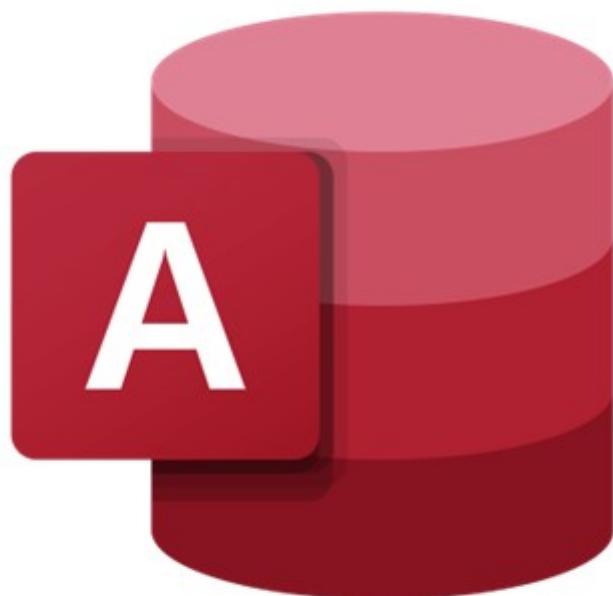


Getting Started With Microsoft Access Database

Nov 2025



Learn to Design, Build, and Use Databases

Said Fawzy

Table of Content:

Contents

INTRODUCTION.....	5
HOW TO USE THIS BOOK	5
CHAPTER 1: WHAT IS A DATABASE.....	7
1.1 DEFINITIONS:	7
1.2 EXAMPLE: STUDENT DATABASE:	7
DATABASE SYSTEM ENVIRONMENT:	9
1.3 ACTORS ON THE SCENE:	9
1.4 DATA MODELS, SCHEMAS, AND INSTANCES:	9
1.5 CYCLE OF CREATING DATABASE AND ITS USERS:	10
1.6 DBMS ARCHITECTURE (THREE SCHEMA ARCHITECTURE).....	11
1.7 DATA MODELS	11
1.8 MAPPINGS	12
1.9 DBMS OTHER FUNCTIONS.....	12
1.10 DATABASE ENVIRONMENT	12
CHAPTER 2 EXPLORING MS ACCESS DATABASE.....	14
WHAT IS MS ACCESS?.....	14
CREATING NEW DATABASE.....	14
LAB 1A: EXPLORING DATABASE.....	14
LAB 1B: CREATING DATABASE FROM TEMPLATE.	17
SOME ACCESS TERMINOLOGY	23
ACCESS OBJECTS AND THE 3 TIER LAYERS OF DATABASE	23
2.2 TASK 2: BE A RDMS FOR 10 MINUTES.....	23
CHAPTER 3: ENTITY RELATIONSHIP DIAGRAM ERD	24
3.1 DEFINITIONS	24
• 3.2 BUILD ERD	25
3.3 TASK 3: CREATE ERD	25
3.4 ACTIVITY 1: CREATE YOUR OWN ERD	26
3.5 RELATIONSHIP	26
3.6 TASK 4: DEFINE RELATIONSHIP IN ERD	26
3.7ACTIVITY 2: DEFINE RELATIONSHIPS	26
CHAPTER 4: LOGICAL MODEL	28
4.1 TASK 5: ERD MAPPING TO TABLES.....	28
4.2 ACTIVITY 3: MAP YOUR CONCEPTUAL MODEL TO TABLE.....	28
4.3 DATABASE CONSTRAINTS.....	28
CHAPTER 5 BUILDING TABLES	30
LAB 2A: CREATING TABLE IN DATASHEET VIEW	30
LAB 2B CREATING A TABLE USING DESIGN VIEW	31
ACCESS DATA TYPES.....	31
LAB 2C: CREATING TABLE FROM TABLE TEMPLATE.....	32
TABLE DATASHEET VIEW.....	32
LAB 2D: WORKING WITH TABLE DATASHEET VIEW.....	33
LAB 2E: CHANGE FIELDS PROPERTIES	34

CHAPTER 6: TABLES RELATIONSHIP	36
PRIMARY KEY.....	36
LAB 3A: SETTING PRIMARY AND SECONDARY KEYS.....	36
THE RELATIONSHIP WINDOW	38
LAB 3B: DEFINE RELATIONSHIP BETWEEN TABLES	38
CASCADE OPTIONS.....	41
CHAPTER 7: QUERY BASICS	42
LAB 4A: CREATING QUERY USING WIZARD	42
LAB 4B: CREATE QUERY USING DESIGN VIEW	42
LAB 4C: CUSTOMIZE QUERY WITH CRITERIA	44
CHAPTER 8: FORM BASICS	46
BENEFITS OF USING FORMS	46
LAB 9A: CREATING A FORM.....	46
FROM THREE VIEW MODES.....	49
CHAPTER 9: REPORT BASICS.....	50
WHAT IS REPORT.....	50
LAB 13A: CREATE A SIMPLE REPORT	50
LAB 13B: EXPLORING REPORT DESIGN VIEW	51
CHAPTER 10: ADVANCED QUERY TOPICS	53
TYPES OF JOINTS.....	53
LAB 5A: CONTROLLING QUERY RESULTS WITH JOIN TYPES.....	53
QUERY CRITERIA.....	55
LAB 5B: CREATING COMPLEX QUERIES WITH MULTIPLE CRITERIA	55
LAB 5C: CALCULATING IN QUERIES USING EXPRESSION BUILDER.....	57
EXPRESSION SYNTAX.....	59
LAB 5D: CONCATENATE FIELDS IN QUERY.....	59
LAB 5E: SUMMARIZING AND GROUPING DATA USING QUERY	62
LAB 5F: USING WHERE AND HAVING IN GROUPING	63
CHAPTER 11: AUTOMATING QUERIES WITH PARAMETERS	64
WHAT IS A PARAMETER QUERY?	64
LAB 6A: CREATING AUTOMATED REQUESTS FOR CRITERIA.....	64
SYNTAX FOR A PARAMETER QUERY.....	65
LAB 6B: QUERY WITH MULTIPLE PARAMETERS.....	65
CHAPTER 12: ACTION QUERIES	67
LAB 7A: ACTION QUERIES	67
CHAPTER 13: ADVANCED FORM DESIGN TECHNIQUES.....	70
FORM DESIGN CANVAS.....	70
LAB 10A: CREATING FORM USING BLANK FORM.....	70
FORM SECTIONS	72
FORM CONTROLS.....	72
FORM PROPERTY SHEET	73
LAB 10B: CONTINUE EXPLORING FORM	73
SUBFORMS.....	76
LAB 10C: CREATING SUBFORMS	76
TABBED FORM	78
LAB 10D: CREATING TABBED FORM.....	79

SPLIT FORMS	81
LAB 10E: CREATING SPLIT FORM.....	81
DEFAULT VALUE	82
LAB 10F: USING DEFAULT VALUE IN A FORM.....	82
FORM TAB ORDER.....	83
LAB 10G: ARRANGE THE TAB ORDER IN A FORM.....	83
LAB 10H: ADDING A BUTTON CONTROL TO A FORM	83
CHAPTER 14: NAVIGATION AND SWITCHBOARD FORMS	85
NAVIGATION FORM.....	85
LAB 11A: CREATING A NAVIGATION FORM.....	85
SWITCHBOARD	87
LAB 11B: CREATING A SWITCHBOARD FORM	87
CHAPTER 15: ADVANCED REPORT DESIGN TECHNIQUES	90
REPORT DESIGN CANVAS	90
REPORT SECTIONS.....	90
LAB 14A: CREATING A REPORT FROM SCRATCH.....	90
REPORT GROUPS, SORTING AND TOTALS	95
LAB 14B: REPORT GROUPING, SORTING AND TOTALS.....	95
LAB 14C: GROUPING REPORT DATA USING WIZARD	96
SUB REPORTS.....	99
LAB 14D: SUB REPORTS	99
USING REPORT WIZARD.....	100
THE ADVANTAGES OF REPORT WIZARD	101
LAB 14E: BUILDING REPORTS USING WIZARD.....	101
CHAPTER 16: FINAL PROJECT.....	104
BUILD YOUR PROJECT PAR 1 (CREATING TABLES).....	104
BUILD YOUR PROJECT PART 2 (CREATING QUERIES)	105
BUILD YOUR PROJECT PART 3 (CREATING FORMS)	107
DESIGN EMPLOYEE FORM IN DETAILS	110
BUILD YOUR PROJECT PART IV (CREATING REPORTS)	114
CONCLUSION	117

Introduction

This book is my training guide on **Microsoft Access**, created specifically for beginners — people who are new to databases or who want to build a solid foundation before moving on to more advanced concepts.

Access is one of the most powerful yet user-friendly database tools available. It helps you **design, build, and manage data efficiently**, whether you're tracking clients, managing projects, or achieving documents. In this book, you'll learn how databases work, how to create tables, forms, queries, and reports, and how all these components connect to form a complete information system.

The approach is **simple and practical**. Every concept is introduced step-by-step through hands-on exercises, so you can learn by doing. By the time you finish, you'll be confident in building your own database from scratch and understanding the logic behind data design.

All the training materials, including **exercise files, solution files, and PowerPoint slides**, are available on my GitHub profile:

 <https://github.com/saidfawzy>

You can also watch the complete video training for this course on my YouTube channel, organized in playlists for easy navigation:

 www.youtube.com/saidfawzy

How to Use This Book

- Follow each chapter in order — each one builds on the skills from the previous chapter.
- Complete all exercises before moving forward; practice is the key to understanding databases.
- At the end of each chapter, you'll find a short **self-test exam** to help you measure your progress.

If you want feedback, feel free to send me your completed exercises or self-test files, and I'll be happy to review them and share my comments.

I also recommend following along with the **YouTube videos** while reading this book and using the provided **presentation and practice files**. The best way to learn Access is to explore, experiment, and see how data connects together.

Stay Connected

If you'd like to connect or ask questions, you can reach me through my LinkedIn profile:

 www.linkedin.com/in/saidfawzy

You can also join my Power BI communities:

- [Facebook Group](#)
- [WhatsApp Group](#)
- [LinkedIn Group](#)
- [Telegram Group](#)

This book and its materials are **completely free**. You're welcome to share them with others, and you should never hesitate to contact me if you need help.

Said Fawzy

Manager of Information Center

Arab Contractors

November 2025

Chapter 1: What is a Database.

1.1 Definitions:

Database:

- A database is a collection of related data. By data, we mean known facts that can be recorded and that have implicit meaning. For example, consider the names, telephone numbers, and addresses of the people you know.
- . A database has the following implicit properties:
 - A database represents some aspect of the real world, sometimes called the **miniworld** or the **universe of discourse (UoD)**. Changes to the **miniworld** are reflected in the database.
 - A database is a logically coherent collection of data with some inherent meaning. A random assortment of data cannot correctly be referred to as a database.
 - A database is designed, built, and populated with data for a specific purpose. It has an intended group of users and some preconceived applications in which these users are interested.

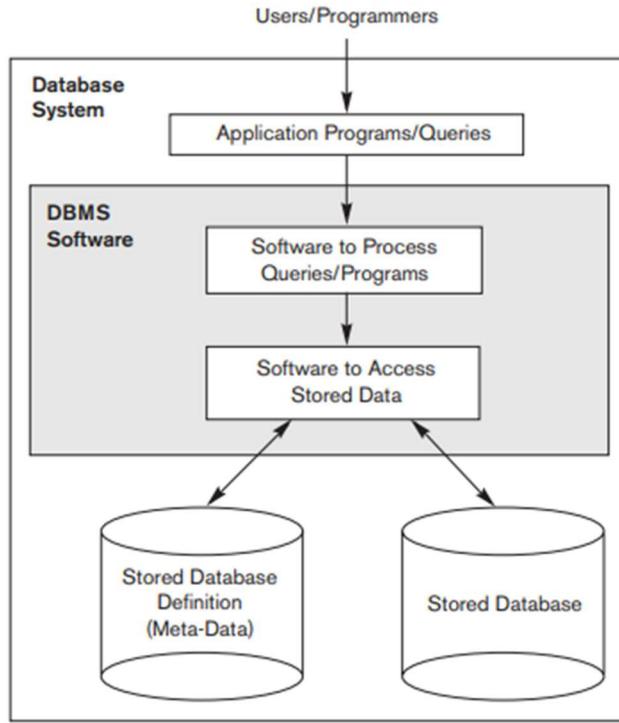
Examples of Database:

- **Traditional database Application** (store text and numeric information).
- **Multimedia databases** (store images, audio clips and video streams).
- **Geographic Information Systems (GIS)** (stores Maps, weather data ,and satellite images).
- **Data warehouses and online analytical processing (OLAP)** (Extract and analyze business information and support decision making).

Database management system (DBMS)

- it is a computerized system that enables users to create and maintain a database. The DBMS is a general-purpose software system that facilitates the processes of defining, constructing, manipulating, and sharing databases among various users and applications.

1.2 Example: Student Database:



STUDENT

Name	Student_number	Class	Major
Smith	17	1	CS
Brown	8	2	CS

COURSE

Course_name	Course_number	Credit_hours	Department
Intro to Computer Science	CS1310	4	CS
Data Structures	CS3320	4	CS
Discrete Mathematics	MATH2410	3	MATH
Database	CS3380	3	CS

SECTION

Section_identifier	Course_number	Semester	Year	Instructor
85	MATH2410	Fall	07	King
92	CS1310	Fall	07	Anderson
102	CS3320	Spring	08	Knuth
112	MATH2410	Fall	08	Chang
119	CS1310	Fall	08	Anderson
135	CS3380	Fall	08	Stone

GRADE_REPORT

Student_number	Section_identifier	Grade
17	112	B
17	119	C
8	85	A
8	92	A
8	102	B
8	135	A

PREREQUISITE

Course_number	Prerequisite_number
CS3380	CS3320
CS3380	MATH2410
CS3320	CS1310

Database System Environment:

1.3 Actors on the Scene:

- **Database administrator (DBA)** is responsible for authorizing access to the database, coordinating and monitoring its use, and acquiring software and hardware resources as needed.
- **Database designers** are responsible for identifying the data to be stored in the database and for choosing appropriate structures to represent and store this data.
- **End users** are the people whose jobs require access to the database for querying, updating, and generating reports.
- **Software developers (Software engineers):**
 - **System analysts** determine the requirements of end users, especially naive and parametric end users, and develop specifications for standard canned transactions that meet these requirements.
 - **Application programmers** implement these specifications as programs; then they test, debug, document, and maintain these canned transactions.

1.4 Data Models, Schemas, and Instances:

Data Model:

- A collection of concepts that can be used to describe the structure of a database—provides the necessary means to achieve this abstraction.
- By structure of a database, we mean the data types, relationships, and constraints that apply to the data.
- we can categorize into:
 - **conceptual data models (high level):** provide concepts that are close to the way many users perceive data.
 - **physical data models (low-level):** provide concepts that describe the details of how data is stored on the computer storage media.
 - **representational (or implementation) data models:** provide concepts that may be easily understood by end users but that are not too far removed from the way data is organized in computer storage.

Database Schema:

- The description of a database is called the **database schema**, which is specified during database design and is not expected to change frequently.
- Most data models have certain conventions for displaying schemas as diagrams.

- A displayed schema is called a **schema diagram**.

Instance:

- The data in the database at a particular moment in time is called a **database state or snapshot**.
- It is also called the *current* set of **occurrences** or **instances** in the database.

1.5 Cycle of Creating Database and its Users:

step 1: Analysis and Requirements gathering

- Responsible: **System analyst**
- Gathering requirements from client.
 - what is the type of the business?
 - why you need database.
 - the main transaction in Database (update, retrieve, data analysis).
 - how many users will use Database and their job types.
 - Volume and rate of growth of data
 - what is the infrastructure of the organization networks.
 - What is the budget assigned to the new project?

step 2: Design Database

Responsible: **Database Designer**

- convert requirements into design.
- create data model (conceptual schema).
- suggest the structure of the database.
- how tables and database objects should look like.

Step 3: implementation

Responsible: **Database Administrator (DBA)**

- Convert the design into tables and Database objects.
- Install DBMS.
- Create DB schema and populate data.
- Create Users and authorize access to DB.
- Users include Application Programmer
- Maintain DB performance.

Step 4 Application Development

Responsible: **Application Programmer**

- Develop, test and debug the application.
- create the user interface.

- test the system.
 - train the end user.

1.6 DBMS Architecture (Three Schema Architecture)

- External Schema
 - Conceptual Schema
 - Physical schema
 - We use 3 schemas. Why? for data independence
 - that means if a change in low level schema happened the high level do not notice.

External schema

- concerns what the user will see and how the data will be presented to the user.
 - Ex: Financial schema, HR Schema

Conceptual schema (the logical model)

- concerned with what is represented.
 - define database structures.
 - Ex: tables and constraints

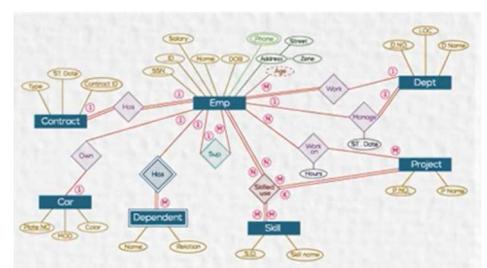
Physical schema (the physical Model)

- how the data is represented in the database.
 - how data structures are implemented.
 - explain the allocation of data on hard disk.
 - it is like a map how my data is allocated on the hard disk (data, free spaces)

1.7 Data Models

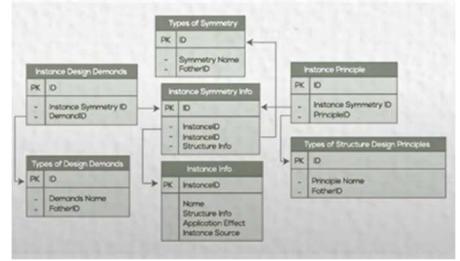
Conceptual Data Model

- provide concepts that are close to the way many users perceive data entities, attributes, and relationships.
 - EX: ERD



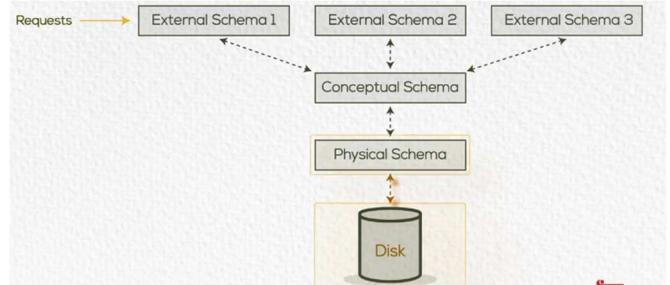
Physical data model

- Describe how data is stored in the computer and the access path needed to access and search for data.



1.8 Mappings

It is the process of transforming requests and results between levels.



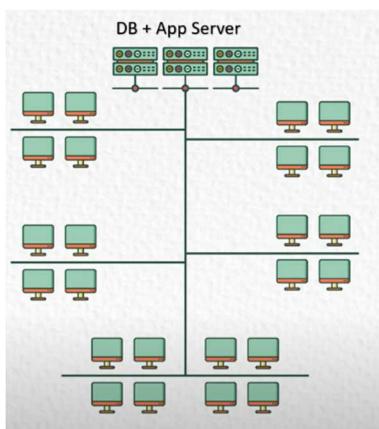
1.9 DBMS other functions

- store Text/Number/Image/Audio/Video
- Store Special Data
- Store Time series
- have in Data mining algorithm.

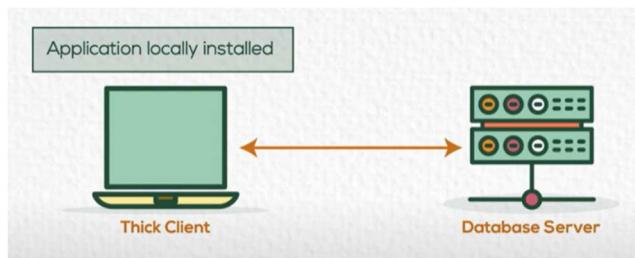
1.10 Database Environment

Centralized Database Environment

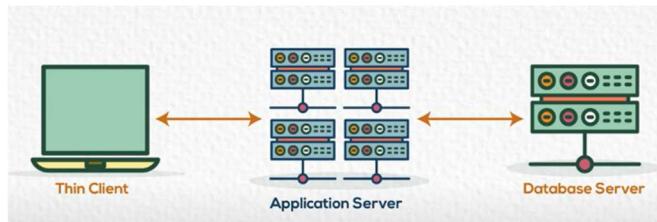
- Mainframe environments.



- **Client Server environment.**



- **Internet computing environment.**



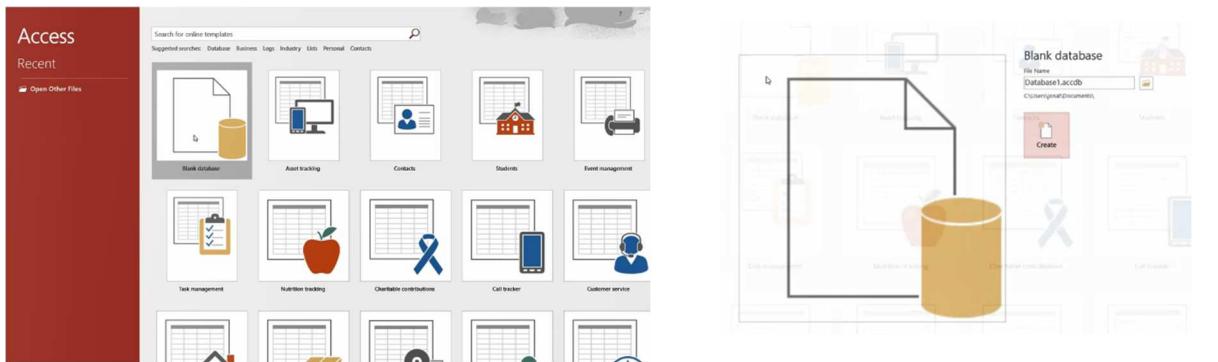
Chapter 2 Exploring MS Access Database

What is MS Access?

- Microsoft Access is a database management system (DBMS) from Microsoft.
- It is a member of the Microsoft 365 suite of applications, included in the Professional and higher editions or sold separately.

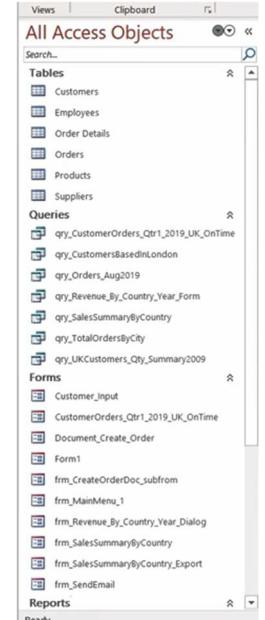
Creating New Database

- You can either select to create database from the template or create a blank Database.
- It asks you to save file first, that is because any object you create in a database is saved directly to your file.



Lab 1A: Exploring Database

1. Open File **Lab01_Start.accdb** from the lab folder.
2. On the right open and close the Navigation Pane using **F11** Function key.
3. Adjust the pane wide and narrow to see all objects.
4. Click the arrow of Option Customize group.
5. You can filter by the main 6 Object type you have in Access (tables – Queriers – Forms – Reports – Macros -Modules).
6. Now select only the **tables**.
7. Now select **all access Objects** again.
8. Double click on the customers table.
9. A table is where you store the data and records of your database.
10. Use the Navigation Buttons on the bottom to:
 - o go from record to record,
 - o go to last and first record and
 - o know how many records you have.
11. As you can see you have 96 records on the table of customers.
12. Double click the employees' table, it opens in another tab view.



13. Tables are like spread sheets as they are **rows** and **columns**.

14. Double click query

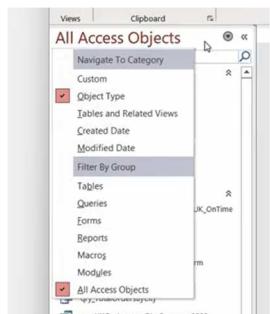
qry_CustomerOrders_Qtr1_2019_UK_OnTime.

15. It will open in another tab with the same layout.

ISLAT	Island Trading	Helen Bennett
KING	Kingsgate Goods	Sir Philip Claythorne

Sort & Filter Records Find

Customers	Employees	qry_CustomerOrders_Qtr1_2019_UK_OnTime					
Company Name		Count	Order	Order Da	Shipped Da	Order Amo	Freight
Babu Ji's Exports		UK	10663	05-Mar-19	28-Mar-19	£1,930.40	£113.15
Blum's Goods		UK	10679	18-Mar-19	25-Mar-19	£660.00	£27.94
Blum's Goods		UK	10628	04-Feb-19	12-Feb-19	£450.00	£30.36
B's Beverages		UK	10599	07-Jan-19	13-Jan-19	£493.00	£29.98



16. This query includes only **28** records for customers of UK orders in Quarter 1 of 2019.

17. This object does not store data, but only **VIEW** data from one or two tables.

18. A query **asks questions** and send instructions to the data and sends you the **result**.

19. Double click query: **qry_CustomersBasedInLondon.**

20. This query shows all customers in London.

21. You can close any tab by clicking on the **X** icon on the tab.

22. You can also right click at any tab and choose: **Close All**.

23. Open the form: **Customer-Input.**

24. A form is another way to view or edit data in a user-friendly way more than table or query.

25. As you can see it shows only one record in the whole page at a time.

26. It also doesn't save records; it only shows records from underlying table or query.

27. Open form: **CustomerOrders_Qtr1_2019_UK_OnTime.**

28. It is another way to show data in a form like the one in table or query.

29. Open form: **Document_Create_Order.**

30. As you can see, form can be stand free and has no table behind.

31. Open Report: **rpt_AllCustomers.**

32. A report is like a form, but you cannot edit and save record like form.

33. It is only used to preview data.

34. Print preview allows you to print the report.

35. It can be based on table, but most of the time it is based on a query to filter the data that will be printed.

36. You can also see **Macros**, and **Modules**.

37. Macros are simple programing tools.

38. It provides actions to various events.

39. Opening a macro will execute the macro and do the action.

40. Double click Macro: **mcr_PrintExample.**

41. A Module is a ver advanced programing with more advanced coding options than Macros. It uses **VBA** Code.

42. If you double click the Module, it will open in the code window.

43. Notice that:

44. All Access objects have more than one view to work with.

45. For example, open table: **Customers**.

46. It opens in **Datasheet view**.

47. You can right click on the table and switch to **Design View**.

48. Or switch between views from the **Views Group** in the **Home tab**.

The screenshot shows the Microsoft Access ribbon with the 'Home' tab selected. In the 'Views' group, 'Datasheet View' is highlighted. To the right, the 'Customers' table is shown in Design View mode. The 'Field Properties' pane is open, displaying detailed information for each field such as data type, validation rules, and required status.

49. Go and review a query in Design View

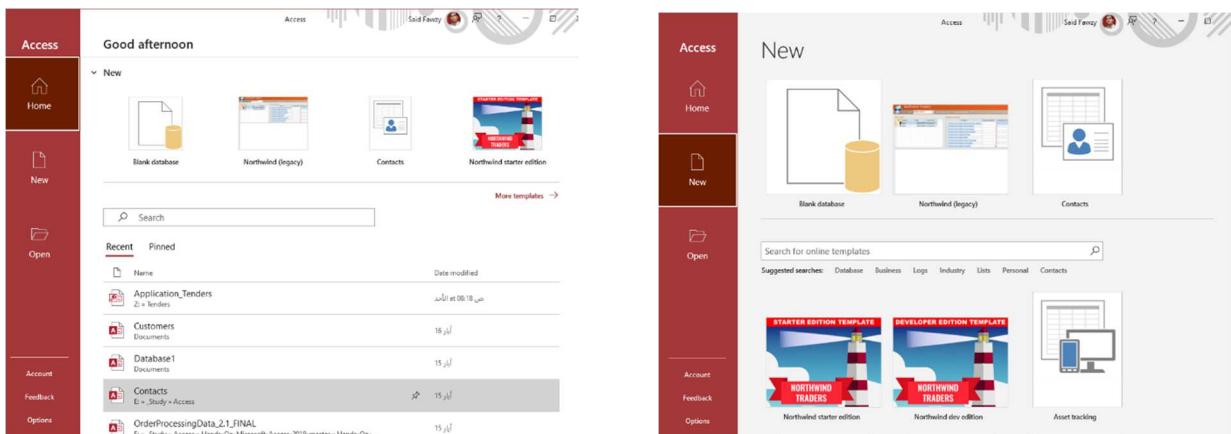
50. Notice you have 3 view options for the query.

The screenshot shows the Microsoft Access ribbon with the 'Query' tab selected. In the 'Views' group, 'SQL View' is highlighted. To the right, a query named 'qry_CustomerOrders_Qtr1_2019_UK_OnTime' is displayed in Design View mode. The query grid shows joins between the 'Customers' and 'Orders' tables, and a set of criteria for filtering the results.

51. Notice:

- Data added to tables are automatically saved.
- Only One data base file is allowed to open at one time.

Lab 1B: Creating Database from template.



Northwind

Suggested searches: Database Business Logs Industry Lists Personal Contacts

Northwind (legacy)

Provided by Microsoft Corporation

This sample database template demonstrates how Access can manage small business customers, orders, inventory, purchasing, suppliers, shipping, and employees. It can generate 15 different reports, and is a great starting point for learning and customizing Access databases.

File name: Northwind.accdb

F:\Said Fawzy\Training Courses\Access DataBase\01 SF_Beginner Access DB\Preparation\Files\

Northwind Login

The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted herein are fictitious. No association with any real company, organization, product, domain name, e-mail address, logo, person, places, or events is intended or should be inferred.

Northwind Login Dialog

Select Employee: Andrew Cencini

The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted herein are fictitious. No association with any real company, organization, product, domain name, e-mail address, logo, person, places, or events is intended or should be inferred.

Home form:

Northwind

File Home Create External Data Database Tools Help Tell me what you want to do

Form Datasheet

Northwind : Database - F:\Said Fawzy\Training Courses\Access DataBase\01 SF_Beginner Access DB\Preparation\Files\Northwind.accdb (Access 2007 - 2016 file format) - Access

Views Themes Fonts Add Existing Fields Background Alternate Row Color Row Color Formatting

Northwind Traders

I am Andrew Cencini New Customer Order New Purchase Order

Active Orders

#	Status	Date	Customer
80	New	2006/04/25	Company C

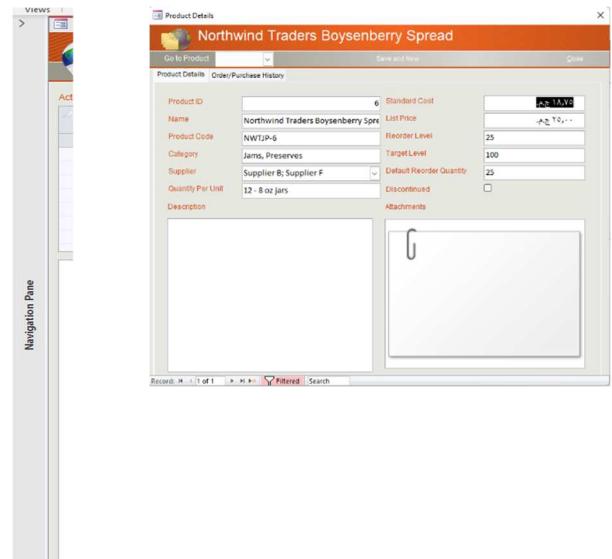
Inventory to Reorder

Product	Qty Available	Reorder Level
Northwind Traders Boysenberry Spread	0	25
Northwind Tradersamed Peas	0	10
Northwind Traders Curry Sauce	0	10
Northwind Traders Fruit Cocktail	0	10
Northwind Traders Scones	0	5
Northwind Traders Beer	0	15
Northwind Traders Clam Chowder	0	10
Northwind Traders Chocolate	0	25
Northwind Traders Gnocchi	10	30

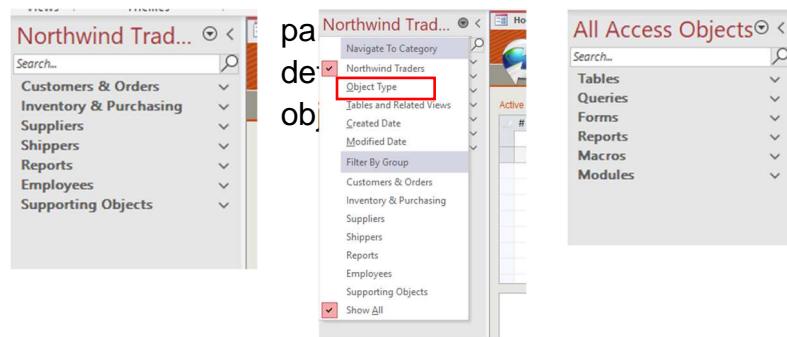
Quick Links

- View Inventory
- View Orders
- View Customers
- View Purchase Orders
- View Suppliers
- View Employees
- View Shippers
- Sales Reports

- Click on the first product.
- Then close.
- Notice the collapsed navigation pane.



- Expand the Navigation
- Get the view to the
- Then explore each



- Explore customer table.
- This Data sheet view.
- Columns are fields.
- Rows are records.
- Represent a company.

The screenshot shows the Microsoft Access interface. The left pane displays the 'All Access Objects' navigation bar with categories like Tables, Queries, Forms, Reports, Macros, and Modules. The right pane shows the 'Customers' table in Datasheet view. The table has columns for ID, Company, First Name, Last Name, E-mail Address, Job Title, Business Ph, Home Phon, Mobile Phon, Fax Number, and Owner. There are 29 records listed, each corresponding to a company name and its details.

ID	Company	First Name	Last Name	E-mail Address	Job Title	Business Ph	Home Phon	Mobile Phon	Fax Number	Owner
1	Company A	Bedes	Anna		Owner	(12)3555-0100	(12)3555-0100	(12)3555-0100		
2	Company B	Cedric	Thomas		Purchasing Representative	(12)3555-0100	(12)3555-0100	(12)3555-0100		
3	Company C	Axen	Christina		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
4	Company D	Lee	Martina		Owner	(12)3555-0100	(12)3555-0100	(12)3555-0100		
5	Company E	Pereira-Gabitoz	Martin		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
6	Company F	Xie	Ming-Yang		Owner	(12)3555-0100	(12)3555-0100	(12)3555-0100		
7	Company G	Hansen	Anders		Purchasing Representative	(12)3555-0100	(12)3555-0100	(12)3555-0100		
8	Company H	Wacker	Roland		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
9	Company I	Oliver	John		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
10	Company J	Wacker	Roland		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
11	Company K	Krchnic	Peter		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
12	Company L	Edwards	John		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
13	Company M	Adler	Michael		Purchasing Representative	(12)3555-0100	(12)3555-0100	(12)3555-0100		
14	Company N	Gritz	Carlos		Purchasing Representative	(12)3555-0100	(12)3555-0100	(12)3555-0100		
15	Company O	Kupkova	Helena		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
16	Company P	Spiegelund	Jean		Purchasing Representative	(12)3555-0100	(12)3555-0100	(12)3555-0100		
17	Company Q	Bagel	Jean Philippe		Owner	(12)3555-0100	(12)3555-0100	(12)3555-0100		
18	Company R	Autier Miron	Catherine		Purchasing Representative	(12)3555-0100	(12)3555-0100	(12)3555-0100		
19	Company S	Eggerer	Georg		Accounting Assistant	(12)3555-0100	(12)3555-0100	(12)3555-0100		
20	Company T	Thao	George		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
21	Company U	Ramos	Bernard		Accounting Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
22	Company V	Ramos	Luciana		Purchasing Assistant	(12)3555-0100	(12)3555-0100	(12)3555-0100		
23	Company W	Wade	Michael		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
24	Company X	Hasselberg	Jonas		Owner	(12)3555-0100	(12)3555-0100	(12)3555-0100		
25	Company Y	Rodman	John		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
26	Company Z	Van	Jan		Accounting Assistant	(12)3555-0100	(12)3555-0100	(12)3555-0100		
27	Company AA	Toh	Karen		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
28	Company BB	Raghav	Amritansh		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		
29	Company CC	Lee	Soo Jung		Purchasing Manager	(12)3555-0100	(12)3555-0100	(12)3555-0100		

- Select design view.
- You use to create Tables.

The screenshot shows the Microsoft Access interface with the 'Sort & Filter' ribbon selected. Below it, the 'Customers' table is displayed in Design View. The table has three columns: ID, Company, and Last Name. The 'ID' column is defined as an AutoNumber data type. The 'Company' and 'Last Name' columns are defined as Short Text data types. To the right, the 'Field Properties' window is open, showing detailed properties for the 'Company' field, including its data type as AutoNumber, width as 10, and description as 'Customer ID'.

- Close all

The screenshot shows the Microsoft Access interface with the 'Field Properties' window open for the 'Company' field in the 'Customers' table. The 'General' tab is selected, displaying properties such as Field Size (Medium Integer), Format (Text), Input Mask (0000000000), and General as the Input Type. Other tabs like 'Text' and 'Number' are also visible.

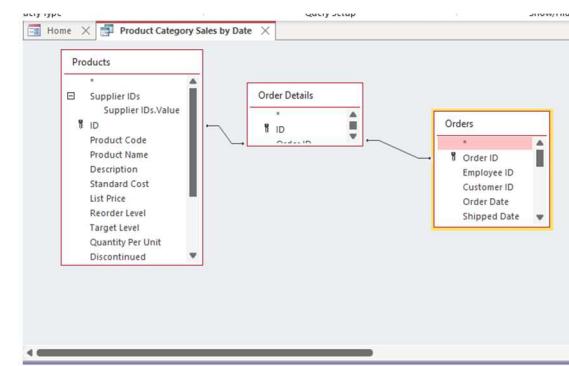
- Explore query: Product Category Sales by Date.

Product Category Sales by Date

Order Date	SumOfQuan	Category
2006/06/23	60	Dried Fruit & Nuts
2006/06/08	40	Candy
2006/06/07	5	Beverages
2006/06/05	40	Candy
2006/06/05	40	Canned Fruit & Vegetables
2006/06/05	30	Condiments
2006/06/05	90	Jams, Preserves
2006/06/05	10	Soups
2006/05/24	40	Canned Meat
2006/05/24	35	Dried Fruit & Nuts
2006/05/24	20	Sauces
2006/04/30	40	Dairy Products
2006/04/25	0	Beverages
2006/04/25	0	Pasta
2006/04/25	10	Pasta
2006/04/25	50	Condiments

Product Category

Date	SumOfQuan	Category
5/06/23	60	Soups



Field: Order Date
Table: Orders
Total: Groups By
Query Type: Product Category Sales by Date
Query Setup:
SELECT Orders.[Order Date], Sum([Order Details].Quantity) AS SumOfQuantity, Products.Category
FROM Products INNER JOIN Orders INNER JOIN [Order Details] ON Orders.[Order ID] = [Order Details].[Order ID] ON Products.ID = [Order Details].[Product ID]
GROUP BY Orders.[Order Date], Products.Category
ORDER BY Orders.[Order Date] DESC;

Products

ID	Product Name	Description	Standard Cost	List Price
1	Northwind Traders Boysenberry Spread	Boysenberry jam spread	1.50	2.50

Inventories to Reorder

Customer	Product	Qty Available	Reorder Level
Company C	Northwind Traders Boysenberry Spread	0	25
Company C	Northwind Traders Dried Pears	0	10
Company C	Northwind Traders Curry Sauce	0	10
Company C	Northwind Traders Fruit Cocktail	0	10
Company C	Northwind Traders Scones	0	5
Company C	Northwind Traders Beer	0	10
Company C	Northwind Traders Clam Chowder	0	10
Company C	Northwind Traders Chocolate	0	25
Company C	Northwind Traders Gnocchi	10	30

- Explore Home Form
- The layout view enables you to see the data while editing.
- Design view make you design and manipulate objects, But you cannot see the data only fields names and labels.

- Explore Report: Top Ten Biggest Orders.
- Notice the Ribbon that appears when you are in Print Preview.

The screenshot shows a Microsoft Access application window. At the top, there's a ribbon bar with tabs like 'Sort & Filter', 'Records', and 'Find'. Below the ribbon is a title bar for the report 'Top 10 Biggest Orders'. The main area displays a table with 10 rows of data. The columns are labeled '#', 'Invoice #', 'Order Date', 'Company', and 'Sales Amount'. The data shows various companies and their sales amounts. A context menu is open over the first few rows of the table. The menu includes options like 'Save', 'Close', 'Report View', 'Layout View', 'Design View', and 'Print Preview'. The 'Print Preview' option is highlighted. The bottom part of the screen shows the 'File' tab of the ribbon, which has 'Print Preview' selected. Other tabs like 'Print', 'Page Layout', and 'Page Setup' are also visible. To the left, there's a navigation pane titled 'All Access Objects' listing 'Tables', 'Queries', 'Forms', 'Reports', and 'Macros'. The 'Reports' section is expanded, showing 'Customer Address Book' and 'Customer Phone Book'. On the right, there's a preview pane showing the same report data.

- Explore AutoExec Macro.

This screenshot shows the 'All Access Objects' list on the left, where the 'Macros' section is expanded and the 'AutoExec' macro is selected. On the right, the ribbon shows the 'AutoExec' tab with its properties. The properties include 'SetDisplayedCategories' (Show Yes, Category Northwind Traders), an 'If' condition ('Not [CurrentProject].[IsTrusted] Then'), and an 'OpenForm' action (Form Name Startup Screen, View Form). The 'Run' button is also visible in the ribbon.

- Explore Customer Order Module and VBA Code.
- You can create Macro and convert it into VBA code.

This screenshot shows the Microsoft Visual Basic for Applications (VBA) environment. On the left, the 'Modules' list shows several modules like 'ErrorHandling', 'RecordsetWrapper', 'CustomerOrders', etc. The 'CustomerOrders' module is currently selected and its 'Design View' is active. On the right, the code editor window is open for the 'CustomerOrders' module. The code includes an enum for customer order statuses and a function for creating invoices. The code is as follows:

```

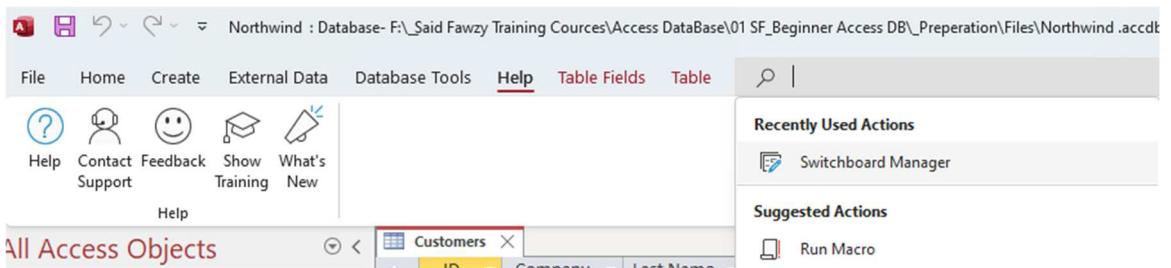
Option Compare Database
Option Explicit

Public Enum CustomerOrderStatusEnum
    New_CustomerOrder = 0
    Invoiced_CustomerOrder = 1
    Shipped_CustomerOrder = 2
    Closed_CustomerOrder = 3
End Enum

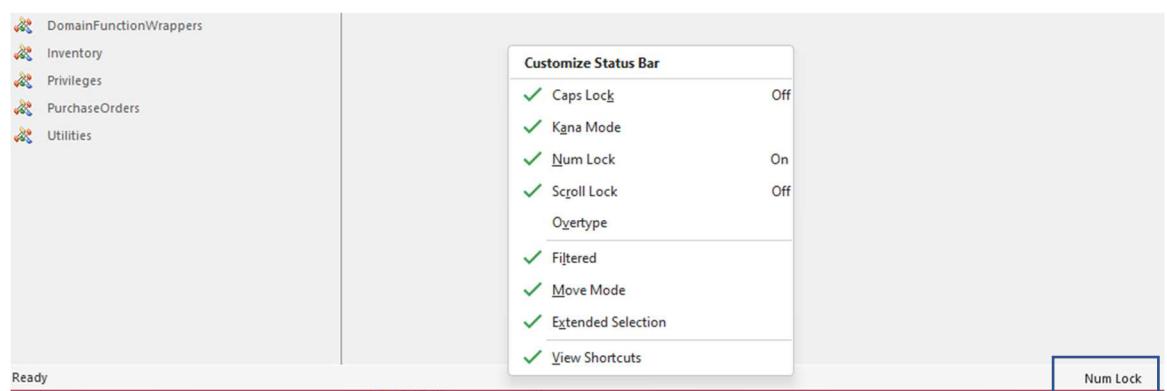
Function CreateInvoice(OrderID As Long, Amt As Currency, InvoiceID As
    Dim rsw As New RecordsetWrapper
    If rsw.OpenRecordset("Invoices") Then
        ...
    End If
End Function

```

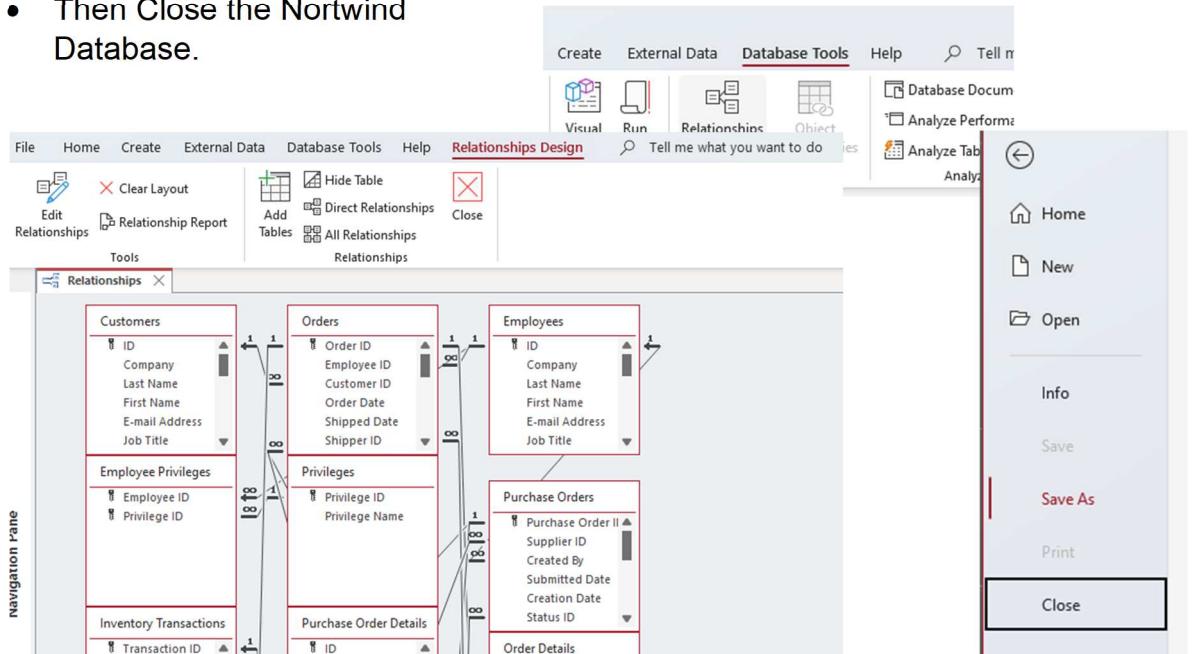
- Open Customer table and try to explore the Ribbons available.
- In Help tab try: tell me what you want to
- This help you to reach area of the program you forgot where it is.
- search for Switchboard Manager



- Explore Status Bar try Caps Lock ,Num Lock



- Explore Relationship Diagram
- Then Close the Nortwind Database.



Some Access Terminology

- **Row = record:** only one record is saved in a record.
- **Column=Field:** Must be consistent for all records.
- **Domain=Data value:** is the intersect between rows and columns and

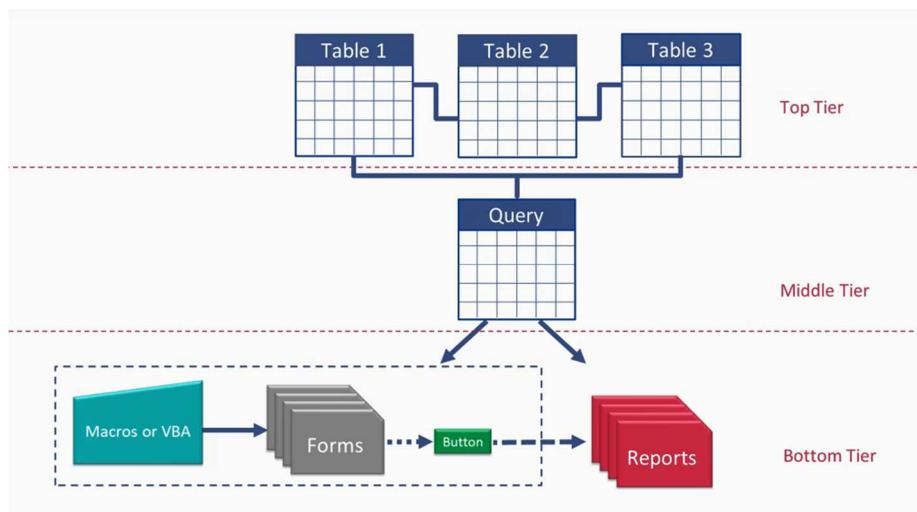
The diagram shows a table titled "Customers" with several rows of data. Annotations explain the terms:

- Row = Record:** Points to the first row labeled "ALWAC".
- Column = Field:** Points to the second column labeled "Company Name".
- Data value:** Points to the value "Always Open Quick Mart" in the "Company Name" field of the first row.

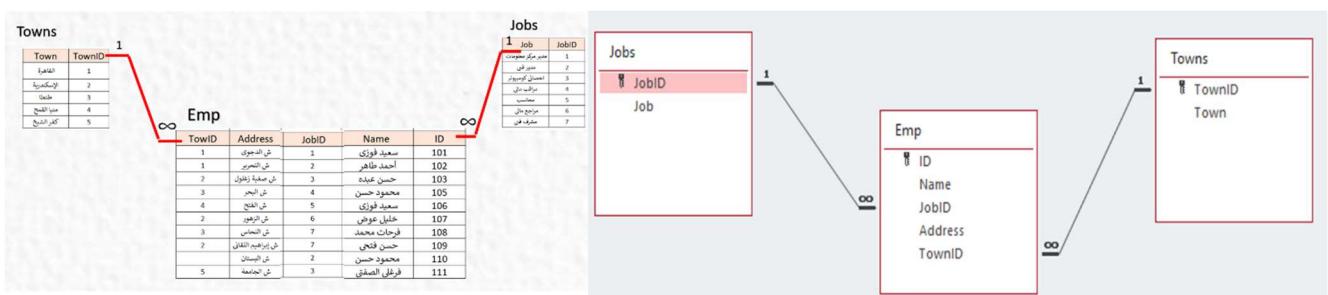
	CustomerID	CompanyName	ContactName	ContactTitle	
1	ALWAC	Always Open Quick Mart	Melissa Adams	Sales Representative	77
2	ANTRC	André s Continental Food Market	Karen Janzen	Sales Representative	P.C.
3	ANTHB	Anthony s Beer and Ale	Mary Thorneberry	Assistant Sales Agent	33
4	AROUT	Around the Horn	Thomas Hardy	Sales Representative	Brc
5	BABUJ	Babu J s Exports	G.K.Catterjee	Owner	Ba
6	BERGS	Bergstad's Scandinavian Grocery	Tammy Wong	Order Administrator	
7	BLUEL	Blue Lake Deli & Grocery	Hanna Moore	Owner	210
8	BLUMG	Blum s Goods	Pat Parkes	Marketing Manager	Thi
9	BOBCM	Bobcat Mesa Western Gifts	Gladys Lindsay	Marketing Manager	21:
10	BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln	Accounting Manager	23
11	BSBEV	B s Beverages	Victoria Ashworth	Sales Representative	Fai
12	CACTP	Cactus Pete s Family Market	Murray Soderholm	Sales Agent	87
13	CAESM	Caesar s Mediterranean Imports	Olivia LaMont	Marketing Manager	930

have only one value.

Access Objects and the 3 tier layers of database



2.2 Task 2: Be a RDMS for 10 minutes.



Chapter 3: Entity Relationship Diagram

ERD

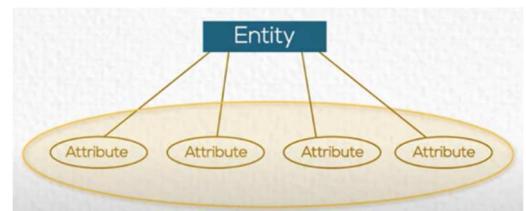
3.1 Definitions

Entity Relationship Modeling

- It is a way to help me create conceptual design.
- Identifies Information required by the business.
- displaying relevant entities and,
- relationships between them

Entity

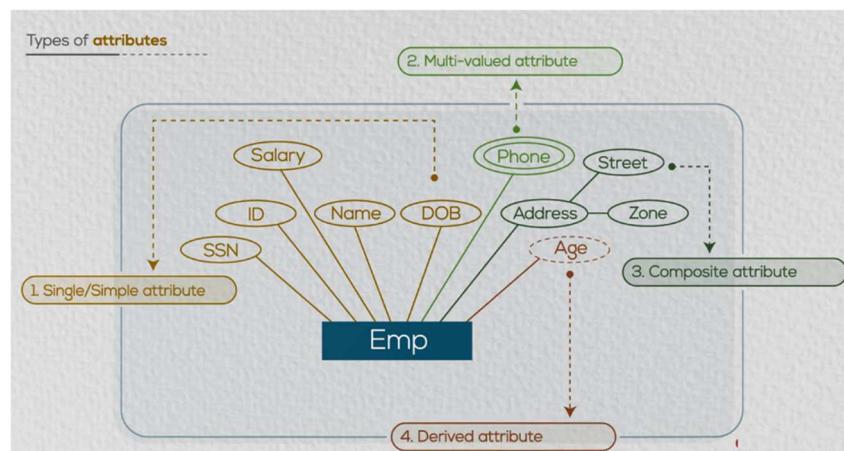
- Is a thing in the real world with an independent existence, physical existence or conceptual existence.



• 3.2 Build ERD

 Entity Relationship Modeling

- In building a data model a number of questions must be addressed:
 - 1- What entities need to be described in the model?
 - 2- What characteristics or attributes of those entities need to be recorded?
 - 3- Can an attribute or a set of attributes be identified that will uniquely identify one specific occurrence of an entity?
 - 4- What associations or relationships exist between entities?



3.3 Task 3: Create ERD

We want to build ERD for a company to record data about.

- Employees
 - SSN, ID, Name, Salary, DOB, Phone, Address(street, Zone), Age
- Departments
 - D No, D Name, LOC
- Contracts
 - Type, ST. Date, Contract ID
- Projects
 - P No, P Name
- Skills
 - S.ID, Skill Name

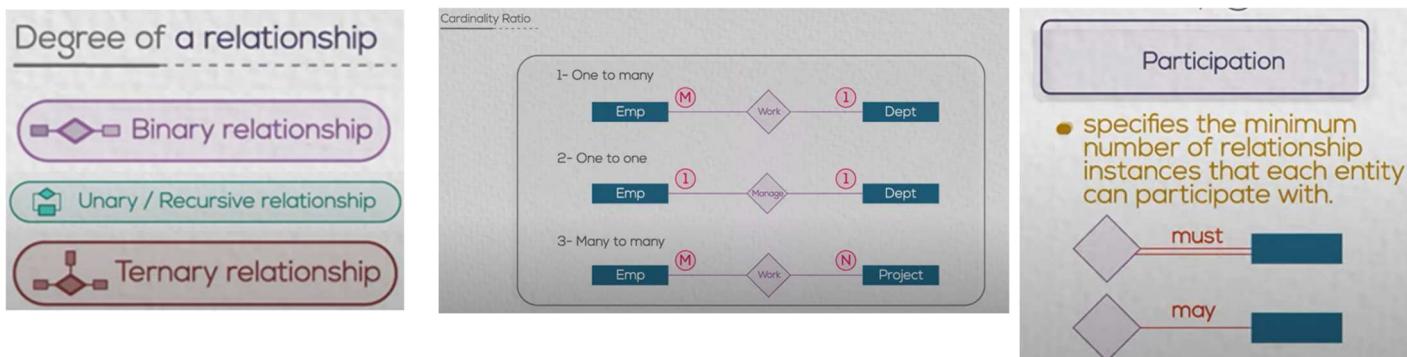
- Dependents
 - Name, Relation
 - Cars
 - Plate No, MOD, Color
- Use the template in the following Page.

3.4 Activity 1: Create your own ERD

- Divide Class into groups.
- Each group chose a DB project.
- Define Entities
- Define Attributes
- Define Unique Identifiers.

3.5 Relationship

- A relationship is a connection between entity classes.
- For each relation we must define:
 - Degree of relationship
 - Cardinality of relationship
 - Participation



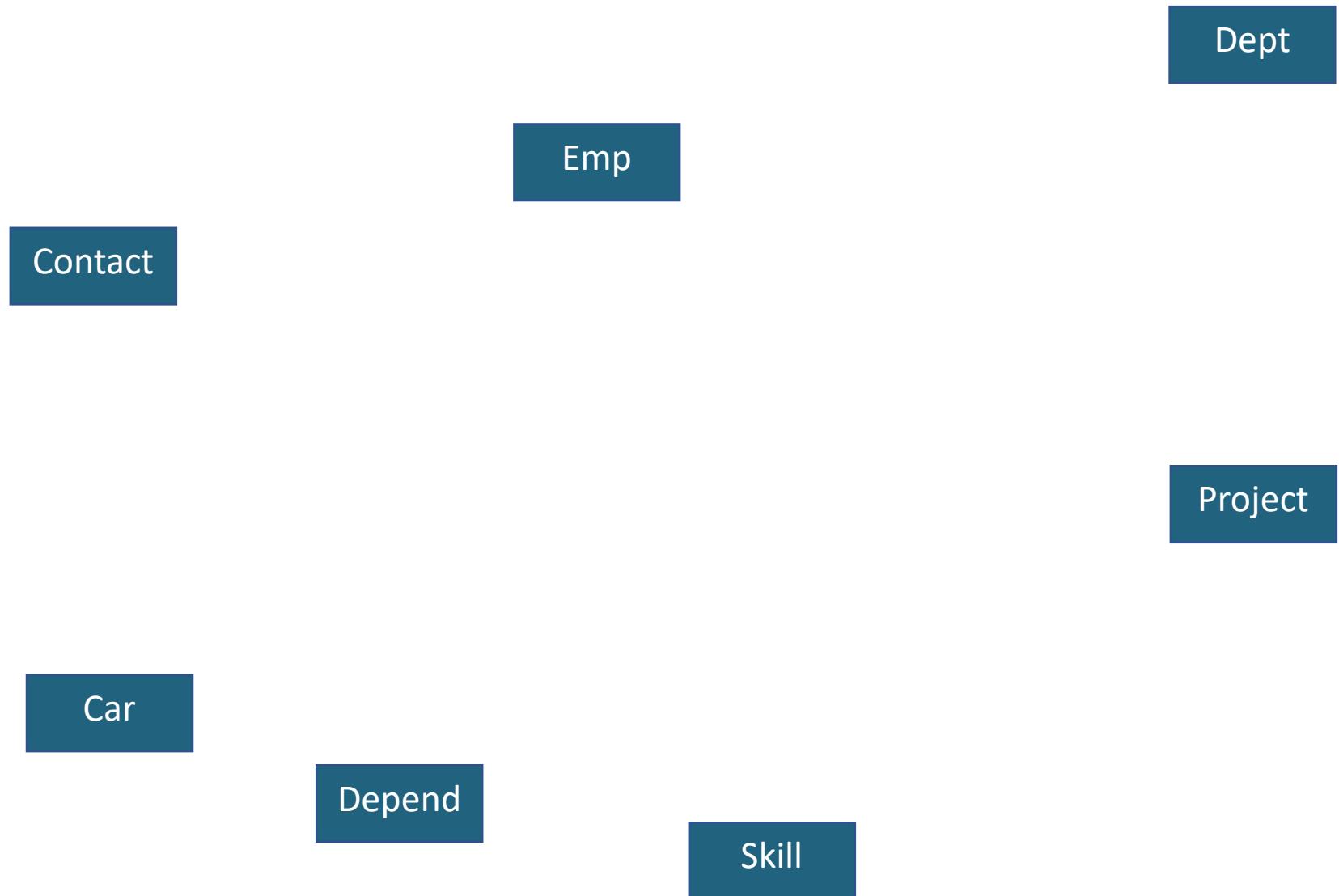
3.6 Task 4: Define Relationship in ERD

- Use your previous ERD from Task 3 to define relationships:
 - Degree of Relationship
 - Cardinality Ration
 - Participation

3.7Activity 2: Define Relationships

- Divide Class into groups.
- Each group complete its chosen DB project.
- Define Relationships:
 - Degree of Relationship
 - Cardinality Ration
 - Participation

Entity relationship diagram (ERD)



Chapter 4: Logical Model

4.1 Task 5: ERD Mapping to tables

Step 1: Mapping of regular entity types

Step 2: Mapping of weak entity types

Step 3: Mapping of Binary / Unary 1:M relationship types

Step 4: Mapping of Binary / Unary M:N relationship types

Step 5: Mapping of Binary / Unary 1:1 relationship types

Step 6: Mapping of ternary relationship types

Emp- Contract (ID, SSN, Salary, Name, DOB, Street, Zone, DNO, Sup-SSN, Plate_NO, Contract_ID, Type, Start_date)

Emp - Phone (SSN, Phone)

Dept (DNO, D Name, LOC, MGR _SSN, ST, Date)

Project (PNO, P Name)

Dependent (SSN, Name, Relation)

Car (Plate_NO, Model, Color)

Skill (Skill_id, Skill_name)

Work_On (SSN, PNO, Hours)

Skills Used (SSN, PNO, Skill_id)

Step 1: Mapping of regular entity types

Step 2: Mapping of weak entity types

Step 3: Mapping of Binary / Unary 1:M relationship types

Add FK to N-side table

Step 4: Mapping of Binary / Unary M:N relationship types

Add Fks to the new table for both parent tables

Step 5: Mapping of Binary / Unary 1:1 relationship types



Step 6: Mapping of ternary relationship types

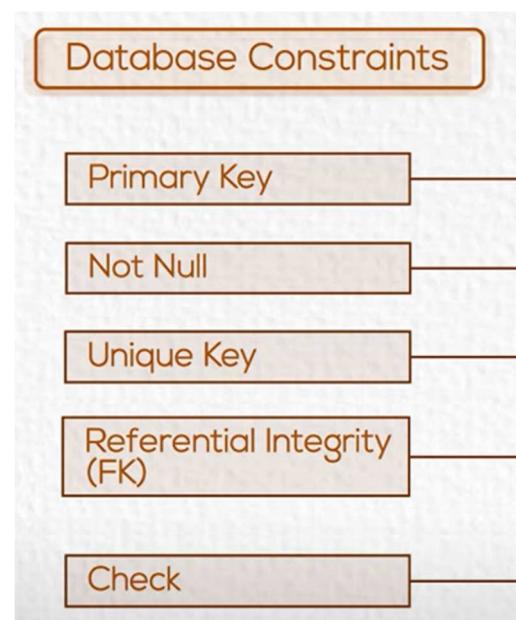
Add Fks to the new table for all parent tables

4.2 Activity 3: Map your Conceptual model to table.

- Use your conceptual model in activity to convert them into tables.

4.3 Database Constraints

Restrictions on Database table or object
to help **maintain Integrity of data**.



Chapter 5 Building Tables

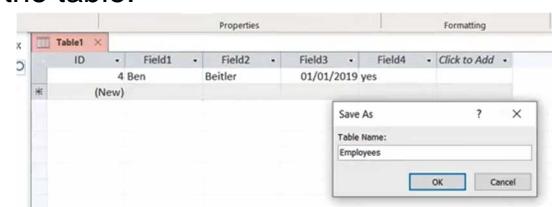
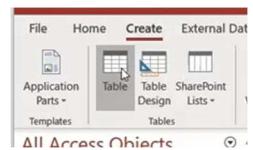
In this Chapter we will go through the different ways to create tables in MS Access, and Data types available.

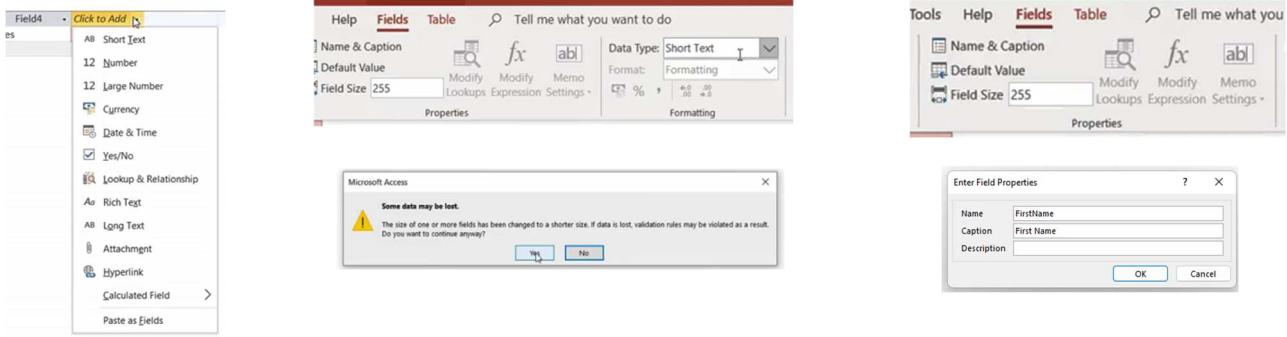
We will cover:

1. Create table in datasheet view (on the fly).
2. Create a table in design view mode.
3. Defining fields and data types.
4. All Data Types available in MS Access.
5. Data types Pros and Cons.
6. Creating table using template.

Lab 2A: Creating Table in Datasheet View

1. Open file: **Lab02A_Start.accdb** from lab folder.
2. You will get an empty database, as the navigation pan is empty.
3. To create any access object, use the **Create** tab in the ribbon.
4. You will find **Table** Group with 3 options.
5. Click Table to open new table in datasheet view.
6. Notice the first column is called **ID**.
7. Type data in fields starting from the second column to add the first record in the table.
8. Try to close the table it will prompt you to save the table.
9. Save the table as **Employees**.
10. The new table appears on the navigation pane window.
11. Open Employees table in datasheet view again.
12. Notice that you can also add a new field, but first select its data types first by clicking the down arrows.
13. You can also select any field and change its data type from the **Field** tab in the ribbon and in the **Formatting** Group.
14. If you attempt to change the data type of data of any field, it changes and **validates** the data too.
15. Change the data type of **Field1** to be **Long Text** and get it back to be a **short text**.
16. You will receive a warning message of data loss.
17. From **Properties** Group Chose **Name and Caption** to change the **Filed1** Name and caption to FirstName and **First Name** respectively.





Lab 2B Creating a table Using Design view

1. Continue with the same file **Lab02A_Start.accdb**.
2. If you click on the table design button you can create a table in design view.
3. Notice that you also will have **design** tab in the ribbon to help you in design.
4. It is divided in two halves: the upper half is where you define the field name, description and optionally the description.
5. In the lower half is **field property** and it changes according to the selected field.
6. Create a new table Customers as in the figure.
7. You can Define Primary key , Insert row , delete row from the **Tools** group.

Field Name	Data Type
CustomerID	AutoNumber
CompanyName	Short Text
ContactName	Short Text
DateCreated	Date/Time
Active	Yes/No

8. If you delete row, you can click the undo icon to get it back.

Access Data Types

We have many access data types you can use for your fields.

Text Data Types:

1. **Short Text:** Any Character alphanumeric up to 255 characters.
2. **Long Text:** Hold unlimited Number of alphanumeric Characters (comments and notes)

3. **Hyperlink:** Alphanumeric with a clickable link (Email, URLs).

Numeric Data Types:

1. Number: Only Numbers, Data Size can be changed
2. Dat/Time: Valid Date and Times Only.
3. Currency: Numbers Only, Data Size Can not be changed but Currency Style
4. AutoNumber: Auto Generated Numbers (Normally starts from 1 and increment by 1).
5. Yes/No: True or False (Checkbox Control).

Other Data Types:

1. OLE Object: (Embedding/Linking) Excel, Word, or other Windows Application Files.
2. Attachment: To attach multiple files.
3. Calculated: An Expression to Calculate Values from other fields(in the same table only).

Lab 2C: Creating Table from Table Template

1. Continue with the same file **Lab02A_Start.accdb**
2. Create → Application Parts → Quick Start → Contacts.
3. 1st Screen asks if this table has relationship with any other table.
4. Choose: **There is no relationship** and click create button.
5. It will create one table, 3 forms and 4 Reports for you.
6. Go and explore the objects that have been created.

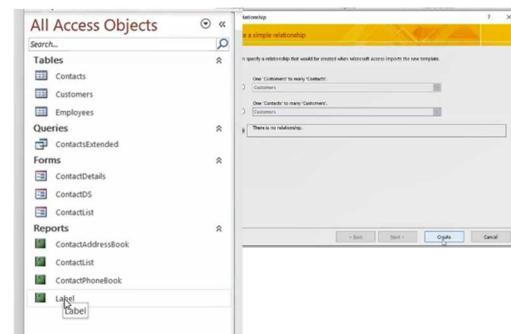
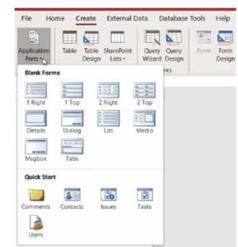
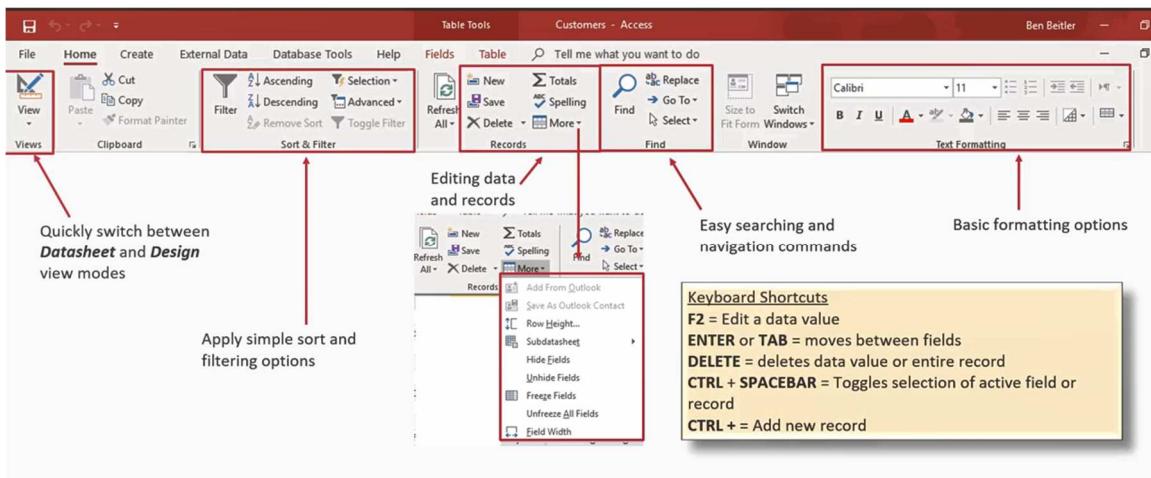


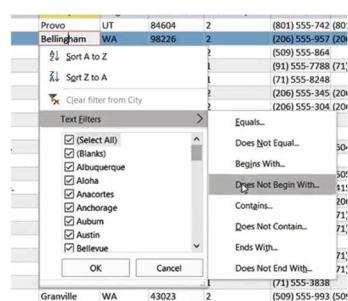
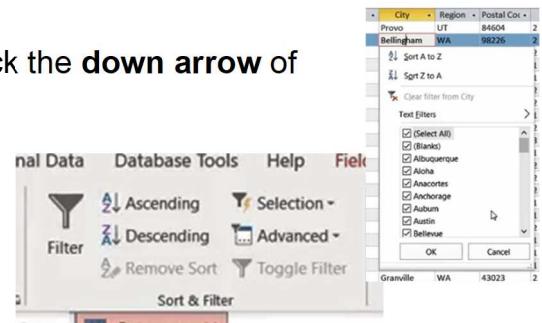
Table Datasheet view

- When you are in the table datasheet view you will have Groups in **Home** tab i.
- It allows you to work with data and records in the table.



Lab 2D: Working with table datasheet view

1. Open **Lab02D.accdb** file from the lab folder.
2. Open table: Customers in datasheet view.
3. In sort & Filter section you can sort and filter data.
4. Chose any cell in **company Name** field and sort accending and decending.
5. Click **Remove Sort** button to stop sorting.
6. Chose any cell in **City** Field and click **Filter** button.
7. A menu to filter appears.
8. Notice you can also get the filter menu if you click the **down arrow** of the column.
9. Notice that you also have the sort options in the list.
10. You can choose more specific options if you click the arrow next to Text Filters (if the field is a text field or Number filter ...etc.).
11. Uncheck **Select All** and select only **London** Value.
12. Only London Customers are displayed.
13. Click **Toggle filter** to remove the filter.
14. Click again to toggle back to the filter.
15. From **Records** group you can manipulate records and fields according to your selection.
16. When you try to delete a column or record a warning message appears.
17. **Save** Button save the current record, if you leave the record, it is saved automatically.
18. **New** Button Insert a new record at the bottom of the table.
19. In **Find** Group you can search and replace text.
20. In **Text Formatting** Group you can apply formatting to the text.
21. Format is applied to all the table, not like Excel.



22. Click on **B** all table becomes bold.
 23. Try to increase row height, all table increased.

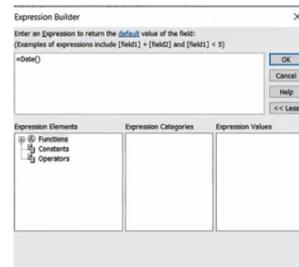


Lab 2E: Change Fields Properties

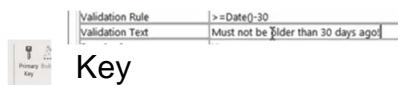
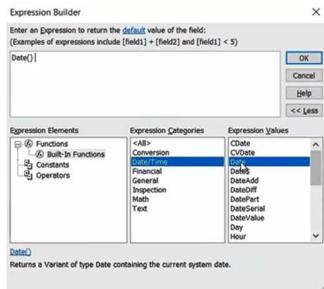
1. Continue with the same File: **Lab02D_Start.accdb**.
2. Open Customers table in **Design View**.
3. Change the properties of the fields as follows:

Field	Data Type	Field Property	Value
Customer ID	Short Text	Field Size	5
Company Name	Short Text	Field Size	40
Contact Name	Short Text	Field Size	30
Contact Title	Short Text	Field Size	30
Address	Short Text	Field Size	60
City	Short Text	Field Size	15
Region	Short Text	Field Size	15
Postal Code	Short Text	Field Size	10
Country	Number	Field Size	Long Integer
Phone	Short Text	Field Size	24
Fax	Short Text	Field Size	24
Email	Hyperlink		
Website	Hyperlink		

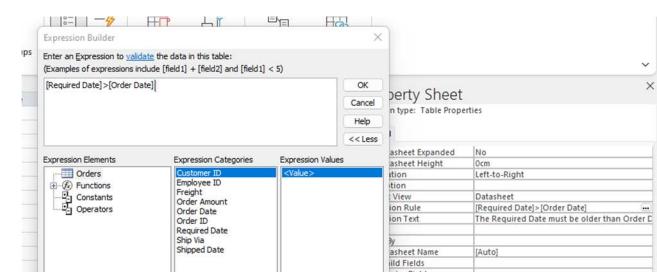
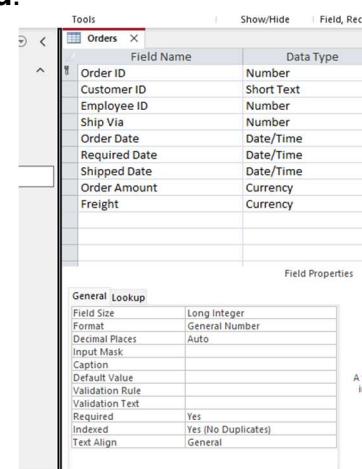
4. Open **Orders** Table in Design View.
5. Notice that **order amount** field is Currency you cannot change size.
6. The first option allowed for you is Format.
7. Also **Order Date** field is Date/Time you can only change format not size.
8. The default value is the one that is added by default when you add new record.
9. You can add a function or expression for that.
10. In Default Value of Order Date type **=Date()**.
11. It adds the date of today when user enter new record.
12. Now go to datasheet view and try to add new order, notice today date is added.
13. If you click on the ellipsis button it gets you to **Expression Builder** Window.



14. You can browse the functions available in the **expression elements**.
15. Try to find the way to the **date** function to reach the same result in graphical way (as in the figure).
16. You can validate the value entered before saving.
17. It consists of two parts (**Validate Rule** and **Validate Text**).
18. You enter a Rule and what text user would see if he entered wrong value.
19. In Order Date Field add the rule in the figure to make sure no Date older than 30 days of today will be accepted.
20. Save and go to Datasheet view to test the validation.
21. The **Required** Property make the field is mandatory and not Null.
22. **Indexed** field means No Duplicate.
23. If you make the Order ID field as a primary key (Click on button).
24. Notice that its properties changed to be **Required** and **indexed**.
25. Press the primary key button again Both values changed to **No**.
26. Select Both **Order ID** and **Customer ID** and make them Primary key.
27. Notice this time **Indexed** is not set.
28. Go Manually and change the Index value for **Order ID** to be (Yes Duplicate not allowed) and for **Customer ID** (Yes Duplicate is OK).
29. Index is important as it speeds the queries specially when database grows.
30. Go and change the **Order Date** and **Order Amount** to be (indexed and duplicate is OK).
31. If you want to put a validation Rule between fields of one table, use the property sheet of the table.
32. Use the expression builder to add expression checks that **Required date** is greater than **Order Date**.
33. Go to the Datasheet View to test.



Key



Chapter 6: Tables Relationship

Primary Key

- It is a key field that contains a unique value in a table.
- Used to join the table with other tables.
- A primary Key cannot be left blank (Mandatory) (is NOT NULL).
- The secondary key is a field used to connect to other table but allow duplicate values.
- Keys are used to speed up the queries.

Lab 3A: Setting Primary and Secondary Keys

1. Use file **Lab03A_Start.accdb**.
2. Open **Customers** Table in design view.
3. Set **Customer ID** field as a primary Key (select then click the key icon).
4. Notice that the value of **Indexed** is set to “**Yes (No Duplicates)**”.
5. Save your table.
6. If you have duplicate value already in the table, the process will fail.
7. See your table in Datasheet view.
8. Get back to Design view.
9. If you want to remove the primary key just select the field and press key icon again.
10. Remove the Primary key and notice that it is not Indexed any more.
11. You can set the Primary key to many fields.
12. Select Customer ID, Company Name, City, Postal Code , Country.
13. Set them all to be Primary key.
14. Noticed that the indexed property is No for all.
15. That is because Access doesn't know which one to index.
16. Set Customer ID Indexed to Yes (No Duplicates).
17. For Company Name set Indexed to Yes (Duplicates OK).
18. Now Company Name is Secondary key used to speed Queries.
19. Do the same with City, Postal Code, Country set them as secondary keys.
20. Save and test in Datasheet view.
21. Close Customers table.
22. Open **Countries** table.
23. Set Country ID as a primary key.
24. Save and test in Datasheet View.

Customers		Field Name	Data Type
	Customer ID	Short Text	
	Company Name	Short Text	
	Contact Name	Short Text	
	Contact Title	Short Text	
	Address	Short Text	

Required	Yes
Allow Zero Length	No
Indexed	Yes (No Duplicates)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None

25. Open the Customers table and notice that it is linked with the Countries table.
26. Country field is filled with Country names.
27. Go to design view of Customers table.
28. Notice that this field is a number.
29. So why it shows text?
30. That is the lookup wizard use internal query to get that find the country using the country ID .

Postal Code	Country	Phone
84604	USA	(801) 5
98226	USA	(206) 5
24422	USA	(509) 5
C076JK	UK	(91) 55
WX1 5LT	UK	(71) 55
98104	USA	(206) 5
98368	USA	(206) 5
NW1 2BP	UK	(71) 55

General Lookup

Display Control	Combo Box	ort Text
Row Source Type	Table/Query	ort Text
Row Source	SELECT Countries.CountryID, Countries.Country, Countries.InUse FROM Countries WHERE (((Countries.InUse)=Yes)) ORDER BY Countries.[Country];	umber
Bound Column	1	ort Text
Column Count	3	ort Text
Column Heads	No	ort Text
Column Widths	0cm;3cm;0cm	ort Text
List Rows	16	
List Width	4cm	
Limit To List	Yes	
Allow Multiple Values	No	
Allow Value List Edits	Yes	
List Items Edit Form		
Show Only Row Source	V No	

- datasheet view.
34. get the value back to (0cm;3cm;0cm).
 35. Notice that the bound value is the Country ID because the bound column is column 1.
 36. Close all tables.
 37. Go to the **Employees** table.
 38. Set **Employee ID** as a Primary key.
 39. Set **Last Name** and **Birth date** as secondary keys.
 40. Close and test in datasheet view.
 41. Close table.
 42. Open the Orders table.
 43. Set Order ID as Primary Key.
 44. Set Customer ID, Employee ID, Order Date, Order Amount as Secondary keys.
 45. Open Order Details table
 46. Set both Order ID and Product ID as Secondary key.

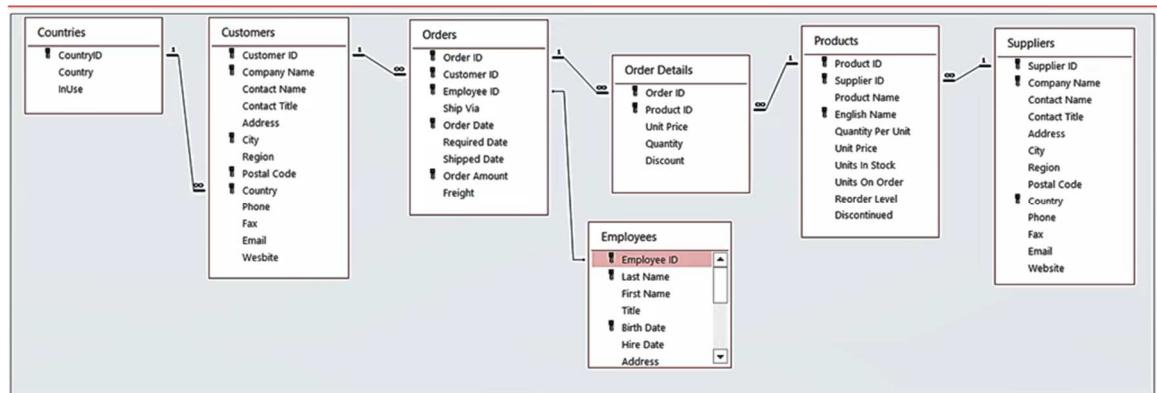
Orders		Field Name	Data Type
#	Order ID	Number	
#	Customer ID	Short Text	
#	Employee ID	Number	
#	Ship Via	Number	
#	Order Date	Date/Time	
#	Required Date	Date/Time	
#	Shipped Date	Date/Time	
#	Order Amount	Currency	
#	Freight	Currency	

Indexes

47. Open customers table in design view.
48. Open the Indexes window.
49. Table Design → Show/Hide → Indexes.
50. Indexes
51. You can see the indexes that is on this table and which are Primary Key.
52. You can add new index here.
53. Notice the Indexes slow the general performance of data entry.
54. It increases the reporting and query process.
55. You should have balance for your requirement.

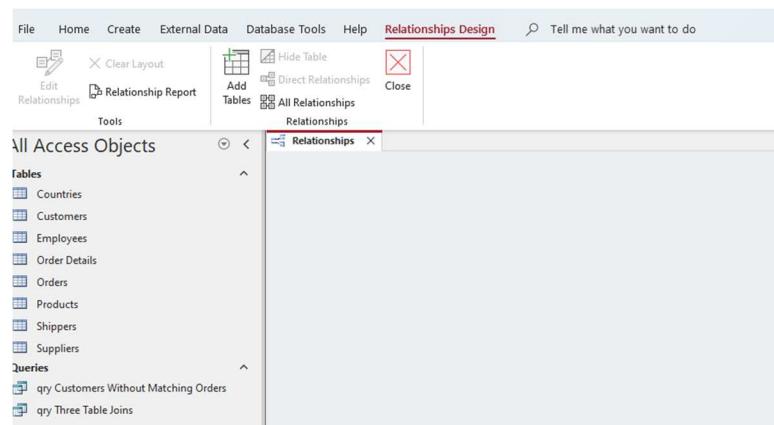
The relationship Window

- In the window of relationships, you have all tools to deal with tables relationships and data integrity in your database.
- This Window sets a **PERMENANT** relationship between tables.
- That means that when you call tables in a query or a form you will find the relationship that you assigned in the relationship window.
- All rules you assigned in this window will always be maintained.
- Before you start working with relationship windows make sure all your tables are closed.

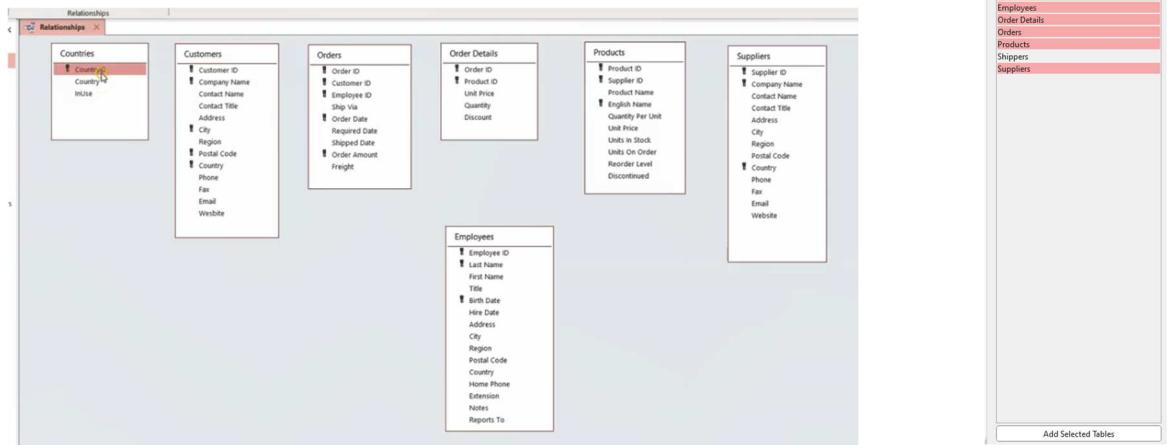


Lab 3B: Define Relationship between Tables

1. Use file **Lab03B_Start.accdb**.
2. Open Relationship window.
3. Database Tools→Relationships→ Relationships.
4. When you open the relationship window for the first time it will be empty.
5. But it might be relationships that have been created through lookup wizards.
6. So you must always start checking.
7. Click **All Relationship** to make see if any relationship exists.



8. Click **Add Tables** to open the Add Tables Window on the right.
9. Select All tables except Shippers and click Add Selected Tables.
10. Close Add Tables window and the navigation Pane to have more



space.

11. Arrange your tables as you like and expand tables to see their fields.
12. You should see your Primary Keys and Secondary keys appear if you sat before.
13. Create Relationship between the **Country** table and **Customers** table.
14. Drag the **Country ID** from Country table to **Country** in Customers.
15. **Edit Relationship** Window pops up.
16. You have to:
 - a. Confirm the two fields that relate the two tables.
 - b. Enforce Referential Integrity.
 - c. Cascade Update related fields.
 - d. Cascade Delete Related Fields.
17. You can now click create and the relationship is created for you.
18. Close the Relationship windows and save changes.
19. Reopen the Relationship window and you will find the relation still exists.
20. To edit the relationship double click the line or right click and choose **edit relationship**.
21. Or click the Icon in the ribbon bar.
22. As you can see at the bottom of the dialog box the relationship type is: **One-To-Many**.
23. Check **Enforce Referential Integrity** and Close.
24. The validation check is now working, and the relationship is changed to show the One-To Many relationship with referential integrity enabled.
25. When you do so, Access check if all records in the **country** field in the **Customers** table (the **Many Side**) exists in **Countries**

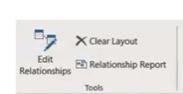
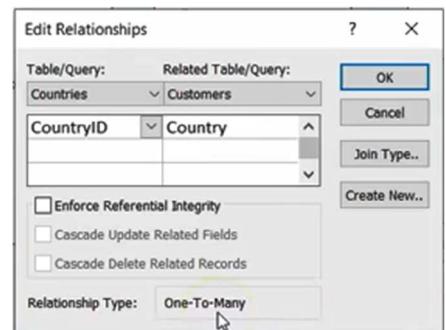


table (The **One** Side) if not the process will stop and you cannot enforce integrity relationship.

26. Create Relationship between **Customers** and **Orders** ON **Customer ID** in both sides.

27. Connect **Orders** and **Order Details** ON **Order ID** in both sides.

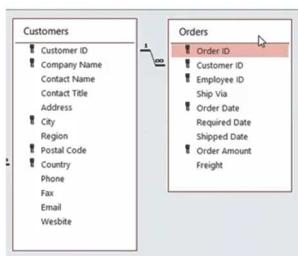
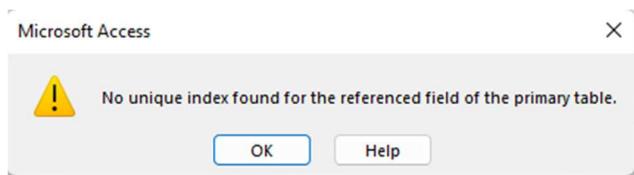
28. Connect **Order Details** and **Products** ON **Product ID** ON both sides.

29. Connect **Suppliers** and **Products** ON **Supplier ID**.

30. Try connecting **Employees** with **Orders** on **Employee ID**.

31. You will get an error message this time.

32. Click OK and notice that access cannot determine the relationship type this time and there is problem with the data in tables.



33. Clear the enforce referential integrity and create the relationship.

34. Close and save changes and let us go and see what the problem is.

35. Open Employees table in Design View.

36. Notice **Employee ID** field is the primary key.

37. But in Index it is (Yes Duplicate OK).

38. This means it is a secondary key not a primary.

39. Change the indexed to Yes No Duplicates.

40. Close and save the table.

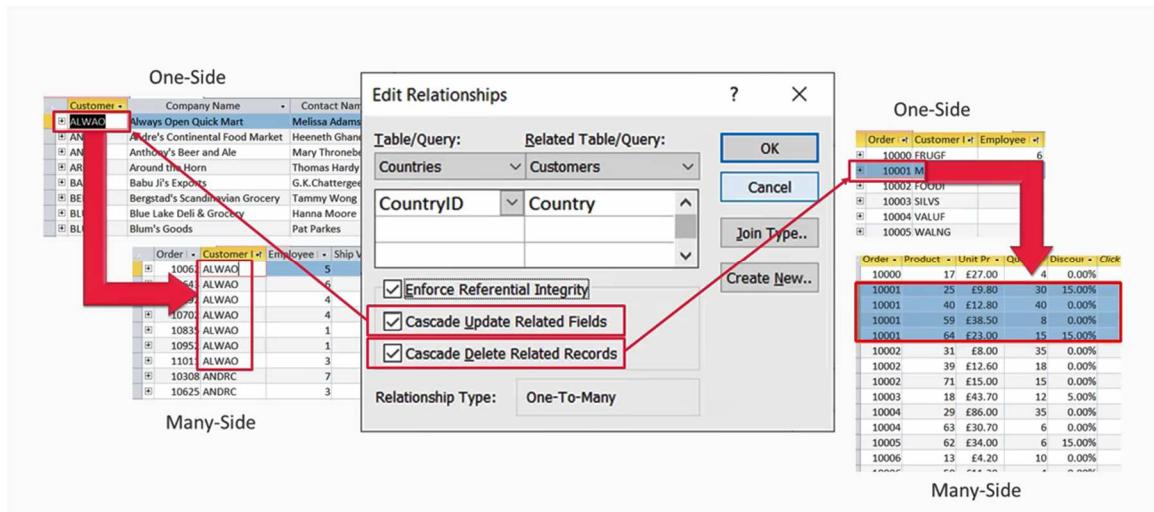
41. Go back to the Relationship window and try to enforce referential integrity, it should work this time.

42. You can hide any table to be shown if you select and clicked Hide Table.

	Field Name	Data Type
E	Employee ID	Number
L	Last Name	Short Text
F	First Name	Short Text
T	Title	Short Text
B	Birth Date	Date/Time
H	Hire Date	Date/Time
A	Address	Short Text
C	City	Short Text
R	Region	Short Text
P	Postal Code	Short Text
C	Country	Short Text
H	Home Phone	Short Text
E	Extension	Short Text
N	Notes	Long Text
R	Reports To	Number

General		Lookup
Field Size	Long Integer	
Format		
Decimals	Auto	
Input Mask		
Caption		
Display Value		
Validation Rule		
Validation Text		
Required	Yes	Yes
Indexed	No Duplicates OK	
Text Align	General	

Cascade Options



Cascade Update Related Fields

- If you update ONE side it affects the MANY Side.
- Example: If you Update Customers ID in Customers table it will be updated automatically in Orders table.

Cascade Delete Related Records

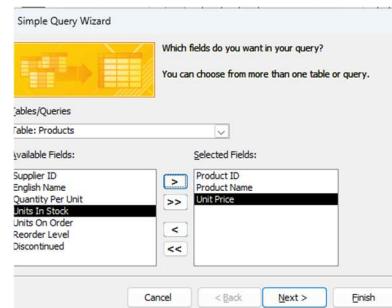
- If you Delete the ONE Side it will delete all the MANY Side
- Example if you delete the Order record all its children will be deleted from the Order details table.

Chapter 7: Query Basics

- We usually use query to get different view of data or
- Filter the data on criteria.

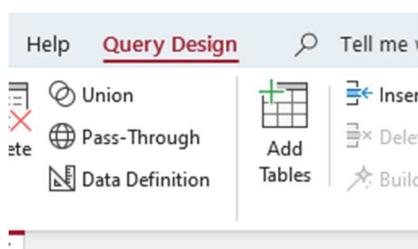
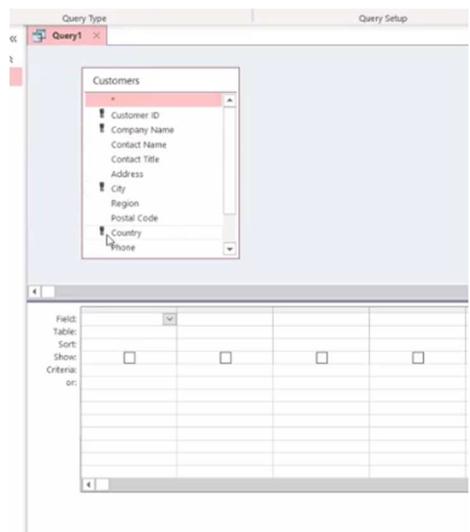
Lab 4A: Creating Query Using Wizard

1. Use File **Lab04A_Start.accdb**.
2. Go to Create → Queries Group → Query Wizard
3. Choose: **Simple Query Wizard**.
4. Select table Products: Product ID, Product Name, Unit Price.
5. Choose to **show detailed Query**.
6. Name your query: **qryProducts**
7. It will show in Queries Object in Navigation Pane.
8. Close the query.
9. Create another simple query.
10. Use **Customers** table.
11. Fields: Company Name, Phone, Address, City, Region Country, Email.
12. Name your query: **qryCustomers**.

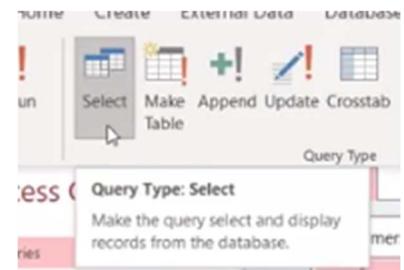


Lab 4B: Create Query using design view

1. Use file: **Lab04B_Start.accdb**.
2. Go to Create → Queries → Query Design
3. A query one tab open
4. From Add Table pane select table **Customers**.
5. Notice you can change the size of upper and lower pane using the separator line between them.
6. You can delete any table at any time.
7. Select Customer table.
8. Press Delete Key on the keyboard.
9. To add the table use **Add Tables** In the **Query Design** Ribbon tab.
10. Add Customers table again.
11. This Query is from type: **Select Query**.
12. You can see that its type is selected on the Ribbon.
13. To add fields to the grid you can double click any field it will go to the first available column in the grid below.
14. Or
15. You can select many fields (using control key) then drag and drop them in the Grid.
16. Or



17. You can choose the field from the drop down list in the Grid
18. If you have many tables in the query, Choose table first then the field.
19. To delete a field, first select the field head and then press delete key from the keyboard.
20. Or you can select the field and then click the delete column icon on the ribbon.
21. You can **Reposition** your fields choosing them and drag them in the right place you want.
22. Now Drag the following fields to your QBE Grid (Query By Example Grid): Customer ID, Company Name, Contact Name , City , Country , Phone, Email.
23. Click **View** or Run **Button** (here both are the same) to view query result.
24. Always when you run the query observe the Number of records found, this what we call **The Record Set**.
25. Notice that the result has no sort or Criteria applied, it shows all records.



Customers	Customer ID
	Company Name
	Contact Name
	Contact Title
	Address
	City
	Region
	Postal Code
	Country
	Phone
	Fax
	Email
	Website

Sorting Query Result

26. Go Back to your design view.
27. Choose which record you want to sort on, and on the **Sort row** of the grid select how you want to sort (Ascending or Descending).
28. Sort by Company Name in Ascending Order.
29. Click View Button to see the result.
30. You can Choose more than one field to sort on.

31. The Sorting Order goes from the Left to Right on the Grid.
32. Now Sort City in Ascending order.
33. This way the Company Name sort first then the City.
34. Go to View to see the result.
35. What if you want to reorder the sorting, I want city first?
36. You can reposition the order.
37. Now get City Before company Name and View the result.
38. But if you want to keep the Order in the result view but reorder the result on City first then Company Name do this Trick:
 1. Add another City column before Company Name.
 2. Sort Ascending in this field

3. Make that field not show on the result(Unclick Show

Field:	Customer ID	City	Company Name	Contact Name	Country	City	Phone
Table:	Customers	Customers	Customers	Customers	Customers	Customers	Cust
Sort:		Ascending	Ascending				
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:							
or:							

checkbox).

39. Run your query to see the result.

40. Save your query as: **qryCustomers**.

Lab 4C: Customize Query with Criteria

1. Continue With file: **Lab04B_Start.accdb**
2. Open **qryCustomers** in Design View.
3. We want to see customers that live **City = London**.
4. Notice that in the grid you have a **Criteria** row.

Field:	CompanyName	Phone	Address1	City	State	Zip	EmployeeID
Table:	tblCustomers						
Sort:							
Show:	<input checked="" type="checkbox"/>						
Criteria:							
or:							

5. In Criteria cell under City write : London.
6. Press tab key and notice it puts "" around London.
7. That is because Access evaluates that the field is text data type.
8. Run the query.
9. You got only 20 customers that lives in London.
10. Go back to Design View.
11. Now we want to see the customers from All UK.
12. Notice that Country Field is Number Data Type.
13. Names of Countries are stored in another table.
14. Delete London Criteria in City and write 1 in Country Criteria.
15. Press tab key
16. Notice this time no questions added because the field is Number.
17. Go to View to see the result.
18. Go Back to Design view.
19. Delete the criteria of Country.
20. Now we want see customers that their Company Name starts with letter "I".

Country	City	Phone
Customers	Customers	Customers
Ascending	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
"London"		

21. To do so use **Wild Cards.**
22. In Company Name criteria write I* then press tab key
23. * **Means any number of characters.**
24. Notice that Access adds key word: **Like.**
25. Run your query.
26. Get back to Design view.
27. Delete your criteria and close query.
28. You can right click the query and paste it with different names and change criteria in each and save.

Company Name	Contact Name
Customers	Customers
	<input checked="" type="checkbox"/>
Like "I*"	<input checked="" type="checkbox"/>

Chapter 8: Form Basics

- We usually do not enter data directly into tables.
- We use forms to make it easy.

- Provides a user-friendly experience to manage and view records
- Helps you be more selective of what information can be seen
- Records are arranged with design layouts that tables and queries cannot do
- Data can be locked and prevented from being either edited or deleted

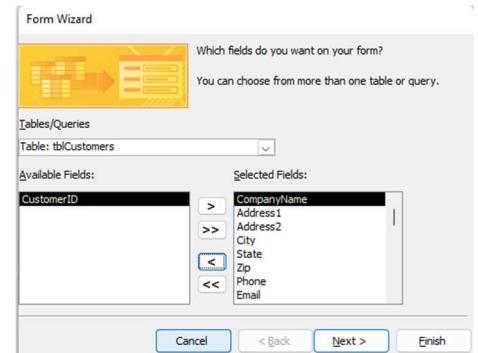
Benefits of Using Forms

- A richer set and more flexible formatting options with more properties available
- Better automation (Macros and VBA code) can be added to a form
- A better way to engage with users via dialog and message boxes
- Provides easier ways of navigation around an access database

Lab 9A: Creating a Form

A. Create a Form Using Wizard

1. Use file: **Lab09A_Start.accdb**.
2. Go to Create → Forms Group → Form Wizard
3. Choose **tblCustomers**.
4. Include all fields except CustomerID.
5. Use >> then <
6. CustomerID is an AutoNumber.
7. Choose Columnar as Layout.
8. Name the form: **frmCustomers**.
9. Go to form **Layout View**.
10. It is the view you can change design while seeing your data.
11. Change Title to: **Customer Information Form**.
12. Expand and adjust the title.
13. Go back to **Form view**.
14. Close and save your form.
15. Let us create another form using Wizard.
16. Create a form based on **tblEmployees**
17. We need all fields except EmployeeID
18. Go to Layout View
19. Rename the title to **Employees Form**
20. Save as **frmEmployees** and close.



B. Creating a Form Using Design View

21. Go to Create → Forms Group → Form Design

22. In Ribbon Tab Form Design click on Add Existing Fields in the Tools Group to open Field List Pane.

23. Click the link: Show all Tables.

24. Expand **tblOrders**.

25. Right click field CustomerID and chose: Add Field to View.

26. Access Add Label and Field to your form.

27. Notice now that the field list changed to show:

- o Fields from **tblCustomers** table.
- o Fields available in related tables
- o Other tables and their available fields.

28. Expand **tblOrders** table again and add OrderDate.

29. You can double click.

30. Notice the **tblOrders** has expanded in the **Fields available in this view** area.

31. Add **ShipDate** Field.

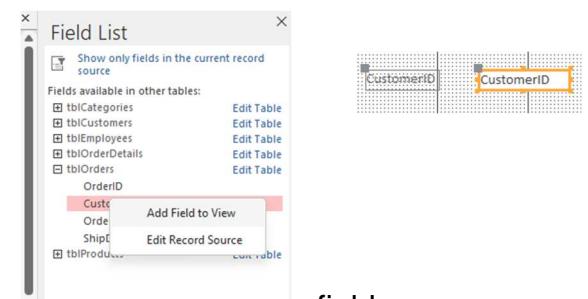
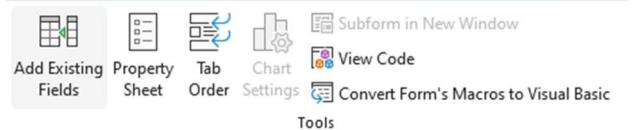
32. Go to **Form View** to see your design.

33. Go back to Design View.

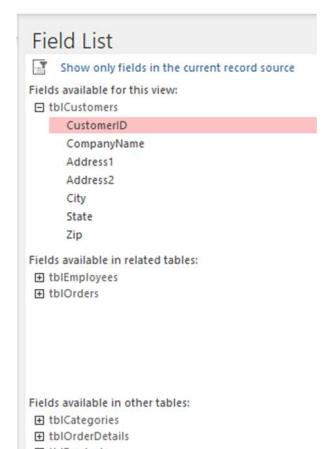
34. Notice you are working on the **details section**.

35. Right click the section and chose **Form Header Footer**.

36. Expand the Header section so you have more space.



field



37. Notice that you have many controls under the form Design Ribbon.

38. Select **Label Control**.

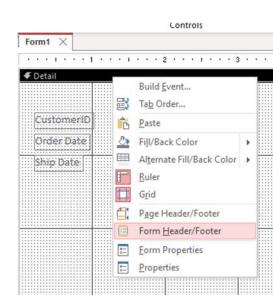
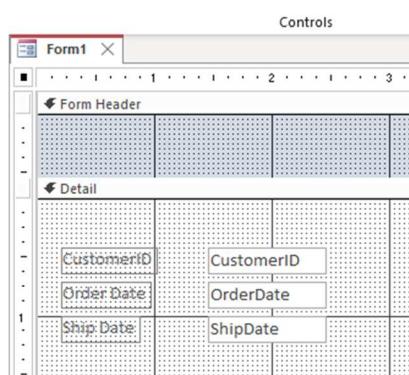
39. Draw a label in Header section.

40. Write Title: **Customer Order Date Information**.

41. Click outside label and arrange the label.

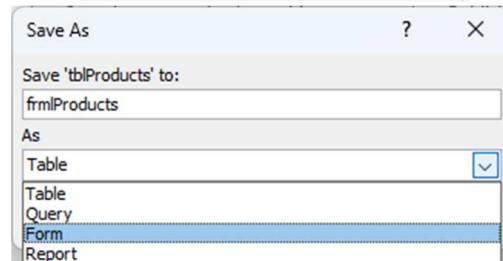
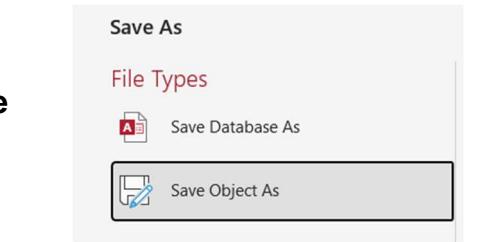
42. Go to **Form view** to check.

43. Save the form as **frmCustomerOrderDate**.



C. Creating a Form from a table

44. Open **tblProducts** in datasheet view.
45. Go to File → Save As
46. Select **Save Object As** and Click **Save As** button.
47. Under As select **Form** and change the name to be **frmProducts**.
48. The form opens in **Layout View**.
49. Delete the Icon form access add.
50. Change the Title to: **Product Information Form**.
51. Notice that because I created the form from the table and as table show details of each record also the form shows details of each record.
52. Notice that you have two Record Navigators one for the main form and one for the sub form.



tblProducts				frmProducts			
ProductID	Product Name	Price	Man	ProductID	Product Name	Price	Man
A	Green Folders	\$2.00		1	1	10	
	OrderDetail	OrderId	Quantity		Click to Add		
		1	10	23	10	11	
				36	16	20	
				49	23	10	
				57	27	5	
				58	28	20	
				*	(New)		
(New)		FLDVAN	Vanilla Folders	\$1.59			
		HLTPNK	Pink Highlighter	\$1.50			
		HTLYLW	Yellow Highlighter	\$1.50			

The screenshot shows the frmProducts form in Layout View. The main form has fields for ProductID (A), Product Name (Green Folders), Price (\$2.00), and Manual. Below the main form is a sub-form titled 'OrderDetail' with columns for OrderDetail, OrderID, and Quantity. The data in the sub-form matches the data shown in the tblProducts datasheet above.

53. Go and navigate through Records of main and sub form.
54. If you want to change the behavior of Access to include the related tables when creating the form do one of two:
 - o Use the Form design and manually add the fields.
 - o Or change this option in the table first.
55. Open **tblProducts** in datasheet view.
56. Notice it has + sign beside each record.
57. When click + it show related records from **orderDetails** table.

58. Go to Home → Records → More → Subsheets → Remove.

59. Close the table **tblProducts** and save.

60. Now select the table **tblProducts** in the Navigation Pane.

61. Create → Forms → Form

62. A form will appear in layout view with no related tables.

63. Close and save your new form as **frmProductInformation**.

64. If you want get back the **subsheets** to your table again you have to choose the sheet manually this time.

65. Try it yourself.

66. Right click on tab and choose close All.

D Adding Record to a Form

67. Open **frmCustomer** form and add a new record.

68. Press the tab button to save the record.

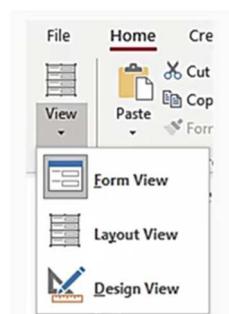
69. Close the form.

70. Go to **tblCustomers** to see the new record added.

From Three View Modes

You have 3 forms mode you can choose from in the home tab.

- From View.
- Layout View.
- Design View



Chapter 9: Report Basics

- Reports are very similar to forms but:
 - Data cannot be edited, they are locked
 - There are potentially more sections available for a report
 - There's an additional view mode – the print preview
 - A dedicated Groups and Sorting tool
 - A richer (Report) Wizard tool
 - Quick easy to use functions

What is Report

Lab 13A: Create a Simple Report

Create Report from a query

1. Use file: **Lab13A_Start.accdb**.
2. Open **qryProducts** in **Datasheet view**.
3. Go to File → Save As → Save Object As
4. Save it as **Report** and name it **rptProducts**.
5. The report is in **Layout View**.
6. Get rid of the report icon.
7. Rename the report title: Product Information report.
8. Expand and adjust the total box.
9. Look at the report in the **Report View**.
10. Look at the report in the **Print View**.
11. Close the report.

Creating Report in Design View

12. Go to Create → Reports Group → Reports Design
13. It is like the form design view.
14. It contains Heard, details and footer section.
15. From ribbon design → tools → Add existing fields.
16. Field list pane appears.
17. From **tblCustomers** table add all fields except CustomerId and Address2.
18. Right click Page Header and click Page Header footer to make it disappear.
19. That is because they appear in each page.
20. Right click details and select Report header and footer.
21. They appear in the start and end of the report.
22. Go to Print Preview.
23. Go to Layout View
24. Make ComanyName Field wider.
25. Scroll down to make sure it is wide enough for all company names.

26. Go to Design View.
27. In Report Header add label and add text : Customer Information.
28. Go to the Format tab on the ribbon.
29. Increase text to 16.
30. Go to Report Design tab in the ribbon.
31. In Group: Header/Footer → Logo.
32. Select the logo file.
33. Drag it to the right adjust.
34. Check your report in print preview.
35. Go back to design view.
36. Save the report as: **rptCustomerInformation**.
37. Close report.

Lab 13B: Exploring Report Design View

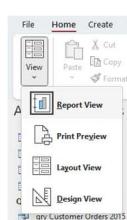
1. Use file: **Lab13B_Start.accdb**.
2. You must decide what you will be based your report on (table or query)?
3. Most of the time you based your report on query not a table.
4. Open report **qry Customer Orders 2015**.
5. There are 328 records.
6. Those are all customers orders in 2015.
7. Go to query design view.
8. Remember query has a sorting option and can have calculated field.
9. In report you have also those too options as we will see.
10. Close your query but keep selecting it.
11. Create → Reports → Report.
12. A report appears in layout view.
13. Change Title to **Customers Orders 2015**.
14. Select the group of controls showing orders and try to adjust the padding and margin.
15. Use Arrange → (Control margin) and (Control Padding).
16. Save your report as **rpt Customer Orders 2015**.

Company Name	Country	Order ID	Order Date	Required Date	Shipped Date	Order Amount	Freight
Babu J's Exports	UK	10212	02-Jan-15	30-Jan-15	11-Jan-15	£287.13	£9.91
Bergstad's Scandinavian Grocery	USA	10213	03-Jan-15	31-Jan-15	11-Jan-15	£2,210.00	£3.76
Merry Grape Wine Merchants	Canada	10214	04-Jan-15	01-Feb-15	06-Jan-15	£1,194.60	£78.77
Wanda's Wine and Cheese Shop	USA	10215	05-Jan-15	02-Feb-15	30-Jan-15	£875.30	£13.22
Rattlesnake Canyon Grocery	USA	10216	06-Jan-15	03-Feb-15	12-Jan-15	£427.50	£28.83
Valley Store	USA	10217	09-Jan-15	20-Feb-15	27-Jan-15	£418.60	£0.62
Anthony's Beer and Ale	USA	10218	10-Jan-15	07-Feb-15	13-Feb-15	£779.00	£77.55
Seven Seas Imports	UK	10219	11-Jan-15	22-Feb-15	13-Jan-15	£976.40	£72.03
Eastern Connection	UK	10220	12-Jan-15	09-Feb-15	19-Jan-15	£803.04	£33.19



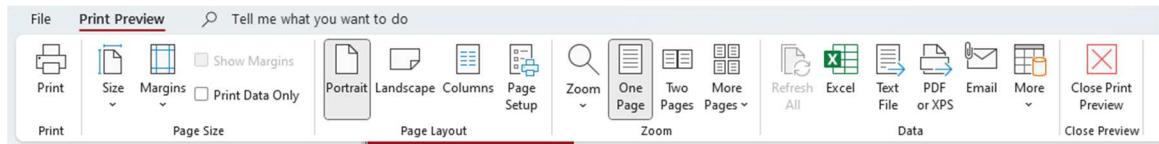
Report Views

17. Explore the 4 Report Views:
 - a. Report View.
 - b. Print Preview.
 - c. Layout View.
 - d. Design View.
18. Go to Print Preview.
19. You can here:



Views:

- a. Print
- b. Change: Page Size, margin, print data only
- c. Change: Orientation, Column, Page Setup.
- d. Zoom.
- e. Export Data to other programs.



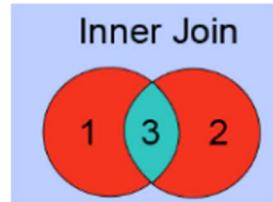
20. Close the Print preview from the X button to go to other views.
21. Repost Design View is like form design view.
22. Drag your report edge to the last control.
23. Go to Print Preview to see the result.
24. Change the Report to be Landscape.
25. Explore the Icons on the ribbon that help you in printing the report.

Chapter 10: Advanced Query Topics

Types of Joints

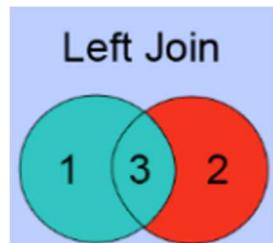
1. Inner Join

1. In an inner joint, we only select the data which is common in both the tables. (ie, part 3 here)
2. To make it more precise, all the records from both the tables matching the condition mentioned with the join are picked in this join.



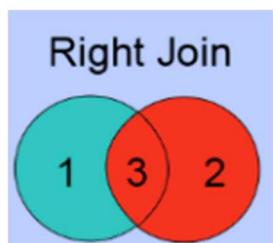
2. Left Join

3. In left join, we select all the data from the left table and from the right table only select the data set which matches up with the condition mentioned with the join (here area 1+3)



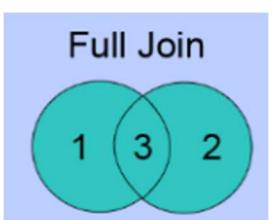
3. Right Join

4. In right join, we select all the data from the right table and from the left table only select the data set which matches up with the condition mentioned with the join (here 3+2)



4. Full Join

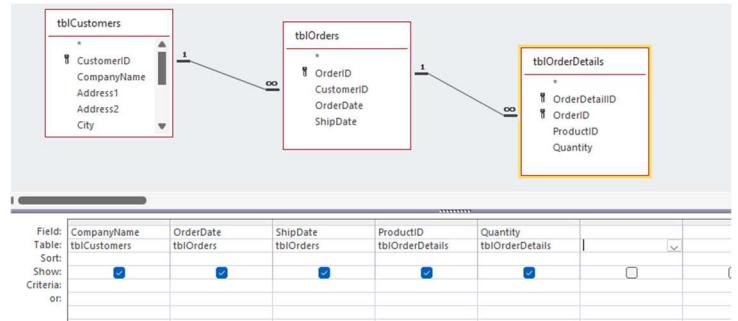
5. In full join, all the records form both the tables are merged and selected irrespective of the condition mentioned with the join having met or not. (Here 1+2+3)



Lab 5A: Controlling Query Results with Join Types

1. Use file **Lab05A_Start.accdb**.
2. Go to Create → Query Design.
3. From Add table Pane double click: tblCustomers, tblOrdeers, tblOrderdetails.
4. Notice the Joins you have created before.
5. From tblecustomers double click CompanyName field.
6. It will appear in the 1st column in the Grid.
7. Continue adding fields :

- tblOrders → OrderDate, ShipDate
- tblOrderDetails → ProductID, Quantity
- By Default, all those Joins are Inner Joins.
- So if you run this query it will only show customers that have orders.
- Click Run
- Notice there is no customer here that do not have orders.
- Save your query as **qryCustomerOrders**



13. Now we want to see all customers wherever they have orders or not.

14. Right click the relation line between **tblCustomers** and **tblOrders** and choose **Join Properties**.

15. Notice you have 3 options:

- Inner Join (default).
- Left Outer Join.
- Right Outer Join.

16. Choose Option 2.

17. Notice the Arrow point to **tblOrders** now.

18. Run query → Error Message.

19. That is because you have to all path have left outer join.

20. Change the join between **tblOrders** and **tblOrderDetails** to left outer Join too.

21. Notice the Arrows that shows the direction of Join

22. Run the Query.

23. Now all customers appear whether they have orders or not.

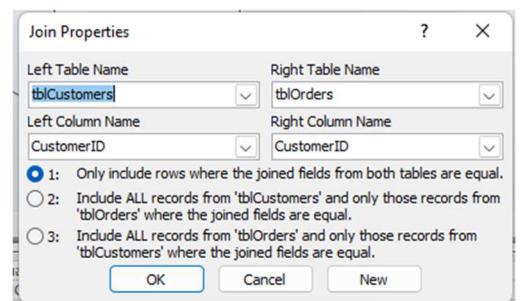
24. Go back to Design View.

25. Get both joins to Inner Join again.

26. Run Query.

27. Only customers that have orders only show up.

28. Close and save your query.



Query Criteria

Data Types and Conventions

Data Types	Conventions	Examples
Short Text Long Text Hyperlink	" " "	"UK" Like "A*" Not "UK" "UK" Or "USA"
Number AutoNumber Currency	[none]	10 >10 <=10 Not 10 Between 1 And 10 10 Or 20
Date/Time	# #	#31/05/2019# >#31/05/2019# Between #01/05/2019# And #31/05/2019#
Yes/No	[none]	Yes No True False

Logical Operators

Comparison Operator	Meaning	Examples
= (equal sign)	Equal to	=10 or 10
> (greater than sign)	Greater Than	>10
< (less than sign)	Less Than	<10
>= (greater than or equal to sign)	Greater Than or Equal To	>=10
<= (less than or equal to sign)	Less Than or Equal To	<=10
<> (not equal to sign) / Not	Not Equal To	<>10 or Not 10
Like	Similar/Likeness of...	Like "A"
Between X And Y	Range of Values	Between 1 And 10
And	All Must be True	"UK" And Like "A"
Or	At Least One Must be True	"UK" Or "USA"

Lab 5B: Creating Complex Queries with Multiple Criteria

- 1 Continue Using file **Lab05A_Start.accdb**.
- 2 Open **qryCustomers** in Design View.
- 3 We want to show only Zip code that starts with 93.

- 4 In Criteria under Zip write:93*
- 5 Press tab key and notice that access wrote the criteria for you.
- 6 Run Query
- 7 Only Customers with zip code starts with 93 are shown.
- 8 Go Back to design view.
- 9 Delete the Criteria

The screenshot shows the Microsoft Access query design grid. The first column is labeled 'Criteria' and contains the value '93*'. The second column is labeled 'tblCustomers' and has a checkmark in the 'Like' dropdown. The third column is labeled 'tblCustomers' and has a checkmark in the 'tblCustomers' dropdown.

OR Condition

Method 1:

- 10 We want only show customers from California or Oregon.
- 11 In State Criteria write : ca OR or and press tab key
- 12 Notice Access wrote the expression for you
- 13 Run Query.
- 14 Go Back to Design View

The screenshot shows the Microsoft Access query design grid. The first column is labeled 'State' and contains the value 'ca' with a checkmark. The second column is labeled 'tblCustomers' and has a checkmark in the 'tblCustomers' dropdown. Below the grid, the expression 'ca' Or "or"' is visible.

Method 2:

- 15 Use the or line in the Grid.
- 16 You will get the same result.
- 17 Run query.
- 18 Go back to design view.

The screenshot shows the Microsoft Access query design grid. The first column is labeled 'State' and contains the value 'ca' with a checkmark. The second column is labeled 'tblCustomers' and has a checkmark in the 'tblCustomers' dropdown. Below the grid, the expression "'ca'" and "'or'" are visible.

AND Condition

- 19 We want have two Criteria State = Ca , Zip starts with 93.
- 20 Put them in the same line in Criteria
- 21 This mean AND.
- 22 Run Query.
- 23 You only got two records.
- 24 Go back to design view.
- 25 Erase all Criteria.

The screenshot shows the Microsoft Access query design grid. The first column is labeled 'State' and contains the value 'ca' with a checkmark. The second column is labeled 'Zip' and contains the value '93*' with a checkmark. Both columns have checkmarks in their respective 'tblCustomers' dropdowns.

Using Wild Card and Like Key word

- 26 We want the company that starts with letters from A to G.
- 27 Enter the Criteria in CompanyName : Like "[a-g]*"
- 28 That means anything starts with A throgh G and anything afterthat.
- 29 If you cannot see well the expression,right click the Grid and chose Zoom.
- 30 Run query.
- 31 You will get 7 companies that start with letters from A to G.
- 32 Notice we use **Like** Key word when there is no Exact match.
- 33 Go back to Design View.

The screenshot shows the Microsoft Access query filter dialog. The 'Criteria' section is set to 'Like "[a-g]*"' with a checkmark. The 'Field' dropdown is set to 'CompanyName'.

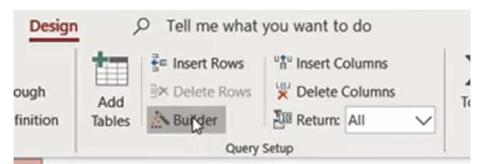
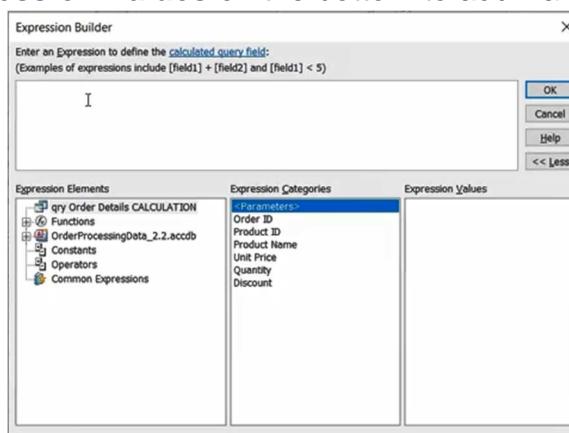
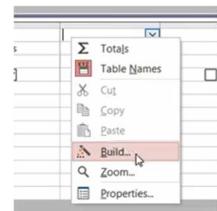
- 34 Delete the Criteria, save and close.

Lab 5C: Calculating in Queries Using Expression Builder

- 1 Use file: **Lab05C.accdb**.
- 2 Open **qry Order Details CALCULATION** in design view.
- 3 There are two joined tables in this query.
- 4 Run Query and notice 2796 records are shown.
- 5 Those are all records that show all orders details across all orders.
- 6 I want to calculate the total of each line.
- 7 Go Back to design view.

Using the Expression Builder

- 8 We want to build an expression that calculates the total line for each line of the query.
- 9 We want to multiply **Quantity X Unit Price X (1-Doscount)**.
- 10 Click on the column next to Discount, you can start writing the expression here.
- 11 But you can right click and choose the Builder.
- 12 You can also try the short cut (**Ctrl + F2**).
- 13 You can also choose the Builder from the ribbon.
- 14 The expression Builder open.
- 15 On the top you can write the expression directly or choose from the **Expression Elements – Expression Categories – Expression Values** on the bottom to add Values.



- 16 In the **Expression Elements** you can Expand to find the functions available.
- 17 In the Middle pane **Expression Categories**, you find the Category of functions.
- 18 And in the 3rd pane you find the function you want

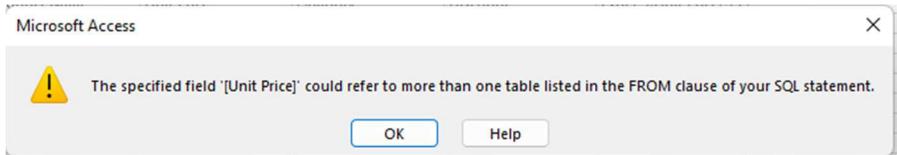
- 19 You can also find the Objects in your database and access them the

The screenshot shows the Microsoft Access Expression Builder interface. The left pane, 'Expression Elements', displays a tree view of objects from the 'qry Order Details CALCULATION' query, including Functions, Built-In Functions, OrderProcessingData_2.2, and various tables, queries, forms, and reports. The middle pane, 'Expression Categories', lists categories like All, Arrays, Conversion, Database, Date/Time, Domain Aggregate, Error Handling, Financial, General, Inspection, Math, Messages, Program Flow, SQL Aggregate, and Text. The right pane, 'Expression Values', lists various functions and values such as Abs, AccessError, Asc, AscW, Atn, Avg, BuildCriteria, CBool, CByte, CCur, CDte, CDbL, Choose, Chr, Chr\$, ChrW, ChrW\$, and CInt.

same way .

- 20 We want to write an expression that contains 3 fields from our query.
 21 In Expression Elements pane click the 1st line (the query you are in).
 22 In the middle pane the fields of the query will appear.
 23 You can select and add to your expression.
 24 Double Click **Unit Price**.
 25 Notice it appears in two square Brackets [].
 26 That is because some field names might have spaces.
 27 You can click Operators on the left pan to choose * but it is easier to write directly.
 28 Double click to add the **Quantity** field.
 29 Complete the expression to be like the one in the figure.
 30 You have to enclose fields in parentheses ().
 31 Close your expression Builder and try to run the query.
 32 You receive an Error message.

The screenshot shows the Microsoft Access Expression Builder with the expression `[[Unit Price]*[Quantity]]*(1-[Discount])` entered in the central pane. The left pane shows the query structure, and the middle pane shows the expression categories and values. A message box at the bottom indicates an error: 'The specified field 'Unit Price' could refer to more than one table listed in the FROM clause of your SQL statement.'



- 33 Notice that you have two fields [Unit Price] in two tables
 34 And that is what make the Problem
 35 Go back to the Expression Builder and add the table name before the field with (.) Dot Notation.
 36 Notice that the Access gave Expr1 as a column name for your new calculated field
 37 Add Total Line as a name for your calculated field and make sure it is

`Line Total: ([Order Details].[Unit Price]*[Quantity])*(1-[Discount])`

- separated by (:) colon from the expression like in the figure.
 38 Run your query.

39 You get the calculated field in each line.

Formatting the field

- 40 Go back to the design view.
- 41 Click on the calculated field you have created and chose properties.
- 42 You can also open the property sheet from the option on the ribbon.
- 43 In **Format** select Currency and **Decimal = 0**.
- 44 Run your query and check results.
- 45 Close your query and save.



Expression Syntax

- You use the following syntax to write your expression:

Field Name: [Object 1] operator [Object 2] (operator ... [Objects ...])

Examples:

- Line Total: ([Order Details]![Unit Price]*[Quantity])*(1-[Discount])
- Days Overdue: ([Due Date])-([Invoice Date]+30)
- Total Inc VAT: ([Invoice Amount]*1.2)
- Full Name: UCASE([Last Name]) & ", " & [First Name]

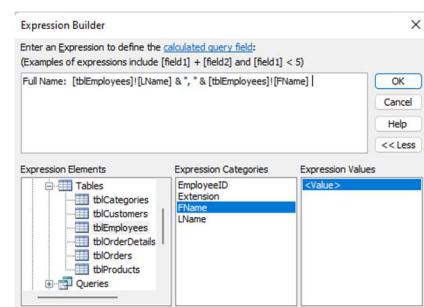
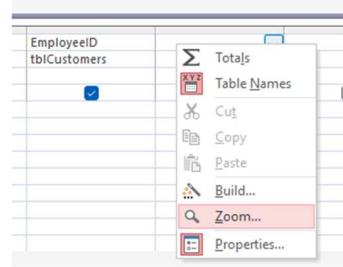
Lab 5D: Concatenate Fields in Query

- 1 Use file **Lab05D_Start.accdb**.

Method 1: Using Expression Builder

- 2 We want to show the full name of the Customer.
- 3 Open **qryCustomers**.
- 4 Run query.
- 5 Notice the Employee Name is shown because it is a lookup field.

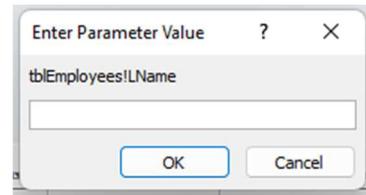
- 6 Go back to the design view.
- 7 Right click the first cell after employeeID field in the Grid and chose Build.
- 8 We will create a calculated field using concatenation.
- 9 Write → Full Name: (this is the name of the new calculated field)
- 10 Under **Expression elements** pan expand:
- 11 Customer Order.accdb → tables → tblEmployees.
- 12 Under **Expression Category** Double click LName.
- 13 It will appear in the Expression Builder above.
- 14 Delete <>Expr>> that appears before the field.
- 15 Notice: It is **[The name of the table] ! [Field Name]**
- 16 Type & (the concatenation Character).
- 17 Type “, ” .
- 18 Type another &
- 19 Double click the FName Field.
- 20 The Final Expression should look like this:
- 21



- 22 Click Ok.
- 23 Right Click the new Calculated Field and Zoom.



- 24 Run Query.
- 25 You get a message Error Parameter Value
- 26 That is because we did not include the **tblEmployee** table in the query.
- 27 But you have used 2 fields from it in the expression you have built.
- 28 Go and add the **tblEmployees** to the query.
- 29 Now Run your Query.
- 30 Now you have the Last Name and Full name in the result.
- 31 Go Back to Design View.
- 32 In the Show Row uncheck EmployeeID field so it won't show in the result.



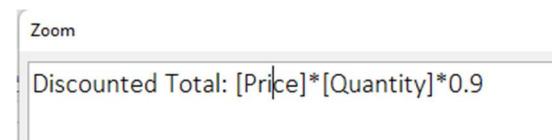
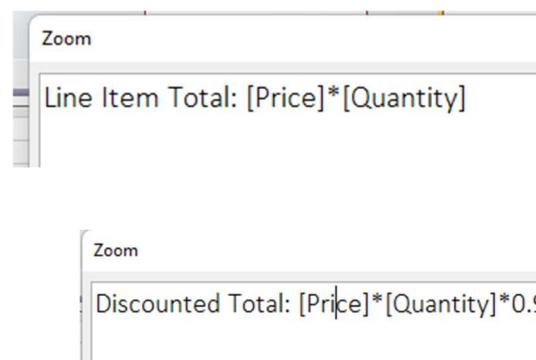
Field:	CompanyName	Table:	tblCustomers	Phone	tblCustomers	Address1	tblCustomers	City	tblCustomers	State	tblCustomers	Zip	tblCustomers	EmployeeID	tblCustomers	Full Name: [tblEmploy
Show:	<input checked="" type="checkbox"/>	Table:	tblCustomers	Phone	tblCustomers	Address1	tblCustomers	City	tblCustomers	State	tblCustomers	Zip	tblCustomers	EmployeeID	tblCustomers	Full Name: [tblEmploy
Criteria:		Table:	tblCustomers	Phone	tblCustomers	Address1	tblCustomers	City	tblCustomers	State	tblCustomers	Zip	tblCustomers	EmployeeID	tblCustomers	Full Name: [tblEmploy
or:		Table:	tblCustomers	Phone	tblCustomers	Address1	tblCustomers	City	tblCustomers	State	tblCustomers	Zip	tblCustomers	EmployeeID	tblCustomers	Full Name: [tblEmploy

- 33 Run the query.

- 34 Now only full name appears.
- 35 Save and close the query.

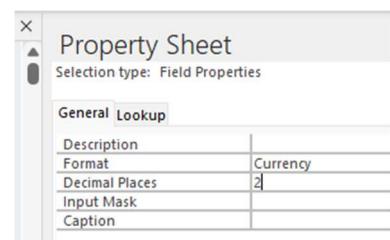
Method 2: Using Zoom Window

- 36 Open **qryCustomersOrders** in design view.
- 37 We want to add some fields from **tblproducts**.
- 38 If Add Tables pan not appear → **Query Design** tab in the ribbon → Query setup group → Add Tables
- 39 Double click the **tblProducts**.
- 40 Double click the fields: **ProductName ,Price**.
- 41 Drag and Drop ProductName field just after ShipDate.
- 42 Drag Price to be after ProductName.
- 43 Run Query
- 44 Go back to Design View.
- 45 Build a new Calculated Field using Zoom this time.
- 46 Click the first blank column in the grid.
- 47 Right click and chose Zoom.
- 48 In the Zoom window write expression to calculate the Line Item Total field then press OK.
- 49 Run query.
- 50 Get Back to Design View.
- 51 Create a new Calculated Field:
Discounted Total.
- 52 Run query.
- 53 Go Back to Design View.



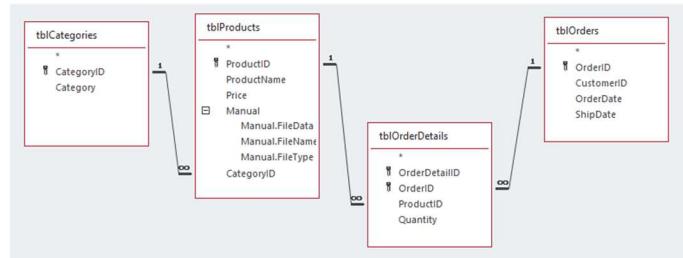
Format Field

- 54 Now let us format the new Calculated Fields we have Created.
- 55 Close the Add Tables Pane.
- 56 Go to Query Design Tab in Ribbon
→ Show/Hide Group → Property Sheet
- 57 This opens the property sheet window.
- 58 It always shows the property of the selected field.
- 59 Select **Line Item Total** field and in General
→ Format Field in property sheet select Currency.
- 60 Chose 2 Decimal Places.
- 61 Do the same format for the **Discounted Total** Field.
- 62 Close the property sheet and Run query.
- 63 Save your query and close.



Lab 5E: Summarizing and Grouping Data Using Query

1. Use File Lab05E_Start.accdb.
2. Go to Create → Query Design.
3. From Add Tables Pane select 4 Tables: tblProducts, tblOrders, tblOrderDetails, tblCategory.
4. Arrange the tables.
5. Select Fields : Category, Quantity ,Quantity , .
6. We need Quantity twice.
7. We want to see the SUM and AVERAGE of Quantity.
8. To do so you must show the **Total** row in the table grid at the bottom.
9. Query Design → Show/Hide → Totals Button.
10. Select Avg and Sum under the Quantity two fields and leave the other fields with Group By



Field:	ProductName	Quantity	Quantity	OrderDate	Category
Table:	tblProducts	tblOrderDetails	tblOrderDetails	tblOrders	tblCategories
Total:	Group By	Avg	Sum	Group By	Group By
Sort:					
Show:	<input checked="" type="checkbox"/>				
Criteria:	or:				

11. Run query.
12. Go Back and format your **Quantity Average** to Standard Number with 0 Decimal.
13. Run your query again.
14. That is How many quantity you have sold for each category and what is the average of quantity for each time we sell.
15. We have summarized our Selling by Category Sum and Average.
16. Go Back to Design View.
17. We want do the same but this time by Product Name.
18. Select **ProductName** Instead of Category.
19. Run your query and see result.
20. Go Back to Design View.
21. Add Quantity Min, Quantity Max for each product.
22. Run your query.
23. Go to the Design View and Rename Column to **Sum Qty Sold , Avg Qty Sold , Max Qnty Sold , Min Qty Sold.**

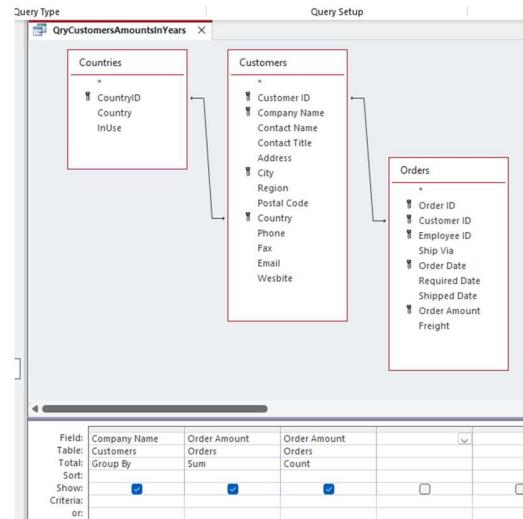
Field:	ProductName	Sum Qty Sold: Quantity	Avg Qty Sold: Quantity	Min Qty Sold: Quantity	Max Qty Sold: Quantity
Table:	tblProducts	tblOrderDetails	tblOrderDetails	tblOrderDetails	tblOrderDetails
Total:	Group By	Sum	Avg	Min	Max
Sort:					
Show:	<input checked="" type="checkbox"/>				
Criteria:	or:				

24. Save your query as **qryProductOrderQuantities**.

25. Close your query.

Lab 5F: Using Where and Having in Grouping

1. Use file: **Lab05F_Start.accdb**.
2. Create query that shows the Sum and Count of each Company Name.
3. Use the 3 tables: **Countries**, **Customers** and **Orders**.
4. Run your query.
5. You got **90** record in your data set.
6. It shows how much every Company sold and How many times it sold.
7. Create a calculated field **Year:Year([Order Date])**.
8. And use where condition in the Group by row to show only Year 2015.
9. Notice when you select where the field is unselected.



Field:	Company Name	Order Amount	Order Amount	Year: Year([Order Date])
Table:	Customers	Orders	Orders	
Total:	Group By	Sum	Count	
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2015
Criteria:	or:			<input type="checkbox"/>

10. Run your Query.

11. You get

12. to get the same result but only for Year 2015.

13. You get only 82 records this time.

14. They are the companies that sold products in 2015.

15. Now I want to filter the result for UK only.

16. Add **Country** from **Country** table.

17. Add "UK" in the Criteria.

18. Run your query.

19. You receive only 24 records.

20. Go to SQL View to see the **Where** and **Having** Clause with Group By.

```
SELECT Customers.[Company Name], Sum(Orders.[Order Amount]) AS [SumOfOrder Amount], Count(Orders.[Order Amount]) AS [CountOfOrder Amount], Countries.Country
FROM Countries INNER JOIN (Customers INNER JOIN Orders ON Customers.[Customer ID] = Orders.[Customer ID]) ON Countries.CountryID = Customers.Country
WHERE ((Year([Order Date]))=2015)
GROUP BY Customers.[Company Name], Countries.Country
HAVING (((Countries.Country)='UK'));
```

21. Close and save you query as: **QryCustomersAmountsInYears**.

Chapter 11: Automating Queries with Parameters

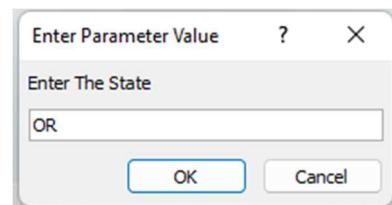
What is a Parameter Query?

- Parameter queries allow end user to determine what result will be.

Lab 6A: Creating Automated Requests for Criteria

1. Use file: **Lab06A_Start.accdb**.
2. In Navigation Pane Copy and Paste **qryCustomers** and rename it **qryCustomersByState**.
3. Run the query it shows all customers.
4. Go to design view.
5. In the Criteria row under State write: **[Enter the State]**.
6. Run the query.
7. You will get **Enter Parameter Value** Dialogue Box.
8. Enter **OR** then press OK
9. The query runs and show only customers in the state of Oregon.
10. Save your query and close it.
11. Double Click the query again and this time Enter CA
12. The query shows the results of Customers of California.

State	Z
tblCustomers	tl
[Enter The State]	



Using Wildcards

13. Duplicate **qryCustomers** again as before.
14. Name the new query **qryCustomersByName**.
15. Open in design View.
16. We want the user enter a partial company name
17. And the query display the result of this company.
18. Zoom Filed **CompanyName**
19. Enter the following Expression and press Ok:

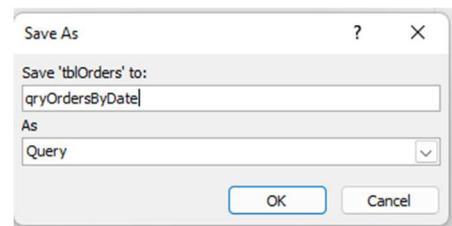
Like "*" & [Enter Company Name (partial ok)] & "*"

20. Notice the * means any Number of Characters
21. Run query.
22. Enter Parameter: **Cat**
23. The result shows company **Bearcat Boosters**.
24. Rerun the query with parameter **fire**.
25. It will show Company: **Firebird Fire Sprinklers**.
26. Close and save your query.

Using Range Operators

27. Double click table: **tblOrders**.
28. Go to File → Save As → Save Object As
29. Save it as query **qryOrdersByDate**.
30. Close **tblOrders**.
31. Go to Design view of the new query.
32. Zoom to Criteria of **OrderDate** Field.
33. Enter the following Expression:

Between [Enter the start date] and [Enter the end date]



34. Remember the **Between** is inclusive.
35. That means the two dates will be included in the result.
36. Press OK and run the query.
37. Enter 1/06/2010 and 30/6/2010.
38. Results shows orders in the range you gave.
39. Save and close the query.

Note:

- Note that you can update records in a query and the under table will be updated.

Try to update address field for a customer in **qryCustomers** and then check the results in the original table **tblCustomers**.

Optional operators [Your prompt here in between square brackets]

Examples:

[Enter Country:]

Between [Enter Start Date:] And [Enter Start Date:]

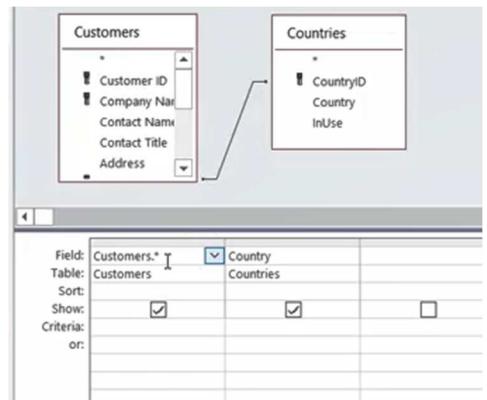
>= [Enter Quantity:]

Like [Enter the first character:] 

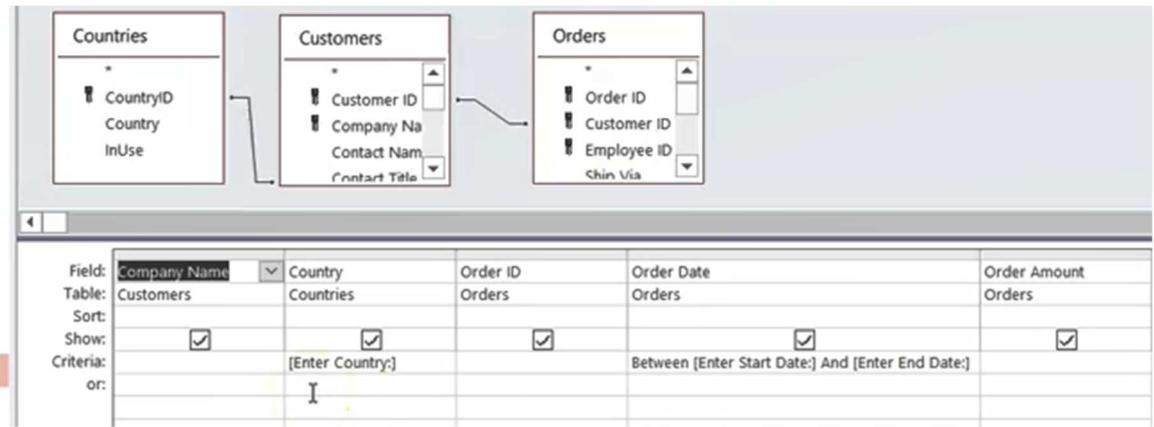
Syntax for a Parameter Query

Lab 6B: Query with multiple parameters.

1. Use File **Lab06B_Start.accdb**.
2. Create New Query that have tables **Customers** and **Countries**.
3. Run the query you got 91 records.
4. Go back to design view.
5. Add Parameter [Enter Country] to field Country.



6. Run your Query.
7. In the input box write **UK**.
8. You receive 24 records.
9. Add another table Orders and fields like the Figure.



10. Enter another 2 Parameters for the [Enter Start Date] and [Enter End Date].
11. For Parameter enter : UK , 1/1/2015 , 31/12/2015.
12. You receive 99 records this time.
13. Save your query as **qryCustomersByCountryandDate**.

Chapter 12: Action Queries

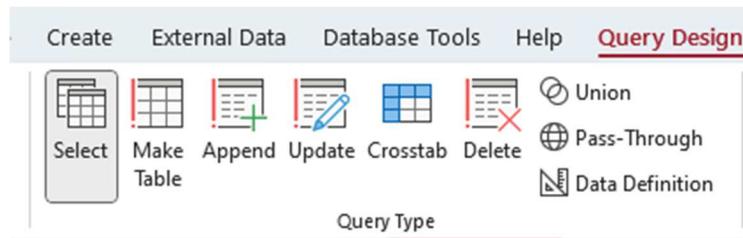
- All queries we have done so far are all **Select Queries**.
- Action queries are a category of query that changes the table Data.
- We have:
 1. **Make table query**: they create new table.
 2. **Append Query**: Append data to a table.
 3. **Update Query**: Update Data in a table.
 4. **Delete Query**: Delete Data from a table.

 **Be Careful:** You cannot reverse the action of the action queries.

Lab 7A: Action Queries

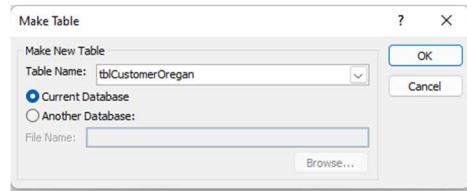
Make Table Query

1. Use File Lab07A_Start.accdb.
2. Go to Create → Queries → Query Design
3. Double Click to add **tblCustomers** from Add Tables Pane.
4. We need to add all fields to the query
5. You can either:
 - o Click * in the top of the fields name or
 - o Double click the table title then drag the fields to the grid.
6. Add all fields to the grid.
7. In state field criteria type **OR** and press tab.
8. Run the query.
9. Make sure it only shows customers from Oregon.
10. Go back to Design view.
11. In query design tab look at the query type group

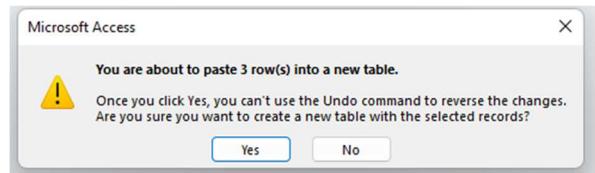


12. Notice that **Select** is shaded.
13. So, the query you are working on is from a select type.
14. Notice that all action queries have “!” Red Exclamation point before each one.
15. Note that there is also a **Crosstab** query you can select.
16. Click **Make Table** button.

17. Name the new table
tblCustomersOregon
18. Chose current database and press OK.
19. Notice we did not have new table because we did not run the query yet.
20. Run the query and chose yes.
21. Double click the new table and check the result.
22. Close the new table.
23. Get back to your query.

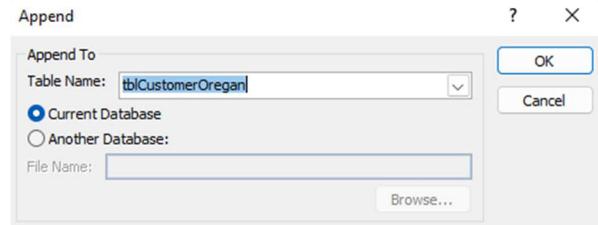


1. Now we want to make another table for California Customers.
2. Create New Query as before
3. Change the Criteria to CA
4. Click Make Table.
5. Name the new table: **tblCustomerCalifornia**.
6. Click OK
7. Run the query.
8. A new table with two records added to your navigation pan
9. Go and check it then close.
10. We do not need this query anymore.
11. So close and do not save the query.



Append Query

1. We found that we need to have one table for both customers from CA and OR.
2. Go to Create → Queries → Query Design.
3. Double click on **tblCaustomersCalifornia** from Add Tables to add.
4. Double click on the table title so all fields are selected.
5. Drag all fields to the 1st cell in the Grid.
6. In Query Type Group → Append.
7. Select **tblCustomersOregon**.
8. Click OK.
9. Run Query and click yes
10. Open **tblCustomersOregon** table
11. You will find rows from table **tblCaliforniaCustomers** appended.
12. Close the table and rename it
13. **tblCustomersCalfiorniaAndOregon**



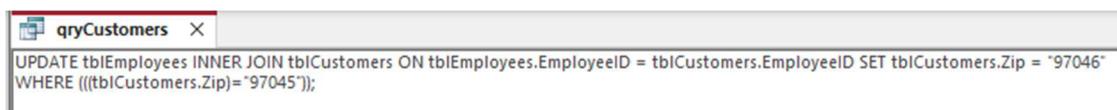
Update Query

1. We want to update the wrong Zip code.
2. Open **qryCustomers** in Design view.
3. In criteria for zip enter 97045.
4. Run the query
5. As you can see you have one customer with this zip code.

6. But imagine that we have 100s of wrong entered zip code.
7. Hard to correct manually.
8. So, we will use the update query.
9. Go back to design view.
10. In Query Type Group → Update.
11. Notice a row added in the Grid **Update to:** .
12. In Update to under zip write 97046

Field:	CompanyName	Phone	Address1	City	State	Zip	Full Name: [tblEmploy
Table:	tblCustomers	tblCustomers	tblCustomers	tblCustomers	tblCustomers	tblCustomers	
Update To:						'97046'	
Criteria:						'97045'	
or:							

13. Go to SQL View and see the SQL command Access wrote on behalf of you.



```
qryCustomers X
UPDATE tblEmployees INNER JOIN tblCustomers ON tblEmployees.EmployeeID = tblCustomers.EmployeeID SET tblCustomers.Zip = "97046"
WHERE ((tblCustomers.Zip)='97045');
```

14. Run the Query and click yes.
15. Close your query without saving Changes.
16. Run Query **qryCustomers** and see that the 79045 has been updated to be 97046.
17. Close Query.

Delete Query

1. Open **tblCustomers**.
2. Add new record.

19 Sarah Savory	888 Any Street	Franklin Par NJ	08821
-----------------	----------------	-----------------	-------

3. Create new query in design and add **tblCustomers**.
4. Double Click the title of the table
5. Drag all fields to the grid.
6. In Query Type click Delete.

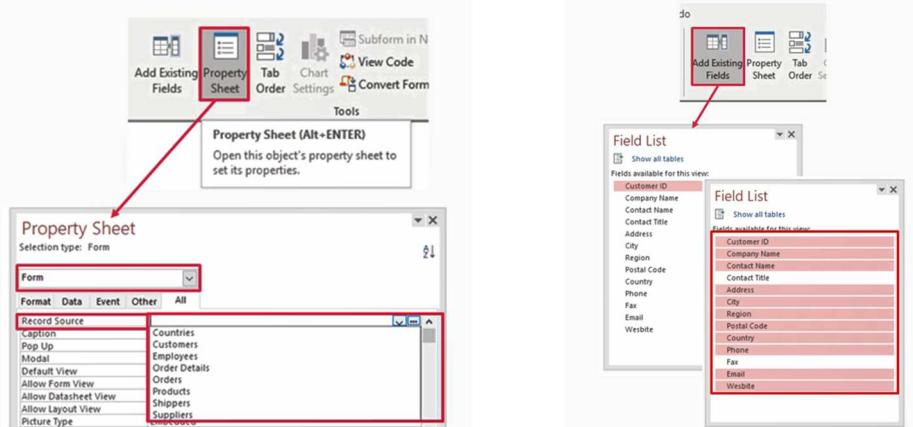
Field:	CustomerID	CompanyName	Address1	Address2	City	State	Zip	Pho
Table:	tblCustomers	tblC						
Delete:	Where	Where						
Criteria:	Where	Where						
or:								

7. Notice new Row appears Delete with word **where**.
8. Add the zip code to the Criteria of Zip field: 08821.
9. Run the query and choose Yes.
10. Close query and do not save changes.
11. Open **tblCustomers** notice the record has been deleted.
12. Close **tblCustomers**.

Chapter 13: Advanced Form Design Techniques

Form Design Canvas

- You can create a blank form from scratch and start the design step by step.
- You always start by clicking the form design icon.
- This will open a form in design view.
- Before you start your design, you have to answer 3 questions:
 - What type of form is being designed?
 - What will be the role of the form?
 - Will it be attached to a table or query?
- The first thing you do is the data source if the form is bound or unbound to a data source.
- To bound your form:
 - Click Property Sheet icon on the ribbon.
 - Make sure that item **Form** is selected.
 - Under **All** data tab click the drop-down list of Record Source
- Secondly you decide which field from the data source you will include?

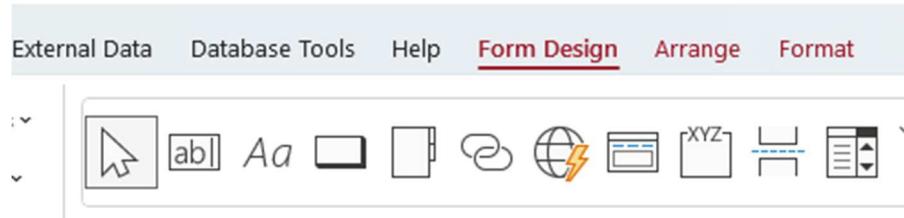


- When you select a field access add textbox for the field and a label.

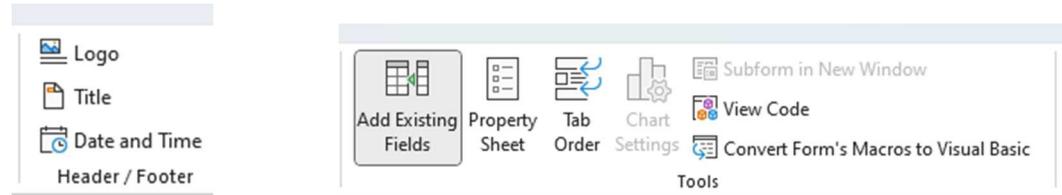
Lab 10A: Creating Form Using Blank Form

1. Use file **Lab10A_Start.accdb**.
2. We want to Create a form for Customers
3. Create → Forms → Blank Form.
4. Go to design view.

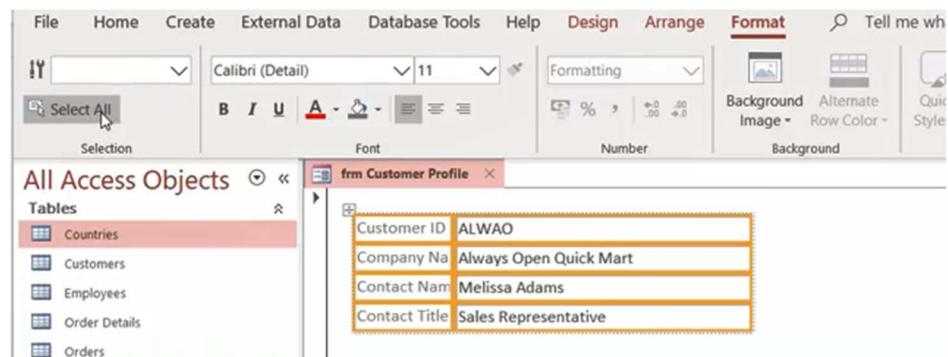
5. You can select fields from a table, through the **Field List** window and Access will add this table as a Record Source for the form.
6. Or you can Select Customers table for Record source in the property sheet.
7. Open List field and Double click fields Customer ID, Company Name, Contact name, Contact Title.



8. Save your form as **frm Customer Profile**.
9. Notice that you have 3 tabs in the ribbon for form design view.
10. In **Form Design** Tab is where you can add Controls to the form
11. You can also add Logo, Title or Date and Time Field.
12. In **Tools** group you can show Property windows and field list ...etc



13. In **Arrange** Tab you can Group controls and arrange the space, alignments ..etc.
14. In **Format** tab you can apply format to selected control.
15. You can choose **Select All** to select all controls on the form.



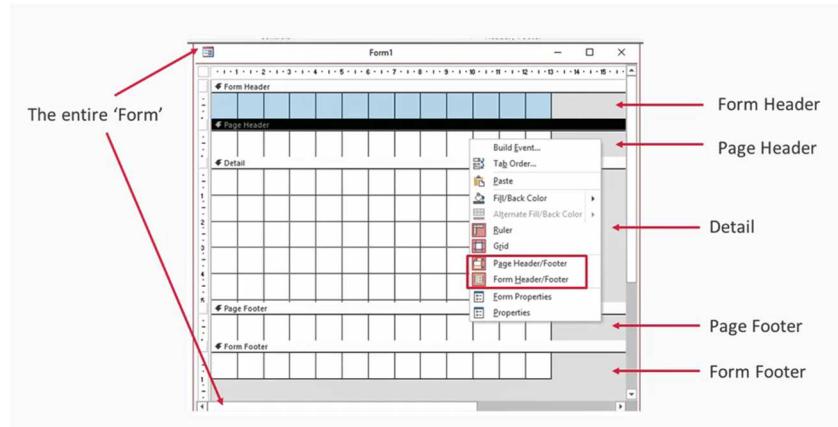
Notice those properties:

Make changes in the **Property Sheet** then Save and see results in the View mode for the following:

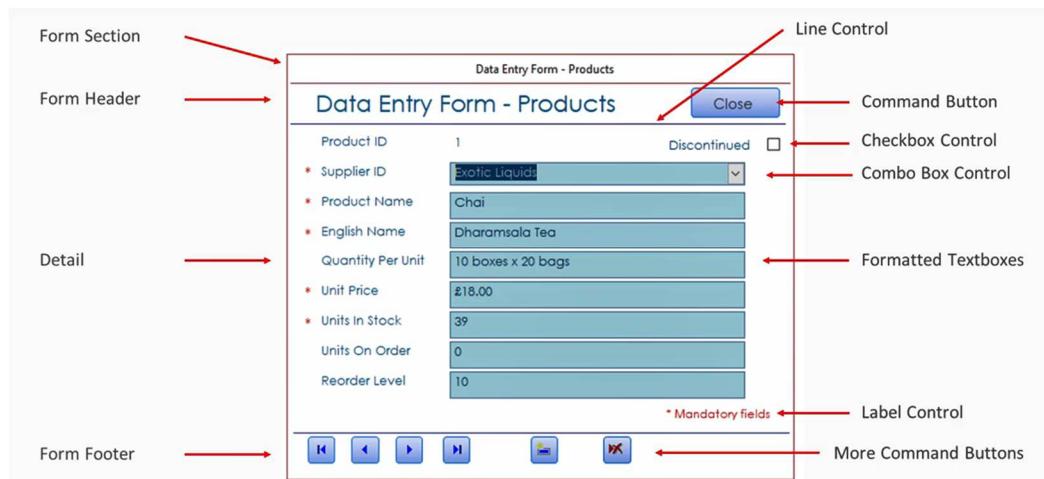
16. Open form **frm Customers**.
17. Go to Design view.
18. Notice the property: Form → Other → Pop Up = Yes.
19. Now try those properties (You can Double click to change Values Yes/No)
20. Form → Format → Caption: **Company Profile** (it changes the Name on tab of the form).

21. Form → Format → **Record Selector** = No.
22. Form → Format → **Navigation Buttons** = No.
23. Form → Format → Scroll Bars = Neither.
24. Form → Format → **Control Box** = No.
25. Now change:
 - a. Form → Format → Control Box = Yes
 - b. Form → Format → Min and Max = Neither.

Form Sections



Form Controls

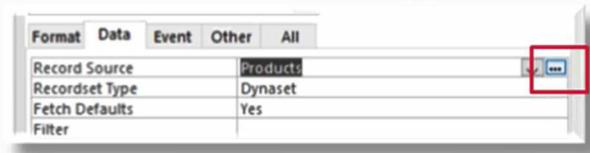
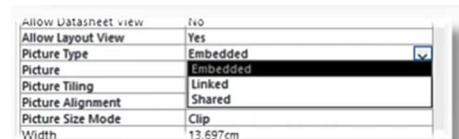
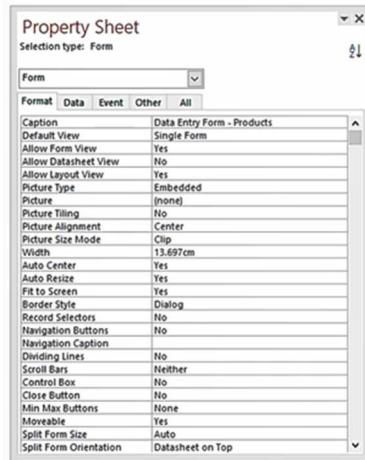


Form Property Sheet

- Property sheet is dynamic and reflect the selected Object.
- (**Alt+Enter**) toggles property sheet On and Off.
- There are tabs across the property Sheet.



- each tab groups some properties to make it easier to find.
- Format** tab is for formatting and look and fill.
- Data** tab is for handling connectivity with the data source.
- Event** tab is for actions and automation.
- Other** tab for mucinous properties.
- All** tab show all properties.
- You might want to sort your property descending or ascending.
- Some properties can be chosen from drop down list.
- You can toggle values by double clicking.
- Some properties have ellipsis button to pop up another window.

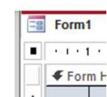


Lab 10B: Continue Exploring Form

- Continue Use file **Lab10A_Start.accdb**.
- Create a blank form.
- Right click and show form header and footer.
- Press **Alt+Enter** to show the property sheet window.

Adjust the width of a Form

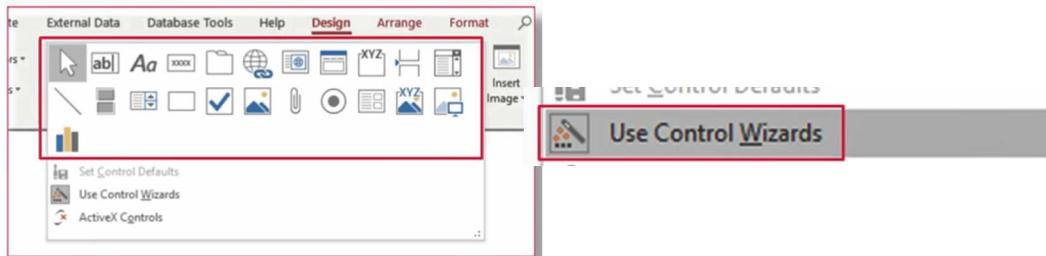
- Select the form first from the list or click the top right corner.
- Change the width.
- All sections widths change.
- Each section has a height property only no width.
- Set **Form→Format →Width= 15cm**.
- Select Header section
- Notice you have:
 - Format→Visible** (to show or hide the section).
 - Format→Back Color** (to change the color of the section).
 - You can pick from the pre-defied list of colors.



- d. You can click the ellipsis to choose your preferred color.

Form Toolbox Controls

- Under Form Design tab you can find the Toolbox Controls.

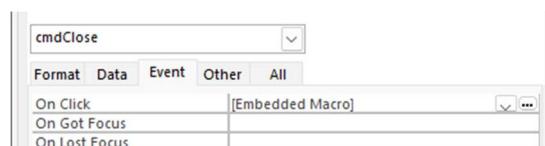
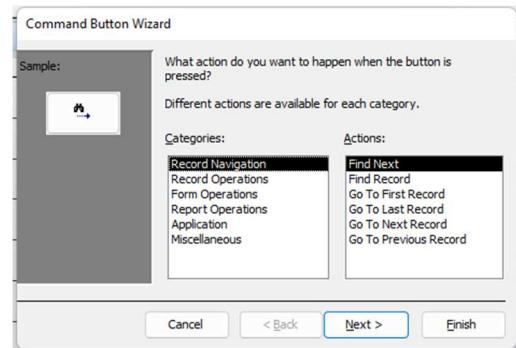


- There are about 20 controls + Active X Controls.
- You can find In order: Text Box, Label, Command Button, Tab Control, Link, Option Group, Combo Box, List Box, Check Box, Option Button, Image, Chart Object.
- Notice you have **Use Control Wizards**, If you enable a wizard works when you use Controls like Command Button, Combo Box, List Box, Option Group to help you.

12. Now drag a text Box to the Details Section.
13. Notice that Access adds a label too for the control.
14. Try to move, they move together.
15. But There are two handles for each you can move each one separately.
16. Notice the text box is **unbound** means there is no field associated with it from the table.
17. You must bind your form first to a table.
18. Bind your form to the Customers table.
19. In the Field list Drag Customer ID to the form.
20. Notice that the new text box is bound to **Customer ID** Field.
21. Go to your text box and bound it with company name and change label manually.
22. Disable the **Use Control wizard** and add **Command Button** and **Combo Box**.
23. From the **Ruler** in the left select all controls and delete them.
24. Enable Use Control Wizard.
25. Create a command button on the Header.
26. Wizards starts.
27. Categories and Action lists are available to choose action for your button.



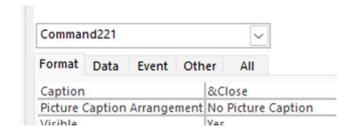
28. Chose Form Operation → Close Form.
29. Caption: **Close**.
30. Command Name: **cmdClose**.
31. Select the button.
32. In its **property sheet** go to **event** tab and **On Click** event.
33. You will find **Embedded Macro** has been assigned.
34. If you click on the ellipse, it will take you to Macro Window.
35. Close Macro Window.
36. Add fields to the form Customer ID , Company Name
37. Create a **Combo Box** in the details section.
38. Select the values from the Employees Table
39. Assign the Combo Box to **Employee ID** field.
40. Save your combo as **cmbEmployees**.
41. Notice the Format → **column width, Column Counts** property.
42. Also Data → **Bound Column** Property



43. Close your Form1 and do not save.

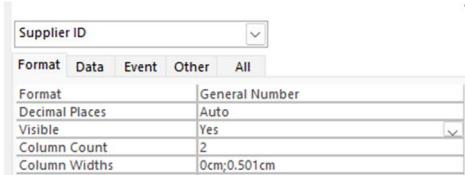
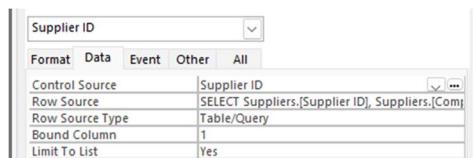
Exploring some Control Properties

44. Open frm Products .
- Select Close Button.**
45. It has Event→On Click event.
46. Create Accelerated letter to it by adding & before C.



Select Supplier ID Cobo Box.

47. Notice Data → Row Source
48. It is a SQL statement from the query he built to get data.
49. Its value is bound to the first Colum retrieved.
50. Also notice Format→Column Count and Column Width.
51. Notice the first column width is 0Cm (We do not want to see). But it must be present to store its value.
52. The second column has a width to make me pick the item.



Stacking Feature

53. Open frm Customers

54. Click Arrange tab.

55. You can select multiple control by selecting 1st one the shift key and click the next to select all your controls.

56. Or you can drag your mouse to the area of controls to select them.

57. If you want to select all controls press (**Ctrl+A**).

58. On the ribbon there is a **Sizing & Ordering** group to help you size and align your controls.

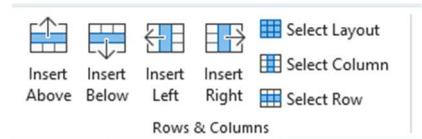
59. Notice you can stack controls to move them together.

60. To unstack the group use **Remove layout** Icon.

61. If you want to stack again select controls and click **Stacked** icon.

62. You can add rows or columns in the stacked area using **Rows & Columns** Group.

63. You can drag and drop any other control to make it a member of the



stacked area.



SubForms

- A Sub form is a form within a form.
- When you change the record in the main form, the subform will be updated with related records.

Lab 10C: Creating SubForms

1. Use file **Lab10C_Start.accdd**.

2. We will create two forms in this task: **Main form** and **SubForm**.

3. Let us start using form wizard.

4. Create → Forms → Form Wizard

5. Select table: **tblOrders**.

6. Select all fields

7. Click Next.

8. Select Columnar.

9. Name form **frmOrdersAndItems**.

10. Click Finish.

11. Only Orders are shown, and this will be our **Main Form (Parent)**.

12. Close your form.

13. Now let us create our subForm (child Form).

14. Create → Form Design.

15. In Form Design tab → Tools → Add Existing Field.

16. Click show all tables.

17. Expand **tblOrderDetails**.

18. Double click to add **OrderID**, **ProductID**, **Quantity** to your form.

19. Go to Form view to look at.

20. Save your form as **frmOrderItems**.

21. Close your form.

22. Open main form **frmOrderAndItems** in Design View.

23. Expand **Detail** Section down.

24. We want to embed the subfrom Here.

25. To do that use the control:

SubFrom/SubReport

26. Before you do that make sure the setting of

.Make sure that Use Control Wizard is Active

27. Now you can select Drag and drop the subForm/SubReport control to your form.

28. Now select and draw your subform.

29. You will get the wizard works for you.

30. Notice that there is a label for the new Control **Child9**: (for example)

31. Chose: **Use an existing Form**.

32. And select **frmOrderItems**.

33. Click Next.

34. Chose which field in main form the subform will be filtered and show record according to and which field connected.

35. Keep the choice of Access.

36. Notice we have used **OrderID** in both forms to connect.

37. Click Next.

38. Accept the Label Access gave and click Finish.

39. Select the label of subfrom and delete it.

40. Go to form view and test it.

41. Make sure for each Orders in main form it shows the items of this order in the subform.

42. Notice you have two navigators.

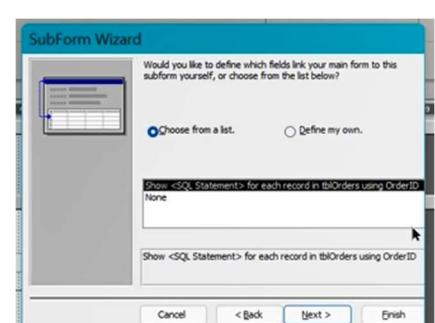
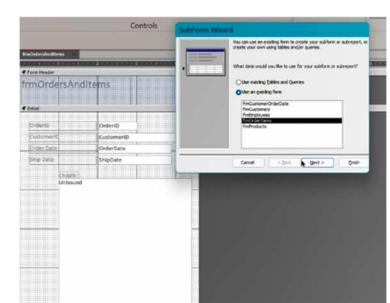
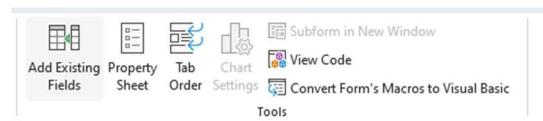
43. One for main form and one for the subform.

44. Go to Layout View and Change label of the main form to: **Orders and Items**.

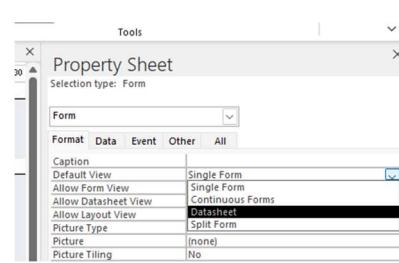
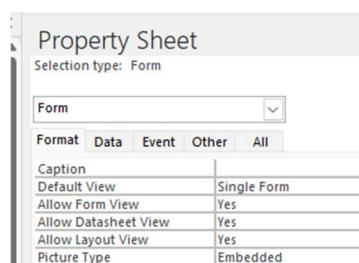
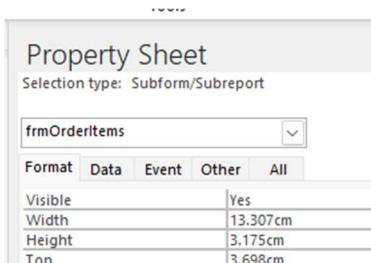
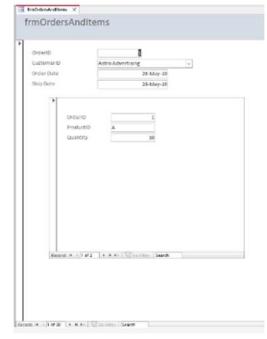
45. Save your forms.

46. It is too tedious to have two navigators in your forms.

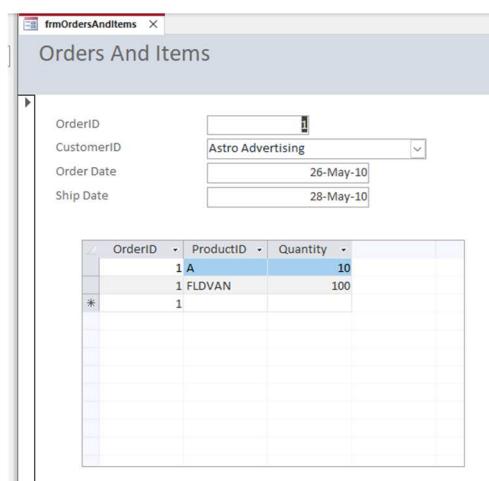
47. Let us adjust that.



48. Go to Design view.
49. First select the Subform.
50. Open Property sheet.
51. Notice that it shows property of **sbform/subreport** object selected.
52. Now double click the subform to go to its properties (the property sheet shows **Form** not subform property).



- Change Format → Data form View = Datasheet.
- 53. Change Format → Record Selector = No.
- 54. Change Format → Navigation Button = No.
- 55. View form in the View Mode.
- 56. Save and close form.

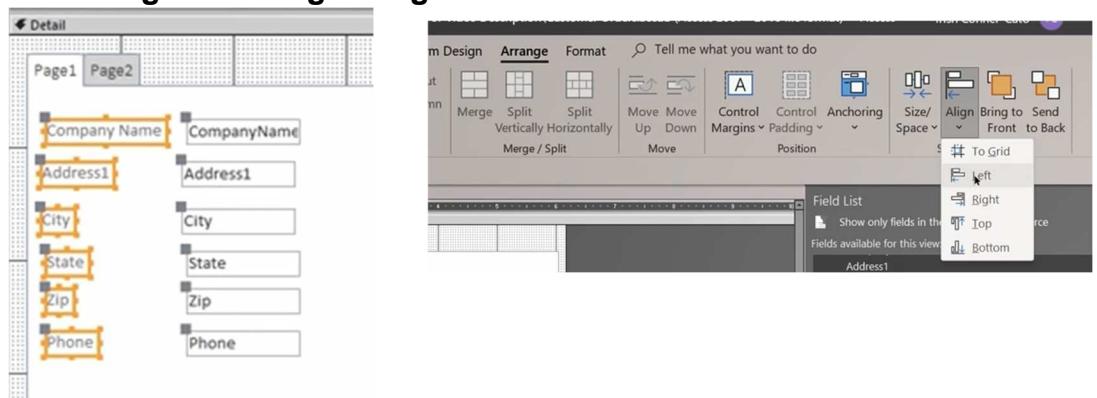
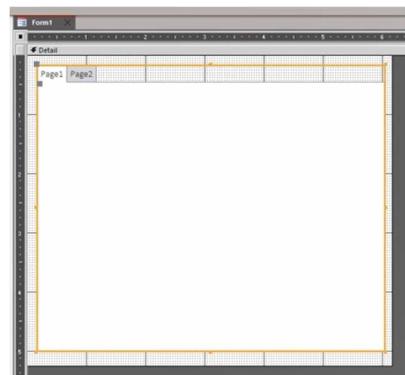
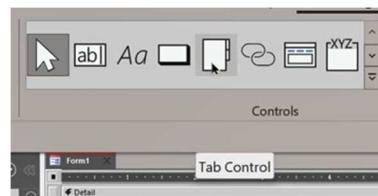


Tabbed Form

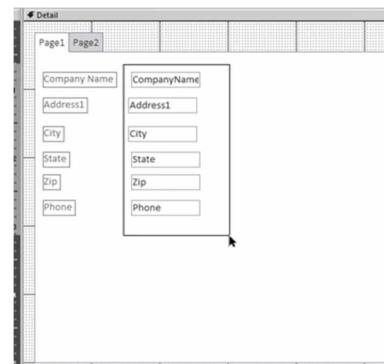
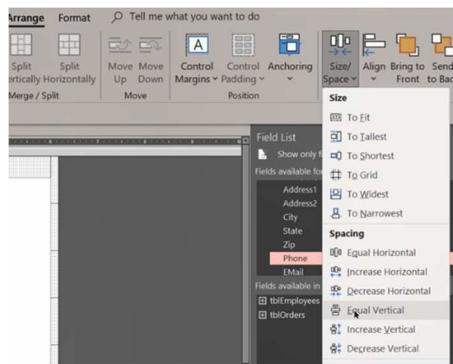
- Tabbed form has multiple pages.
- If you have a lot of fields of data, you might want to split them into multiple pages.

Lab 10D: Creating Tabbed Form

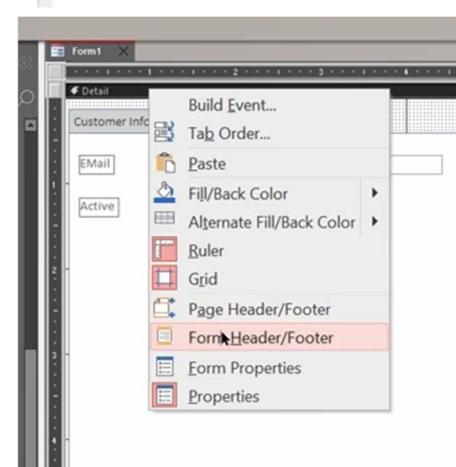
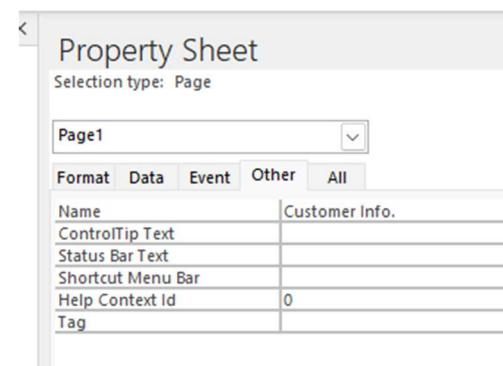
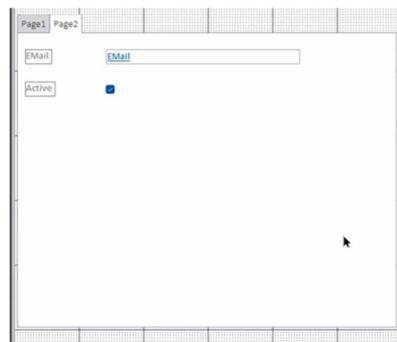
1. Continue using file **Lab10C_Start.accdd**
2. Create → Forms → Form Design.
3. Use tab control from the Controls group in the Form Design Tab in the ribbon.
4. Click on control.
5. Go to the detail section of the form design and draw to cover nearly all the section.
6. Notice you have a form framework with two pages.
7. In the field list expand **tblCustomers**.
8. **Do not Double click this time.**
9. Drag **CompanyName** Field and drop on the Page1.
10. Do not go far to the left, just leave space for labels of the field.
11. Drag **Address1** one field under.
12. Drag **City, State, Zip, Phone** to Page1.
13. Arrange fields and labels:
 - a. Left click and hold mouse to select all labels.
 - b. Go to Arrange tab in the ribbon.
 - c. **Sizing & Ordering → Align → Left.**



- d. Do the same and draw a selection marquee around the fields and align them to the left too.
- e. Select all and make sure all are spaced Vertically equally.
- f. **Sizing & Ordering → Size/Space → Equal Verticaly.**

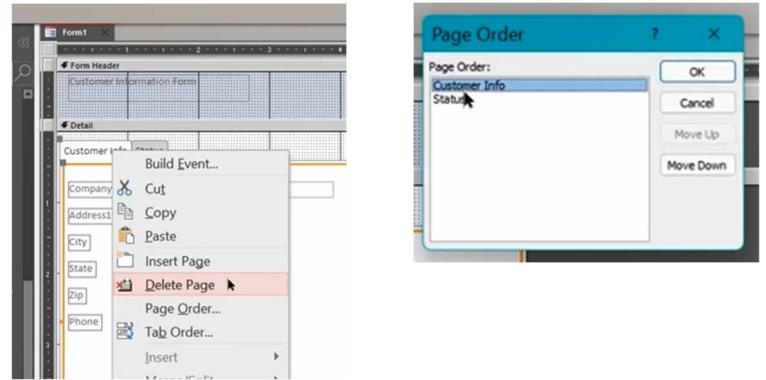


14. Now let us go to Page 2
15. Click on Page2 tab so you have it now selected.
16. Make sure it has a yellow border around.
17. Drag **Email** and **Active** fields.
18. Organize active label.
19. Align label and fields to the left as before.
20. Look at your form in form view.
21. Navigate between the two pages.
22. Go to **Page1**
23. Go to layout view.
24. Arrange the width of **companyName** field.
25. Go back to design view.
26. Let us name pages.
27. Open Property sheet.
28. Click on Page one tab.
29. Go to Other tab in property sheet.
30. Change Name to **Customer Info**.
31. Name Page2 : **Status**.
32. Let us now have a header section.
33. Right click detail section and choose Form Header/Footer.
34. Drag a label control to the header.
35. Write **Customer Information Form**.
36. Go to see your Form view.



37. Notice if you're right click your tab control.
38. You will have a menu where you can add or delete pages.

39. You can change page order.
40. Close your form and save it as **frmCustomerInformation**.

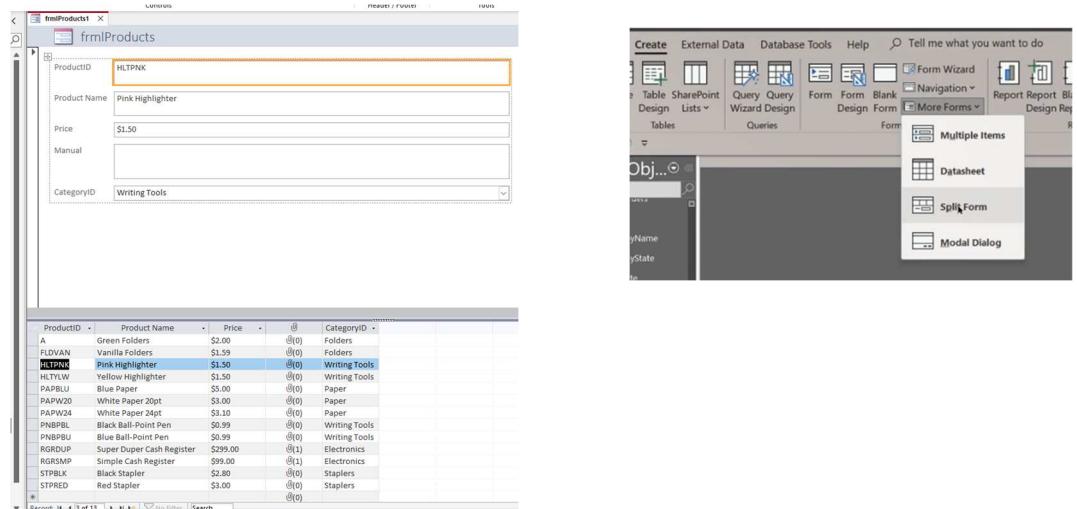


Split Forms

- Split form is a form that shows Form on the upper half and spreadsheet in the lower half.

Lab 10E: Creating Split Form

1. Continue using file **Lab10C_Start.accdd**
2. Just select **frmProducts** in Navigation Pane.
3. Go to Create → Forms → More Forms → Split Form
4. It is open in layout view.
5. Notice that when you navigate to a record it is selected in the lower spreadsheet.



6. In layout view get rid of the icon and rename it Product Split form.
7. Notice it gave the form a name **frmProduct1** by default.
8. Go to Form View.
9. Notice you can change record in top and it reflects that on sheet.
10. Reversely you can choose a record in datasheet, and it will show on the top form.
11. Save your form as **frmProductsSplit**.

12. Close your form.

Default Value

Default Value is a Value in a field, by default it is recorded whenever new record inserted if the user did not give it value.

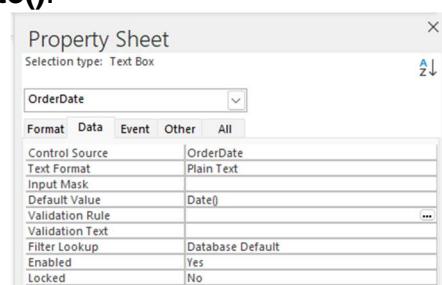
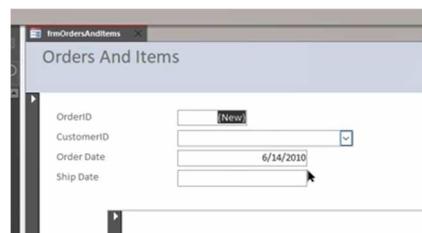
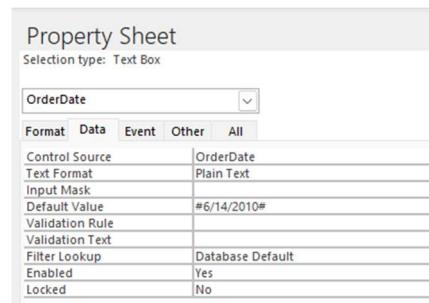
Default value can be changed if the user wants to.

It helps to make date entry faster for repetitive value in the same field.

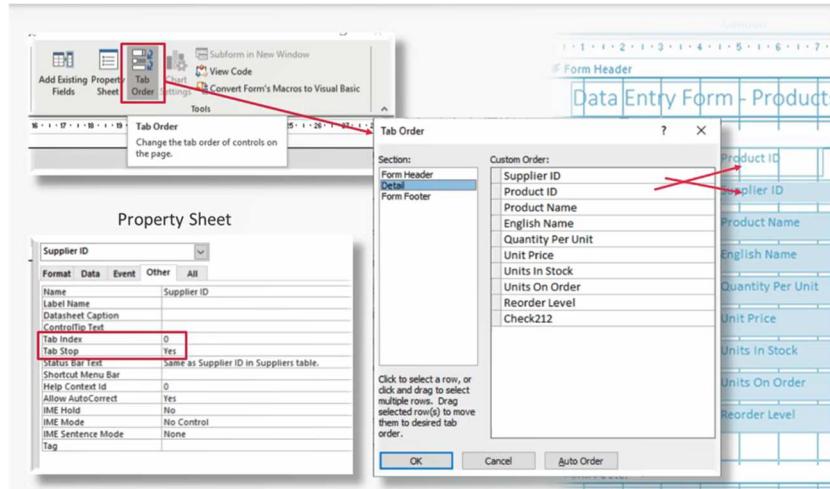
Example: Order date.

Lab 10F: Using Default Value in a Form

1. Continue using file **Lab10C_Start.accdd**
2. Open **frmOrdersAndItems** form in Design View.
3. Select OrderDate field in the form.
4. In the property sheet make sure OrderDate Field is selected.
5. If not go to the dropdown menu and select OrderDate Field.
6. In Data tab in Default value write 14/6/2010
7. Press tab key.
8. Notice that access ad # before and after.
9. Go to form view and try to add a new record.
10. Notice that the Order field has automatically populated with the default value.
11. Notice that you can overwrite it if you want to.
12. Click previous record and save your form.
13. So no new record is not saved.
14. Go Back to Design View
15. In default Value Change it to the Function **Date()**.
16. This will populate the field with today's Date.
17. Check the result in form view.
18. Go to previous so not to save the new record.
19. Save your form and close.

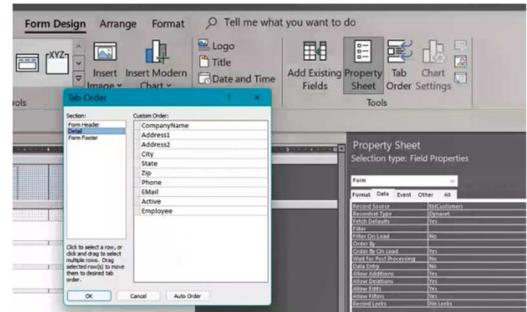


Form Tab order



Lab 10G: Arrange the Tab Order in a form

1. Continue using file **Lab10C_Start.accdd**
2. Open **frmCustomers** in Design View.
3. Go form Design → Tools→Tab Order
4. Drag State to be between CompanyName and Address1.
5. Click OK.
6. Go to Form View.
7. Create new record and notice when you press your tab key it goes to State after CompanyName.
8. When you design, most of the time your tab order is not right, and you want to adjust again by the end of your design.
9. Access orders the fields as you entered in design one after another.
10. Access can do it for you if you want to.
11. Go back to design view.
12. Open Tab order.
13. Click **Auto Order** Button.
14. Click Ok.
15. Go and check in form view.
16. Close and save changes.



Lab 10H: Adding a Button Control to a Form

1. Continue using file **Lab10C_Start.accdd**
2. Open **frmCustomerInformation** in Design View.
3. Make sure that command Wizard is enabled and drag and drop a bouton control to your form.



4. The wizard appears.
5. Notice you have many actions you can do with your Command.
6. Action is categorized.
7. Go and explore each Category in the list.
8. Finally Go to **Form Operations**.
9. Under action Chose **Close Form**.
10. Click Next.
11. You can use Text or Picture for your Button.
12. Choose **Exit Doorway** and click Next.
13. Name your Button **cmdClose** and Click Finish.
14. Save your form.
15. Go to Form View and check the new Button.



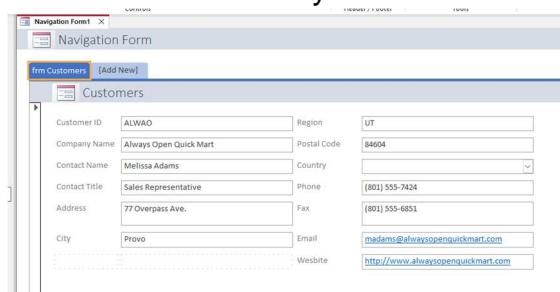
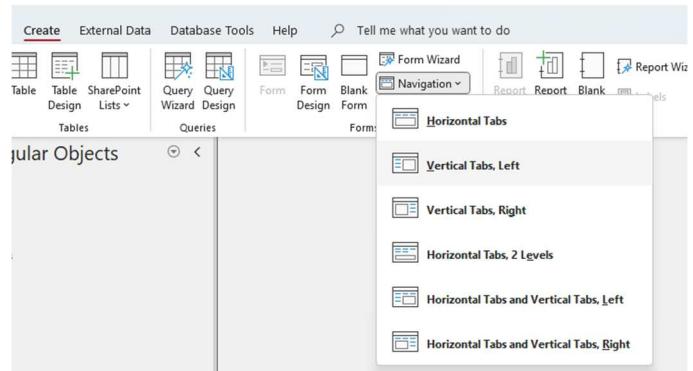
Chapter 14: Navigation and Switchboard Forms

- Is a form that provides user-navigation to other objects
- Can also be referred to as a switchboard form (which contains buttons)
- A navigation form contains embedded sub-objects (including reports)
- A navigation can actually be the only form required for all objects
- A navigation form is not bound to any table or query

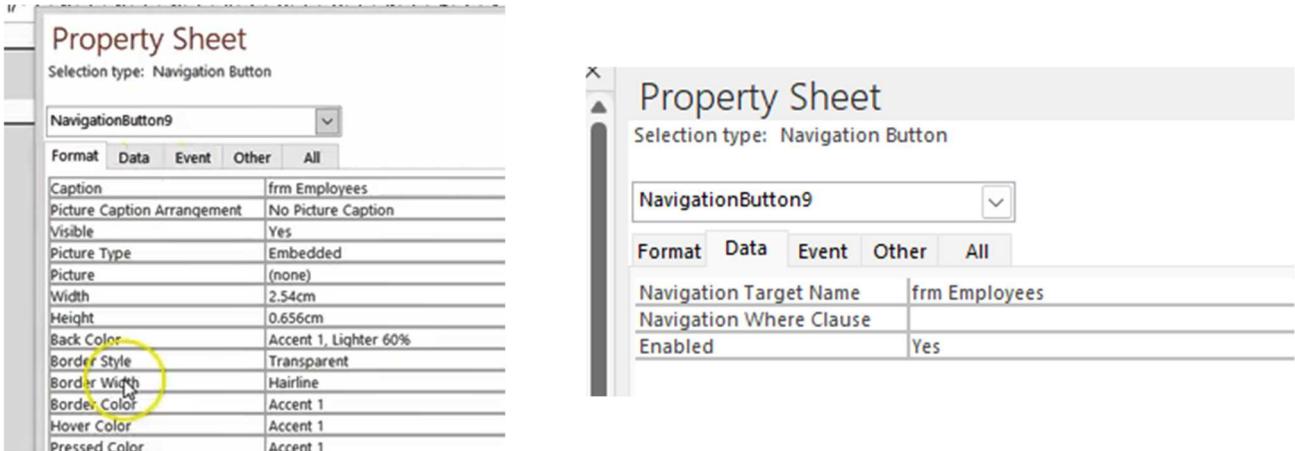
Navigation Form

Lab 11A: Creating a Navigation Form

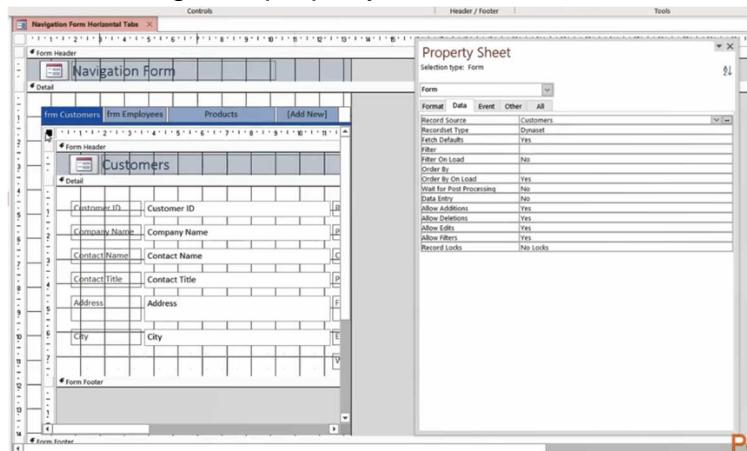
1. Use file **Lab11A_Start.accdb**.
2. Create → Forms → Navigation.
3. Explore the Templates that is available.
4. You have 6 Templates.
5. You have Horizontal, and Vertical.
6. You have Horizontal tab with 2 levels.
7. This is good to divide your design into two for example (Forms Group and Reports Group).
8. You have vertical left or right.
9. Choose a Horizontal tabs.
10. It will open the form in the layout view.
11. You have to add at least one form or one report.
12. You do that using drag and drop from the navigation pane.
13. Drag **frm Customers** to the first tab.
14. This will generate a tab with the name of the form.
15. Another way to add form is to type the name of form on the tab directly.
16. In the next tab double click and type: **frm Employees**.
17. Form employees now occupies the second tab.
18. You must type the exact name.
19. You can adjust the width of the tab.
20. You can also rename the tabs once the form has been assigned to tab.



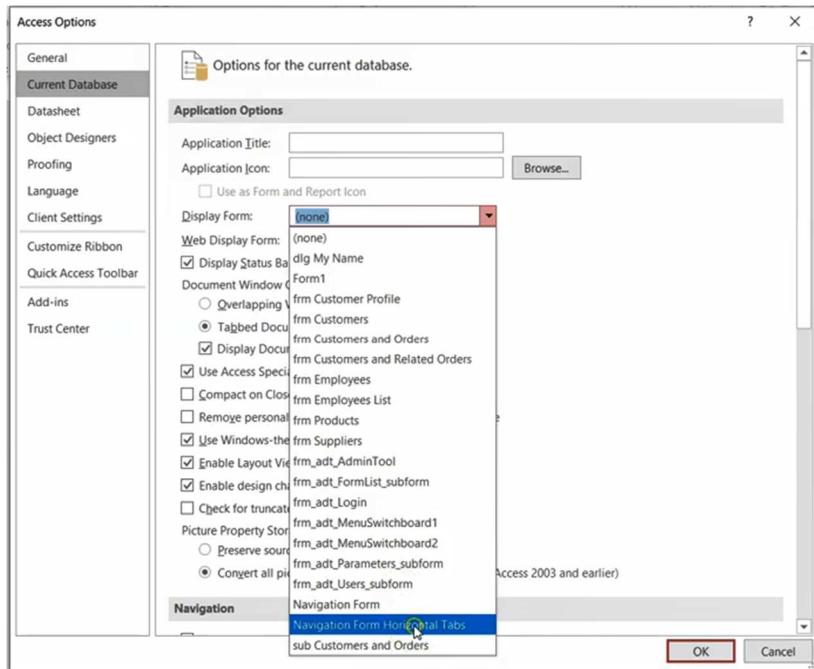
21. Change names to **Customers, Employees**.
22. Go to form view and click the tabs to check your work.
23. Save your form as **frm Navigation Horizontal Tabs**.
24. Go to design view and explore more options.
25. Every Navigation tab has property and a name on the Property sheet window.
26. The most important is the one in Data tab → **Navigation Target Name**.



27. If you want to go the contained Form or report click the top left corner button of the sub form to get its property sheet.



28. Create a new Tab called **Products**.
29. Notice no form or report appears because there is no such name in database.
30. Now go and select the **frm Products** from Navigation Target Name.
31. Go to another tab and get back to see the result.
32. Add another tab for **rpt Suppliers**.
33. You can this Navigation form as the first Object appears on your application.
34. You can do that through a Macro or Change the setting of the database file.
35. Click File → Options → Current Database
36. Choose your form to display first from the drop down list: **Display Form**.



37. You can also add title and icon to your database here.
38. Add a Title: My Company Database.
39. Browse to logo Company.ico file and make it your icon.
40. Close and reopen to see your result.

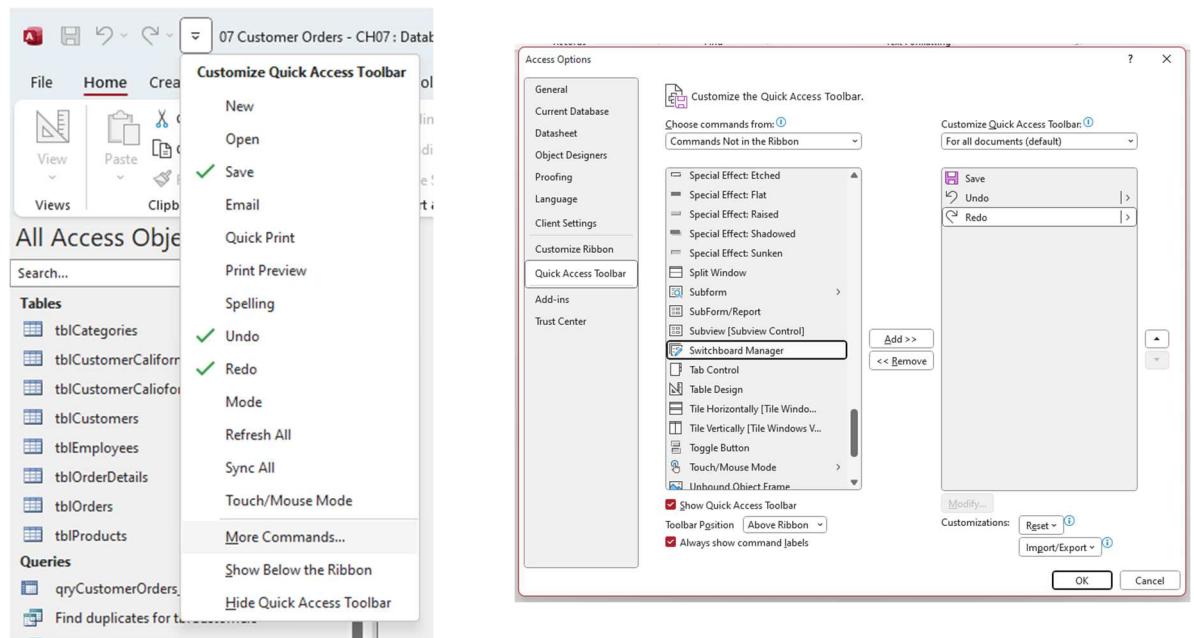
Switchboard

- Switchboards are used to navigate database Objects.
- To create a switchboard, you use switchboard Manager.
- Switchboard manager doesn't show up in access by default.
- You have to add it to your Quick Access Toolbar

Lab 11B: Creating a Switchboard Form

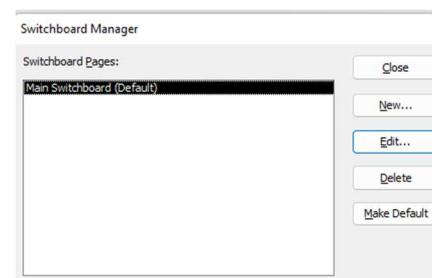
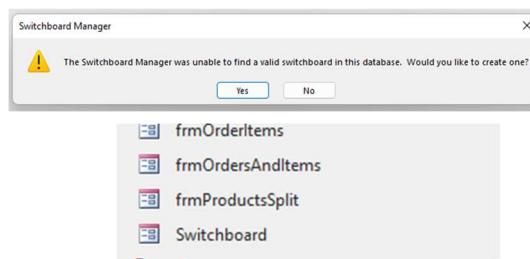
Add Switchboard Manager to the Quick Access Toolbar

1. Use file **Lab11B_Start.accdb**.
2. In your Quick Access Toolbar click on the down arrow.
3. Select more commands.
4. **Customize quick access toolbar** Option Screen appears.
5. In chose commands from chose **Commands not in the ribbon**.
6. Notice in the right are the commands that already in your quick access toolbar.
7. In the left list press "S" so you go down to commands start with S.
8. Select Switchboard Manager
9. Click first on last command you have (redo for example.) and double click Switchboard manager.
10. Click OK.
11. So, switchboard manger in your quick access toolbar now.

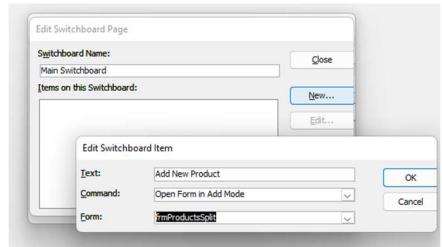


Creating a Switchboard Form

12. Click on switchboard manager on your quick access toolbar.
13. Click Yes on the warning message.



14. This will bring the switchboard manager for you.
15. Access gives you Main Switchboard as default.
16. Notice also you have now Switchboard appears in form Object in the navigation Pane.
17. You can create a new switchboard or edit an existing one.
18. We will Edit the Default one.
19. Click the Edit button.
20. There is no item in this switchboard till now.
21. Click New to add a new item.
22. In Text type : **Add New Product**
23. Chose **Open Form in Add Mode** in command.
24. In form select: **frmProductSplit** form.
25. Click OK to add the new Item to switchboard.
26. Add another new Item to switchboard.
 - o Text: **Add New Customer**.

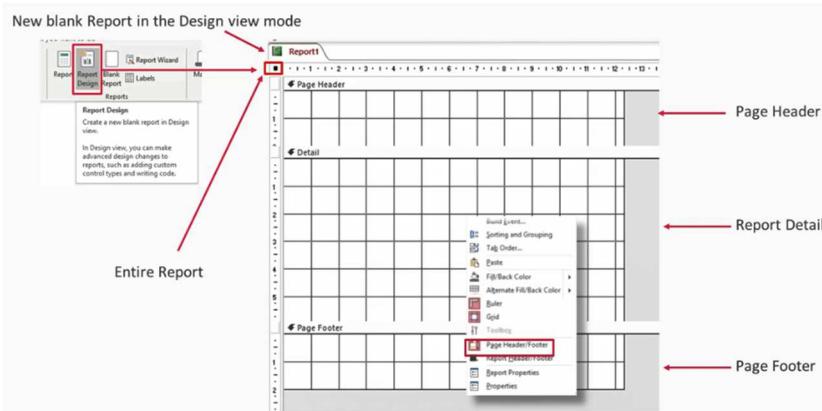


- o Command: **Open Form in Add Mode.**
 - o Form: **frmCustomers**
27. Add Another Item to switchboard:
- o Text: **View Customer Information Report**
 - o Command: **Open Report.**
 - o Report: **rptCustomerInformation.**
28. Click Close twice to close Switchboard manager.
29. Open form **Switchboard.**
30. Click Add new product.
31. It will open Product form and it is ready for new record.
32. Check the other two commands too.
33. Close all tabs.
34. Open switchboard again.
35. Go to Layout View.
36. Change the Title to **Customer Database.**
37. Close and Save switchboard.
38. Open switchboard manager.
39. Edit your main switchboard.
40. Add new Item:
- o Text: **Close Database.**
 - o Command: **Exit Application.**
41. Click close twice.
42. Open switchboard
43. Check the new command and close your database.

Chapter 15: Advanced Report Design Techniques

Report Design Canvas

- When you click on Report Design tab on the ribbon you got an empty report.
- It is divided into 3 sections (Header, Detail, Footer).
- To select the entire report, click the top left corner of the report.
- You can switch Header and footer if you right click the report and

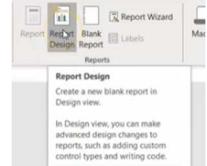


toggle.

Report Sections

Lab 14A: Creating a Report from Scratch

1. Use file: **Lab14A_Strat.accdb**.
2. Create → Reports → Report Design.
3. Decrease the height of detail section to see all sections.
4. I want to create a report based on query: **qry Orders and Products**.
5. Open the query first to know fields and data.



- The main detail for records in either a column or tabular view
 - A page header/footer for the top and bottom of each report page
 - A report header/footer for the very top and bottom of a report
 - A group section for as many fields required in the report
6. You have 2796 records.
 7. It shows each order and details of each item.
 8. The query is nor Filtered or Sorted.
 9. We will make that in our report.

10. Close the query.

Assign the record Source

11. This is our first task.

12. Open the property sheet.

13. Make sure the Report is the active component.

14. Data → Record Source = qry Orders and Products.

View and Hide Report Sections

15. Right click on the report and select **Report Header/Footer**.

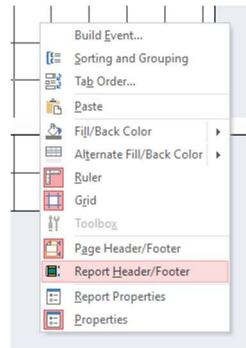
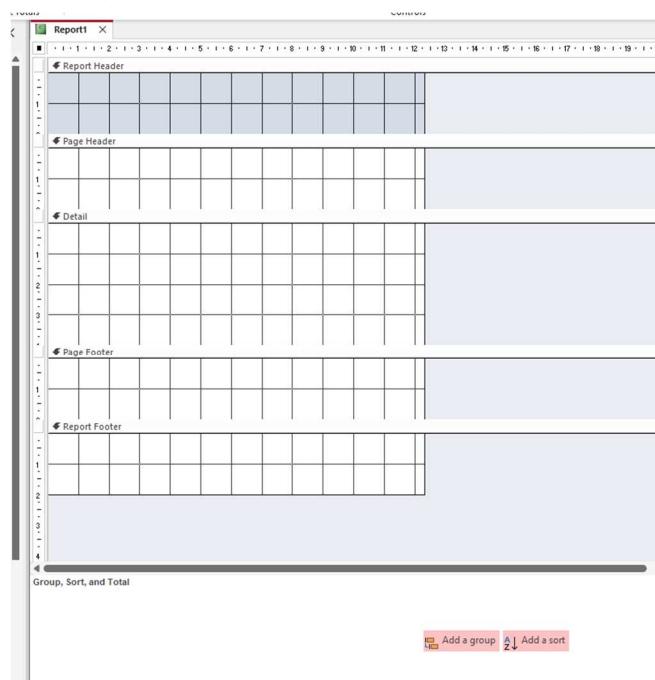
16. If we want to group or sort or have

totals , you click:

17. Report Design → Group & Sort.

18. Click to show.

19. Click again to hide.



20. You can change the height of any section by dragging.

21. Or select the section Format→Height.

22. You can only assign Width to the whole report.

23. You can Change for report Format→Caption.

24. For each section you can change Format→Visible.

25. Notice you have 4 tabs on the ribbon for
design view.

26. Go and see the options in each.

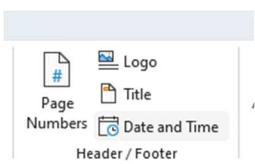
Report Design Arrange Format Page Setup

Adding Title, Date and Time to the Report Header

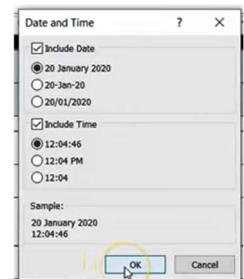
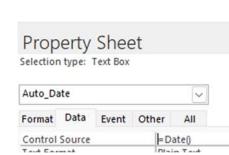
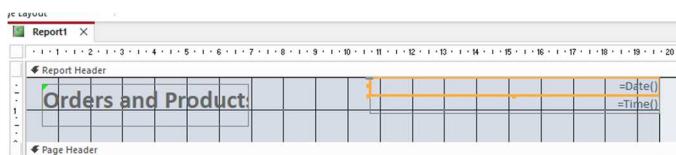
27. Add label to the header and format with title: **Orders and Products**.

28. Insert Date and time:

- Report Design→Header/Footer→Date and Time.
- Choose how you would like to show date and time.



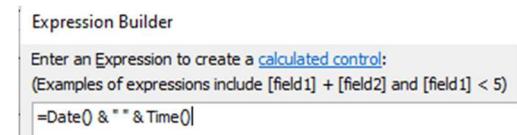
- c. You got two textboxes with expressions to show date and time.
- d. Go and see the expressions on the Data Tab for each control.



29. Save your report as **rpt Orders and Products**.

Property Sheet

- 30. Property sheet reflect the control you select.
- 31. Select the Title label.
- 32. Notice there is no property available in Data tab.
- 33. Click on the Date text box.
- 34. There is Data tab and expression used.
- 35. The expression starts with “=” sign.
- 36. You can write expressions directly or click ellipsis to show the **Expression Builder**.
- 37. Or you can right click and use Zoom Window.
- 38. Open expression Builder and Change the expression to show both Date and Time.
- 39. =Date() & " " & Time()**.
- 40. Delete the Time text box and go show the result in report view.



Create Table list of Products in Detail Section

- 41. Open the **Field List** by clicking the **Add Existing Fields** button.
- 42. Select all Fields.
- 43. Drag and drop the fields on the detail section.
- 44. Run your report to see the effect.
- 45. Go back to the design view.
- 46. Try to move any text box, also its label moves with.
- 47. I want to put move the labels on the Page Header and keep text boxes on detail section.
- 48. There is no way to do that but cut label and paste in the header section.
- 49. Arrange your fields like the one in the figure below.

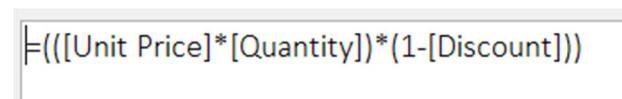


- 50. Go and show the result in Report Preview.
- 51. You will have a wide space between rows.
- 52. Go to design view and narrow the detail section.
- 53. You have to go and back many times to adjust your report.

Adding a Calculated Field in Detail section

54. We want to add calculation field for each row to calculate the Total line in the detail section.
55. Add unbound text box from the Toolbox to detail section.
56. Cut the label and paste in header section.
57. Change label caption in property sheet to: **Line Total** (or you can write directly).
58. For text box in (Data → Control Source) go to Expression Builder and write the expression.
59. Or Use Zoom Window.
60. Click outside the property to let Access Validate your expression.
61. If it is ok go and preview the result.
62. Notice that Access added the “ = ” Sign for you.
63. Go back to design view and change the style of the calculated field.
 - a. Format → Format = Currency (or Standard).
 - b. Other → Name= Line Total.

Zoom

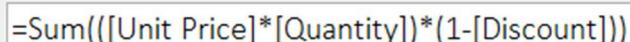


```
=(([Unit Price]*[Quantity])*(1-[Discount]))
```

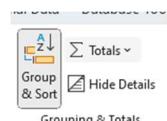
Adding Totals to Footer.

64. When you add calculation fields on other sections it is different.
65. If you add to Page Header or Report Header, it gives you an error.
66. In Report Footer or Page footer it gives you Totals.
67. Add a text box control to report footer.

Zoom



```
=Sum(([Unit Price]*[Quantity])*(1-[Discount]))
```



68. Use this expression to sum all Line Total
69. Delete text box label.
70. Go and check the result.
71. Another way to add total to your footer, is using the **Totals** Icon on the Ribbon.
72. You have to select a field in detail field that can be totaled first.
73. Select **Quantity** field.
74. Select Sum function to add sum to its footer.
75. Go and preview the result.

Unit Price	Quantity	Discount	Line To
Unit Price	Quantity	Discount	=Sum([Unit Price]*[Quantity])

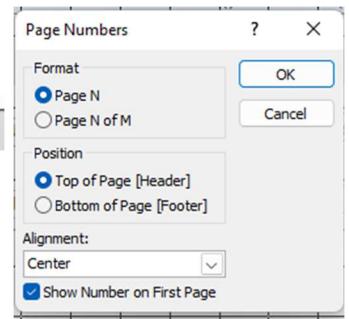
Adding Page Number

76. Go to Report Design → Page Number.
77. In the Dialogue box select:
 - a. Format= Page N of M
 - b. Position = Bottom of Page [Footer].



- c. Alignment =Right.
- 78. If you have the first page as a cover page uncheck option: **Show Number on First Page**.
- 79. Click OK and see the expression.
- 80. Go to Print Preview to see the result.
- 81. Close the Preview and get back to Design View.

`"Page " & [Page] & " of " & [Pages]`

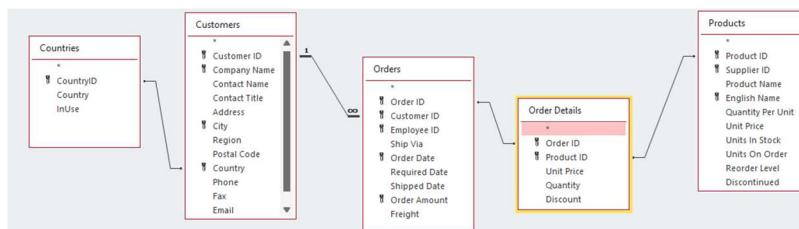


Adding Logo

- 82. Make space on the top left corner of the report.
- 83. Go to Report Design → Logo.
- 84. Browse to select the logo photo.
- 85. Resize and move your logo.
- 86. Change logo height and width = 2cm.
- 87. Go and see your report.

A Report Based on Parameter

- 88. We do not need to print all the records.
- 89. This report is based on a query.
- 90. You can find the query name in **Record Source**.
- 91. Go to Navigation pane and copy and paste the query and rename it.
- 92. To keep my query for other objects based on it.
- 93. Name it: **qry Orders and Products Parameter**.
- 94. Open new query in design view.
- 95. I want users be able to choose Country by name.
- 96. Notice the country text is not in the tables in this query.
- 97. It is stored in the **Countries** table.
- 98. Countries table is linked to **Customers** table.
- 99. Neither of the tables are included in the query.



1. Add the two tables and adjust the joins.
2. Run your query to make sure it returns 3796 records as before.
3. Go back to Design View and Add **Country** field from **countries** table.
4. Add a parameter to the query in Country Criteria [**Enter the Country:**].
5. Run your query, add **UK** for the parameter.
6. This time you get 806 records for UK.
7. Save and close your query.
8. Go back to your report.
9. Change the report record source to: **qry Orders and Products Parameter**.
10. Run and check your report.

11. Notice the total Number of your reports has been reduced too.
12. Go back to design view.
13. Add the field Country to your Page Header and delete its label.
14. Go to test your report, enter USA as country parameter and see the result.
15. Save and close your report.

- It is easier to view smaller chunks of data in a report
- Can have multiple groups as each group is based on a field
- Groups can have page breaks inserted
- Groups are sorted by priority over detailed records
- Groups are data type sensitive for the ease of use
- Groups can extract and further group partial values of a data value
- Summary calculation and functions can be easily added for a group
- Groups have their own optional headers and footers too

Report Groups, Sorting and Totals

Lab 14B: Report Grouping, Sorting and Totals

1. Use the same file **Lab14A_Start.accdb**.
2. Copy and paste your previous report **rpt Orders and Products**.
3. Rename it to: **rpt Orders and Products By Country Group**.
4. Open in design view.
5. Click Report Design → Grouping & Totals → Group & Total.
6. It starts with 2 buttons (Add a Group and Add a sort).
7. Click add a group.
8. A pop up window prompt you for the field (or expression) to Group by.
9. Choose **Order Date** Field.
10. According to your choice, different options are added to your Group section:
 - a. Choose from older to newer date.
 - b. Choose to sort by Month.
 - c. Choose to show subtotal for the group by counting Order ID



11. Run your report, Header and footer for the group Appear.

12. Go Back to Design view.
13. To make it Clear add the field you grouped by to Group header.
14. Add Order Date to group header.
15. Go and watch your report.
16. Notice it is not correct as it shows the 1st date in the month, but we grouped by month.
17. Go back to design view.
18. Delete the order date label.
19. Format the Order Date to show only month and year.
20. Format → Format = **mmm yyyy**.
21. Run your report and see the result.

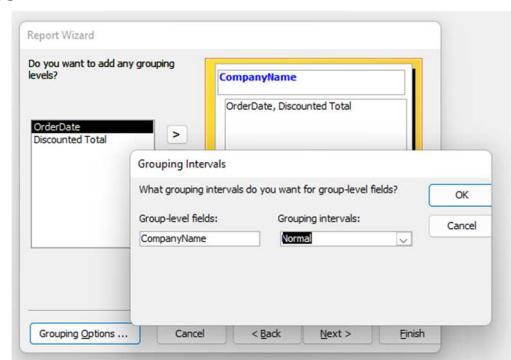
New Page for Each Group

22. We want to print each group in one page
23. Go back to design view.
24. Show property sheet.
25. Select the header of Order Date Group.
26. Change: Format → Force New Page = **Before Section**.
27. Run Report to check.
28. Close and save your report.

The screenshot shows a Microsoft Access report titled "Orders and Product". The report has a header section with fields for Order ID, Customer ID, Order Date, Product ID, and English Name. Below the header is a filter bar set to "Feb 2014". The main body of the report contains a grid of data grouped by Order Date. The columns are labeled "Order ID", "Customer ID", "Order Date", "Product ID", and "English Name". The data shows multiple entries for each day in February 2014, with some rows having a yellow background. The report ends with a page number "13".

Lab 14C: Grouping Report Data Using Wizard

1. Use File Lab14C_Start.accdb.
2. Go to Create → Reports → Report Wizard
3. Use **qryCustomerOrders** Query.
4. Chose fields: CompanyName, OrderDate, DiscountedTotal → Next.
5. We want to Group by "CompanyName".
6. Double click CompanyName.
7. It will be shown on the View.
8. Notice that you have Grouping Options Button.
9. This options you to choose how to order company name.
10. Leave it as normal.
11. Click Next.
12. We do not want to sort so → Next.
13. In the layout click every option and see how it looks like (stepped, Block, Outline).
14. Also you can chose the Orientation (Portrait or Landscape).
15. Chose **Steeped** and **Portrait**.
16. Name your report **rptOrdersByCustomer**.
17. Click Finish.

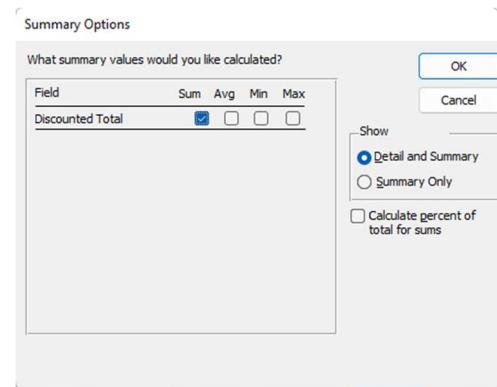
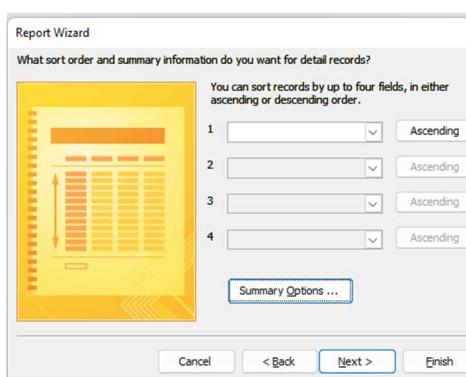


18. You get a report for each company and the date of each order and the total after discount of each order.
19. Notice in the footer you have the Numbering of pages.
20. You can navigate to other pages using navigation buttons.
21. Go to layout View.
22. Change title to: Orders By Customer.
23. Look at Report View.
24. Close Report and save Changes.

rptOrdersByCustomer		
CompanyName	Order Date	Discounted Total
Astro Advertising	7/15/2010	\$81.00
	7/26/2010	\$36.00
	5/26/2010	\$143.28
	7/26/2010	\$114.62
	6/19/2010	\$2.70
	7/27/2010	\$40.50
	6/19/2010	\$4.05
	6/24/2010	\$4.05

Summarizing Report Data

26. Go to Create → Reports → Report Wizard.
27. Select **qryCustomerOrders**.
28. Choose fields **CompanyName, OrderDate, Discounted Total**.
29. Click Next.
30. Group By **CompanyName**.
31. Click Next.
32. In the sort screen click Summary Options.
33. Notice only Calculated fields are only appear.
34. Discounted total is only appears here.
35. Select **Sum**.
36. Select **Show details and summary**.
37. Click Ok



38. Click Next
39. Click Next
40. Name your report **rptOrdersSummary**.
41. Notice the new summary after each Customer orders

7/15/2010	\$83.70
6/24/2010	\$10.08
Summary for 'CompanyName' = Astro Advertising (16 detail records)	
Sum	\$1,106.78
Bearcat Boosters	

42. Go to Layout View and fix the report Title to **Orders Summary**

43. Go to Design View

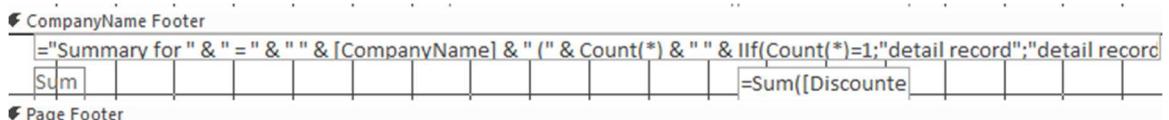
44. Notice the we have:

- o **Report Header:** shows in the 1st page of the report.
- o **Page Header:** Shows in every Page of the report. (notice it has the label for Company Name , OrderDate , and Discounted Total).
- o **CompanyName Header:** That is because we grouped in CompanyName
- o **Detail Section:** shows the data for each company .
- o **CompanyName Footer:** It shows at the bottom of each company.
- o **Page Footer:** Shows in each Page.
- o **Report Footer:** shows in the last page of the report.

45. Go to fix CompanyName Footer.

46. Delete 'CompanyName' (start at single quote and end at single quote)

47. Your textbox should be like this one:



48. You can in property sheet of the text box in Data → Control source

Zoom to see the Code.



49. Go back to Design View.

50. In Report Design Tab in Ribbon.

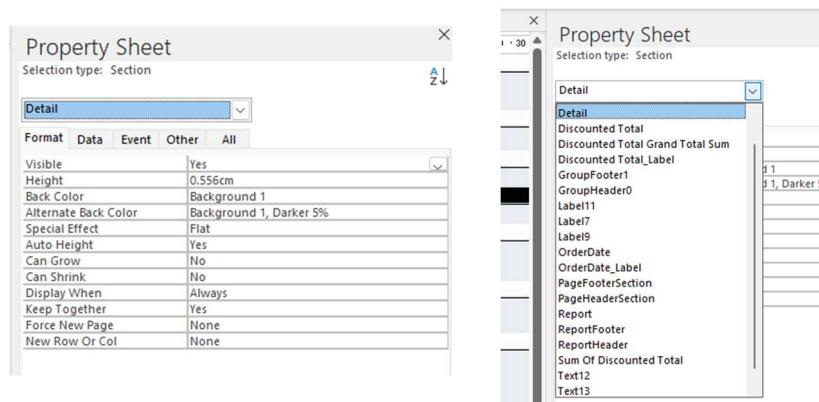
51. In Tools Group Click Property Sheet.

52. Click in Detail Rebar.

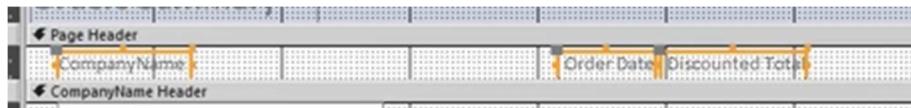


53. The Property sheet will reflect the property of the Detail Section

54. also, you can select the object from the list to see its properties.

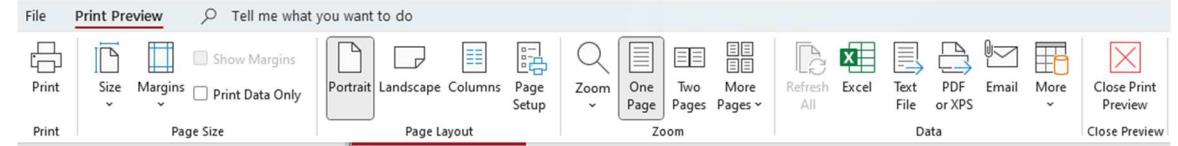


55. Close Property sheet.
 56. In Page Header select **all labels (use shift key)** label

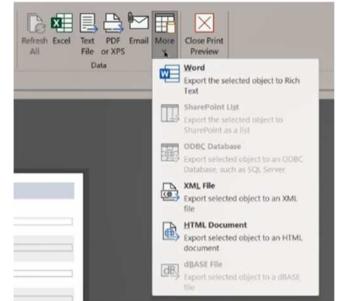


57. Go to the Format tab in the ribbon.
 58. Change font Color to white and Back color to blue.
 59. Review in report view.
 60. That is the way you format your report elements as you want.
 61. Go to Print preview.
 62. This is how it would look like if you printed this report.
 63. In Print Preview tab you can change the paper size , Margin ,Page Layout .

Orders Summary	
	Order Date
CompanyName	Astro Advertising
Summary for =	Astro Advertising (16 detail records)
Sum	\$1,106.78
Bearcat Boosters	
Summary for =	Bearcat Boosters (4 detail records)
Sum	\$97.98
Cavalier Crafts	
Summary for =	Cavalier Crafts (5 detail records)
Sum	\$1,511.58



64. You can also export your report to word, excel, pdf , etc.
 65. Close your report and save.



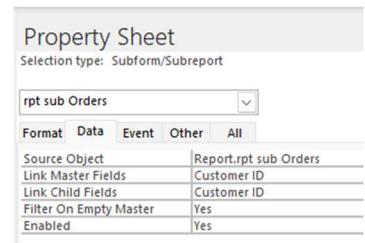
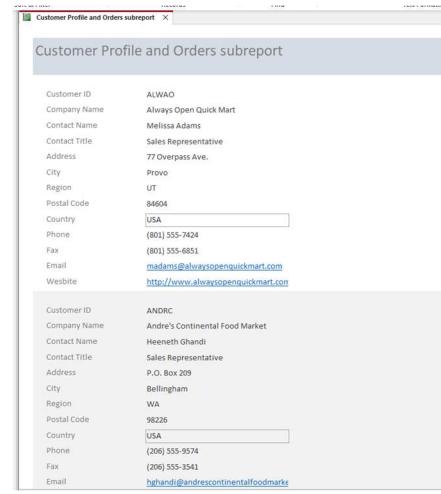
Sub Reports

- Sub report (Child) is a report that is embedded in another report (Parent).
- Most of the time there is linked field between the two reports.
- The field link is used to filter records between two reports.

Lab 14D: Sub Reports

1. Using file: **Lab14D_Start.accd**.
2. We want to list Customers (Main Report) and for each customers we want to show his orders (Child Report).
3. Open report: **Customer Profile and Orders subreport**.

4. I want to add sub report on the right to show each customer's orders.
5. We will use the field **Customer ID** field as the link between the two reports.
6. Open the report: **rpt sub Orders**.
7. This is the sub report we will embed.
8. Notice the field Customer ID field, it shows up here but it might be invisible too.
9. Close the **rpt sub Orders**.
10. Open **Customer Profile and Orders subreport** in design view.
11. Make the report width wider to get the sub report.
12. From navigation pane drag report **rpt sub Orders** and drop it in the detail section to the right.
13. Resize and reposition it and delete its label.
14. Notice in property sheet there is a link established between the two reports (Link Master Fields, Link Child Field)
15. You can change manually if they were not the fields you want.
16. Notice that if you did not include link, the report will show all records for each record in Master Report.
17. Run Your report.
18. Save and close.



Using Report Wizard

- Access has a rich report wizard that makes it easier to have a quick report.
- You can use it to create reports and then customize the result.

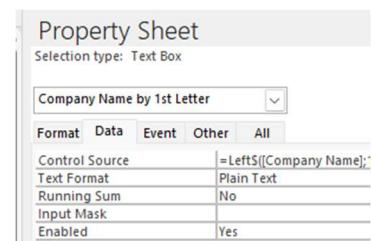
The advantages of Report Wizard

- Easy to use
- Builds the components very quickly
- Establishes the joins (relationships) along the way
- Add multiple sorting options along the way
- Add group sections along the way
- Add summary calculations along the way
- Determine page orientation and basic layouts
- Add a title and name for the report

Lab 14E: Building Reports Using Wizard

Creating Simple Report based on one table

1. Use file: **Lab14E_Start.accdb**.
2. Create → Reports → Report Wizard.
3. Table: Customers.
4. Fields: Customer Id, Company Name, Contact Name, Contact Title, Postal Code, Country, Phone, Email.
5. Group By: Company Name.
6. Click Grouping Options Button.
7. Grouping Intervals = 1st Letter.
8. Sort By Customer ID.
9. Layout= Block - Orientation= Landscape.
10. Save your report as: **rpt Customer Contact List By Alphabet**.
11. Preview your report.
12. Close to Go to Design view.
13. Notice the field that shows the 1st letter of the Company name.
14. It uses Left\$ Function.
15. Notice:
 - a. Data → Control Source.
 - b. Format → Hide Duplicate= Yes.
16. Try to show duplicate, then preview.
17. Go Design View.
18. Hide Duplicate.
19. Close and save your report.



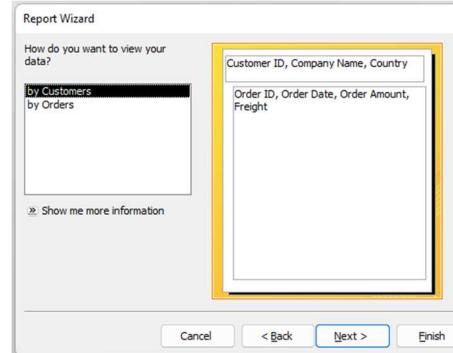
Using Wizard with two tables

20. We will use **Customers** and **Orders** Table and a **Calculated field** too.
21. Create → Reports → Report Wizard.
22. Start with Table: Customers.

23. Fields: Customer Id, Company Name, Country.

24. Then Choose table: Orders.

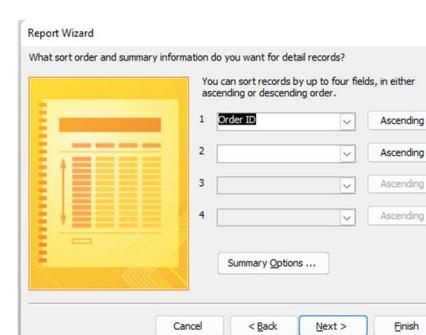
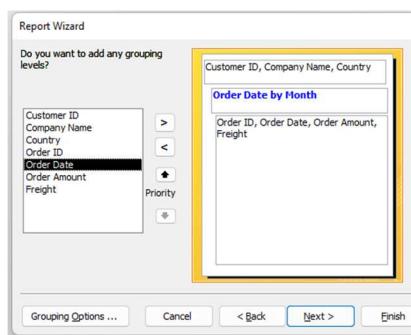
25. Fields: Order ID, Order Date, Order Amount, Freight.



26. Click Next

27. Notice that it assumes you want to make customers table the parent.

28. You can change if you want to, but we will leave it this way.



29. Click Next.

30. Choose to have Group by Order Date and use grouping options to group by month.

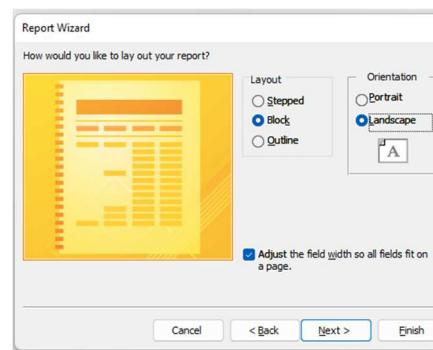
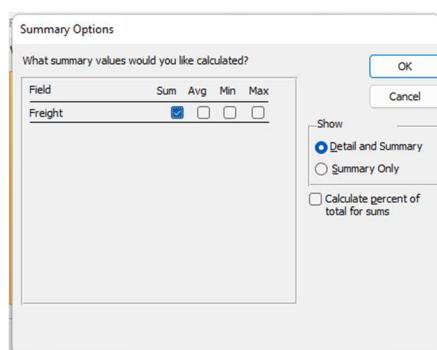
31. Click Next.

32. Sort by Order ID.

33. Click Summary Options

34. Select Sum Freight.

35. Click OK



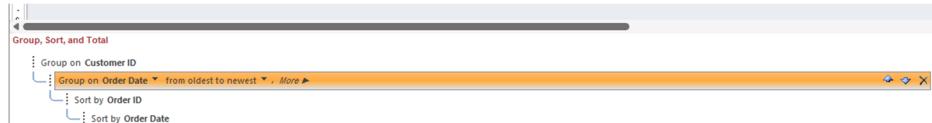
36. Click Next

37. Select Layout = Block Orientation= Landscape.

38. Click Next.

39. Name your report: **rpt Customers and Orders by Month.**

40. Click Finish.
41. As you can see there is only one order for each month
42. It would be better to remove Group by month and only show orders for each company.
43. Go to Design View.
44. Click **Group & Sort** Button.



45. Select the Group by Order ID Group and click the Delete icon on the right.
46. Confirm deletion.
47. Now Run your report in Print Preview.
48. It looks better now.
49. Close and save your report.

Chapter 16: Final Project

Build Your Project Par 1 (Creating Tables)

1. Create New Database with Name **Employees Projects**.
2. Create **tblDepartments** Table as follow:

Field Name	Data Type
DeptID	Short Text
DeptName	Short Text

- a. DeptID: Field Size = 4
- b. DeptName: Field Size = 30 - Caption = Department Name
3. Create

Field Name	Data Type
EmpID	AutoNumber
FirstName	Short Text
LastName	Short Text
Gender	Short Text
Birthdate	Date/Time
Telephone	Short Text
Email	Hyperlink
Address	Long Text
DepartmentID	Short Text
Photo	Attachment
salary	Currency

table
tblEmployees
follow:

- a. FirstName: Field Size = 40 – Caption = First Name.
- b. Last Name: Field Size=40 – Caption = Last Name.
- c. Gender: Lookup Field (M , F) (enter data manually)
- d. Telephone: Field Size= 13 – Default Value = ="+2"
- e. DeptID: Lookup Field – Caption = Department -Field Size = 4 (enable data integrity).
- f. Salary: Decimal Place = 0

4. Create table **tblProjects** as follow:

Field Name	Data Type
ProjID	AutoNumber
ProjName	Short Text
Location	Short Text

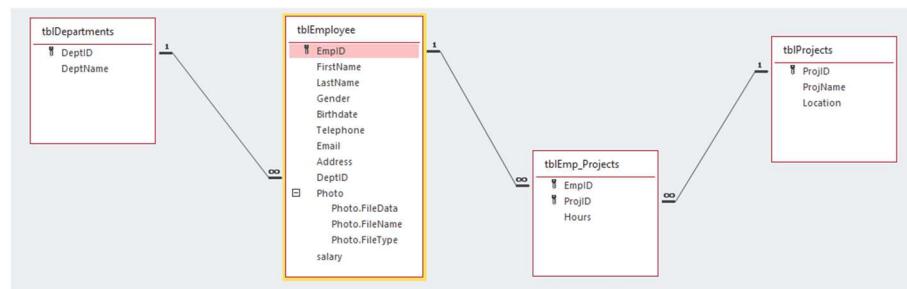
- a. ProjName: Caption= Project Name
 - b. Location: Looukup Field with manual values(Cairo-Alexandria-Tanta-Asuit-Aswan).

5. Create Table **tblEmployeeProjects** as Follow:

tblEmp_Projects		
	Field Name	Data Type
1	EmpID	Number
2	ProjID	Number
3	Hours	Short Text

- a. Hours: Field Size: 4

6. Create Relationships between Tables

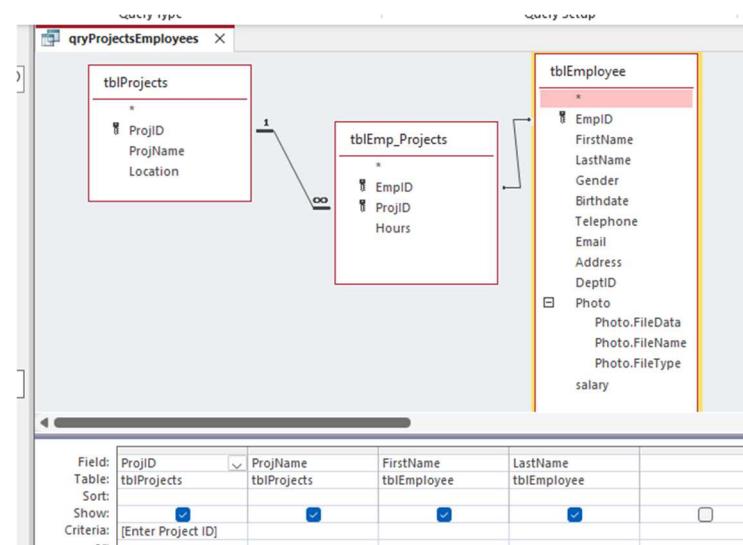
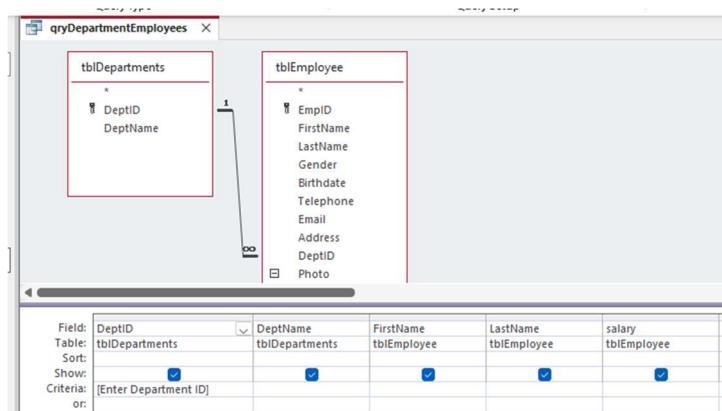
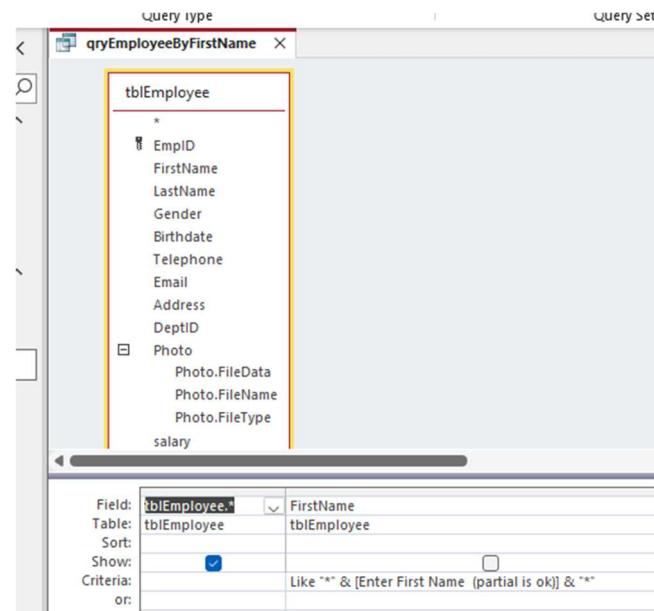
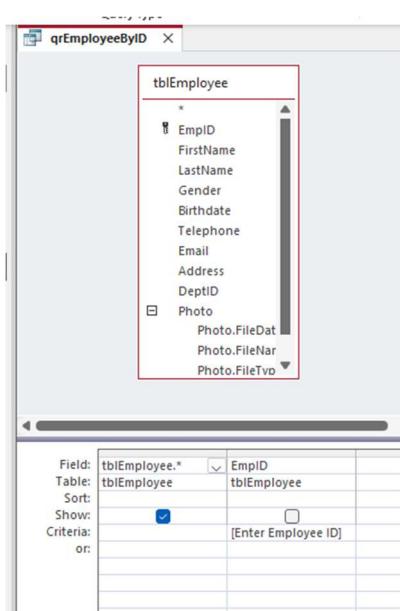


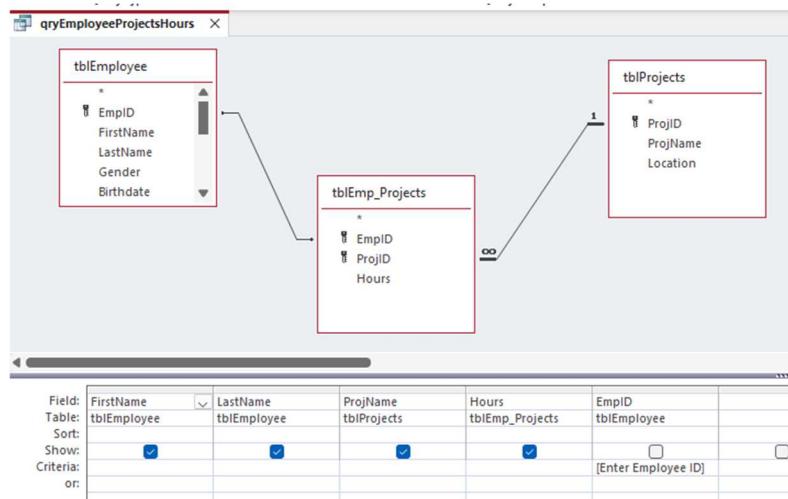
7. Populate the tables with sample Data from the Excel File
ProjectSampleData.xls
 8. Manually add some sample data in **tblEmp_Projects** like the one in the figure.

tblEmp_Projects			
Employee	Project	Hours	
Sameh	Festival Hotel in Nev.	20	
SANDA	Abu Kier Metro	30	
Hasan	Arafa Hotel	30	
Hasan	Nursing School	50	
Fatma	Arafa Hotel	20	
Fatma	New Aswan Parages	10	
*			

Build your Project Part 2 (Creating Queries)

1. Use your project file.
 2. Add The following Queries and test they are working:
 - a. qryEmployeeByID.
 - b. qryEmployeeByFirstName.
 - c. qryDepartmentEmployees.
 - d. qryProjectEmployees.
 - e. qryEmployeeProjectsHours.





Build Your Project Part 3 (Creating Forms)

- In this step we will create forms of our project

Department Form

- Use Form Wizard to create Department form **frmDepartments**.
- Use **tblDepartments**
- Add all fields.
- Open in design view and change Form Properties:
 - Format → Caption=Departments.
 - Format → Record Selectors=No
 - Other → Pop Up: Yes.
- Add New Record (PCH, Purchase) Like the Figure

Departments

DeptID PCH
DeptName Purchase

Record: 14 5 of 7 No Filter Search

Projects

Project Name Sohag General Hospital
Location Sohag

Record: 14 6 of 6 No Filter Search

Projects Form

- The same way Create the Projects Form **frmProjects** and add new project.
- Use table **tblProjects**.

Employees Form

- Create the Employees from **frmEmployees** to be as follow using wizard.

9. Use table **tblEmployees**.

The screenshot shows a Microsoft Access form titled "Employees". It contains the following fields and their values:

FirstName	Sameh
LastName	Moharam
Gender	M
Birthdate	
Telephone	+201227449987
Email	saifawzy@hotmail.com
Address	12 New Cairo
DeptID	FINANCE
Photo	(Blank)
salary	10000

Record: 1 of 4 | No Filter | Search

Projects Employees

Create Sub form:

10. Create **SUB FORM** form **subfrmProjEmp** as follow
11. Use table **tblEmp_Projects**.
12. Delete the title label and close the Header section.
13. Change Format → Default View=Datasheet.
14. Your form should be like this.
15. Set Navigation Buttons and Record selector to No.
16. view your sub form it should look like this one

The screenshot shows a Microsoft Access subform titled "frmsubEmpProj". It displays a table with three columns: Employee, Project, and Hours. The data is as follows:

Employee	Project	Hours
Sameh	Festival Hotel in New Cairo	20
SANDA	Abu Kier Metro	30
Hasan	Arafa Hotel	30
Hasan	Nursing School	50
Fatma	Arafa Hotel	20
Fatma	New Aswan Parages	10

17. Save and close your sub form.

Create Main Form

18. Now Go and Create **frmProject_Employees** form AS **MAIN FORM**.
19. Use table **tblProjects** as data source.
20. Only Chose ProjectID ,ProjectName in the form.
21. Go to Design View.
22. Set record selector to No and Pop Up to Yes.
23. Add the sub form **subfrmProjEmp** as a sub form to your main form.
24. Change Caption of form to **Project Employees**.
25. Change the title to: **Employees Work in Projects**.
26. Expand detail section and add the sub form **subfrmProjEmp**.
27. Hide **ProjID** from the main form and **ProjID** from the sub form

28. Set Visible property to no for the main form.
29. In sub form just right click the field and choose hide fields.
30. Delete the label of the sub form.

The screenshot shows a Microsoft Access form titled "frmProject_Employees". The main title bar says "Employees Works in Projects". Below it is a text box labeled "Project Name" containing "Arafa Hotel". Below the text box is a subform grid with two columns: "Employee" and "Hours". The data in the grid is:

Employee	Hours
Fatma	20
Hasan	30
*	

At the bottom of the form, there is a status bar with the text "Record: 14 < 3 of 6 > No Filter Search".

31. Your result should be like this:

Main Navigation Form

32. Create **frmMain** from Blank Form.
33. Add Two tabs to the form : **Forms** and **Reports**.
34. Set Navigation Buttons and Record selectors to NO.
35. Set Form Caption to **Employee Database**.
36. Show Header of the form and add label **Employees Database**.
37. Insert Photo and the Logo of the Company.
38. In the Page Forms add buttons to open the forms name the buttons as follow:
 - a. frmEmployees. (cmdOpenEmployees).
 - b. frmProjects.(cmdOpenProjects).
 - c. frmProject_Employees.(cmdOpenProjEmp).
 - d. frmDepartments.(cmdOpenDept)
39. Add a Button to close the application.
40. In Database setting set **frmMain** as a Starting Form.
41. Set Company Logo.
42. You can Add Close Button to each form you have created.

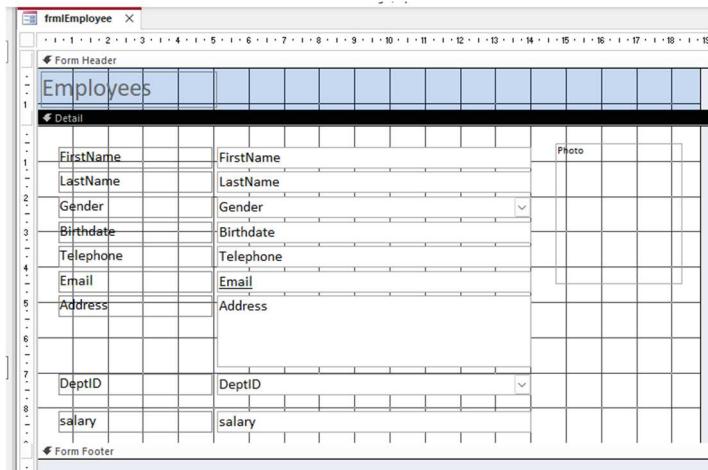
The screenshot shows a Microsoft Access form titled "frmMain". The title bar has a logo and the text "frmMain". The main area has a tab control with "Forms" selected. The "Forms" tab contains four buttons labeled "Employees", "Projects", "Project Employees", and "Departments". At the bottom right of the form is a button labeled "Close Application".

Design Employee Form in Details

1. Let us Design Employees form in Detail.
2. Go Back to your **frmEmployees** Form in Design View.

Arrange Controls

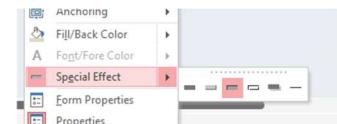
3. Select All in the Details and make font =**12** and color = **Black**.
4. Select all text box only (unselect the Photo) and make width = **widest**.
5. Adjust the width to a proper width and put the Photo on the right.
6. Delete the label of the Photo.



7. Make text in labels align to right and for text box align to left.
8. Make labels Bold.
9. Select Text Boxes and make shape outline all Black.
10. Select all and get all down and insert a label on the top of details.
11. Write on the label: Personal Information and Work.
12. Make font 18 and color = #BA1419.
13. Click on Header Section and change the color to = #DDD9C3.

Add Rectangle as Background

14. Insert a Rectangle Shape from the Toolbox to cover all controls.
15. Fill the rectangle with the same color of the Header section = #DDD9C3.
16. Right click Rectangle and Position → send it back.
17. Right click the rectangle and add special effect.
18. Change Form → Format → Minimum and Maximum Buttons =Minimum enabled.
19. Form → Format → Border Style = Thin.



20. Look to your form now in Form View.

The screenshot shows the Microsoft Access Form View for the 'Employees' form. The title bar says 'Employees'. The main area has a header 'PERSONAL INFORMATION AND WORK'. Below it are several text input fields and dropdown menus. The data entered is:

FirstName	Sameh
LastName	Moharam
Gender	M
Birthdate	
Telephone	+201227449987
Email	saidfawzy@hotmail.com
Address	12 New Cairo
DeptID	FINANCE
salary	١٠٠,٠٠٠

At the bottom, there are navigation buttons: Record: 14, 1 of 4, and Search.

21. Go to design view again.

22. Close all gaps in the form outside the rectangle.

23. Select the rectangle and change Format → Horizontal Anchor=Both.

24. Check in the Form view, you have no spaces left.

Adjust the Photo Control

25. Go to the design view and let us adjust the Photo.

26. Let us add a default Photo so user know he should click to add photo here.

27. Select the Photo frame and click the insert image button on the Form Design ribbon.

28. Brows to the photo **EmpDefaultPhoto.PNG** file in Photo Folder.

29. Notice you will have its name in the property sheet for the Photo in Format → Default Picture.

30. Change Size mode property for the photo to = **Stretch**.

31. Go now and see the form view.

32. The color is not suitable with the form.

33. Change color background for Detail Section and header = #F2F2F2.

34. Check in the form view.

35. Now let us add Photos for employees.

36. Go to each employee and click the photo and choose the photo for him/her.



Form Title

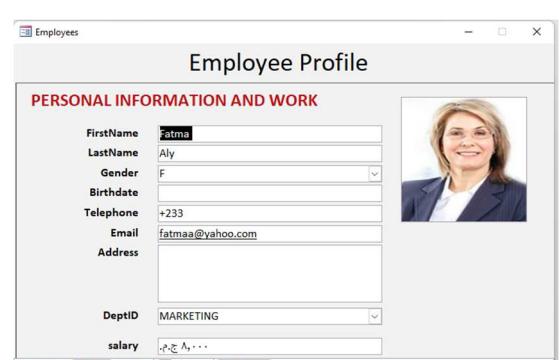
37. Go back to design view

38. Change the label in the Header Section

39. Write Employee Profiles

40. Make font 26 color=black and make it Center.

41. Your form now should look like this.

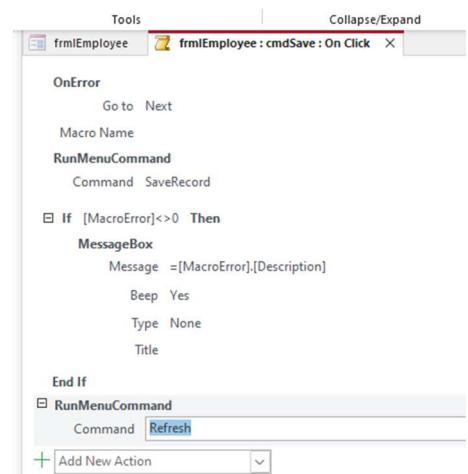


Adding Buttons

42. Expand the detail Section under the rectangle.
43. Add a button to save the record.

Save Button

44. Records Operations → Save record.
45. Button Caption= Save and Name=cmdSave.
46. Right click the button and choose **Build events** and add **Refresh** action at the end of the Macro.
47. Save and get back to form.



Button New Worker

48. Add Another button.
49. Record Operation→Add New
50. Button Text = New Worker, Name=cmdAddNew.

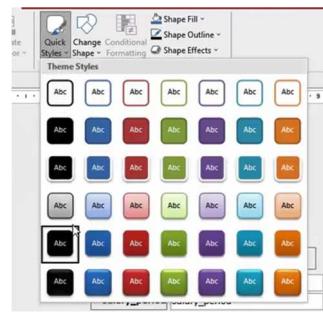
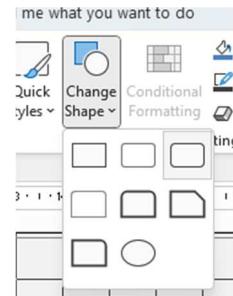
Button Delete

51. Add Another button.
52. Record Operation→Delete Record
53. Button Text = Delete, Name=cmdDelete.

Arrange and format Buttons

54. Select all buttons.
55. Make font = 12
56. Select **Save** Button
57. Format → Picture ..select Save picture from the list Save Record Picture.
58. Change **Picture Caption Arrangement** =Right.
59. So, picture and caption appear together.
60. Go to **New Worker** Button.
61. The same way add photo (select **Go To New**) and make the caption right too.
62. Go to **Delete** Button.
63. The same way add photo (select **Delete**) and make the caption right too.
64. You have part of detail section appears, so you have to give it a color.

65. Click and make the color to Blue = #4F81BD.
66. Select the 3 buttons and change shape to rectangle rounded corner.
67. Choose quick style too.
68. Arrange them to be:
- align Top.
 - Size to widest.
 - Spacing equal horizontal.
69. See your form view now.
70. You should have something like this.



Create your navigation buttons.

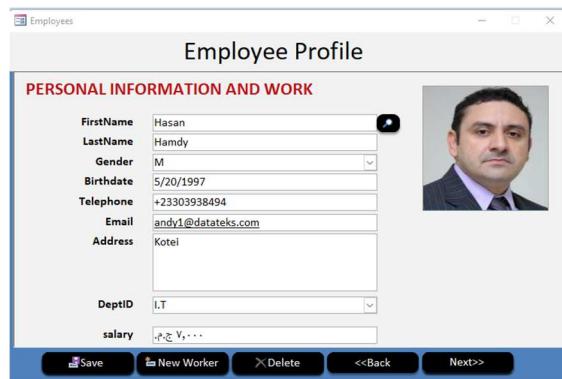
71. You can use your own buttons for navigation.
72. Go to Design view.
73. Select the Form
74. Go to Format → Navigation Buttons = No.
75. Format → Scroll Bars = Neither.
76. Now Create the Buttons at bottom right of the form.
- 77. Back Button:**
- Record Navigation → Go To Previous Record.
 - Text = <<Back.
 - Name = cmdBack.
- 78. Next Button:**
- Record Navigation → Go to Next Record.
 - Text = Next>.
 - Name = cmdNext.
79. Use the copy format button to format new buttons as others.
80. Arrange your buttons again.



Add Search Bar

81. We want the user be able to search by Name.
82. In Design view draw a small button beside the Field Name.
83. Select Record Operation → Find Record

84. Use the Icon that Access Give to you (Magnifier).
 85. Give button name **cmdFindEmployee**.
 86. Format the button the same shape and style like other buttons you have created.
 87. Change property Other → Tool tip text = **Search Employee by Name**.
 88. Go to Form view and hover over the search button to see the tool tip.
 89. Try your form:
 - a. search,
 - b. Navigation,
 - c. Open table **tblEmployees** in back ground
 - d. add new worker then click save.
 - e. See it is reflected in table directly if you are modify data (use refresh table for new record).
 - f. Delete your new worker.
90. Your form should look like this:



Build Your Project Part IV (Creating Reports)

Create All Employees Report

1. Create the report **rptAllEmployees**.
2. Use Report Wizard and then adjust it.
3. Make it based on table **tblEmployees**.
4. It should look like this one on figure.
5. Check in Preview.

Create An Employee Profile

6. Create Report **rptEmployeeProfile**.
7. Duplicate the previous report and rename it.
8. Make it based on query: **qryEmployeeByFirstName**.
9. Check in Preview.

All Employees

FirstName: Sameh	LastName: Moharam
Gender: M	Birthdate:
Telephone: +201227449987	Email: saidewy@hotmail.com
Address: 12 New Cairo	
Department: FINANCE	
FirstName: SANRDA	LastName: Nasheet
Gender: F	Birthdate: 1/1/2000
Telephone: +23327374488	Email: sanda12@yahoo.com
Address: New Domiat	
Department: HUMAN RESOURCE	
FirstName: Hasan	LastName: Handy
Gender: M	Birthdate: 5/20/1997
Telephone: +23303938404	Email: handy10@datateks.com
Address: Kotei	
Department: LT	

Thursday, August 03, 2023

Page 1 of 2

Employee Profile

FirstName: Fatma	LastName: Aly
Gender: F	Birthdate:
Telephone: +233	Email: fatma12@yahoo.com
Address:	

Department: MARKETING

Thursday, August 03, 2023

Page 1 of 1

Create Project Employees Report

10. Create the Sub Report: **rptSubProjectEmployees**.
11. Make it based on table: **tblEmp_Projects**.
12. Check in Preview it should be something like the one in Figure.
13. Close and save.
14. Create the Main Report: **rptProjects**.
15. Make it Based on **tblProjects**.
16. After you finish your main report design Drag and drop the sub report at the end of Detail section.
17. Your final report should look like the one in Figure.

Project Employees

Employee	Project	Hours
Sameh	New Aswan Parages	18
Sameh	Festival Hotel in New Cairo	20
SANRDA	Sohag General Hospital	10
SANRDA	New Aswan Parages	24
SANRDA	Abu Kier Metro	30
Hasan	New Aswan Parages	30
Hasan	Arafa Hotel	30
Hasan	Nursing School	50
Fatma	Sohag General Hospital	18
Fatma	Festival Hotel in New Cairo	20
Fatma	Arafa Hotel	20
Fatma	New Aswan Parages	10
Mahmoud	Sohag General Hospital	14
Mahmoud	New Aswan Parages	15

Projects

ProjID: 16	Project Name: Sohag General Hospital	Location: Sohag
Project Employees		
SANRDA	Sohag General Hospital	10
Fatma	Sohag General Hospital	18
Mahmoud	Sohag General Hospital	14
ProjID: 11		
Project Name: Festival Hotel in New Cairo		
Location: Cairo		
Project Employees		
Sameh	Festival Hotel in New Cairo	20
Fatma	Festival Hotel in New Cairo	20
ProjID: 12		
Project Name: Abu Kier Metro		
Location: Alexandria		
Project Employees		
SANRDA	Abu Kier Metro	30
ProjID: 13		
Project Name: Arafa Hotel		
Location: Aswan		
Project Employees		
Izzan	Arafa Hotel	30
Fatma	Arafa Hotel	20

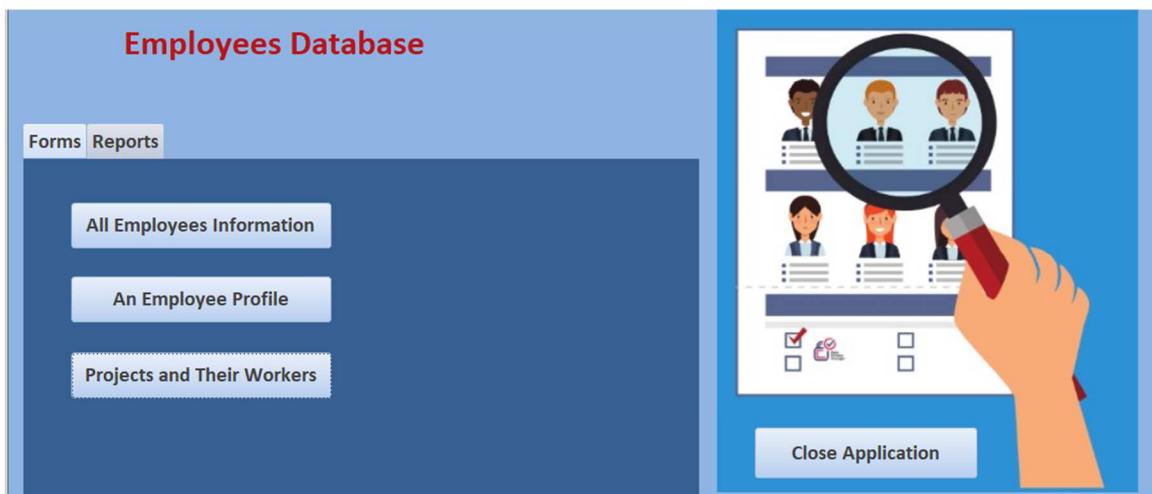
Thursday, August 03, 2023

Page 1 of 2

18. Close your report and save.

Create Report Buttons in Main Form

19. Open form **frmMain** in design view.
20. On the Report tab add 3 buttons to open the 3 reports you have created.
21. Your Main form should be like this one.



Conclusion

Congratulations on completing this book!

You've now built a strong foundation in **Microsoft Access** and gained the practical skills to design, build, and manage databases with confidence. You understand how tables, queries, forms, and reports work together — the essential building blocks of any database system.

Keep exploring, keep practicing, and never stop learning. The more databases you build, the more you'll understand the power of structured data and how it can transform the way organizations manage information.

Wishing you continued success and growth in your learning journey and professional career!

Said Fawzy

Manger of Information Center

Tendering Department

The Arab Contractors

November 2025