# Information Systems and Technology IENG372 / MANE372 Access LAB

### **By : Khaoula Chnina**

## Introduction

In the course IENG372/MANE372 :

The concepts of information technology and their importance within the framework of management of organizations and the ability to exploit continuous innovations in order to stay competitive in business.

- ➢ Information Technology.
- Basic data information concepts.
- > Appropriate theoretical concepts of decision making.
- > Systems Analysis, Structured analysis methodologies.
- > Information systems development methodologies.
- Database management.
- Decision support systems.
- > Expert systems.

### **Data and Information**

- □ **Data** (plural for "**datum**") are simply **facts or figures** bits of information, but not information itself.
- □ When data are <u>processed</u>, <u>interpreted</u>, <u>organized</u>, <u>structured</u> or presented so as to make them <u>meaningful</u> or <u>useful</u>, they are called <u>information</u>.
- □ Information provides context for data.
- Information is data that has been processed in such a way as to be meaningful to the person who receives it. it is any thing that is communicated.





A database (DB) is an organized collection of data. More specifically, a database is an electronic system that allows data to be easily accessed, manipulated and updated.

It is used by an organization as a method of storing, managing and retrieving information.



### AN OVERVIEW OF THE DATABASE CONCEPT

- Microsoft Access is a Relational Database Management System (RDBMS), designed primarily for home or small business use.
- □ The database component of *MS Office* is designed to act as an intelligent electronic filing cabinet.
- Like a manual filing cabinet, it enables you to :
- collect sets of related data and keep the data organized;
- update the data once you've collected them, by adding or deleting records and by changing existing records;
- ❑ An *electronic* filing cabinet such as a database allows you also to easily and quickly *use* the data--sort them, create reports, merge the data with other documents, and so forth.

Within files, different terminology is used to describe the organization of data depending on the type of file in question.

- Word processed files tend to organize data in paragraphs and sentences;
- Spreadsheet files organize the data in rows and columns;
- > Database files organize the data into records and fields.

### How is a database organized?

Access is an object-oriented relational database management system. The objects that make up any particular database that you create using Access are :



Tables	<ul> <li>an object which represents the data in rows and columns, rather like a spreadsheet. For this reason, when you view a table in an Access database, you are in what Access refers to as a Datasheet View.</li> </ul>
V Queries	<ul> <li>an object which makes a request to the database to find some set of data that is stored in the database.</li> </ul>
V Forms	<ul> <li>an object which gives the user another view of the data in the database. Whereas a Table allows the user to view multiples records at once, a Form displays the contents of just one record at a time.</li> </ul>
V Reports	<ul> <li>an object which is designed based on the data in the database and which is used to inform the user of the selected contents of the database.</li> </ul>
Pages	• a special type of web page designed for viewing and working with data from the Internet.
Macros	<ul> <li>a sequence of instructions which can be carried out with a single click of the mouse button on a button in a toolbar or by pressing a key or keys on the keyboard.</li> </ul>
Modules	<ul> <li>a collection of programming procedures designed to give programmer control over the Access database look and feel.</li> </ul>





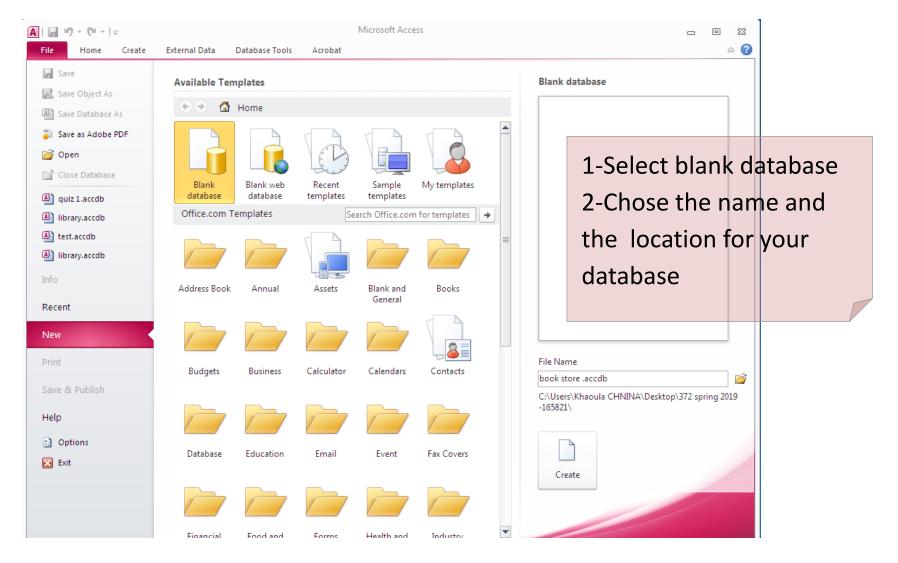
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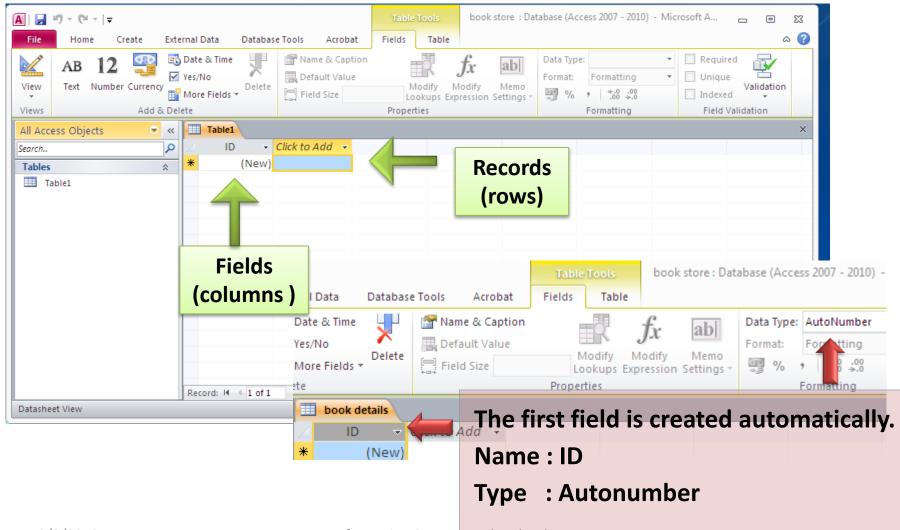
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### Now the first table is created (way 1 or 2)





### If we right click on table name, we have many options :

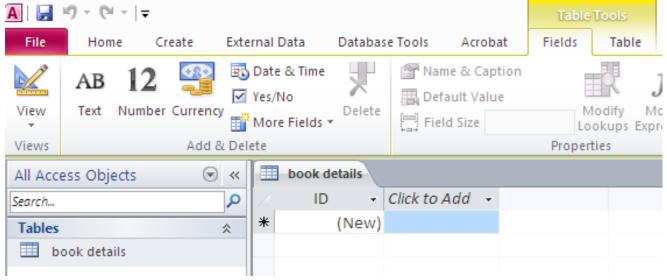
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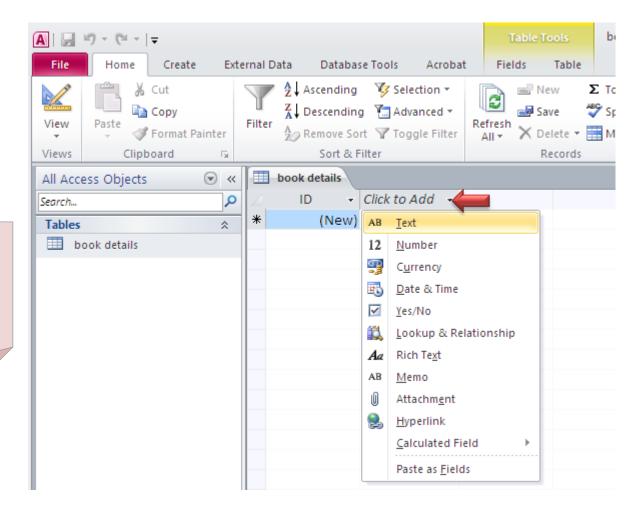
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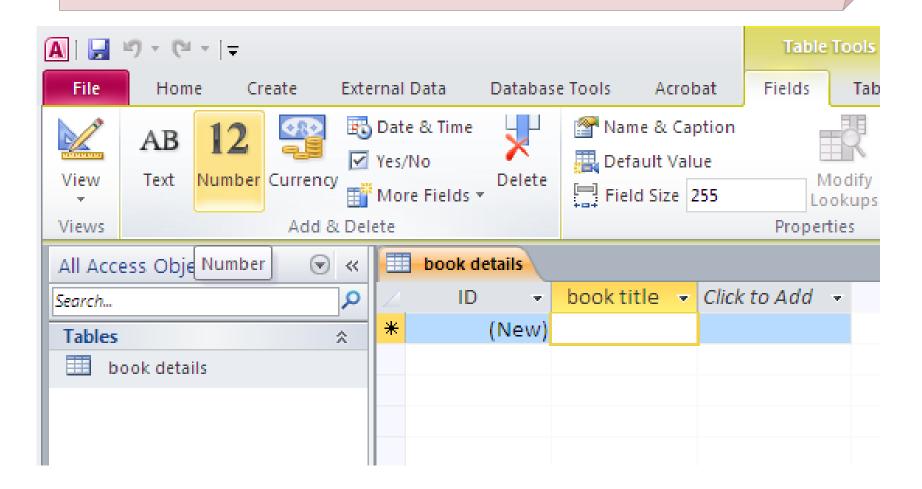
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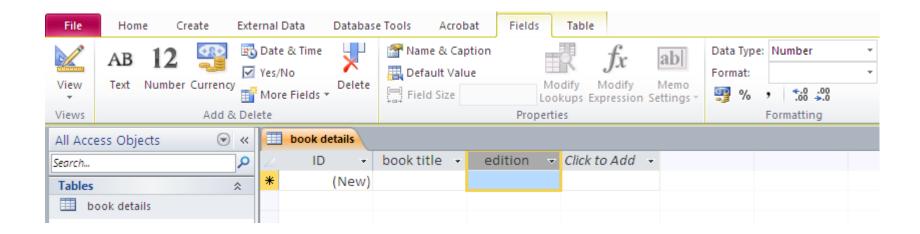


Option 1 : Click on « click to add»

#### **Option 2:**

Click on « Fields» , different types of fields will appear select the desired type.

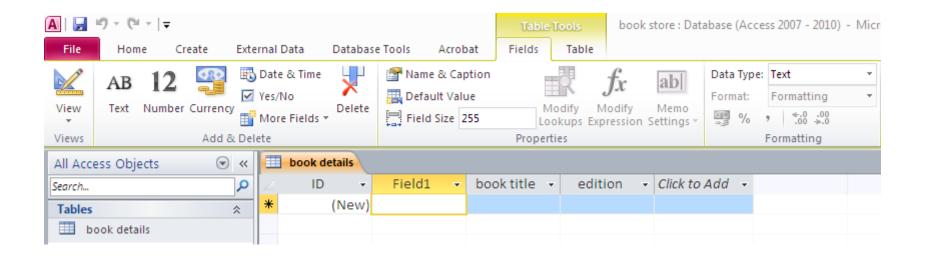




#### Option 3 :

## Rigth Click on a given field and select «insert field», A new field is created before (in the left of) the selected one.

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#### Then you chose its type and rename it.



Format	Use to display
Text	Short, alphanumeric values, such as a last name or a street address. Note, beginning in Access 2013, Text data types have been renamed to <b>Short Text</b> .
Number, Large Number	Numeric values, such as distances. Note that there is a separate data type for currency.
Currency	Monetary values.
Yes/No	Yes and No values and fields that contain only one of two values.
Date/Time	Date and Time values for the years 100 through 9999.
Rich Text	Text or combinations of text and numbers that can be formatted using color and font controls.

Calculated Field	Results of a calculation. The calculation must refer to other fields in the same table. You would use the Expression Builder to create the calculation. Note, Calculated fields were first introduced in Access 2010.
Attachment	Attached images, spreadsheet files, documents, charts, and other types of supported files to the records in your database, similar to attaching files to e-mail messages.
Hyperlink	Text or combinations of text and numbers stored as text and used as a hyperlink address.
Memo	Long blocks of text. A typical use of a Memo field would be a detailed product description. Note, beginning in Access 2013, Memo data types have been renamed to Long Text.
Lookup	Displays either a list of values that is retrieved from a table or query, or a set of values that you specified when you created the field. The Lookup Wizard starts and you can create a Lookup field. The data type of a Lookup field is either Text or Number, depending on the choices that you make in the wizard. Lookup fields have an additional set of field properties, which are located on the <b>Lookup</b>
	tab in the <b>Field Properties</b> pane.

#### Number

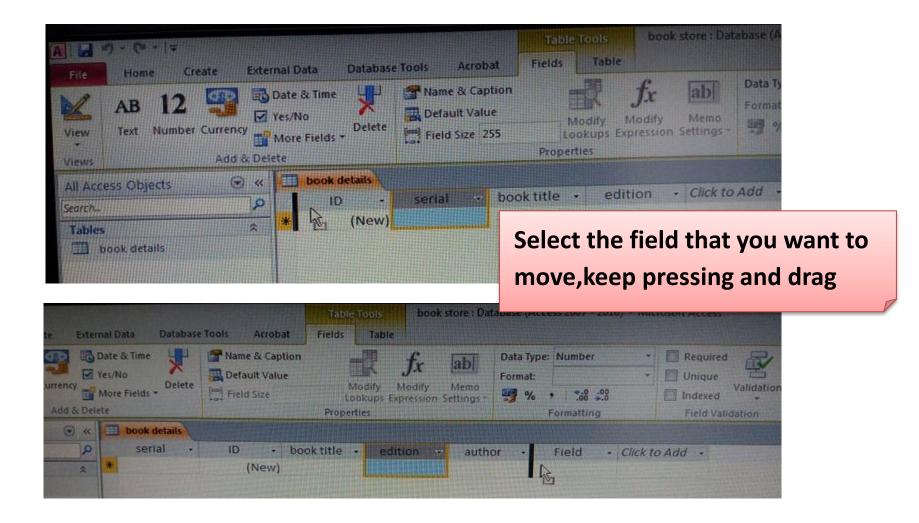
Format	Use to display
General	Numbers without additional formatting exactly as it is stored.
Currency	General monetary values.
Euro	General monetary values stored in the EU format.
Fixed	Numeric data.
Standard	Numeric data with decimal.
Percentage	Percentages.
Scientific	Calculations.

#### Date and Time

Format	Use to display
Short Date	Display the date in a short format. Depends on your regional date and time settings. For example, 3/14/2001 for USA.
Medium Date	Display the date in medium format. For example, 3-Apr-09 for USA.
Long Date	Display the date in a long format. Depends on you're the regional date and time settings. For example, Wednesday, March 14, 2001 for USA.
Time am/pm	Display the time only using a 12 hour format that will respond to changes in the regional date and time settings.
Medium Time	Display the time followed by AM/PM.
Time 24hour	Display the time only using a 24 hour format that will respond to changes in the regional date and time settings

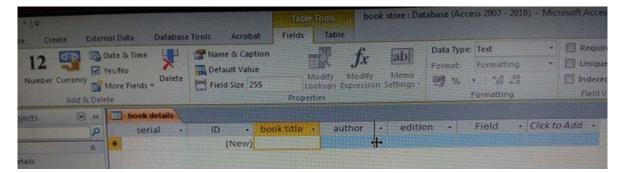
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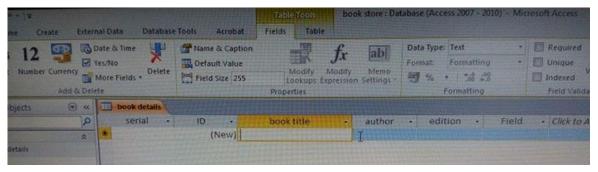


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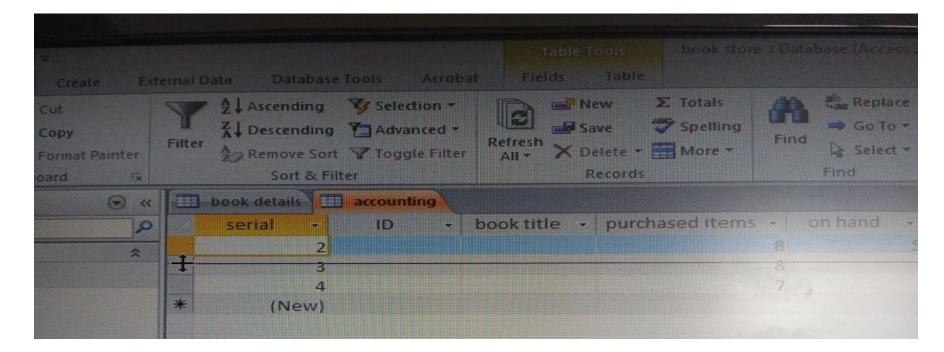
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Method 2 : Right click on the field name

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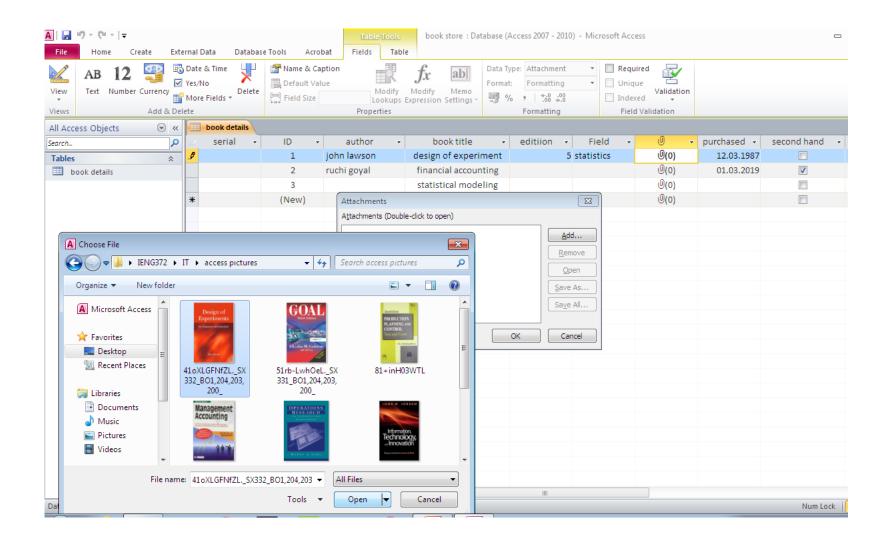
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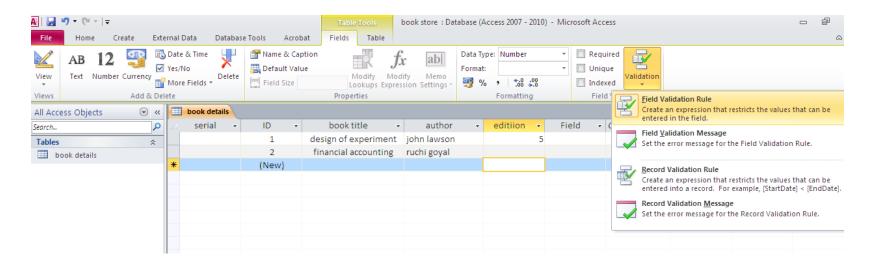
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# **Field Validation rule**

You can use the **Validation Rule** property to require specific values, and the **Validation Text** property to alert your users to any mistakes. For example, entering a rule such as >100 And <1000 in the **Validation Rule** property forces users to enter values between 100 and 1,000. A rule such as [EndDate]>=[StartDate] forces users to enter an ending date that occurs on or after a starting date.

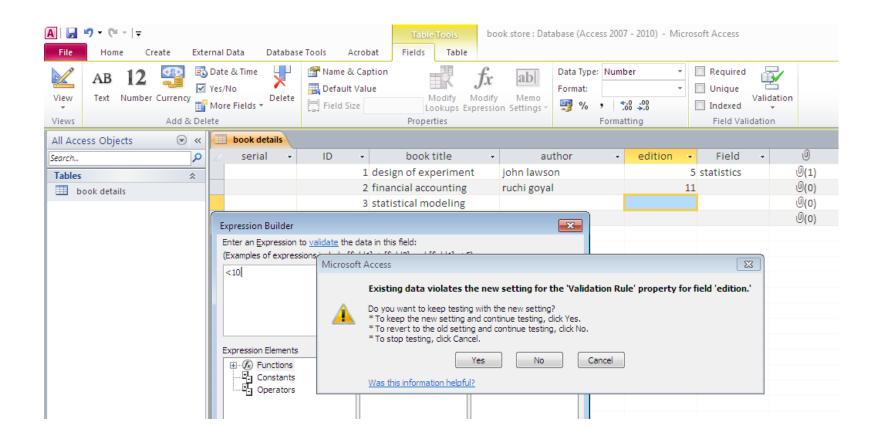


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But if there are already some records which violate the new setting (new validation rule) we will have to chose :

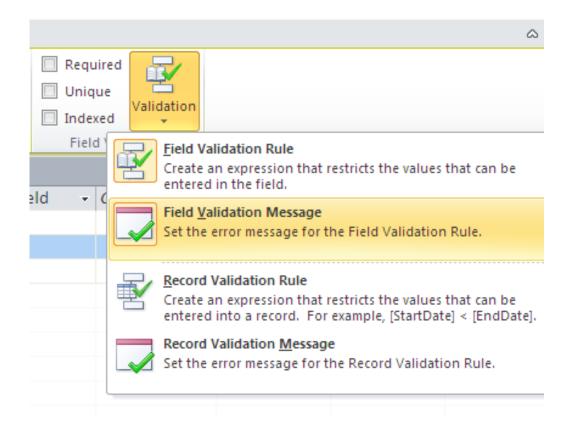
**YES** : access will keep these records and will start testing from the future one,

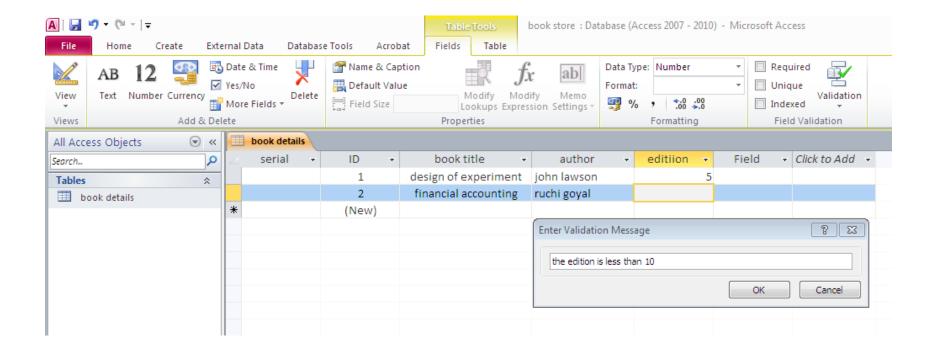
**NO** : the nes validation rule will be deleted ,and we will continue without testing



# **Field Validation message**

Entering text such as "Enter values between 100 and 1,000" or "Enter an ending date on or after the start date" in the **Validation Text** property tells users when they have made a mistake and how to fix the error.





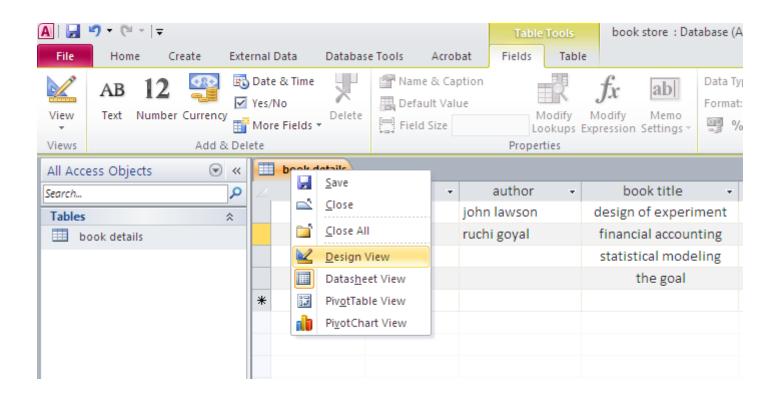
### **Required field :**

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ID	-	book title		thor	Ŧ	edition	•	Field	~	0
	1 de	sign of experiment	john lawso	n			5 st	atistics		0(1)
	2 fin	ancial accounting	ruchi goyal							<b>0(0)</b>
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1	Microsoft A	Access Existing data violates Do you want to keep testi * To keep the new setting * To revert to the old sett * To stop testing, click Car Yes Was this information helpf	ng with the new se and continue testir ing and continue te ncel.	tting? ng, click Yes.	).	l' property for	field	छ 'Field.'		

# The field «Field» is now required, it is impossible to add a new record (5th) unless we fill that field for the 4th record

	book detail	s												
4	serial	Ŧ	ID	- author	-	book title 👻 👻	editiion 👻	Field 👻	0 -	purchased 👻				
			1	john lawson		design of experiment	5	statistics	<b>(</b> 1)	12.03.1987				
			2	ruchi goyal		financial accounting			<b>(0)</b>	01.03.2019				
			3			statistical modeling			<b>(0)</b>					
8			4			the goal			<b>(0)</b>					
*			(New)						<b>(0)</b>					
							Microsoft	oft Access 🛛 🕅						
							<u> </u>	You must enter a value in the 'book details.Field' field.						
								OK Help						
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# **Design View**



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	Caption						
	Default Value						
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	Validation Text			including spaces. Press F1 for help on field			
	Required No			names.			
	Allow Zero Length Yes						
	Indexed No Unicode Compression Yes						
	IME Mode No Control						
	IME Sentence Mode None						
	Smart Tags		•				

## We can rename and modify our fields :

	book details		
2	Field Name	Data Type	
P	ID	AutoNumber	
	serial	Text	▼
	book title	Text	
	edition	Memo	
	author	Number	
	Field	Date/Time	
	cover	Currency	
	purchased	AutoNumber	
	second hand	Yes/No	
		OLE Object	
		Hyperlink	
		Attachment	
		Calculated	
		Lookup Wizard	Field Deeperation
		L	Field Properties

#### We want to set the field ID as a text and serial as an autonumber

ſ	book details		:	× Pr	o				
[	Field Name	Data Type	Description	se Se					
٩	B ID	AutoNumber		G	e				
	serial	Text 💌		R	e				
	book title	Text		S	u				
	Microsoft Access			8	u Dri				
	Microsoft Access Once you enter data in a table, you can't change the data type of any field to AutoNumber, even if you haven't yet added data to that field. Add a new field to the table, and define its data type as AutoNumber. Microsoft Access then enters data in the AutoNumber field automatically, numbering the records consecutively starting with 1. OK Was this information helpful?								
			r	• 0	)r				

#### So , we will rename the field «ID» to «serial» and vice versa. We can permutate the order of our fields by drag.

<b>book details</b>		
🖉 🔰 🖌 Field Name	Data Type	Des
😵 Serial	AutoNumber	
ID	Text	
book title	Text	
edition	Number	
author	Text	
Field	Text	
cover	Attachment	
purchased	Date/Time	
second hand	Yes/No	
		Field Properties

### primary key

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	Field	1	lext 🛛	
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	purchased	[	Date/Time	
	second hand	Y	/es/No	
				Field Properties

### PRIMARY KEY (PRIMARY KEYWORD)

A primary key, also called a primary keyword, is a special relational database table column (or combination of columns) designated to uniquely identify all table records.

It is a unique identifier, such as a driver license number, telephone number (including area code), or vehicle identification number (VIN). A relational database must always have one and only one primary key. A primary key's main features are:

- It must contain a unique value for each row of data (record).
- It cannot contain null values.
- A primary key is either an existing table column or a column that is specifically generated by the database according to a defined sequence.

### **Input masks**

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* Jei			AutoNumber		
	ok title		Text		
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	ation Text				
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Valida Requi Allow Index	iired v Zero Length ked	Yes			
Valida Requi Allow Index	iired v Zero Length ked ode Compressio	Yes No n Yes			
Valida Requi Allow Index Unico IME M	iired v Zero Length ked ode Compressio	Yes			

You can use an input mask to validate data by forcing users to enter values in a specific way. For example, an input mask can force users to enter dates in a European format, such as 2007.04.14. Or to enter a text containing 2 capital letter and 2 numbers....

First click on «input mask» Then click on the «...» that appear

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		Validation Text				A	pattern for all data to be entered in this field			
		Required	No							
		Allow Zero Length	Yes							
		Indexed	No							
		Unicode Compression	Yes							
		IME Mode IME Sentence Mode	No Control None							
		Smart Tags	None							
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#### Press «Help» to see how to input your mask

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Character	Explanation
0	User must enter a digit (0 to 9).
9	User can enter a digit (0 to 9).
#	User can enter a digit, space, plus or minus sign. If skipped, Access enters a blank space.
L	User must enter a letter.
?	User can enter a letter.
А	User must enter a letter or a digit.
а	User can enter a letter or a digit.
&	User must enter either a character or a space.

С	User can enter characters or spaces.
.,:;-/	Decimal and thousands placeholders, date and time separators. The character you select depends on your Microsoft Windows regional settings.
>	Coverts all characters that follow to uppercase.
<	Converts all characters that follow to lowercase.
!	Causes the input mask to fill from left to right instead of from right to left.
٨	Characters immediately following will be displayed literally.
	Characters enclosed in double quotation marks will be displayed literally.

Customize In Do you want to e		ard masks for the Input Ma	<ul> <li>&gt; : the following caracters are capital.</li> <li>L : The user must enter a letter</li> <li>0: The user must enter a number</li> </ul>					
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Inspiration exists, but it has to find you working

- PABLO PICASSO