**QSEE-SuperLite – Entity Relationship Diagram Tutorial**

Within this tutorial we are going to use an entity relationship diagram to model a simple course management system for a college. This system is designed to help monitor *students*, *courses*, *modules* and *lecturers*. Prior to beginning the tutorial please start the 'QSEE-SuperLite" software package.

## Step 1. Creating a new project

Within this tutorial you are going to create a completely new entity relationship diagram (ERD) within the multi-CASE tool. Your first task is to create a new project in which the new model can be created.

**1.1 Select the "Project | New Project" option from the main menu**. See figure 1.1.
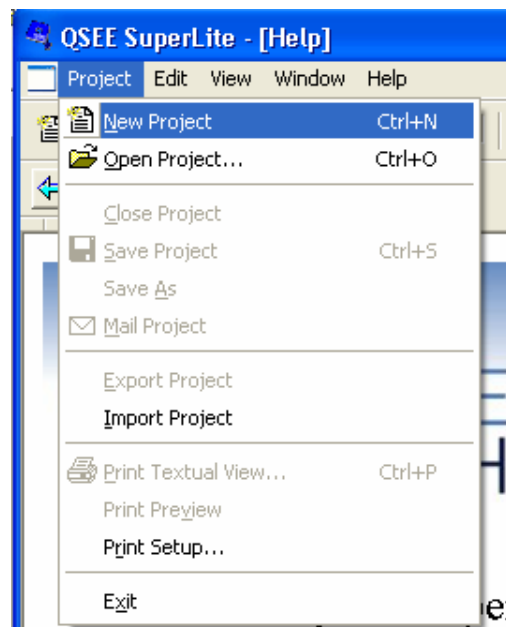
*Figure 1.1*

A new project will now be created, ready for use.

*hint:* A new project may also be created by pressing **CTRL-N** or by clicking on the new project icon in the main toolbar.

When a new project is created you <u>may</u> be presented with a dialogue that lists the available project types. If this appears then select the **multi-CASE** option and press the OK button. (note: this dialogue only appears on installations of QSEE-SuperLite that have multiple tools installed).

## Step 2. Creating a new entity relationship diagram

Now that a new project has been created we are ready to create a new **entity relationship diagram (ERD)**. New models are added to a project by right clicking on the folder icon within the navigator tree (the left-most window of the program) and selecting the appropriate option.

**2.1 Right click the top level folder icon named "Untitled" in the project and select "Add Entity Relationship Model" .** See figure 2.1.
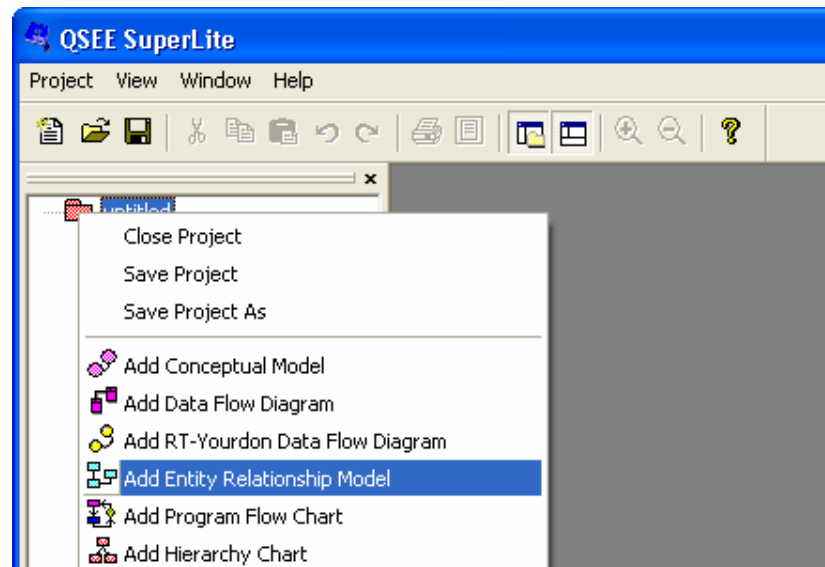


*Figure 2.1*

When prompted for the name of the diagram press OK. This name is usually used to express the name of the model being developed, but in this case we will just use the default.

Once OK has been pressed a new empty diagram, ready for further manipulation, will be created and displayed.

## Step 3. Adding the *Student* Entity

Now that a new diagram has been created the next stage is to start adding entities. Many operations within QSEE-SuperLite are performed via a context sensitive menu. We will first be adding an entity to represent a *Student*.

**3.1 Right click on the diagram area and select the "Add Entity" option.** See figure 3.1.
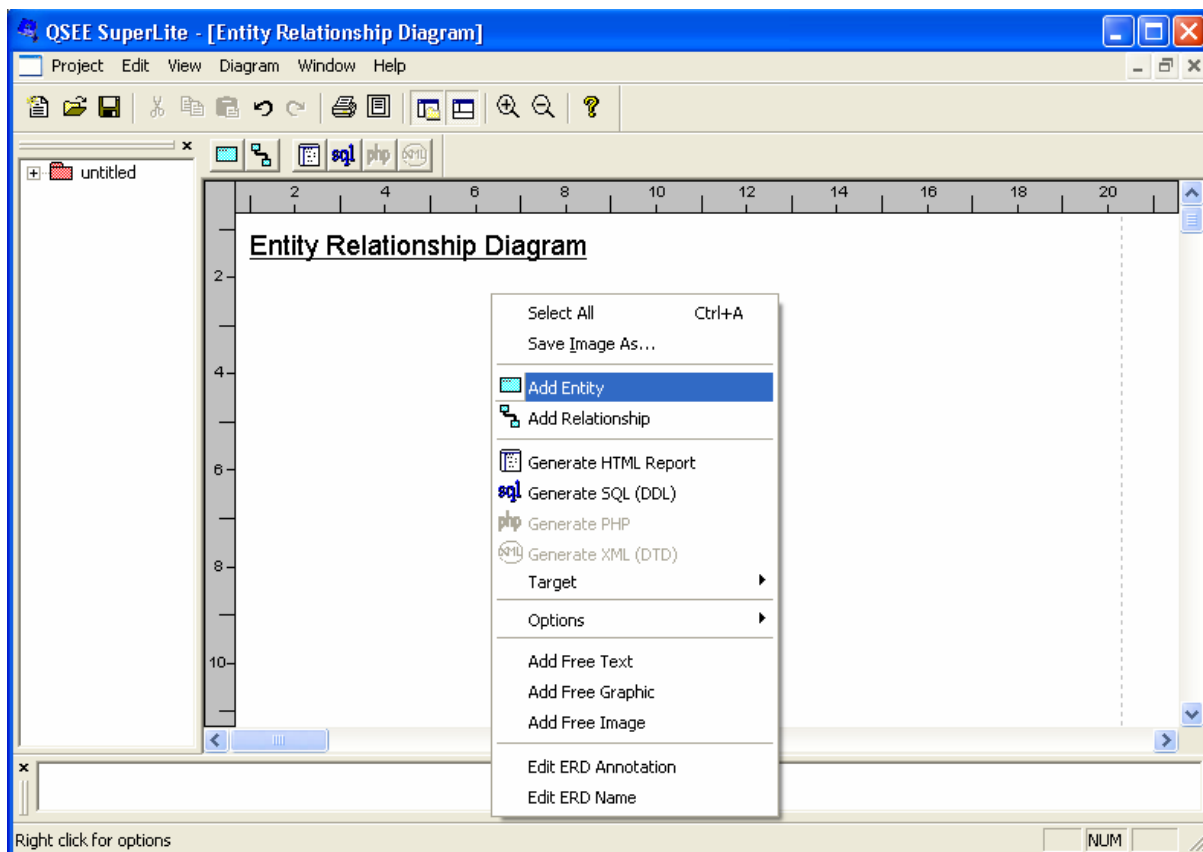


*Figure 3.1*

A dashed outline will be shown that represents the entity to be added. This needs to be positioned on the diagram before the entity is actually created.

**3.2 Use the mouse to position the entity outline on the diagram and press the left mouse button to create the entity.**

*Hint:* If you ever wish to cancel the adding of an object prior to it being positioned, press the **Esc** key.

Once the entity has been added the name of the entity must be specified within the dialogue box displayed.

**3.3 Type the word "Student" and press the OK button o n the form.** See figure 3.3.
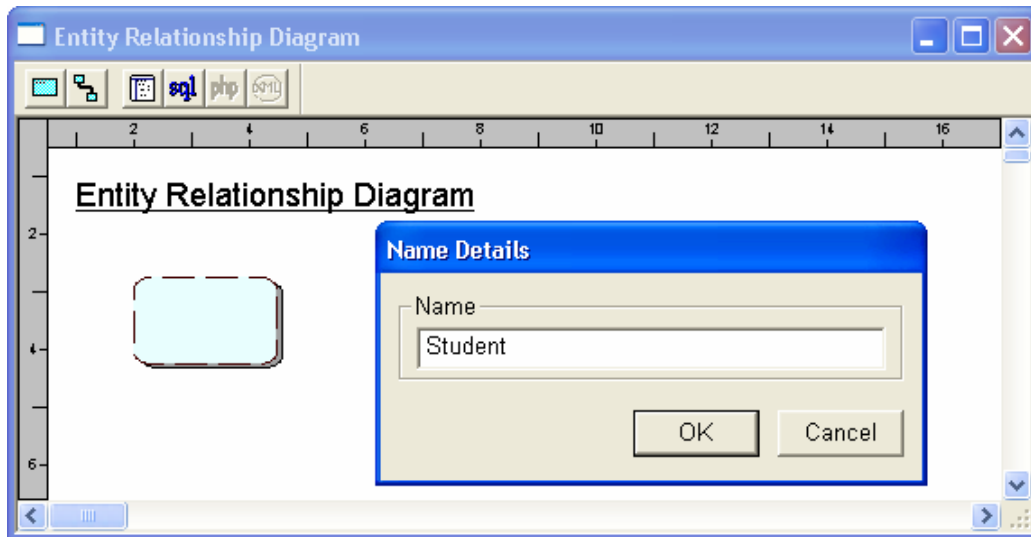


*Figure 3.3*

Now that the entity has been created it is possible to add attributes. The menu options available for an entity are displayed when the entity is right-clicked using the mouse.

**3.4 Right click on the entity and select the "Add Attribute" option.** See figure 3.4.

Notice how the menu options are different compared to when the diagram background was right-clicked.
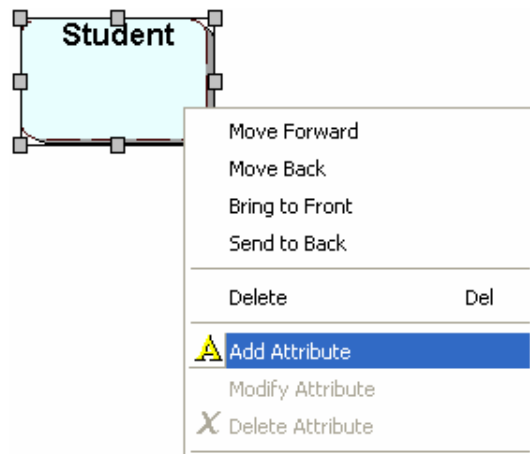


*Figure 3.4*

An attribute will be added and the "Attribute Details" form will be displayed. This allows you to specify various details of the attribute.

**3.5 Enter the attribute details into the dialogue (as shown below in *figure 3.5*) and press OK.**
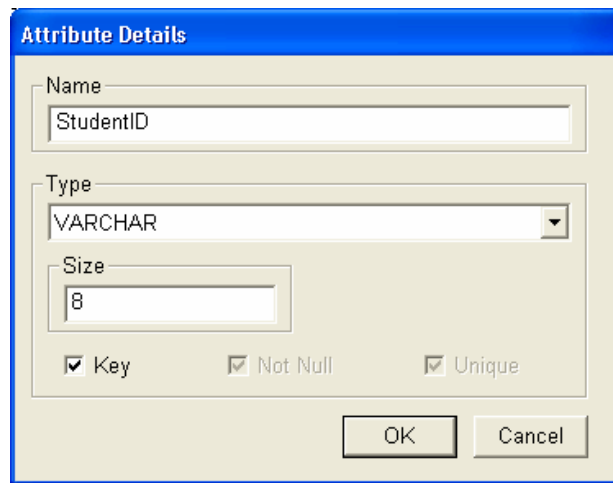


*Figure 3.5*

A *StudentId* attribute has now been created.

**3.6 Repeat step 3.5 for each attribute displayed within the table below, thus creating all the attributes required for the Student entity.**

| Attrib Name | Type | Size | Key | Not Null |
|---|---|---|---|---|
| Name | varchar | 32 | | ticked |
| Address | varchar | 64 | | ticked |
| Contact Details | varchar | 64 | | |
| Level | character | 1 | | ticked |

Once this is complete you should see an entity on the diagram as shown in *figure 3.6*.
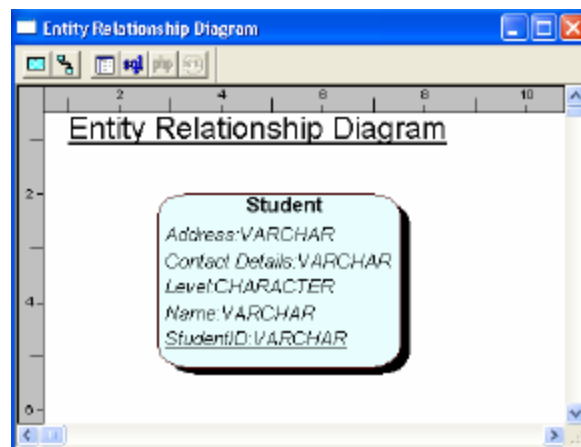


*Figure 3.6*

*Hint:* If you make a mistake you can always modify attribute details by right clicking on the attribute you wish to modify and selecting the "Edit Attribute Details" option.

## Step 4. Adding the *Course* Entity

The next task is to add a second entity called *Course*.

**4.1 Use the same approach as outlined in the previous section (Step 3) to add the new entity and associated attributes.**

The attributes to be added to the *Course* entity are shown below.

| Attrib Name | Type | Size | Key | Not Null |
|---|---|---|---|---|
| CourseId | integer | n/a | ticked | |
| Name | varchar | 32 | | ticked |

Once the *Course* entity and all its attributes have been added your model should now look very similar to the model shown in *figure 4.1*
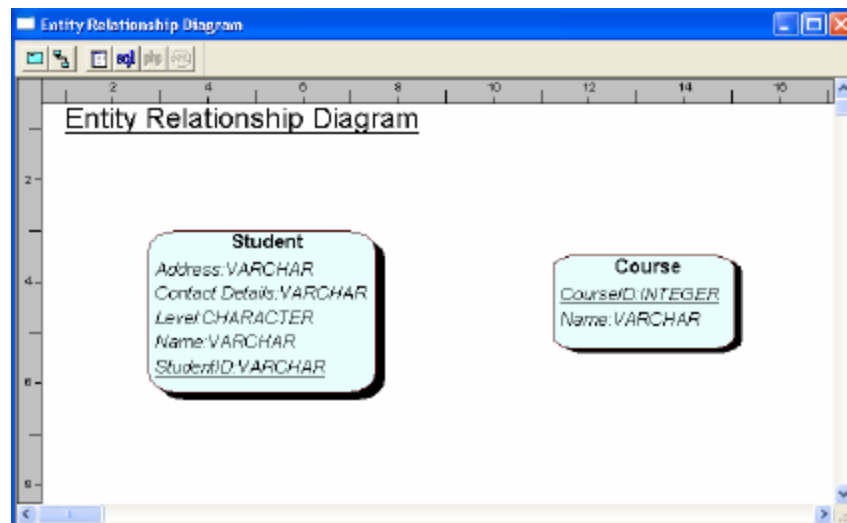


*Figure 4.1*

# Step 5. Adding the *Enrolled* relationship

Entity Relationship Diagrams are very simple and tend to only contain entities and relationships (hence the name). The next step is to add a relationship between the two entities currently on the diagram.

**5.1 Add the new relationship by right-clicking on the *Student* entity and select the "Add Relationship" option from the menu.**

Unlike node type objects (such as entities) relationships are connected to other objects on the diagram, you must therefore identify both ends of the relationship.

**5.2 Select the destination of the relationship by positioning the unattached end over the *Course* entity and pressing the left mouse button.** See figure 5.2.

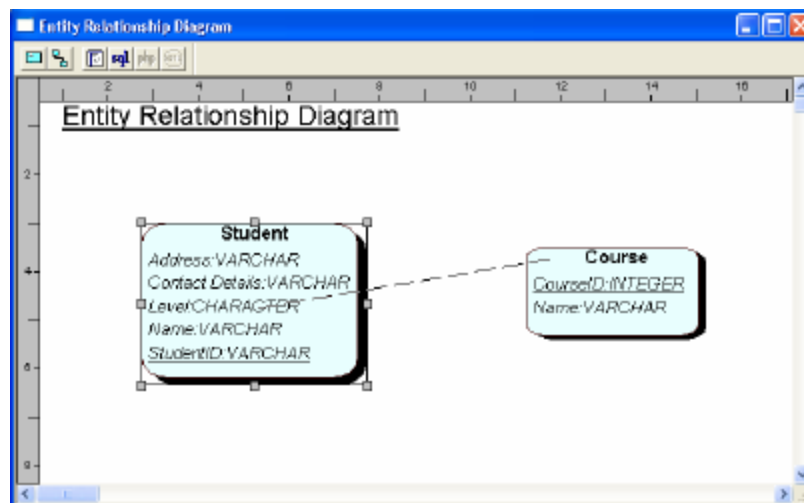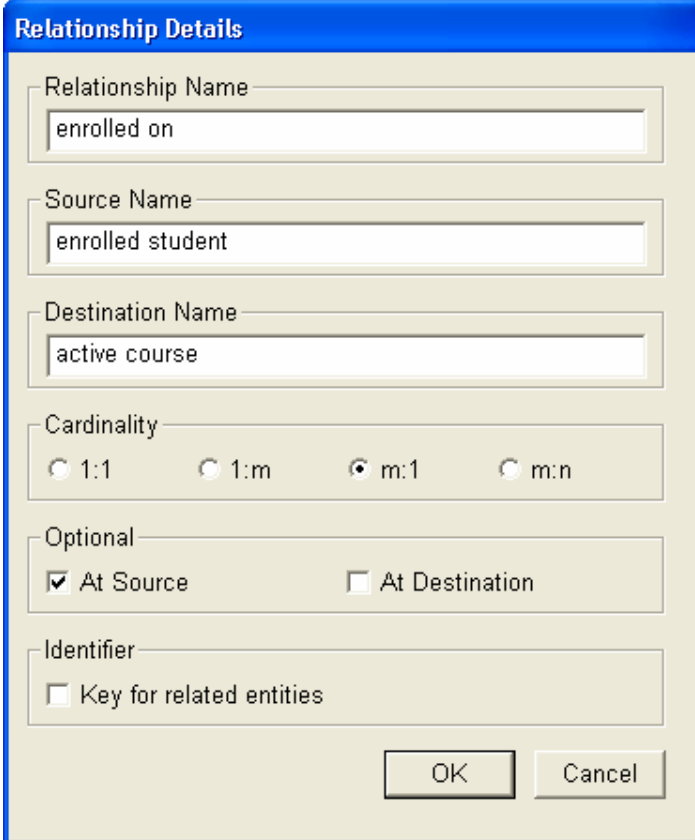This will have the effect of creating a relationship between the two entities.



*Figure 5.2*

*Hint:* When a link type object is being added to a diagram, right-clicking (or pressing the space bar) adds a new link point to the link being added. Also, holding the **Shift** key down causes the link to be either completely horizontal or vertical in orientation.

**5.3 A form will now be shown that allows you to specify the details of the relationship. Input the relationship details (as shown in *figure 5.3*) and press the OK button.**



*Figure 5.3*

Note: By default the relationship names are not shown on the diagram. To ensure the names are displayed right click on the diagram and select the "Options | Hide Relationship Labels" option from the menu.

# Step 6. Completing the model

Now you have learnt how to add entities, attributes and relationships you should be able to use the same technique to complete the rest of the model. Try selecting different options in the relationship details form and see how this effects the way the relationships are displayed on the screen.

## 6.1 Complete the model as shown in *figure 6.1*.

You will have to decide yourself on sensible size information for the additional attributes such as *ModuleName.*
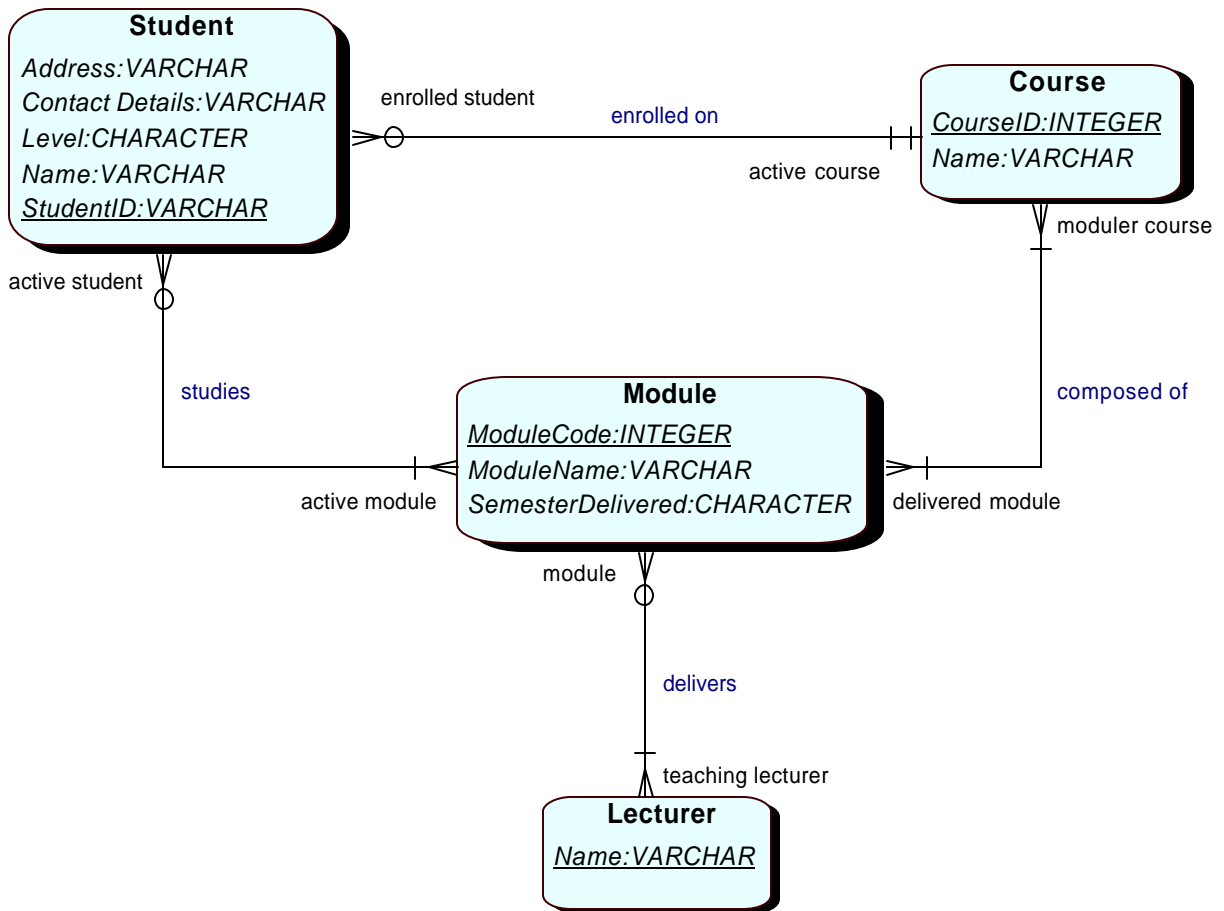


*Figure 6.1*

## Step 7. Inputting your Own Model

Now you have the skills to use the QSEE-SuperLite tool try developing and inputting your own model. This may be a model you develop now or one that you developed in a tutorial exercise.

Practice using other facilities provided by the tool to **save**; **load; print preview**, **cut/paste**; **zoom** etc. You will soon become familiar with the features and be capable of concentrating on the design of the model being input rather than how to use the tool itself.