DEVELOPING OUTSYSTEMS MOBILE APPS

Architecture

Introduction

Over the course of this set of exercise labs, you will create a web application. The application will focus on creating and managing To Dos. The To Dos will be persisted in a database so they can be accessed from and shared across multiple devices. To Dos will have attributes such as category, priority (low, medium or high), due date and they can be marked as important (starred) by the user.

Users of the To Do application will be able to access all of this information. This back-office application will allow administrators to manage all existing To Dos.

You constantly will be expanding your application, publishing it to the server and testing your application to the server while learning and applying new OutSystems concepts.

At the end of this set of exercise labs, you will have a small, but well-formed web application, spanning multiple screens and concepts that you can easily access from your browser.

In this specific exercise lab, you will:

- Reference the ToDo_Core data model Entities
- Build the Categories list Screen

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Part 1: Reference Entities from core module

In this part of the exercise, you will reference the Entities that were created in the **ToDo_Core** module, to be used in the current front-end (UI) module. This will allow you to retrieve and modify the values stored in the database for these Entities, from the current module.

1. In the Manage Dependencies dialog, select the **ToDo_Core** module, and pick the **ToDo** and **Category** Entities, as well as the **Priority** Static Entity.

a) Open the **Manage Dependencies** dialog by pressing the icon in the toolbar.

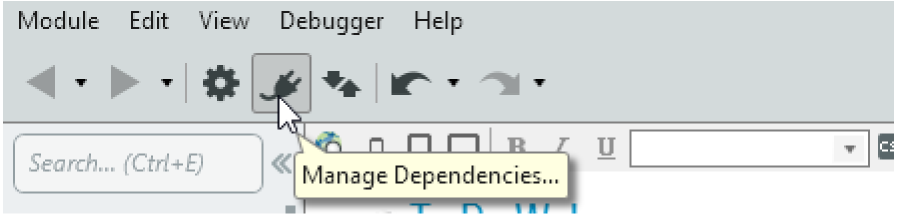


Figure 1. Manage Dependencies

b) In the Manage Dependencies dialog, ensure **Show All** is selected for the list of **Producers**, and select the **ToDo_Core_<yourinitials>** module from that list.

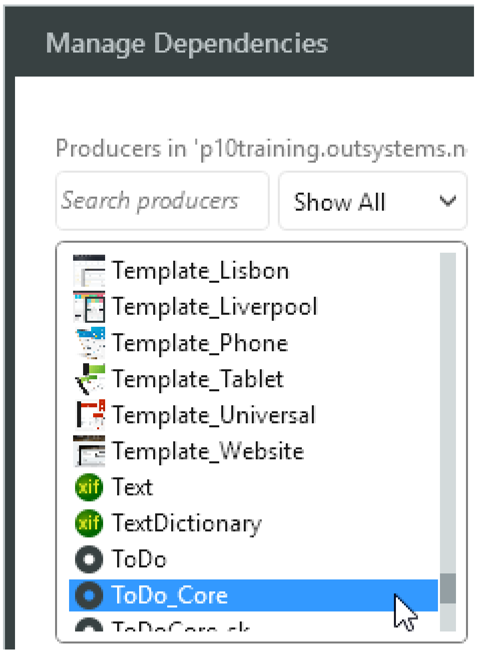


Figure 2. Select the ToDo_Core module

c) In the **Public elements** list for the **ToDo_Core** module, you should see the elements you made public in the earlier exercise. Select the **Category**

and **ToDo** Entities and the **Priority** Static Entity, then press **Ok** to close the dialog.

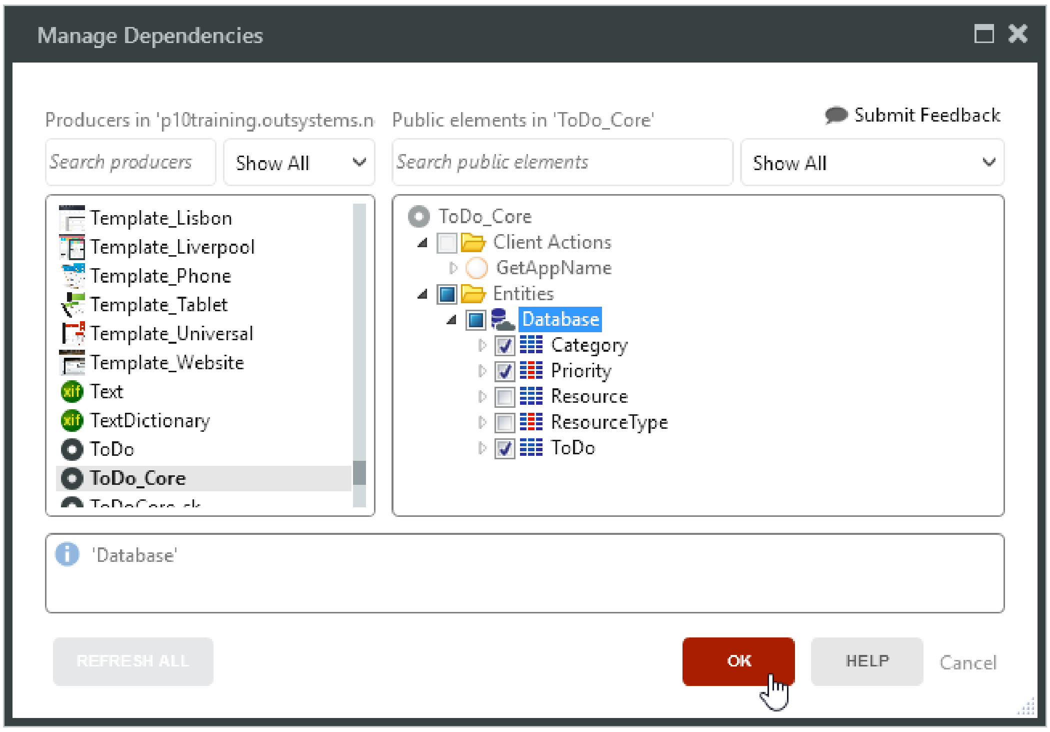


Figure 3. Select core module Entities and Static Entities

d) Switch to the **Data** tab in Service Studio. In the Elements area, notice that the referenced Entities are now available under the **ToDo_Core** module.

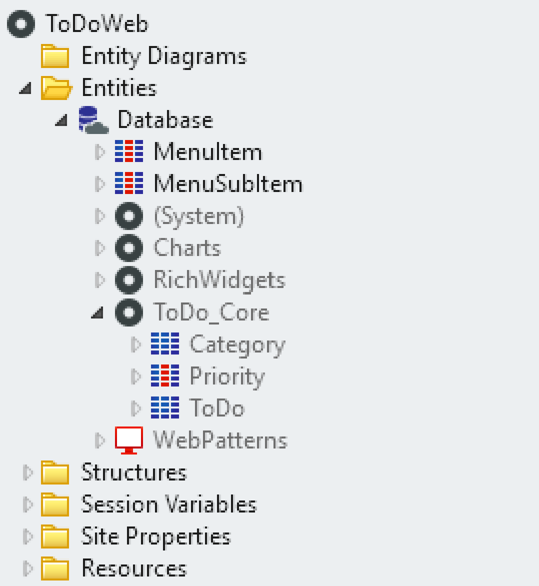


Figure 4. Referenced Entities from the Core module

e) Publish the **ToDoWeb** module using the **1-Click Publish** button.

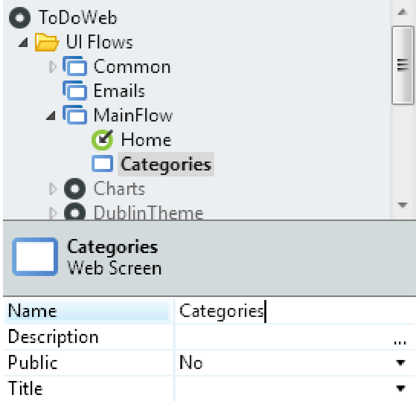
Part 2: Display the list of Categories

In this part of the exercise, you will create a list Screen. The list Screen displays a list of records, in this case of Categories. The records are typically retrieved from a database, but they could come from other different data sources.

1. Create a new **Categories** Screen.

a) Switch to the **Interface** tab, and select the **HomePage** Screen.

b) Change the Screen's name to 'Categories'.



Name	Categories
Description	...
Public	No
Title	

Figure 5. Rename HomePage to Categories

2. Create a **Preparation** that will retrieve the Categories from the database.

a) In the elements area, right click **Categories** and select **Add Preparation**.

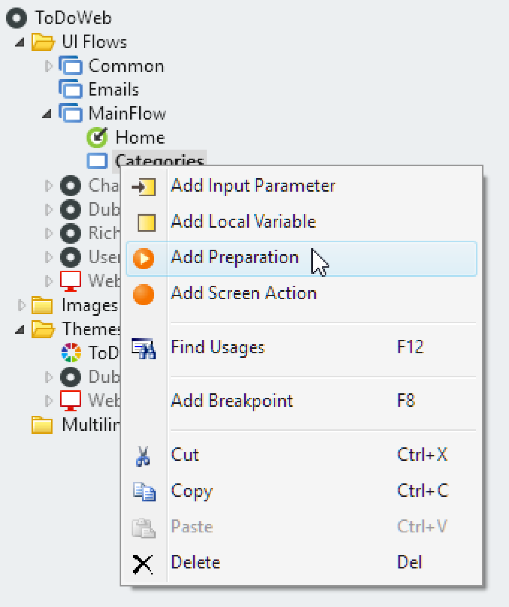


Figure 6. Add a Preparation

NOTE: In Web applications, a Screen **Preparation** runs before the Screen is built. In its flow, you can run **Aggregates** and **SQL Queries**, execute logic and manipulate Screen variables.

A **Preparation** is useful for obtaining the data that the Screen will render, from the Database. As the **Preparation** has a flow, all its logic and data fetching will run synchronously and in the designed order.

b) From the **Data** tab, drag the **Category** Entity and drop it onto the connector between Start and End.

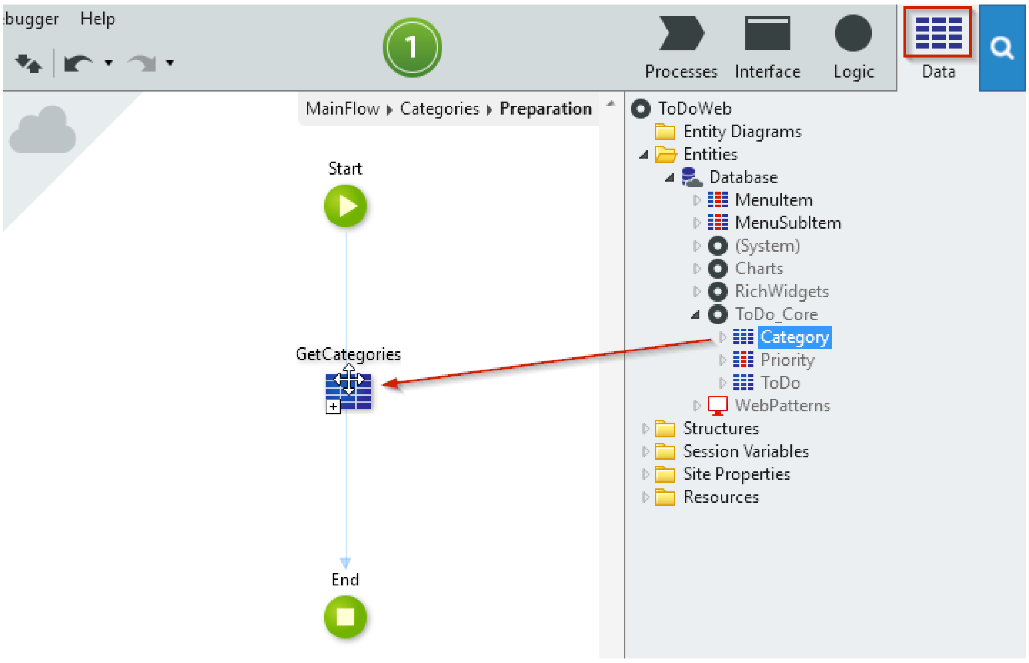


Figure 7. Create GetCategories Aggregate, by dragging the Category Entity

3. Define the content of the **Categories** Screen. Set the **Title** to ‘Categories’ and add a **Table Records** Widget to display the Categories data.

a) In the Interface tab, double click the **Categories** Screen to open it.

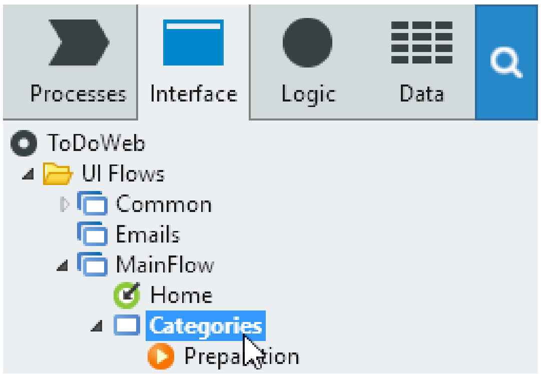


Figure 8. Double click the Categories Screen to open it

b) Enter 'Categories' in the **Title** area of the Screen.

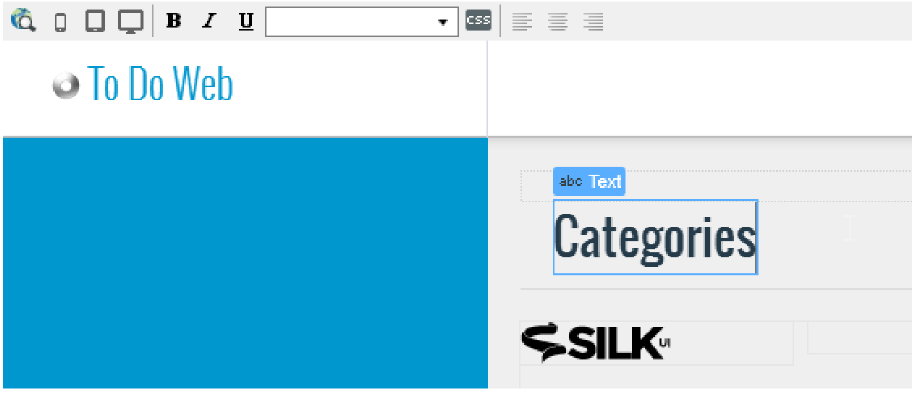


Figure 9. The Screen Title placeholder

c) Open the **Widget Tree**, and select the **DiscoverMore** Container under the **MainContent** placeholder.

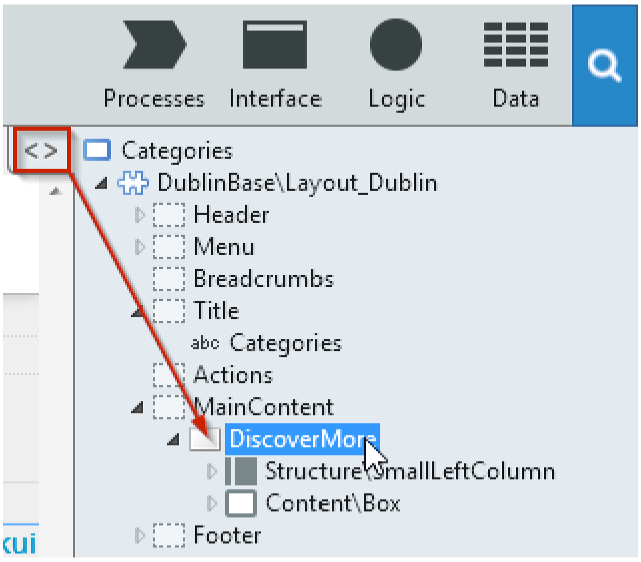


Figure 10. Show Widget Tree

d) Delete the **DiscoverMore** Container.

NOTE: To delete widgets, you can also select them and then use the **Delete** key.

e) Besides the Menu on the left that is still empty, your Screen should only have the title.

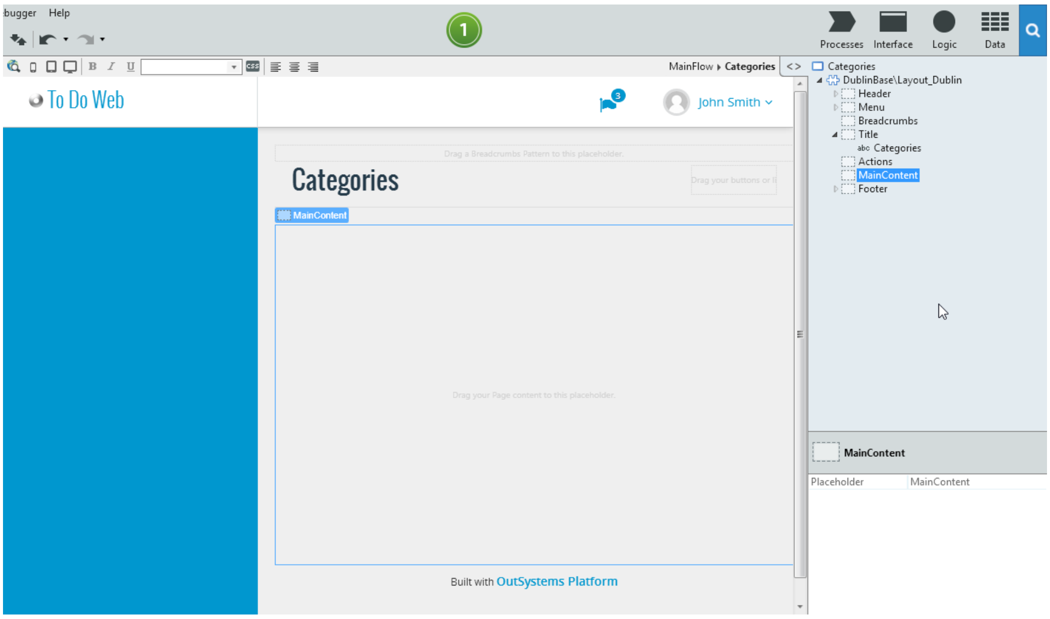


Figure 11. Categories Screen without content

f) Drag and drop a **Table Records** Widget from the toolbox to the MainContent.

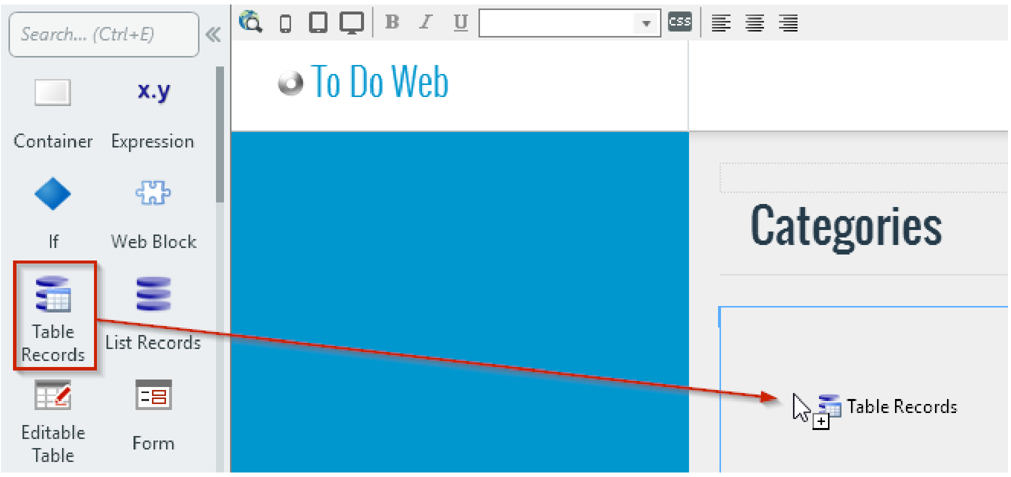
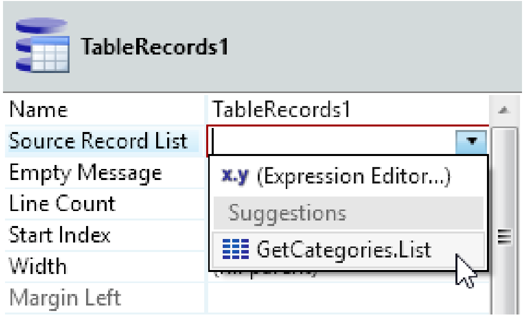


Figure 12. Add a Table Records Widget to the Categories Screen

g) In the properties editor, select the **Source Record List** drop down and select 'GetCategories.List'.



TableRecords1

Name	TableRecords1
Source Record List	
Empty Message	
Line Count	
Start Index	
Width	
Margin Left	

Figure 13. Set Source Record List property for Table Records

NOTE: Suggestions are a helpful part of OutSystems, that will highlight some of the variables in the scope with an appropriate data type for the property being filled in. Often there are several suggestions to choose from.

Always check the suggestion and consider whether or not it is the correct value for the property. Sometimes the right value may not be on that shortlist and you may need to use the **(Expression Editor…)**.

h) Select the **Data** tab, then drag and drop the **Category** Entity onto the Table Records.

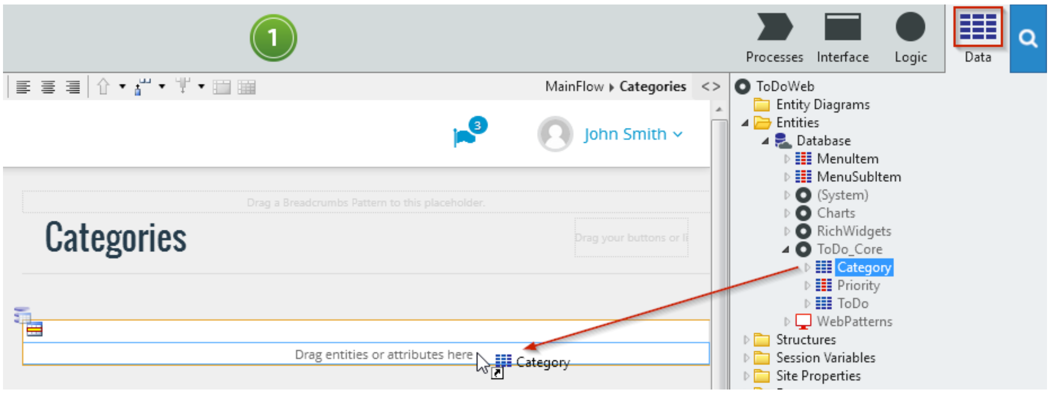


Figure 14. Drag and drop the Categories Entities onto the Table Records Widget

NOTE: Defining a **Table Records** Widget is a two-step process. The source for the Widget must be defined (in the **Source Record List** property) and the layout for how the data should be displayed must be defined in the Screen. The step of dragging an Entity (or Entity attributes) onto a **Table Records**, accelerates this process by scaffolding the columns and values inside the **Table Records**.

i) Notice that the **Table Records** Widget now displays Category data, and the name has changed to **CategoryTable**.

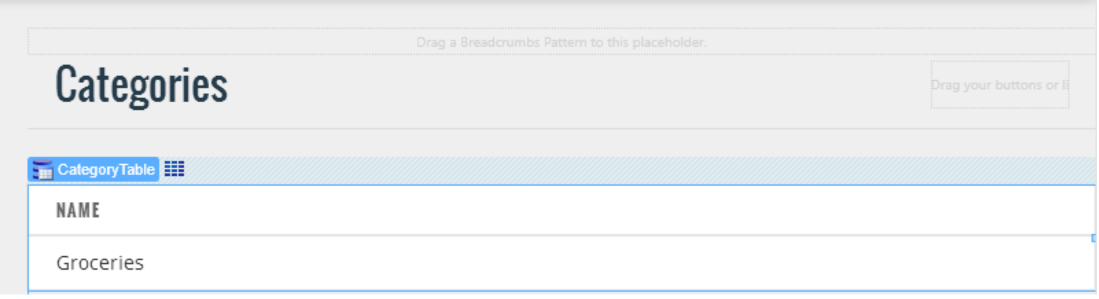


Figure 15. Table Records Widget showing Category data

NOTE: A **Table Records** Widget will by default display the first four attributes of an Entity that is used to configure it. The **Id** will not be displayed by default. Columns for attributes can be added or removed as necessary, including the **Id** attribute.

4. Publish the **Categories** Screen updates to the server and test it.

a) Click the **1-Click Publish** button to publish the module.

b) Click the **Open in Browser** button to view the **Categories** Screen.

c) In your browser, you should see a login form.

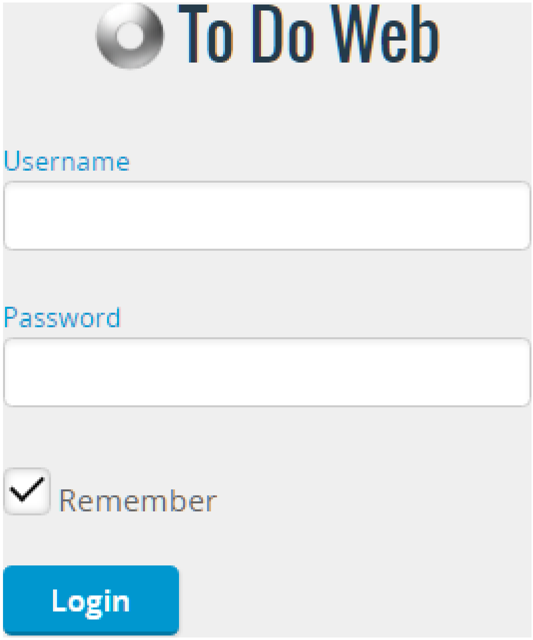


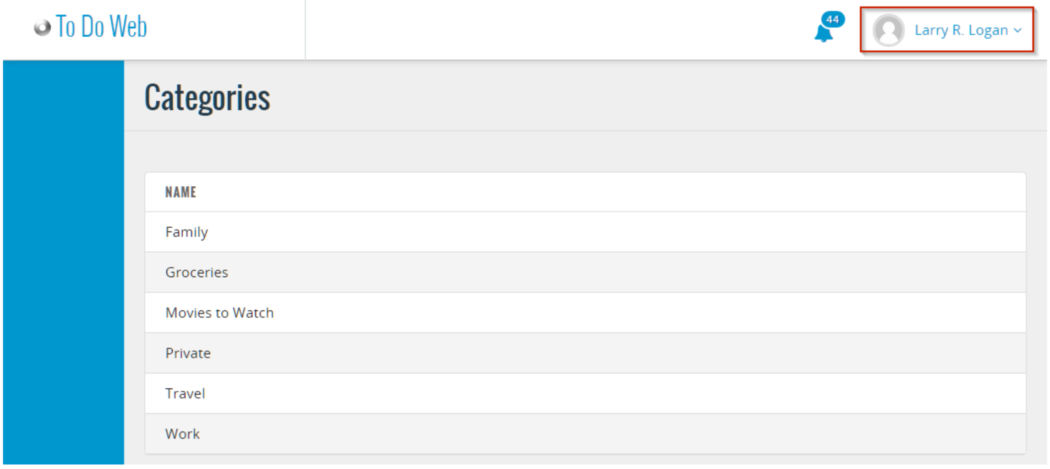
Figure 16. Login Form

NOTE: By default, all Screens require a user account to be accessible. To allow unregistered users to access your screens, inside Service Studio select the screen and then in the properties tick the **Anonymous** role. In this case, since we are creating a backoffice application we will require a login.

d) Login with Username: admin and Password: admin.

NOTE: If you are following the **Online Class**, using your Personal or Enterprise Environment, you should login with your credentials for logging in to the Environment.

e) After logging in, you should see the list of Categories, and also have the information of the logged in user on the top left corner.



Categories

NAME
Family
Groceries
Movies to Watch
Private
Travel
Work

Figure 17. Categories Screen in the browser

End of Lab

In this exercise, you created have referenced the Entities from the **ToDo_Core** data model and the **Categories** Screen.

You have learned how to fetch data from Database Entities and display the list of results in a Screen.

The application module was published to the server, thus publishing the **Categories** Screen.

List of Figures

Here is the list of screenshots and pictures used in this exercise.