Computer Lab: SQL Server-1

1- About SQL Server

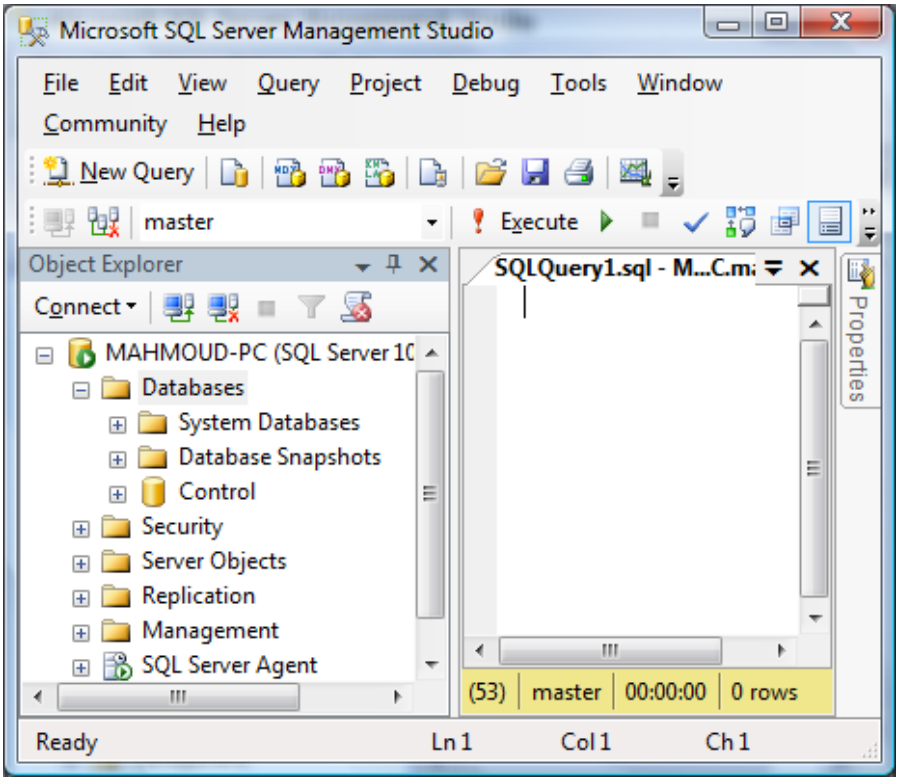
Microsoft SQL Server is a Relational Database Management System (RDBMS) designed to run on platforms ranging from laptops to large multiprocessor servers.

SQL Server Editions

SQL Server comes in many editions. Some are paid versions, others are free. Express Edition is a free edition of SQL

SQL Server Management Studio (SSMS)

SQL Server Management Studio (SSMS) is the main administration console for SQL Server. SSMS enables you to create database objects (such as databases, tables, views etc). Here's what SQL Server Management Studio looks like when you first open it up:



The left pane contains the Object Explorer. The right pane allows you to write queries against the database and view the results.

2- SQL Server - Create a Database

One of the first things we should look at with SQL Server/Management Studio is how to create a database.

Option 1: Programmatically

The CREATE DATABASE statement is used to create a new SQL database.

Syntax

CREATE DATABASE database name;

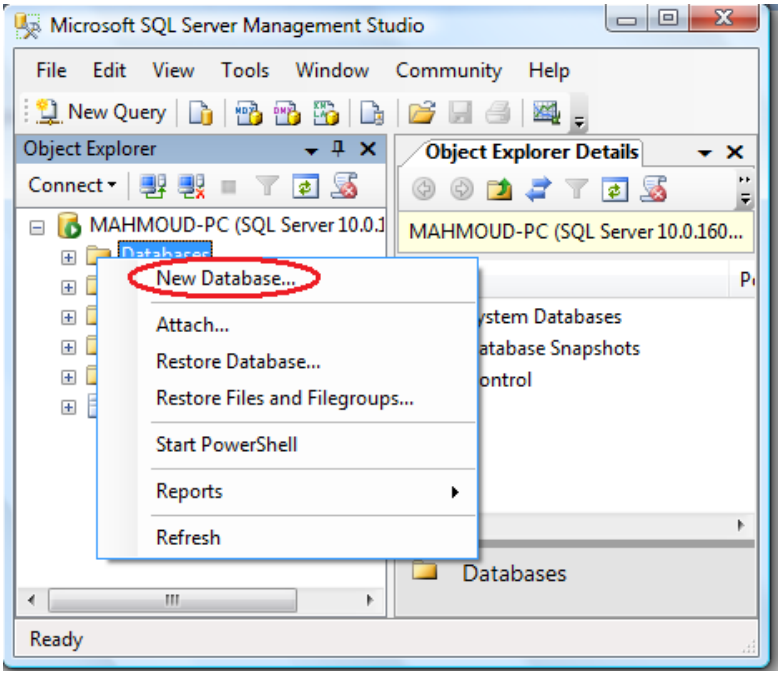
Example

CREATE DATABASE testDB;

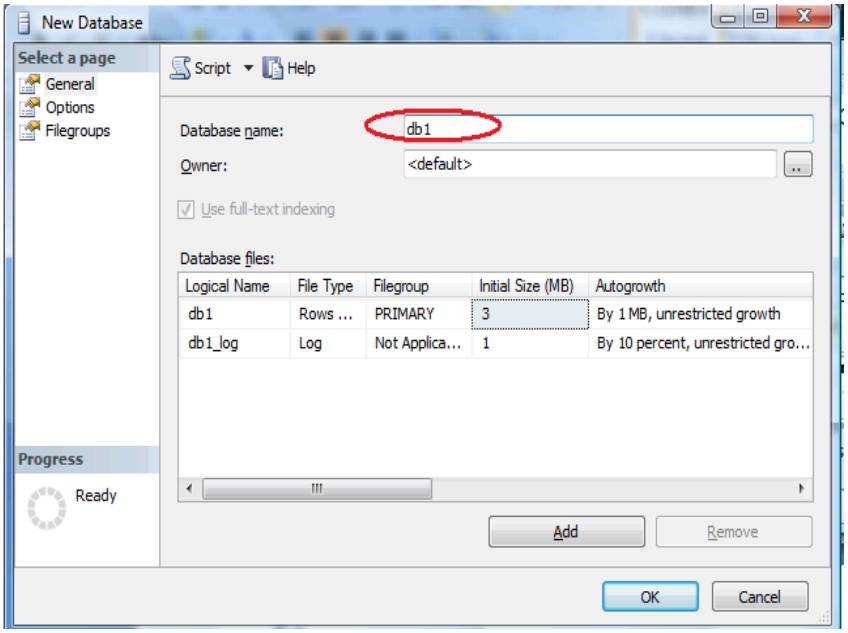
Option 2: User Interface

The following steps demonstrate how to create a database in SQL Server using SQL Server Management Studio.

1. Right click on the "Databases" icon and select "New Database...":

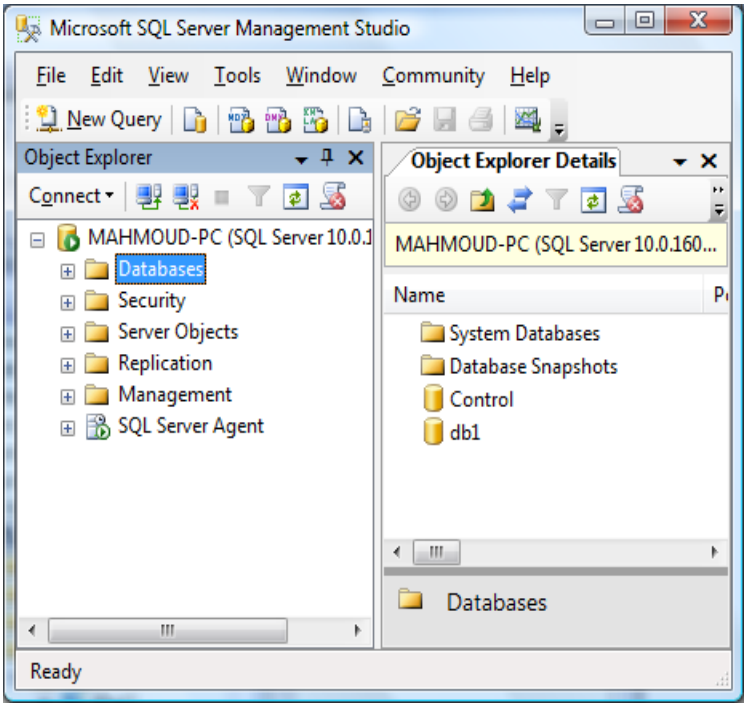


2. Name your database and click "OK":

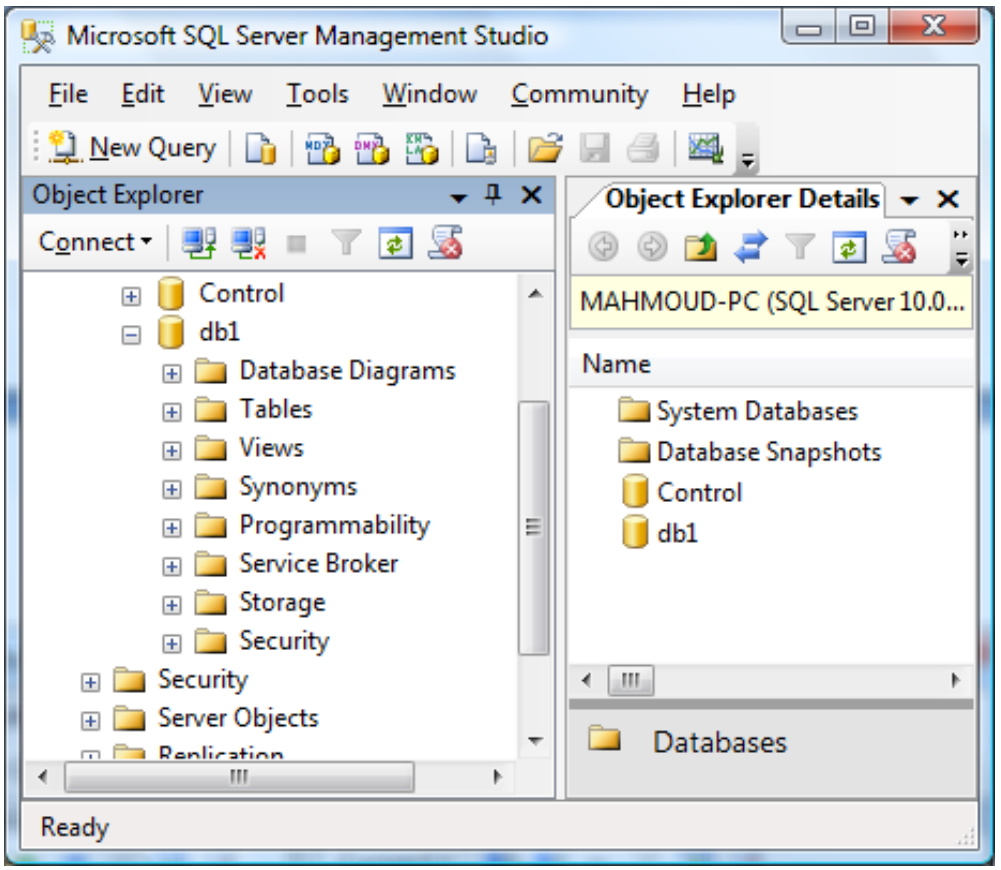


Your New Database

You will now notice your new database appears under the "Databases" section of SQL Server Management Studio.



If you use the left pane to navigate to your database and expand the tree, you will notice that your database already contains several objects. These are system objects which provide information about the database.



3- SQL Server - Create a Table

This section demonstrates how to create a table in a SQL Server database using SQL Server Management Studio (SSMS).

We illustrate the SQL using the following table:

Student (Code, FirstName, LastName, Date)

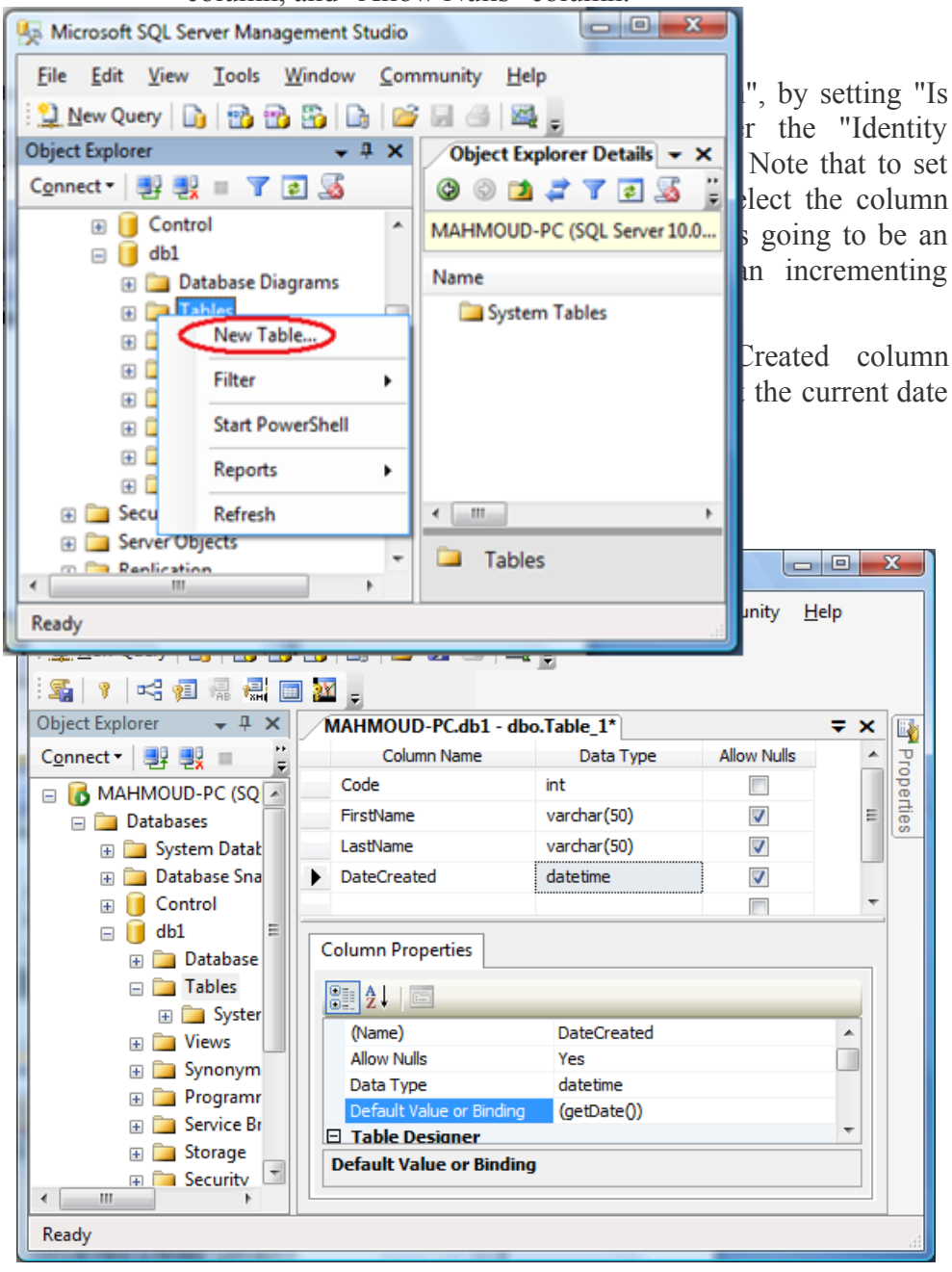
Code	FirstName	LastName	Date

The following steps demonstrate how to create a Table

1. Ensuring you have the right database expanded, right click on the "Tables" icon, and select "New Table...":

2. While you have this screen open, do the following:

    a. Using the values in the screenshot, complete the details in the "Column Name" column, the "Data Type" column, "Length" column, and "Allow Nulls" column.

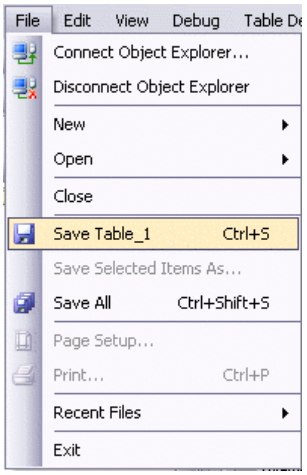


", by setting "Is
r the "Identity
Note that to set
elect the column
s going to be an
an incrementing

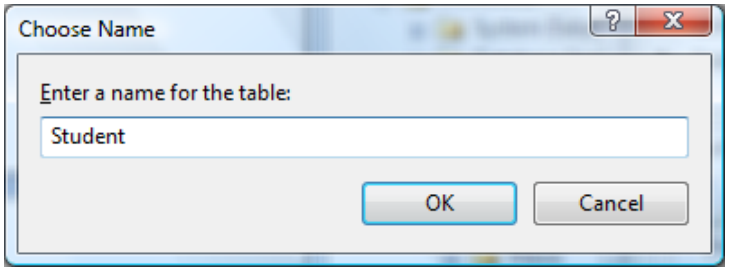
Created column
the current date

What we are doing at this stage is creating the column names, specifying the type of data that can be entered into them, and setting default values. Restricting the data type for each column is very important and helps maintain data integrity. For example, it can prevent us from accidentally entering an email address into a field for storing the current date.

3. Save the table by selecting *File* > *Save Table_1*:

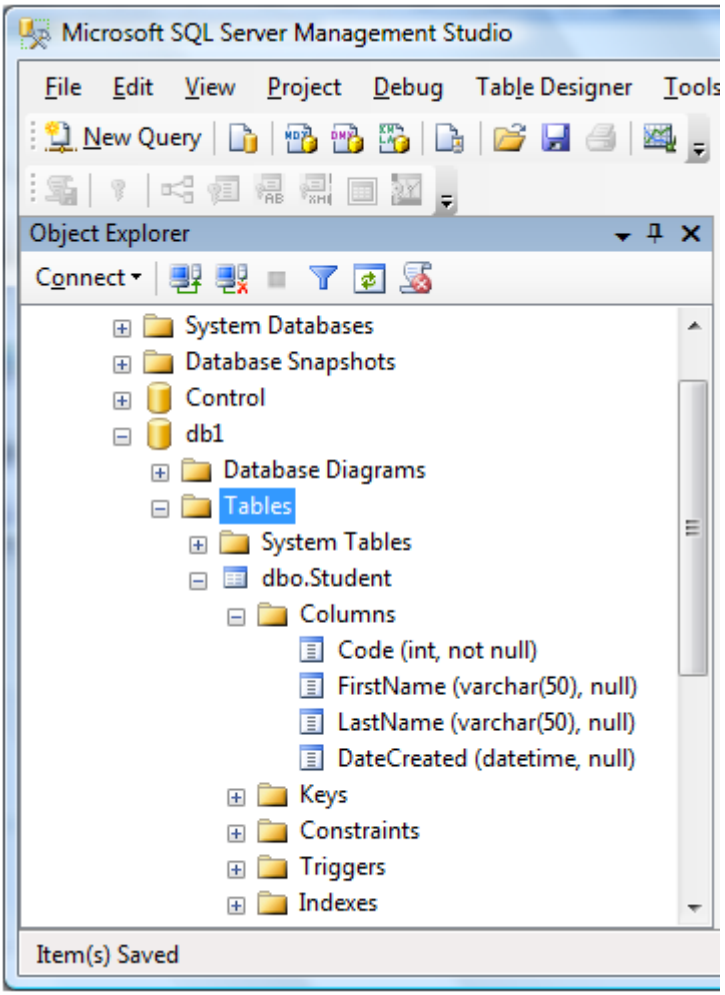


4. When prompted, name your table:



Your New Table

Now that you've created a new table, it will appear under your database in the "Tables" section.

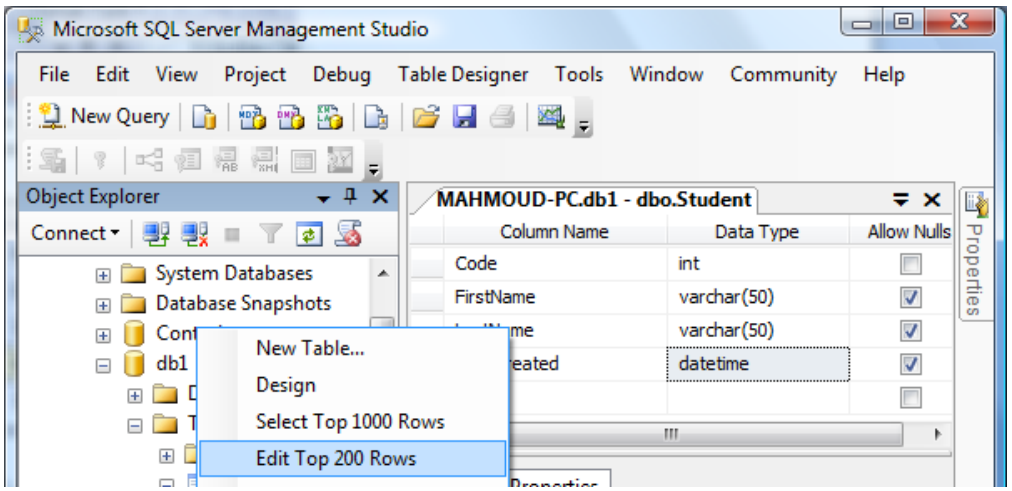


Editing Table Rows

We now have a database table, columns, and all, but with no data.

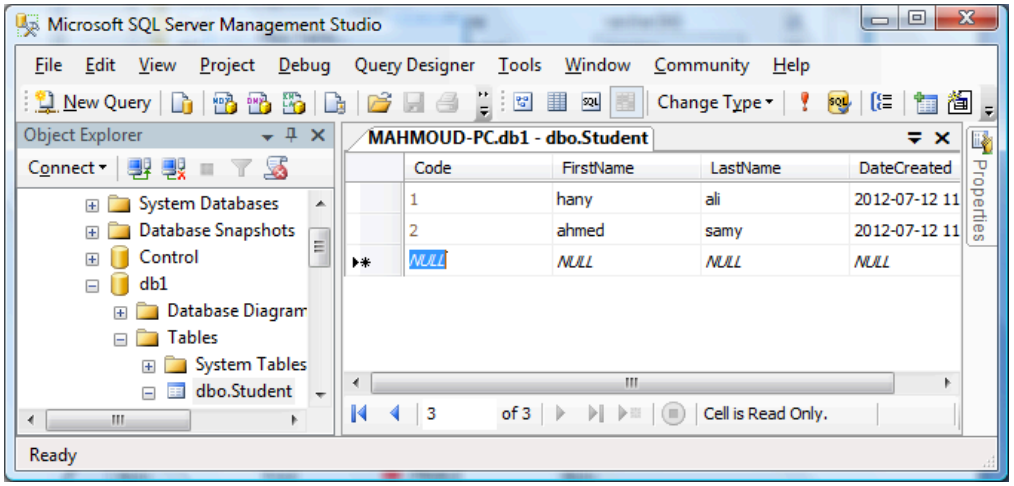
We can use the "Edit Top 200 Rows" option to add data to our table.

1. To use this option, right click on the table you wish to open, and select "Edit Top 200 Rows":



2. You can now start entering the data directly into your table.

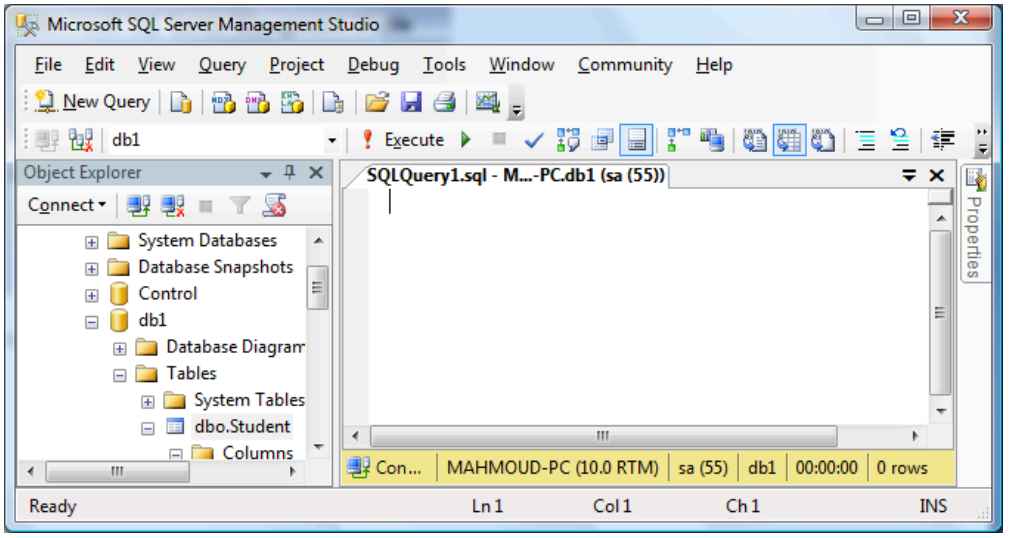
   Note that you don't need to enter data into the Code and DateCreated columns. This is because they will be populated automatically (remember, we set Code to "Is Identity" and DateCreated to "GetDate()"))



4 Create a New Query

We added data to our database table using the "Edit Top 200 Rows" option. In this section, we will look at how to write SQL scripts to update and run queries against our database.

Before we generate our SQL script, we need somewhere to enter it into. This part is easy. Just click the "New Query" button:



A blank, white sheet should now appear on the right pane.

Write/Run Your SQL Script

You are now ready to write SQL queries against your database. You can use this interface to create database objects (such as databases, tables, views etc), insert data into a database table, select data, update data, delete data.

To run an SQL query:

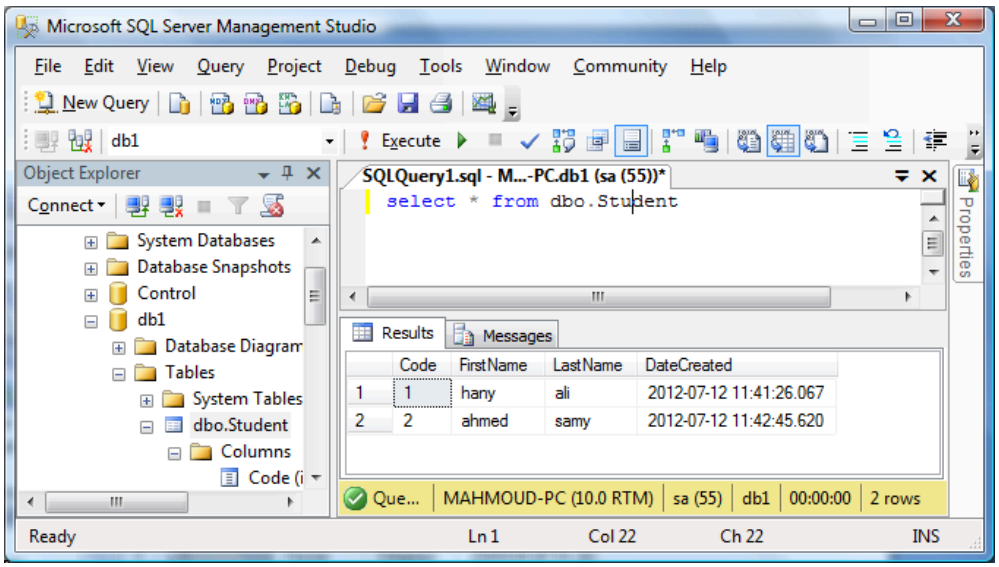
1. Type your query into the workspace on the right pane.
2. Click "Execute" (you can also press F5)

The following screenshot shows an example of using a SQL 'select' statement to select data from a database:

Select * from Student

As you can see, the results of the query are displayed in the bottom pane.

As a shortcut, you can click on a table in the left pane and drag it to the right pane when building your query. This can save you time - especially if you have many tables to add to your query.



The above 'select' statement is an example of a SQL query.

Database Administration Tasks

Most of the database administration tasks that can be performed in SSMS via the graphical user interface can be performed programmatically via SQL scripts.

In the previous section, we created a SQL script using SQL Server Management Studio (SSMS). In this section, we will look at how to write SQL scripts using the graphical query designer.

About The Query Designer

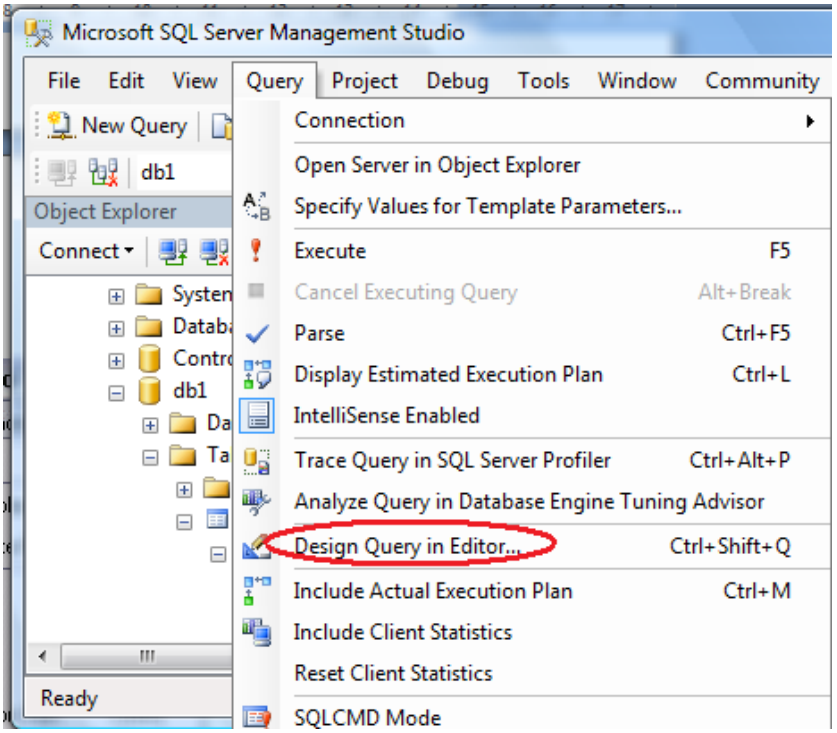
The graphical query designer is a graphical user interface that allows you to build queries to run against your SQL Server database. This can be particularly useful when building complex queries that involve many tables, views etc.

The query designer can also be beneficial for those who are learning how to write SQL. This is because you don't need to remember the SQL syntax to write queries against your database - the query designer generates the SQL for you.

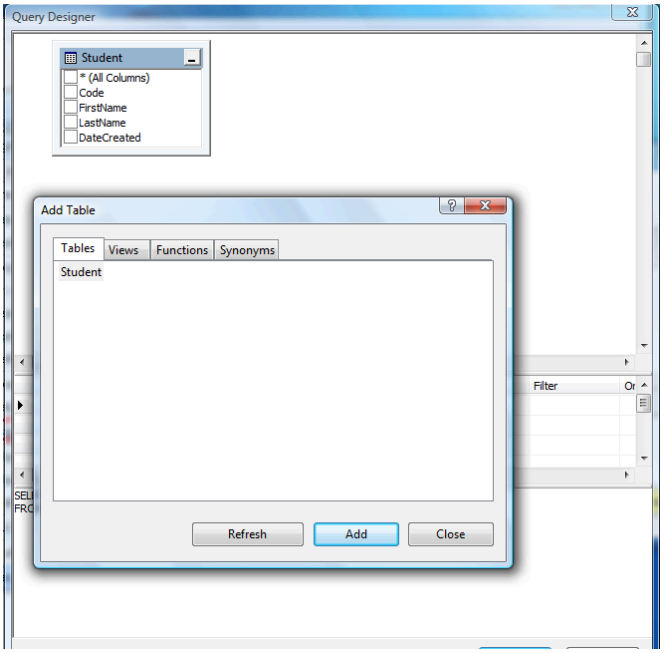
Building Your Queries

To build a query with the query designer:

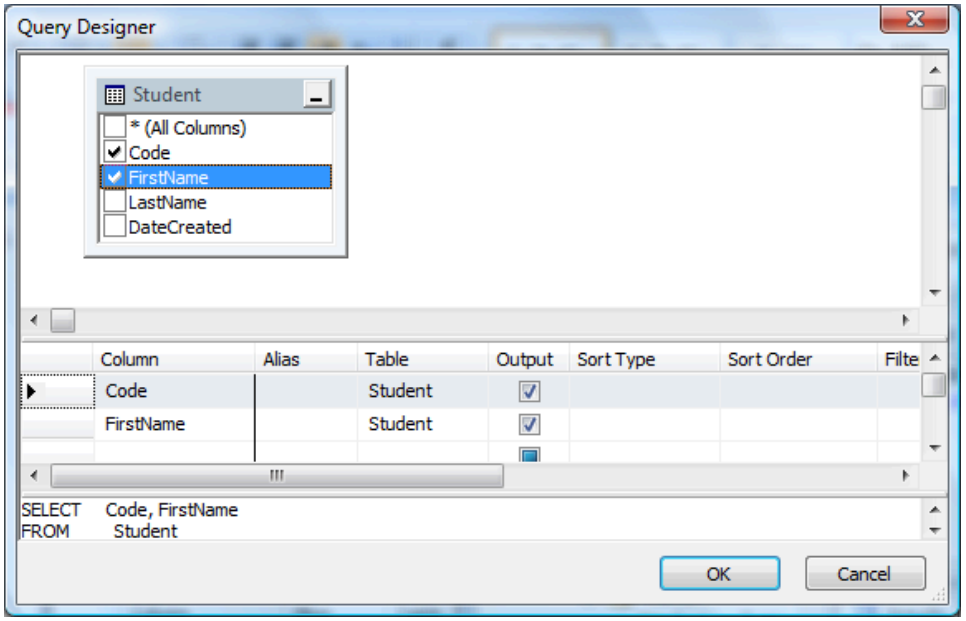
1. Select *Query > Design Query in Editor...*:



2. Add the tables you want to run the query against. In this case, we only have one table to choose from.



3. Select the column/s you want to display in your query:



4. Click "OK"

Once you've clicked OK, you will find the query has been added to your workspace. You can then run it as you would any other query.