



ACCESS TUTORIAL



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GCS TRAINING

What is a Database?

A database is a collection of data. Data can be held in one or more tables.

Tables are known as **Entities** - The name of the table/entity name often describes what it contains (STUDENT, TUTOR, COURSE, DOCTOR, PATIENT, CAR).

Tables have **fields** - you can think of this as the headers describing the content (NI Number, name, address, date of entry).

Tables contain **records** - these are the entries in the table.

Here we see the STUDENT table/entity, with 4 fields and 2 records.

StudentID	FirstName	Surname	TelephoneNumber
DAV325	Susan	Davies	01792 555899
KEL587	Martin	Kelly	01792 365478

You may also transpose the data.

StudentID	DAV325	KEL587
FirstName	Susan	Martin
Surname	Davies	Kelly
TelephoneNumber	01792 555899	01792 365478

Either way you prefer to think of tables, the table name is the entity, the headers are the fields, each entry is a record.

Naming Conventions

Note: As with Excel and the Define Names option, it is preferred to use CamelCase of underscores rather than spaces. Although Access will allow spaces.

Relationships

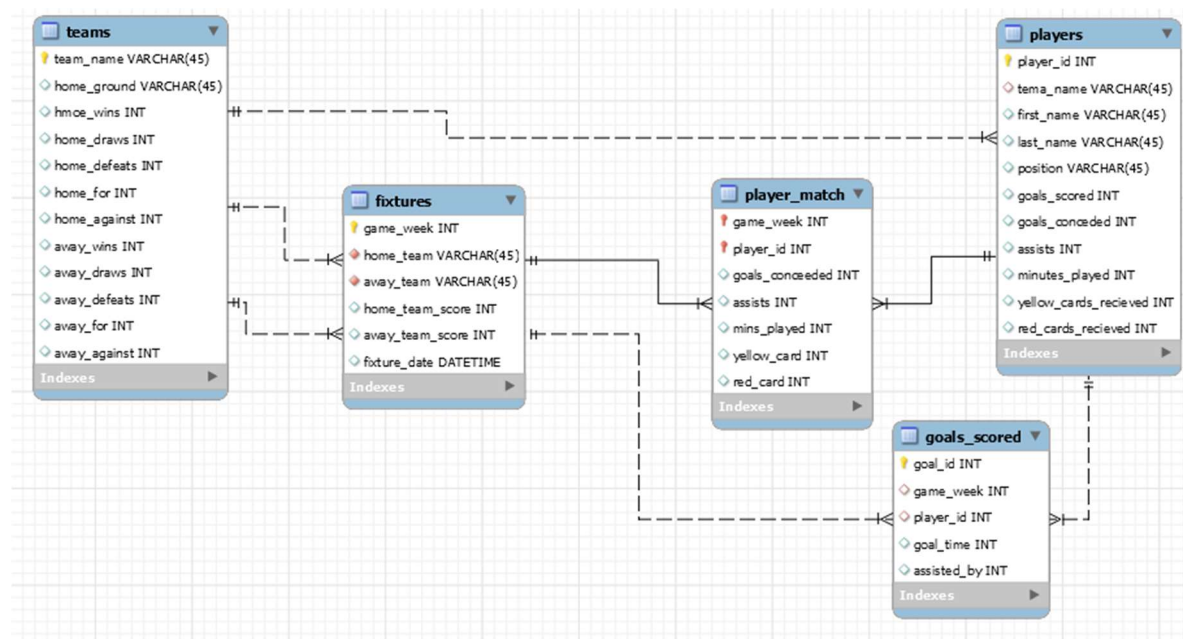
A flat file database consists of one or more unrelated tables. A relational database has links between the tables (items that appear in more than one table to link them). These are called relationships. Relationships can be:

1 - 1 Like a person and their national insurance number (each person has one number, and each number relates to only one person).

1 - Many Like a car make and model (each maker has many models, but models will only have one maker)

Many to many Like products and components (a product can have many components, likewise components can be used in many products).

This is an entity relationship diagram. It is a common way of showing how tables are related to one another.



Fields in a database can have different data types.

- AutoNumber
- Short Text (up to
- Long Text characters)
- Number
- Large number
- Date/Time
- Currency
- Yes/No
- Lookup Wizard
- Hyperlink
- More....

When you create your tables, you will need to set the data type for each field.

Opening Access and pin it to the taskbar so that you can follow along with the tutor. If your version requires you to create a new Database call it GreensGrocery Draft 0.

As you can see, many of the features in Access are similar to Excel, Word, and other Microsoft software. There is the Quick Access Toolbar - file name, save, undo, redo, dropdown for adding items.

Likewise, there are tabs, ribbons, and groups.

See if you can find the **Home**, **Create**, **External data**, and **Database** tabs. Remember object options will present as context tabs on RHS of tabs list. These tabs come and go depending on what you have selected.

In addition to the tabs, you will see a left pane - this is where you will see your tables, forms, queries, and reports as you create them.

*Click the **Create** tab, and choose the **table** button, a blank table will be created.*

You will need to click *design mode*, to set up your table. Get used to changing views in this area of the ribbon as you will spend a lot of time flipping between them in Access.

Create a new database called GreensGrocery Draft 0 (if you haven't already done so).

1.1) Create a new table called "Suppliers" with the following fields:

*SupplierID (auto-incrementing integer, primary key)
SupplierName (text, 50 characters)
ContactName (text, 50 characters)
Address (text, 100 characters)
City (text, 50 characters)
PostalCode (text, 20 characters)
Country (text, 50 characters)*

Save as GreensGrocery Draft 1.

***Note:** Access may try to suggest a name each time you save. Use the names given here, rather than the ones suggested.*

You will need to save and close your table before you can save the database. Clicking the cross on the RHS of the main area will save and close all open windows.

1.2 Create a new table called "Products" with the following fields:

*ProductID (auto-incrementing integer, primary key)
ProductName (text, 50 characters)
UnitPrice (currency)
UnitsInStock (integer)*

Notice how your tables are now listed in the left pane of the Access Window.

1.3) Modify the "Products" table by adding a new field called "SupplierID" that references the "Suppliers" table.

SupplierID (integer, foreign key referencing the "Suppliers" table)

Use lookup wizard to add link to supplierID in Suppliers table.

Save as GreensGrocery Draft 3.

Now that tables are set up and the relationship established, it is time to start adding records to the tables. This can be done manually or by creating a form. Forms will be explored later.

2.1) Add the following data to the "Suppliers" table:

SupplierName: ABC Supplies, ContactName: John Smith, Address: 123 Main St, City: Anytown, PostalCode: 12345, Country: USA

SupplierName: XYZ Co, ContactName: Jane Doe, Address: 456 Oak St, City: Othertown, PostalCode: 67890, Country: Canada

Save as GreensGrocery Draft 4.

2.2) Add the following data to the "Products" table:

ProductName: Milk, SupplierID: 1, UnitPrice: 2.50, UnitsInStock: 100

ProductName: Bread, SupplierID: 2, UnitPrice: 1.50, UnitsInStock: 50

Save as GreensGrocery Draft 5.

2.3) Edit the "UnitsInStock" field for the "Milk" product to 75.

Save as GreensGrocery Draft 6.

The power of databases is that you can extract the information you need quickly by running queries.

Queries and Reporting

Queries and Reports are made on the **Create** tab just as the tables were. It can be useful, when you start working with Access, to use the Wizards. However, you may quickly outgrow them and need to work out what to do on your own. Your tutor will show you both methods.

3.1) Write a query to display all products that are currently in stock. The output should include the product name, supplier name, unit price, and units in stock.

Save as GreensGrocery Draft 7.

3.2) Write a query to display all suppliers who are located in the USA. The output should include the supplier's name, contact name, and address.

Save as GreensGrocery Draft 8.

3.3) Use software tools to create a report that shows the total number of units in stock for each product. The report should include a chart that shows the data visually.

Add more entries to each table and click refresh all to see how the chart and report changes.

Save as GreensGrocery Draft 9.

Set up a query that shows the organisation with the City in capital letters using CityUpper: UCASE([city])

Save as GreensGrocery Draft 10.

Forms

Forms allow data entry to be carried out one record at a time, without access to the table. They can also be used to view the content of the database.

Forms will usually contain all of the fields in a table.

Use the Form wizard to create two forms - one for the products and another for suppliers. Save as GreensGrocery FINAL

Remember: Although this may seem a much shorter unit, with fewer skills to learn, you already knew a lot of the features of Access by default: saving, printing, formatting etc, are the same as in Excel and Word.

Notes