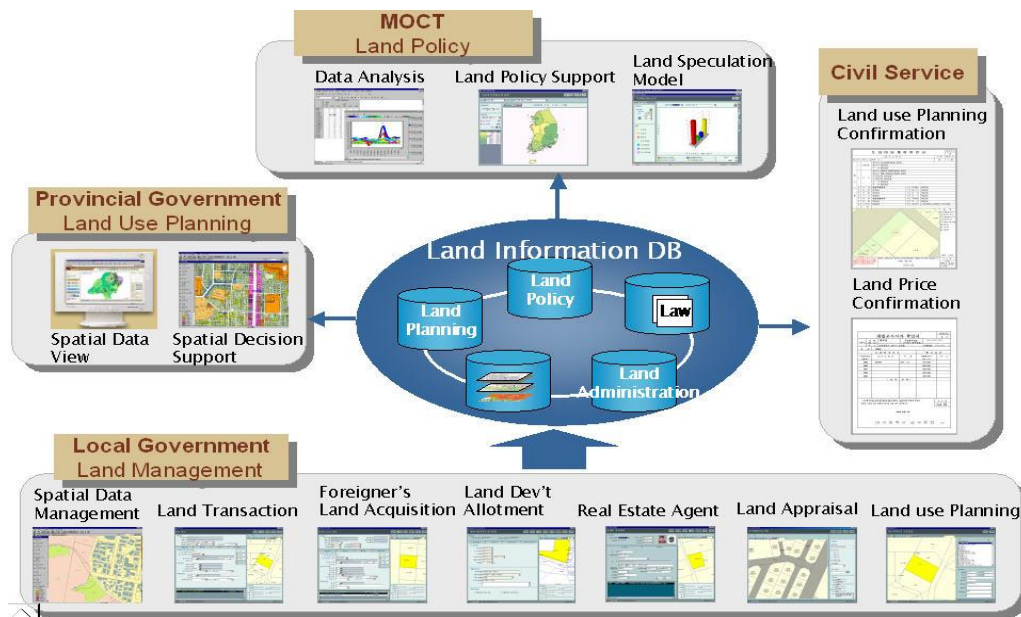


Rural land Administration

Level-III

Based on March 2022, Version II Occupational
standard



Module Title: - Operating Database Management System

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Introduction to the Module

This module covers the competence required to operate database applications and perform basic operations on land and related information inputting, storage, organizing and retrieval.

LG #29	LO #1 Create database (GUI)
Instruction sheet 1	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> • Create database • Basics of DBMS • Database application with land related data • Table development and management with field and attributes <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> • Basics of DBMS • Create database • Perform Database application with land related data. • Develop table and manage with field and attributes 	
Learning Instructions:	
<ul style="list-style-type: none"> • Read the specific objectives of this Learning Guide. • Follow the instructions described below. • Read the information written in the information Sheets • Accomplish the Self-checks • Perform Operation Sheets • Do the “LAP test” 	

Introduction

In computerized information system data is the basic resource of the organization. So, proper organization and management for data is required from organization to run smoothly. Database management system deals the knowledge of how data stored and managed on a computerized information system. In any organization, it requires accurate and reliable data for better decision making, ensuring privacy of data and controlling data efficiently. The examples include deposit and/or withdrawal from a bank, hotel, airline or railway reservation, purchase items from supermarkets in all cases, a database is accessed.

1.1 Basics of Data Base Management System

- **Database Management System**

As the name suggests, the database management system consists of two parts. They are: database and management system/

I. Database and

To find out what database is, we have to start from data, which is the basic *building block* of any DBMS.

✓ **Data:**

- ✓ Facts, figures, statistics etc. having no particular meaning.
- ✓ Data is the known facts or figures that have implicit meaning.
- ✓ It can also be defined as it is the representation of facts, concepts or instruction in a formal manner, which is suitable for understanding and processing.
- ✓ Data can be represented in alphabets (A-Z, a-z), in digits (0-9) and using special characters (+, -, #, \$, etc.)
- ✓ e.g. 1, ABC, 19 etc.

✓ **Information:**

- ✓ Is the processed data on which decisions and actions are based
- ✓ Information can be defined as the organized and classified data to provide meaningful values.
- ✓ Eg: “The age of Rahel is 25”.

✓ **Record:**

- ✓ Collection of related data items, e.g. in the above example the three data items had no meaning. But if we organize them in the following way, then they collectively represent meaningful information.

✓ **Table or Relation:**

- ✓ Table is collection of related records.

PID	Parcel owner	Parcel area	Issued date
AA12300	Ato Abebe	500	Dec,2001
AA12301	Dr Senayt	1500	June,1990

- ✓ The columns of this relation are called *Fields, Attributes or Domains*. The rows are called *Tuples or Records*.

✓ **Database:**

- ✓ Collection of related relations. Consider the following collection of tables:
- ✓ A database is like an electronic file cabinet for storing and managing information related to a particular subject

<i>PID</i>	<i>Parcel owner</i>	<i>Parcel area</i>	<i>Issued date</i>
AA12300	Ato Abebe	500	Dec,2001
AA12301	Dr Senayt	1500	June,1990

<i>Pid</i>	<i>Oid</i>	<i>Owner_Name</i>	<i>O_Subcity</i>	<i>Owner Contact</i>
AA12300	01AA/1990	Ato Abebe	YEKA	091200000
AA12301	01AA/2018	Dr Senayt	BOLE	0911100000

We now have a collection of 2 tables. They can be called a “related collection” because we can clearly find out that there are some common attributes existing in a selected pair of tables. Because of these common attributes we may combine the data of two or more tables together to find out the complete details of a parcel.

II. Management System.

- ✓ A system is a group of related things that work together as a whole.
- ✓ A management system is a set of policies, processes and procedures used by an organization to ensure that it can fulfill the tasks required to achieve its objectives
- ✓ A database-management system (DBMS) is a collection of interrelated data and a set of programs to access those data. This is a collection of related data with an implicit meaning and hence is a database.
- ✓ Database systems are designed to manage large bodies of information. Management of data involves both defining structures for storage of information and providing mechanisms for the manipulation of information.
- ✓ In addition, the database system must ensure the safety of the information stored, despite system crashes or attempts at unauthorized access. If data are to be shared among several users, the system must avoid possible anomalous results. Because information is so important in most organizations, computer scientists have developed a large body of concepts and techniques for managing data.
- ✓ The primary goal of a DBMS is to provide a way to store and retrieve database information that is both convenient and efficient. By data, we mean known facts that can be recorded and that have implicit meaning.

• Database Management System (DBMS) and Its Applications:

A Database management system is a computerized record-keeping system. It is a repository or a container for collection of computerized data files. Database management system is software which is used to manage the database. For example: MySQL, Oracle, access, Visual Basics etc are a very popular commercial database which is used in different applications.

In its simplest form, a database is a collection of information organized into a list. Whenever you make a list of information, such as names, addresses, products, or invoices, you are, in fact, creating a database.

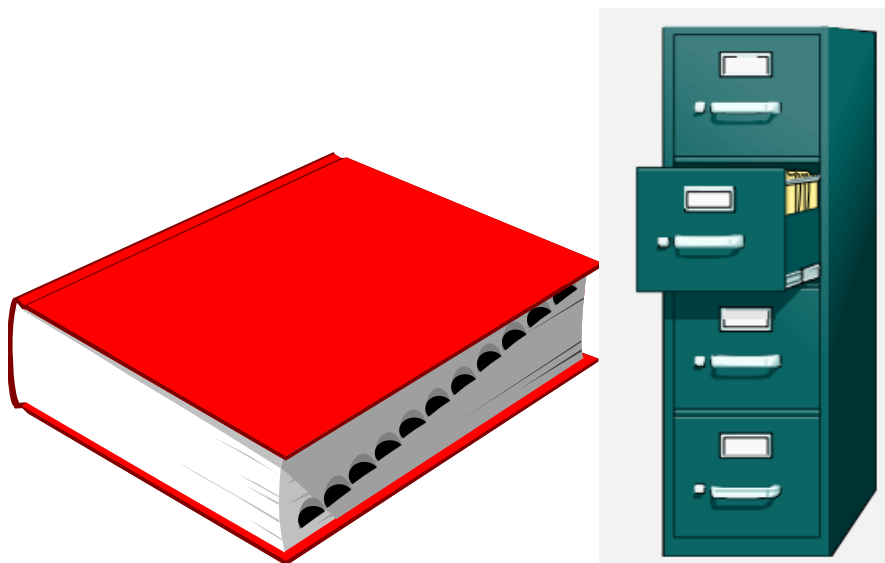
Technically speaking, you don't even have to use a database program to create a database. You can make a list of information in all kinds of programs, such as Microsoft Excel or Word.

A database program, however, is much more powerful than a simple list you keep on paper or in a Microsoft Word document. A database program lets you:

- Share Information:
- Store Information
- Find Information:
- Analyze and Print Information:
- Manage Information:

The overall purpose of DBMS is to allow the users to define, store, retrieve and update the information contained in the database on demand. Information can be anything that is of significance to an individual or organization.

Figure 1-1: A database is like an electronic file cabinet for storing and managing information related to a particular subject.



Databases touch all aspects of our lives. Some of the major areas of application are as follows:

- Banking: all transactions
- Airlines: reservations, schedules

- Universities: registration, grades
- Sales: customers, products, purchases
- Online retailers: order tracking, customized recommendations
- Manufacturing: production, inventory, orders, supply chain
- Human resources: employee records, salaries, tax deductions
- Land administration: improving the efficiency and effectiveness of land administration processes.

• **File oriented approach:**

Before database management systems (DBMSs) were introduced, organizations usually stored information in File Processing systems. *File* is a collection of related data stored in secondary memory. This typical file-processing system is supported by a conventional operating system. The traditional file oriented approach to information processing has for each application a separate master file and its own set of personal file. The system stores permanent records in various files, and it needs different application programs to extract records from, and add records to, the appropriate files. This typical file-processing system is supported by a conventional operating system. The system stores permanent records in various files, and it needs different application programs to extract records from, and add records to, the appropriate files. Keeping organizational information in a file processing system has a number of major disadvantages:

Disadvantages in File Processing

- ✓ Data redundancy and inconsistency.
- ✓ Difficult in accessing data.
- ✓ Data isolation.
- ✓ Data integrity.
- ✓ Concurrent access is not possible.
- ✓ Security Problems.

• **Advantages of DBMS:**

Some of demerits of database management system are the following:

- ✓ Data Independence.
- ✓ Efficient Data Access.

- ✓ Data Integrity and security.
- ✓ Data administration.
- ✓ Concurrent access and Crash recovery.
- ✓ Reduced Application Development Time.

• Disadvantages of DBMS

- ✓ ***It is bit complex.*** Since it supports multiple functionality to give the user the best, the underlying software has become complex. The designers and developers should have thorough knowledge about the software to get the most out of it.
- ✓ Because of its complexity and functionality, it uses large amount of memory. ***It also needs large memory to run efficiently.***
- ✓ ***DBMS system works on the centralized system,*** i.e.; all the users from all over the world access this database. Hence any failure of the DBMS, will impact all the users.
- ✓ ***DBMS is generalized software,*** i.e.; it is written work on the entire systems rather specific one. Hence some of the application will run slow.

• Types of Database

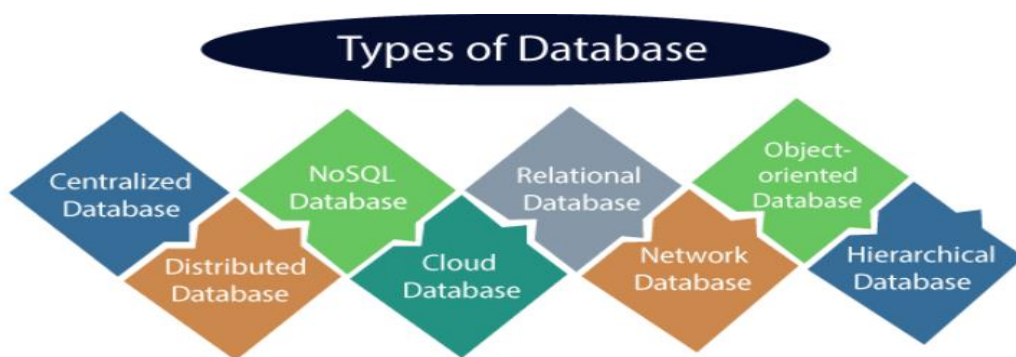
There are various types of databases used for storing different varieties of data:

- ✓ Centralized Database
- ✓ Distributed Database
- ✓ Cloud Database
- ✓ Relational Database
- ✓ Hierarchical Databases
- ✓ Network Databases
- ✓ Personal database
- ✓ Operational Database

- ✓ **Centralized Database:** It is the type of database that stores data at a centralized database system. It comforts the users to access the stored data from different locations through several applications. These applications contain the authentication process to let users' access data securely. An example of a Centralized database can be Central Library that carries a central database of each library in a college/university.
- ✓ **Distributed Database:** Unlike a centralized database system, in distributed systems, data is distributed among different database systems of an organization. These database systems are connected via communication links. Such links help the end-users to access the data easily. Examples of the Distributed database are Apache Cassandra, HBase, Ignite, etc.
- ✓ **Cloud Database:** A type of database where data is stored in a virtual environment and executes over the cloud computing platform. It provides users with various cloud computing services (SaaS, PaaS, IaaS, etc.) for accessing the database
- ✓ **Relational Database:** This database is based on the relational data model, which stores data in the form of rows (tuple) and columns (attributes), and together forms a table (relation). A relational database uses SQL for storing, manipulating, as well as maintaining the data. E.F. Codd invented the database in 1970. Each table in the database carries a key that makes the data unique from others. Examples of Relational databases are MySQL, Microsoft SQL Server, Oracle, etc.
- ✓ The relational database model is the most dominant model in both the corporate and GIS world, due to its flexibility, organization, and functioning. It can accommodate a wide range of data types. It is not necessary to know beforehand the types of processing that will be performed on the database.
- ✓ **Object-oriented Database:** The type of database that uses the object-based data model approach for storing data in the database system. The data is represented and stored as objects which are similar to the objects used in the object-oriented programming language.

- ✓ **Hierarchical Databases:** It is the type of database that stores data in the form of parent-children relationship nodes. Here, it organizes data in a tree-like structure.
- ✓ **Network Databases:** It is the database that typically follows the network data model. Here, the representation of data is in the form of nodes connected via links between them. Unlike the hierarchical database, it allows each record to have multiple children and parent nodes to form a generalized graph structure.
- ✓ **Personal Database:** Collecting and storing data on the user's system defines a Personal Database. This database is basically designed for a single user.

Table 1.1 Types of Database



• Data Abstraction:

Data abstraction is a process of hiding the details of the data and showing only the essential features of the data. In database management systems, data abstraction is used to provide a conceptual representation of data. It helps in reducing complexity and managing large amounts of data. The abstraction process involves identifying the important features of the data and ignoring the irrelevant details. This makes it easier to understand and work with the data.

Data abstraction is a technique that helps in hiding the implementation details of a system from the user. It is a process of representing complex real-world data entities with their essential features, ignoring the non-essential details. Here are some examples of data abstraction:

Examples

- ✓ A car is an example of data abstraction. The driver only needs to know how to drive the car, not how it works internally.

- ✓ A bank account is another example of data abstraction. The user only needs to know how to deposit and withdraw money, not how the bank manages their account.

Major purpose of DBMS is to provide users with abstract view of data i.e. the system hides certain details of how the data are stored and maintained. Since database system users are not computer trained, developers hide the complexity from users through 3 levels of abstraction, to simplify user's interaction with the system.

- i. **Physical level of data abstraction:** How the data are actually stored. This is the lowest level of abstraction which describes how data are actually stored.
- ii. **Logical level of data abstraction:** This level hides what data are actually stored in the database and what relationships exist among them. Describes data stored in database, and the relationships among the data.
- iii. **View Level of data abstraction:** View provides security mechanism to prevent user from accessing certain parts of database. Application programs hide details of data types. Views can also hide information (such as an employee's salary) for security purposes.

• Data Models

A data model is a conceptual representation of data structures that are required for a database. It provides a way to describe the design of a database at the physical, logical, and view levels. The physical level describes how data is stored in the database. The logical level describes how data is represented in the database.

i. Physical Database Model

- The physical design of the database specifies the physical configuration of the database on the storage media. This includes detailed specification of data elements, data types, indexing options and other parameters residing in the DBMS data dictionary. It is the detailed design of a system that includes modules & the database's hardware & software specifications of the system.

ii. Logical Database Model

- Several logical data structures are used to express the relationships between individual data elements or records in a database. Common logical data structures are hierarchical, network, and relational, with relational being predominant.

iii. Conceptual Database Model

- The conceptual Model is often represented as a schema. A schema describes the database structure in a shorthand notation. One example is the entity-relationship (ER) diagram.

https://en.wikipedia.org/wiki/Data_model(Access date05/2023)

1.2 Database application with land related data

• Spatial database

A spatial database is a general-purpose database (usually a relational database) that has been enhanced to include spatial data that represents objects defined in a geometric space along with tools for querying and analyzing such data. *Most spatial databases allow the representation of simple **geometric objects** such as points, lines and polygons.* Some spatial databases handle more complex structures such as 3D objects, topological coverages, linear networks, and triangulated irregular networks (TINs).

Databases can be used in land management to store and manage data related to land use, ownership, zoning, and other factors that affect land use. For example, a database can be used to store information about land parcels such as their location, size, ownership, zoning restrictions, and permitted uses. This information can be used by government agencies to make decisions about land use planning and regulation. Additionally, databases can be used to store information about environmental factors that affect land use such as soil types, water resources, and vegetation. This information can be used by land managers to make decisions about conservation and restoration efforts.

• Spatial Database Design

The model responds to the requirements of all information systems and extends it at the beginning to understand the area of use or application domain at hand. The analysis phase has been broken down into an application domain model. This model is, in turn, transformed into a conceptual computational model. This is said to be computationally tractable but independent of any specific approach. The logical model is imbedded in a particular paradigm, for example, a relational approach. The physical model is the representation of the real world as computational processes.

• The Data base Design process

The design process consists of the following steps:

- Determine the purpose of your database

- This helps prepare you for the remaining steps.
- ii. Find and organize the information required
 - Gather all of the types of information you might want to record in the database, such as product name and order number.
- iii. Divide the information into tables
 - Divide your information items into major entities or subjects, such as Products or Orders. Each subject then becomes a table.
- iv. Turn information items into columns
 - Decide what information you want to store in each table. Each item becomes a field, and is displayed as a column in the table.
 - For example, an Employees table might include fields such as Last Name and Hire Date.
- v. Specify primary keys
 - Choose each table's primary key. The primary key is a column that is used to uniquely identify each row. An example might be Product ID or Order ID.
- vi. Set up the table relationships
 - Look at each table and decide how the data in one table is related to the data in other tables. Add fields to tables or create new tables to clarify the relationships, as necessary.
- vii. Refine your design
 - Analyze your design for errors. Create the tables and add a few records of sample data. See if you can get the results you want from your tables. Make adjustments to the design, as needed.
- viii. Apply the normalization rules

• **Basic Design Principles**

1. Make the database structure flexible to meet the future needs
2. Avoid redundant information
3. Make the database structure flexible to meet the future needs
4. Optimize physical performance
5. Avoid redundant information

1.3 Table development and management with field and attributes

• Relational Model

E.F Codd proposed the relational data model in 1970. At that time most database systems were based on one of two older data models (the hierarchical model and the network model); the relational model revolutionized the database field and largely supplanted these earlier models.

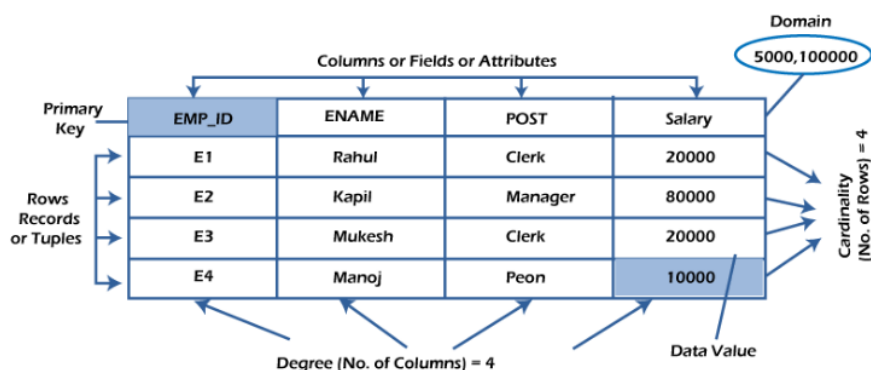
The relational model is very simple and elegant; a database is a collection of one or more relations, where each relation is a table with rows and columns. This simple tabular representation enables even novice users to understand the contents of a database, and it permits the use of simple, high-level languages to query the data.

The major advantages of the relational model over the older data models are its simple data representation and the ease with which even complex queries can be expressed.

The main construct for representing data in the relational model is a relation. A relation consists of a relation schema and a relation instance. The relation instance is a table, and the relation schema describes the column heads for the table. We first describe the relation schema and then the relation instance.

Today, the relational model is by far the *dominant data model and is the foundation for the leading DBMS products*, including IBM's DB2 family, Microsoft's Access and SQL-Server, FoxBASE, and Paradox.

Figure1.1 created Table



• Table/Relation

- ✓ Everything in a relational database is stored in the form of relations. The RDBMS database uses tables to store data.
- ✓ A table is a collection of related data entries and contains rows and columns to store data. Each table represents some real-world objects such as person, place, or event about which information is collected. The organized collection of data into a relational table is known as the logical view of the database. Let's see the example of the Parcel owner table.

<i>Pid</i>	<i>Oid</i>	<i>Owner_Name</i>	<i>O_Subcity</i>	<i>Owner Contact</i>
AA12300	01AA/1990	Ato Abebe	YEKA	091200000
AA12301	01AA/2018	Dr Senayt	BOLE	0911100000

• Row or Record

- ✓ A row of a table is also called a record or tuple.
- ✓ It contains the specific information of each entry in the table.
- ✓ It is a horizontal entity in the table. For example, The above table contains 5 records.

• Column/Attribute

- ✓ A column is a vertical entity in the table which contains all information associated with a specific field in a table. For example, "owner name" is a column in the above table which contains all information about a parcel owner's name.

• Database objects

- ✓ Databases usually consist of several parts. A Microsoft Access database calls anything that can have a name an object. Within an Access desktop database, the main objects are tables, queries, forms, reports, macros, data macros, and modules. These Database Objects are the following:

- ✚ **Tables-**Tables store a database’s data in rows (records) and columns (fields). For example, one table could store a list of customers and their addresses while another table could store the customers’ orders. A database must always contain at least one table where it can store information—all the other database objects are optional.
- ✚ **Queries-** Queries ask a question of data stored in a table. Queries are a way of searching for and compiling data from one or more tables For example, a query might only display customers who are from Texas.
- ✚ **Forms-** Forms are custom screens that provide an easy way to enter and view data in a table or query.
- ✚ **Reports-** Reports present data from a table or query in a printed format.
- ✚ **Macros-** Macros help you perform routine tasks by automating them into a single command. For example, you could create a macro that automatically opens and prints a report. Modules Like macros, modules automate tasks but by using a built-in programming language called Visual Basic or VB. Modules are much more powerful and complex than macros.

• **Micro soft Access 2010**

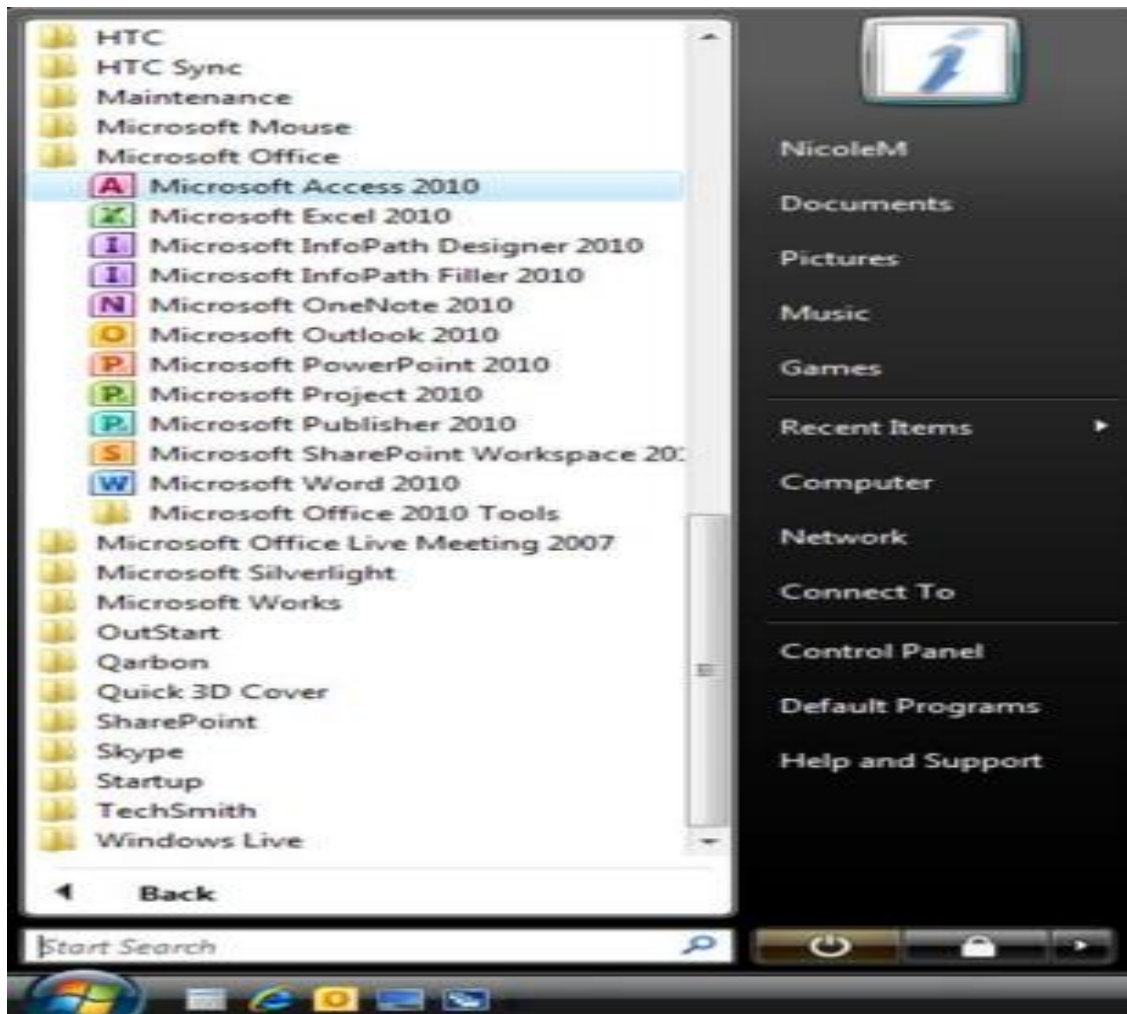
Microsoft Access is a powerful database program you can use to store all kinds of information from a simple list of contacts to an inventory catalog with tens of thousands of products. Once information is stored in a Microsoft Access database, it’s easy to find, analyze, and print.

Microsoft Access is a Database Management System (DBMS) from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software development tools. It is a member of the Microsoft Office suite of applications, included in the professional and higher editions.

• **Starting Access 2010**


In this lesson, you will familiarize yourself with the Access environment, including the Ribbon, Backstage view, Navigation pane, and Document Tabs bar.


Figure1.5 starting access



✓ **Creating Database in Access 2010**

When you start Access, you are provided with three main options for creating or opening a database:

-  **Blank Database:** Create a new blank database from scratch for storing information.

Templates: Select a template stored locally on your computer or from Office Online. Several categories of templates are available: Assets, Contacts, Issues & Tasks, Non-profit and Projects. Within the categories are different types of templates—for example within Issues & Tasks, you can choose from Issues web database or Tasks management database.
-  **Recent:** Open an existing database from a list of recently opened databases. A quick list of recent databases is also displayed in the pane on the left.


-  **Open:** If your existing database doesn't appear in the Recent list, click Open to browse your computer or network for more existing databases.

Figure 1-3: The first page that appears when opening Access

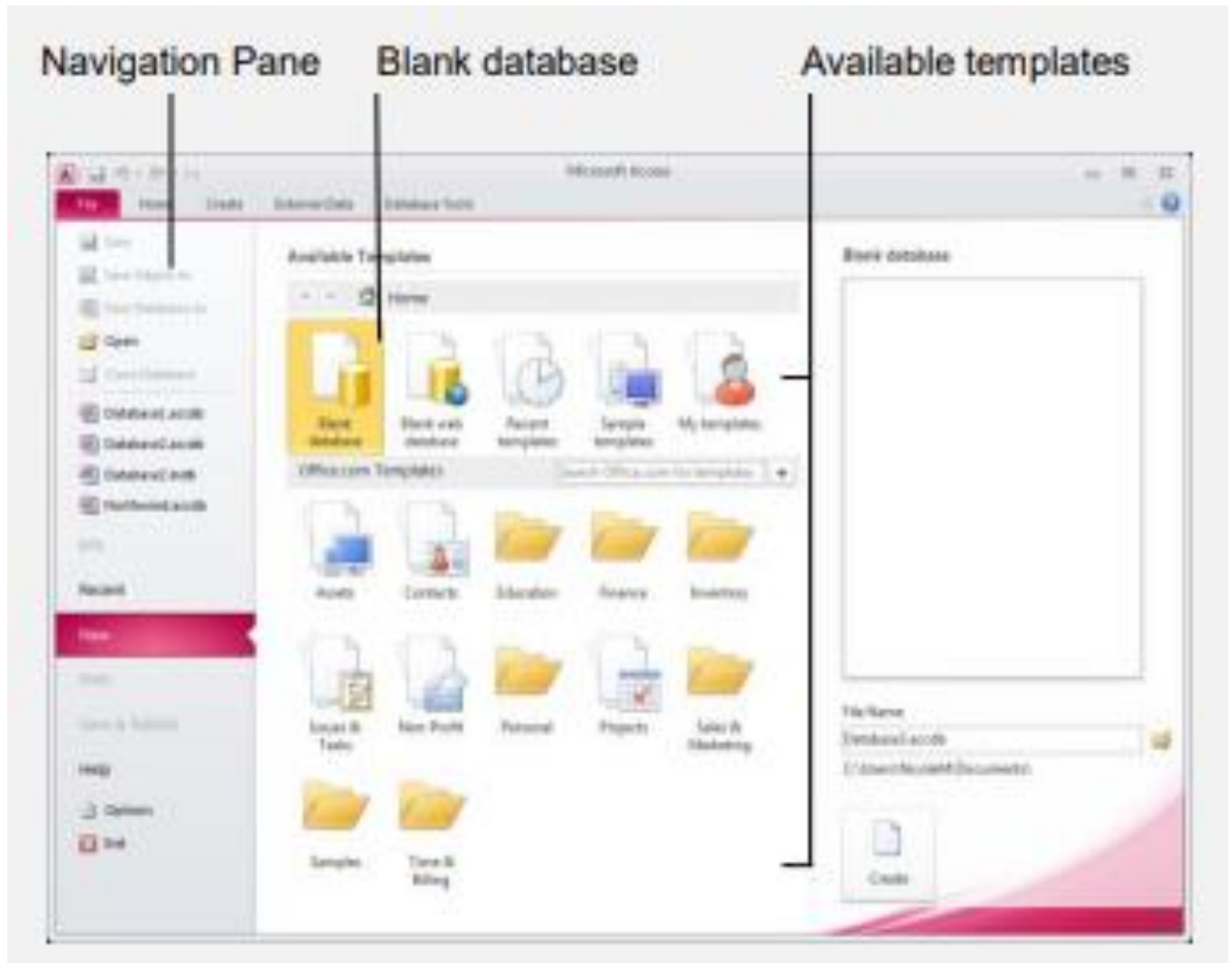


Figure 1-4: An open database window

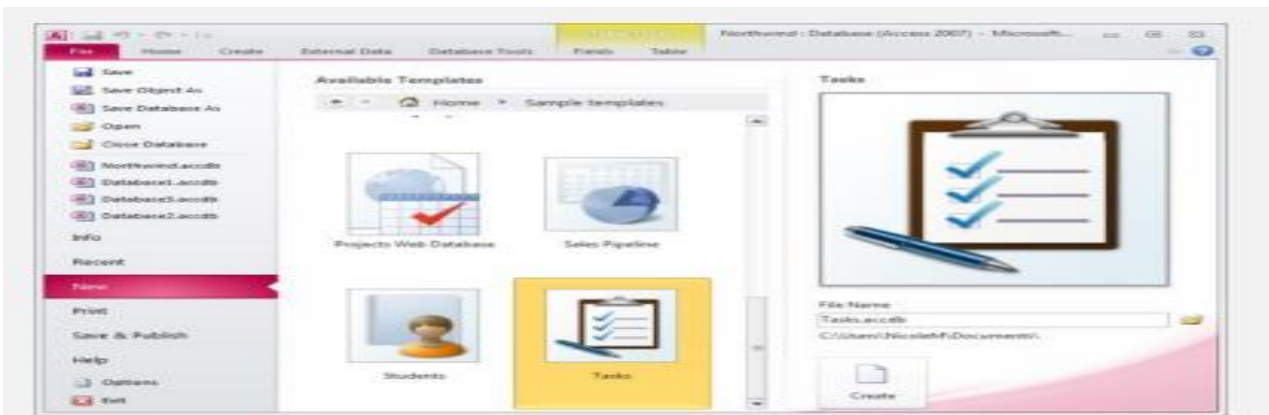


Figure 3-2: Creating a database with the Tasks template.

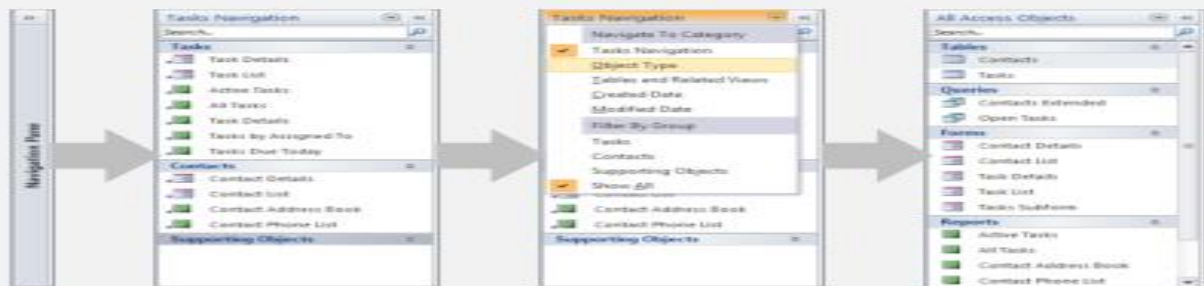


Figure 3-3: Expanding the Navigation Pane and changing the view to display all Access objects.

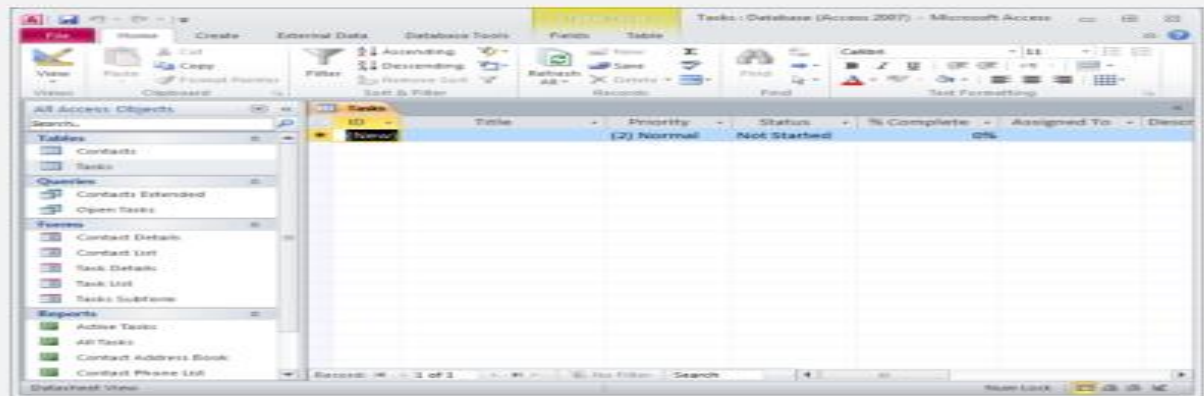
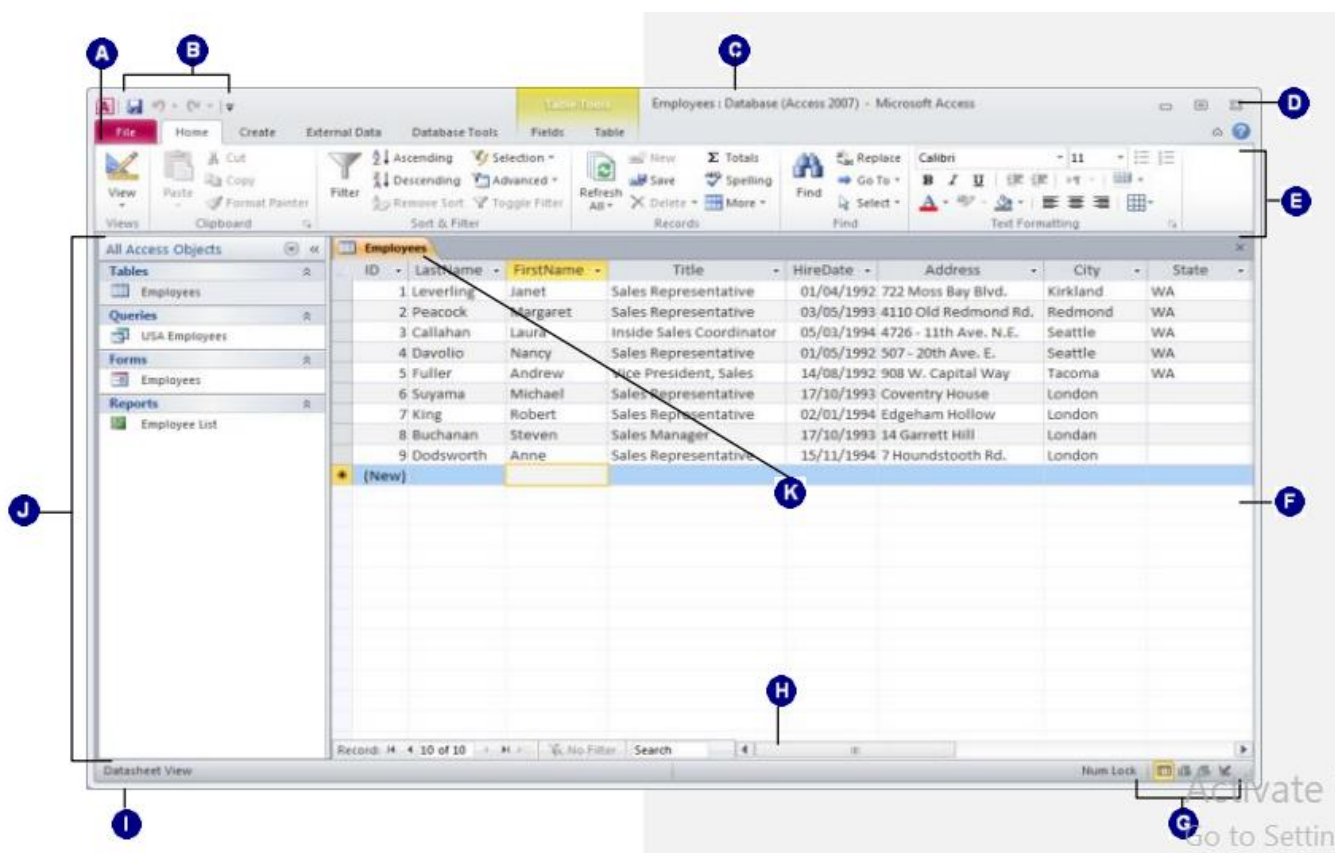


Figure 3-4: A new database created with the Tasks template.

✓ Understanding the Access Program Screen

The Access 2010 program screen may seem confusing and overwhelming at first. This lesson will help you become familiar with the Access 2010 program screen as well as the new user interface.



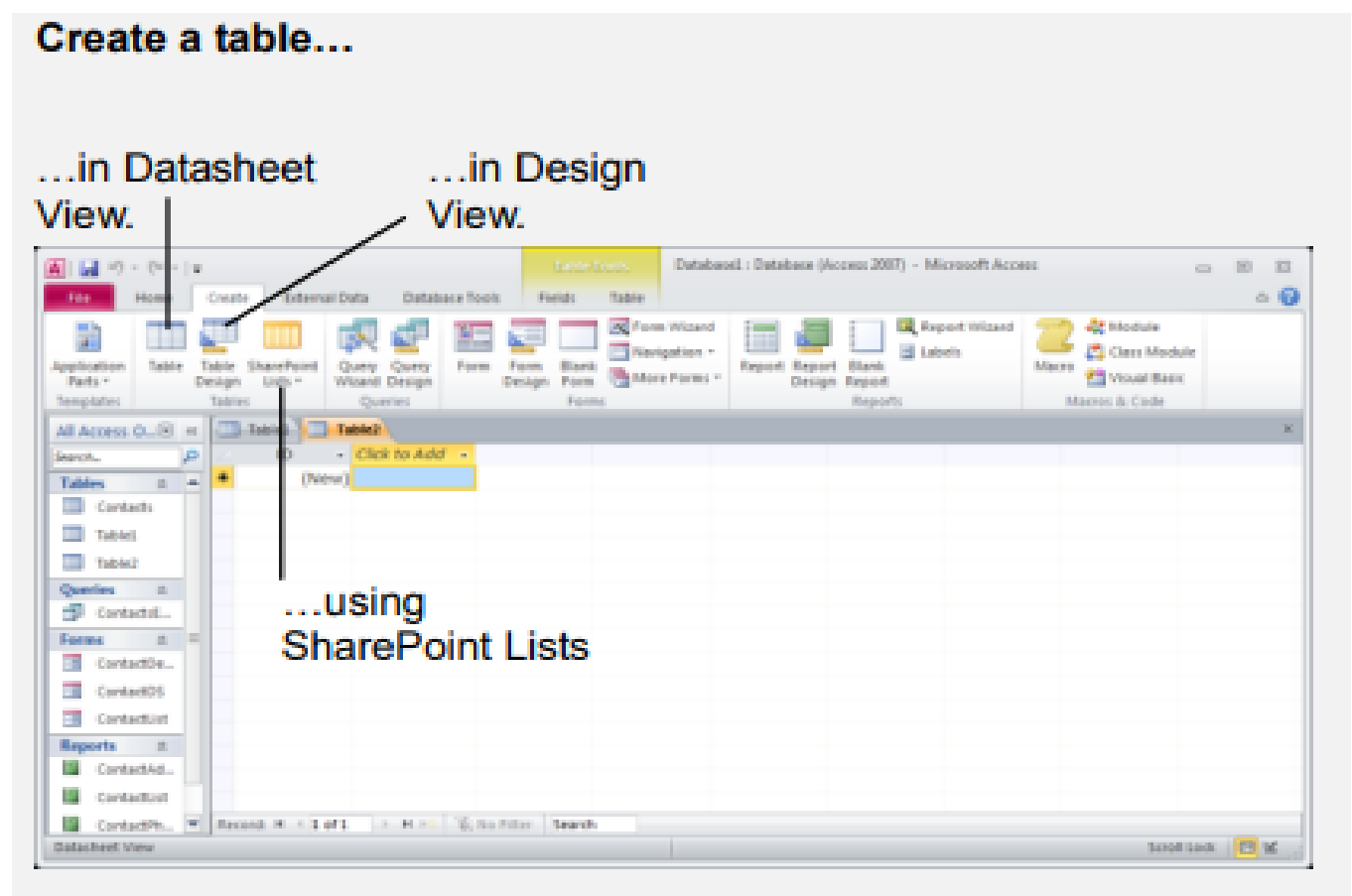
A	File tab: Contains basic file management commands—such as New, Open, Save, and Close—and program options.	G	View buttons: Use these buttons to quickly switch between the different views.
B	Quick Access Toolbar: Contains common commands such as Save and Undo. You can add more commands as well.	H	Scroll bar: Use the scroll bar to view different parts of the database object.
C	Title bar: Displays the name of the workbook you are working on and the name of the program you are using.	I	Status bar: Displays messages and feedback.
D	Close button: Click the close button in the Title bar to exit the Access program entirely, or click the close button in the Ribbon to close only the current database object.	J	Navigation Pane: Here you can see and open your database objects such as tables, queries, forms, and reports.
E	Ribbon: The tabs and groups on the Ribbon replace the menus and toolbars found in previous versions of Access.	K	Object tabs: A tab appears for each open database object. Click a tab to view and work with that object.
F	Access Object: View the content of the various database objects		

✓ Creating Table

When you create a database, you store your data in tables. Because other database objects depend so heavily on tables, you should always start your design of a database by creating all of its tables and then creating any other object. Before you create tables, carefully consider your requirements and determine all the tables that you need.

In Access 2010 you have a number of options when creating tables. You can create a new blank table from scratch or set up tables that are connected to SharePoint lists. If you use one of the Quick Start options in the Application Parts to create a new database, tables with predefined fields will be created.

Figure 3-7: Creating a table in Datasheet View.



✓ Create Table Relationships

MS Access uses table relationships to join tables when you need to use them in a database object. There are several reasons why you should create table relationships before you create other database objects, such as forms, queries, macros, and reports.

- ✚ To work with records from more than one table, you often must create a query that joins the tables.
- ✚ The query works by matching the values in the primary key field of the first table with a foreign key field in the second table.
- ✚ When you design a form or report, MS Access uses the information it gathers from the table relationships you have already defined to present you with informed choices and to prepopulate property settings with appropriate default values.
- ✚ When you design a database, you divide your information into tables, each of which has a primary key and then add foreign keys to related tables that reference those primary keys.
- ✚ These foreign **key-primary key pairings** form the basis for table relationships and multi-table queries.

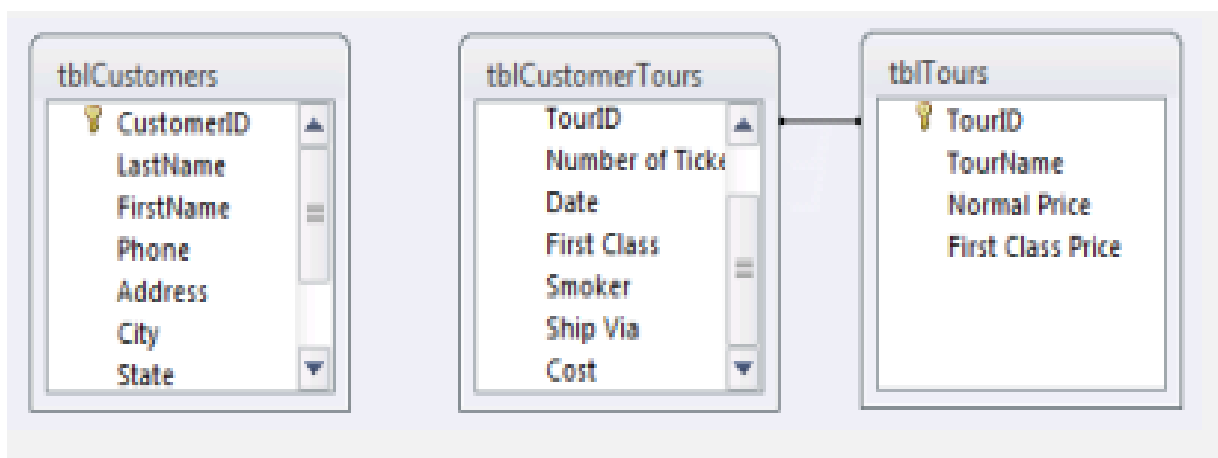


Figure1.5 Linked tables in the Relationships window

✓ **Importing or linking to create a table**

You can create a table by importing or linking to data that is stored elsewhere. You can import or link to data in an Excel worksheet, a SharePoint list, an XML file, another Access database, a Microsoft Outlook folder, and more.

When you import data, you create a copy of the data in a new table in the current database. Subsequent changes to the source data will have no effect on the imported data, and changes to the imported data do not affect the source data. After you connect to a data source and import its data, you can then use the imported data without connecting to the source. You can change the design of an imported table.

When you link to data, you create a linked table in the current database that represents a live link to the existing information that is stored elsewhere. When you change data in a linked table, you are changing it in the source. Whenever data changes in the source, that change is shown in the linked table. You must be able to connect to the data source whenever you use a linked table. You cannot change the design of a linked table.

✓ **Entity Relationship Model**

The entity-relationship data model perceives the real world as consisting of basic objects, called entities and relationships among these objects. It was developed to facilitate data base design by allowing specification of an enterprise schema which represents the overall logical structure of a data base.

The E-R data model employs three basic notions: are Entity sets, Relationship sets and Attributes.

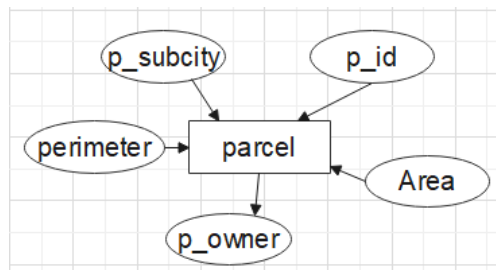
Entity sets:

Entities are specific objects or things in the mini-world that are represented in the database. An entity is a “thing” or “object” in the real world that is distinguishable from all other objects. For example, each person in an enterprise is an entity. An entity has a set property and the values for some set of properties may uniquely identify an entity. BOOK is entity and its properties (called as attributes) book code, book title, price etc. An entity set is a set of entities of the same type that share the same properties, or attributes. The set of all persons who are customers at a given bank, for example, can be defined as the entity set customer.

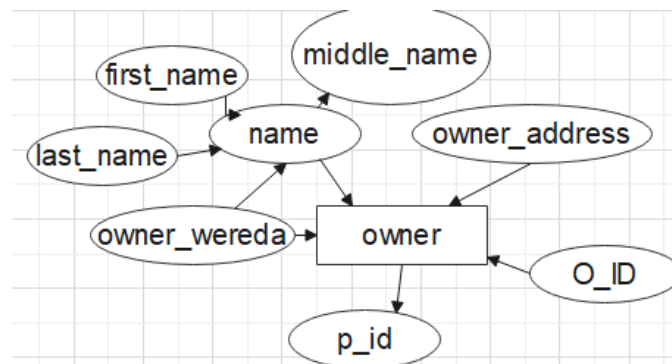
Weak entity sets: An entity set that does not have a primary key is referred to as a weak entity set. → The existence of a weak entity set depends on the existence of an identifying entity set

Attributes:

An entity is represented by a set of attributes. Attributes are descriptive properties possessed by each member of an entity set. *Attributes are properties used to describe an entity.* Customer are an entity and its attributes are customer ID, customer name, customer address etc. An attribute as used in the E-R model, can be characterized by the following attribute types. *Simple and composite attribute: simple attributes* are the attributes which can't be divided into sub parts eg: parcel id

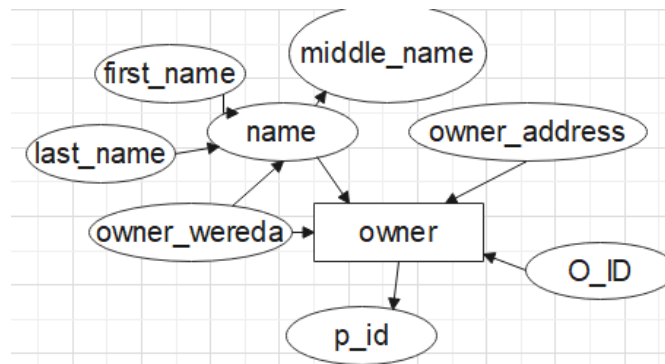


Composite attributes are the attributes which can be divided into subparts. eg: *name* consisting of first name, middle name, last name, *Address* consisting of city, pin code, state



i. Single-valued and multi-valued attribute:

- The attribute having unique value is **single –valued attribute**
eg: empno, customer id, regdno etc.
- The attribute having more than one value is **multi-valued attribute**
eg: phone-no, dependent name, vehicle



ii. Derived Attribute:

- The values for this type of attribute can be derived from the values of existing attributes
- eg: age which can be derived from (current date-birthdate) experience in year can be calculated as (current date-join date)

iii. NULL valued attribute:

- The attribute value which is unknown to user is called NULL valued attribute.

✚ **Relationship sets:** A relationship is an association among several entities. A relationship set is a set of relationships of the same type.



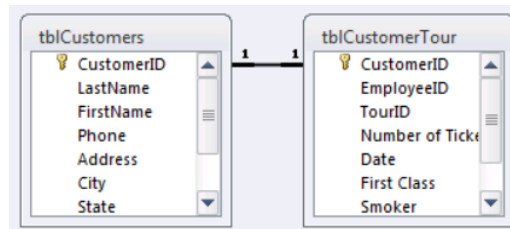
Consider the two entity sets customer and loan. We define the relationship set borrow to denote the association between customers and the bank loans that the customers have.

• Mapping Cardinalities:

Mapping cardinalities or cardinality ratios, express the number of entities to which another entity can be associated via a relationship set. Mapping cardinalities are most useful in describing binary relationship sets, although they can contribute to the description of relationship sets that involve more than two entity sets. There are four types of relationships between entities.

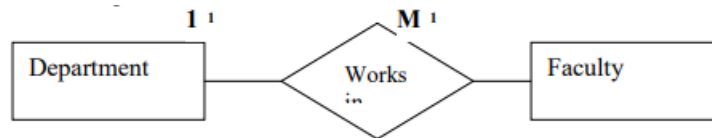
- One: one((1:1)-**An entity in A is associated with at most one entity in B, and an entity in B is associated with at most one entity in A.

Each record in a table relates to one record in another table. This is the simplest type of relationship, but it doesn't occur very often because it's usually easier to store such information in one table instead of two. Example: Each customer has one credit report

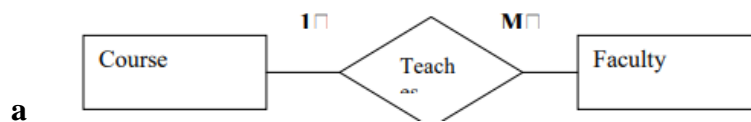


- ii. **One: many (M: 1)** – An entity in A is associated with any number of entities in B. An entity in B is associated with at the most one entity in A.

eg. One faculty member teaches many courses.



- iii. **Many: one (M: 1)** – An entity in A is associated with at most one entity in B. An entity in B is associated with any number in A.



- iv. **Many: many (M: N)** – many students take many courses.



All of these relationships can exist between attribute tables.

<https://youtu.be/rTngkZGo6jI?list=PLZNPtHKHsuxaEQTyfY2bH4ZyKSBrfUHs9N>



Symbols use ER- diagram:



entity



Weak entity



attribute



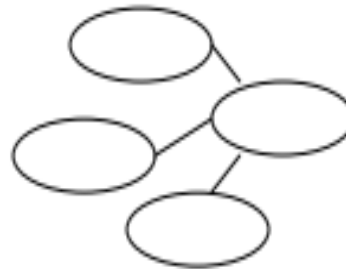
Multi valued attribute



Derived attribute



Key attribute



composite attrib



Relationship



Identifying
Relationship



One-to -one



One-to -many



many-to -one



many-to -many

• Key Fields

- ✓ In order for two tables to be related, they must share a common field.
- ✓ The common field (key field) in the "one" table of a One-to- Many relationship needs to

- ✓ be a primary key. The same field in the "many" table of a One-to-Many relationship is called

the foreign key.

- **Primary key-**

- A Primary key is a field or a combination of two or more fields. The value in the primary key field for each record uniquely identifies that record.
- A primary key is a unique identifier for each record in a table. It is used to ensure that each record in a table can be uniquely identified and accessed.
- In the context of geodatabases, a primary key is used to link spatial data with non-spatial data. For example, a primary key can be used to link a parcel of land with its owner's name and address.

- **Foreign key-**

- When a "one" table's primary key field is added to a related "many" table in order to create the common field which relates the two tables, it is called a foreign key in the "many" table. For the "many" records of the Order table, the foreign key identifies with which unique record in the Customer table they are associated.

<https://www.youtube.com/watch?v=1XTXv1V3ag&list=PLoyECfvEFOjZn3kXgpuEqaXge5HoCDvp7>

Self-check-1

Name.....ID..... Date.....

Part I Write “true” if the statement is correct and “false” if the statement is in correct. (5 point)

1. DBMS is software for creating and managing databases.
2. Table is the basic data storage unit in a Relational database.
3. Relationships link data from individual tables to increase the usefulness of the database.

Part I Multiple choice (5 point)

1. What is the full form of DBMS?
 - a) Data of Binary Management System
 - b) Database Management System
 - c) Database Management Service
 - d) Data Backup Management System
2. Which of the following is a function of the DBMS?
 - a) Storing data
 - b) providing multi-users access control
 - c) Data Integrity
 - d) All of the above
16. What does an RDBMS consist of?
 - a) Collection of Records
 - b) Collection of Keys
 - c) Collection of Tables
 - d) Collection of Fields

3. _____ is a set of one or more attributes taken collectively to uniquely identify a record.
 - a) Primary Key
 - b) Foreign key
 - c) Super key
 - d) Candidate key

4. The traditional storage of data organized by the customer, stored in separate folders in filing cabinets is an example of _____ type of ‘database’ management system.
 - a) Object-oriented database management system
 - b) Relational database management system
 - c) Network database management system
 - d) Hierarchical database management system

PART III Short answer (8 point)

1. What is Microsoft Access database?
2. What is a database?
3. What are the advantages of DBMS?
4. What is RDBMS?

Operation sheet -1

OPERATION TITLE: -Create Database

1.1 Create a database from a template

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Once Access is open, click a template category button in the Available Templates section.
2. Click template button for the template you want to use.
3. Click the Create or Download button.

1.2 Creating a new blank database

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Once Access is open, click the Blank Database button in the Available Templates section.
2. Enter a name for the new database file in the File Name text box.
3. Click the Create button.

1.3 Create a new table in an existing database

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click File > Open, and click the database if it is listed under Recent. If not, select one of the browse options to locate the database.
2. In the Open dialog box, select the database that you want to open, and then click Open.
3. On the Create tab, in the Tables group, click Table.

1.4 Create a new blank table

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click the Create tab on the Ribbon and click the Table button in the Tables group.
2. To add a new field, click the Click the Add field heading and select the field type for the list that appears.
3. Once you have selected the field type, the new field will automatically be named in numerical order – Field1, Field2, Field3, etc.
4. Click in the field to enter the correct data for this particular field, or click the next Click to Add field heading to add another field.

1.5 Create a table in Design View

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click the Create tab on the Ribbon and click the Table Design button in the Tables group.
2. Enter a field name in the Field Name column, then click the Data Type list arrow and select a data type for the field. Repeat as desired.

1.6 Modifying a Table

Once you have created a table, you can modify it later by adding, deleting, and modifying its fields. In this lesson, we'll look at how to work with views, fields and data types.

1.7 Display a table in Design View

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Open the table in Datasheet View.
2. Click the Home tab on the Ribbon and click the View button in the Views group and select Design View.
3. In Design View, enter or edit a field name in the Field Name column,

4. Click in the Data Type column for that row,
5. Click the Data Type list arrow and select a data type for the field. Repeat as desired.

1.8 Modifying an existing lookup field

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Display the table in Design view.
2. Click the field name for a field that contains a lookup list based on a table or query, then click the Lookup tab in the Field Properties section.
3. Click the Row Source box.
4. Click the Row Source button.
5. Make the desired changes and then click the Query Builder window's Close button. Click Yes to save the changes.

1.9 Save table structure changes

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click the Save button on the Quick Access Toolbar.

1.10 create a primary key in Access

A. Tools and Equipment

iii. Safe working area

iv. computers with necessary accessories

B. Procedures

1. Open the table in Design view.
2. Select the field or fields that you want to use as the primary key.
3. Click the Primary Key button on the toolbar.
4. Save the table.

1.11 Create a new table by importing or linking to external data

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click **File > Open**.
2. In the **Open** dialog box, select and open the database in which you wish to create a new table.
3. On the **External Data** tab, in the **Import & Link** group, click one of the available data sources.
4. Follow the instructions in the dialog boxes that appear at each step.

1.12 Exiting a database

Close a database

A. Tools and Equipment

- i. Safe working area

- ii. computers with necessary accessories

B. Procedures

1. Click the File tab and select Close Database. The database closes. Exit Access

1.13 Creating relationships between tables

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click the Database Tools tab on the Ribbon and click the Relationships button in the Relationships group.
2. Click the Show Table button in the Relationships group.
3. Click the table you want to add and click add. Repeat as necessary
4. Click the Close button in the Show Table dialog box.
5. Click the related field in the first table and drag it to the related field in the second table.
6. Check the Enforce Referential Integrity (optional), and then click the Create button to create the relationship.
7. Click the Close button in the Relationships group on the Design tab and click yes to save the changes.

1.14 Adding a Primary Key to a Table

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Open the table you want to add a primary key to in Design view.
2. Click the name of the field you want to use as your primary key in the top part of the screen.
3. Under Table Tools on the Ribbon, click the Design tab and click the Primary Key button in the Tools group.

<https://youtu.be/rTngkZGo6jI?list=PLZNpHKhSuxaEQTyfY2bH4ZyKSBrfUHs9N>

<https://www.youtube.com/watch?v=ubmwp8kbPc>

Lap test-1

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary lab room, computer with full accessory devices, you are required to perform the following tasks within 2 hour.

- Task: 1.1** Create a new database from template.
- Task: 1.2** Create a new blank database.
- Task: 1.3** Create a table in an existing database
- Task: 1.4** Create a a design view
- Task: 1.5** modifying a table
- Task: 1.6** displaying a table in design view.
- Task: 1.7** modifying an existing lookup field
- Task: 1.8** save table structure table
- Task: 1.9** Create a primary key
- Task: 1.10** Create a new table by importing external data
- Task: 1.11** exiting a database.
- Task: 1.12** Create a new blank database.
- Task: 1.13** Create a relationship between tables

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LG#30	LO#2 Customizing basic settings
Instruction sheet-2	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> • Accessing toolbar • Page layout and font format adjustment <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> • Access toolbar • Perform page layout and font format adjustment 	
Learning Instructions:	
<ol style="list-style-type: none"> 1. Read the specific objectives of this Learning Guide. 2. Follow the instructions described below. 3. Read the information written in the information Sheets 4. Accomplish the Self-checks 5. Perform Operation Sheets 6. Do the “LAP test” 	

Information sheet-2

2.1 Accessing toolbar

- Tool bars.

The Toolbox contains a set of controls that are used to receive user input and display output on a form at design time. Controls have own set of properties, methods and events. Properties define aspects of their appearance such as size, color etc and aspects of their behavior such as their response to the user input. A method is an action that can be performed on objects.

The Quick Access Toolbar is a toolbar adjacent to the ribbon that allows one-click access to commands. The default set of commands include **Save**, **Undo**, and **Redo**, and you can customize the Quick Access Toolbar to include other commands that you use often. You can also modify the placement of the toolbar and change it from the default small size to large size. The small toolbar appears next to the command tabs on the ribbon. When you switch to the large size, the toolbar appears below the ribbon and extends its full width. The idea of using quick access toolbar is to have all the commands that you frequently use in one place so that you don't need to move from tab to tab to find those commands. On the quick access toolbar, you can add options that you use frequently to access them easily.

Figure2.1 toolbox



2.2 Page layout and font format adjustment

- Page layout

Page Layout Tab holds all the options that allow you to arrange your document pages just the way you want them. You can set margins, apply themes, control of page orientation and size, add sections and line breaks, display line numbers, and set paragraph indentation and lines.

To adjust page layout in MS Access, you can use the “Page Setup” dialog box. You can access it by clicking on the “Page Setup” button in the “Print Preview” tab. From there, you can adjust the margins, orientation, and other settings to fit your needs.

- Formatting Fonts

To adjust page layout in MS Access, you can adjust the font size, color and type.

Label-A Label control is a graphical control which is used to displays text that user can not modify directly.

On a Form

1. Open a form in design view
2. Click the Label tool in the toolbox.
3. Click the section on the form where you want to place the label.
4. Set other properties to customize the visual appearance of the label and its contents.

* To set properties for control click the control and then click Properties on the toolbar.

Text Box-Textbox control sometimes called an edit field or edit control is used to display information at design time or assigned to the control in code at run time.

On a from

1. Open a form in design view
2. Click the Text box in the Toolbox.
3. Click in detail section where you want to place the textbox.
4. Set other properties to customize the visual appearance.

* To set properties for control click the control and then click Properties on the toolbar.

<https://www.youtube.com/watch?v=PVVFl4RGYFc&pp=ygUTZnVsbCBtscyBhY2Nlc3MgRk9STQ%3D%3D>

<https://www.youtube.com/watch?v=9wrLKR961Bw&pp=ygUUZnVsbCBtscyBhY2Nlc3MgRk9SRU0%3D>

Self-check-2

Name.....ID..... Date.....

Part I: Short answer (30 point)

- 1 What is Page Layout?
- 2 How many page Layouts can be assigned to a profile on a object?
- 3 What we can control using page Layout?
- 4 How to add Custom button on the Page Layout?
- 5 What's the purpose of the Toolbox?

Operation sheet -2

OPERATION TITLE: - Customizing basic settings

2.1 Accessing toolbar

A. Tools and Equipment

- iii. Safe working area
- iv. computers with necessary accessories

B. Procedures

1. Open Microsoft Access.
2. Click on the “File” tab in the top left corner of the screen.
3. Click on “Options” in the left-hand menu.
4. In the “Access Options” window that appears, click on “Customize Ribbon”.
5. In the right-hand pane of the window, you should see a list of available tabs and commands.
6. Check the box next to “Toolbar” to enable it.
7. Click “OK” to save your changes.

2.2 Customize the Quick Access Toolbar

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Click the rightmost drop-down arrow in the toolbar.
2. Under **Customize Quick Access Toolbar**, click the command that you want to add, and you are done.
3. Or, if the command is not listed, click **More Commands**, and proceed to the next step of this procedure.

4. In the **Access Options** dialog box, select the command or commands that you want to add, and then click **Add**.
5. To remove a command, highlight it in the list on the right, and then click **Remove**. Alternatively, double-click the command in the list.
6. Click **OK** when you are done.

2.3 Adjusting Page layout

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. To adjust page layout in MS Access, you can use the “Page Setup” dialog box.
2. You can access it by clicking on the “Page Setup” button in the “Print Preview” tab.
3. From there, you can adjust the margins, orientation, and other settings to fit your needs.

2.4 Formatting Fonts

A. Tools and Equipment

- iii. Safe working area
- iv. computers with necessary accessories

B. Procedures

1. Click the control that contains the text you want to format.
2. Click the Format tab on the Ribbon under Report Layout Tools,
3. Click the Font Size list arrow in the Font group, and select the desired font size.

2.5 Changing font type

A. Tools and Equipment

- v. Safe working area
- vi. computers with necessary accessories

B. Procedures

1. Click the control that contains the text you want to format.
2. Click the Format tab on the Ribbon under Report Layout Tools,
3. Click the Font list arrow in the Font group, and select the desired font.

2.6 Formatting text with bold, italics, or underlining

A. Tools and Equipment

- vii. Safe working area
- viii. computers with necessary accessories

B. Procedures

1. Click the control that contains the text you want to format.
2. Click the Format tab on the Ribbon under Report Layout Tools and click the Bold, Italics, or Underline button in the Font group.

Working with Number Formatting

1. In Layout View, click the field you want to format.
2. Click the Format tab under Report Layout Tools on the Ribbon and click one of the buttons in the Number group.

2.7 Formatting Text Fields

A. Tools and Equipment

- ix. Safe working area
- x. computers with necessary accessories

B. Procedures

1. Make sure the table is displayed in Design view and click the text field you want to format.
2. Click the Format box in the Field Properties section.
3. Enter the appropriate text formatting symbols.

2.8 Formatting Number, Currency, and Date/Time Fields by Hand

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Make sure the table is displayed in Design view and click the field you want to format.
2. Click the Format box in the Field Properties section.
3. Enter the appropriate formatting characters or symbols for how you want the date or number to be formatted

Lap test-2

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary lab room, computer with full accessory devices, you are required to perform the following tasks within 2 hour.

Task: 1.1 Access tool bar

Task: 1.2 Customize the Quick Access Toolbar

Task: 1. 3 Adjusting Page layouts

Task: 1.4 Formatting Fonts

Task: 1.5 Change font type

Task: 1.6 Format texts with bold, italics, or underlining.

Task: 1.7 Formatting Text Fields

Tas1.1.8: Formatting Number, Currency, and Date/Time Fields by Hand

LG #31	LO #3 Creation of forms and reports
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Instruction sheet
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> • Designing and modifying report • Documentation and distribution of report • Opening and modifying existing database in simple form <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> • Design and modify report. • Document and distribute report. • Create form using wizard • Open and modify existing database
Learning Instructions:
<ol style="list-style-type: none"> 1. Read the specific objectives of this Learning Guide. 2. Follow the instructions described below. 3. Read the information written in the information Sheets 4. Accomplish the Self-checks 5. Perform Operation Sheets 6. Do the “LAP test”

Information sheet -3

3.1 Report

▪ What can you do with a report

Reports present information from tables and queries in a format that looks great when printed.

Reports can also summarize and analyze the information in your database

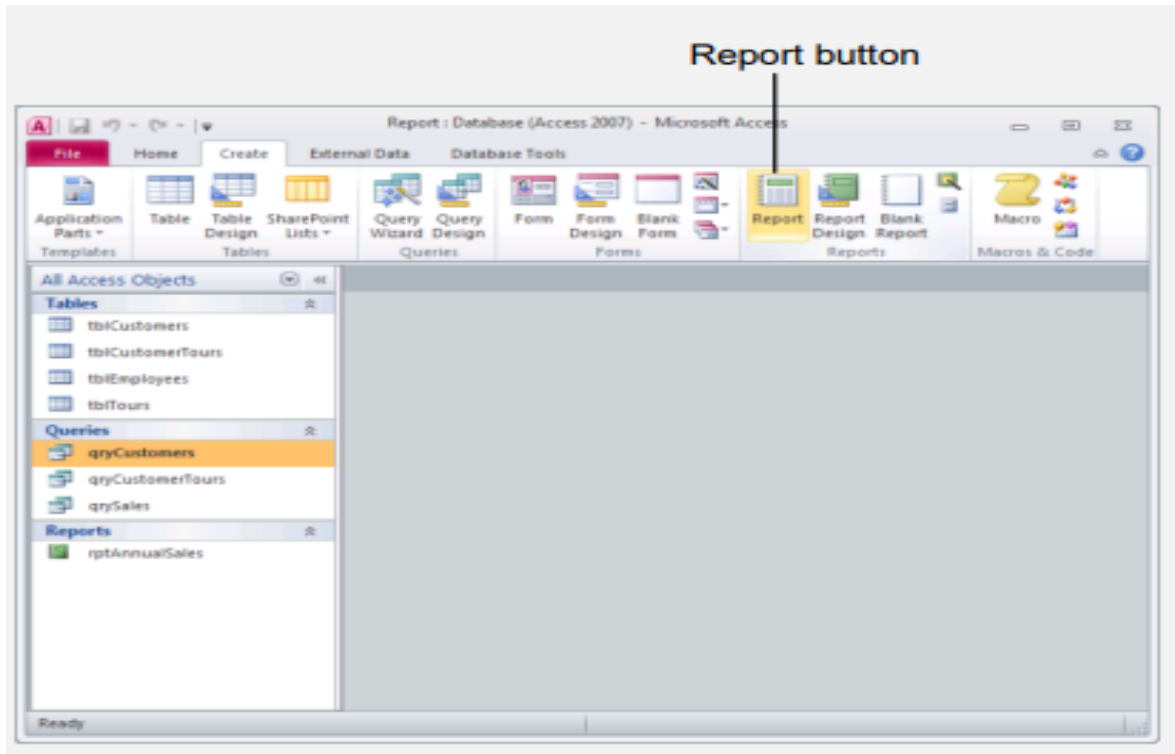
Reports offer a way to view, format, and summarize the information in your Microsoft Access database. A report is a database object that comes in handy when you want to present the information in your database for any of the following uses:

- Display or distribute a summary of data.
- Archive snapshots of the data.
- Provide details about individual records.
- Create labels.

Like forms, reports give people easy access to the information stored in a database. However, there are several differences between forms and reports, including the following:

- Forms are used to enter, view, and edit information. Reports are used only to view information.
- Forms are usually displayed on-screen. Reports can be previewed on the screen, but they are usually printed.
- Forms generally provide a detailed look at records and are usually for the people who actually work with the database. Reports are often used to group and summarize data, and are often for people who don't work with the database but who use the information stored in the database for other business tasks.

Figure: 1.5 creating a report based on the qryCustomers query with the Report button

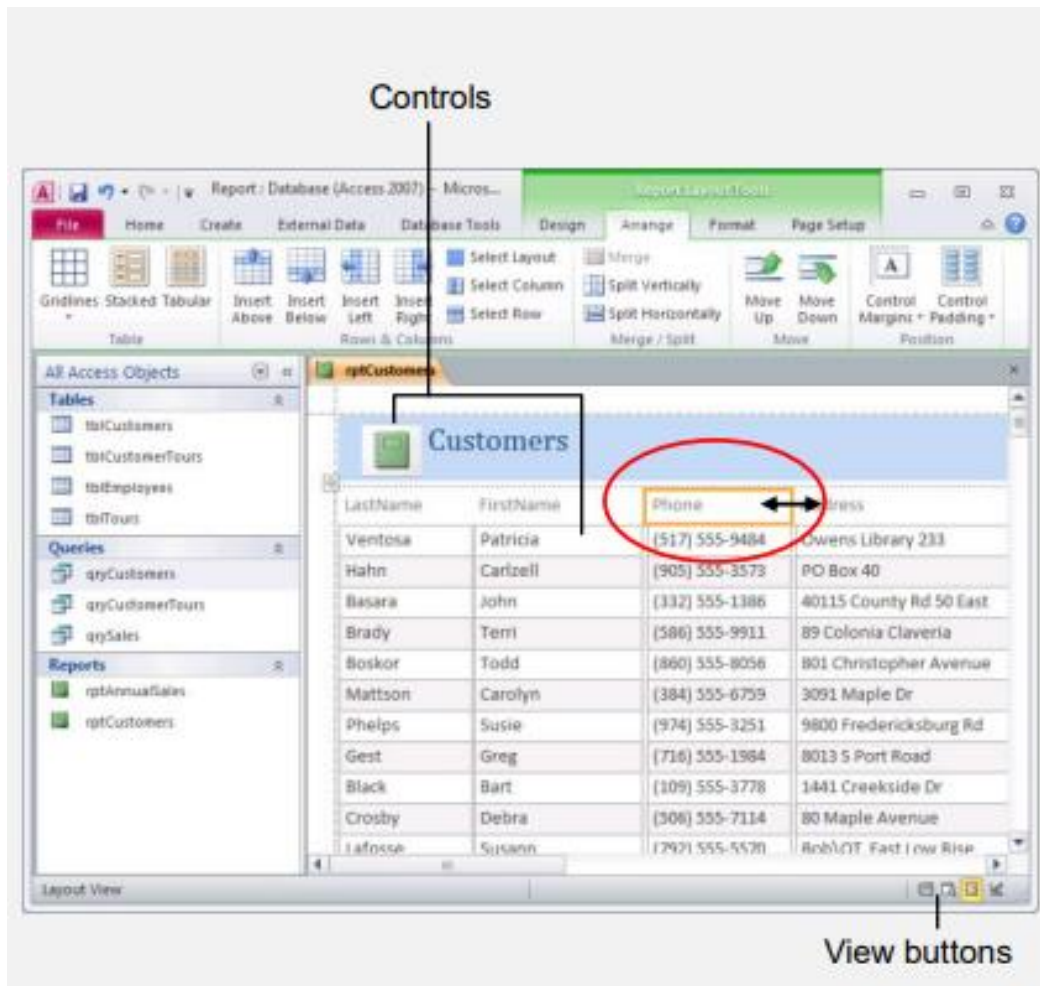


▪ Modify Reports

You can easily move and resize columns of data or individual controls such as labels or logos simply by clicking and dragging them with the mouse. You can also delete these items with the press of a key.

- ✓ In Layout View, data is grouped together in columns and rows by Access so that it can be easily modified together.
- ✓ **Resize:** Click and drag the right or left border of a column or control to make it larger or smaller.
- ✓ **Move:** Click and drag a column's heading to a new location to move a column, or simply click and drag a control to a new location.
- ✓ **Delete:** Select a column or control and press the <Delete>key.

Figure 9-3: Resizing a column in Layout View.



■ Distribute a report

Liberate your Access reports and distribute them far and wide. For example, email them to one or more users, export them to SharePoint document libraries, and archive them on network folders. When you distribute an Access report, you create a static report of data at a certain moment in time, such as daily, weekly, or monthly. By doing so, you have a single point of truth that information workers can use to make good business decisions, answer questions, find alternatives, determine best plans, evaluate risks, and improve quality.

3.2 Form

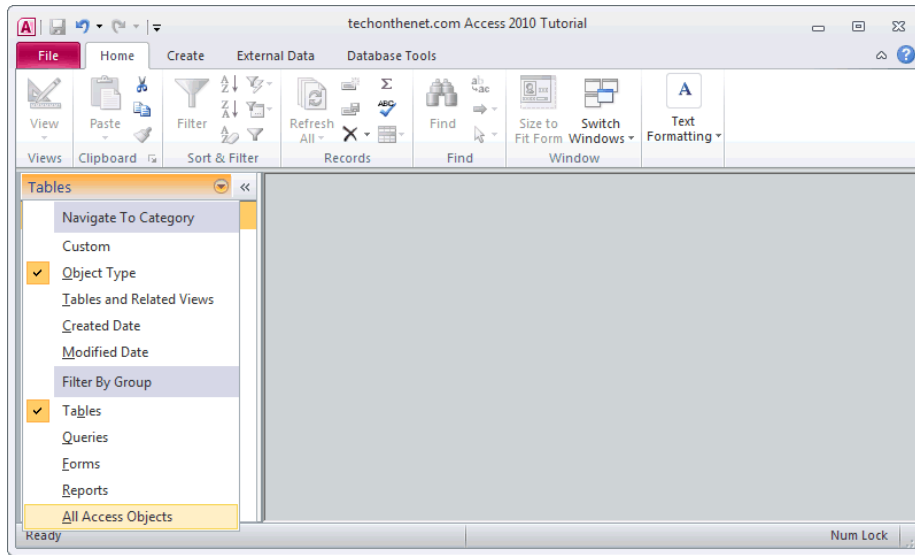
▪ Basics of form

A form is a graphical representation of a table. Generally a form is created to enter data efficiently and accurately in a table. It is like a window into a table, designed to display the data. Forms can be designed to show all or some of the fields in a table or to combine the fields from two or more tables. All sorts of people need to add and review data quickly and effectively. Entering data in a form is more efficient than entering it in a table. A visually attractive form makes working with the database more pleasant and more efficiently.

In Access 2010, a **form** is an object that generally serves three purposes:

1. To allow users to perform data entry. Data can be inserted, updated, or deleted from a table using a Form object.
2. To allow users to enter custom information, and based on that information perform a task. For example, you may want to ask a user for parameters before running a report.
3. To allow users a method of navigating through the system. For example, you may create a form where a user can select a form to load, a report to run, etc.

You can view all of your form objects in the Navigation Pane. To do this, click on the Navigation Pane menu and select "*All Access Objects*" from the popup menu.



The Navigation Pane should now display all of the objects in the database including the forms.

■ Creating a Form

Creating Form Access offers two main methods of creating a new form.

1. Design view.

2. Form Wizard

Creating Form in Design View

Design view is the best way to create a form when you want full control and complete freedom.

In Design view, everything is up to you.

To start working in Design view:

1. In the database window click Forms under Objects.
2. Click the New button on the Database window toolbar.
3. In the New Form dialog box click Design View to select this method.
4. Click the name of the table or other record source that includes the data you want to base your form on.
5. Click OK.

Creating Form by using Wizard


The Form Wizard is best when you want to be guided step by step through the process of creating a form. The Form Wizard asks you questions and creates a form based on your answers.


You will need to tell the wizard:


- ✓ Which table or query the form data comes from?
- ✓ Which fields to use on the form?
- ✓ Which form layout to apply?
- ✓ Which visual style to apply?


To create form using wizard:


1. In the database window click Forms under Objects.
2. Click the New button on the Database window toolbar.
3. In the New Form dialog box click one of the following wizards:

 **AutoForm:** Columnar each field appears on a separate line with a label to its left.

 **AutoForm:** Tabular the fields in each record appear on one line, with the labels displayed once at the top of the form.

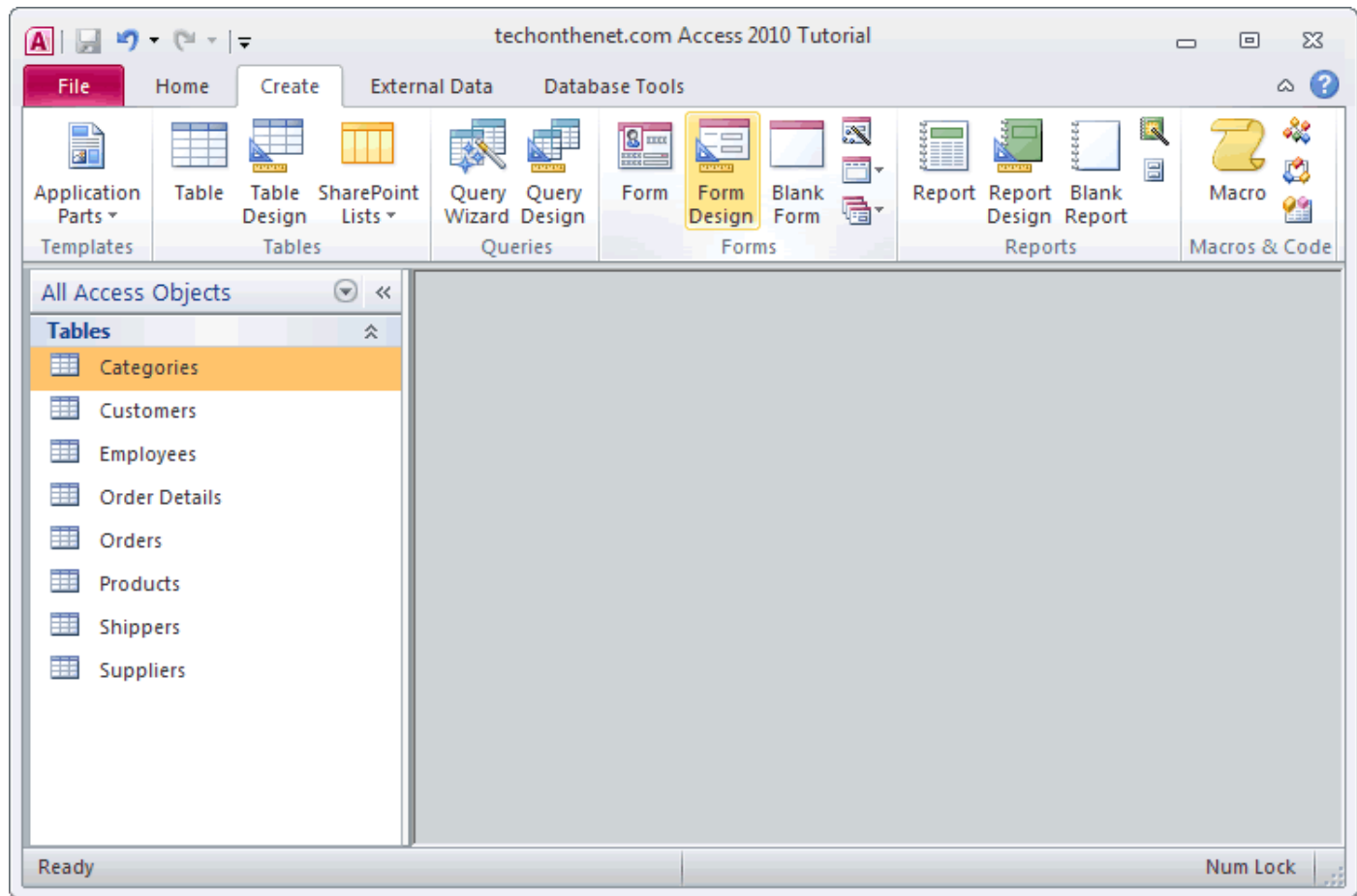
 **AutoForm:** Datasheet the fields in each record appear in row-and-column format, with one record in each row and one field in each column. The field names appear at the top of each column.

 **AutoForm:** PivotTable the form opens in PivotTable view. You can add fields by dragging them from the field list to the different areas in the view Office Automation and MS Office 261

 **AutoForm:** PivotChart the form opens in PivotChart view. You can add fields by dragging them from the field list to the different areas in the view.

4. Click the table or query that includes the data you want to base your form on.
5. Click Ok

Figure 3.1form



Self-check-3

Name..... ID..... Date.....

PART I Short answer (15 point)

- 1 Define report?
- 2 How to modify report?
- 3 Describe the purpose of form?
- 4 What are the two methods of creating design view of form?

Operation sheet -3

OPERATION TITLE: Creation of forms and reports

3.1. Display a report in Design View

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Right-click the report in the Navigation Pane and select Design View.
2. Display the report in Design or Layout View. 2. Click the Design tab on the Ribbon and click the Group & Sort button in the Grouping & Totals group.
3. Click the Add a group or Add a sort button in the Group, Sort and Total pane and select a field for grouping records
4. Select options you want to use by clicking on the option on the group or sort level.

3.2. creating and distribute a report on MS Access

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

1. Open the Access database that contains the data you want to report on.
2. Click on the “Create” tab in the ribbon.
3. Click on “Report Wizard” in the “Reports” section.
4. Follow the prompts in the Report Wizard to select the fields you want to include in your report and choose a layout.
5. Once you have created your report, click on “File” in the ribbon.

6. Click on “Save & Publish” and choose how you want to publish your report.

3.3. Create report in simple wizard

A. Tools and Equipment

- i. Safe working area
- ii. Computers with necessary accessories

B. Procedures

1. With All Access Objects displayed in the Navigation pane, under Tables, click (don’t double-click) Categories.
2. On the Create tab, in the Reports group, click the Report button

3.4. Working in Layout View

A. Tools and Equipment

- i. Safe working area
- ii. Computers with necessary accessories

B. Procedures

- a. Change report view
 1. Click Home tab on the Ribbon and click the View button list arrow in the View group.
 2. Select a view ,change the report view and Click one of the view buttons on the Status bar
- b. Work with report layouts
 1. Click the Arrange tab on the Ribbon.
 2. Click a command in the Control Layout group.
- c. Creating a Form with the Form Wizard

1. Click the Create tab on the Ribbon, click the Form Wizard button in the Forms group.
2. Click the Tables/Queries list arrow and select the table or query you want to use to create your form.
3. Double-click the fields that you want to appear on the form. Click Next when you're finished.
4. Select the layout you want to use for the form and click Next.
5. Enter a title for your form in the text box and select to either open the form or modify the form's design. Click Finish.

Access creates a report based on all the fields in the Categories table, displays the report in Layout view, and adds four Report Layout Tools contextual tabs to the ribbon.

1. This is not the report we want, so close the Categories report, clicking No when prompted to save it.
2. On the Create tab, in the Reports group, click the Report Wizard button.
3. Display the Tables/Queries list, and then click Table: Products.
4. In the Available Fields list, double-click ProductName, QuantityPerUnit, and Units In Stock to move them to the Selected Fields box.
5. At the bottom of the page, click Next.
6. In the field list on the left, double-click ProductName.
7. In the lower-left corner of the page, click Grouping Options.
8. Display the Grouping intervals list, click 1st Letter, and then click OK.
9. Then click Next.
10. Click the arrow to the right of the 1 box to display a list of fields, and click ProductName. Then click Next.

11. In the Layout area, click each option in turn to see a preview in the report thumbnail to the left.
12. When you have finished exploring, click Outline.
13. With Portrait selected in the Orientation area and the Adjust the field width so all fields fit on a page check box selected, click Next.
14. In the title box, type Alphabetical List of Products, and then with Preview the report selected, click Finish.

Accessed date 04/05/2023 Create Simple Reports in Microsoft Access 2010 | Microsoft Press Store

Working in Layout View

A. Tools and Equipment

- i. Safe working area
- ii. Computers with necessary accessories

B. Procedures -Adding additional fields to a form

1. Select the Design tab, and then locate the Tools group on the right side of the Ribbon.
2. Click the Add Existing Fields command.
3. The Field List pane will appear. Double-click the desired field(s).
4. The field will be added.

3.5. To hide a field:

1. In either **Layout** or **Design** view, select the **Design** tab, then locate the **Tools** group. Click the **Property Sheet** command.

2. The Property Sheet will appear in a pane on the right. On the form, select the field you want to hide. In our example, we'll hide the Customer ID field because we don't want any of our users to try editing it.
3. In the Property Sheet, click the All tab, then locate the Visible option on the fifth row.
4. Click the drop-down arrow in the column to the right, then select No.
5. Switch to Form view to verify that the field is hidden.

LG #32

LO #4- Retrieval of information

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Accessing and locating existing database
- Creating simple query
- Developing query with multiple criteria
- Deploying standby database
- Selecting and displaying data

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Access and locate existing database
- Create simple query
- Develop query with multiple criteria
- Deploy standby database
- Select and display data

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”

Information sheet-4

4.1 Accessing and locating existing database

To open an existing database choose open an Existing Database from "Task Pane" appear on the right-hand side of the screen, select More Files then navigates to the drive, highlight the existing database file on disk and click the open button to open the database.

4.2 Creating simple query

Queries are a fundamental means of accessing and displaying data from tables. Queries used to view, update, and analyze data in different ways. Queries can access a single table or multiple tables.

A query can either be a request for data results from your database or for action on the data, or for both. A query can give you an answer to a simple question, perform calculations, combine data from different tables, add, change, or delete data from a database.

A query is a way of extracting specific data or information from a database. As you know tables store all information in database, if you want to view only selected fields and records in a database, you use query

For example, you want to view a list of employee id and name, but you do not want to see phone number and other data, you can create a query that displays the employee's id and name only. Alternatively, if you want to know which employee lives in Dhaka, you can restrict your list to those employees. We will know how to create query in this lesson.

4.3 Developing query with multiple criteria

The longer you work with Access, the more you will want to analyze your data. Before long you will want to create queries that match two or more conditions, such as "Which people have bought our products AND live in Michigan?" You might also want to create a query that matches only one of several conditions, such as "Which people have bought our beach balls OR water rafts?" To that end, this lesson introduces AND and OR operators:

- AND narrows your query, making it more restrictive. For example, you could filter for employees who are from Washington AND who have been with the company for more than five years. To create an AND query, enter the criteria for the fields on the same Criteria row of the design grid.
- OR relaxes your query, so that more records match. For example, you could filter for employees who are from California OR Minnesota. To create an OR query, enter the criteria for the fields on different Criteria rows of the design grid

http://www.ebookbou.edu.bd/Books/Text/SST/DCSA/dcsa_1302/Unit-10.pdf

https://youtu.be/gW_8VgKCO2M

Self-check-4

Name..... ID..... Date.....

PART I Short answer (15 point)

- 1 Define Query?
- 2 Compare and contrast form and query?
- 3 Describe the purpose of query?

Operation sheet 4

OPERATION TITLE: -Retrieval of Information

2.1. Displaying a report in Design View

A. Tools and Equipment

- i. Safe working area
- ii. computers with necessary accessories

B. Procedures

2.2. procedures

To create a query in Design View

1. Click the Create tab on the Ribbon and click the Query Design button in the Queries group.
2. Select the table you want to add to the query and click Add.
3. Repeat Step 2 as necessary for additional tables or queries, and click Close.
4. In the field list, double-click each field you want to include in the query.
5. In the design grid, enter any desired search criteria for the field in the Criteria box.
6. Click the Save button on the Quick Access Toolbar, enter a name for the query in the Save As dialog box and click OK
7. Click the Design tab under Query Tools on the Ribbon and click the Run button in the Results group.

To save a query:

1. Click the Save button on the Quick Access toolbar. Access saves the query unless you are saving for the first time. If you are saving for the first time, the Save As dialog box appears.
2. Type the name you want to give your query.
3. Click OK. Access saves the query. You can now access the query by using the Navigation pane.

To Retrieve All Records and All Fields

1. Open query in Query Design view.
2. Click the down-arrow in the first field on the Field row () and then select the tablename.* (emp. *) option. The table name appears on the table line.

3. Click the Run () button. Access retrieves all of the fields and records for the table and displays them in Datasheet view like as follows.

Sorting a Query

1. Display the query in Design view.
2. Add the field you want to use to sort the query to the design grid, along with any other fields you want to appear in the query results.
3. Click the Sort list arrow for the first field you want to use to sort the query, then select a sort order.
1. Repeat Steps 2-3 for each additional field you want to use to sort the query, bearing in mind that the fields will be sorted from left to right.
2. Save and run the query.

Use AND or OR criteria in queries

1. Display the query in Design View.
2. Enter your criteria in the appropriate field's first Criteria box.
3. Enter additional criteria as follows:
 - AND: Enter additional criteria for one or more fields in the appropriate field's "Criteria" box. All AND criteria should appear on the same row.
 - OR: Enter additional criteria for one or more fields in the appropriate field's "or" box, using a different row for each OR criteria.
4. Save and run the query.

To apply multiple criteria:

1. Open a query in Query Design view.
2. Select the Show button for columns you want to display.
3. Enter your selection criteria on the Criteria line and or line as needed.
4. Click the Run button. Access retrieves the columns you chose and displays the rows.

https://youtu.be/LUL1nnxUz_c

Lap test-4

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary computer and its accessories you are required to perform the following tasks within 10 hours.

Task 1: Display a report in Design View

Task 2: To create a query in Design View

Task 3 save a query:

Task 4: Retrieve All Records and All Fields

Task 5: Sorting a Query

Task 6: apply Use AND or OR criteria in queries

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