

# Data Modeling Exercise

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# Outline

In this exercise, you will focus on creating the first entities in OutSystems. To do so, you will perform the following actions:

- Bootstrap an Entity and its data from an Excel file
- Create an Entity and its attributes
- Bootstrap data into an existing entity

Upon completion, you will end up with two entities and both will contain data that was bootstrapped from Excel files.

## Resources

This exercise has some resources that are needed to complete it, two Excel files and an icon:

- Employee.xlsx
- Departments.xlsx
- Data-Modeling-Exercise-Icon.png

These files can be found in the Resources folder of this lesson materials. The Excel files will be used to bootstrap data to the Entities, while the icon is a suggestion to use when creating the application. Despite being optional, all the steps assume the use of this icon.

## Scenario

In this exercise, you will create two entities: Department and Employee.



You will start from an empty canvas, so the first step consists of creating a new **Reactive Web App** and then add a **Blank** module. This blank module is where the entities will be defined.

After having the module created, using the **Import New Entities from Excel...** with the Departments.xlsx file, the Department entity will be created and the data bootstrapped from the Excel file and stored in the Entity.

The second entity (Employee) will be created manually with the following attributes

- Id (default)
- Name (mandatory)
- Email (mandatory and data type Email)
- JobTitle (length of 100 characters)
- IsManager (Boolean data type)

After creating the entity, its data from the Employees.xlsx file should be bootstrapped, using the **Bootstrap Data from Excel** action.

# How-To

In this section, you will show you how to do this exercise, with a thorough step-by-step description. **If you already finished the exercise on your own, great! You don't need to do it again.** If you didn't finish the exercise, that's fine! We are here to help you.

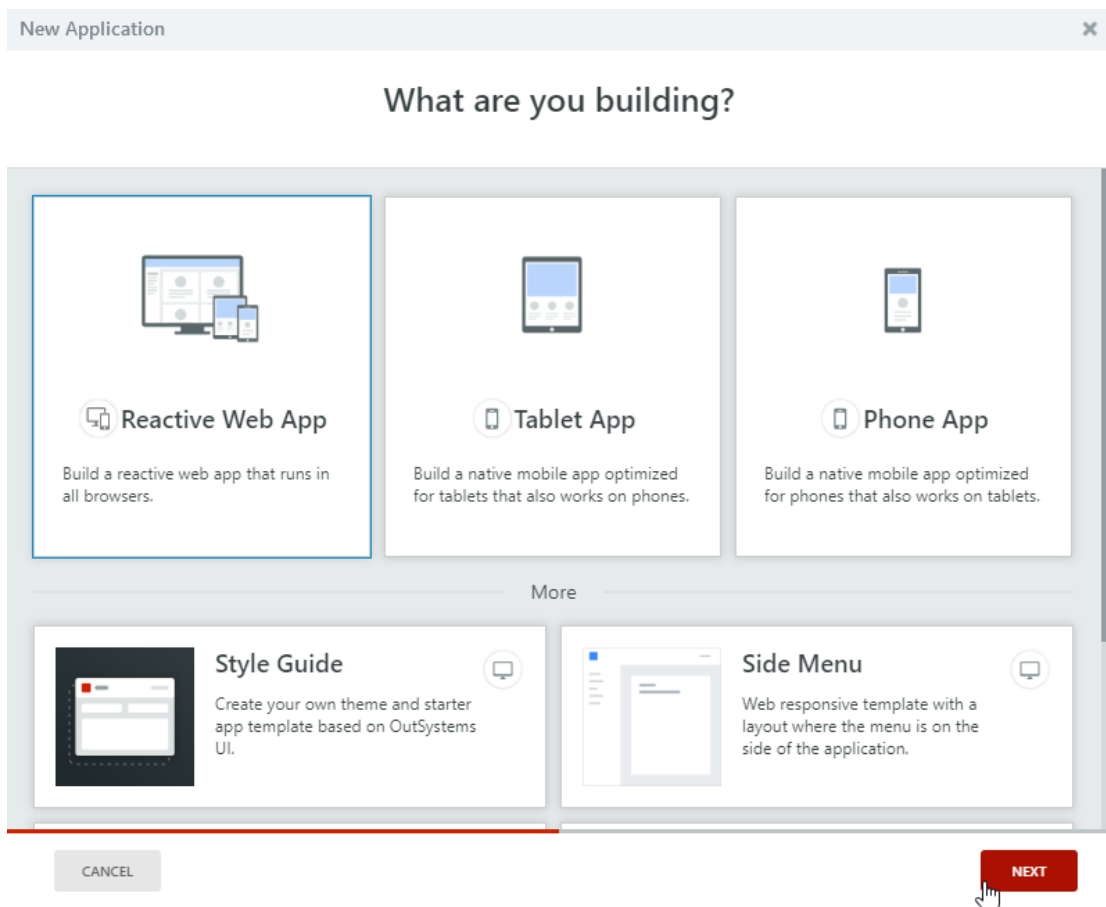
## Create a Reactive Web App

- 1) Click the **New Application** icon.



New  
Application

- 2) Select **Reactive Web App** as the application type.



- 3) Set the application name to *Data Modeling Exercise*

- 4) Click the **Upload Icon** and then select the *Data-Modeling-Exercise-Icon.png* icon from the Resources folder.



- 5) Click the **Create App** button



- 6) Select **Blank** as module type, then click the **Create Module** button

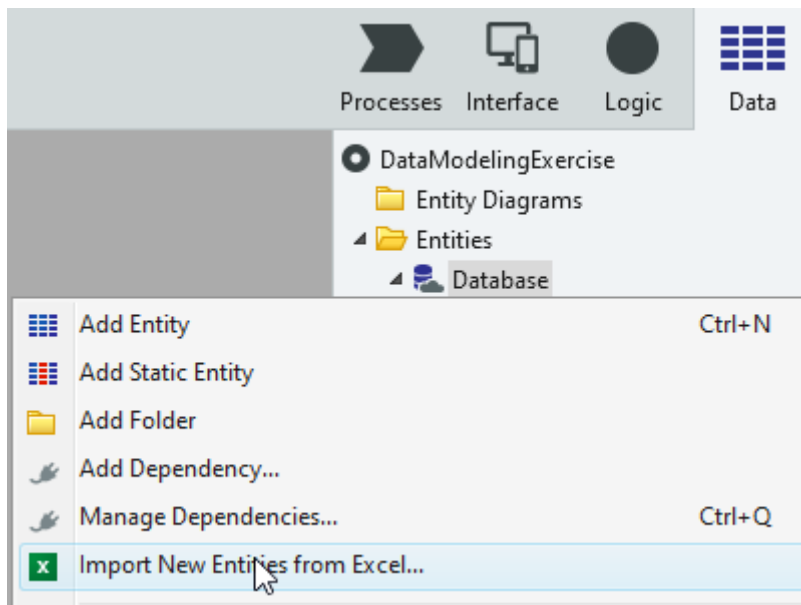
## Bootstrap an Entity and its Data from Excel

In this section, you will create our first Entity automatically from the Excel file Departments.xlsx.

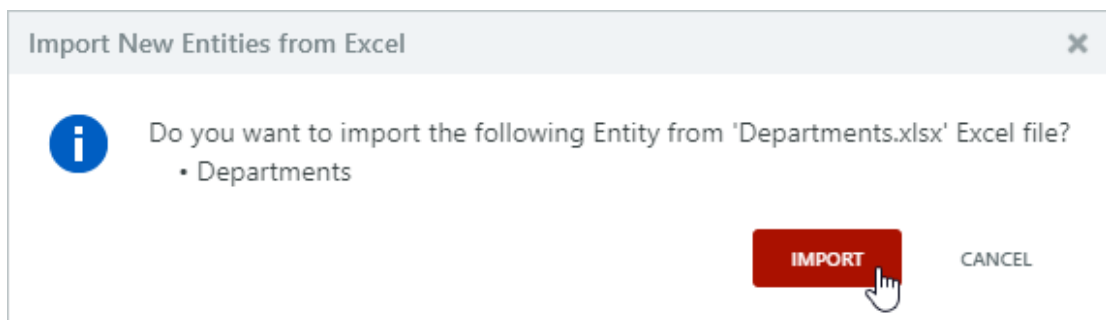
- 1) Switch to the Data tab



- 2) Right-click the Database element, then select **Import Entities from Excel...**



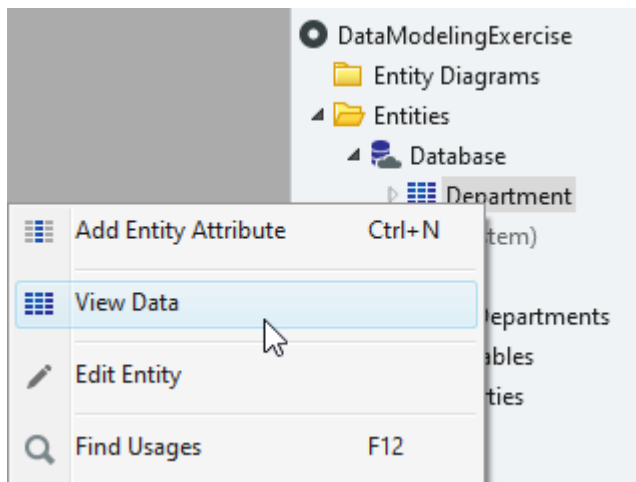
- 3) Locate the Department.xlsx file from the exercise Resources, and open it.
- 4) Click **Import** to create the Entity and the bootstrap logic (Timer)



- 5) Publish the module to save the changes to the server



- 6) Right-click the **Department** entity and choose **View Data**



- 7) The loaded data should be displayed:

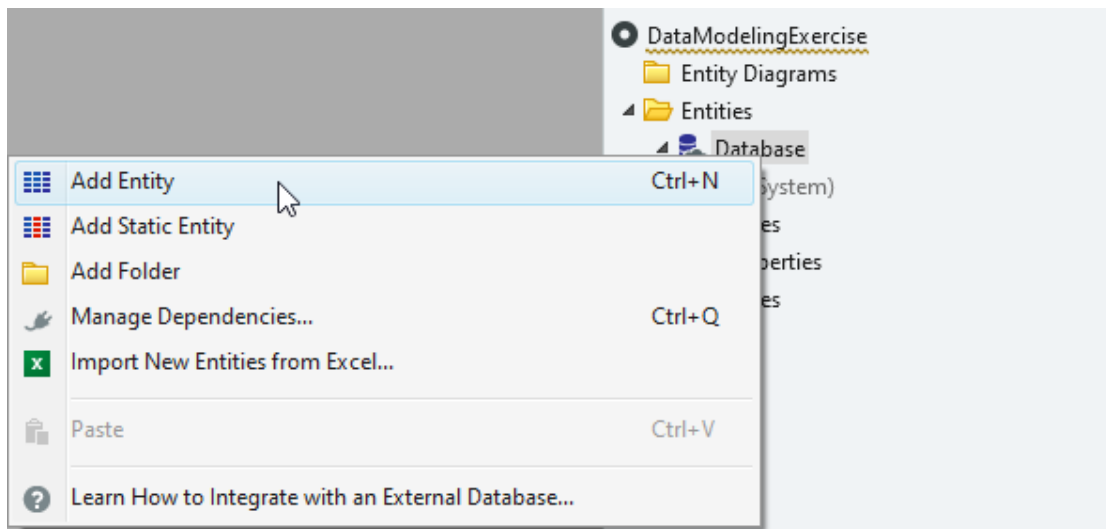


Department Id	Department Name
1	Accounting
2	Business Development
3	Engineering
4	Human Resources
5	Legal
6	Marketing
7	Product Management
8	Research and Development
9	Sales
10	Services
11	Support
12	Training

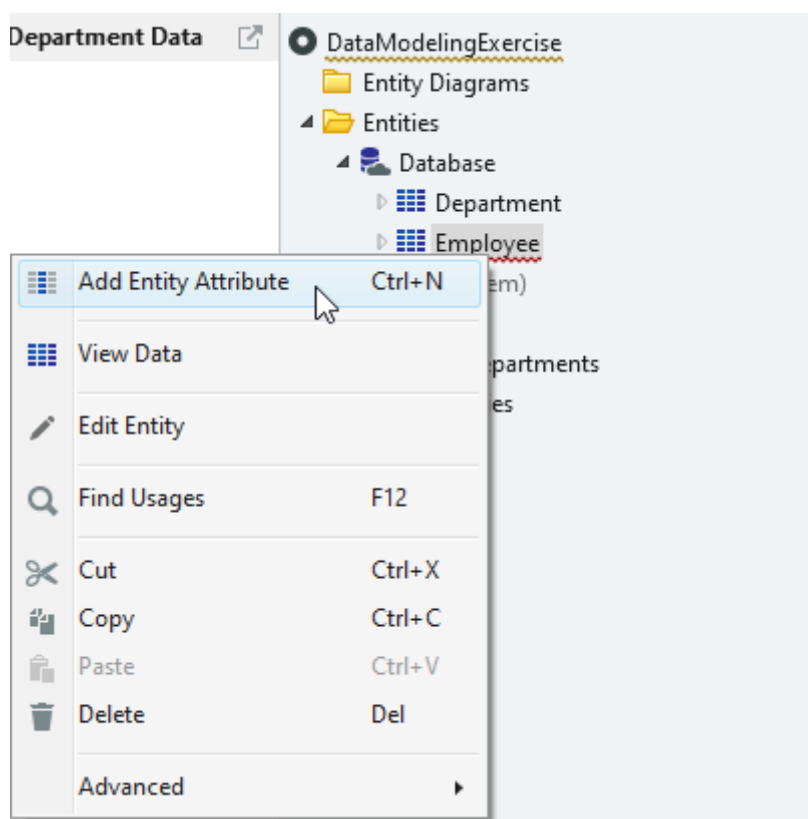
## Create an Entity

In this section, you will create the Employee Entity, and all its attributes, manually.

- 1) In the Data tab, right-click the **Database** element, then select **Add Entity**.



- 2) Set the Entity **Name** to *Employee*.
- 3) Right-click the Employee entity, and select **Add Entity Attribute**.





- 4) Set the new attribute **Name** to *Name*, and set it as mandatory.

Name Entity Attribute	
Name	Name
Description	...
Label	Name
Data Type	Text ▼
Length	50
Is Mandatory	Yes ▼
Default Value	...

- 5) Add another attribute named *Email*, and set it as mandatory.

Email Entity Attribute	
Name	Email
Description	...
Label	Email
Data Type	Email ▼
Length	250
Is Mandatory	Yes ▼
Default Value	...

- 6) Add another attribute named *JobTitle* with a **Length** of 100.

JobTitle Entity Attribute	
Name	JobTitle
Description	...
Label	Job Title
Data Type	Text ▼
Length	100
Is Mandatory	No ▼
Default Value	...

- 7) Add another attribute named *IsManager* with *Boolean* Data Type.

IsManager Entity Attribute	
Name	IsManager
Description	...
Label	Is Manager
Data Type	Boolean ▼
Is Mandatory	No ▼
Default Value	▼

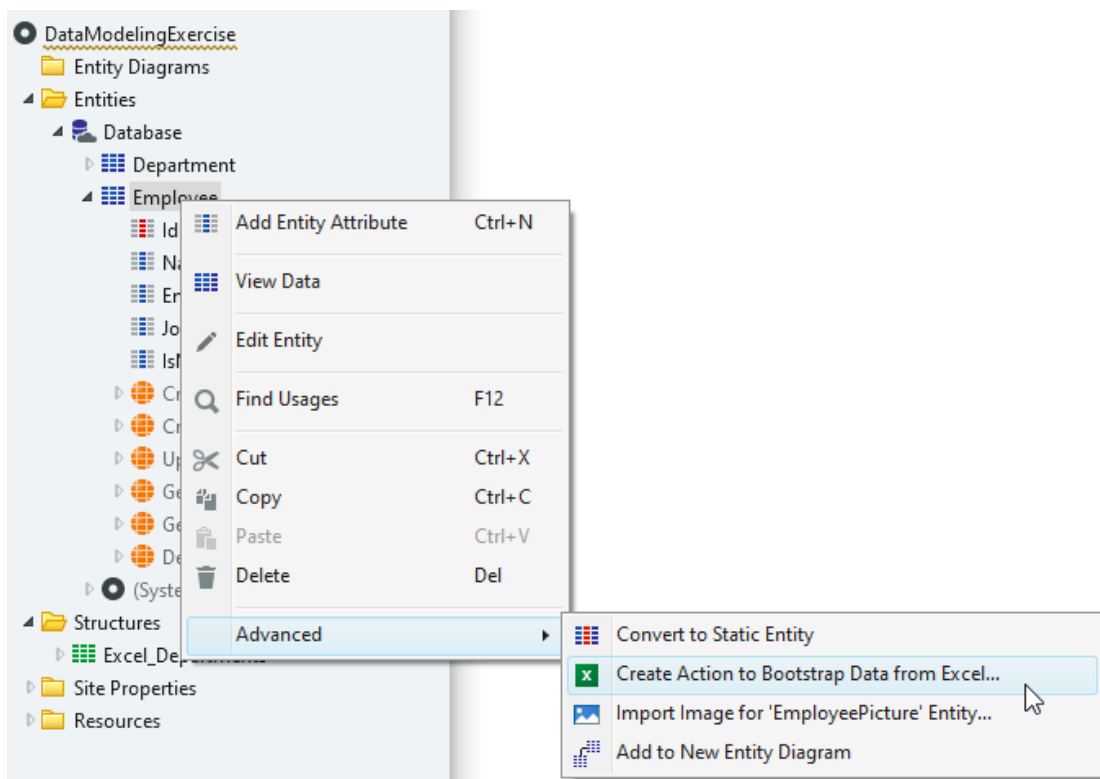
- 8) Publish the module.



## Bootstrap Data into an Entity from Excel

Finally, you have the Entity created, but with no data. Let's use the Employees.xlsx file to bootstrap some data to the Employee Entity.

- 1) Right-click the Employee Entity, then select **Advanced > Create Action to Bootstrap Data from Excel...**



- 2) Locate the **Employee.xlsx** file and open it.

- 3) Validate that the four entity attributes were mapped to the four columns in the Excel file

Create Action to Bootstrap Data from Excel

The 'BootstrapEmployees' Action will be created to bootstrap data from Excel Sheet 'Employees'.

Excel Columns	'Employee' Attributes
Name	Name
Email	Email
JobTitle	JobTitle
IsManager	IsManager

More Information

PROCEED


CANCEL

- 4) Click **Proceed**.
- 5) Publish the module.



- 6) Right-click the **Employee** entity then select **View Data**.

7) The data from the Excel file should appear on the data previewer.


Employee Data
Filters
Sorting

Employee Id	Employee Name	Employee Email	Employee JobTitle	Employee IsManager
1	Deloria McInility	dmcinility0@skype.com	Staff Accountant I	false
2	Elka Scopes	escopes1@nifty.com	Internal Auditor	true
3	Anny Ledington	aledington2@chron.com	Senior Sales Associate	true
4	Anatol Lago	alago3@archive.org	Teacher	false
5	Cletus Harget	charget4@techcrunch.com	Structural Analysis Engineer	false
6	Zacharias Pre	zpre5@about.com	Occupational Therapist	false
7	Fidelia Garahan	fgarahan6@stanford.edu	Graphic Designer	false
8	Irvine Hasser	ihasser7@wufoo.com	Actuary	false
9	Caddric Saiz	csaiz8@wiley.com	Design Engineer	true
10	Cathleen Martt	cmartt9@yellowpages.com	Internal Auditor	true