

Using Databases - Microsoft Access 2010

Notes

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Preface

Today's society is shaped by sudden growth and development of the information technology (IT) resulting with its great dependency on the knowledge and competence of individuals from the IT area. Although this dependency is growing day by day, the **human right to education and information** is not extended to the IT area. Problems that are affecting society as a whole are emerging, creating gaps and distancing people from the main reason and motivation for advancement – from **opportunity**. Being a computer illiterate person today means being a person who is unable to participate in modern society, and a person without opportunity; and despite the acknowledged necessity and benefits of inclusive computer literacy from institutions like the European Commission, UNESCO, OECD, there are still groups of people having difficulties accessing basic computer education viz. persons with disabilities, persons with learning difficulties, migrant workers, unemployed persons, persons that live in remote (rural) areas where IT education is not accessible.

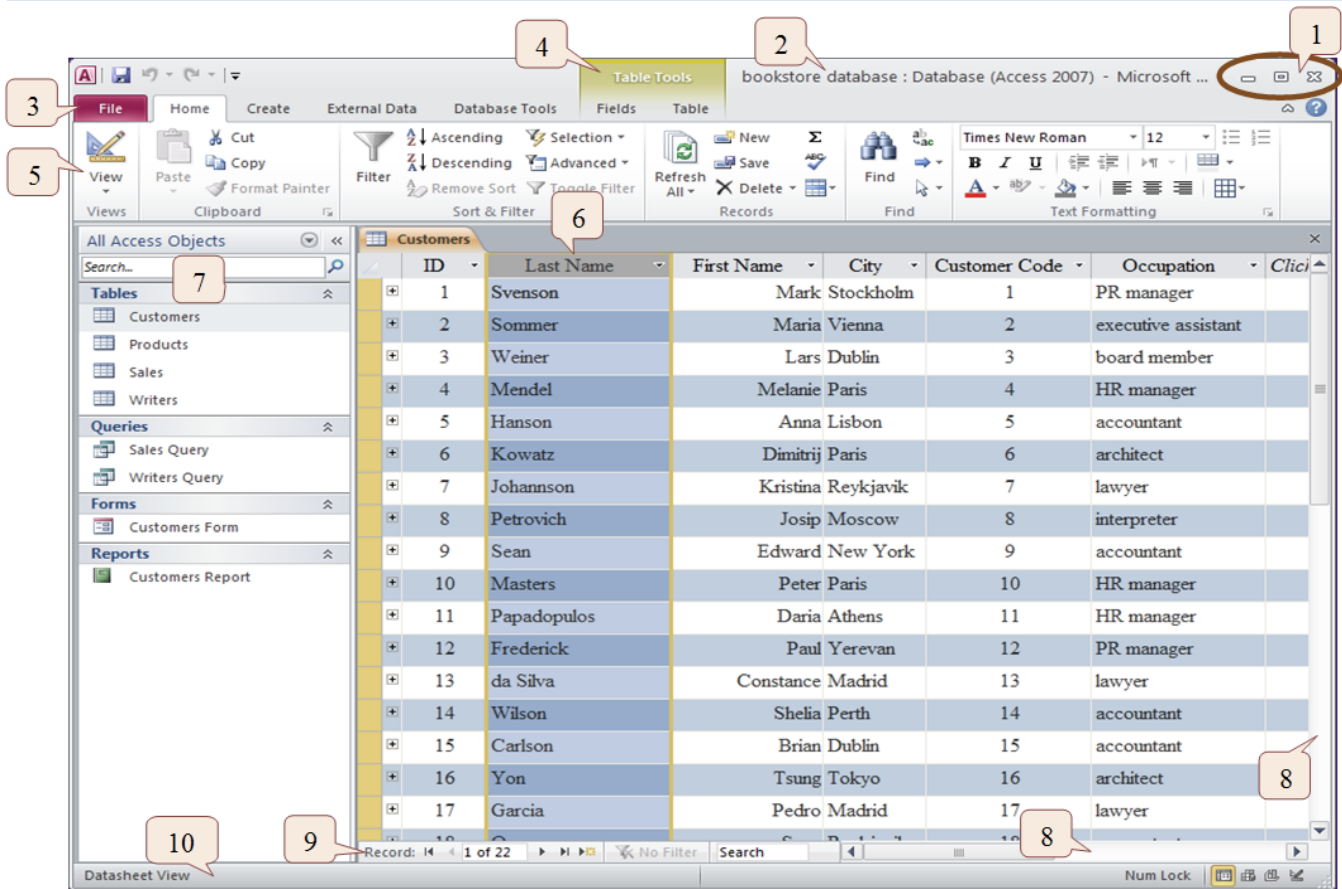
These notes, combined with other materials published on ITdesk.info, represent our effort and contribution to promotion of the human right to education and information considering IT area. We hope that this education will help you master basic computer skills and with that hope we wish you to learn as much as you can thus becoming an active member of modern IT society.

Sincerely yours,

ITdesk.info team



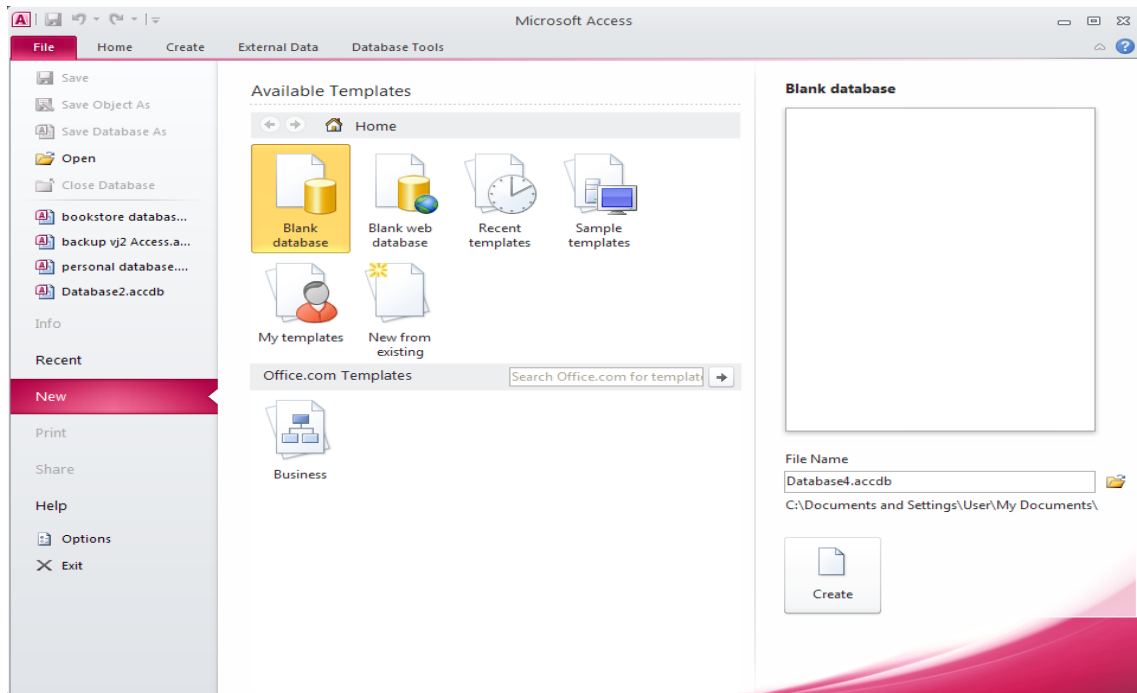
MICROSOFT ACCESS 2010 – INTERFACE ELEMENTS




1. Buttons to manipulate the window - minimize, maximize, close window
2. Title Bar - contains name of the document and the name of the program
3. Tab names – to access various functions in the program:
 - File
 - Home
 - Create
 - External Data
 - Database Tools
 - Fields
 - Table
4. extra tabs appear when an object is open/selected; on the image above object *table* is open → extra tab Table Tools with tabs Fields and Table becomes visible
5. Toolbar
 - some tools have hidden tools. If they do have hidden tools, they have an arrow in their lower right corner which, when clicked, displays additional options
 - tools that cannot be applied on selected object are greyed out
 - toolbars with Tab names are called Ribbon
6. Area for data processing. In picture, “Last Name” field within the “Customers” table is selected
7. Pane that lists objects of this database:
 - Tables,
 - Queries,
 - Forms,
 - Reports

8. Bars for horizontal and vertical navigation (sliders) – can be used through keyboard or mouse
9. Bar for navigation and records search
10. Status bar - displays information about some special functions of Microsoft Access

FILE MENU




Save  (keyboard shortcut Ctrl + S). When the file is saved for a first time, Save As dialogue box appears, with fields to enter file location, name and type:

- Save in - location where file will be saved
- Database name - type in name of the file
- Save as type – file type

To create a new database: choose New option, then Blank database, and finally choose Create button.

Creating new file using template: after you have chosen New option, select Sample Templates option

Open existing file  - to open several files at once use the Ctrl key or the Shift key in order to select multiple files

TABLES

Each table should contain information relating to one type of the subject.

Record – database row; used for entering data about record (text, number, date, etc.)

Selecting record - press left mouse button on the record's right border

Selecting column (field): press left mouse button on the name of the column (field)

Entering data - select a cell within the record and type in text, number, data, etc.

Editing existing content – select a cell within the record and change data



Navigation through record: using TAB key, arrow keys on the keyboard, or with left mouse button

Selecting several adjacent rows: press and hold the mouse button on the row's right border, move the mouse to the last row and release the left button (or using Shift key, press and hold Shift key, select first row with left mouse click, and then select last row. Release Shift key)

Selecting several non-adjacent records: press and hold the Ctrl key, select the records, release the Ctrl key

COPYING CONTENT WITHIN A TABLE AND BETWEEN OPEN TABLES

Copy/Paste method:



1. select entire record or just the data you want to copy
2. on the edge of the selected record, i.e. over the selected content press right mouse button and on the quick menu choose option Copy  (or use keyboard shortcut: Ctrl+C)
3. position the cursor to the place where you want to copy data
4. press right mouse button and on the quick menu choose one of the paste options  (or use keyboard shortcut: Ctrl+V)

Also, content may be copied using “drag-and-drop” method:

1. Select the entire record or just data you want to copy. Press and hold down left mouse button over selected data,
2. “drag” the mouse to the place where you want to copy selected content,
3. release left mouse button; content is copied to new location.
(*in this manner, in other Microsoft programs, moving data is done, not copying!*)

MOVING CONTENT WITHIN A TABLE AND BETWEEN OPEN TABLES

Cut/Paste method:

1. select the entire record or just data you want to copy,
2. press right mouse button over the selected content and choose option Cut  on the quick menu (or use keyboard shortcut: Ctrl +X)
3. position the cursor to the place where you want to move data
4. press right mouse button and on the quick menu choose one of the paste options  (or use keyboard shortcut: Ctrl + V)

WORKING WITH TABLES

Each field in the table should contain only one element of data.

Content field is associated with a particular type of data as text, number, date / time, yes / no.

Fields have appropriate properties as: field size, format, common values.


Indexing (with or without allowing duplicates) – provides quicker access to data

Required – fields in which data entry is mandatory

Open an existing table – double-click left mouse button on the name of the table within the object pane

Delete table - press right mouse button on the name of the table in the object pane and choose Delete on the quick menu

(other database objects are opened and deleted in the same manner!)

 Ascending

 Descending

- sorting records in a table, query, or a form in ascending, descending, numerical or alphabetical order



View button - change type of table, query, form, report view

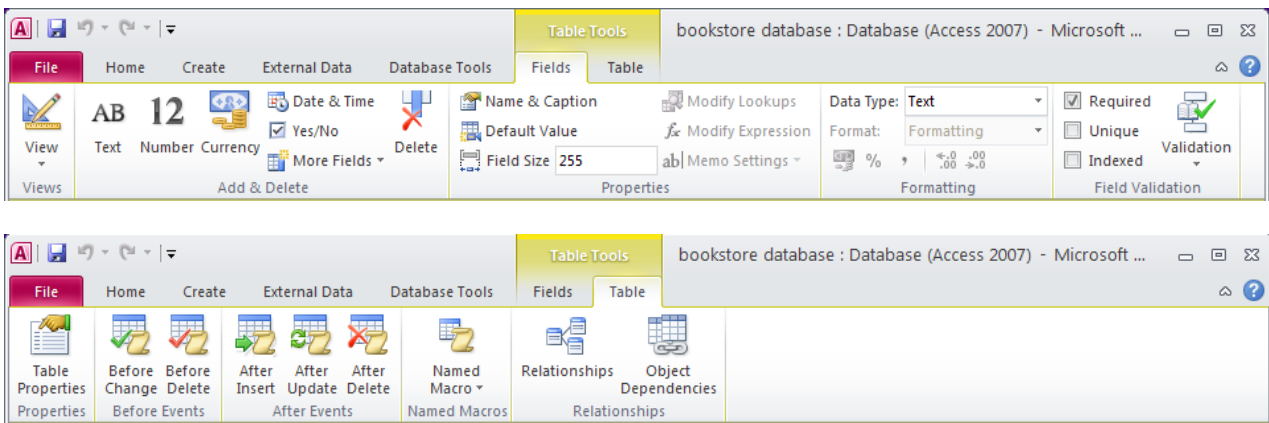
- Datasheet view – used for data entry
 - Changing the width of a column in the table:
 - a) place mouse on the delimiter between 2 columns, press and hold left mouse button, "drag" delimiter in order to adjust column width and release the mouse button (drag-and-drop method), or
 - b) select column (field), and on the Home tab choose More option, then choose Column Width and enter desired width in units
 - Find function – type in content (words, numbers, dates etc.) you wish to search for
 - To apply the data filter to a table: select the column (field), and on Home tab choose Selection type among listed: “Equals”, “Does not equal”, “Contain”, “Does not contain”
 - To remove (toggle) filter press Remove (toggle) filter button.
 - Add field to the existing table
 - a) in previous versions of Microsoft Access fields could be added only through Design View, but in this recent version, empty field can be added through Datasheet view.
 - b) press left mouse button on the "Add new field" and enter name of the new field; use additional tabs to determine the type of data this field will contain
 - Change order of fields – select the field that you want to reorder, press and hold down left mouse button over the desired field, drag the mouse to where you want to place field and release mouse button (drag-and-drop method)

○ Validation Rules – set rules for data entry, for example: field in which we wish to allow data entry within next 10 days from "today" ("today" is the "present" date in the computer system) - syntax:

$(\text{field_name}) \leq \text{Date}() + 10$

- Field Validation Message – set the message that will appear if there is an attempt to enter data in a manner that violates the validation rule
- Primary key – distinctive field, a unique identification of a record. There cannot be two or more records with same primary key
- *Changing data type note:* - If data types are changed, there may be loss of data (e.g. if the record length decreases by a digit).

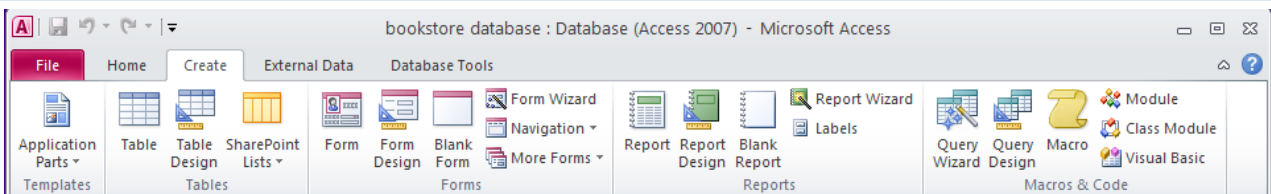
Table Tools tab with Fields and Table tabs



Relationships – selecting this tool enables linking tables based on relationship (relationship: relation based on equality of field from one table to a field in another table)

- the purpose of relationships is to enable building query from two or more tables

CREATE TAB



• tab for creating database objects. They can be created in 3 ways:

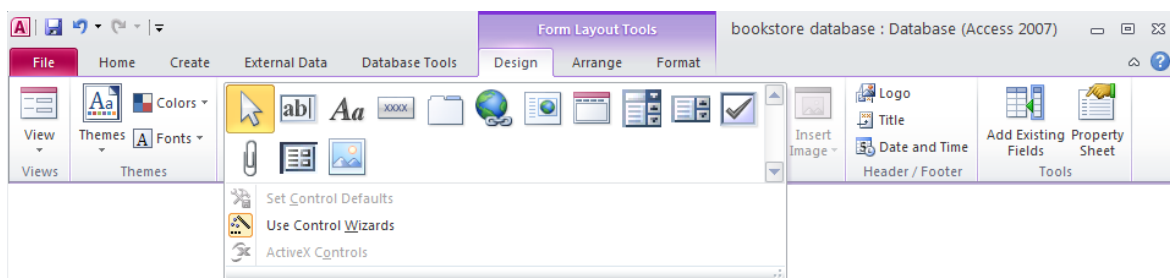
1. directly create a new object and enter data
2. create new object in the Design view and define its basic settings
3. run Wizard to define basic object settings in a few simple steps

Query

- used for data extraction and analysis
- query can be build:
 - from a table using specific search terms
 - from two or more tables with defined relationships, using specific search terms
- you can add terms to the query using one or more of the following operators: = (equals), <> (different than), < (less than), <= (less than or equal), > (greater than), >= (greater than or equal).
- “joker „characters that are used in queries: *, %, ?
- you can edit query by adding, modifying or deleting terms
- you can edit query by adding, moving, deleting, hiding and un-hiding fields

Form

- used for reviewing and managing records
- forms are used to enter new records, as well as to modify or delete the existing
- setting order of records within a form –via drag-and-drop method
- setting forms header and footer – enter and format text

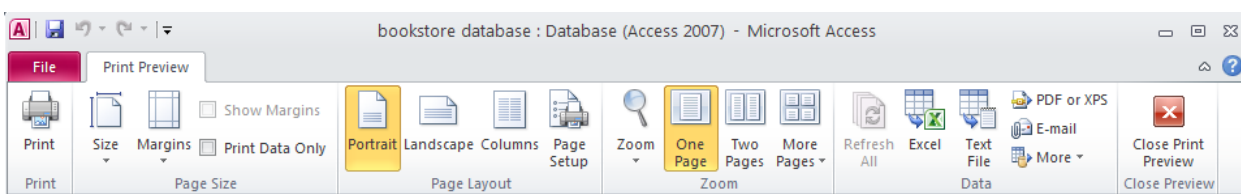


Report – used for building reports and printing data from table or query

The simplest way to create report: run Report Wizard, and:

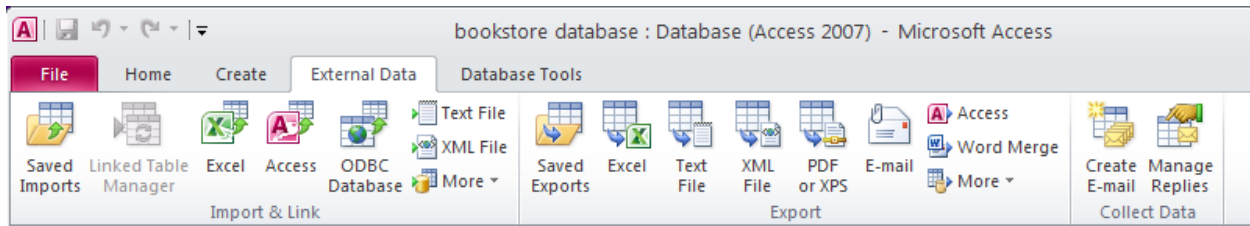
- select table or query you need the report on
- determine the distribution of data fields and the title of the report
- display of certain fields in the report, grouped according to the criterion of sum, minimum, maximum, average, count
- enter header and footer information

Print Preview:



- you can change:
 - Orientation: Portrait / Landscape
 - Paper size – adjust to a different paper size
 - Page Setup – define data print range: selected or all records

EXTERNAL DATA TAB



Exporting table or query result to a different file format (spreadsheets, text (.txt, .csv), XML

- exported data can be formatted, edited, deleted, or we can add new data by using the appropriate application (file type: text - we will use text editor, file type: xlsx - we will use spreadsheet application etc.)

*These notes are intended for learning in conjunction with materials
published on the following links:*

***Video presentations for a basic use of Microsoft Access 2010:**

- <http://www.itdesk.info/en/microsoft-access-2010-using-databases-1> and
- <http://www.itdesk.info/en/microsoft-access-2010-using-databases-2> .

***Sample exam for module 5 is published at:**

[http://www.itdesk.info/sample exam/sample exam module 5.pdf](http://www.itdesk.info/sample%20exam/sample%20exam%20module%205.pdf)

***Exam solution for this sample exam is published at:**

<http://www.itdesk.info/en/exam-solution-module-5>

***Quiz for self-evaluation is published at:**

<http://www.itdesk.info/en/databases-quiz>

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