Microsoft Application Series



Access 2010 Intermediate

Best STL

- Courses never cancelled: Guaranteed
- Last minute rescheduling
- 24 months access to Microsoft trainers
- 12+ months schedule
- UK wide delivery

www.microsofttraining.net







Your Best STL Learning Tools

Welcome to your Best STL training course.

As part of your training, we provide you with the following tools and resources to support and enhance your learning experience.

Thank you for choosing Best STL.



E&OE

Best Training reserves the right to revise this publication and make changes from time to time in its content without notice.

Quick reference: Access shortcut keys

Command	Keystroke
Add new record	Ctrl +
Builder	Ctrl-F2
Check/uncheck box or option button	spacebar
Close	Ctrl-W
Сору	Ctrl-C
Cut	Ctrl-X
Cut current line and copy to Clipboard	Ctrl-Y
Cycle through sections	F6/Shift-F6
Cycle through tab of each object's type (toggle)	Ctrl-Tab/Shift-Ctrl-Tab
Database window	F11
Delete current record	Ctrl -
Edit/Navigation mode (toggle)	F2
Exit subform and move to next/previous field in next record	Ctrl-Tab/Shift-Tab
Extend selection to next/previous record	Shift-Dn/Up
File/Save As	F12
Find	Ctrl-F
Find Next	Shift-F4
Find Previous	Shift-F3
GoTo	Ctrl-G
Insert current date	Ctrl ;
Insert current time	Ctrl :
Insert default value	Ctrl-Alt-spacebar
Insert new line	Ctrl-Enter
Insert value from same field in previous record	Ctrl '
Menu bar	F10
Move to beginning/end of multiple-line field	Ctrl-Home/End
Move to current field in first/last record (Navigation mode)	Ctrl-Up/Dn
Move to first field in first record (Navigation mode)	Ctrl-Home
Move to first/last field in current record (Navigation mode)	Home/End
Move to last field in last record (Navigation mode)	Ctrl-End
Move to left edge of page	Home or Ctrl-Left
Move to page number/record number box	F5
Move to right edge of page	End or Ctrl-Right
Next window	Ctrl-F6
Open combo box	F4
Open in Design view	Ctrl-Enter

Quick reference: Access shortcut keys

Command	Keystroke
Paste	Ctrl-V
Print	Ctrl-P
Property sheet	Alt-Enter
Refresh combo box	F9
Replace	Ctrl-H
Requery underlying tables in subform	Shift-F9
Save current record	Shift-Enter
Screen left/right	Ctrl-PgUp/PgDn
Select/unselect column (Navigation mode)	Ctrl-spacebar
Switch to Form view	F5
Turn on Move mode	Ctrl-F8
Undo	Ctrl-Z
Undo previous extension	Shift-F8
Zoom box	Shift-F2

Course Objectives

- 1. Create relational databases
- 2. Work with related tables
- 3. Define data entry rules
- 4. Use advanced query features
- 5. Create advanced queries
- 6. Create advanced form design
- 7. Use advanced report features

Creating relational databases

Unit 1 objectives

- Normalize tables to reduce data redundancy
- · Set relationships between tables
- Implement referential integrity between related tables

Your notes: Unit 1



Your notes: Unit 1	
	_
	_
	-

Normalization

First normal form:

Break fields down into smallest parts.

	Sales projects details			Sales_projects_done		
	Employee code -	Name -	4	Employee_code 👻	First_name 🔹	Last_name
	Employee_code	Name •		E-01	Malcolm	Pingault
	E-01	Malcolm Pingault		E-01	Malcolm	Pingault
	E-02	Shannon Lee		E-01	Malcolm	Pingault
	E-03	Melinda McGregor		E-01	Malcolm	Pingault
_	E 04	Jamas Ovarmira		E-02	Shannon	Lee
	E-04	James Overmire		E-02	Shannon	Lee
				E-02	Shannon	Lee
				E-02	Shannon	Lee

Remove repeating Fields

Sales_projects_deta	ils					
Employee_code 👻	Name 🚽	Region 👻	Project_number_1 👻	Earnings_1 👻	Project_number_2 👻	Earnings_2 👻
E-01	Malcolm Pingault	East	SL-99-01-01	\$20,000	SL-99-02-02	\$18,000
E-02	Shannon Lee	South	SL-99-01-01	\$21,000	SL-99-02-02	\$20,000
E-03	Melinda McGregor	West	SL-99-01-03	\$25,000	SL-99-02-01	\$23,750
E-04	James Overmire	North	SL-99-01-03	\$32,960	SL-99-02-01	\$26,250

	Sales_projects_done					
4	Employee_code 👻	First_name 👻	Last_name 👻	Regio 🕶	Project_numbe -	Earning 👻
	E-01	Malcolm	Pingault	East	SL-99-01-01	\$20,000
	E-01	Malcolm	Pingault	East	SL-99-02-02	\$18,000
	E-01	Malcolm	Pingault	East	SL-99-03-01	\$19,000
	E-01	Malcolm	Pingault	East	SL-99-04-03	\$28,500
	E-02	Shannon	Lee	South	SL-99-01-01	\$21,000
	E-02	Shannon	Lee	South	SL-99-02-02	\$20,000
	E-02	Shannon	Lee	South	SL-99-03-03	\$20,500
	E-02	Shannon	Lee	South	SL-99-04-02	\$30,750

• Remove Calculated Fields

Second normal form:

Find all fields related to only part of composite primary key

	Sales_projects_done							
	Field Name	Data Type						
3	Employee_code	Text						
	First_name	Text						
	Last_name	Text						
	Region	Text						
B	Project_number	Text						
	Earnings	Number						

Group these fields into another table

Sales_projects_do	ne						
Employee_code 🚽	First_name 💄	Last_name	🚽 R	egion 💄	Project_number		Earnings 🖕
E-01	Malcolm	Pingault	Ea	st	SL-99-01-01		\$20,000
E-01	Malcolm	Pingault	Ea	st	SL-99-02-02		\$18,000
E-01	Malcolm	Pingault	Ea	st	SL-99-03-01		\$19,000
E-01	Malcolm	Pingault	Ea	st	SL-99-04-03		\$28,500
E-02	Shannon	Lee	Sc	outh	SL-99-01-01		\$21,000
E-02	Shannon	Lee	Sc	outh	SL-99-02-02		\$20,000
E-02	Shannon	Lee	Sc	outh	SL-99-03-03		\$20,500
E-02	Shannon	Lee	Sc	outh	SL-99-04-02		\$30,750
4	E-02 E-03 E-04	e_code +	First Malco Shani Melir Jame	_name olm non ida s	 Last_name Pingault Lee McGregor Overmire 		Region - East South West North
				Fin Las	ales_employees Field Name ployee_code st_name st_name gion	1	Data Type Text Text Text Text

All remaining fields should directly relate to both of the fields of the composite key and so forming a table which is in 2nd Normal Form.

Third normal form:

- Table is in the first normal form
- All fields relate to the primary key (Remove Transient Dependencies)

Office_data					
Employee_code 🚽	First_name 🖕	Last_name 💄	Region 🖕	Dept_name 🖕	Dept_code 🖕
E-01	Malcolm	Pingault	East	National sales	NSL
E-02	Shannon	Lee	South	National sales	NSL
E-03	Melinda	McGregor	West	National sales	NSL
E-04	James	Overmire	North	National sales	NSL
E-05	Roger	Williams	West	Human resources	HR
E-06	Annie	Philips	West	Human resources	HR

Salesjects_ea	rnings				
Employecode 🚽	Project_number	-	Earnings 🖕		
E-01	SL-99-01-01		\$20,000		
E-01	SL-99-02-02		\$18,000		
E-01	SL-99-03-01		\$19,000		
E-01	SL-99-04-03	G			
E-02	SL-99-01-01		Sales_proje	cts_earnings	-
E-02	SL-99-02-02		Field	Name	Data Type
E-02	SL-99-03-03	81	Employee	code	Text
E-02	SL-99-04-02	8	Project_nu	imber	Text
			Earnings		Number

						Depar	tments			
						Dept_	code 👻	Dep	t_name	Ŧ
						ACCTS		Accour	nting	
				-		CUST_	SUPP	Custon	ner supp	ort
=	Employees					HR		Humar	resource	es
	Employee_code 🚽	First_name 💄	Last_name 🖕			MKTG		Market	ting	
	E-01	Malcolm	Pingault	E		NSL		Nation	al sales	
	E-02	Shannon	Lee	So	out	h	NSL			
	E-03	Melinda	McGregor	W	es	t	NSL			
	E-04	James	Overmire	No	ort	h	NSL			
	E-05	Roger	Williams	W	es	t	HR			
	E-06	Annie	Philips	W	es	t	HR			

Relating Tables



By dragging similar fields from different tables over each other a relationship can be built.

Sales_payroll	Sales_employees			0 50
Figure Employee_code	Benployee_code	Edit Relationships		A X
Compensation	Last_name	Table/Query: Rela	ated Table/Query:	ОК
	Region	Departments	ployees 👻	
		Dept_code 💌 De	ept_code	Cancel
				Join Type
Departments	Employees	Enforce Referential Int		Create New
Pept_code	Benployee_code	Cascade Update Relate	ed Fields	
Dept_name	Last_name Region	Cascade Delete Relate	ed Records	
	Dept_code	Relationship Type: One	e-To-Many	

Unit 1 Practice Activity

- 1. Open Relational Databases.accdb.
- 2. Open the Relationships window.
- 3. Create a one-to-many relationship between the **Retailer** and **Transaction** tables. The relationship should include all of the records from **Retailer** and only those records from **Transaction** where the joined fields are equal.
- 4. Create a many-to-many relationship between the Retailer and Product tables by creating a one-to-many relationship between the Product and Transaction tables.
- 5. Save the relationships.
- 6. Enforce cascading deletes between the Retailer and Transaction tables.
- 7. Update the Relationships.
- 8. Test cascading deletes between the Retailer and Transaction tables.
- 9. Enforce Cascading updates between the Retailer and Transaction tables.
- 10. Update the relationship.
- 11. Test cascading updates between the Retailer and Transaction tables.
- 12. Close the database.



Online support forum and knowledge base <u>http://www.microsofttraining.net/forum</u> Visit our forum to have your questions answered by our Microsoft qualified trainers.

Working with related tables

Unit 2 objectives

- Use the Lookup Wizard to create a Lookup list field
- Use Design view to modify Lookup field properties
- · Use a subdatasheet to add data to related tables

Your notes: Unit 2

Your notes: Unit 2		

Using the Lookup Wizard

	Order_details		
	Field Name	Data Type	
P	Order_ID	AutoNumber	
	Customer_ID	Text	Same as Customer_ID in Customers table
	Product_ID	Lookup Wizard 🛛 💙	Same as Product_ID in Products table
	Quantity	Text	
	Discount	Memo	
		Number	
		Date/Time	
		Currency	
		AutoNumber	
		Yes/No	
		OLE Object	
		Hyperlink	
		Attachment	
		Lookup Wizard	

Modifying Lookup Fields

0.))	🖬 🧐 🔹 (🍽 👻 🖛 Related	d Tabl	es : Database (A	сс Та	able Tools		×	
6	9	Home Create Extern	nal Dat	a Database To	ols	Design		0	
Vie	View View			Insert Rows Delete Rows Lookup Column	Property	Indexes			
Vie	WS	Tools			Shov	v/Hide			
	F	Order details						×	
		Field Name		Data Tura	0		Description		
	0	Order ID		AutoNumber	e		Description		
	U	Order_ID		Autonumber		-			
		Customer_ID	8	lext		Same a	s Customer_ID in Customers table	-	
		Product_ID		Number	*	Same a	Product_ID in Products table		
		Quantity		Number					
		Discount		Number					
								-	
				Fi	eld Prope	rties			
ane	6	Ceneral Lookup							
a c		Display Control	Combo	Box					
<u>.</u>		Row Source Type	Table/	Duerv					
gat		Row Source	SELECT	Products.Product	ID Produ	cts.Proc			
- Š		Bound Column	1						
ž		Column Count	2						
		Column Heads	No				The data type determines the kind of values		
		Column Widths	0 cm:2.	542cm			that users can store in the field. Press F1 for		
		List Rows	8				help on data types.		
		List Width	2.541 c	m					
		Limit To List	Yes						
		Allow Multiple Values	No						
		Allow Value List Edits	No						
		List Items Edit Form							
		Show Only Row Source Values	No			~			
Desi	gn۱	view. F6 = Switch panes. F1 =	Help.				III 曲 也 +	6 .::	

Adding Data to Related Tables

Using a subdatasheet.

			Home						
		Refre	Save	ΓΣ 5 💝 e - 🧱 N	otals pelling Nore v				
			Reco	rds 😰	Add From	<u>O</u> utlook			
					<u>S</u> ave ∧s O	utlook Contact			
				‡⊡	Row <u>H</u> eig	ht			
					Subdatas	nee <u>t</u>)	Sub	datasheet	
0	Customers				Hide <u>C</u> olu	ทหาร	Inser	t Subdatasheef	1
	Customer	Customer_nar +	Ad	dr	<u>U</u> nhide Co	olumns	• Exp	and All	<u> </u>
曱	C001	Jim Collins	4691 Se /	Am 🏢	<u>F</u> reeze		== <u>C</u> oll	apse All	
Ч	Order ID	 Product 	ID 👻	α.	Unfree <u>z</u> e		Add Ne	w Field	
	_	5 Galangal		Ë	Column <u>W</u>	/idth	1		
	* (Ne	w)							
÷	C002	Jim Fins	1074 4th	St		Astoria	Oregon	97103	
+	C003	Richard Lawson	2265 Exc	hange	St	Astoria	Oregon	97103	
+	C004	Joan Rogers	7791 Alb	us Rd S	Se	Aumsville	Oregon	97325	
+	C005	James Wilson	915 Ne S	chuyle	er St	Portland	Oregon	97212	
+	C006	Henry Drucker	8225 Se	Clatso	o St	Portland	Oregon	97266	

Unit 2 Practice Activity

- 1. Open Working_with_related_tables.accdb.
- 2. In the Transaction table, create a Lookup list for Retailer_code by using the Retailer_code field from the Retailer table.
- 3. In the Transaction table, create a Lookup list for Product_ID to display product names from the Product table.
- 4. Update the table.
- 5. Add a record to the Transaction table by using the Lookup lists as shown below:

Transaction_ID: T011

Product_name: Cinnamon Ground

Retailer_code: R005

Qty_sold: 350

- 6. Update the table.
- 7. Change the caption of the Product_ID column in the Transaction table to Product.
- 8. Update the table.
- 9. View the contents of the Transaction table.
- 10. Compare the table with the example shown below.

Transaction			
Transaction_ID 🔻	Product_ID 🚽	Retailer_code 👻	Qty_sold 👻
T001	Annatto Seed	R001	150
T002	Cloves	R002	400
T003	Asafoetida Powder	R002	110
T004	Basil Leaf	R003	140
T005	Anise Seeds	R004	120
T006	Cinnamon Ground	R005	100
T007	Lemon Grass	R006	100
T008	Italian Parsley	R007	321
T009	Anise Seeds	R008	200
T010	Basil Leaf	R004	250
\$ T011	Cinnamon Ground	R005	350

Practice activity continues on the following page

Unit 2 Practice Activity continued

- 11. Close the table.
- 12. Insert the Transaction table as a subdatasheet in the Product table.
- 13. Add a record in the Transaction table for the Product_ID P005 in the product table as shown below:

Transaction_ID: T012

Retailer_code: R007

Qty_sold: 400

- 14. Update and close the table.
- 15. View the record in the Transaction table that you entered in Step 13.
- 16. Close the table.
- 17. Close the database.

Product									
	Product_ID - Prod			uct_name 🕞	Uni	t_price 👻	Qt	ty_available 👻	
+	PO	04	Asafoe	etida Powder \$1.49		\$1.49	700		
曱	PO	05	Anise	Seeds		\$1.49		900	
Transaction_ID 👻		Retailer_code	e 🔻	Qty_sold	•	Add New Field			
		T005		R004		1	.20		
		T009		R008		200			
		T012		R007		4	00		
*									
🗄 P006 🛛 🛛 Basil L		eaf		\$1.89		1500			
+	PO	07	Carob	Pods		\$2.49		800	



Online support forum and knowledge base

http://www.microsofttraining.net/forum

Visit our forum to have your questions answered by our Microsoft qualified trainers.

Defining data entry rules

Unit 3 objectives

- Use the Input Mask Wizard to create input masks for fields
- Use Design view to set properties for a field
- · Use Design view to set validation rules for entering data in a field

Your notes: Unit 3

© Best STL 2013

Your notes: Un	nit 3		

Working with Input Masks

	Customers			
	Field Nan	Data Typ)e	
₽₽	Customer_ID		Text	
	Customer_name	Text		
	Address		Memo	
	City		Text	
	State		Text	
	Zip		Text	
	Phone		Text	
	Fax		Text	
			Field Pro	perties
6	eneral Lookup			
F	ield Size	50		~
F	ormat			
Q	nput Mask	L000;0;#		-
	aption			
	Default Value			
	/alidation Rule			
	/alidation Text			
F	Required	Yes		
1	Allow Zero Length	No		
I	ndexed	Yes (No Dup	licates)	
ll	Unicode Compression	Yes		
I	ME Mode	No Control		
I	ME Sentence Mode	None		
5	imart Tags			×

Setting Properties

- Required
- AllowZeroLength
- Field Size

	Customers					
	Field Nam	ie	Data Type			
P	Customer_ID		Text			
	Customer_name		Text			
	Address		Memo			
	City		Text			
	State		Text			
	Zip		Text			
	Phone		Text			
	Fax		Text			
			Field Properties			
	General Lookun					
	Field Size	10	~			
	Format					
	Input Mask					
	Caption					
	Validation Rule					
	Validation Text					
	Required	Yes				
V	Allow Zero Length	Yes				
	Indexed	No				
	Unicode Compression	Yes				
	IME Mode	No Control				
	IME Sentence Mode	None				
	Smart Tags					

Unit 3 Practice Activity

- 1. Open Defining_data_entry_rules.accdb.
- 2. Create an input mask for the Phone field in the Retailer table. The input mask should ensure that only 10 numbers are entered in the field and should resemble the input mask shown in the example below. Ensure that although the input mask will display numbers in a specific format in the table, only the numbers (not the literal characters) are stored in the table. Use an asterisk (*) as a placeholder.

I	Retailer						x
1	Field Nan	ne	Da	ta Ty	pe	Description	-
8	Retailer code	Text					
	Retailer name		Text				
	Contact first name	۵	Text				
	Contact last name	- -	Toxt				
		=	Text				
	Phone		Text				
							-
			Field	Prop	erties		
[General Lookup						ן ן
	Field Size	15		^			
	Format						
	Input Mask	(000)-000-0	000;1;*				
	Caption						
	Default Value						
	Validation Rule						
	Validation Text				A patter	n for all data to be entered in this field	
	Required	No					
	Allow Zero Length	No					
	Indexed	No					
	Unicode Compression	No					
	IME Mode	No Control					
	IME Sentence Mode	None					
	Smart Tags			~			

- 3. Update the table.
- 4. Add a new record in the Retailer table with the following details:

Retailer_code: R013

Retailer_name: Spice Life

Contact_first_name: Greg

Contact_last_Name: Jefferson

Phone: 4156489301

- 5. Update and close the table.
- 6. Set the Required property for the Product_name field so the Product table to Yes.

Practice activity continues on the following page

Unit 3 Practice Activity continued

- 7. Set the Default Value property for the Min_order field of the Product table to 50.
- 8. Create an input mask for the Product_ID field of the Product table to ensure that the data in the field always starts with a letter followed by three digits. Use a placeholder of your choice.
- 9. Create a validation rule and the appropriate validation text in the Product table to ensure that the Product_ID field contains only four characters with 'P' as the first character.
- 10. Update the table.
- 11. Test the properties and validation rule by entering sample data.
- 12. Update and close the table.
- 13. Close the database.



Online support forum and knowledge base

<u>http://www.microsofttraining.net/forum</u> Visit our forum to have your questions answered by our Microsoft qualified trainers.

Using advanced query features

Unit 4 objectives

- Use Design view to create join queries
- Create queries to add, delete, and modify data in tables and to create new tables

Your notes: Unit 4

Your notes: Unit 4	

Joining Tables in Queries

Simple Query Wizard





Creating a join in design view



Outer Joins

🛃 Query1						×	
Pro	Product_ID Product_ID Product_name Unit_price Supplier_ID	<u> </u>	Order_de * Produ Unit_ Quar Disco	r_ID uct_ID price ntity punt		▲ IIII ►	
◀						•	
Field: Product_ID Table: Products		Prod Prod	uct_name ucts	Order Order	_ID _details		
Show: Criteria:		Join Prop	perties				? 🗙
or	•	Left Table Products	Name	•	<u>Right Table </u> Order_deta	Name iils	•
		Left <u>C</u> olum Product_II	n Name	•	Right Columi Product_ID	n Name	•
		C <u>1</u> : Onl © <u>2</u> : Inc 'Ori C <u>3</u> : Inc 'Pro	ly include rows when lude ALL records fro der_details' where t lude ALL records fro oducts' where the jo OK	re the jo om 'Produ he joine om 'Orde ined fiel Car	ined fields fro ucts' and only d fields are e rr_details' and ds are equal. ncel	om both table y those record qual. d only those re <u>N</u> ew	s are equal. ds from ecords from

Inner Joins

Create an Inner Join by using an intermediate table/s. The results of the matching records will be obtained first for this inner join and the results of the outer joins will be calculated thereafter.

							Inner J	oin		
Query1										×
Customer * Custo Custo Addre City State Zip Phone Fax	s mer_ID mer_name ss	8	Prder_shipping_date * Corder_ID Customer_ID Order_date Required_date Shipped_date		Order_ * Pro Un Qu Dis	details der_ID oduct_ID it_price iantity scount	84	1 Products * Produ Produ Unit_ Supp	uct_ID uct_name price lier_ID	
↓										*
Field: Table: Sort: Show:	Customer_nan Customers	ne 💌								
Criteria: or:	4	Join	Properties					? 🛛]	•
		Left Or Or O 1: O 2: O 3:	: Table Name der_details : <u>Column Name</u> der_ID Only include row: Include ALL recon 'Order_shipping_ Include ALL recon from 'Order_deta OK	s where the rds from 'Or dates' wher rds from 'Or ails' where th	Rig Rig ▼ Or i joined I der_det re the joine der_ship he joine	ht Table Na der_shippin ht Column N der_ID iields from b ails' and onl ined fields a oping_dates d fields are	me g_dates Name Noth tables y those rec are equal. dat only t equal. <u>N</u> ew	are equal. cords from		

Self-join queries

You can create a self join by using two copies of the same table. A self-join is a query that displays matching records from the same table when there are matching values in two fields.

Employee Details ×						
En	* * * * Employee_ID Last_name Last_name First_name First_name First_name Title Birth_date Address City State Zip Home_phone Supervisor					
•					•	
Field: Table: Sort: Show:	First_name Employees	Last_name Employees		Last_name Employees_1	 Image: A marked black Ima	
criteria: or:	 Image: A market of the second s				+	

Creating	calculate	Query Tools		
Query1	<u></u>			Design
Ord 9	ler_details * Order_ID Product_ID Unit_price Quantity Discount		oducts * Product_ID Product_name Unit_price Supplier_ID	Show Table Query Setup
Field: (Table: (Sort: / Show: Criteria: or: ,	Order_ID Order_details Ascending	Product_ID Order_details	Amount: [Order_details]![Quanti	ty]*[Products]![Unit_price]

Amount: [Order_details]![Quantity]*[Products]![Unit_price]

Modifying Formats

In query design view, right-click on the field that you want to format and choose properties.

OI	rder_details * Order_ID Product_ID Unit_price Quantity Discount	mont in the second sec	ucts Product_ID Product_name Jnit_price Supplier_ID					
eld: ble: ort: ow: eria: or:	Order_ID Order_details Ascending	Product_ID Order_details	Amount: [Ord	er_details]![Quantit	Σ μ μ μ μ μ μ μ μ μ μ μ μ μ	Totals Table <u>N</u> ames Cut Copy <u>Paste</u> <u>B</u> uild Zoom <u>Properties</u>		
				Property She Selection type General Look	et : Fi :up	eld Properti	es	3
	Order ID +	Product pame	Amount	Description				
	order_iD •	Galangal	ćsoo	Format			Currency	
	1	Lomon grass	\$000	Decimal Places 0		0		
	2 Lemon grass		\$600	\$600 Caption				
	4 Italian Parsley		\$250 Smart Tags					
	5 Italian Parsley		\$150	Smartrags	-		1	
	6 Basil Leaves		\$150					
	7 Italian Parsley \$10		\$100					
	8	Cloves	\$150					
	9	Lemon grass	\$219					
	10	Star Anise	\$125					

(New)

*

11 Star Anise 12 Cloves

\$188

\$400

The Expression Builder

Calculated fields can be built in the expression builder.

Expression Builder			×			
Enter an Expression to define the ca (Examples of expressions include [fie	Enter an Expression to define the <u>calculated query field</u> : (Examples of expressions include [field1] + [field2] and [field1] < 5)					
			OK Cancel <u>H</u> elp << <u>L</u> ess			
Expression Elements	Expression <u>C</u> ategories	Expression <u>V</u> alue	s			
Functions Functions Northwind.mdb Constants Operators Common Expressions	ProductID ProductName SupplierID CategoryID QuantityPerUnit UnitPrice UnitsInStock UnitsOnOrder ReorderLevel	E				
	Disconunued					

Using action queries

Action queries are queries that perform certain actions in tables. There are four types:

Append query	This type of query is used to append data from one table to another.
Delete query	This type of query is used to delete records from tables based on specified criterion.
Update query	This type of query is used to update data in different tables at the same time.
Make-table query	This type of query is used to create a table from the result of a query.



Unit 4 Practice Activity

- 1. Open Advanced_query_features.accdb.
- 2. Using the Product and Transaction tables, create an outer join where all records from the Product table and the Transaction_ID appear in the query results.
- 3. Create a query that displays the Product_name and the difference between Qty_available and Min_stock for each product from the Product table.
- 4. Create a query to append all data from the New_products table to the Product table.
- 5. Use an update query to increase the discount percent of all transactions in the Transactions table that have Qty_sold greater than 250 by 5%.
- 6. Create a new table by using a make-table query to include the Transaction_ID from the Transaction Table, Product_name from the Product table, and the value of each transaction. Be sure all of the records form the Transaction table and only the matching records from the Product table appear in the new table.
- 7. Close the database.



Online support forum and knowledge base <u>http://www.microsofttraining.net/forum</u> Visit our forum to have your questions answered by our Microsoft qualified trainers.

Creating advanced queries

Unit 5 objectives

- Use queries to join fields, and find unmatched records different tables
- Use parameter queries to view results based on criteria entered while running the query
- Create single and multiple-field indexes to quickly sort and filter data in a table ٠

Your notes: Unit 5



Your notes: Unit 5	

Summarising and grouping values

Summary functions

A summary function is used to calculate the aggregate value (e.g. sum, average) of data which has been grouped, e.g. the total sales of a particular product.

Produ	ct_nam	e 🔻	Total Di	scount	*
Galang	al	*		£618.7	75
Lemon	grass			£525.0	00
Turme	ric			£570.0	00
Italian	Parsley			£225.0	00
Italian	Parsley			£150.0	00
Basil Le	aves			£127.5	50
Italian		Order_	details		
Cloves		∛ Or	der_ID		
	Product_ID Unit_price Quantity Discount				
4					
	Field: Product_ID Table: Order_details Total: Group By		luct_ID er_details up By	Total Discou	unt: [unit_price]*[quantity]*(1-[discount])
	Sort: Show: 🔽 Criteria:			✓	

Concatenation

You can combine values from different fields into one field.

	Employee_ID 👻	Title 👻	Name 👻
	E001	Customer Service Representative	Kim Leong
	E002	Market Analyst	Solena Hernanadez
	E003	IT Consultant	Thomas Boorman
	E004	Senior Buyer	Ron Timmons
	E005	Project Management Consultant	Kathy Sinclair
	E006	VP Financial Services	Ann Salinski
	E007	VP Sales	Jack Thomas
	E008	Manager, IT	Elise Sethan
	E009	Business Consulatnt (External)	Susan Gianni
*			



Name: [First_name] + " " + [Last_name]

Find unmatched queries

You can use *find unmatched query*, to view records that don't have a matching record in another table. For example which customers from the customers table haven't placed any orders in the orders table.



Creating cross-tab queries

You can display a summary of values based on two different types of information by creating a cross-tab query.

New Query		? 🛛		
This wizard creates a crosstab query that displays data in a compact, spreadsheet-like format.	nple Query Wizard osstab Query Wizard nd Duplicates Query Wizar nd Unmatched Query Wiza OK Cancel	d rd		
Crosstab Query Wizard				
Which table or query contains th fields you want for the crosstab results?	e Query: query Query: Query: Query:	Customers With Customers_and Cutomers_Disco Sales_by_custo	out Matching Or _Products unts mers	der_shipping
To include fields from more than table, create a query containing fields you need and then use this	one all the s			
query to make the crosstab quer	v. View	les 💿 Qu	ieries 🔿 B	<u>o</u> th
Sample:		Header1	Header2	Header3
		TOTAL	Incouciz	Incoders
		_		
		-		
	Cancel	< <u>B</u> ack	<u>N</u> ext >	Einish

Crosstab Query Wizard	
Which fields' values do you want as row beadings?	Available Fields: Selected Fields:
low readings.	Order_ID Product_Name Customer_name
You can select up to three fields.	Amount > Total Discount
Select fields in the order you want information sorted. For example, yo	
could sort and group values by Country and then Region.	
Camala	
Sample:	Product Nan Customer na Customer na Customer na
	Product_Name1Avg(Order_ID)
	Product_Name2
	Product_Name3
	Product_Name4
	Cancel < Back Next > Einish

Crosstab Query Wizard	
Which field's values do you want as column headings?	Order_ID Customer_name Amount Total Discount
For example, you would select Employee Name to see each employee's name as a column heading.	
Sample:	oduct_Nan Customer_na Customer_na
Pro Pro Pro Pro	oduct_Name1 Avg(Order_ID) oduct_Name2 oduct_Name3 oduct_Name4
	Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish

Crosstab Query Wizard						
What number do you want calculated each column and row intersection? For example, you could calculate the of the field Order Amount for each employee (column) by country and r (row). Do you want to summarize each row <u>Y</u> es, include row sums.	d for : sum :egion ?	Fields: Order Amour Total [ID It Discount			Functions: Avg Count First Last Max Min StDev Sum Var
Sample:	Product_ Product_ Product_ Product_ Product_	t_Nam Name1 Name2 Name3 Name4	Customer Avg(Order_	<u>, na</u> ID)	Customer <u>.</u>	_nɛ Customer_nɛ
	Cano	cel	< <u>B</u> ack	:	<u>N</u> ext >	Einish



	Product_name	Total Of Discou	Greg Huns	Harry Wilkins	Henry Drucker
►	Basil Leaves	22.500000894			22.500000894
	Cloves	28.750000149		20.000000298	
	Galangal	68.750001024	68.750001024		
	Italian Parsley	15.000000224			
	Lemon grass	0			
	Star Anise	20.312500652		12.500000186	
	Turmeric	30.000000447			
Re	cord:	▶ ▶ ▶ * of 7		•	

Using parameter queries

A parameter query displays results based on criteria specified when you run the query.

Single-criterion parameter queries

i.	Query1						×	۲.			
	Pro	oducts * Product_ID Product_name Unit_price Supplier_ID					[•			
• 6	m										
	Field: Table:	Product_name Products	Unit_price Products		Suppl Produ	ier_ID icts					
	Sort: Show:										
	Criteria:		>[Price is greater	than]			Ξ.				
	01.	•				Enter	Parar	neter V	alue		×
-											
						Price is	greate	er than			
						Price is	greate	er than			
						Price is	greate	er than DK		ancel	-
	Query	1				Price is	greate	er than DK		ancel	
	Query:	1 uct_name →	Unit_price	- Su	pplie	Price is 1.5	greate	er than DK		ancel	
	Query: Produ	uct_name -	Unit_price \$3.00	 ✓ Su S00 	pplie)1	Price is	greate	or than		ancel	
	Query: Produ Oregar Galang	1 uct_name + no ral	Unit_price \$3.00 \$2.75	- Su 5 SO	pplie)1)4	Price is 1.5 er_ID	greate	er than	C	ancel	
	Query: Produ Oregar Galang Lemon	uct_name → no ral grass	Unit_price \$3.00 \$2.73 \$1.75	 Su S00 S00 S00 S00 	pplie D1 D4 D2	Price is	greate	or than	C	ancel	
	Query Produ Oregar Galang Lemon Turme	uct_name v no gal grass ric	Unit_price \$3.00 \$2.73 \$1.73 \$4.00	 Su S00 S00 S00 S00 S00 S00 	pplie 01 04 02 03	Price is	greate	or than		ancel	
	Query Produ Oregar Galang Lemon Turme Italian	uct_name no al grass ric Parsley	Unit_price \$3.00 \$2.73 \$1.73 \$4.00 \$2.00	 Su SO(SO(SO(SO(SO(SO(pplie 01 04 02 03 01	Price is	r greate	oK	0	ancel	
	Query: Produ Oregar Galang Lemon Turme Italian Cardan	uct_name no ;al grass ric Parsley nom Powder	Unit_price \$3.00 \$2.73 \$1.73 \$4.00 \$2.00 \$3.50 \$3.50	 Su S00 	pplie 01 04 02 03 01 05	Price is	greate	oK		ancel	
	Query: Produ Oregar Galang Lemon Turme Italian Cardan Cloves	uct_name no al grass ric Parsley nom Powder	Unit_price \$3.00 \$2.75 \$1.75 \$4.00 \$2.00 \$3.50 \$3.50 \$2.00	 Su SO(SO(SO(SO(SO(SO(SO(pplie 01 04 02 03 01 05 03	Price is	greate	or than		ancel	

Multiple criteria parameter queries

Using "Between" and "And".

Between [Lower Value] And [Higher Value] (eg Between 21/10/2006 And 31/10/2006)

Wildcards in parameter queries

Like [First letter of name]+"*" (eg Like "S*")

Using indexes

Employees					×
Field Nar	ne	Dat	а Туре	Description	-
Employee_ID		Text			
Last_name		Text			
First name		Text			
Title		Text		Employee's title	
Birth date		Date/Tim	e		-
		Field Pr	operties	1	
General Lookup					٦
Field Size	50	~			
Format	100				
Input Mask					
Caption	Last_name				
Default Value			An index sp	peeds up searches and sorting on	
Validation Rule			the field, I	but may slow updates. Selecting	
Validation Text			"Yes - No	Duplicates" prohibits duplicate	
Required	Yes		values in	the field. Press F1 for help on	
Allow Zero Length	No			indexed fields.	
Indexed	No	*			
Unicode Compression	No				
IME Mode	Yes (Duplica	ites OK)			
IME Sentence Mode	Yes (No Dup	olicates)			
Smart Tags		~			

Unit 5 Practice Activity

- 1. Open Advanced_queries.accdb.
- 2. Create a query that displays the Retailer_code and the Total Sales_value for each Retailer from the **Transaction** and the **Product** tables.
- 3. Create a sum of the Sale_values and group the query based on the Retailer_codes.
- 4. Compare the result of the query that you created in Step 2, with the following.

	Retailer_code	Total_sales
۲	R001	£187.50
	R002	£965.00
	R003	£280.00
	R004	£985.00
	R005	£250.00
	R006	£200.00
	R007	£481.50
	R008	£300.00

- 5. Create a query called Retailer_details that displays the Retailer_code and both Retailer_name columns. The Contact_name column should contain the values from the Contact_first_name and Contact_last_name fields of the retailer table (*hint*: concatenate the two fields).
- 6. Create a cross-tab query from the Transaction table that displays the total quantity of each product sold to each Retailer.
- 7. Create a parameter query from the Transaction table that displays the Product_ID and Qty_sold fields for all products that have a Qty_sold value that's less than a specified value.
- 8. Create a parameter query from the Product table that displays the Product_name, Qty_available, and Min_stock fields for all products that have the Min_stock value between two specified values.
- 9. Close the database.

Creating advanced form design

Unit 6 objectives

- · Use controls to add graphics to a form
- Use controls to add calculated fields to a form
- Add a combo box to a form
- Add unbound controls to a form

Your notes: Unit 6



Your notes: Unit 6

Adding graphics

Control Types

- Unbound Controls These controls are not linked to any field in a table or a query. They are used to enhance the appearance of a form or to display information that isn't linked to any field in a table or a query. Graphics are unbound controls because they aren't linked to any table or query.
- Bound Controls These controls are linked to a field in a table or a query. They are used to display a field value, to accept a value in a field in a table or a query, or to modify the value of a field in a table or a query.
- Calculated Controls These are used to display a calculated value based on one or more fields in a table or a query.

Image controls & Unbound object frame controls

🗛 🛃 🔊 × (P × 🖘 🔹 Customer Orde	ers - Microsoft Access Form Design Tools	×
File Home Create External	Data Database Tools Design Arrange Format	- @ X
Views Themes	Logo Add Existing Property Tab Fields Subform in New Window Add Existing Property Tab Fields Subform's Macros to Visual Tools	Basic
All Access Objects Set	ntrol Defau	.6 · 1 · 2 📥
Sales by Category Use C		
Sales by Year X Activ	eX Controls	
Ten Most Expensive Produ 1.		
Customers and Suppliers b		
Forms A		
Categories		
Customer Labers Dialog	- Order ID OrderD Required Date Required Date	
Customer Orders		=
Customer Orders Subformi	to see order details	
-a Customer Orders subform2		
Customer Phone List	✓ ✓ Detail	
- Customers	L Product Name ProductName Unit Price UnitPrice	
Main Switchboard		
B Order		
Orders Subform 9		
Product list		
Products 10		
Ouarterly Orders		
Quarterly Orders Subform		
Sales Analysis		
Sales Analysis Subform2		
Sales by Year Dialog		
Sales Reports Dialog	ПППППППП	Þ
Design View		# # <mark>K</mark>
		:49

Adding calculations

Creating a calculated control in a form, use the Arrange tab to align boxes.



Aligning controls in a form

Form Design Tools Design Arrange Form Header Ø Detail Order_ID ** Order_ID Tabular Stacked Remove Product_name Product_Name Control Layout Quantity Quantity Discount Discount 2 Unit_price Unit_price =[Quantity]*[unit_price] Amount Form Footer

Select all the controls (CTRL + A), choose **Stacked**.

OR

Select controls individually (SHIFT + Click), choose appropriate alignment.

Order_details	Arrange
	To Grid III Top
Form Header	the out of the
✓ Detail	E Left 114 Bottom
	- PL Dianta
Order_ID Order_ID	Right
	Control Alignment
Product name Product Name	
Ouantity Ouantity	
Discount	
Public price	
onic price	
=[Quantity]*[unit_price]	
✓ Form Footer	

Adding combo boxes



adjust the width of a	column, drag it	s right edge to	the width you want	, or double-click the
gin edge of the column	ricaung to get	one best ing		
Customer ID				- 13
C001				1
C002				1
C003				
C004				
C005				
C006				
C007				

List Box Wizard		
	Microsoft Office Access can store the selected value from your list box in your database, or remember the value so you can use it later to perform a task. When you select a value in your list box, what do you want Microsoft Office Access to do? <a>Remember the value for later use. Image: I	
	Cancel < <u>B</u> ack <u>N</u> ext > <u>F</u> inish	

List Box Wizard	
	What label would you like for your list box?
V	Customer_ID
1 No	Those are all the answers the wizard needs to create your list box.

		×
• Order_ID:	1	
CustomerID	Greg Huns	•
Order date:	C001	
- Deguired data:	C002	
Required_date:	C003	
Shipped_date:	C004	
	C005	
	C006	
	C007	
	C008	
Record: I I of 25	C009	
·	C010	19 2 2

Modifying the properties of a combo box

In design view right-click on control and select Properties.

Adding unbound controls





Tab Order

This is the order in which controls receive focus as the user presses the tab key

-	Order_Shipping_Dates			
	1 2 3 .	1 · 4	5 6 7 8 .	1 + 9 + 1 + 1
	🗲 Detail			
<u>-</u>	Order ID:		Build <u>E</u> vent	
1			Ta <u>b</u> Order	
- - 2	CustomerID	E	<u>P</u> aste	
-	Order_date:	٨	Fill/Back Color	
3	Required date:	===	Alternate Fill/Back Color	
Ē		1	<u>R</u> uler	
4 -	snipped_date:	#	<u>G</u> rid	
5			Page Header/Footer	
-		=	Form <u>H</u> eader/Footer	
6 - -		?	<u>P</u> roperties	

Section:	Custom Order:
Detail	Order_ID
	Order_date
	Required_date
	Shipped_date
	Combo20
Click to select a row, or click and drag to select multiple rows. Drag selected row(s) to move them to desired tab	

Unit 6 Practice Activity

- 1. Open Forms.accdb.
- 2. Modify the **Sales_by_retailer** form by adding the following to the Header section, as shown the example below:

A label control with 'Outlander Spices' as the caption.

An image control using the **Spice_picture** graphic.

A rectangle around the label and image controls.

- 3. Change the tab order of the controls in the Detail section to Sales, Retailer_code and Retailer_name.
- 4. Update the form and switch to the form view
- 5. Close the form.
- 6. Close the database.





Online support forum and knowledge base

<u>http://www.microsofttraining.net/forum</u> Visit our forum to have your questions answered by our Microsoft qualified trainers.

Using advanced report features

Unit 7 objectives

- · Customise headers and footers, and set properties to group data and modify a report's appearance
- · Use functions to add calculated values in a report
- Embed a subreport in a main report

Your notes: Unit 7

Your notes: Unit 7	

Creating Customised Headers and Footers

Report Header



Report Footer

✓ Report Footer								
		Amo	ount		=Su	m([A	mou	nt])

Amount		\$7,115.00
Cilantro Flakes	22	\$400.00
Cilantro Flakes	16	\$800.00
Cilantro Flakes	12	\$400.00
Chives	20	\$300.00
Chinese Star Anise (Whole)	19	\$125.00

Conditional Formatting

Attention can be drawn to specific data in a report by using conditional formatting. This feature only applies formatting to the value of a field if a specified criterion is met.

	Design
C	onditional
6	

Conditional Formatting		? ×
Default <u>F</u> ormatting This format will be used if no conditions are met:	AaBbCcYyZz B I U A -	
Condition <u>1</u> Field Value Is 💽 greater than	400	
Preview of format to use when condition is true:	AaBbCcYyZz B I U & - A -	
	Add >> Delete OK	Cancel

The keep together property

This can be used to ensure that a complete section of a report is always printed on the same page.

Order_details					
🗲 Page Header					
	: :::::				
Order details		Build <u>E</u> vent			
	[8]	Sorting and Grouping			
🗲 Detail	2	Ta <u>b</u> Order			
OrderID:	<u></u>	<u>P</u> aste			
Product name: ProductID	&	Fill/Back Color			
CustomerID: CustomerID		Alternate Fill/Back Color 🕨			
Quantity: Quantity	1	<u>R</u> uler			
Order date: Orderdate	#	<u>G</u> rid			
Beowied date	\mathcal{R}	Toolbo <u>x</u>			
Required duie.	₫,	P <u>ag</u> e Header/Footer			
Shipped date: Shipped date		Report <u>H</u> eader/Footer			
	-				
Page Footer		Properties			
	:				

Property	Property Sheet ×						
Selection	n type: 🤉						
Detail					-		
Format	Data	Event	Oth	er	All		
Visible				Yes			
Height				2.125"			
Back Co	lor			#FFFFFF			
Alternat	e Back C	Color		No Color			
Special	Effect			Flat			
Auto He	eight			No			
Can Gro	w			No			
Can Shr	ink			No			
Display When					Always		
Keep Together						Ţ	
Force N	ew Page			Yes	5		
New Ro	w Or Co			No)		

Group Footers

When reports are grouped based on a given field you can use the group footer section to add information particular to that group, such as the group total for example.





Forcing a new page



The hide duplicate property



Orders							
🗲 Report Hea	ader						
Orders							
Page Head	er	[]		••••••		••••••	••••••
Productname		Order ID			Amouni		
Product_na	ame Header						
🗲 Detail				Property	/ Sheet		▼ ×
Product_name		Qrder_D	Amount	Selection	n type: Tex	t Box	
				Productname			-
Product_na	ame Footer						
				Format	Data E	vent Other	All
🗧 🍯 Page Foote	er	· · ·		Gridline	Width Bot	tor 1 pt	*
=Now()				Gridline	Width Left	t 1 pt	
				Gridline Top Ma	e Width Rig rain	ht 1 pt	
				Bottom	Margin	0"	
Report For	oter			Left Ma	rgin	0"	
Amount			÷Sum(IA)	Right M	largin	0"	
C+////2/44/14			- SHUULPO	Top Pad	lding	0.0208*	
				Bottom	Padding	0.0208*	
				Left Pad	Iding	0.0208*	
				Right Pa	adding	0.0208	
				Filde DU	iplicates	Ves	-
				Can Shr	ink	No	
				Display	When	Always	
				Reading	g Order	Context	
				Scroll B	ar Align	System	
				Numera	l Shapes	System	

Adding calculated fields

DateDiff function

DateDiff("interval", [date1],[date2])

For interval -y for difference between years.

m for difference between months.

d for difference between days.

IIF function

Ilf(condition, value if true, value if false)

Working with SubReports

You can use a SubReport to display data from two reports.

Embedding a SubReport



Use existing <u>T</u> ables and Queries Use an <u>e</u> xisting report or form				
Customers_by_city	Report			
Order_details	Report			
Orders	Report			
Products	Report			
Order_details	Form			

Show Products for each record in Suppliers using Supplier_ID None

Unit 7 Practice Activity

- 1. Open Advanced_reports.mdb.
- 2. Display the total quantity sold for each product in the Transaction_ details report by adding a group footer based on Product_ID.
- 3. Display the data in a different format whenever the Qty_sold is greater than 200 by adding conditional formatting to the Qty_sold field.
- 4. Update the report.
- 5. Switch to Print Preview.
- 6. Close the Report.
- 7. In the Transaction_dates report, add a text box control to display the difference between Order_date and Required_date.
- 8. Update the report.
- 9. Switch to the Print Preview to view the report.
- 10. Close the report.
- 11. Close the database.



Online support forum and knowledge base <u>http://www.microsofttraining.net/forum</u> Visit our forum to have your questions answered by our Microsoft qualified trainers.