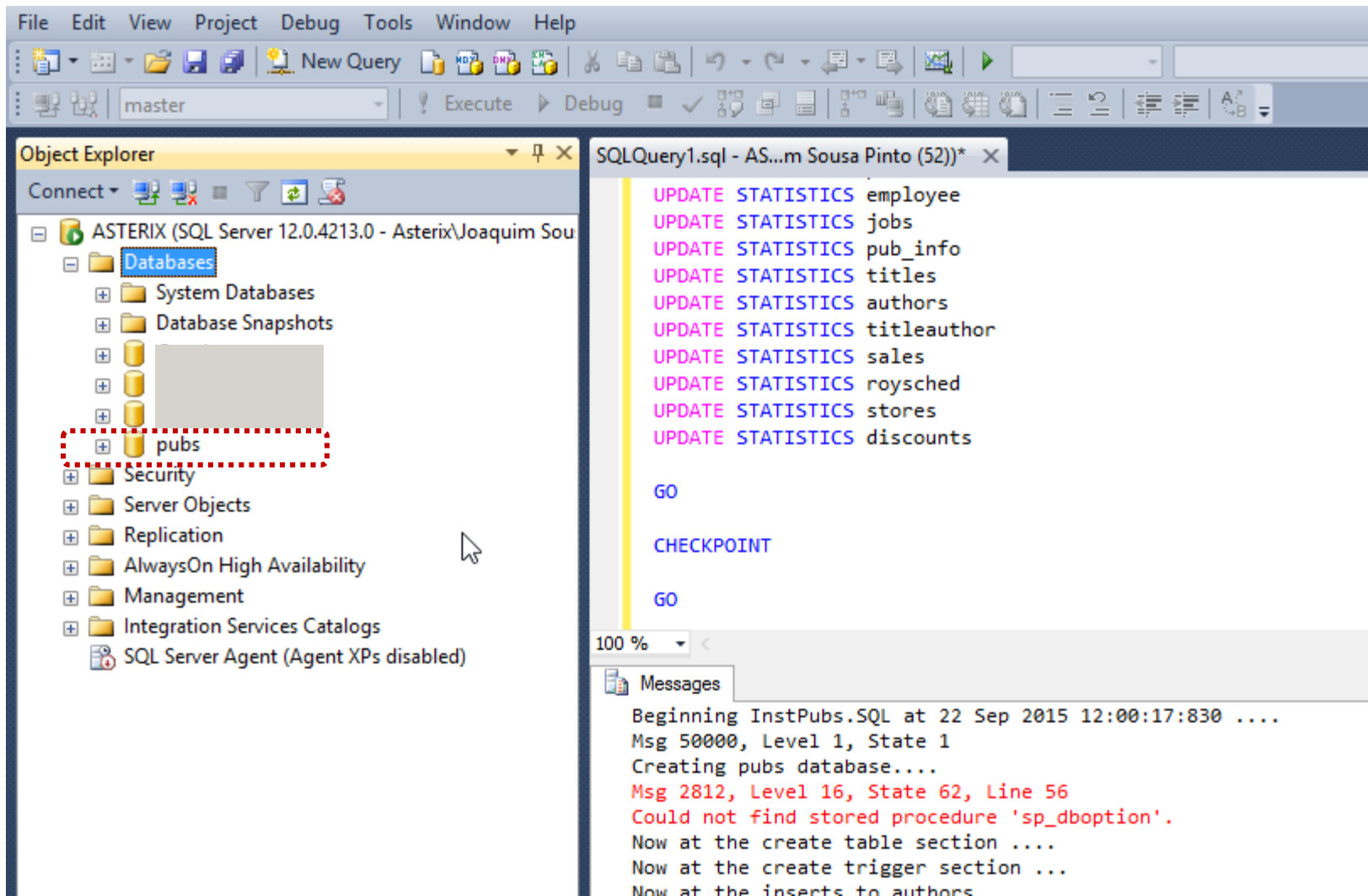
Bootstrap (<http://getbootstrap.com/>) | Bootstrap free themes (<http://bootswatch.com/>)

Aplique um dos temas apresentados



Criação da base de dados pubs

Instale a base de dados “pubs”



The screenshot displays the SQL Server Enterprise Manager interface. In the Object Explorer on the left, the 'pubs' database is highlighted under the 'Databases' folder. The main window shows a SQL script in the Query Editor, which includes commands to update statistics for various tables and a checkpoint. The Messages pane at the bottom shows the execution progress, indicating the creation of the 'pubs' database and the start of table creation.

```
UPDATE STATISTICS employee
UPDATE STATISTICS jobs
UPDATE STATISTICS pub_info
UPDATE STATISTICS titles
UPDATE STATISTICS authors
UPDATE STATISTICS titleauthor
UPDATE STATISTICS sales
UPDATE STATISTICS roysched
UPDATE STATISTICS stores
UPDATE STATISTICS discounts

GO

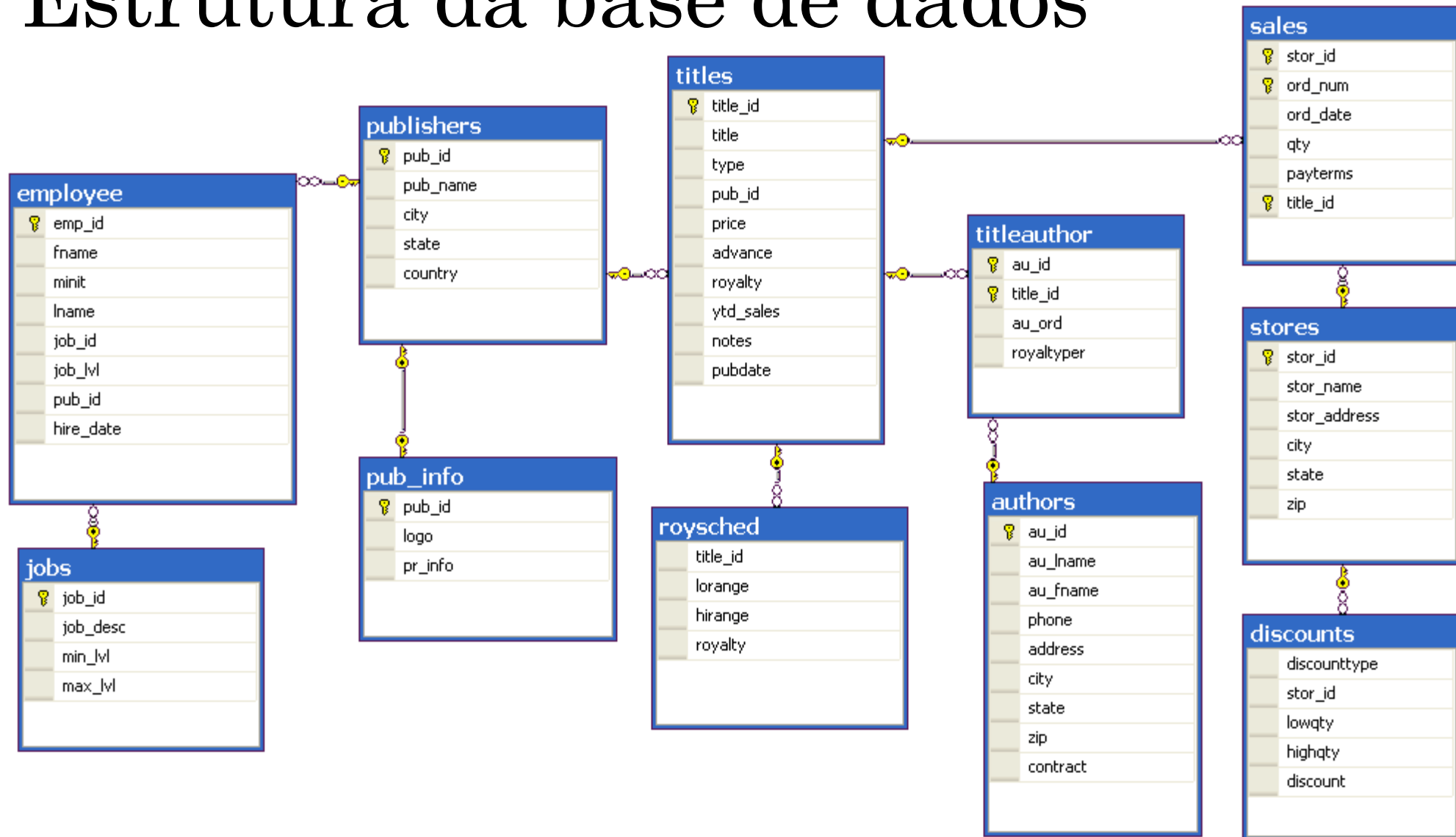
CHECKPOINT

GO
```

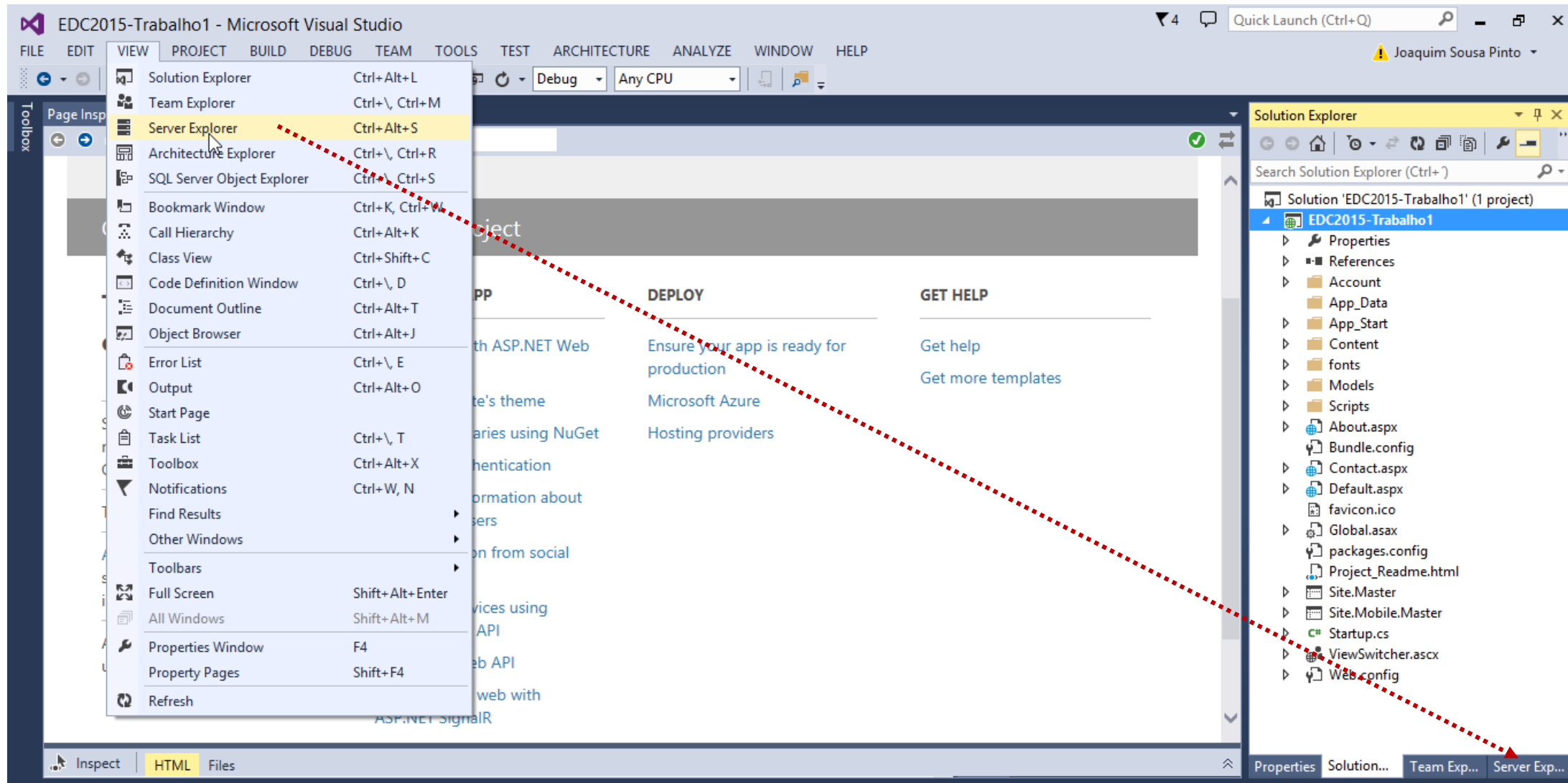
Messages

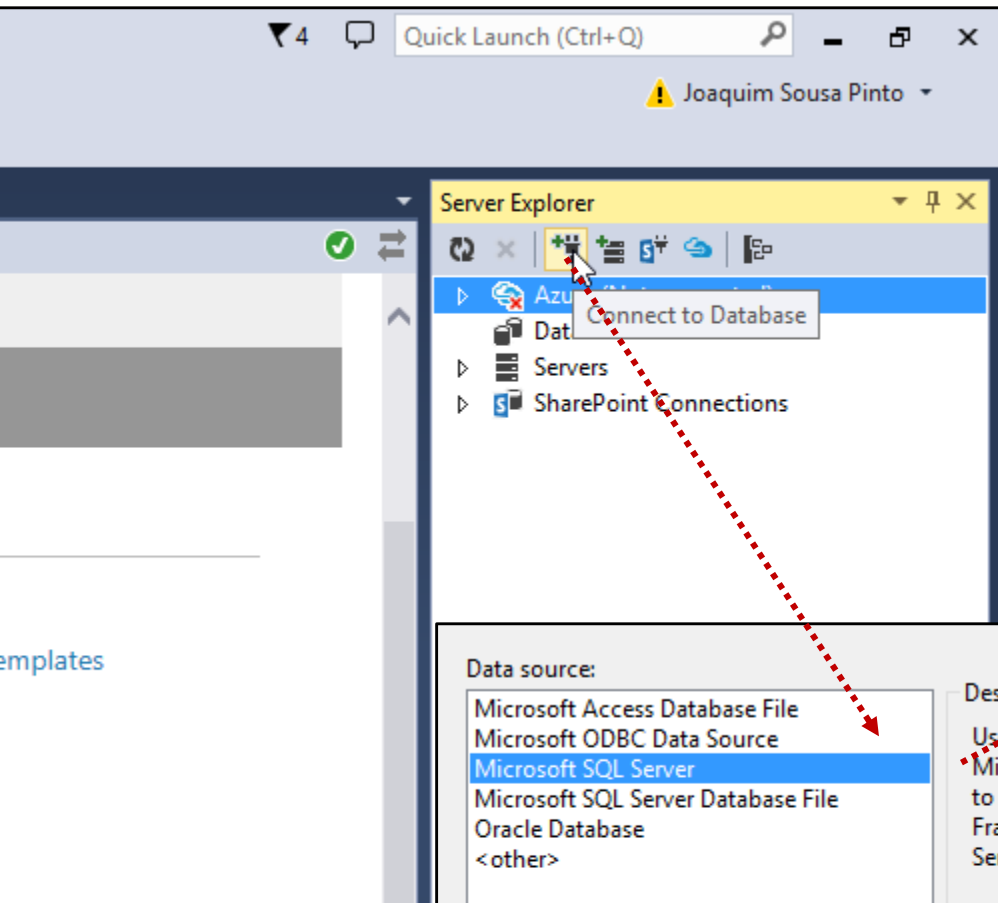
Beginning InstPubs.SQL at 22 Sep 2015 12:00:17:830
Msg 50000, Level 1, State 1
Creating pubs database....
Msg 2812, Level 16, State 62, Line 56
Could not find stored procedure 'sp_dboption'.
Now at the create table section
Now at the create trigger section ...
Now at the inserts to authors

Estrutura da base de dados



Integração da base de dados no projeto





Data source:

- Microsoft Access Database File
- Microsoft ODBC Data Source
- Microsoft SQL Server**
- Microsoft SQL Server Database File
- Oracle Database
- <other>

Data provider:

.NET Framework Data Provider for SQL S

☒ Always use this selection

Description:

Use this selection to connect to Microsoft SQL Server 2005 or above, or to Microsoft SQL Azure using the .NET Framework Data Provider for SQL Server.

Buttons: Continue, Cancel

Enter information to connect to the selected data source or click "Change" to choose a different data source and/or provider.

Data source:

Microsoft SQL Server (SqlClient) **Change...**

Server name:

localhost **Refresh**

Log on to the server

☒ Use Windows Authentication

☐ Use SQL Server Authentication

User name:

Password:

☐ Save my password

Connect to a database

☒ Select or enter a database name:

pubs

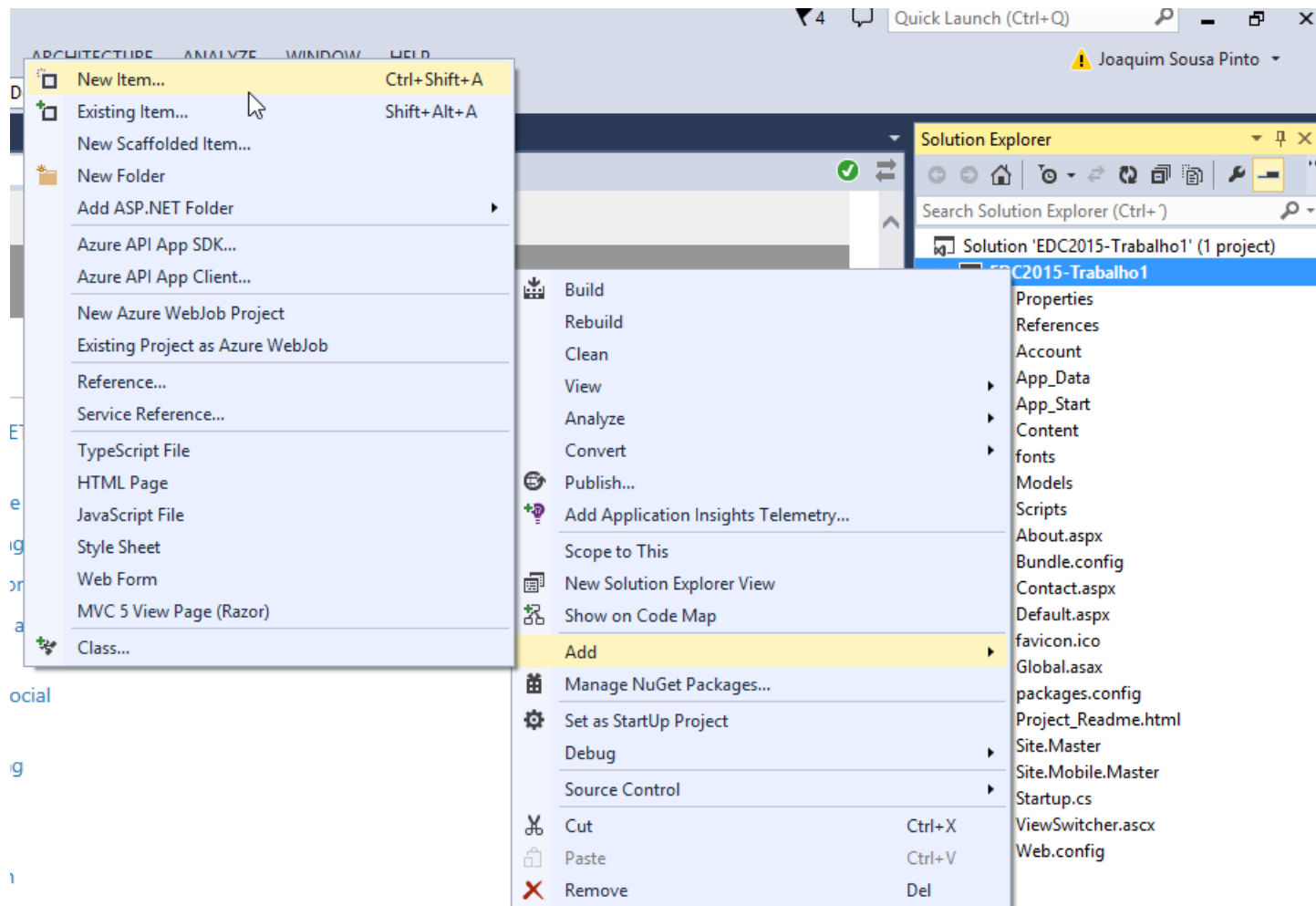
☐ Attach a database file:

Browse...

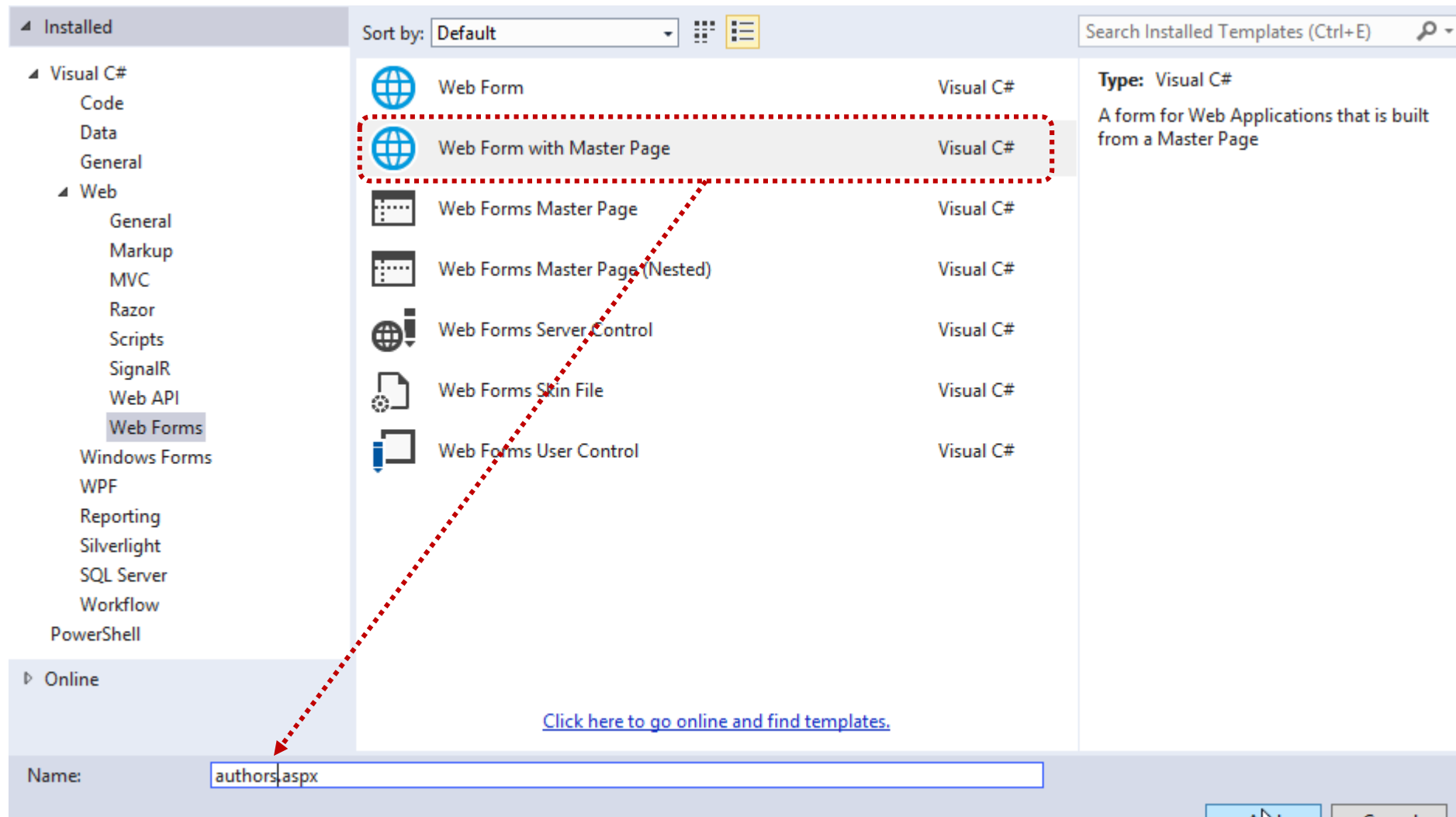
Logical name:

Buttons: Test Connection, OK, Cancel, Advanced...

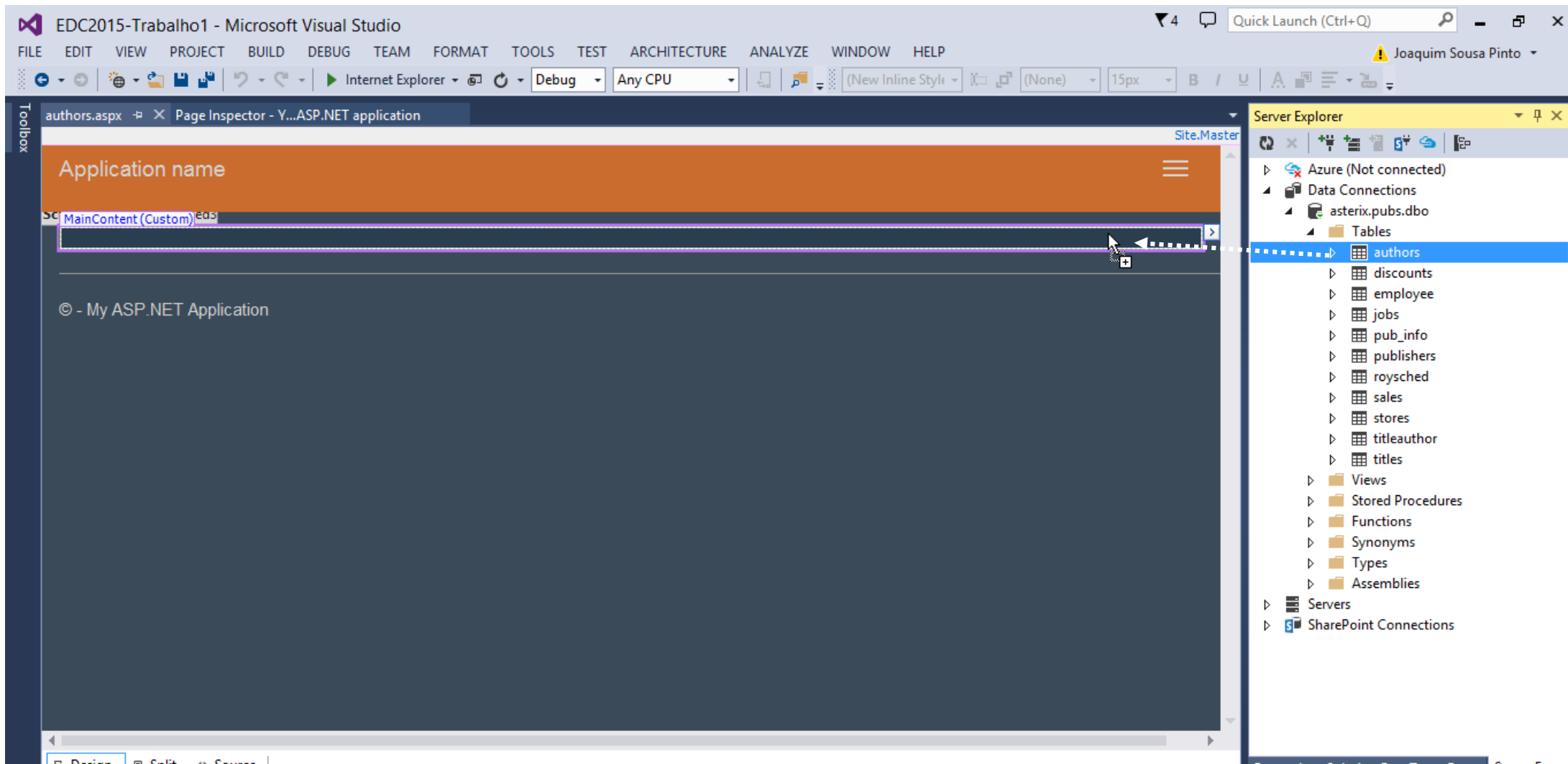
Criação da página authors.aspx



Criação da página authors.aspx



Inserção dos dados na página



Configuração da tabela

EDC2015-Trabalho1 - Microsoft Visual Studio

FILE EDIT VIEW PROJECT BUILD DEBUG TEAM FORMAT TABLE TOOLS TEST ARCHITECTURE ANALYZE WINDOW HELP

Quick Launch (Ctrl+Q)

Joaquim Sousa Pinto

authors.aspx* Page Inspector - Y...ASP.NET application

Application name

MainContent (Custom) asp:GridView#GridView1

au_id	au_fname	au_lname	phone	address	city	state	zip	contract
abc	abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>

GridView Tasks

- Auto Format...
- Choose Data Source:
- Configure Data Source...
- Refresh Schema
- Edit Columns...
- Add New Column...
- ☒ Enable Paging
- ☒ Enable Sorting
- ☒ Enable Editing
- ☒ Enable Deleting
- ☒ Enable Selection
- Edit Templates

SqlDataSource - SqlDataSource1

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Server Explorer

- Azure (Not connected)
- Data Connections
 - pubsConnectionString1 (EDC2015-Trab
- Servers
- SharePoint Connections

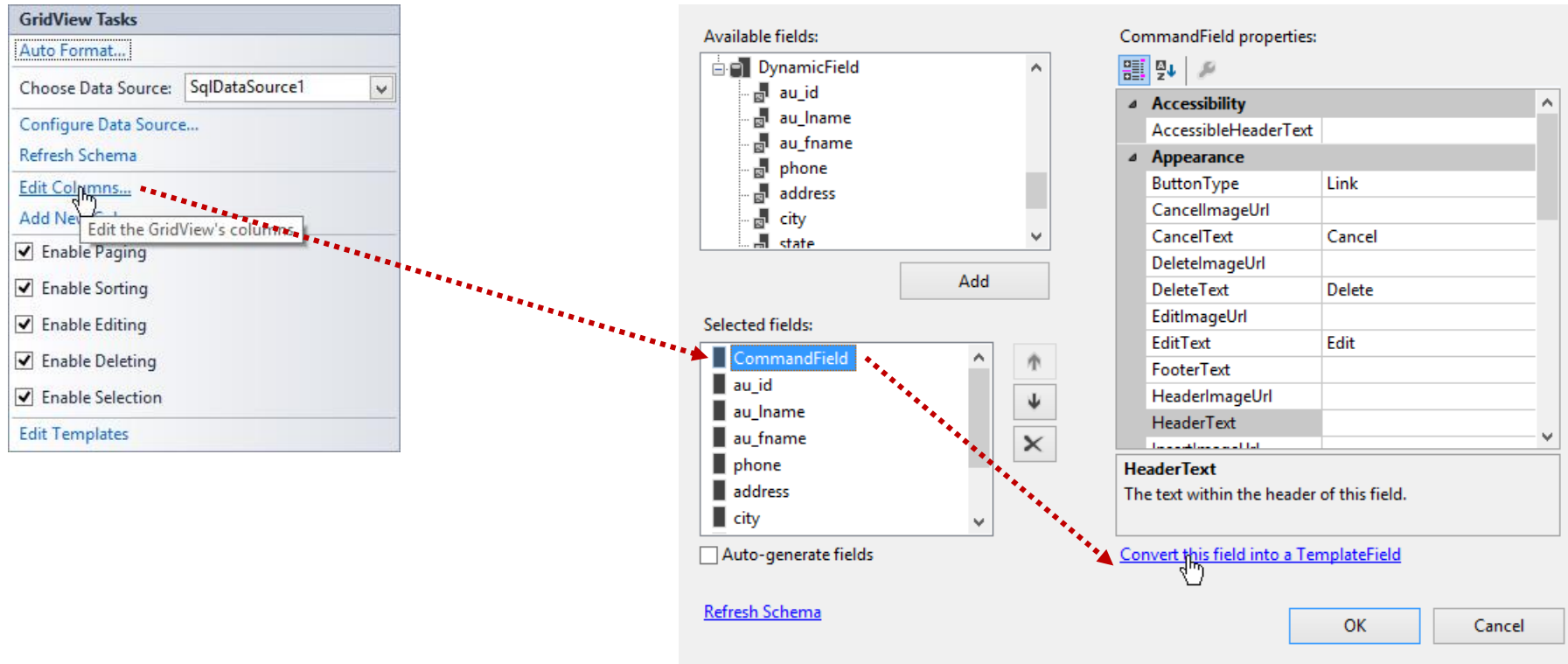
Configuração da tabela

The screenshot shows the Microsoft Visual Studio IDE with the following components:

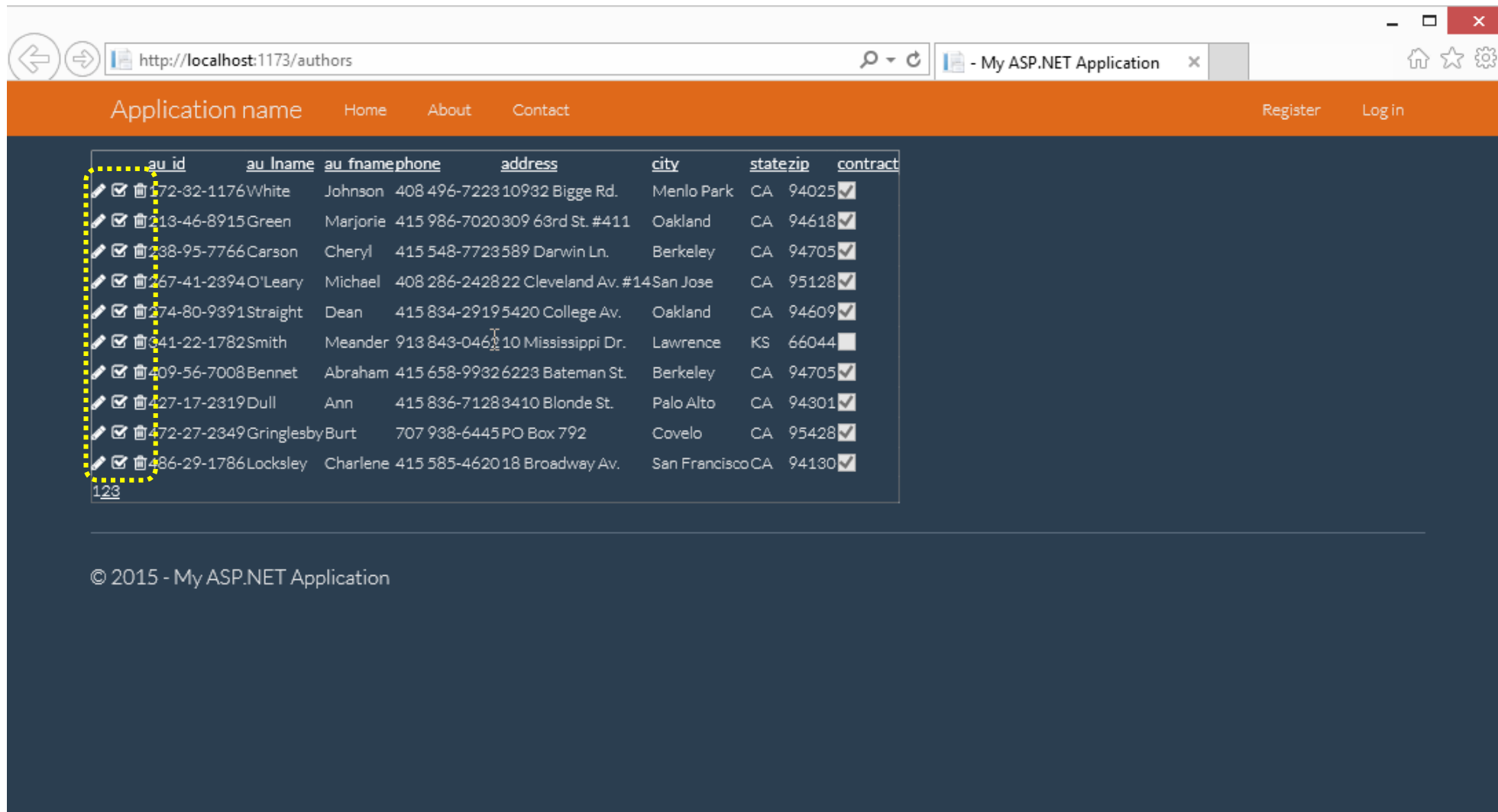
- Top Menu Bar:** FILE, EDIT, VIEW, PROJECT, BUILD, DEBUG, TEAM, FORMAT, TABLE, TOOLS, TEST, ARCHITECTURE, ANALYZE, WINDOW, HELP.
- Toolbar:** Includes buttons for navigation, execution, and debugging. The status bar shows 'Internet Explorer', 'Debug', and 'Any CPU'.
- Toolbox:** Located on the left, showing 'asp:GridView#GridView1' selected.
- Main Design View:** Displays a table with the following columns: `au_id`, `au_fname`, `phone`, `address`, `city`, `state`, `zip`, and `contract`. Each row includes 'Edit', 'Delete', and 'Select' links. The table is bound to a `SqlDataSource`.
- Server Explorer:** Located on the right, showing the 'Data Connections' section with 'pubsConnectionString1 (EDC2015-Trab)' selected.

au_id	au_fname	phone	address	city	state	zip	contract
abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input type="checkbox"/>
abc	abc	abc	abc	abc	abc	abc	<input checked="" type="checkbox"/>

Configuração da representação da informação



Alteração dos botões de comando

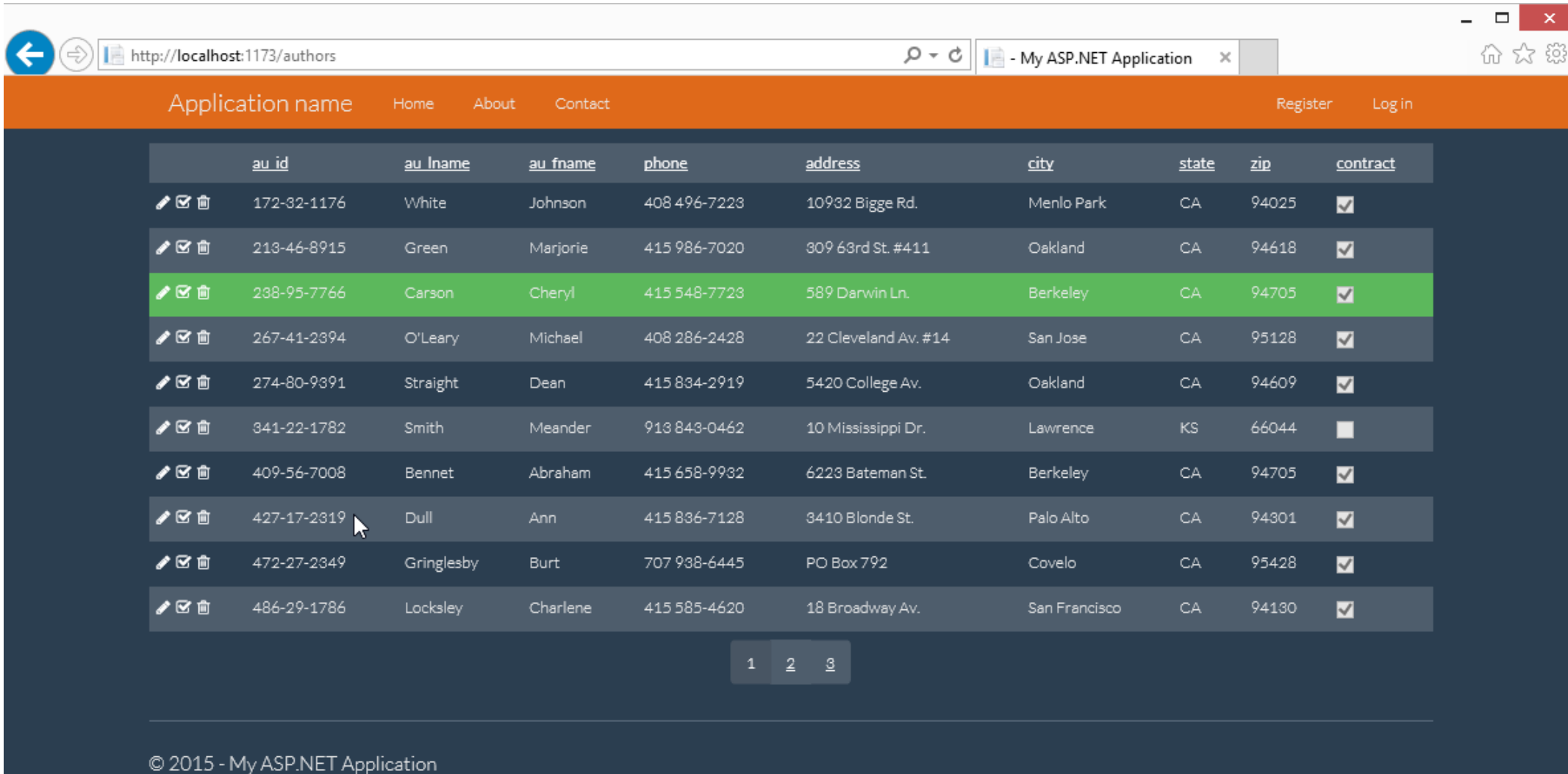


The screenshot shows a web browser window with the URL `http://localhost:1173/authors`. The application has an orange header bar with navigation links: "Application name", "Home", "About", "Contact", "Register", and "Log in". Below the header is a table of authors. The first column, "au_id", is highlighted with a yellow dashed box. Each row in the table has a set of icons in the first column: a pencil for edit, a trash can for delete, and a checkmark for a status (likely active). The table has columns for "au_id", "au_lname", "au_fname", "phone", "address", "city", "state", "zip", and "contract".































au_id	au_lname	au_fname	phone	address	city	state	zip	contract
172-32-1176	White	Johnson	408 496-7223	10932 Bigge Rd.	Menlo Park	CA	94025	✓
113-46-8915	Green	Marjorie	415 986-7020	309 63rd St. #411	Oakland	CA	94618	✓
138-95-7766	Carson	Cheryl	415 548-7723	589 Darwin Ln.	Berkeley	CA	94705	✓
167-41-2394	O'Leary	Michael	408 286-2428	22 Cleveland Av. #14	San Jose	CA	95128	✓
174-80-9391	Straight	Dean	415 834-2919	5420 College Av.	Oakland	CA	94609	✓
141-22-1782	Smith	Meander	913 843-0463	10 Mississippi Dr.	Lawrence	KS	66044	✗
109-56-7008	Bennet	Abraham	415 658-9932	6223 Bateman St.	Berkeley	CA	94705	✓
127-17-2319	Dull	Ann	415 836-7128	3410 Blonde St.	Palo Alto	CA	94301	✓
172-27-2349	Gringlesby	Burt	707 938-6445	PO Box 792	Covelo	CA	95428	✓
186-29-1786	Locksley	Charlene	415 585-4620	18 Broadway Av.	San Francisco	CA	94130	✓

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Alteração da imagem geral e dos botões de paginação (bootstrap style)



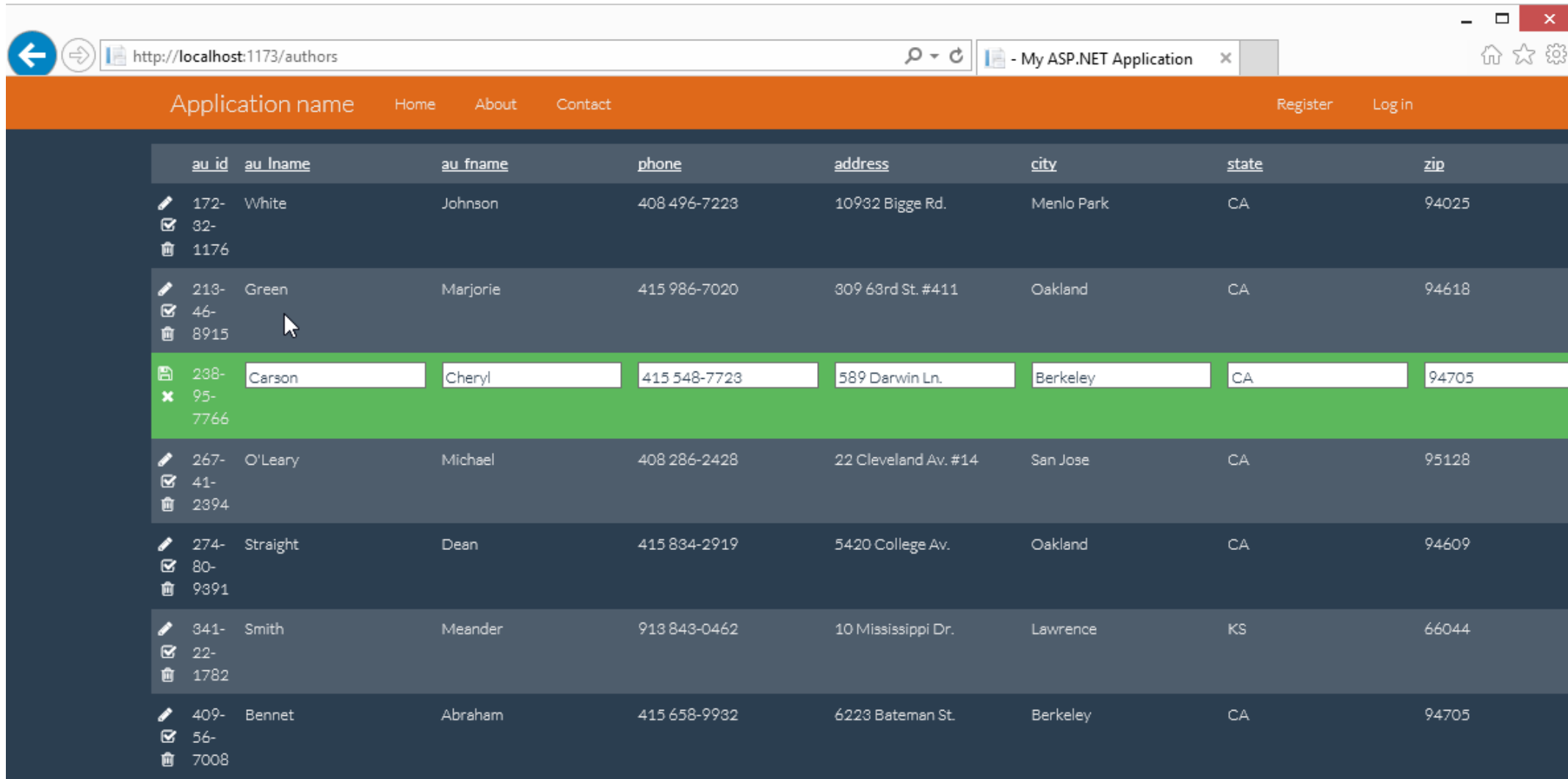
The screenshot displays a web application running on a browser at the URL `http://localhost:1173/authors`. The application has an orange header bar with navigation links: "Application name", "Home", "About", "Contact", "Register", and "Login". Below the header is a table listing authors. The table has columns for `au_id`, `au_lname`, `au_fname`, `phone`, `address`, `city`, `state`, `zip`, and `contract`. Each row includes action icons (edit, delete, and a checkbox) on the left. The row for author ID 238-95-7766 (Carson Cheryl) is highlighted in green. A mouse cursor is hovering over the row for author ID 427-17-2319 (Dull Ann). At the bottom of the table, there is a pagination control showing page numbers 1, 2, and 3, with page 2 being the active page.






















	<u>au_id</u>	<u>au_lname</u>	<u>au_fname</u>	<u>phone</u>	<u>address</u>	<u>city</u>	<u>state</u>	<u>zip</u>	<u>contract</u>
  	172-32-1176	White	Johnson	408 496-7223	10932 Bigge Rd.	Menlo Park	CA	94025	<input checked="" type="checkbox"/>
  	213-46-8915	Green	Marjorie	415 986-7020	309 63rd St. #411	Oakland	CA	94618	<input checked="" type="checkbox"/>
  	238-95-7766	Carson	Cheryl	415 548-7723	589 Darwin Ln.	Berkeley	CA	94705	<input checked="" type="checkbox"/>
  	267-41-2394	O'Leary	Michael	408 286-2428	22 Cleveland Av. #14	San Jose	CA	95128	<input checked="" type="checkbox"/>
  	274-80-9391	Straight	Dean	415 834-2919	5420 College Av.	Oakland	CA	94609	<input checked="" type="checkbox"/>
  	341-22-1782	Smith	Meander	913 843-0462	10 Mississippi Dr.	Lawrence	KS	66044	<input type="checkbox"/>
  	409-56-7008	Bennet	Abraham	415 658-9932	6223 Bateman St.	Berkeley	CA	94705	<input checked="" type="checkbox"/>
  	427-17-2319	Dull	Ann	415 836-7128	3410 Blonde St.	Palo Alto	CA	94301	<input checked="" type="checkbox"/>
  	472-27-2349	Gringlesby	Burt	707 938-6445	PO Box 792	Covelo	CA	95428	<input checked="" type="checkbox"/>
  	486-29-1786	Locksley	Charlene	415 585-4620	18 Broadway Av.	San Francisco	CA	94130	<input checked="" type="checkbox"/>

1 2 3

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A grelha em “modo de edição”

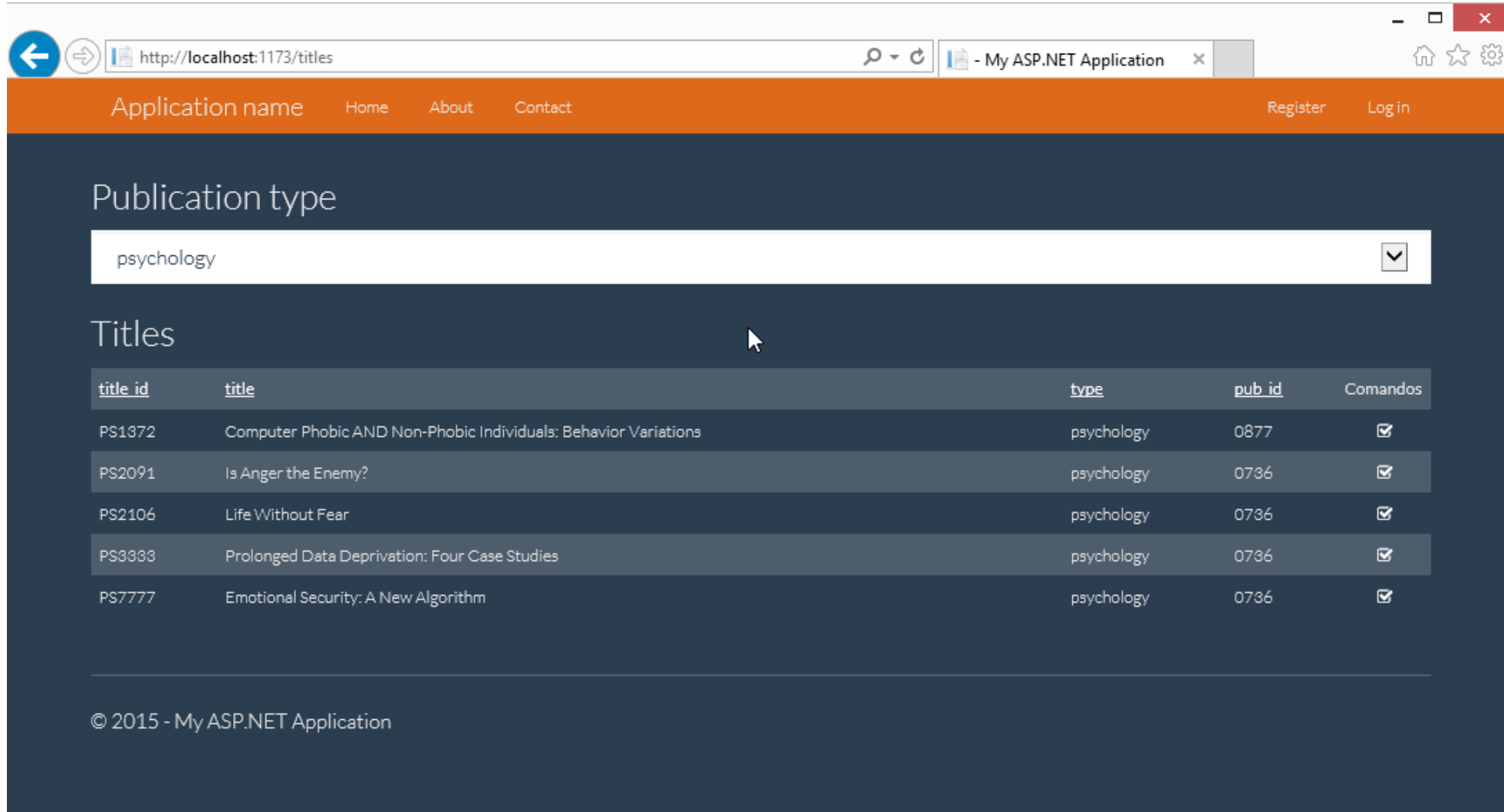


	<u>au_id</u>	<u>au lname</u>	<u>au fname</u>	<u>phone</u>	<u>address</u>	<u>city</u>	<u>state</u>	<u>zip</u>
  	172-32-1176	White	Johnson	408 496-7228	10932 Bigge Rd.	Menlo Park	CA	94025
  	218-46-8915	Green	Marjorie	415 986-7020	309 63rd St. #411	Oakland	CA	94618
  	238-95-7766	<input type="text" value="Carson"/>	<input type="text" value="Cheryl"/>	<input type="text" value="415 548-7723"/>	<input type="text" value="589 Darwin Ln."/>	<input type="text" value="Berkeley"/>	<input type="text" value="CA"/>	<input type="text" value="94705"/>
  	267-41-2394	O'Leary	Michael	408 286-2428	22 Cleveland Av. #14	San Jose	CA	95128
  	274-80-9391	Straight	Dean	415 834-2919	5420 College Av.	Oakland	CA	94609
  	341-22-1782	Smith	Meander	913 843-0462	10 Mississippi Dr.	Lawrence	KS	66044
  	409-56-7008	Bennet	Abraham	415 658-9932	6223 Bateman St.	Berkeley	CA	94705

Tarefa

- Crie uma nova página que mostre a lista de livros da base de dados;
 - Retire da listagem os campos: price, advance, royalty, ytd_sales, notes & pubdate
 - Coloque, fora da lista de publicações, um filtro que mostre apenas os livros desse tipo;
 - Adicione uma DetailsView para ver os detalhes completos de uma publicação.
- Crie uma nova página, “UserManager.aspx” que será responsável pela gestão de utilizadores;
 - Esta página só será visível quando um utilizador estiver autenticado.

Look & Feel da lista de títulos filtrada (atenção aos estilos!)



The screenshot shows a web browser window with the address bar displaying `http://localhost:1173/titles`. The browser tab is titled "My ASP.NET Application". The application has an orange header bar with the text "Application name" and navigation links "Home", "About", and "Contact". On the right side of the header are links for "Register" and "Log in".

Below the header, the page is titled "Publication type" and features a search input field containing the text "psychology". Below this, the section is titled "Titles" and displays a table of filtered results.

<u>title_id</u>	<u>title</u>	<u>type</u>	<u>pub_id</u>	Comandos
PS1372	Computer Phobic AND Non-Phobic Individuals: Behavior Variations	psychology	0877	<input checked="" type="checkbox"/>
PS2091	Is Anger the Enemy?	psychology	0736	<input checked="" type="checkbox"/>
PS2106	Life Without Fear	psychology	0736	<input checked="" type="checkbox"/>
PS3333	Prolonged Data Deprivation: Four Case Studies	psychology	0736	<input checked="" type="checkbox"/>
PS7777	Emotional Security: A New Algorithm	psychology	0736	<input checked="" type="checkbox"/>

At the bottom of the page, the footer text reads "© 2015 - My ASP.NET Application".

Look & Feel da seleção de um título

(Atenção aos estilos!)

The screenshot shows a web application running on a browser at `http://localhost:1173/titles`. The application has an orange header bar with navigation links: "Application name", "Home", "About", "Contact", "Register", and "Log in". Below the header is a table of titles. The first row is highlighted in green, indicating it is the selected title. Below the table, there is a section titled "Title details" which displays the attributes of the selected title in a key-value format.

title_id	title	type	pub_id	Comandos
PS1372	Computer Phobic AND Non-Phobic Individuals: Behavior Variations	psychology	0877	<input checked="" type="checkbox"/>
PS2091	Is Anger the Enemy?	psychology	0736	<input checked="" type="checkbox"/>
PS2106	Life Without Fear	psychology	0736	<input checked="" type="checkbox"/>
PS3333	Prolonged Data Deprivation: Four Case Studies	psychology	0736	<input checked="" type="checkbox"/>
PS7777	Emotional Security: A New Algorithm	psychology	0736	<input checked="" type="checkbox"/>

Title details

title_id	PS1372
title	Computer Phobic AND Non-Phobic Individuals: Behavior Variations
type	psychology
pub_id	0877
price	21.5900
advance	7000.0000
royalty	10
ytd_sales	375
notes	A must for the specialist, this book examines the difference between those who hate and fear computers and those who don't.
pubdate	21-Oct-91 00:00:00

Look & Feel da edição de um título

(muuuuuita atenção aos estilos e aos tipos dos campos!)

The screenshot shows a web browser window with the URL `http://localhost:1173/titles`. The application has an orange header bar with links for 'Application name', 'Home', 'About', 'Contact', 'Register', and 'Log in'. The main content area is titled 'Title details' and contains a form with the following fields:

Field Name	Value
title_id	PS1372
title	Computer Phobic AND Non-Phobic Inc
type	psychology
pub_id	0877
price	21.5900
advance	7000.0000
royalty	10
ytd_sales	375
notes	A must for the specialist, this book examines the difference between those who hate and fear computers and those who don't.
pubdate	21-Oct-91 00:00:00

The 'type' dropdown menu and the 'notes' text area are highlighted with yellow dashed borders.

Tarefa

- Crie uma nova página, “UserManager.aspx” que será responsável pela gestão de utilizadores;
 - Esta página só será visível quando um utilizador estiver autenticado.

Pergunta: e onde está a base de dados de utilizadores?????

- Simples...: no diretório “App_Data” num ficheiro com o nome+data&hora de criação do projeto.
 - Exemplo: “aspnet-EDC2015-Trabalho1-20150922113816”

Links interessantes...



- Erik Reitan, “Create a secure ASP.NET Web Forms app with user registration, email confirmation and password reset (C#)”, October 2, 2014, <http://www.asp.net/web-forms/overview/security/create-a-secure-aspnet-web-forms-app-with-user-registration,-email-confirmation-and-password-reset>
- Erik Reitan, “Membership and Administration”, September 8, 2014, <http://www.asp.net/web-forms/overview/getting-started/getting-started-with-aspnet-45-web-forms/membership-and-administration>
- Abhimanyu Kumar Vatsa, “Customize User's Profile in ASP.NET Identity System”, November 23, 2013, <http://www.itorian.com/2013/11/customize-users-profile-in-aspnet.html>

Tarefa

- Implemente a página “displayReports.aspx” que se destina a mostrar todos os títulos e todas as vendas de um determinado utilizador.

Para simular esta situação, crie um login que seja a combinação dos valores de "au_fname" + “(espaço)” + "au_lname" [SELECT au_fname+' ' + au_lname FROM authors]

Exemplos: Abraham Bennet | Reginald Blotchet-Halls | Cheryl
Carson | ...

- Crie uma stored procedure que tenha:
 - Entrada: login name;
 - Saída: retorna uma lista de encomendas para o autor

- A saga continua ... não perca os próximos capítulos...

Tarefa

- Implemente a book store (bookStore.aspx)
 - Coloque uma checkbox em cada título de modo a poder simular um “carrinho de compras”
 - Adicione um botão de “checkout”
- Implemente uma página de pagamento – checkOut.aspx – onde serão apresentados os título selecionados pelo utilizador na página bookstore.aspx
 - O número do cartão de crédito será validado por uma classe c#.
 - Por simplicidade serão validados todos os números contendo 16 dígitos; qualquer outra entrada de dados resultará num erro.

Na página checkout.aspx teremos uma mistura de dados validados no servidor (as escolhas do utilizador) e dados validados no cliente (o número do cartão de crédito)

[TODO]