

what is an Access database?



So what is an Access database? An Access database is not just a place you store your data;

what is an Access database?

- customized application for interacting with your data

it's a tool for creating custom application that wraps the entire interaction.
Between you, potentially your team, and the data

what is an Access database?

- customized application for interacting with your data
- an Access database provides all of the tools for:

Access is a collection of tools that allow you to efficiently process data,

what is an Access database?

- customized application for interacting with your data
- an Access database provides all of the tools for:
 - efficiently moving data in or out
 - maintaining the validity and consistency of that data

Moving it in and out of the database, maintain the quality of the data, and ensure that it remains consistently entered and valid.

what is an Access database?

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- an Access database provides all of the tools for:
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 - maintaining the validity and consistency of that data
 - performing analysis

Gain insight into the trends, areas of opportunities and performance metrics.

what is an Access database?

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 - generating statistics

Through a series of analytical processes, construct

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 - generating statistics
 - creating organized reports

organized and detailed reports to help guide informed decisions,

what is an Access database?

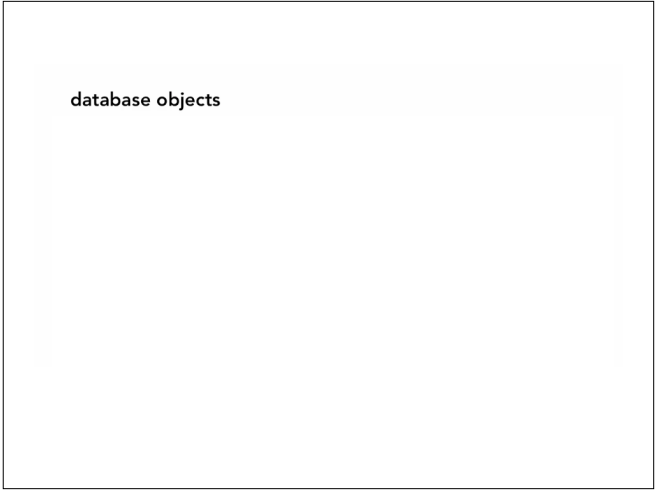
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and automate tasks to help prevent processing errors and speed up workflows.

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and automate tasks to help prevent processing errors and speed up workflows. A well-crafted Access database can give you way more than you put into.



database objects

To do all of that, an Access database uses five main components. These components are collectively called database objects, and each has a unique role to play in managing your data.

database objects



- tables – store data organized into records (rows) and fields (columns)

The first object is a table. Tables are where data lives. They provide a structured home organized into fields and records.

database objects



- tables – store data organized into records (rows) and fields (columns)



- queries – gather records for analysis or further processing

The next objects are queries. Queries are literally the questions you ask about the data. Queries scour through your data tables to find the answer to a question and then return an answer as filtered or calculate a list of records that look function just like a table.

database objects

-  • tables – store data organized into records (rows) and fields (columns)
-  • queries – gather records for analysis or further processing
-  • forms – interact with your database and enter data

Forms provide interactive framework for your database. They hold buttons for moving from task to task, text entry fields, to help you enter data into your tables and input areas to help you define the parameters for query or report.

database objects

-  • tables – store data organized into records (rows) and fields (columns)
-  • queries – gather records for analysis or further processing
-  • forms – interact with your database and enter data
-  • reports – prepare data for export or printing

Reports gather information from a table or query and then format them for a standardized page layout to ready to be printed exported, or emailed to colleagues.

database objects

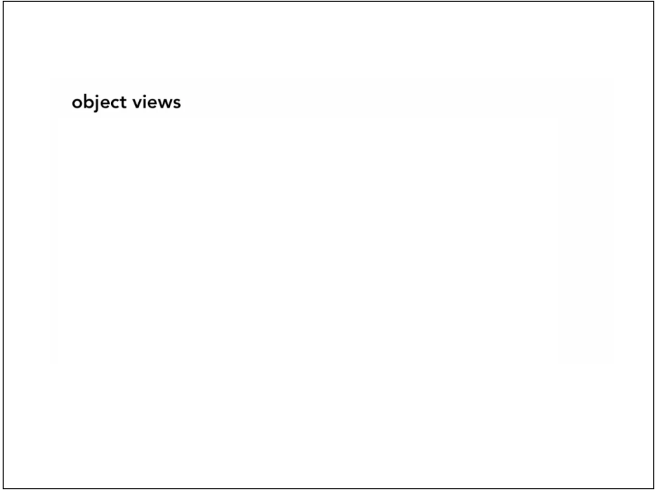
-  • tables – store data organized into records (rows) and fields (columns)
-  • queries – gather records for analysis or further processing
-  • forms – interact with your database and enter data
-  • reports – prepare data for export or printing
-  • macros – automate processes and control interactivity

Additionally there are macros objects which are a series of programmatic instructions that you can create to tell the database how to function when you click on a button or interact with a form or other object. They can automate some fairly complex tasks. Its the interaction of theses five components that make a high level functioning Access database.

database objects

-  • tables – store data organized into records (rows) and fields (columns)
-  • queries – gather records for analysis or further processing
-  • forms – interact with your database and enter data
-  • reports – prepare data for export or printing
-  • macros – automate processes and control interactivity

For example a form might help you enter data into a table, a query will then filter those records to a specific subset, and then report will format that subset of records for printing.



object views

To create objects in Access we will be using multiple working modes called Views. These can be grouped into two categories.

object views

- data-oriented views – for interacting with the data
 - Datasheet View
 - Form View
 - Report View
 - Print Preview

The standard view is the one you will use when you are working with your data. Depending on what part of a project you are working with you could use the; Datasheet, Form, Report or Print Preview Views.

object views

- data-oriented views – for interacting with the data
 - Datasheet View
 - Form View
 - Report View
 - Print Preview

These will display our objects when we are working with the information contained within the database.

object views

- data-oriented views – for interacting with the data
 - Datasheet View
 - Form View
 - Report View
 - Print Preview
- structure-oriented views – for creating the database functionality

The other views are used when creating or modifying the structure of the objects.

object views

- data-oriented views – for interacting with the data
 - Datasheet View
 - Form View
 - Report View
 - Print Preview
- structure-oriented views – for creating the database functionality

The Design, Layout, and SQL Views all allow you to define how the database functions

the data storage problem

FirstName	LastName	Type	Number
James	Abbott	Office	(510) 555-9821
James	Abbott	Cell	(650) 555-8103
James	Abbott	Home	(650) 555-9681
Robert	Acosta	Office	(510) 555-5827
Robert	Acosta	Emergency	(510) 555-3218
David	Adams	Cell	(415) 555-1496
David	Adams	Office	(510) 555-1031
Michael	Adkins	Office	(650) 555-5418

Finally, it's important to understand the relational structure of an Access database. Take a look at this problematic table of contact phone numbers. In this table, you will notice that the first and last names are repeated. Over-and-over again every time if there is an additional contact phone number.

the data storage problem

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We can structure this data differently but that introduces a new problem. Now we have lots of blank cells where individuals don't have a contact number of each types. Further this table won't grow very well.

What if we wanted to add a fax number for on individual or a second office number? We would have to alter the structure of the table to add an additional column to accommodate those types of changes. A relational databases solves both problems.

Access creates relational databases

EmployeeID	FirstName	LastName
1	James	Abbott
2	Robert	Acosta
3	David	Adams
4	Michael	Adkins

Unlike a flat file database such as an Excel spreadsheet, Access organizes data into multiple tables that connect to each other through common fields called keys. Using the exact same data, we can organize our phone numbers like this where we have one table that's just about people,

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and another table that's just about phone numbers. By linking the two tables together with a key, in this case an employee ID,

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We can accommodate growth and prevent inefficiencies in our storage.

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- removes redundant information
- prevents the need to restructure tables to accommodate growth

We can easily add new people or additional types of contact numbers without altering the structure of our tables. We will expand in all of these concepts through this course and we will be different types of objects and hooking them together to build a relational database that will efficiently store data, return answer to our questions, perform analysis, and generate reports.