What is data?

- Data is made up of text, numbers, images, and sounds that can be processed or stored by a computer
- Real time processing: Data is processed in 2ways:
 - Batch processing (later)
 - In several hourse, weeks then processed all at once Eg.bank credit card (balance will be monthly)
 - Online processing (now)
 - Eg.ATM card..balance automaticlly updated in real-time

What is a database?

 A collection of information that is related to a particular subject or purpose, stored on a computer.

• A structured collection of related data about one or more subjects.

Database Types





أنواع قواعد البيانات

- Relational Database
- personal computers الاكثر شهرة, وتعمل علي الحاسبات الشخصية •
- لاتطلب ذاكرة أو وسائط تخزين كبيرة
- سهلة التعلم والبرمجة
- Hierarchic Database
- Network Database
- Mainframes, Minicomputers يعمل كل منهم علي الحاسبات الكبيرة.
- تطلب ذاكرات و وسائط تخزين كبيرة
 أكثر كفاءة
- تتعامل مع كم كبير من البيانات •





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Tables



Design View

Datasheet View



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Data Type

Setting	Type of data	Size
Text	(Default) Text or combinations of text and numbers, as well as numbers that don't require calculations.	Up to 255 characters.
Memo	Lengthy text or combinations of text and numbers.	Up to 65,535 characters.
Number	Numeric data used in mathematical calculations.	1, 2, 4, or 8 bytes (16 bytes if the FieldSize property is set to Replication ID).
Date/Time	Date and time values	8 bytes.
Currency	Currency values and numeric data with one to four decimal places.	8 bytes.
AutoNumber	A unique sequential (incremented by 1) number or random number assigned by Microsoft Access whenever a new record is added to a table	4 bytes (16 bytes if the FieldSize property is set to Replication ID).
Yes/No	Yes and No values and fields that contain only one of two values (Yes/No, True/False, or On/Off).	1 bit.
OLE Object	An object (such as a Microsoft Excel spreadsheet, a Microsoft Word document, graphics, sounds, or other binary data)	Up to 1 gigabyte.
Hyperlink	A link "address" to a document or file on the World Wide Web, on an intranet, on a local area network (LAN), or on your local computer	Each part of the three parts of a Hyperlink data type can contain up to 2048 characters.
Lookup Wizard	Creates a field that allows you to choose a value from another table or from a list of values by using a list box or combo box.	4 bytes.

Field Properties

	• - تنسيق format يستخدم لتنسيق طريقة عرض التواريخ والأرقام . اختر التنسيق المناسب من القائمة المنسدلة.
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من الصحة Default Value Validation Rule	 - قاعدة التحقق من الصحة validation rule هو تعبير يستخدم للتحقق من صحة البيانات المدخلة. - نص التحقق من الصحة validation text هو النص الذي يتم عرضه عند حدوث تعارض مع قاعدة التحقق م - مطلوبrequired يجب فيه إدخال بيانات ولا يترك خاليا. - مطلوبrequired يحمد فيه إدخال بيانات ولا يترك ماليا.
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Indexes

 You should index a field that is frequently sorted.
 Indexing is specially useful when

working with large tables.

Create Table

Switch to Datasheet View

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Working with Tables





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End	تنتقل الي اخر حقل في السجل الحالي
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Add and Delete Records





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Add and Delete Fields

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Filter by Selection

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Queries





Working with Queries

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• Comparison Operators

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<	Less than	<1500
>=	Greater than or equal to	>=15
<=	Less than or equal to	<=#1/1/04#
<>	Not equal to	<>NY

Working with Queries

• Comparison Operators

Operator	Description	Example
BetweenAnd	Between two values	Between 100 And 500
In	Included in a set of values	In("Germany", "France")
Is Null	Field is empty	Is Null
Is Not Null	Field is not empty	Is Not Null
"	Field contains zero-length string	=~~~
Like	Matches pattern	Like "C*"

Working with Queries

• Logical Operators

Operator	Description	Example
And	Both conditions are True	>=10 And <=100
Or	Either condition is True	Books Or Videos
Not	Not True	Not Like "m"

Form



Create new Form

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	▶				
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		customer_name	khalid		
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to the Selec		city	Alex	ł	Fields
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Add, modify text into	
Form View Headers and Footers In a form	
Image: Image	P 23
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Fo Query City Alex	
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Reports



Create new Report

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			2						
				Lila	<u>Lila@yaho</u>	Cairo	0115487956		
			3						
				Fawzy	<u>Fawzy@ya</u>	Giza	0125488787		
			4						
				Walaa	<u>Walaa@ya</u>	Alex	0102544744		

Switch to Report View

Modify Reports



Table Relationships

- A relationship is a connection between a pair of tables
- A table relationship is established by using a Foreign Key.
- A Foreign key is simply another table's primary key inserted in a related table.
- There are three basic types of relationships: one-to-one, one-to-many, many-to-many
- In addition to using a Foreign Key, a many-to-many relationship also requires the creation of a linking table to establish and maintain the many-to-many relationship.

Types of Relations

- One to one : one row in one table goes to only one row in another table
- One to Many : one row in one table (parent) goes to multiple rows in another table (child)
 - Parent primary key is a foreign key in the child table
- Many to Many : not allowed in relational databases.
 - Solve by putting an intermediate table which has foreign keys from both the tables you are linking

Examples

One-to-One Relation



One-to-Many Relation



Working With Relations Edit or Delete Relation

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Referential Integrity

 If a record in a parent table has a related child record, referential integrity prevents you from deleting the parent record.

• A child record cannot be entered unless it has a parent in the database if referential integrity is used

