

Session (01.01)

Building Database using Microsoft Access

Dr. Ahmed M. ElShafee

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Agenda

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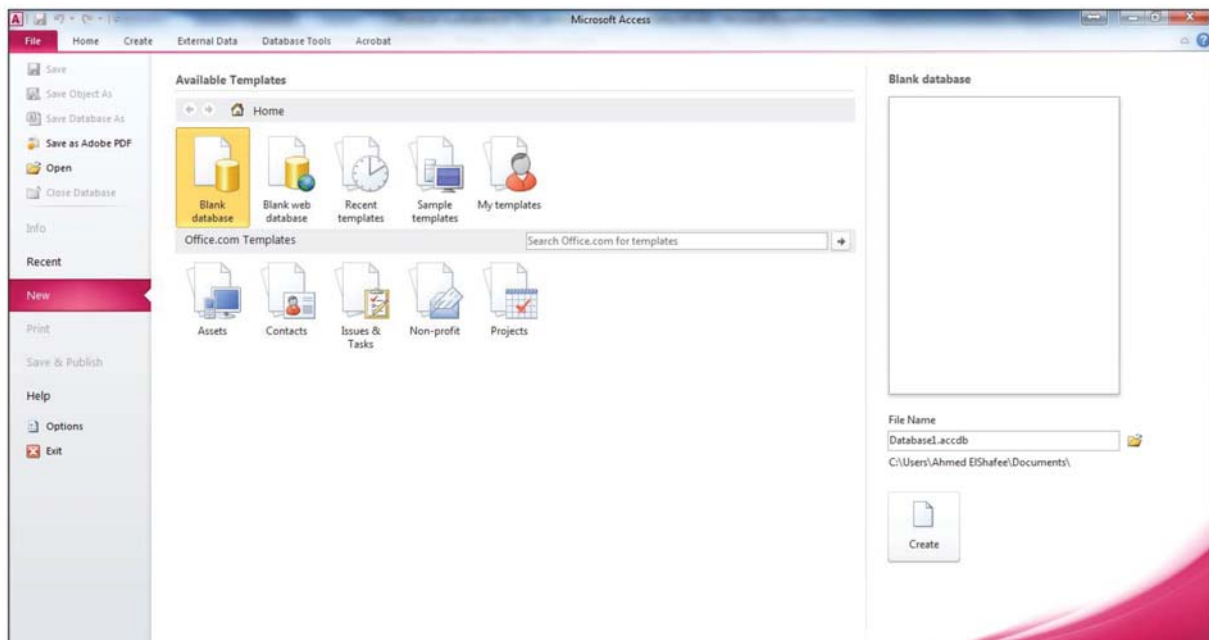
Introduction

- database is a computer program for storing , and browsing information in an easily retrievable form
- It can store store text, numbers, dates, hyperlinks, pictures and sounds .
- Microsoft Access is a relational database management system (which allows you to link together data stored in more than one table)

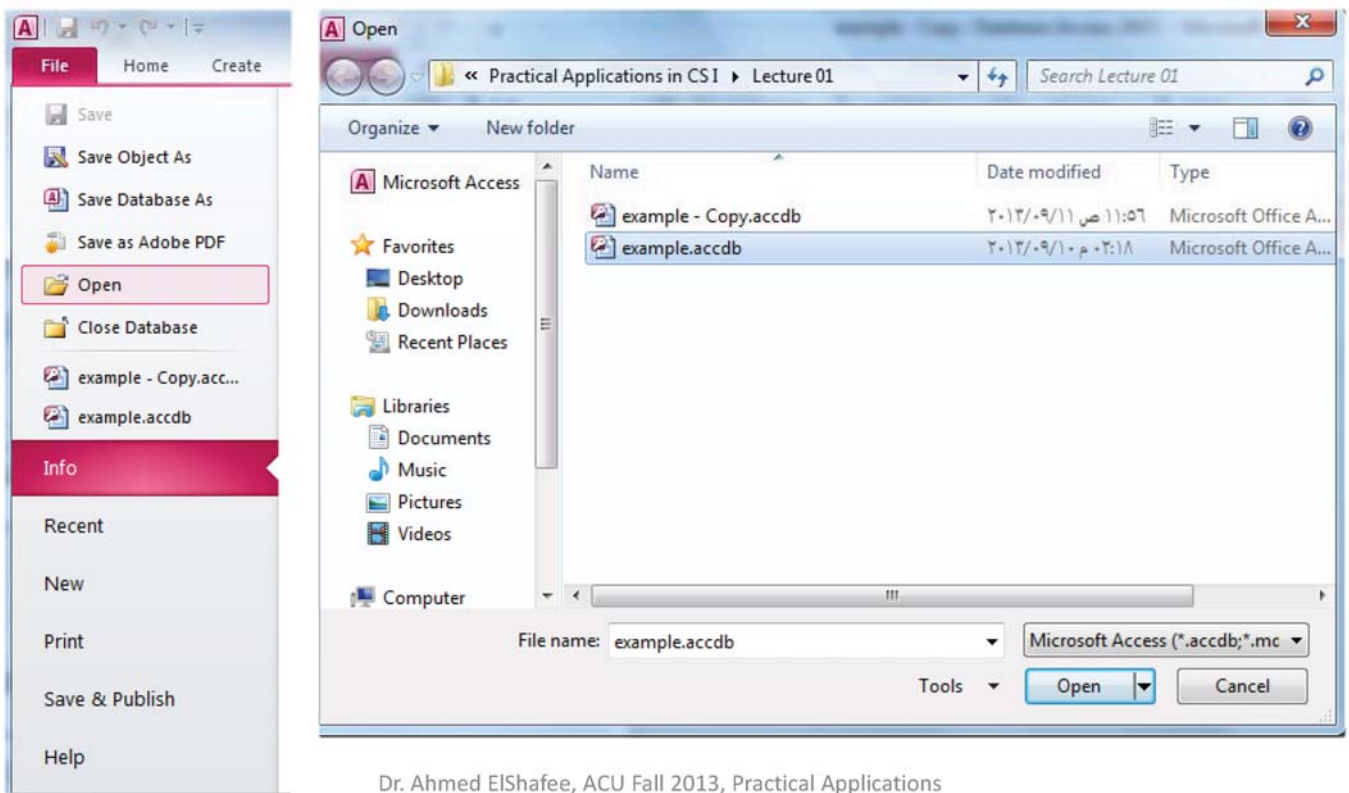
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Starting MS ACCESS

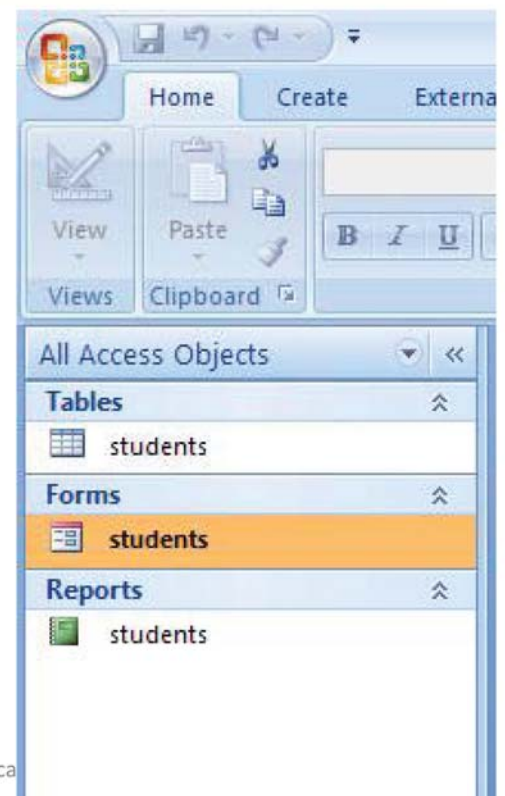
- Open the Windows **start** menu and choose **All Programs**
- Select **Microsoft Office** then **Microsoft Office Access 2007 / Microsoft Office Access 2010**



Opening existing DB



- In the next screen, the *Navigation Pane* appears on the left. This controls navigation within a particular database.
- A database is made up of several *objects*, grouped into a single file



The full list is:

- **Tables** - hold the raw data
- **Queries** - extract part of the raw data to produce *dynasets* dynamic sets of data which can change each time the query is run (to reflect any changes to the data in the tables)
- **Forms** - user-friendly layouts to display data on the screen (either in a table or from a query)
- **Reports** - output files, ready for printing
- **Pages** - for creating/editing WWW pages
- **Macros** - lists of commands to perform particular functions
- **Modules** - programs which expert users write in a programming language called Access Basic to perform tailor made functions not generally available

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Tables

- Click on the **students** table then press <Enter> (or *double click* with the mouse) to open it

students										
Student N	Title	First Nam	Other Initial	Surname	Hall	Userid	Tutor	Optio	Date of	
10012	Mr	David		Brachen	Bridges	squ06db	Evans	7	٨٧-	٨٧-
10013	Mrs	Polly	M	Quinnell	Private	squ06pmc	Foot	4	٨٥-	٨٥-
10091	Mr	Elliot		Green	Private	squ06eg	Morris	6	٨٦-	٨٦-
10213	Miss	Laura	L	Short	St Patrick's	squ06lls	Fox	8	٨٢-	٨٢-
10251	Mr	Roger	W	Harris	Sherfield	squ06rwh	Owen	5	٨٣-	٨٣-
10317	Mrs	Philippa	V	Hayman	Private	squ06pvh	Davies	5	٨٢-	٨٢-
10351	Miss	Gemma		Stace	Sherfield	squ06gs	Foot	2	٨٧-	٨٧-
10353	Mrs	Liz	F	Perry	Private	squ06lfp	Owen	6	٨٤-	٨٤-
10423	Miss	Caroline	T	Hattan	Windsor	squ06cth	Fox	1	٨٣-	٨٣-
10464	Miss	Ruth	F	Hopkins	Private	squ06rfh	Peters	5	٨٤-	٨٤-
10495	Mrs	Lorna	B	Moon	Private	squ06lbn	Robinson	6	٨٢-	٨٢-
10563	Mr	Julian	K.P.	Stratton	Childs	squ06jks	Evans	1	٨٤-	٨٤-
10703	Miss	Linda	R	O'Sullivan	St George's	squ06lro	Matthew	2	٦٥-	٦٥-
10710	Miss	Elaine	L	Berry	St George's	squ06elb	Matthew	8	٨٧-	٨٧-
10813	Miss	Emma	G	Huggins	Private	squ06egh	Adams	9	٨٦-	٨٦-
10848	Miss	Julie	G.S.	Gallacher	Student Villa	squ06jgg	Fox	3	٨٢-	٨٢-
10849	Miss	Rosie	Y	Downing	Bridges	squ06ryd	Shepher	7	٨٥-	٨٥-
10865	Mr	Chris	R	Wilson	Private	squ06crw	Davies	3	٨٥-	٨٥-
10933	Mr	Charles		Collins	Private	squ06cc	Robinson	2	٨٤-	٨٤-
11011	Miss	Susan	J	Foley	Private	squ06sfj	Clarke	1	٨٤-	٨٤-

Record: 1 of 390 Unfiltered Search

11174	Miss	Louise	I	Frank
11233	Mr	Paddy	D	Clarke

Record: 24 of 390 Unfiltered Search

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- The **<End>** key takes you to the last field, the **<Home>** key to the first. **<Page Up>** and **<Page Down>** take you up and down a screen, while **<Ctrl Home>** and **<Ctrl End>** take you to the first field of the top record and final field of the last record, respectively.

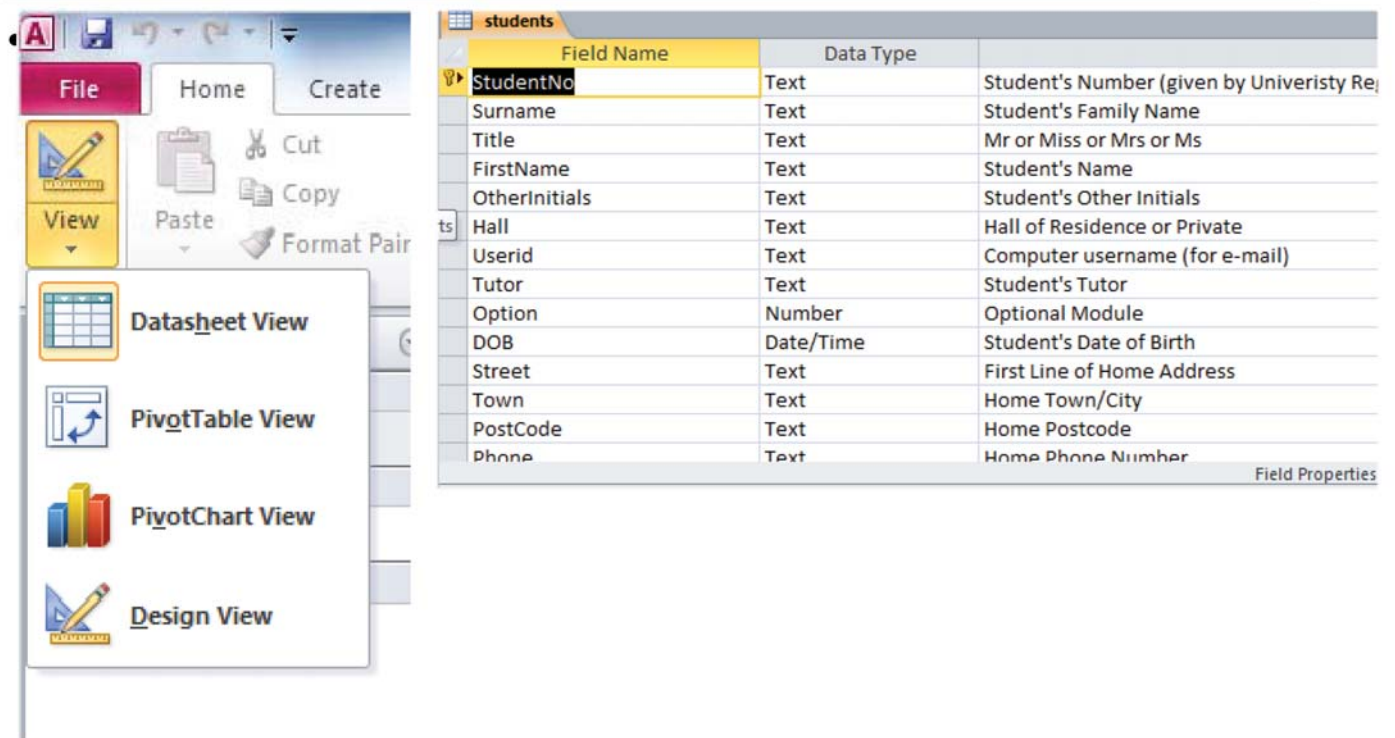
	PostCode	Pho
m	B11 5FN	0121-7
1	FA8 0ES	0118-5
	BR2 6UN	0119-1
	NE6 6CD	0181-2
	G12 3QR	0172-5
	DE7 0EI	0159-8
m	B29 6AE	0176-5
ry	TE7 2YE	0187-5
	SW8 0AQ	0171-9
	LI6 1IG	0195-3
	EX7 5DL	0128-2
	IN9 0YP	0173-6
	N39 9OB	0181-2
ery	MOS 0FY	0170-4
	CA8 1OK	0177-2
on-	NE4 1GA	0140-5
n	HA2 0QT	0157-8
ton	SO2 2SB	0111-1
	YE9 8EI	0115-2
d	SU4 1FH	0125-1
	W48 4XM	0181-1
	PO9 1YW	0173-6
	ED3 5XO	0187-6
	WR3 1BW	0120-3
ough	L57 5SI	0150-7

Num Lock

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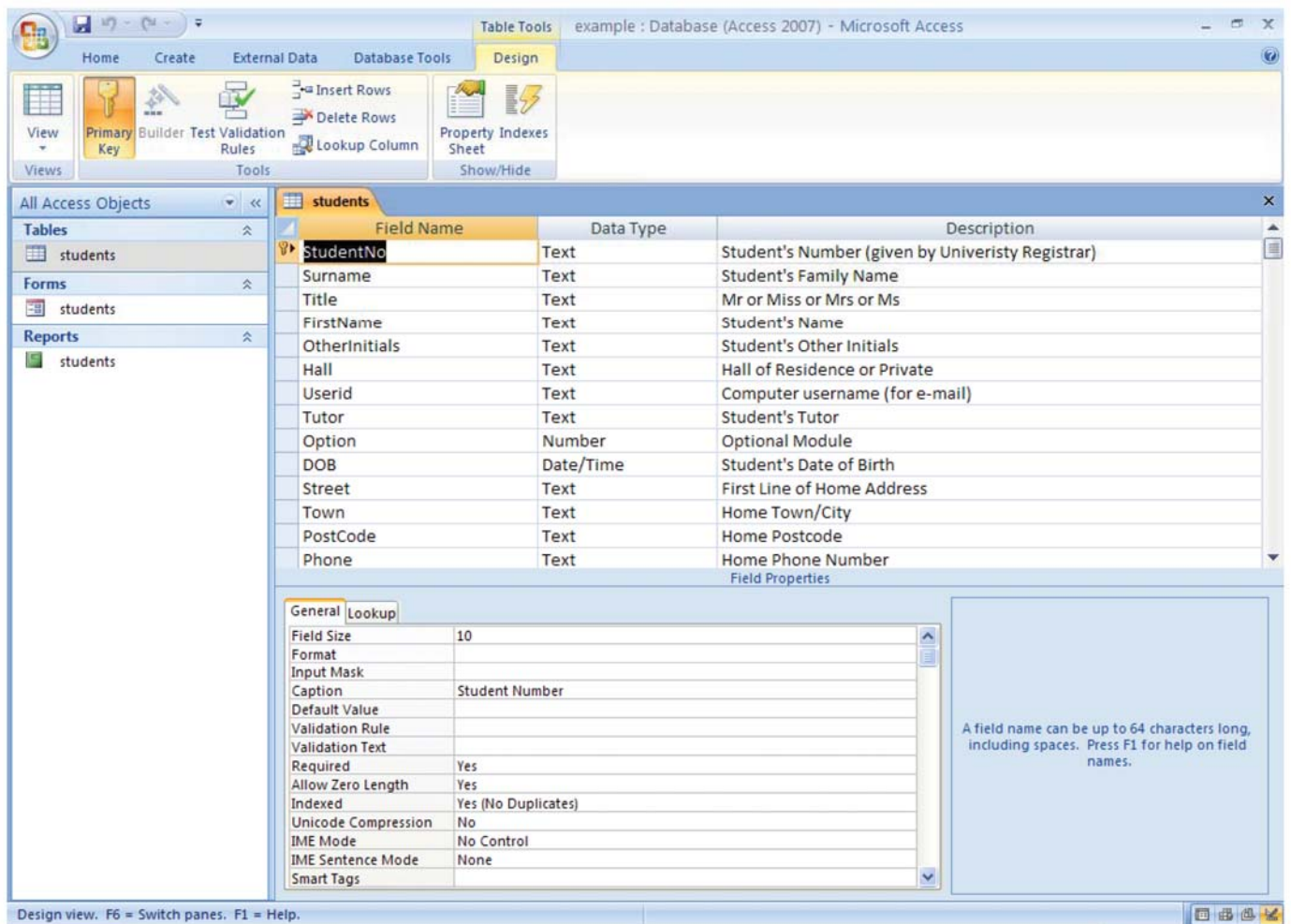
Design view



The screenshot shows the Microsoft Access interface. On the left, the 'View' dropdown menu is open, displaying options: Datasheet View, PivotTable View, PivotChart View, and Design View. The 'Design View' option is highlighted. On the right, a table named 'students' is shown in Design view. The table has the following fields and data types:

Field Name	Data Type	Description
StudentNo	Text	Student's Number (given by Univeristy Registrar)
Surname	Text	Student's Family Name
Title	Text	Mr or Miss or Mrs or Ms
FirstName	Text	Student's Name
OtherInitials	Text	Student's Other Initials
Hall	Text	Hall of Residence or Private
Userid	Text	Computer username (for e-mail)
Tutor	Text	Student's Tutor
Option	Number	Optional Module
DOB	Date/Time	Student's Date of Birth
Street	Text	First Line of Home Address
Town	Text	Home Town/City
PostCode	Text	Home Postcode
Phone	Text	Home Phone Number

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The screenshot shows the Microsoft Access interface with the 'students' table in Design view. The 'Field Properties' pane is open, showing the 'General' tab. The table has the following fields and data types:

Field Name	Data Type	Description
StudentNo	Text	Student's Number (given by Univeristy Registrar)
Surname	Text	Student's Family Name
Title	Text	Mr or Miss or Mrs or Ms
FirstName	Text	Student's Name
OtherInitials	Text	Student's Other Initials
Hall	Text	Hall of Residence or Private
Userid	Text	Computer username (for e-mail)
Tutor	Text	Student's Tutor
Option	Number	Optional Module
DOB	Date/Time	Student's Date of Birth
Street	Text	First Line of Home Address
Town	Text	Home Town/City
PostCode	Text	Home Postcode
Phone	Text	Home Phone Number

The 'Field Properties' pane shows the following settings for the 'StudentNo' field:

Property	Value
Field Size	10
Format	
Input Mask	
Caption	Student Number
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	Yes
Indexed	Yes (No Duplicates)
Unicode Compression	No
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

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Field name	Data type	
StudentNo	Text	Student's Number (given by Univeristy Registrar)

General	Lookup
Field Size	10
Format	
Input Mask	
Caption	Student Number
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	Yes
Indexed	Yes (No Duplicates)
Unicode Compression	No
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

Surname	Text	Student's Family Name
---------	------	-----------------------

General	Lookup
Field Size	25
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	No
Indexed	Yes (Duplicates OK)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

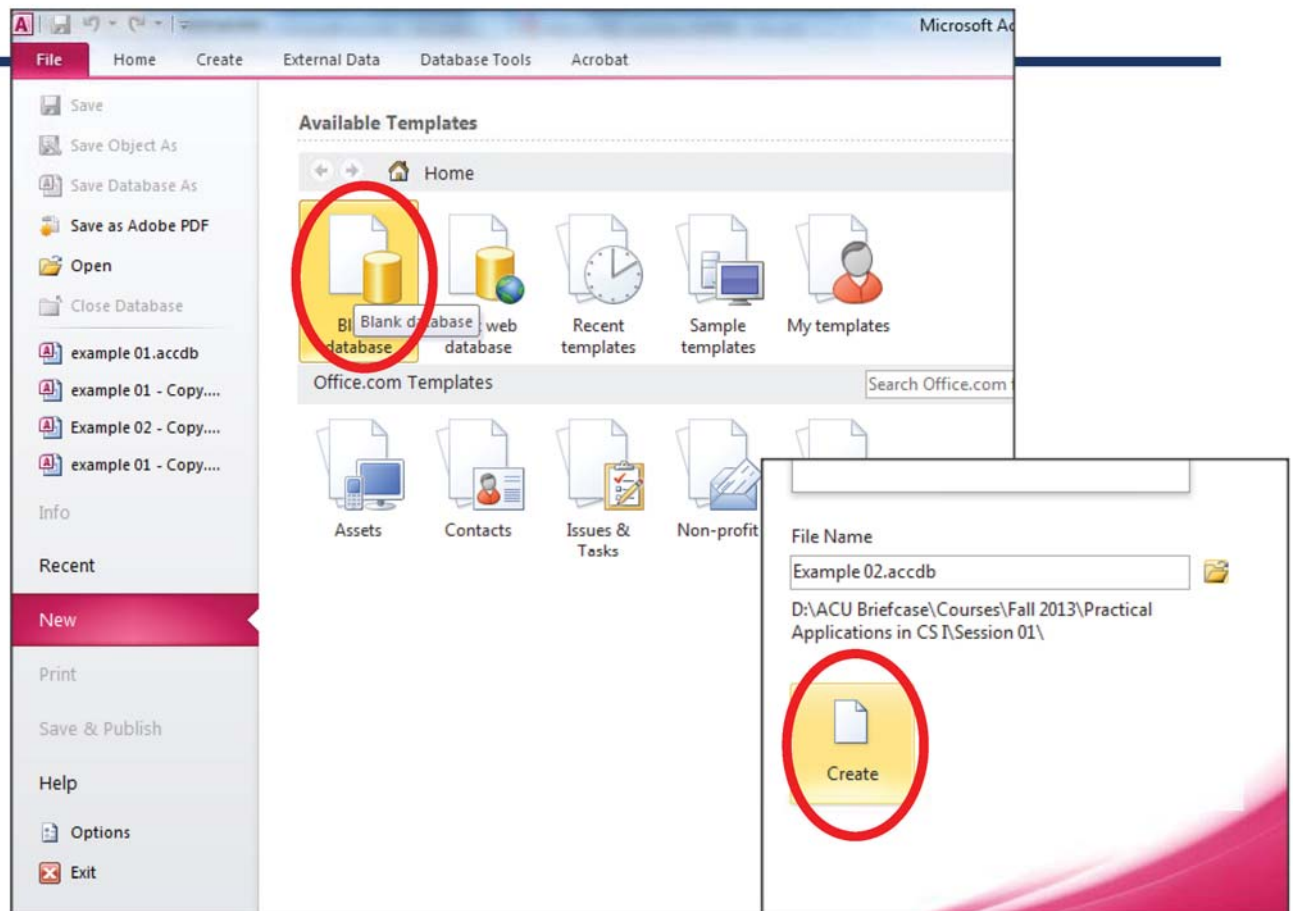
Option	Number	Optional Module
--------	--------	-----------------

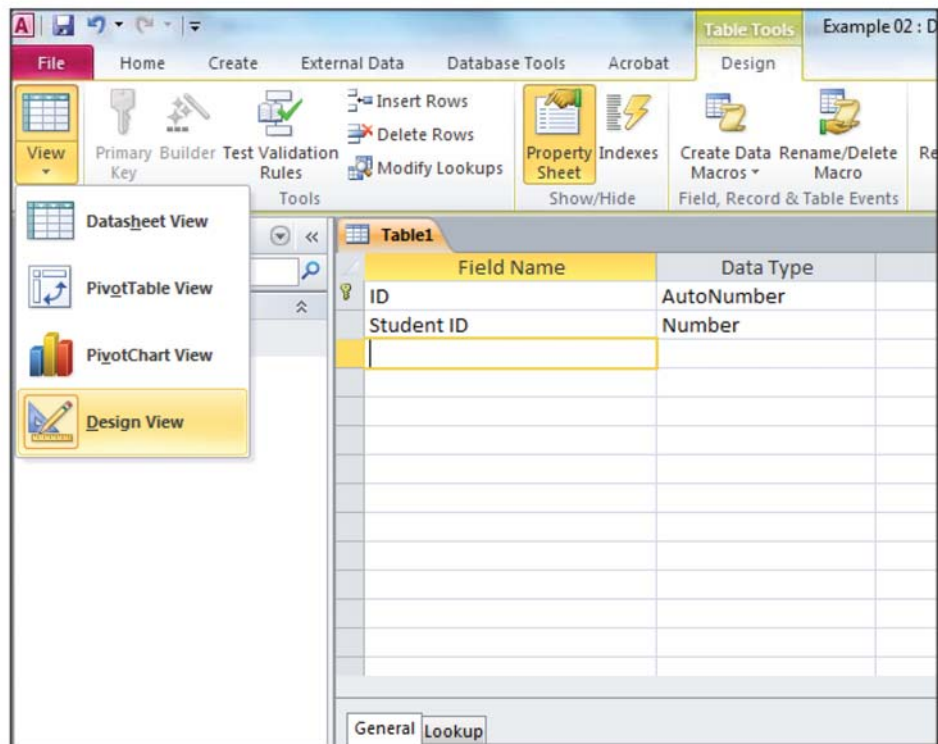
General		Lookup
Field Size	Byte	
Format		
Decimal Places	0	
Input Mask		
Caption		
Default Value		
Validation Rule	Between 1 And 9	
Validation Text	Not a valid entry	
Required	No	
Indexed	No	
Smart Tags		
Text Align	General	

DOB	Date/Time	Student's Date of Birth
-----	-----------	-------------------------

General		Lookup
Format	Medium Date	
Input Mask		
Caption	Date of Birth	
Default Value		
Validation Rule		
Validation Text		
Required	No	
Indexed	No	
IME Mode	No Control	
IME Sentence Mode	None	
Smart Tags		
Text Align	General	
Show Date Picker	For dates	

Create new Database





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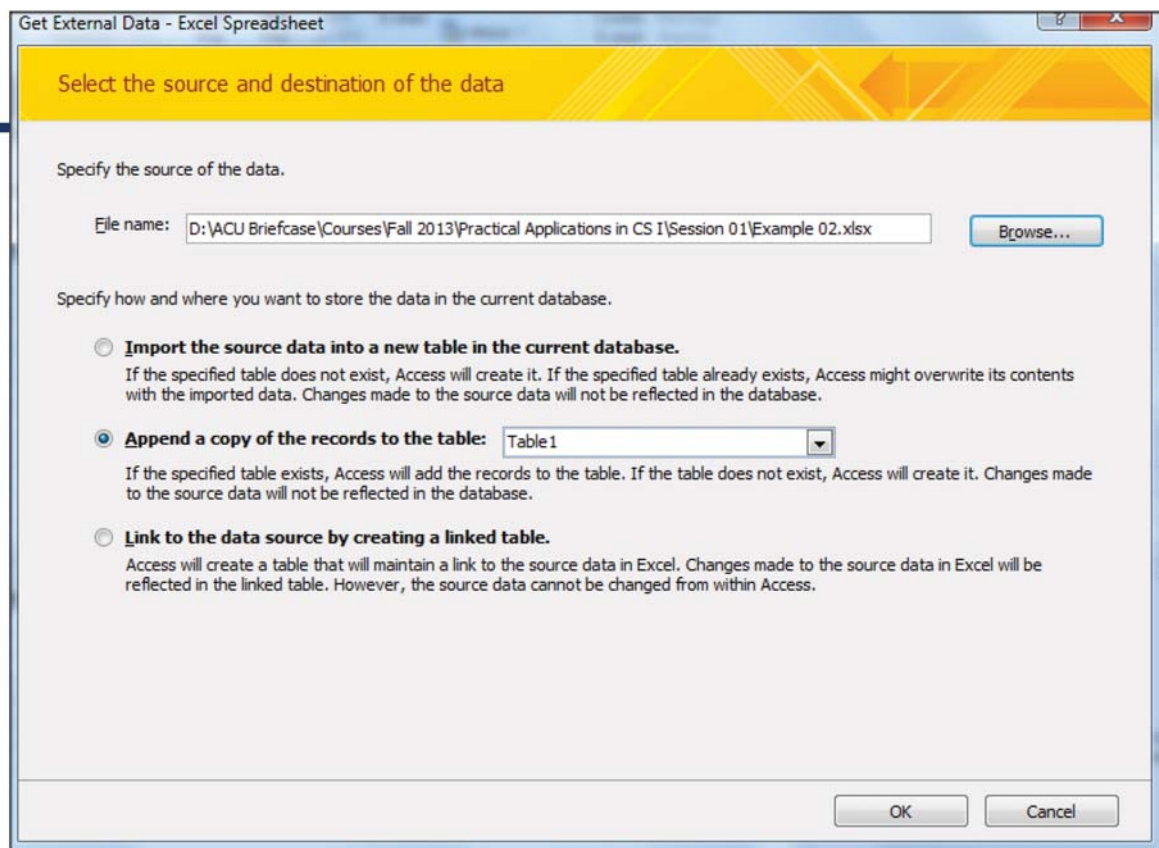
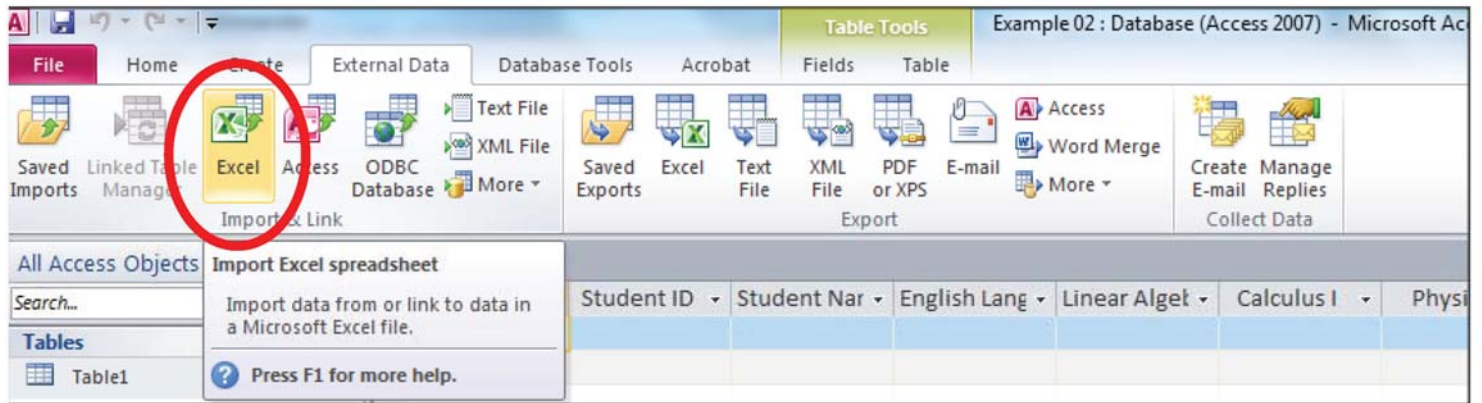
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Field Name	Data Type
ID	AutoNumber
Student ID	Number
Student Name	Text
English Language I	Text
Linear Algebra I	Text
Calculus I	Text
Physics	Text
Management	Text
Presentation and Communicat	Text
Electronics	Text
Fundamentals of Programming	Text
Discrete Math	Text
Calculus II	Text
Introduction to Computer Scie	Text

Field Name	Data Type
Calculus II	Text
Introduction to Computer Scie	Text
Critical & Creative Thinking	Text
English Language II	Text
CH	Number
GPA	Number

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Import Spreadsheet Wizard

Your spreadsheet file contains more than one worksheet or range. Which worksheet or range would you like?

☒ Show Worksheets
☐ Show Named Ranges

ورقة 1
ورقة 2
ورقة 3

Sample data for worksheet 'ورقة 1'.

	Student ID	Student Name	English Language I	Linear Algebra I	Calculus I	Ph
1	4121001	Amr Ayman Mohamed	A-	A	A	A
2	4121002	John Moufeed Malik	C	A-	B-	A
3	4121003	Aya Kadry Ibrahim	C	C+	C+	C+
4	4121004	Nesma Mohamed Mahsoub			B	C-
5	4121005	Bassam Mamdouh Mahmoud	C	B+	B-	C+
6	4121006	Eman Mohamed Tawfik	A	A	A	A
7	4121007	Ahmed Shapan Ahmed	C	A-	A	B+
8	4121008	Ahmed Khled Khalil	B+	B+	C+	B
9	4121009	Ahmed Mohamed Hanfy	F	D+	F	C-
10	4121010	Mohamed Magdy Mohamed	D+	B-	C	B
11	4121011	Pierre Ehab Nouh	A-	A-	A	A
12	4121012	Mohamed Helmy Mohamed	A	A	A	A
13	4121013	Hossam Ahmed Said	F	F	F	F

Cancel < Back Next > Finish

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Import Spreadsheet Wizard

Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings?

☒ First Row Contains Column Headings

	Student ID	Student Name	English Language I	Linear Algebra I	Calculus I	Ph
1	4121001	Amr Ayman Mohamed	A-	A	A	A
2	4121002	John Moufeed Malik	C	A-	B-	A
3	4121003	Aya Kadry Ibrahim	C	C+	C+	C+
4	4121004	Nesma Mohamed Mahsoub			B	C-
5	4121005	Bassam Mamdouh Mahmoud	C	B+	B-	C+
6	4121006	Eman Mohamed Tawfik	A	A	A	A
7	4121007	Ahmed Shapan Ahmed	C	A-	A	B+
8	4121008	Ahmed Khled Khalil	B+	B+	C+	B
9	4121009	Ahmed Mohamed Hanfy	F	D+	F	C-
10	4121010	Mohamed Magdy Mohamed	D+	B-	C	B
11	4121011	Pierre Ehab Nouh	A-	A-	A	A
12	4121012	Mohamed Helmy Mohamed	A	A	A	A
13	4121013	Hossam Ahmed Said	F	F	F	F
14	4121014	Ibrahim Mohamed Ibrahim	F	C	B-	C

Cancel < Back Next > Finish

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Import Spreadsheet Wizard

That's all the information the wizard needs to import your data.

Import to Table:
Table1

☐ I would like a wizard to analyze my table after importing the data.

Cancel < Back Next > Finish

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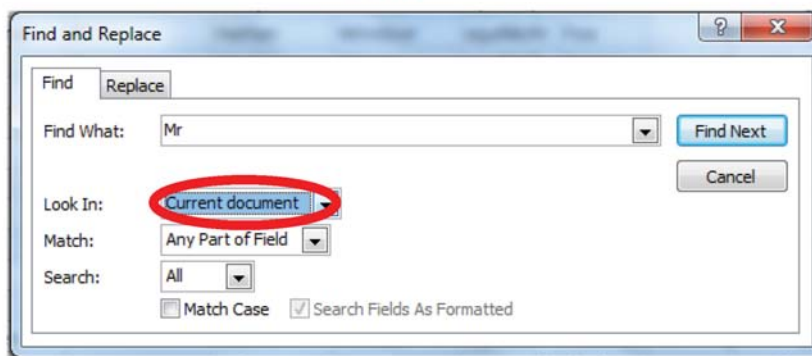
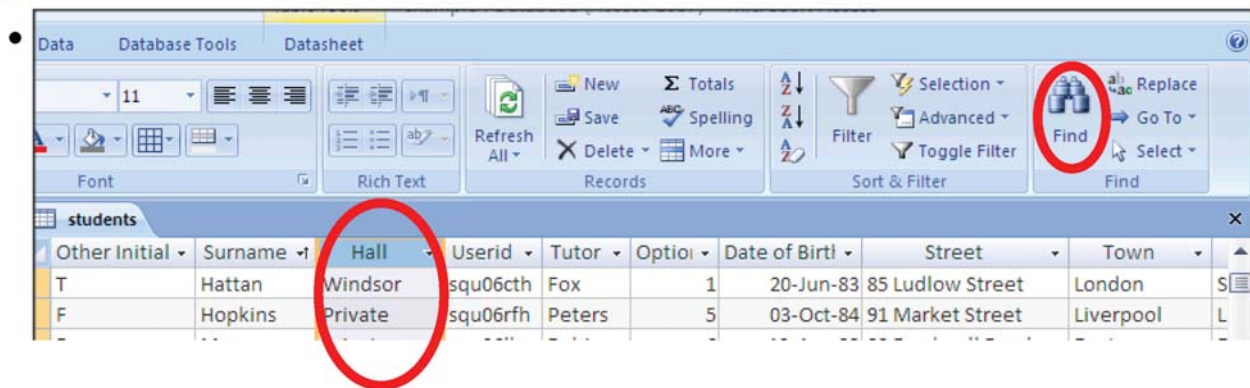
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ID	Student ID	Student Name	English Language	Linear Algebra	Calculus I	Physics	Management	Presentation	Electronics	Fundamentals	Discrete Math
2	4121001	Amr Ayman M	A-	A	A	A	A-	A-	A	A-	A
3	4121002	John Moufeed	C	A-	B-	A	B+	A-	A-	B	A
4	4121003	Aya Kadry Ibra	C	C+	C+	C+	B+	A-	D+	C	C-
5	4121004	Nesma Mohan			B	C-	C				
6	4121005	Bassam Mamd	C	B+	B-	C+	A	B+	C+	B-	C+
7	4121006	Eman Mohame	A	A	A	A	A	A	A	A	A
8	4121007	Ahmed Shapar	C	A-	A	B+	B-	A-	B	A	A
9	4121008	Ahmed Khled	B+	B+	C+	B	B+	B	B+	B-	B+
10	4121009	Ahmed Mohan	F	D+	F	C-	C	F	F	F	F
11	4121010	Mohamed Mag	D+	B-	C	B	B	A-	C-	D+	B-
12	4121011	Pierre Ehab Nc	A-	A-	A	A	A	A-	B+	A	A-
13	4121012	Mohamed Heli	A	A	A	A	A	A	A	A	A
14	4121013	Hossam Ahme	F	F	F	F	F	F	D+	F	C+
15	4121014	Ibrahim Moha	F	C	B-	C	C	B+	D	C-	F

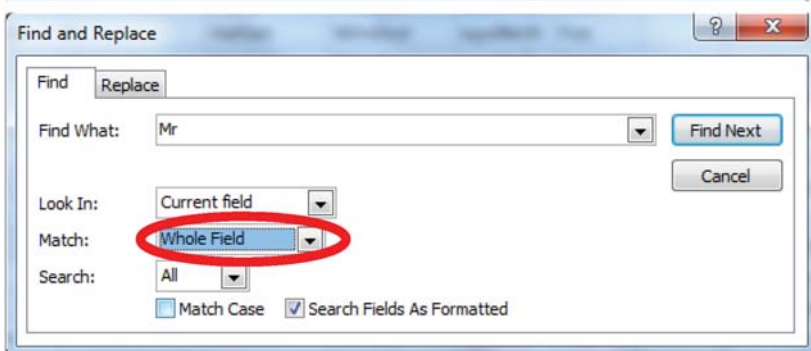
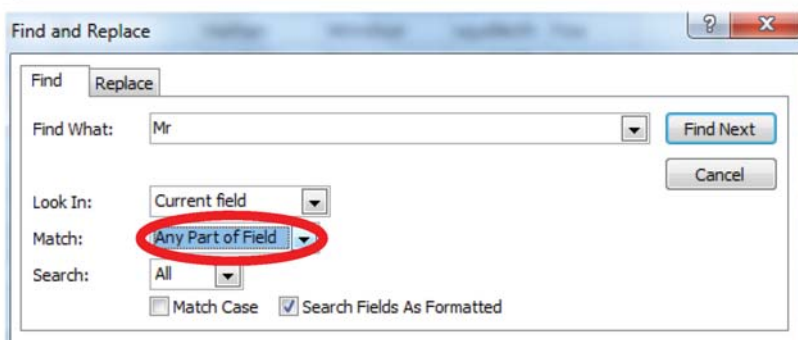
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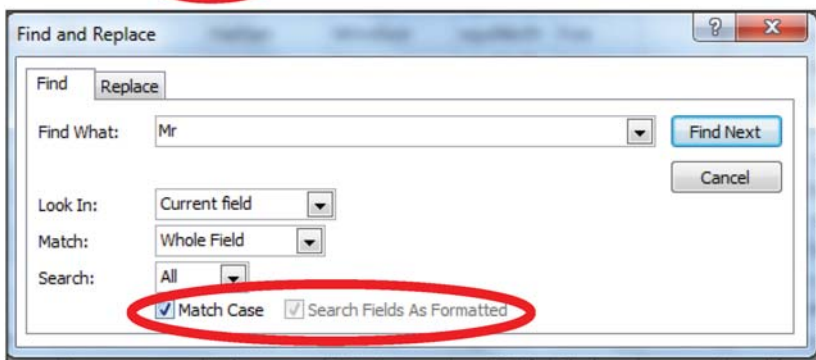
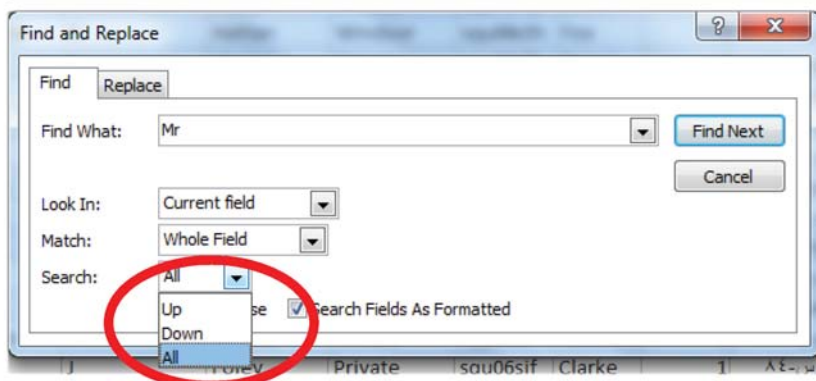
Searching



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Student N	Title	First Nam	Other Initial	Surname	Hall	Userid	Tutor	Option	Date of Bir
10012	Mr	David		Brachen	Bridges	squ06db	Evans	7	٨٧- يناير
10013	Mrs	Polly	M	Quinnell	Private	squ06pmc	Foot	4	٨٥- أكتوبر
10091	Mr	Elliot		Green	Private	squ06eg	Morris	6	٨٦- نوفمبر
10213	Miss	Laura	L	Short	St Patrick's	squ06lls	Fox	8	٨٢- يوليو
10251	Mr	Roger	W	Harris	Sherfield	squ06rwh	Owen	5	٨٣- يناير
10317	Mrs	Philippa	V	Hayman	Private	squ06pvh	Davies	5	٨٢- يونيو
10351	Miss	Gemma		Stace	Sherfield	squ06gs	Foot	2	٨٧- أكتوبر
10353	Mrs	Liz	F	Perry	Private	squ06lfp	Owen	6	٨٤- يونيو
10423	Miss	Carol							
10464	Miss	Ruth							
10495	Mrs	Lorna							
10563	Mr	Julian							
10703	Miss	Linda							
10710	Miss	Elaine							
10813	Miss	Emma							
10848	Miss	Julie							
10849	Miss	Rosie							
10865	Mr	Chris							
10933	Mr	Charles							
11011	Miss	Susan	J	Foley	Private	squ06sjf	Clarke	1	٨٤- مارس

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students									
Student N	Title	First Nam	Other Initial	Surname	Hall	Userid	Tutor	Optioi	Date of Bi
12650	Miss	Brigitte	E	Maquire	Bridges	squ06ben	Evans	6	٨٤-٨٤
12665	Mr	Andy	R	Skerritt	Bulmershe	squ06ars	Jones	5	٨٣-٨٣
12677	Miss	Christina	N	Ebner	Childs	squ06cne	Peters	4	٨٧-٨٧
12937	Mr	Richard	P	Tucker	Private	squ06rpt	Hunt	2	٨٢-٨٢
12973	Miss	Joanne		Lawson	Private	squ06jl	Morris	4	٨٧-٨٧
13034	Mr	Francis		Ward	St Patrick's	squ06fw	Peters	8	٨٣-٨٣
13051	Mr	Richard	F	Pinder	St George's	squ06rfp	Williams	9	٨٤-٨٤
13097	Miss	Victoria	D	Young	Childs	squ06vdy	Shepher	2	٨٦-٨٦
13190	Miss	Sarah							
13205	Miss	Sophie							
13221	Mr	William							
13228	Miss	Angela							
13269	Miss	Hanna							
13385	Mr	Simon							
13422	Miss	Cheryl							
13436	Miss	Joanne							
13539	Miss	Claudia							
13542	Mr	Giles							
13557	Miss	Katherine							
13635	Mr	Peter	W	Butler	St George's	squ06pwt	Jones	4	٨٧-٨٧
13762	Mr	Spencer	K	Lilley	Bridges	squ06skl	Smith	5	٨٥-٨٥
13793	Mr	Adam	H	Marfell	Private	squ06ahm	Owen	2	٨٥-٨٥
13876	Miss	Alyson	I	Alder	Windsor	squ06aia	Adams	9	٨٢-٨٢
13991	Mr	Stephen	R	Cant	Private	squ06src	Fox	8	٨٥-٨٥
14355	Mrs	Christine	I	Keeble	Private	squ06cik	Morris	7	٨٢-٨٢

Find and Replace

Find Replace

Find What: Mrs

Look In: Current field

Match: Whole Field

Search: All

☒ Match Case ☒ Search Fields As Formatted

Find Next

Cancel

Microsoft Access

Microsoft Access finished searching the records. The search item was not found.

OK

Look In: Current field

Match: Whole Field

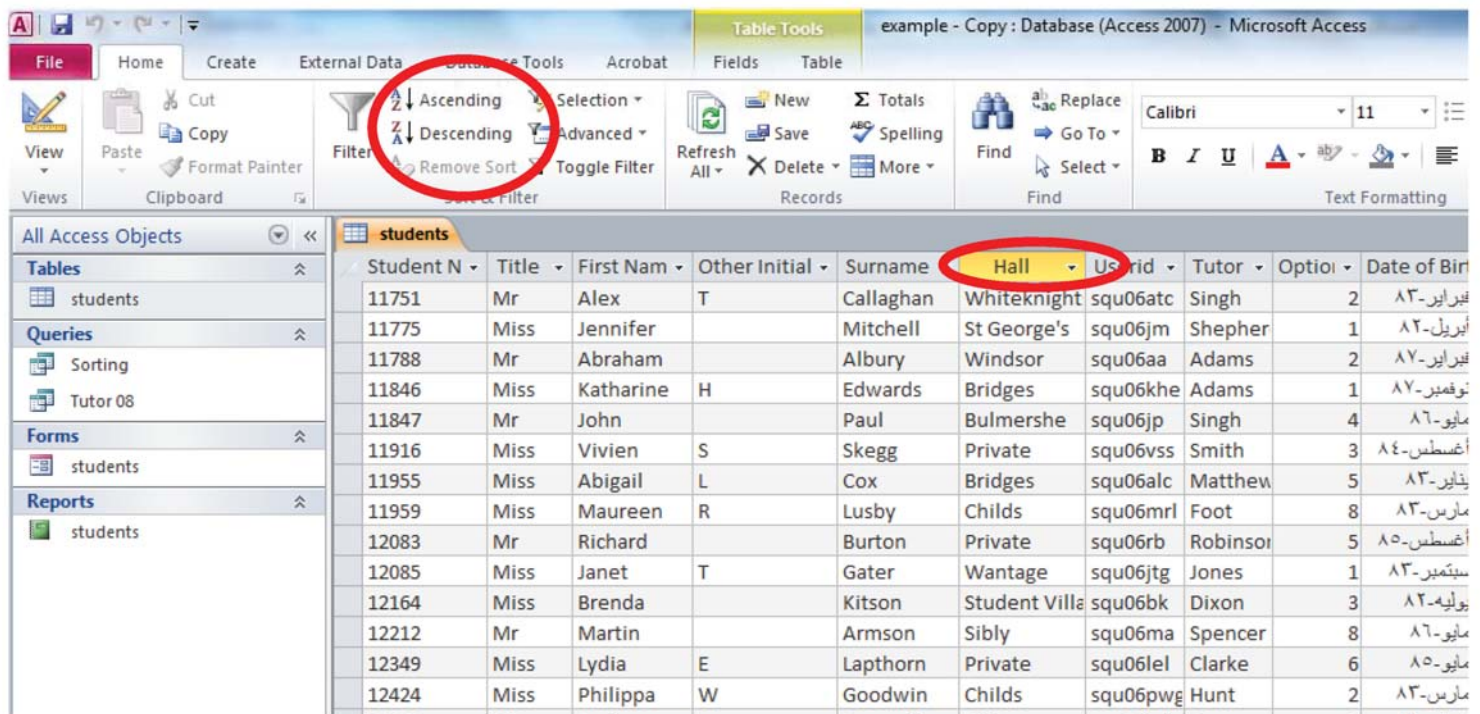
Search: All

☒ Match Case ☒ Search Fields As Formatted

- Obviously, this is not a very elegant way of retrieving information from the database - but it works!

Quick Sorting

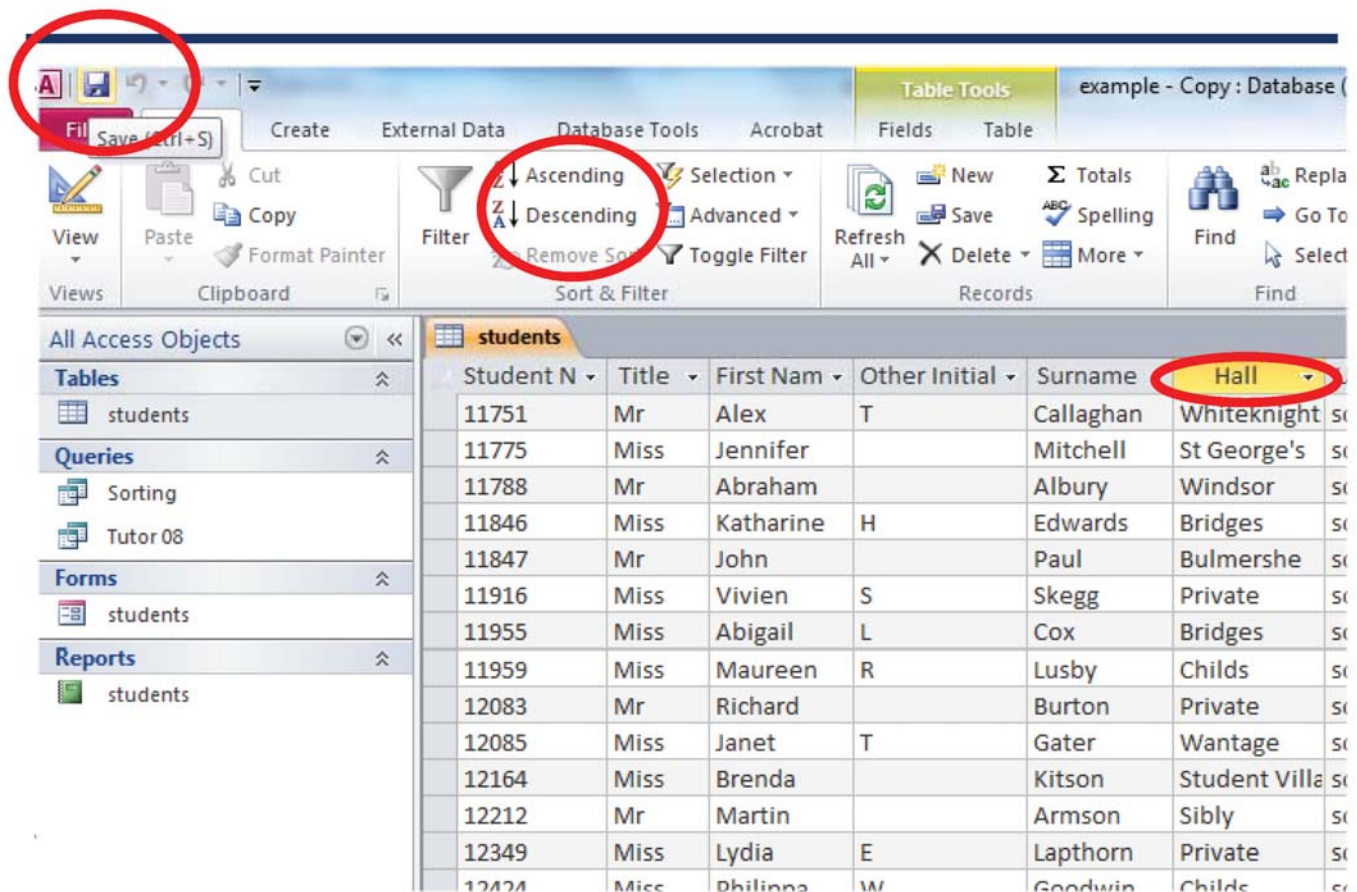
Ascending:  Descending:  Clear All Sorts: 



example - Copy : Database (Access 2007) - Microsoft Access

Student N	Title	First Name	Other Initial	Surname	Hall	Usrid	Tutor	Options	Date of Birth
11751	Mr	Alex	T	Callaghan	Whiteknight	squ06atc	Singh	2	٨٣-٨٢
11775	Miss	Jennifer		Mitchell	St George's	squ06jm	Shepherd	1	٨٢-٨٢
11788	Mr	Abraham		Albury	Windsor	squ06aa	Adams	2	٨٧-٨٧
11846	Miss	Katharine	H	Edwards	Bridges	squ06khe	Adams	1	٨٧-٨٧
11847	Mr	John		Paul	Bulmershe	squ06jp	Singh	4	٨٦-٨٦
11916	Miss	Vivien	S	Skegg	Private	squ06vss	Smith	3	٨٤-٨٤
11955	Miss	Abigail	L	Cox	Bridges	squ06alc	Matthew	5	٨٣-٨٣
11959	Miss	Maureen	R	Lusby	Childs	squ06mrl	Foot	8	٨٣-٨٣
12083	Mr	Richard		Burton	Private	squ06rb	Robinson	5	٨٥-٨٥
12085	Miss	Janet	T	Gater	Wantage	squ06jtg	Jones	1	٨٢-٨٢
12164	Miss	Brenda		Kitson	Student Villa	squ06bk	Dixon	3	٨٢-٨٢
12212	Mr	Martin		Armson	Sibly	squ06ma	Spencer	8	٨٦-٨٦
12349	Miss	Lydia	E	Laphorn	Private	squ06lel	Clarke	6	٨٥-٨٥
12424	Miss	Philippa	W	Goodwin	Childs	squ06pwg	Hunt	2	٨٣-٨٣

Permanent Sort



Indexes

- used to speed up searching, sorting and grouping data
- used to guard against duplicate data entry (always used when a field is set up as a *Primary Key*)
- This is done through design view of table

Field Name	Data Type
StudentNo	Text
Surname	Text
Title	Text
FirstName	Text
OtherInitials	Text

Field Size	10
Format	
Input Mask	
Caption	Student Number
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (No Duplicates)
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

Field Size	25
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

Field Size	15
Format	
Input Mask	
Caption	
Default Value	"Private"
Validation Rule	= "Bridges" Or "Bulmershe" Or
Validation Text	Not a valid entry
Required	No
Indexed	No
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

Field Name	Data
Hall	Text
Userid	Text
Tutor	Text
Option	Number
DOB	Date/Time
...	...

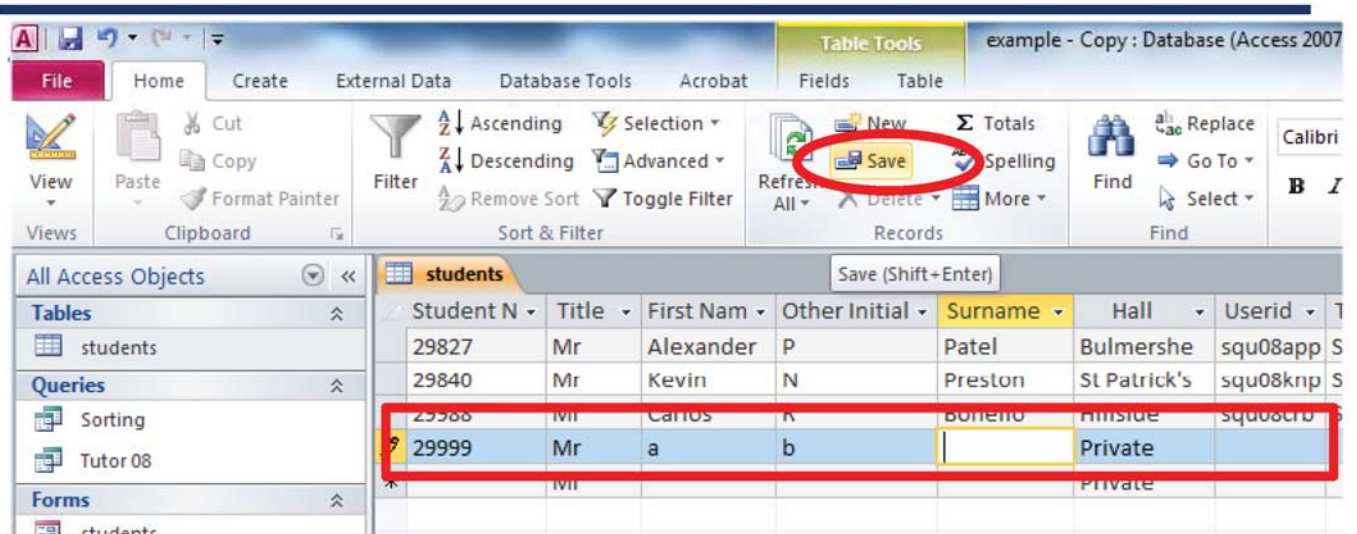
General	Lookup
Field Size	8
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	No
Indexed	Yes (No Duplicates)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	

Adding, Editing and Deleting Records

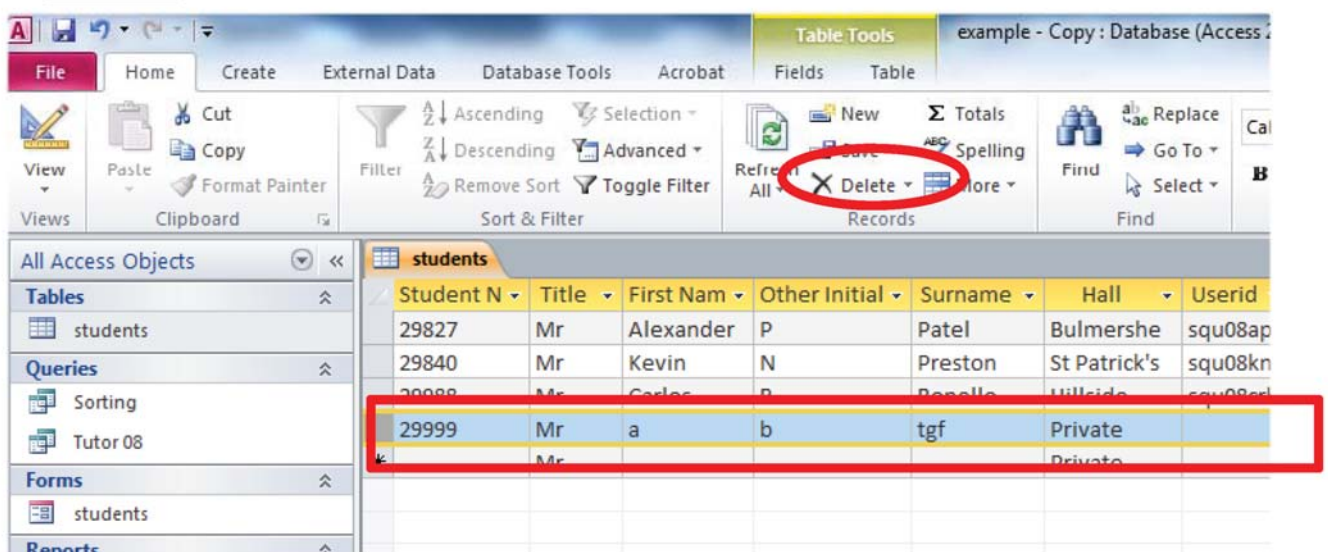
New:

The screenshot shows the Microsoft Access interface. In the 'Table Tools' ribbon, the 'New' button is circled in red. Below the ribbon, the 'students' table is displayed with columns: Student N, Title, First Nam, Other Initial, Surname, Hall, and Use. A new record is being added, indicated by an asterisk (*) in the first column and a red box around the entire new row.

Student N	Title	First Nam	Other Initial	Surname	Hall	Use
29827	Mr	Alexander	P	Patel	Bulmershe	squ
29840	Mr	Kevin	N	Preston	St Patrick's	squ
29888	Mr	Carole	P	Bonella	Hillside	squ
*	Mr				Private	



• Delete



Thanks,..
See you next week (ISA),...