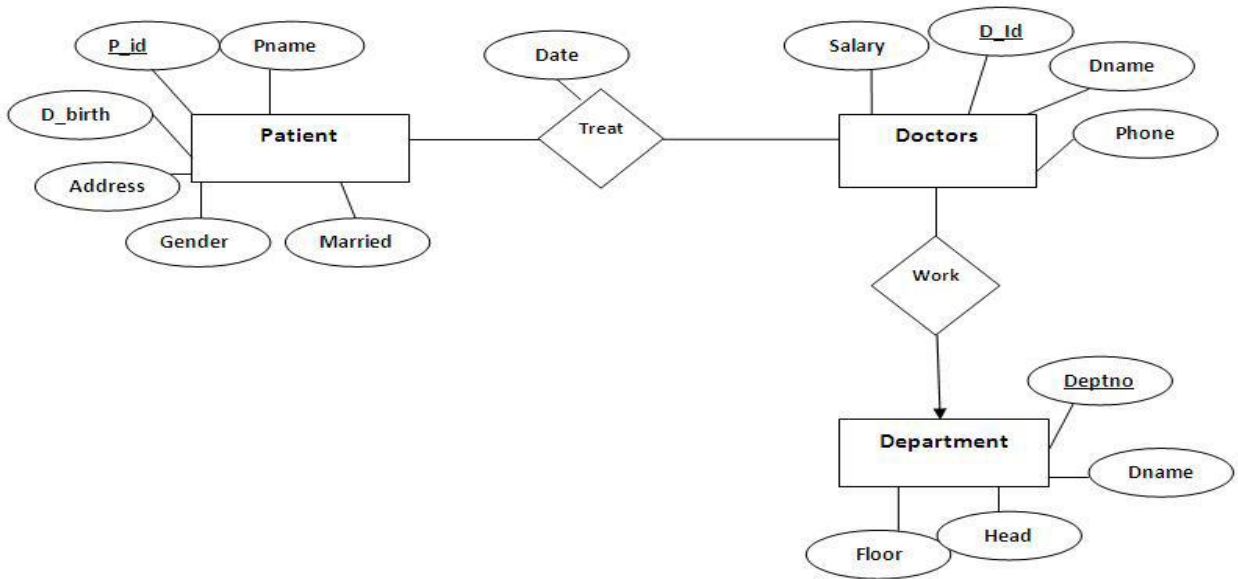
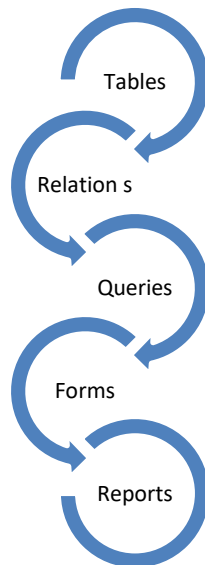


Microsoft Access

A Sample ERD Diagram from a Hospital Database:



Access Objects



1. Tables

Patients Table:

Field	Type	Properties
P_ID	Number	Primary Key (Unique , Not Null)
Pname	Short Text	Field size : 30 Required : yes
Entry_Date	Date/Time	Format: Short Date Default value: = Date () Caption : Entry Date
Address	Short Date	Field size: 20 Default Value: "Amman" Required : No
Gender	Lookup Field	Male ,Female
Married	Yes/No	Default value : No

Doctors Table

Field	Type	Properties
D_Id	Number	Primary Key
D_name	Short Text	
Salary	Currency	Format: Fixed Decimal Places: 2 Validation Rule ≥ 300 and ≤ 1500 Validation Text Salary must be between [300,1500]
Phone	Short Text	

Department Table

Field	Type	Properties
Deptno	Number	Primary Key
DeptName	Short Text	Field Size : 30 Required : Yes
Head	Short Text	
Floor	Lookup Field	1 or 2 or 3 or 4

Additional Fields Properties:

1. Validation Rule:

Examples

0	<> 0	>=6	Rana or Rasha or Dana	>=100 and <=400	Between 400 and 700
---	------	-----	-----------------------	-----------------	---------------------

2. Validation Text: a text message that will appear when the validation rule is violated.

3. Indexes: The number of indexes?

4. Lookup field:

a. Limit to list property value for a certain lookup field.

b. Which field is a lookup field?

Relations

A common field between two or more tables.

There are Four types of Relations:

1. **One to One:** Primary Key /Primary Key
2. **One to Many:** Primary Key /Non-Primary Key
3. **Many to Many:** Needs a junction table.
4. **Indeterminate:** Non-Primary key / Non-Primary key.

Note :

The common fields (relationship fields) : do not need to have the same names, but they must have the same data type and contain the same kind of information(have the same meaning).

One to Many :

each doctor works in one (or zero) department and the department may have many (including zero) doctors.

Department

<u>Deptno</u>	DeptName	Head	Floor
---------------	----------	------	-------

Doctors

<u>D_id</u>	D_Name	Salary	Phone	Deptno(FK)
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Database Tools → Relationships

1. Primary table : department
2. Related table : doctors
3. Common field/relationship field : deptno-deptno.
4. Relationship type : One to Many

Many to Many

Each patient may be treated by many (including zero) doctors and the doctor treats many patients (including zero).

Doctors

<u>D_id</u>	D_Name	Salary	Phone	Deptno(FK)
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Patient

P_ID	PName	Entry_Date	Address	Gender	Married
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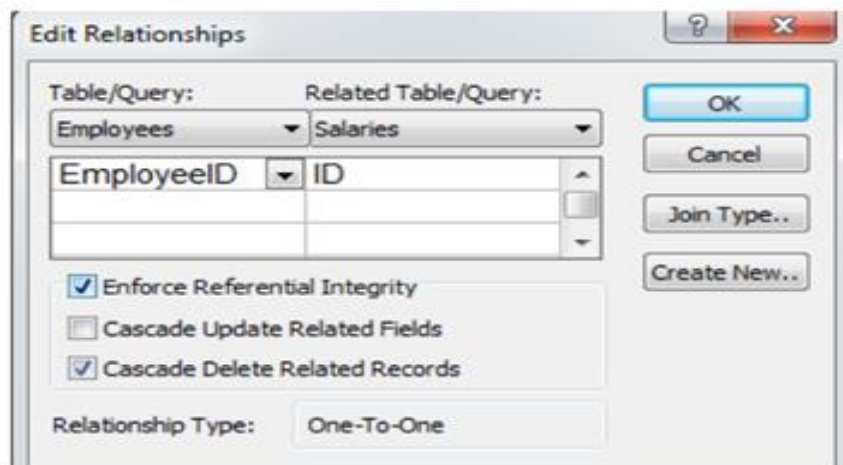
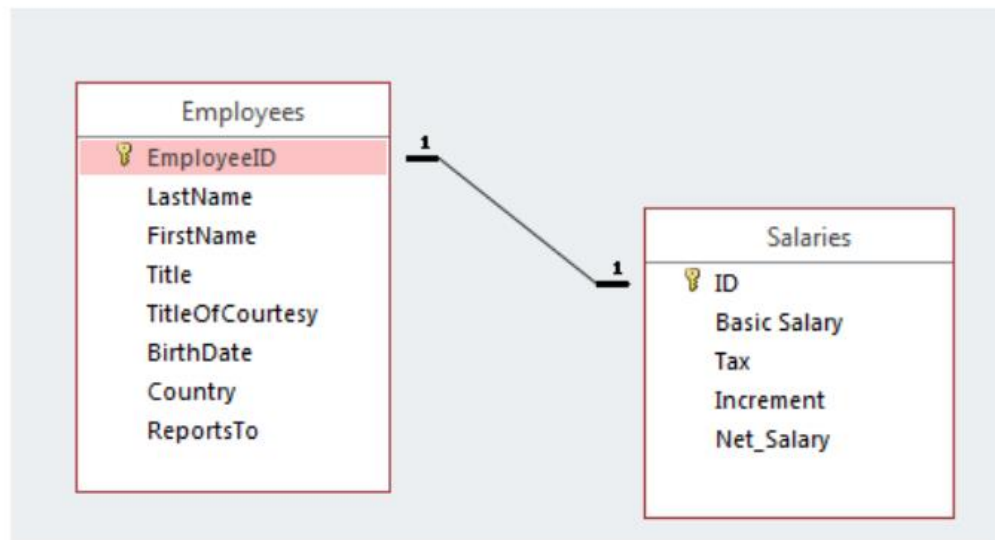
Patient Doctor

<u>D_id</u>	<u>P_id</u>	<u>Treat_Date</u>
-------------	-------------	-------------------

- Needs a junction table: has a composite primary key.
 - Primary table: doctor, patients tables
 - Related: treatment (patient _doctor) (junction table)
-

One to One

Each employee has one salary and a certain salary is for one employee.

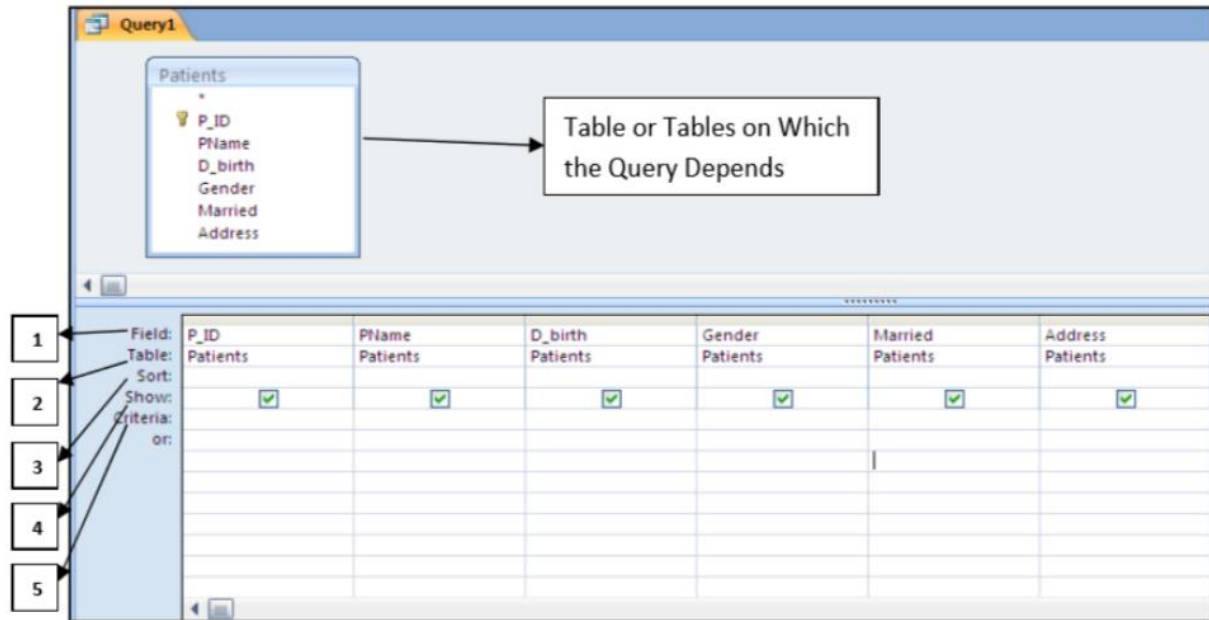


1. primary table : Employees
2. Related table : Salaries
3. Common field /relationship field : EmployessID – ID.
4. Relationship type : One to one

Indeterminate:

A relationship between two fields that neither of them is primary key .

2. Query



1. **Field:** is the field name from the table on which the query depends.
2. **Table:** the name of the table from which the field is taken.
3. **Sort:** it has two choices either ascending or descending; it is used to sort the records according to certain field.
4. **Show:** means the field will be shown when executing the query, means the field will be hidden when executing the query .
5. **Criteria:** it is the place where we write condition(s) on certain field(s) .

Using the Query Design, create each of the following queries:

Simple (one condition) (=, <>, >, <, >=, <=)

1. Create a query on table Patient to display the Patients information.
2. Create a query on table Patient to display the Pname and Entry_date.
3. Create a query on table Patient to display the P_Id and Pname for Gender =Female.

4. Create a query on table Doctors to display doctors whose salary is greater than 400.
5. Create a query on table patients to display the married patients

Query (And, or) more than one condition

6. Create a query on table Doctors to display the names of the doctors (D_name) for doctors with salary is between 400 and 600, and the deptno is > 4
7. Create a query on table patients to display the Pname and married for the patients whose Address is Amman or gender is female.

Using Dates

(**After** → >#2/2/2004# , **On or After** → >=#1/5/2011# , **Before** → < #3/3/2004# , **On or Before** → <=#1/7/2006# , **In Year 2011** → between#1/1/2011# and#31/12/2011# , **on May 2011** → between #1/5/2011# and #31/5/2011#) .

8. Create a query on Patients table to display the patient name(Pname) for patients whose Entry Date is on 19/5/2000. (#19/5/2000#).
9. Create a query on Patients table to display the patient ID (P_ID) for patients whose Entry Date is after 1/1/2002. (>#1/1/2002#).
10. Create a query on Patients table to display the patients information for patients whose Entry Date is in year 2009 . (between #1/1/2009# and #31/12/2009#).

Sorting

11. Create a query on Patients table to sort the patients in ascending order according to Pname.
12. Create a query on table Doctors to sort the Doctors is descending order according to Dname where deptno is equal to 3.

Query on more than one table

13. Create a query on tables doctors and patients display the Pname with the Dname.
14. Create a query on tables doctors and patients display the Pname with the Dname for patients whose Address is Amman.

15. Create a query on tables doctors and department to display the D_name with the DeptName.

Sum, max, min, count, average, group by

16. Create a query on table Doctors to display the Max salary.

17. Create a query on table Doctors to display the Min salary in each deptno.

Calculated field

18. Create a query on table doctors to display the D_name with the annual salary.

Annual Salary: [Salary] *12

Parameter query

19. Create a query to display the patients information after entering the patient ID.

You also need to know the following from a query that is already created:

1. The table/tables on which the query depends.
2. The number of fields that are used to design the query.
3. The number of fields that will be displayed after executing the query.
4. The criteria used in the query.
5. The number of records in the query.

3. Forms (already created)

- **The number of records:**

Right click → open

- **The table on which the form depends:**

Right click → design → add existing fields

(If the name of the table is not displayed remember show all tables)

- **Form Sections**

Note: Please Refer to the Sections Form in the Access Training File.

Form Section	Form View /(opened form)	Print Preview(Printed form)
Form Header	At the top of the screen	At the top of the first page only
Page Header	hidden	At the top of every printed page
Details	With each record	With each record
Form footer	At the bottom of the screen	After the last detail(record)
Page footer	Hidden	At the bottom of every page

Form Controls:

Study form **Controls Form** in the Access Training File.

Controls	
Label	Right click on the control → properties Remember : the label is always unbound .
Textbox	Right click on the control → properties . Remember : <ol style="list-style-type: none"> 1. Unbound (doesn't exist in add existing fields) 2. Bound (exists in add existing fields) 3. Calculated (contains a formula) Examples : =Now() =Date() =sum([price]) =max([price]) =min([price]) =avg([price])
Command Button	Right click on the control → properties. Remember : to know the functionality of a certain command button (right click on the form → open , then put the mouse over the command button → you will see the functionality in a tooltip)
Combo Box	Right click on the control → properties .
Check Box	Right click on the control → properties .

4. Reports (already created)

1. The number of pages in the report.

(File → print → print preview)

2. The name of the table on which the report depends

(Right click → design → add existing field)

Field type(table)	Control type (form)
Look up wizard	Combo box
Yes /no	Checkbox
Date ,text,number,currency	Textbox

3. Report Sections:

Report header, report footer, page header, page footer, and detail section

(The same concepts as in the Form sections)

- a. **Report header:** at the top of the first printed page only.
- b. **Report footer :** after the last record .
- c. **Page header :** at the top of every printed page .
- d. **Page footer :** at the bottom of every printed page .
- e. **Detail :** with every record.

4. Grouping: additional section in the report.

5. Controls :(same as forms).