# Steps to create relationships between multiple tables using Data Model in Excel

Excel is a powerful tool for data analysis and automation after processing large data sets. You can spend considerable time analyzing tons of data using VLOOKUP, INDEX-MATCH, SUMIF...

Thanks to the Excel Data Model, you can save valuable time through automated data reports. Learn how easily you can assign a relationship between two tables using the Data Model and illustrate that relationship in the following article.

## Basic Requirements

You will need Power Pivot and Power Query (Get & Transform) to complete some tasks while creating the Excel Data Model. Here's how you can get these features in your Excel workbook:

### How to get Power Pivot

1. Excel 2010: You need to download the Power Pivot add-in from Microsoft, then install it for the Excel desktop program.

2. Excel 2013: The Office Professional Plus version of Excel 2013 includes Power Pivot. However, you need to activate it before using it for the first time. Here's how to do it:

1. **Step 1:** Click **File** on the ribbon of the Excel workbook.
2. **Step 2:** Then click **Options** to open **Excel Options.**
3. **Step 3:** Now, click on **Add-ins.**
4. **Step 4:** Select **COM Add-ins** by clicking the drop-down menu of the **Manage** box **.**
5. **Step 5:** Click **Go** and then select the check box for **Microsoft Power Pivot for Excel** .

Step 3. Excel 2016 and later: You will find the Power Pivot menu on the ribbon.

### How to get Power Query (Get & Transform)

Step 1. Excel 2010: You can download the Power Query add-in from Microsoft. Once installed, Power Query will show up on the ribbon.

Step 2. Excel 2013: You need to enable Power Query by following the same steps you just did to get Power Pivot working in Excel 2013.

Step 3. Excel 2016 and later: You can find Power Query (Get & Transform) by going to the **Data** tab on the Excel ribbon.

## Create Data Model by importing data into Excel Workbook

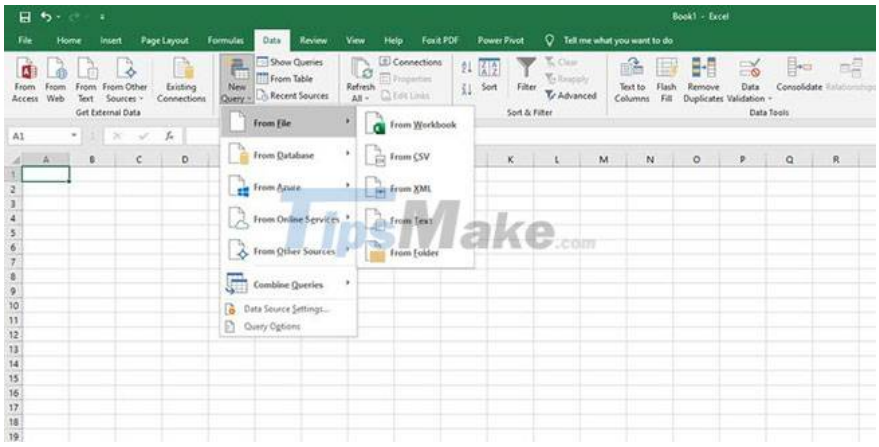
For this tutorial, you can get preformatted sample data from Microsoft:

1. Download Sample Student Data (data only) | Sample student data (complete model)

You can import a database with many related tables from many sources such as Excel workbooks, Microsoft Access, web pages, SQL Server, etc. Then you need to format the data set so that Excel can use it. Here are the steps you can try:

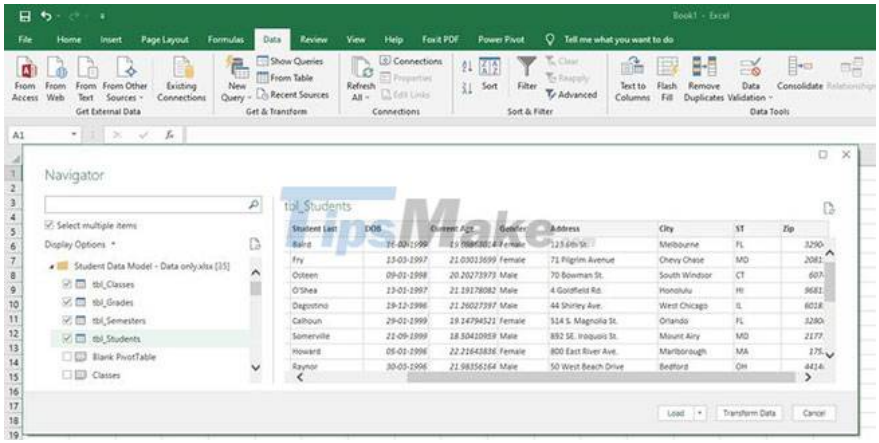
Step 1. In Excel 2016 and later, click the **Data** tab and select **New Query.**

Step 2. You will find several ways to import data from external or internal sources. Choose a way that suits you.



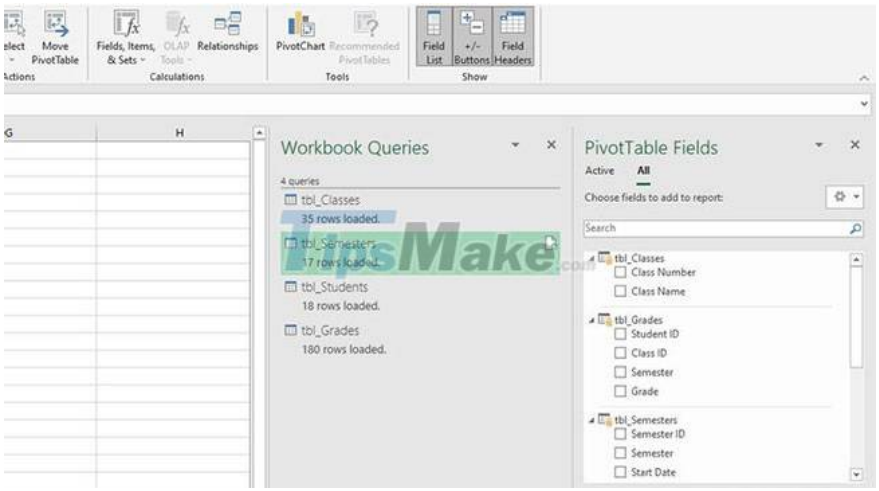

Step 3. If using the Excel 2013 version, click **Power Query** on the ribbon and then select **Get External Data** to select the imported data.

Step 4. You will see a **Navigator** box where you need to select which tables you need to import. Click the **Select multiple items to pick several tables for import** checkbox .




Step 5. Click **Load** to complete the import.

Step 6. Excel will create the Data Model for you using these tables. You can see the table column headers in the **PivotTable Fields** list **.**

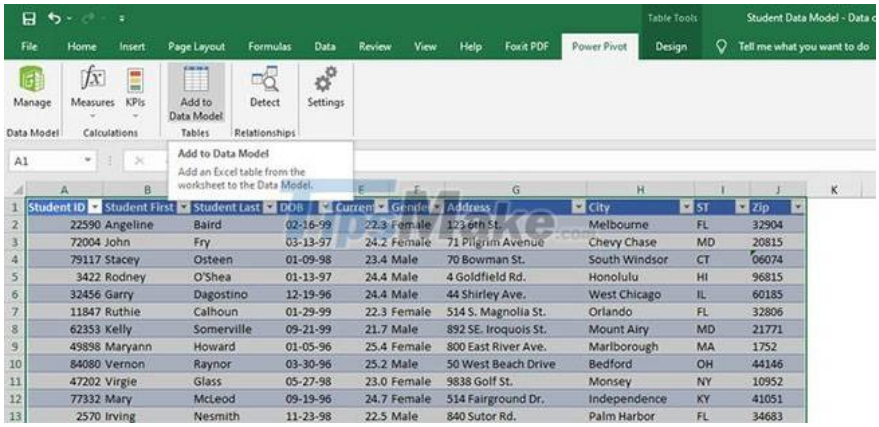



You can also use Power Pivot functions like calculated columns, KPIs, hierarchies, calculated fields, and filtered data sets from the Excel Data Model. For this purpose, you will need to create a Data Model from a table. You can try the following steps:

Step 1. Format the data in a tabular model by selecting all cells containing the data and then clicking **Ctrl + T** .

Step 2. Now select the entire table and then click the **Power Pivot** tab on the ribbon.

Step 3. From the **Tables** section , click **Add to Data Model** .




Excel creates a tabular relationship between related data from the Data Model. For this, primary and foreign key relationships are required in the imported tables.

Excel uses the relationship information from the imported table as a foundation to create connections between the tables in the Data Model.

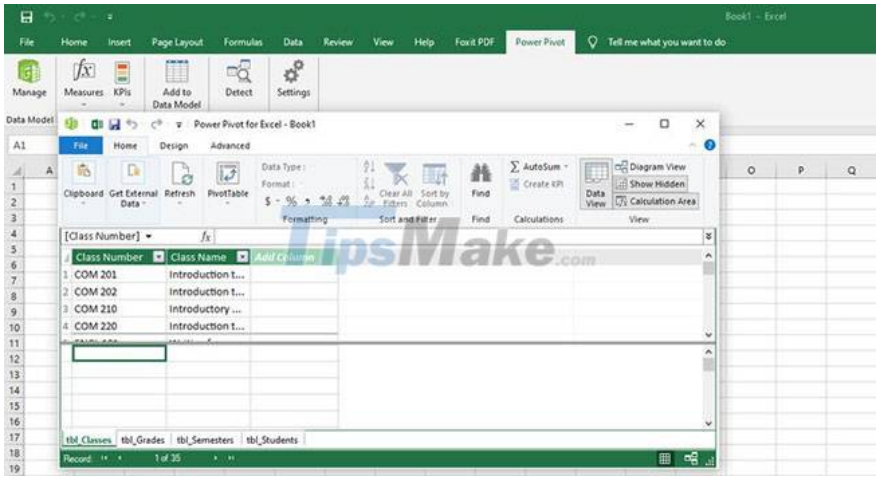
# Building relationships between tables in Data Model

Now that you have the Data Model in your Excel workbook, you'll need to define the relationships between the tables to generate meaningful reports. You need to specify a unique field identifier or primary key for each table, like Semester ID, Class Number, Student ID, etc.

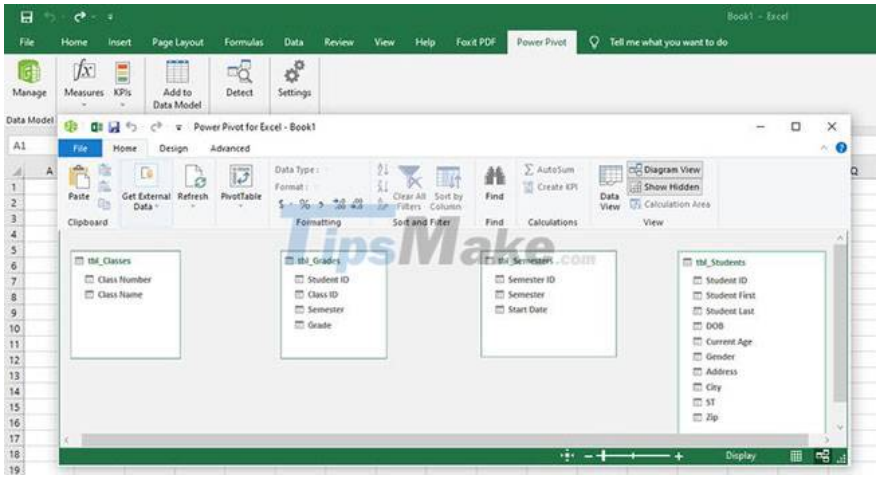
Power Pivot's **Diagram View** feature lets you drag and drop those fields to build relationships. Follow these steps to create a table link in Excel Data Model:

Step 1. On the ribbon of the Excel workbook, click the **Power Pivot** menu .

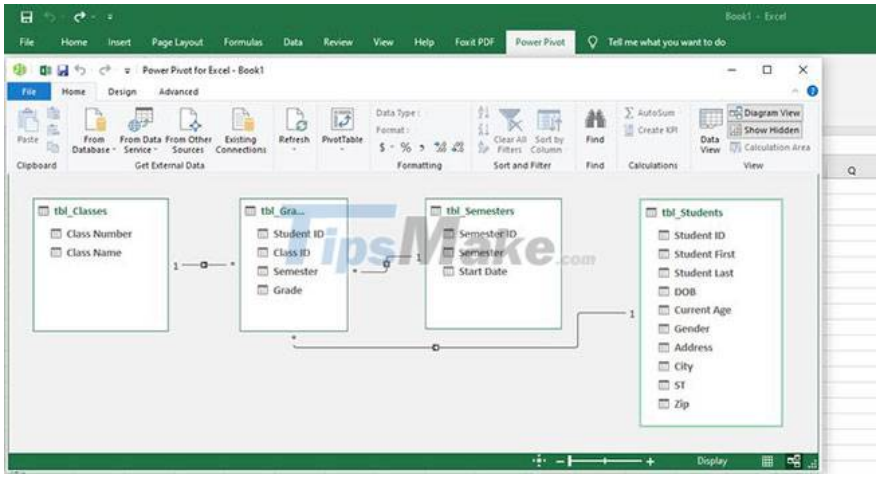
Step 2. Now, click **Manage** in the Data Model section. You will see the Power Pivot editor as shown below:



Step 3. Click the **Diagram View** button located in the **View** section of the **Power Pivot Home** tab . You will see the column headings in the table grouped by the table name.



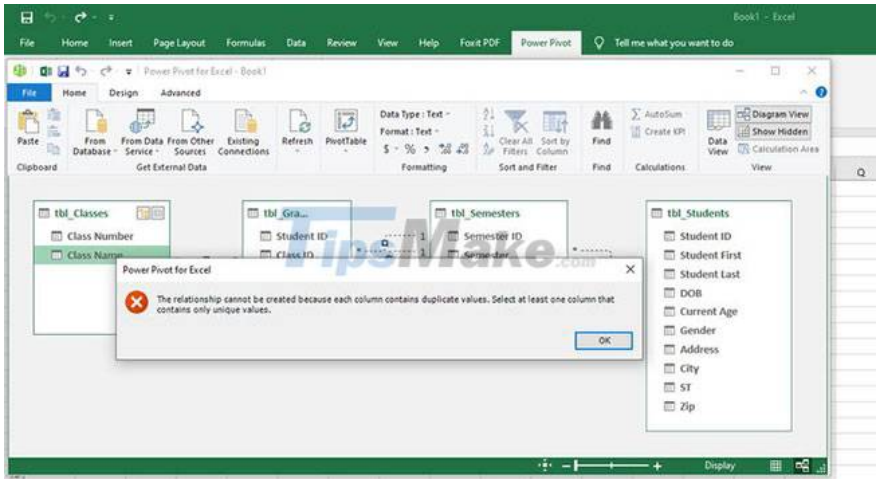

Step 4. You can now drag and drop the unique field identifier from one table to another. The following is the relationship diagram between the 4 tables of Excel Data Model:




The following describes the relationship between the tables:

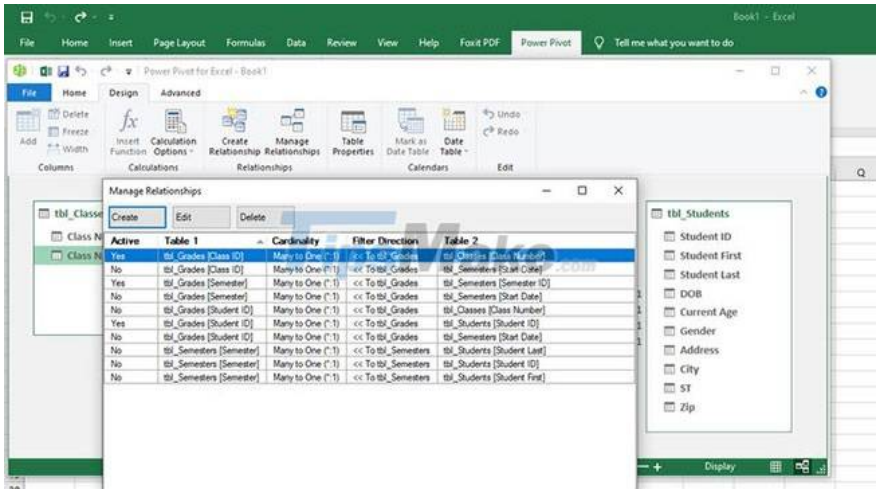
1. **Students** Table **| Student ID** to **Grades** table **| Student ID**
2. Table **Semesters | Semester ID** to **Grades** table **| Semester**
3. Table **Classes | Class Number** to **Grades** table **| Class ID**

Step 5. You can create a relationship by selecting a unique pair of column values. If there are any duplicates, you will see the following error:




Step 6. You should see an asterisk **(*)** on one side and a number **(1)** on the other in the Diagram View of the relationships. It defines that a one-to-many relationship exists between the tables.

Step 7. On the Power Pivot editor, click the **Design** tab and then select **Manage Relationships** to see which fields make the connection.




# Create PivotTable with Excel Data Model

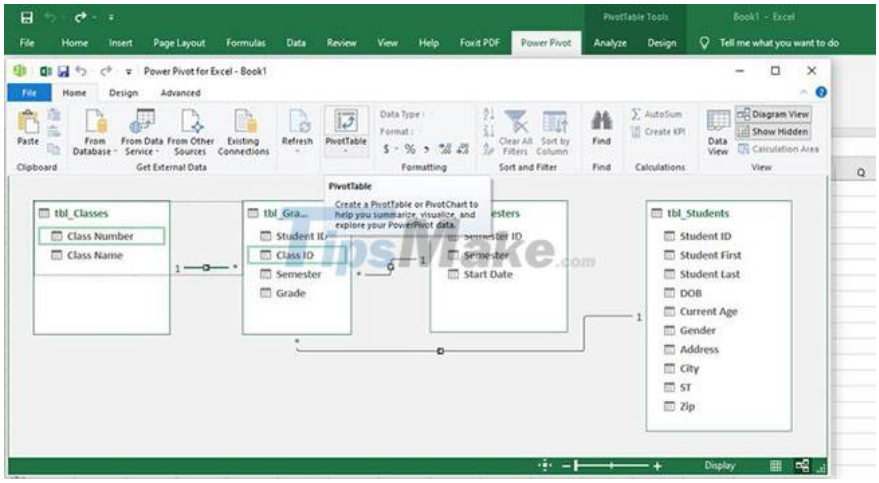
You can now create a PivotTable or PivotChart to visualize your data from the Excel Data Model. An Excel workbook can contain only one Data Model, but you can keep updating the tables.

Because the data changes over time, you can continue to use the same model and save time when working with the same data set. You'll find yourself saving more time when working on data with thousands of rows and columns. To create a report based on a PivotTable, follow these steps:

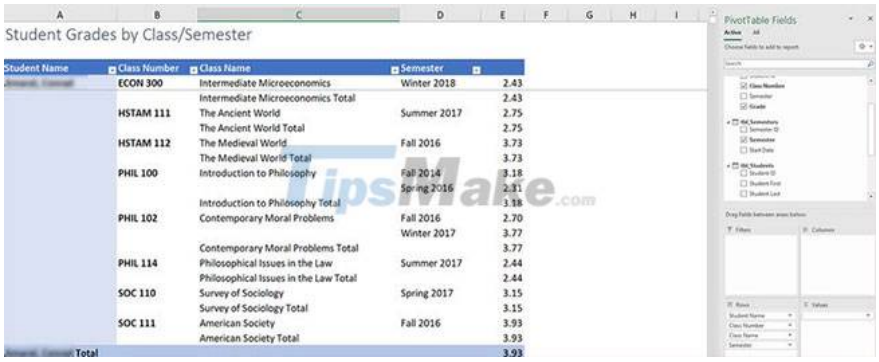
Step 1. On the Power Pivot editor, click the **Home** tab **.**

Step 2. On the ribbon, click **PivotTable.**

Step 3. Select **New Worksheet** or **Existing Worksheet.**




Step 4. Select **OK.** Excel adds a PivotTable that displays the **Field List** panel on the right.




| Student Name | Class Number | Class Name | Semester | |
|---|---|---|---|---|
| | ECON 300 | Intermediate Microeconomics | Winter 2018 | 2.43 |
| | | Intermediate Microeconomics Total | | 2.43 |
| | HSTAM 111 | The Ancient World | Summer 2017 | 2.75 |
| | | The Ancient World Total | | 2.75 |
| | HSTAM 112 | The Medieval World | Fall 2016 | 3.73 |
| | | The Medieval World Total | | 3.73 |
| | PHIL 100 | Introduction to Philosophy | Fall 2014 | 3.18 |
| | | | Spring 2016 | 2.31 |
| | | Introduction to Philosophy Total | | 3.18 |
| | PHIL 102 | Contemporary Moral Problems | Fall 2016 | 2.70 |
| | | | Winter 2017 | 3.77 |
| | | Contemporary Moral Problems Total | | 3.77 |
| | PHIL 114 | Philosophical Issues in the Law | Summer 2017 | 2.44 |
| | | Philosophical Issues in the Law Total | | 2.44 |
| | SOC 110 | Survey of Sociology | Spring 2017 | 3.15 |
| | | Survey of Sociology Total | | 3.15 |
| | SOC 111 | American Society | Fall 2016 | 3.93 |
| | | American Society Total | | 3.93 |
| Total | | | | 3.93 |

The following is an overview of the table created using the Excel Data Model for sample student data used in this tutorial. You can also create professional-looking pivot tables or charts from big data using the Excel Data Model tool.

Hope you are succesful.

You finished reading the article "**Steps to create relationships between multiple tables using Data Model in Excel**" edited by the **TipsMake** team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.