Shelter Project App Build

Activity Description

DATA MODEL CREATION (40 minutes)

In order to store our data, we will use the Salesforce platform as Database.

Think of this as an Excel sheet with columns and rows.

Each object is a sheet.

Objects contain fields (columns in Excel) that specify the type of information they hold such as number or text.

Once we have specified the object fields we will create records (rows in Excel) for those objects.

Steps

1

Understanding the Data Model

We will need to create 4 Salesforce custom objects for this project: Brief, Configuration, Object Definition and Object Instance.

The Brief object describes our mission goal and available resources.

For example: we need to work in Iraq with a budget of $9000 and house 15 refugees in 2 containers.

The Configuration object contains an assembly of different objects that you will select to fulfil a Brief.

There can be several configurations for a given brief, these are proposals to solve a problem.

The Object Definition object describes a physical object that is available for purchase.

For example: we have table with a cost, a text description and a link to a 3D model representing it.

The Object Instance object describes where and how an Object Definition is used in a given Configuration.

For example: where are placing a chair in a building, in the north-east corner.

Creating the custom objects

2

Creating the Brief object

In the Quick Find field, type "**object**" and navigate to **Object and Fields > Object Manager**.

Click on the **Create** dropdown on the top right and select **Custom Object**.

Important Note: When creating objects and fields, always ensure that the spelling and case match the values provided in this document.

Set the following values:

Label	Brief
Plural Label	Briefs
Object Name	Brief
Record Name	Brief Name

Scroll to the bottom of the page and click **Save**.

3

Now that we have created our object, we will add several fields to it.

In the **Fields & Relationships** section, click on **New**.

Select **Picklist** as the Data Type and click **Next**.

Set the following values:

Field Label	Client
Values (dropdown)	Client
Field Name	Client
Required	Checked

Click on **Next**, then **Next** again, then **Save & New**.

Repeat the previous steps and create these fields:

Data Type	Date
Field Label	**Delivery Date**
Field Name	Delivery_Date
Required	Checked

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Data Type	Picklist
Field Label	**Country**
Values (dropdown)	Country
Field Name	Country
Required	Checked

Data Type	Text
Field Label	**Town**
Length	100
Field Name	Town
Required	Checked

Data Type	Picklist
Field Label	**Climate**
Values (dropdown)	Climate
Field Name	Climate
Required	Checked

Data Type	Number
Field Label	**Available Space**
Field Name	Available_Space
Required	Checked

Data Type	Number
Field Label	**People Sheltered**
Field Name	People_Sheltered
Required	Checked

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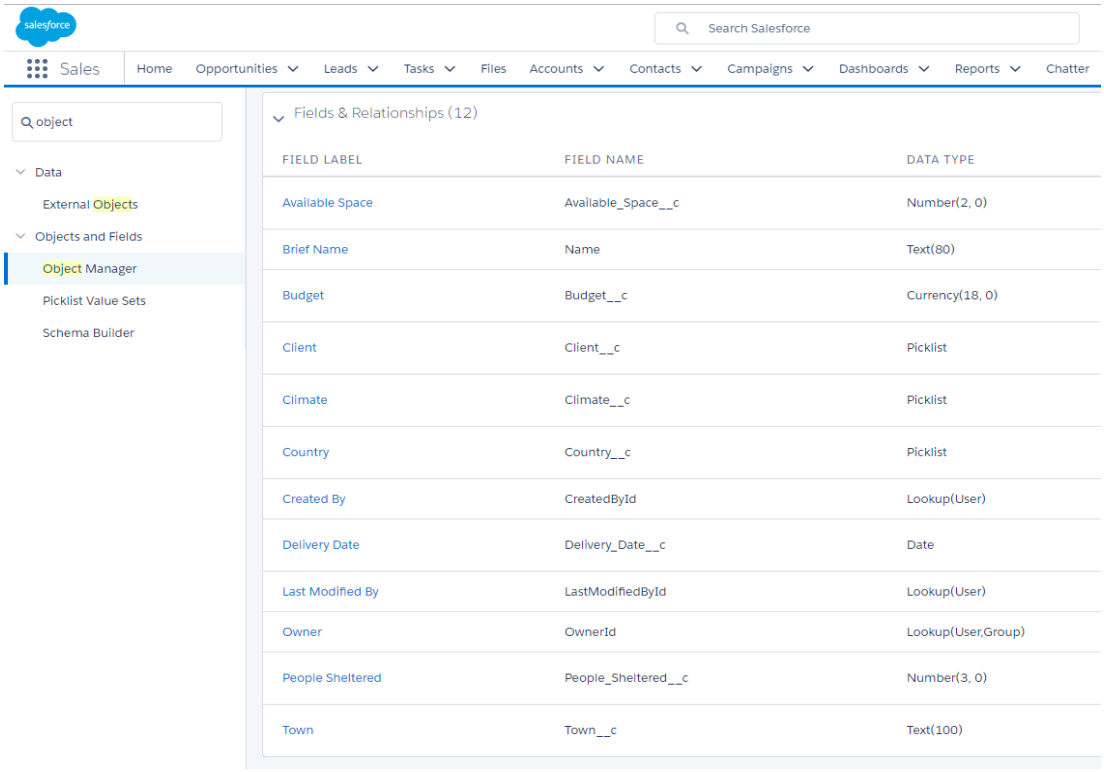
Data Type	Currency
Field Label	**Budget**
Field Name	Budget
Required	Checked

When you have created the last field, click on the **Object Manager** to go back into the **Brief** object and look at the Fields & Relationships section. It should indicate that there are **12 fields** click **Fields & Relationships** to view, they should look like this:



4

Creating the Configuration object

In the Object Manager, click on the Create dropdown on the top right and select Custom Object.

Set the following values:

Label	Configuration
Plural Label	Configurations
Object Name	Configuration
Record Name	Configuration Name

Scroll to the bottom of the page and click **Save**.

5 Add a new field to the Configuration object.

Select **Master-Detail Relationship** as the Data Type and click **Next**.

In Related To, pick Brief. This will allow us to relate the Configuration and Brief objects.

Click **Next** several times while leaving the default values up till the point where you can save the field.

In the Configuration object, look down for the Fields & Relationships section. It should indicate that there are **4 fields** and these should look like this:

Fields & Relationships (4)

FIELD LABEL	FIELD NAME	DATA TYPE
Brief	Brief__c	Master-Detail(Brief)
Configuration Name	Name	Text(80)
Created By	CreatedById	Lookup(User)
Last Modified By	LastModifiedById	Lookup(User)

6 Creating the Object Definition object

Create a new custom object with the following properties:

Label	Object Definition
Plural Label	Object Definitions
Starts with vowel sound	Checked
Object Name	Object_Definition
Record Name	Name

Scroll to the bottom of the page and click Save.

7 Add fields to the Object Definition object

In the Fields & Relationships section, click on New.

Add the following fields to the object:

Data Type	Text Area
Field Label	**Description**
Field Name	Description

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Data Type	Picklist
Field Label	**Category**
Values (dropdown)	Object Category
Field Name	Category
Required	Checked

Data Type	Currency
Field Label	**Cost**
Field Name	Cost
Required	Checked

Data Type	Number
Field Label	**Power Consumption**
Field Name	Power_Consumption
Required	Checked

Data Type	Number
Field Label	**Water Consumption**
Field Name	Water_Consumption
Required	Checked

Data Type	Number
Field Label	**Carbon Footprint**
Field Name	Carbon_Footprint
Required	Checked

Data Type	Checkbox
Field Label	**Climate Specific**
Field Name	Climate_Specific

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Data Type	Number
Field Label	**Model Variations**
Field Name	Model_Variations
Required	Checked

Data Type		Text
Field Label	*(ensure case matches)*	**Prefab path**
Length		255
Field Name	*(ensure case matches)*	Prefab_path
Required		Checked

When you are done, the Fields & Relationships section should indicate that there are **13 fields** and it should look like this:

Fields & Relationships (13)

FIELD LABEL	FIELD NAME	DATA TYPE
Carbon Footprint	Carbon_Footprint__c	Number(18, 0)
Category	Category__c	Picklist
Climate Specific	Climate_Specific__c	Checkbox
Cost	Cost__c	Currency(18, 0)
Created By	CreatedById	Lookup(User)
Description	Description__c	Text Area(255)
Last Modified By	LastModifiedById	Lookup(User)
Model Variations	Model_Variations__c	Number(18, 0)
Name	Name	Text(80)
Owner	OwnerId	Lookup(User,Group)
Power Consumption	Power_Consumption__c	Number(18, 0)
Prefab path	Prefab_path__c	Text(255)
Water Consumption	Water_Consumption__c	Number(18, 0)

8 Creating the Object Instance object

Create a new object with the following properties:

Label	Object Instance
Plural Label	Object Instances
Starts with vowel sound	Checked
Object Name	Object_Instance
Record Name	Name
Data Type	Auto Number
Display Format	OBJ-{0000}
Starting Number	0

9 Add fields to the Object Definition object

Add the following fields to the object:

Data Type	Master-Detail Relationship
Related To	Configuration
Field Label	**Configuration**
Field Name	Configuration

Data Type	Master-Detail Relationship
Related To	Object Definition
Field Label	**Object Definition**
Field Name	Object_Definition

Continued on next page...

Data Type	Number
Field Label	**x**
Length	2
Decimal Places	5
Field Name	x
Required	Checked

Data Type	Number
Field Label	**y**
Length	2
Decimal Places	**5**
Field Name	y
Required	Checked

Data Type	Number
Field Label	**z**
Length	2
Decimal Places	5
Field Name	z
Required	Checked

Data Type	Number
Field Label	**y Angle**
Length	3
Field Name	y_Angle
Required	Checked
Default Value	0

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Data Type	Checkbox
Field Label	**Placed**
Field Name	**Is_Placed**

When you are done, the Fields & Relationships section should indicate that there are **10 fields** and it should look like this:

Fields & Relationships (10)

FIELD LABEL	FIELD NAME	DATA TYPE
Configuration	Configuration__c	Master-Detail(Configuration)
Created By	CreatedById	Lookup(User)
Last Modified By	LastModifiedById	Lookup(User)
Name	Name	Auto Number
Object Definition	Object_Definition__c	Master-Detail(Object Definition)
Placed	Is_Placed__c	Checkbox
x	x__c	Number(2, 5)
y	y__c	Number(2, 5)
y Angle	y_Angle__c	Number(3, 0)
z	z__c	Number(2, 5)

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Checking our work before moving on

Now that we have created all of the custom objects, let's make sure that we have not made any mistakes.

Visual inspection

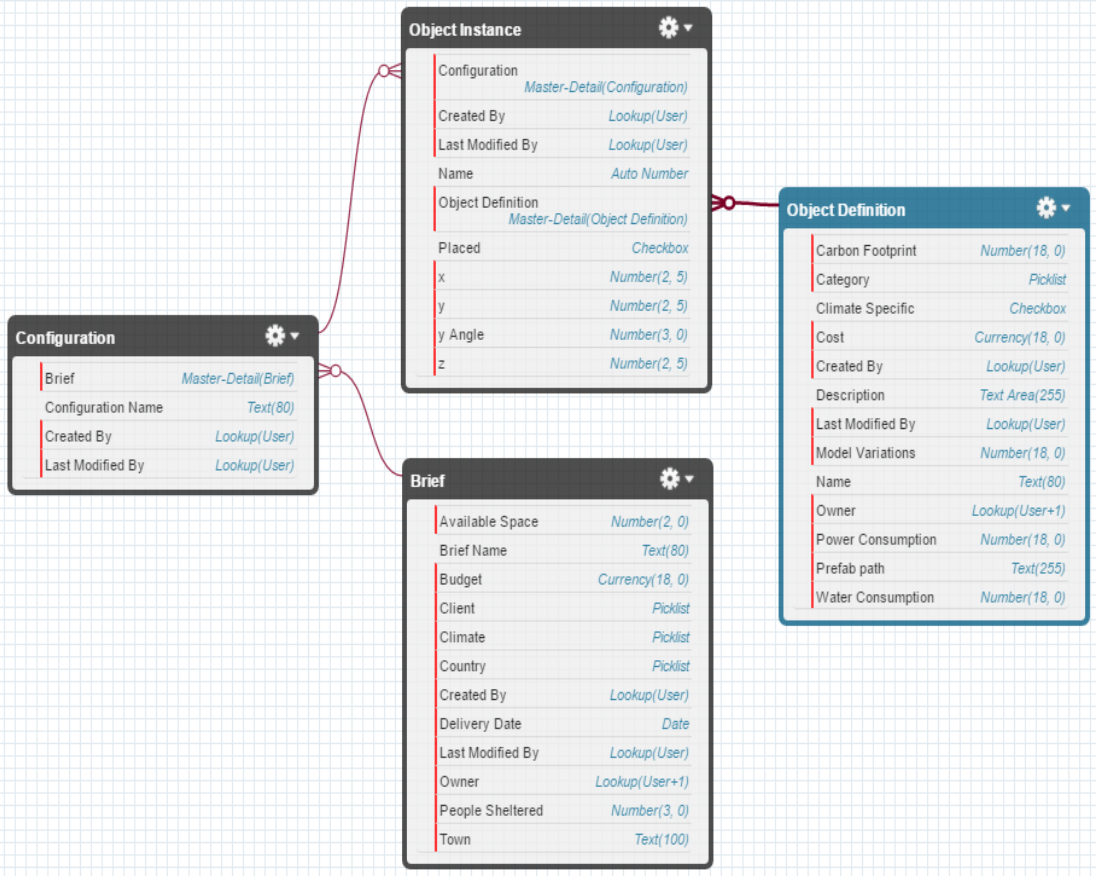
We will start our inspection by looking at our data as a schema.

In the **Object Manager**, click on the **Schema Builder** button on the top right.

Click on the "**Clear all**" link.

In the "**Select from**" dropdown, pick **Custom Objects** and click on the "**Select All**" link.

You can now rearrange the different objects by dragging and you should see this:



11 Automated inspection

Software development requires accuracy: typos can lead to crashes so we will add an extra level of inspection. We will use a program to check our data model.

On the desktop of your Mac you should find a file named “Data Checker.command”.

This will open a dialog that will ask you to type your Org name. Then, it will inspect your data and help you identify errors if there any.

Once everything is fine, you should see this output:

```
Enter your Org name: Org 01
---
Accessing to Org 01...
Checking data model...
---
Brief                Valid
Configuration        Valid
Object Definition    Valid
Object Instance      Valid
---
Congratulations: data model is valid.
```

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Importing some initial data

Now that our data model is in place, we will add some initial data to help us speed up the application deployment. We will import some object definition data (table, chairs…) with their attributes (cost, description…).

Start by downloading the Object Definition data (object_definition_extract.zip) file from the GitHub repository:

https://github.com/pozil/salesforce-wef-vr/tree/master/workshop-material

Click to open the zip file, then click on **Download**.

Go to **Show in Finder** then **double click** on the file to extract it.

Back in Salesforce

Go to **Setup** > **Setup Home** then type "Import" in Quick Find and navigate to the "**Data Import Wizard**" menu, then click on "**Launch Wizard**".

In the left column, switch to "**Custom Objects**" tab and select "**Object Definitions**".

In the middle column, select "**Add new records**".

In the last column, drag and drop the provided "object_definition_extract.csv" file.

Click on **Next** in the lower right corner of the screen.

In the Edit column, click on the "**Map**" links and associate each record field with a column.

Map all fields by locating the matching field, click to tick, then repeat this for each line. When done, click on **Next** in the lower right corner of the screen.

Edit Field Mapping: Object Definitions

Your file has been auto-mapped to existing Salesforce fields, but you can edit the mappings if you wish. Unmapped fields will not be imported.

Edit	Mapped Salesforce Object	CSV Header
Change	Name	NAME
Change	Prefab path	PREFAB_PATH__C
Change	Category	CATEGORY__C
Change	Cost	COST__C
Change	Power Consumption	POWER_CONSUMPTION__C
Change	Water Consumption	WATER_CONSUMPTION__C
Change	Carbon Footprint	CARBON_FOOTPRINT__C
Change	Description	DESCRIPTION__C
Change	Climate Specific	CLIMATE_SPECIFIC__C
Change	Model Variations	MODEL_VARIATIONS__C

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Review the import configuration, it should indicate that your import will include **10 mapped field**s.

Click on "Start Import" in the lower right corner of the screen.

Close the confirmation dialog

Click on Reload in the "Bulk Data Load Job" page.

Locate the Batches section at the bottom of the screen.

The job table should indicate that all records were processed without errors and that the job status is "Completed".

Now you're ready to use the Salesforce environment to respond to your brief.