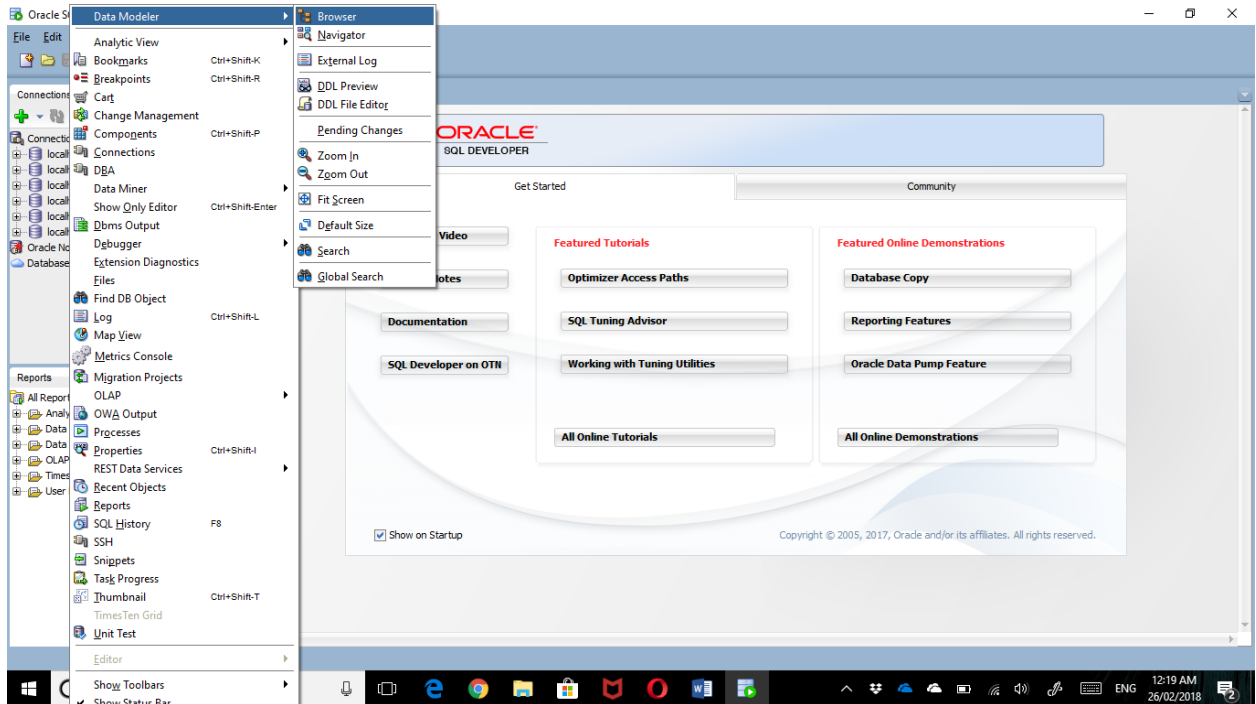
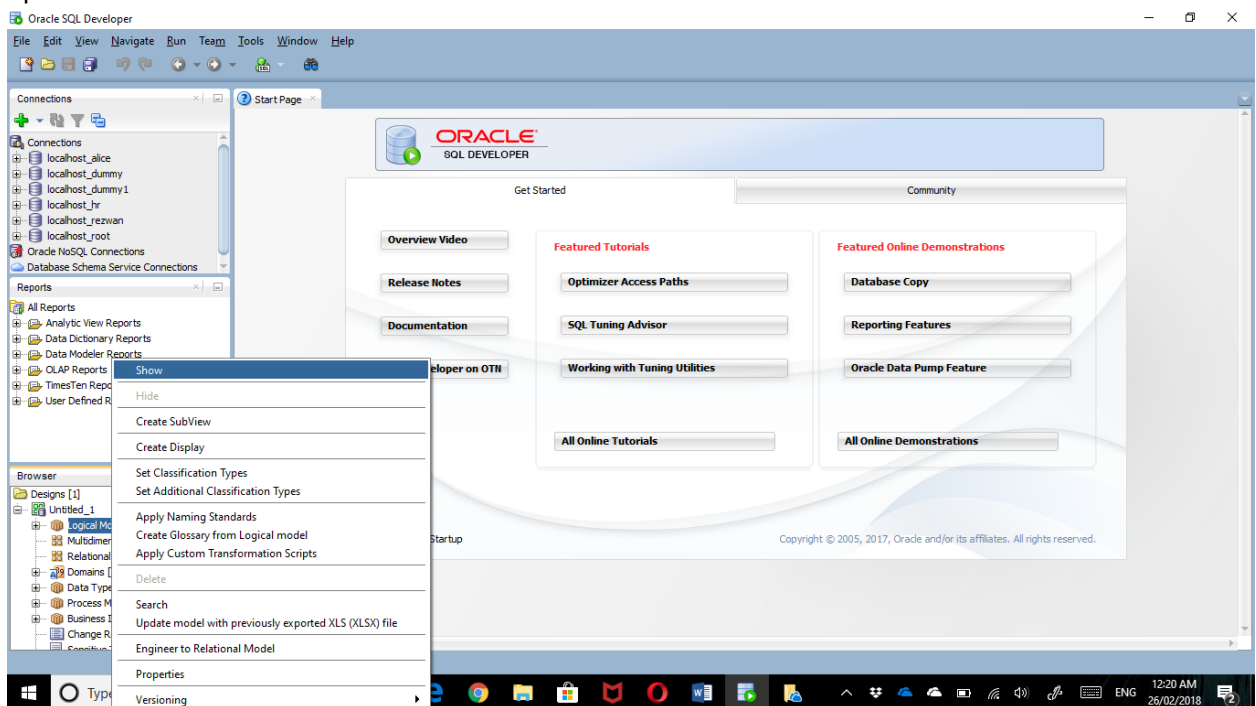


Data Modeler Tutorial

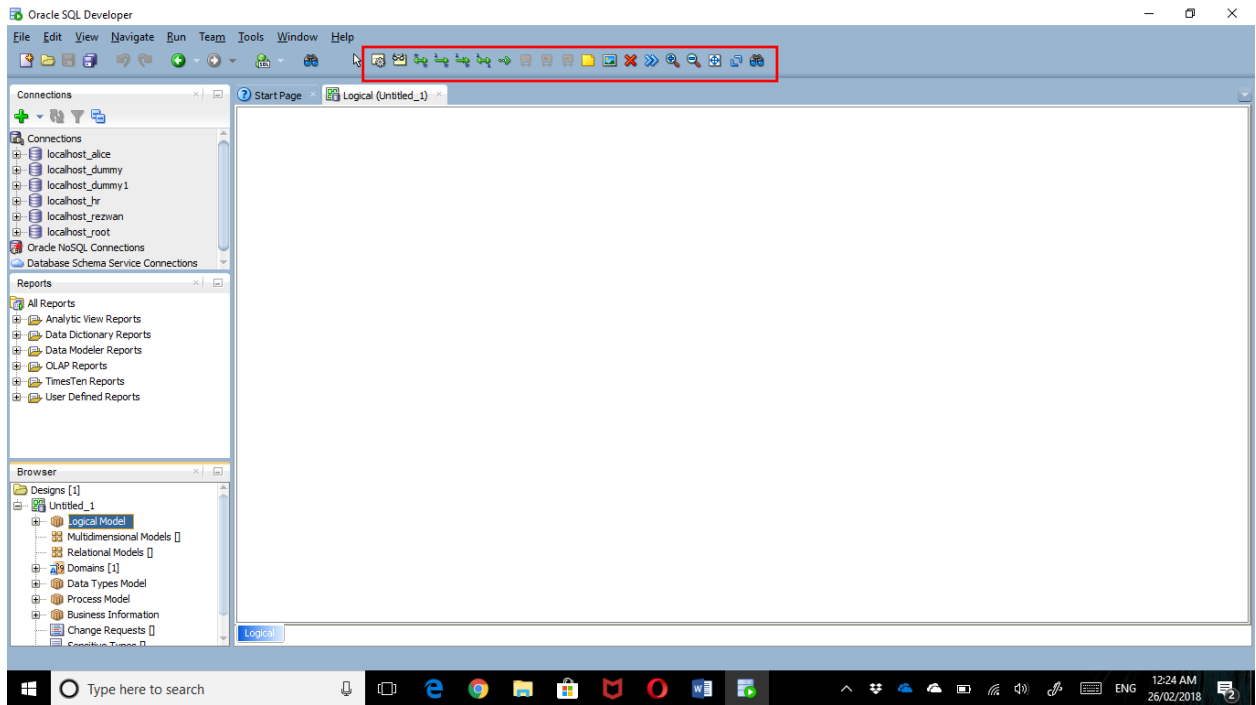
1. Execute Data Modeler by clicking View > Data Modeler > Browser.



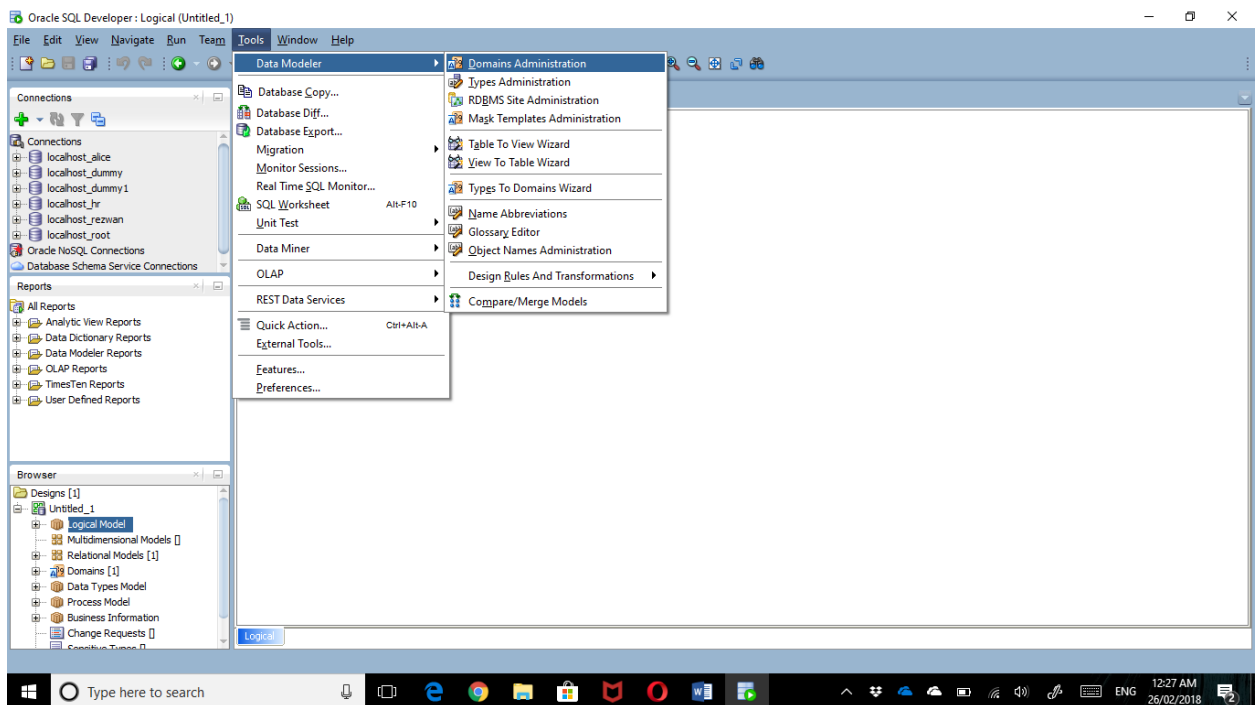
2. Browser pane will be opened at the bottom-left of the window and then expand Untitled_1, select Logical Model, right click on it and then click Show. The interface for building E-R model will be opened.



3. This figure shows the interface. Look at the highlighted options. You are going to use them soon to build your E-R model.



4. First, you need to set domains for attributes in your entities. Domains are set of permitted values for an attribute. Click Tools > Data Modeler > Domains Administration.



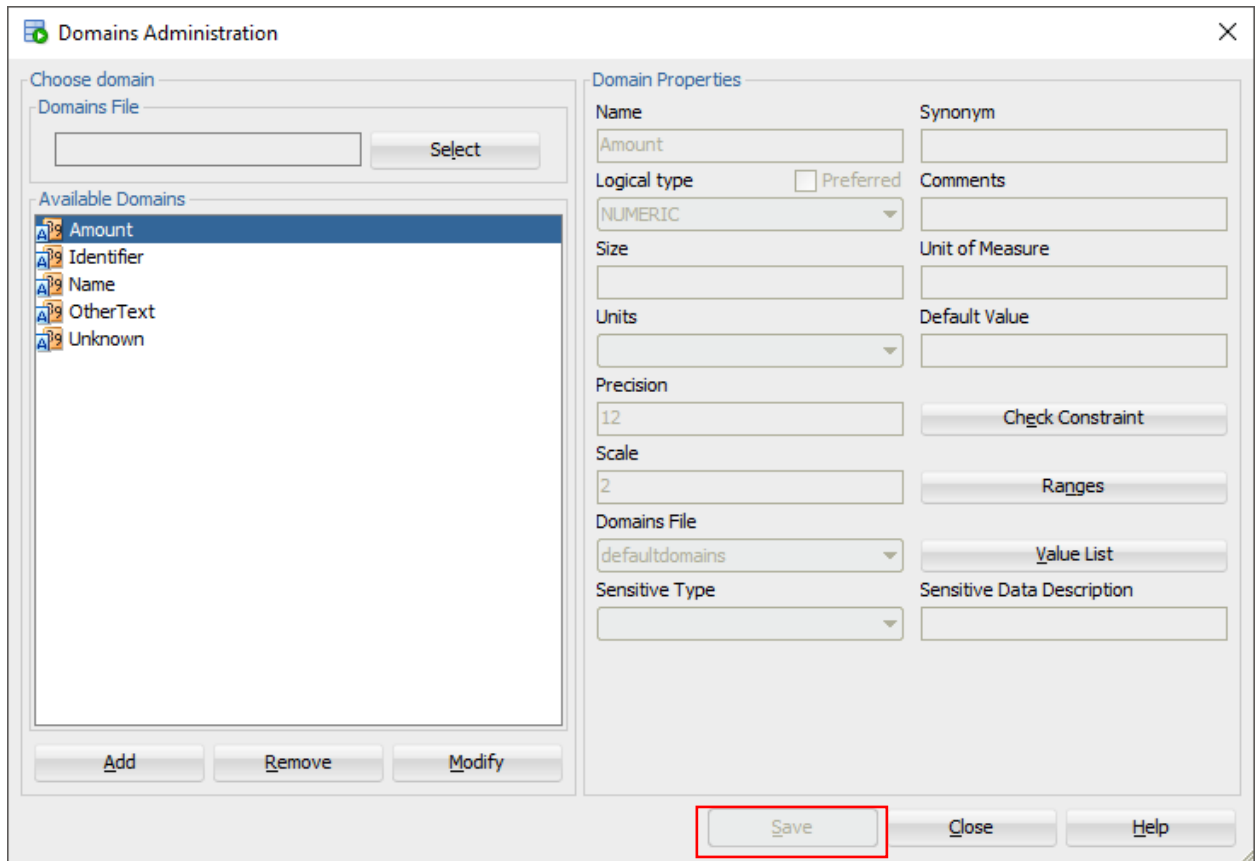
5. It will open Domain Administration window as shown in the figure. Click Add then give the domain name and set appropriate parameters. After that, click Apply.

The screenshot shows the 'Domains Administration' window. On the left, under 'Available Domains', 'Domain_2' and 'Unknown' are listed. At the bottom of this panel, the 'Add' button is highlighted with a red box. The 'Domain Properties' panel on the right shows the 'Name' field set to 'Identifier' (also highlighted with a red box). Other fields include 'Logical type' (NUMERIC), 'Precision' (5), 'Scale' (0), and 'Domains File' (defaultdomains). Buttons like 'Check Constraint', 'Ranges', and 'Value List' are visible. At the bottom of the window are 'Save', 'Close', and 'Help' buttons.

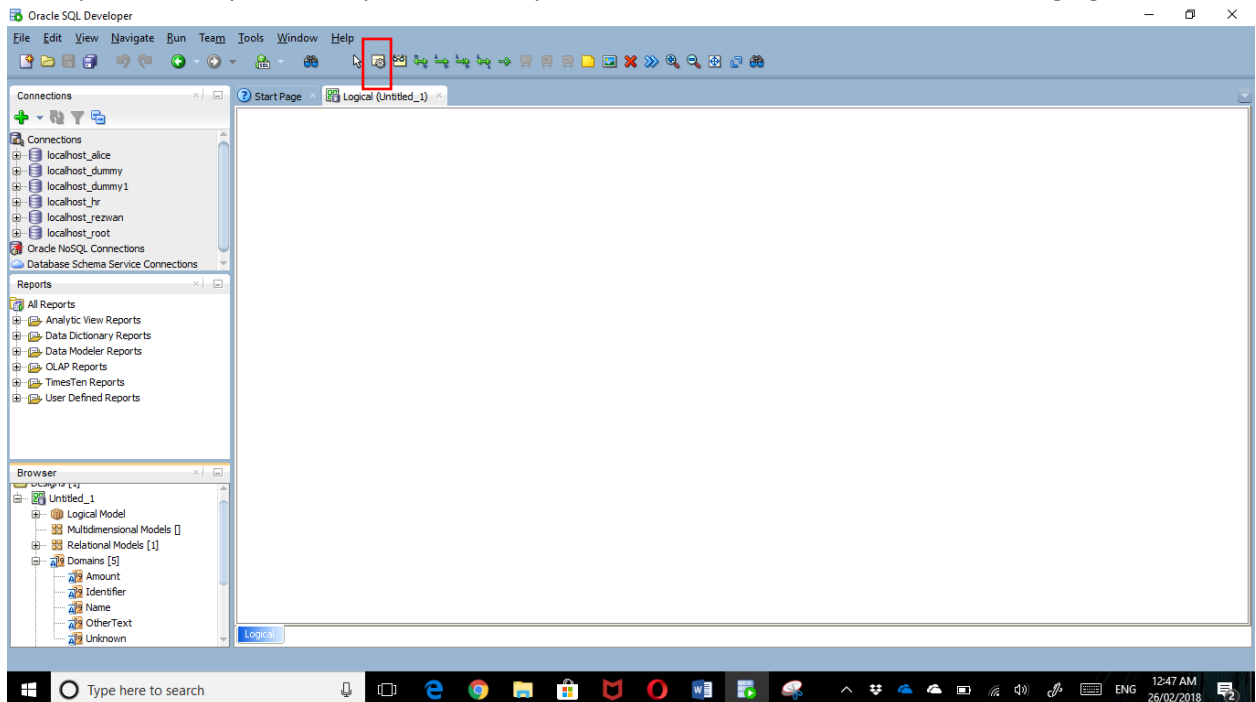
6. Once done, the following figure will be shown. Add few more necessary domains.

This screenshot shows the 'Domains Administration' window after adding a domain. In the 'Available Domains' list, 'Identifier' is now present alongside 'Unknown'. The 'Add' button is no longer highlighted; instead, the 'Modify' button at the bottom of the 'Available Domains' panel is highlighted with an orange box. The 'Domain Properties' panel on the right remains the same as in the previous screenshot, with 'Identifier' as the domain name. The 'Save', 'Close', and 'Help' buttons are still at the bottom of the window.

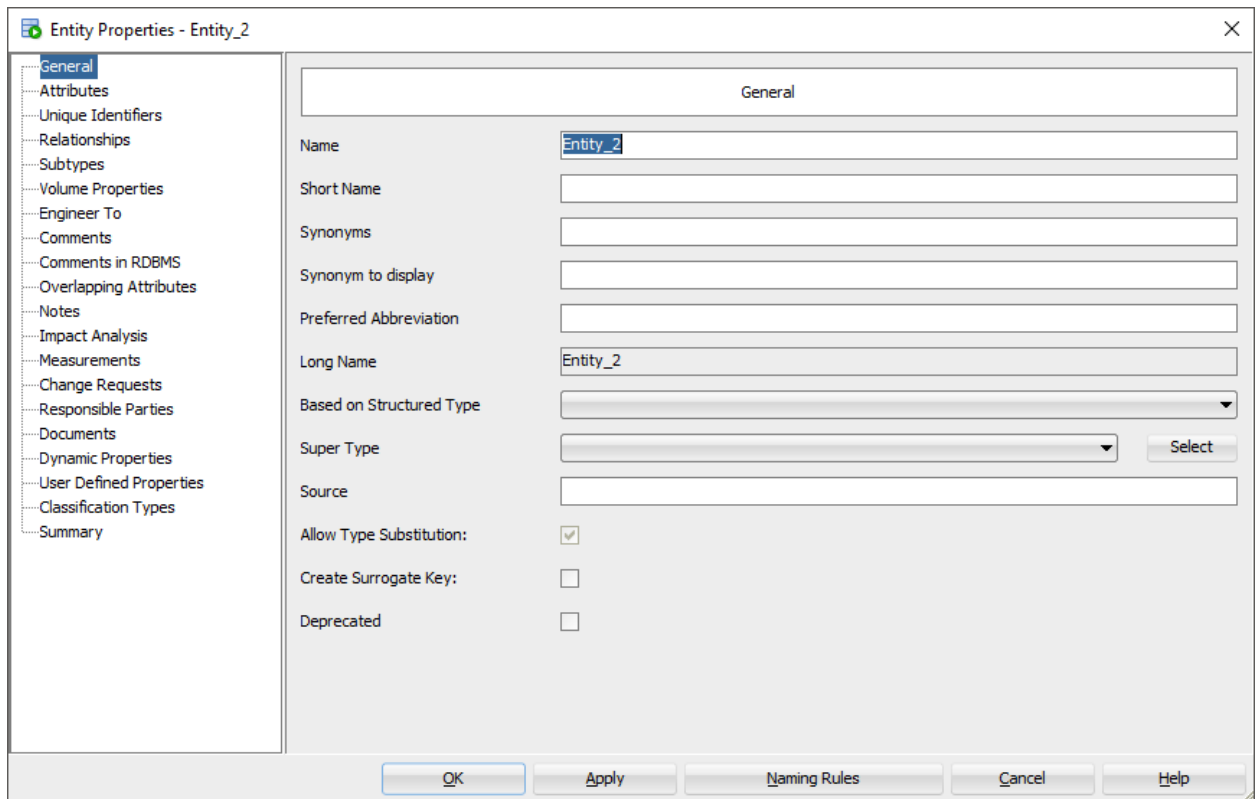
7. After adding necessary domains, click Save on Domain Administration window. Domains will be saved for future use.



8. Now, you are ready to create your first entity. Click on the icon as shown in the following figure.



9. Now click on the interface. It will generate the following window to edit the entity.



Entity Properties - Entity_2

General

Name: Entity_2

Short Name:

Synonyms:

Synonym to display:

Preferred Abbreviation:

Long Name: Entity_2

Based on Structured Type:

Super Type:
 Select

Source:

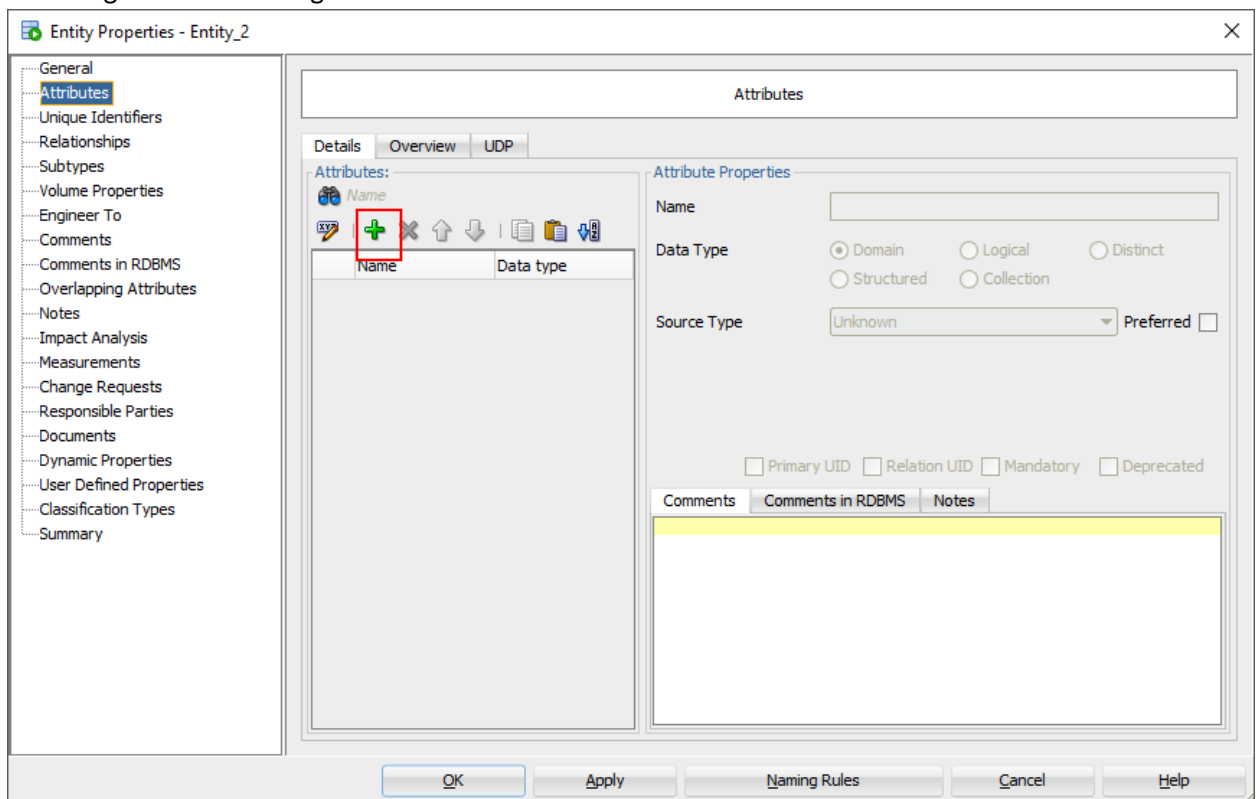
Allow Type Substitution: ☒

Create Surrogate Key: ☐

Deprecated: ☐

OK Apply Naming Rules Cancel Help

10. Write the name of the entity 'Instructor'. Then from the left side pane, click on Attributes. The following window will be generated.



Entity Properties - Entity_2

Attributes

Details Overview UDP

Attributes:

Name	Data type

Attribute Properties

Name:

Data Type:
☒ Domain ☐ Logical ☐ Distinct
☐ Structured ☐ Collection

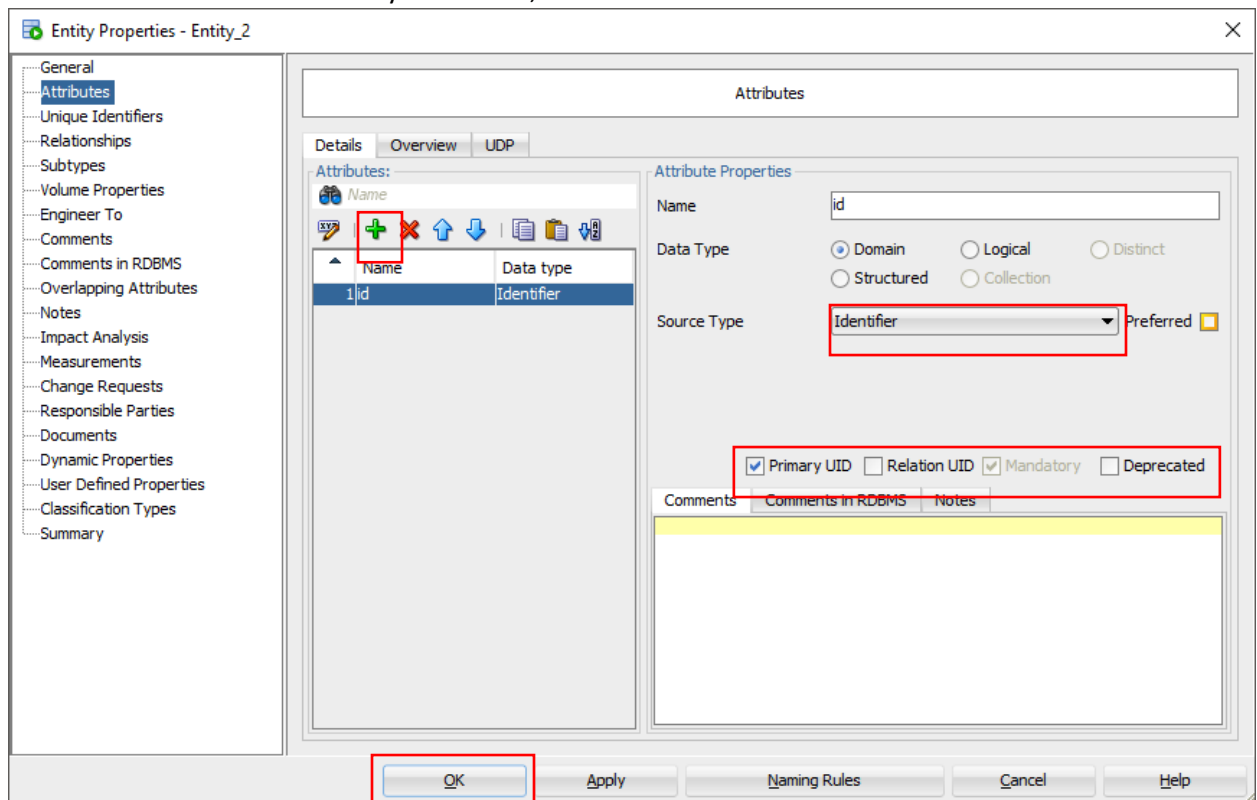
Source Type: Unknown Preferred ☐

☐ Primary UID ☐ Relation UID ☐ Mandatory ☐ Deprecated

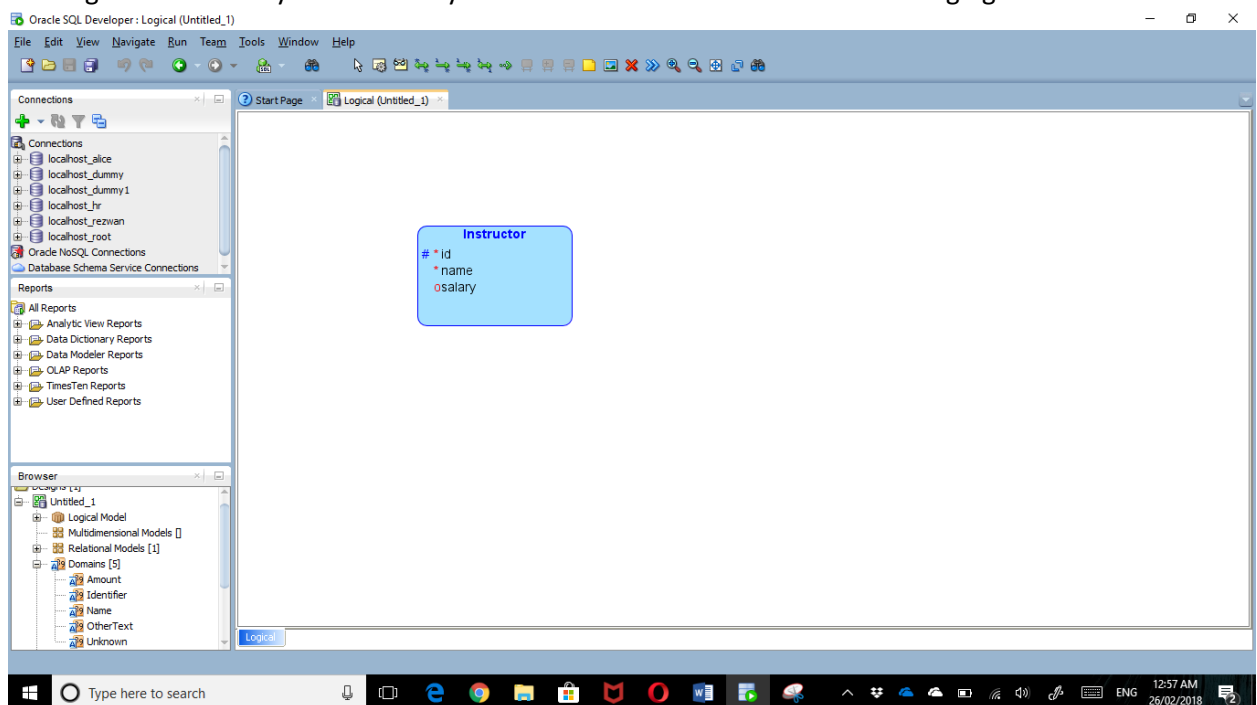
Comments Comments in RDBMS Notes

OK Apply Naming Rules Cancel Help

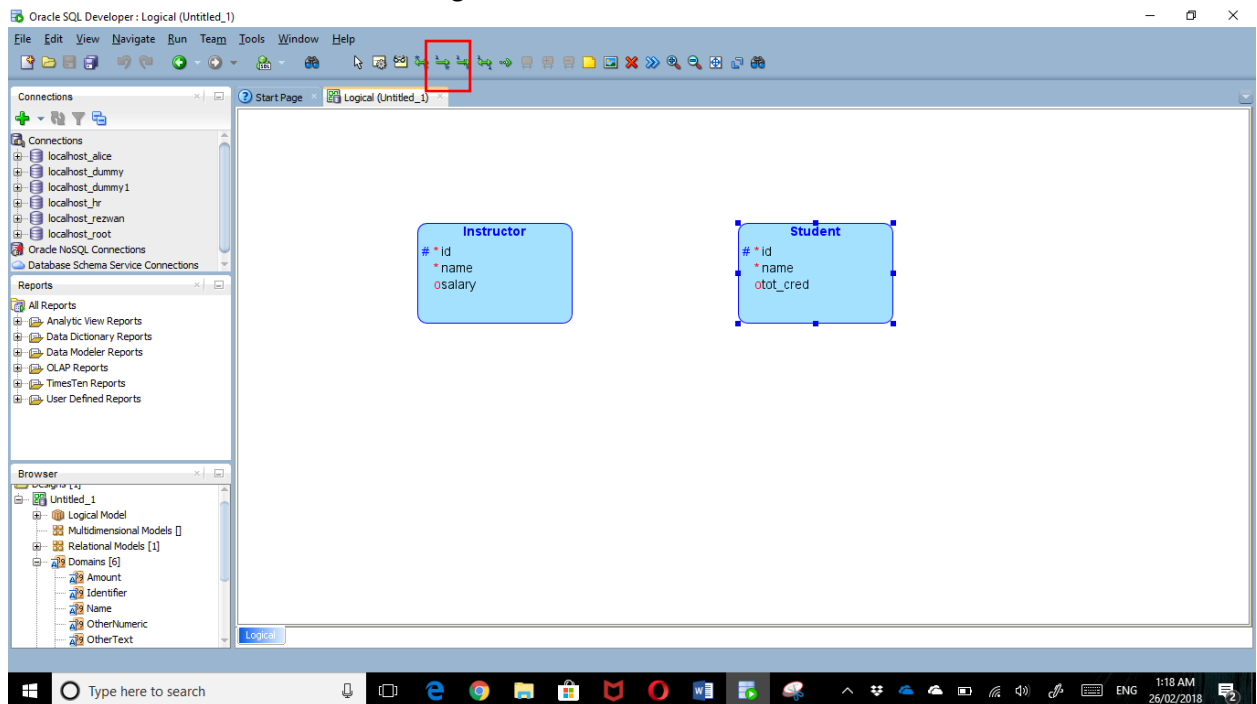
11. Click on the + icon to create an attribute. Type the name 'id'. Choose the domain 'Identifier' and check the box Primary UID (Primary Identifier/key) and then click Apply. This is how, create two other attributes name and salary. After that, click Ok.



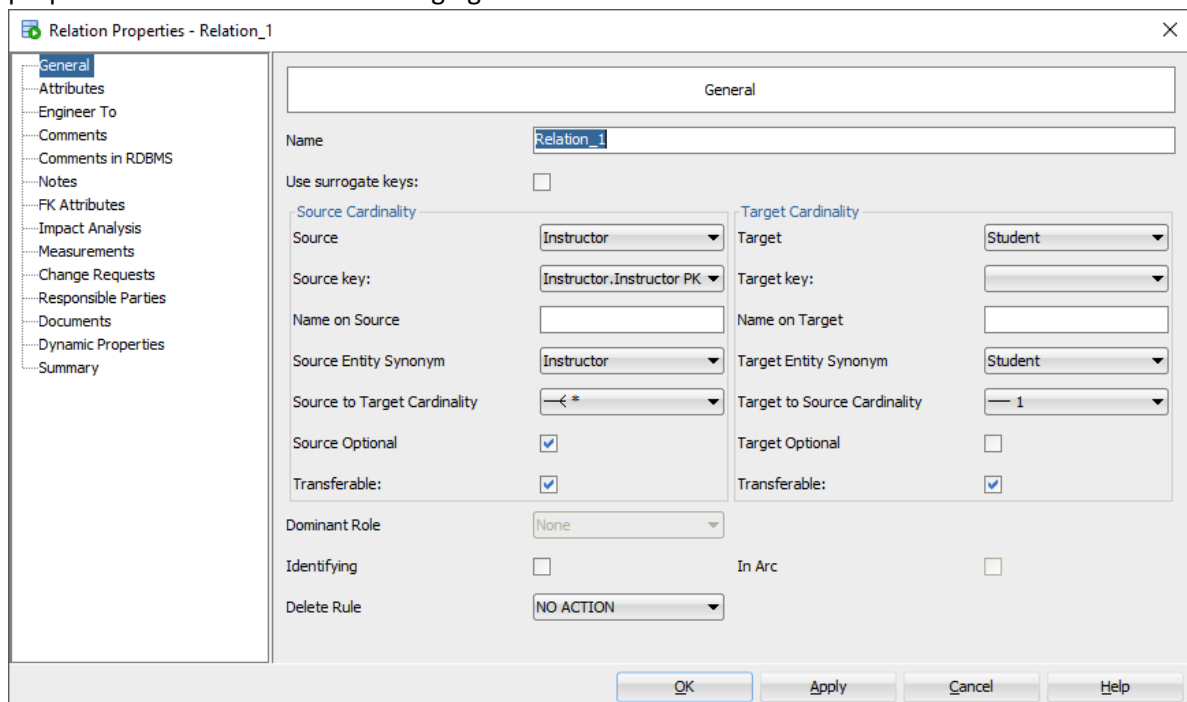
12. Clicking Ok will create your first entity set Instructor. It is shown in the following figure.



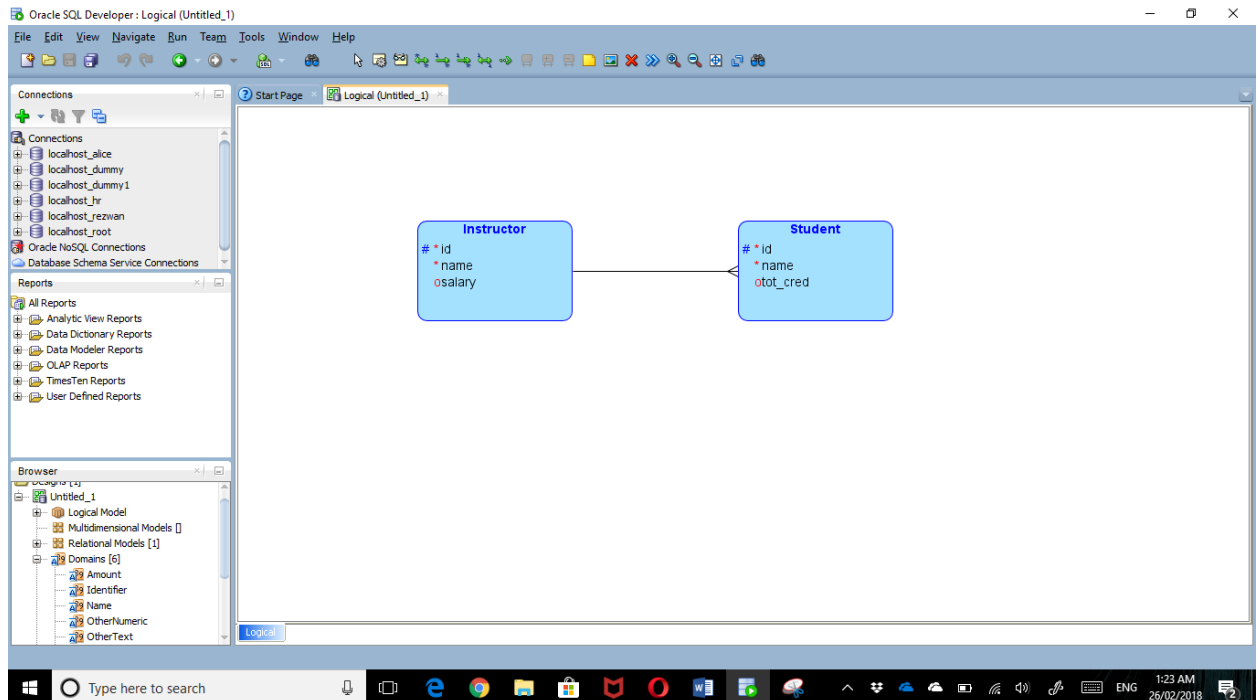
13. Following the same process, create another entity set Student which has three attributes – id (Identifier), name (Name) and tot_cred (OtherNumeric). After creating these two entity sets, the interface would look like the following.



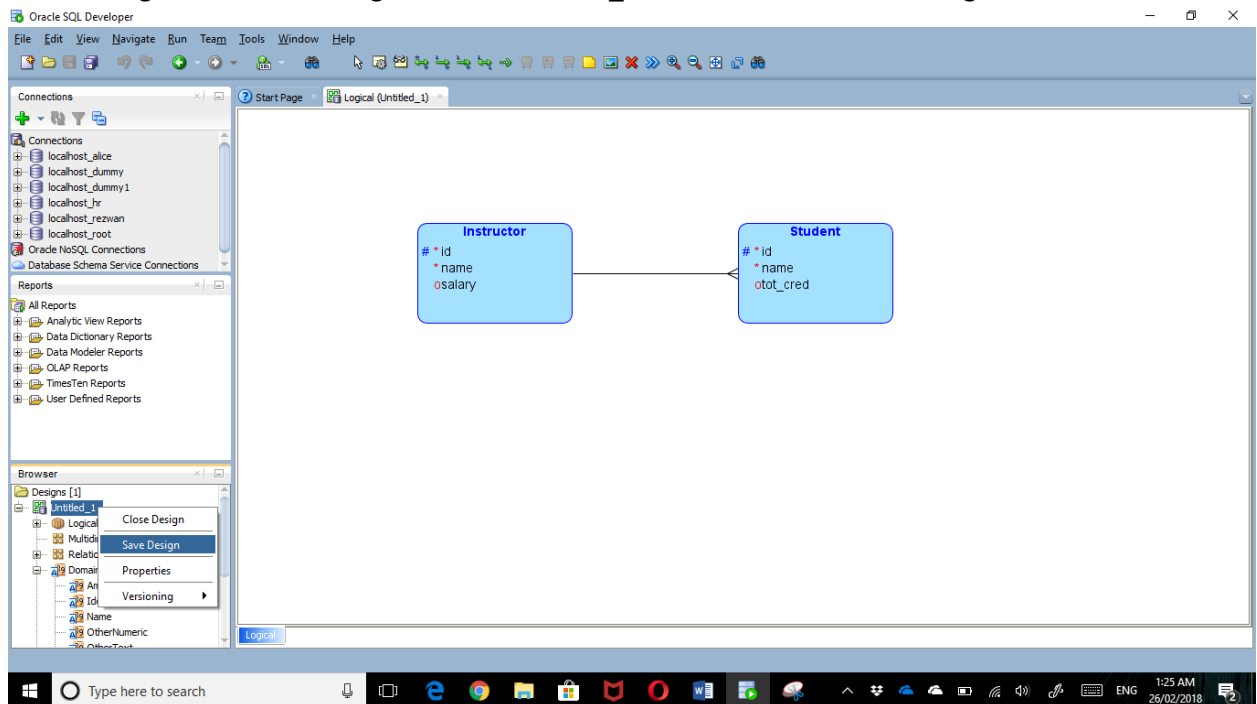
14. Next, you need to create a relationship between these two entity sets. Here, an instructor can have many students as advisee and a student has at most one instructor as advisor. So, you need to use one to many relationship from Instructor to Student. Choose the highlighted icon in the previous figure and drag from instructor to student entity set. It would open a new Relation properties window like the following figure.



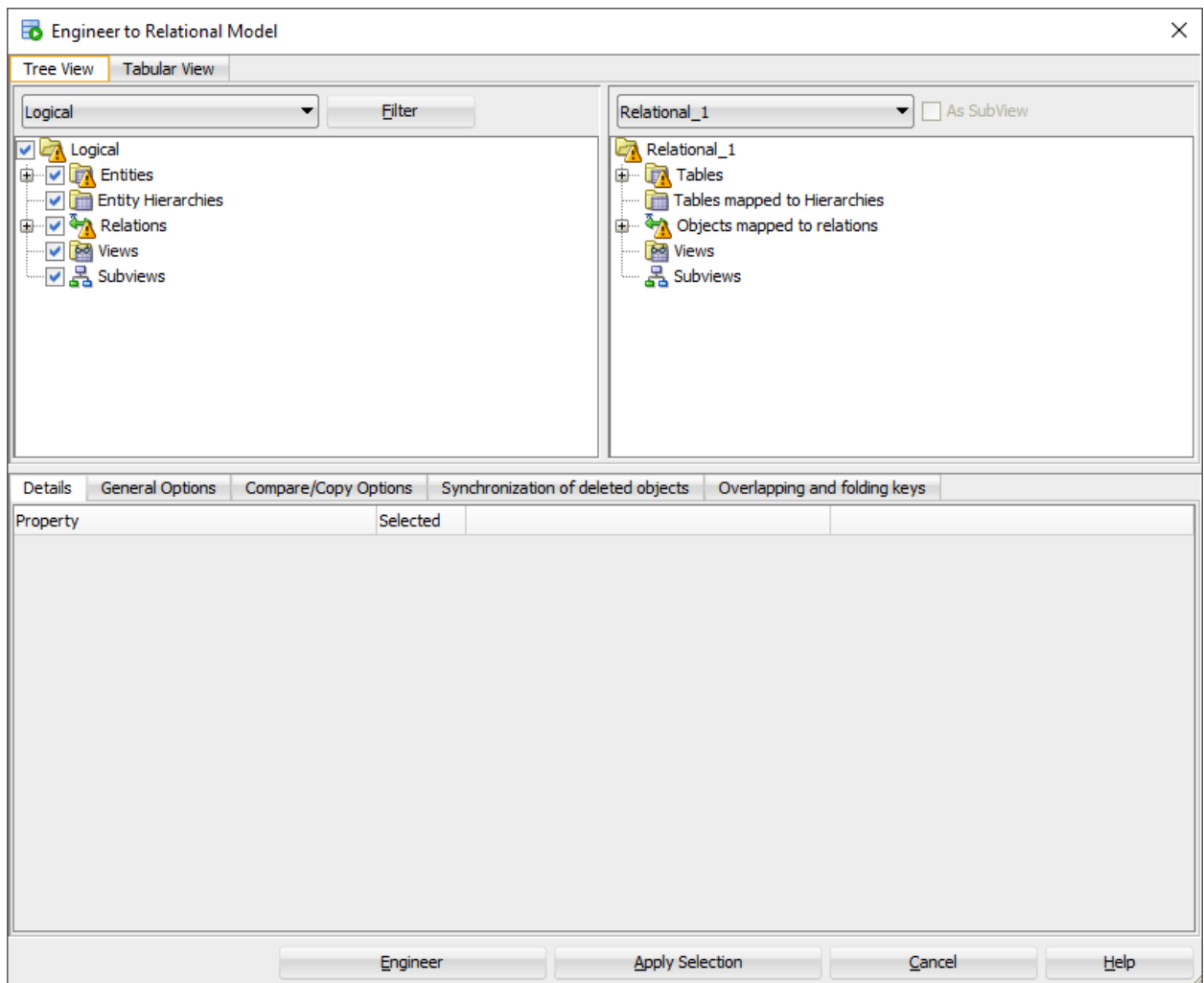
15. Give the name of the relation. Choose Target Key and uncheck the Source Optional check box. Then click OK. The following figure will be displayed.



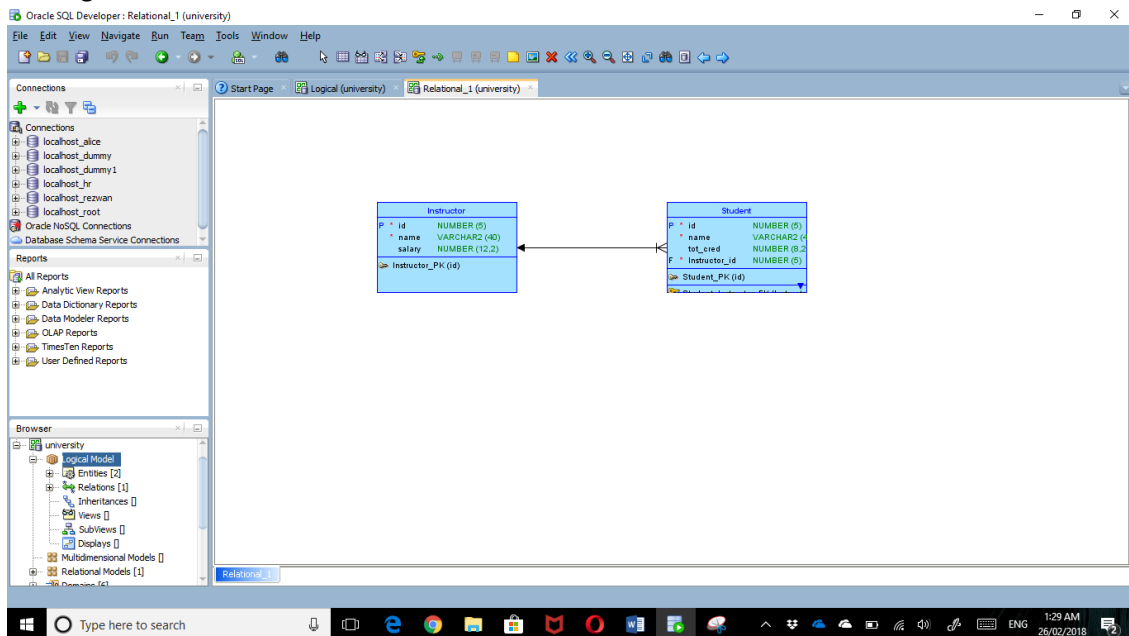
16. It is possible to change the cardinality of the relationship by changing the parameter in the Relation properties window.
17. Save the logical model now. Right click on Untitled_1 and then choose Save Design.



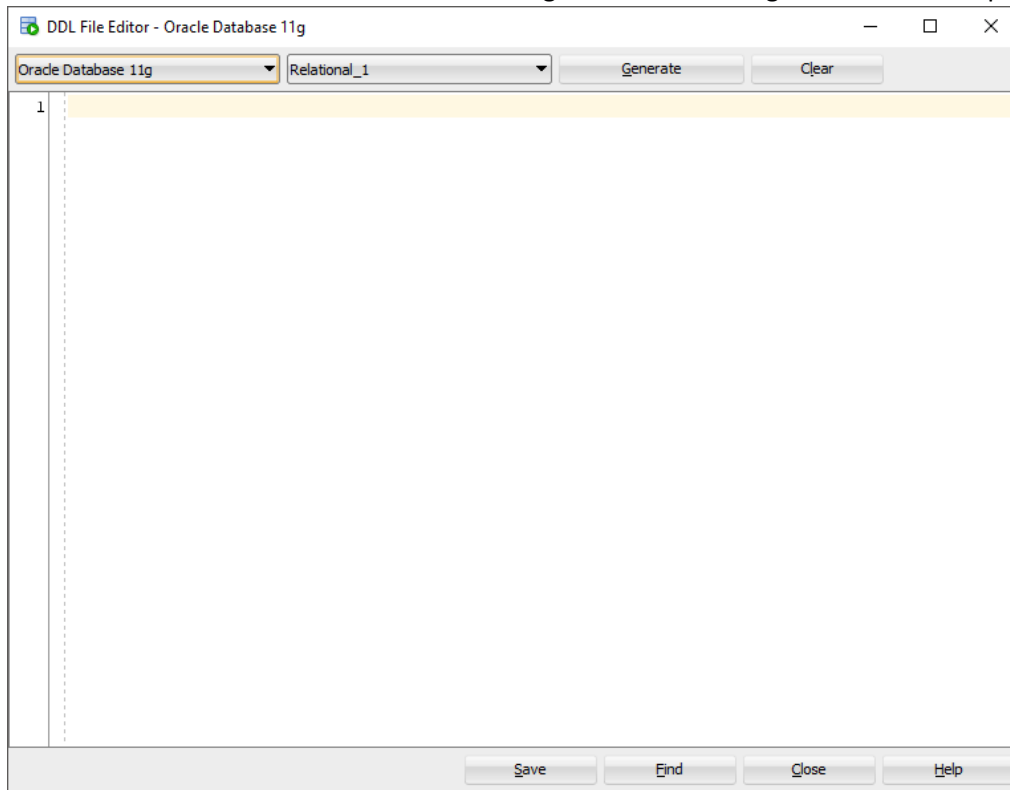
18. It would open another window. Give it a name 'university' and click ok. The model is saved.
19. Now click on the highlighted icon in the previous figure to transform the logical model into Relational Model (Schema Diagram). The following window will open. Click Engineer.



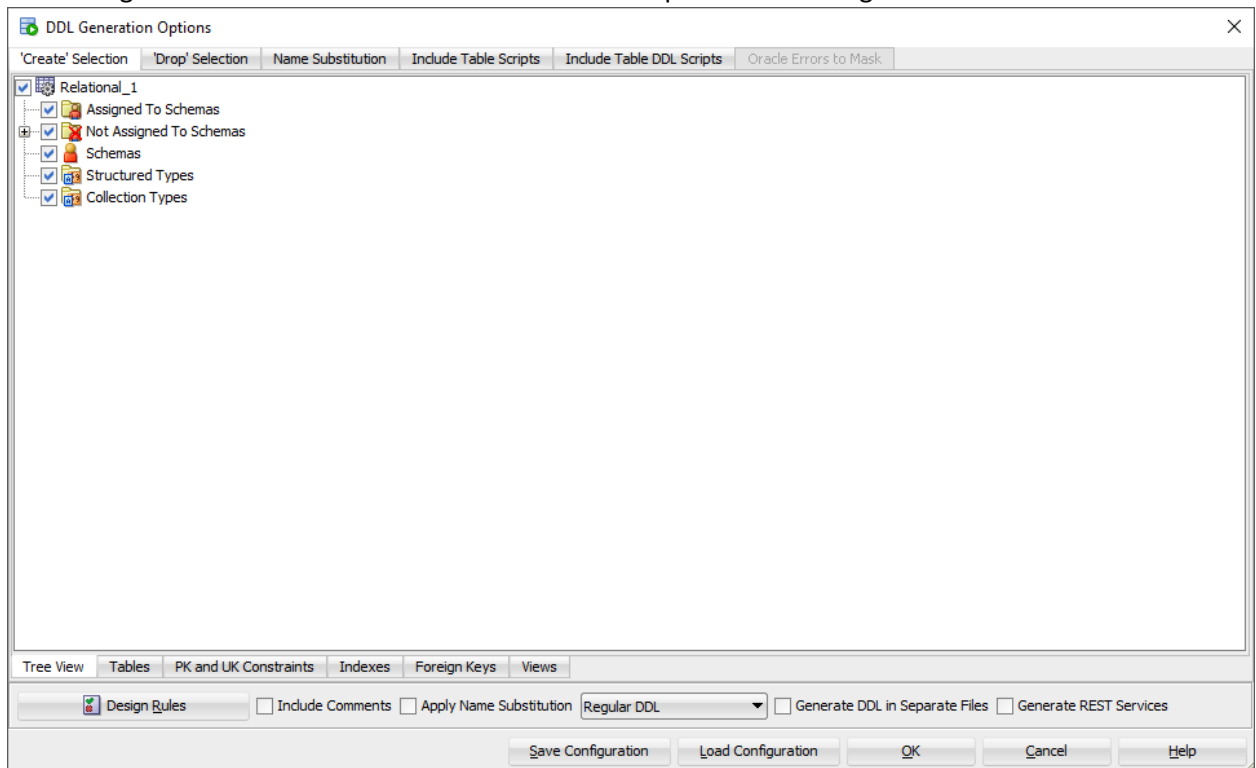
20. The logical model will be transformed into Relational Model as shown below.



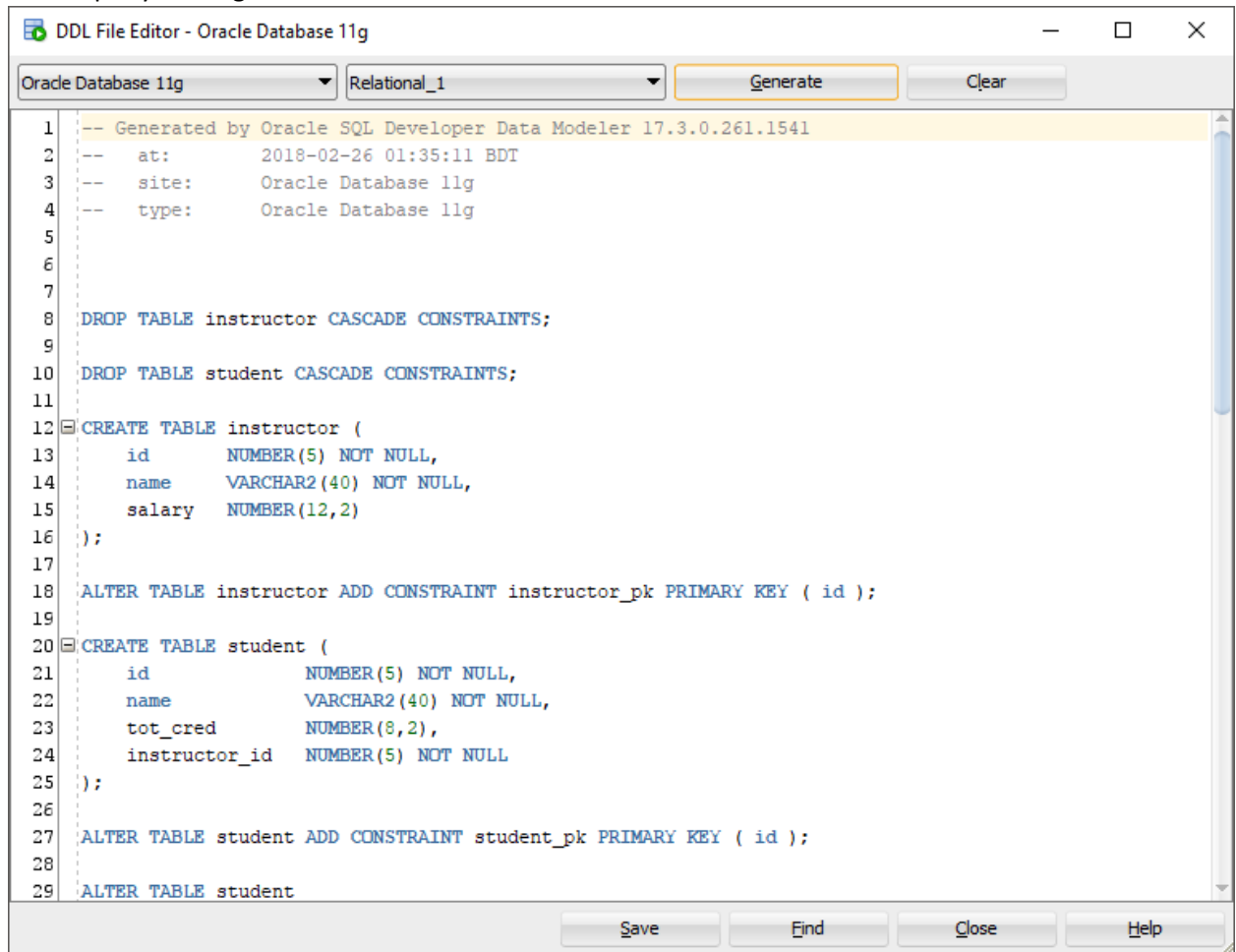
21. Now, click on the highlighted icon 'Generate DDL' to automatically generate the SQL statements to create the tables based on the schema diagram. The following window will be opened.



22. Select target database and then click Generate. It will open the following window. Click Ok.



23. DDL (Data Definition Language) script will be generated as per the following figure. You can save the script by clicking save.



```
1  -- Generated by Oracle SQL Developer Data Modeler 17.3.0.261.1541
2  --   at:      2018-02-26 01:35:11 BDT
3  --   site:    Oracle Database 11g
4  --   type:    Oracle Database 11g
5
6
7
8  DROP TABLE instructor CASCADE CONSTRAINTS;
9
10 DROP TABLE student CASCADE CONSTRAINTS;
11
12 CREATE TABLE instructor (
13     id      NUMBER(5) NOT NULL,
14     name    VARCHAR2(40) NOT NULL,
15     salary  NUMBER(12,2)
16 );
17
18 ALTER TABLE instructor ADD CONSTRAINT instructor_pk PRIMARY KEY ( id );
19
20 CREATE TABLE student (
21     id      NUMBER(5) NOT NULL,
22     name    VARCHAR2(40) NOT NULL,
23     tot_cred NUMBER(8,2),
24     instructor_id NUMBER(5) NOT NULL
25 );
26
27 ALTER TABLE student ADD CONSTRAINT student_pk PRIMARY KEY ( id );
28
29 ALTER TABLE student
```