

Kingdom of Saudi Arabia

Princes Nourah University

Computer Science and

Information technology



Faculty of Community College

SQL Server Database Design &  
Implementation Management  
system

CCSA 224 T

Write your project title

اكتب عنوان المشروع

## EMPLOYEE MANGMENT

STUDENT NAME	STUDENT ID
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اسم الاستاذة

فدي محمد أبو حميد

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## Introduction

### Introduce your project

اكتبي مقدمه ووصف للمشروع

## Employee Management

The system organizes and tracks employees, departments, divisions, and projects to streamline resource management.

### Key Features:

Departments: Managed by divisions and defined by ID and name.

Employees: Fixed or rovers, with detailed records (ID, name, contact, etc.).

Divisions: Oversee multiple departments, run by one employee, and defined by code and name.

Projects: Employees can work on multiple projects, defined by code and name.

Objective: Simplify resource allocation, track performance, and provide actionable insights for efficient management.

## Part 1- Conceptual Phase:

write a description of the EER model

1. EMPLOYEE (entity ): (Emp\_id(PK),Emp\_mobile,Emp\_adress,Emp\_grade)

ROVERS (entity):Emp\_id(FK)

FIXED (entity):Emp\_id(FK)

2. DIVISION (entity):(Div\_code(PK),Div\_Name,Number\_Department)

3. DEPARTMENT (entity):(Dep\_num(PK),Invo\_name)

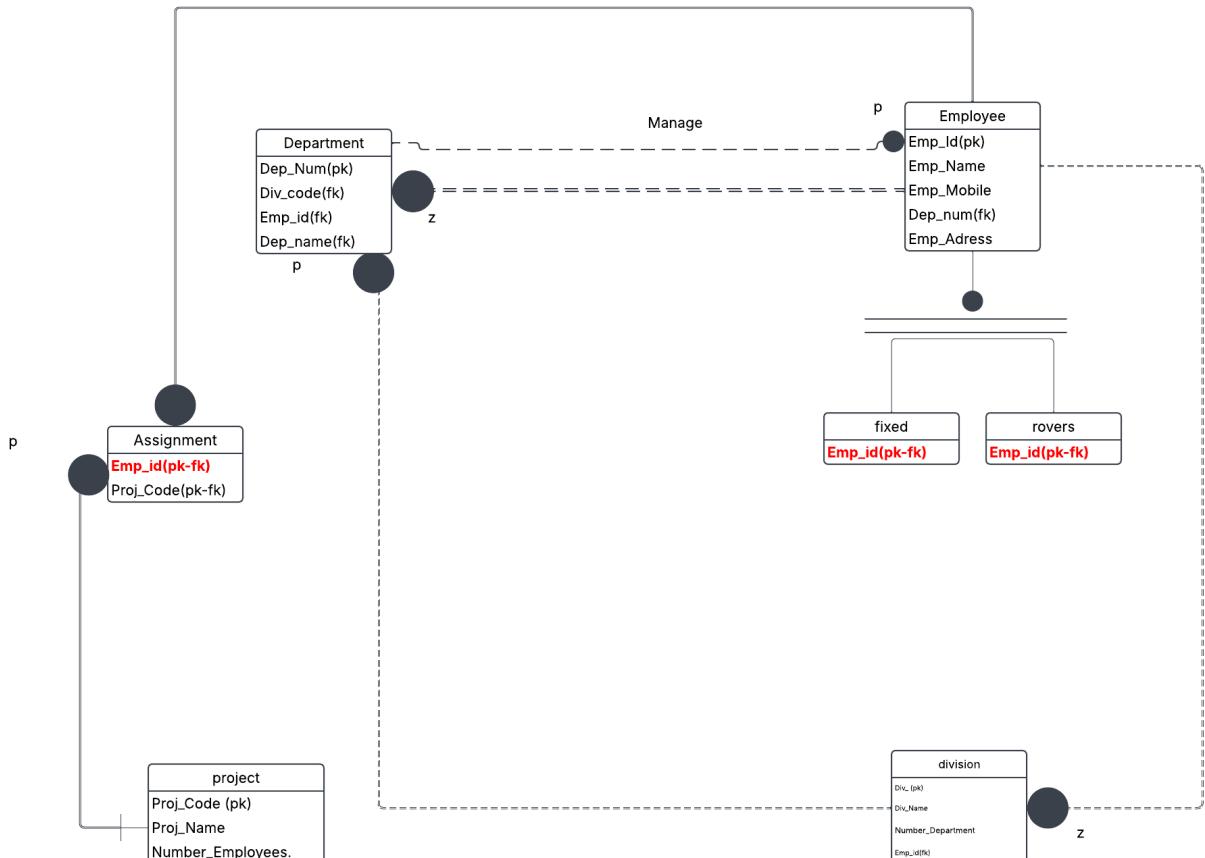
4. EMPLOYEE\_PROJECT(entity):(Emp\_num(PK+FK),Pro\_Code(PK+FK))

5. PROJECT(entity):(Pro\_Name,Number\_Employees)

Part 2 – Logical Phase:

Draw the EER model

with Microsoft word or Microsoft Visio or any other designing software



## Part 3 – Physical Phase

1. Create the **database** and **Tables**, enter your data and precise types and lengths using Microsoft SQL Server software.

Add a screen shot for each table you created

You should at least create one table by coding

LAPTOP-ILK6284L\SQL...: dbo.Assignment

Column Name	Data Type	Allow Nulls
Emp_id	varchar(10)	<input type="checkbox"/>
proj_code	int	<input type="checkbox"/> <input checked="" type="checkbox"/>

(General)

LAPTOP-ILK6284L\SQL...: dbo.Department

Column Name	Data Type	Allow Nulls
Dep_Num	int	<input type="checkbox"/>
Div_code	varchar(15)	<input checked="" type="checkbox"/>
Emp_id	varchar(10)	<input checked="" type="checkbox"/>
Dep_Name	varchar(50)	<input checked="" type="checkbox"/>
		<input type="checkbox"/>

Column Properties

Dep\_Num  
(Name)  
Allow Nulls  
Data Type  
Default Value or Binding  
Table Designer  
Collation  
<database default>

(General)

Column Name	Data Type	Allow Nulls
Div	varchar(15)	<input type="checkbox"/>
Div_Name	varchar(50)	<input checked="" type="checkbox"/>
Number_Department	int	<input checked="" type="checkbox"/>
Emp_id	varchar(10)	<input checked="" type="checkbox"/>

Column Properties

(General) (Name) Div Allow Nulls No Data Type varchar Default Value or Binding Length 15 Table Designer (General)

Column Name	Data Type	Allow Nulls
Emp_id	varchar(10)	<input type="checkbox"/>
Emp_name	varchar(50)	<input checked="" type="checkbox"/>
Emp_Mobile	varchar(15)	<input checked="" type="checkbox"/>
Dep_num	int	<input checked="" type="checkbox"/>
Emp_Adress	varchar(100)	<input checked="" type="checkbox"/>

Column Properties

(General) (Name) Emp\_id Allow Nulls No Data Type varchar Default Value or Binding Length 10 Table Designer (General)

Column Name	Data Type	Allow Nulls
Emp_id	varchar(10)	<input type="checkbox"/>

Column Properties

(General) (Name) Emp\_id Allow Nulls No Data Type varchar Default Value or Binding Length 10 Table Designer (General)

Column Name	Data Type	Allow Nulls
proj_code	int	<input type="checkbox"/>
proj_Name	varchar(50)	<input checked="" type="checkbox"/>
Number_Employee	int	<input type="checkbox"/>

Column Properties

(General) (Name) proj\_code Allow Nulls No Data Type int Default Value or Binding Table Designer Collation <database default> (General)

LAPTOP-ILK6284L\S\joyee - dbo.Rovers    X LAPTOP-ILK6284L\S\joyee - dbo.project    LAPTOP-ILK6284L\S\joyee - dbo.Fixed

Column Name	Data Type	Allow Nulls
Emp_id	varchar(10)	<input type="checkbox"/> <input checked="" type="checkbox"/>

Column Properties

General

(Name) Emp\_id  
Allow Nulls No  
Data Type varchar  
Default Value or Binding  
Length 10

Table Designer

(General)

2-Fill your tables with appropriate values with your choice.

Emp_id	proj_code
1	8
2	7
3	6
*	NULL

Dep_Num	Div_code	Emp_id	Dep_Na...
10	8	1	HR
12	6	2	IT
*	NULL	NULL	NULL

Div_	Div_Name	Number...	Emp_id
10	Marketing	11	3
3	IT	9	2
4	HR	5	1
*	NULL	NULL	NULL

Emp_id	Emp_na...	Emp_Mo...	Dep_num	Emp_Ad...
1	lamia	05566666	11	Riyadh
2	sara	08888809	11	Riyadh
3	remaa	05667889	12	Jeddah
4	lamia	05566666	11	Riyadh
5	Sara	08888889	12	Riyadh
*	NULL	NULL	NULL	NULL

LAPTOP-ILK6284I\S...ployee - dbo.Fixed | LAPTOP-ILK6284I\S...ee - dbo.Employee | LAPTOP-ILK6284I\S...yee - dbo.Division

Emp_id
4
5
6
NULL

| 3 of 3 | ► ▶ ▶ | (i) Cell is Modified. ↴

LAPTOP-ILK6284I\S...oyee - dbo.project | LAPTOP-ILK6284I\S...ployee - dbo.Fixed | LAPTOP-ILK6284I\S...ee - dbo.Employee

proj_code	proj_Na...	Number...
6	Online B...	2
7	E-Learnin...	3
8	Website ...	5
NULL	NULL	NULL

| 1 of 3 | ► ▶ ▶ | (i) |

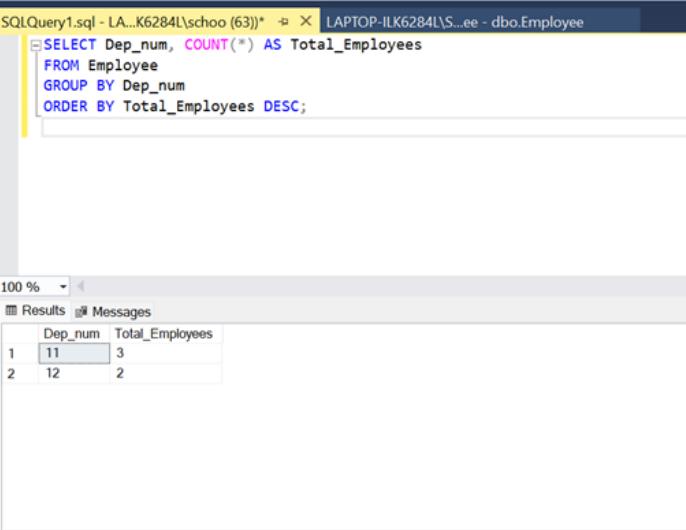
LAPTOP-ILK6284I\S...loyee - dbo.Rovers | LAPTOP-ILK6284I\S...oyee - dbo.project | LAPTOP-ILK6284I\S...ployee - dbo.Fixed

Emp_id
1
2
3
NULL

| 1 of 3 | ► ▶ ▶ | (i) |

2. Write SQL statements(codes) corresponding to the following:

SQL query statement



The screenshot shows a SQL Server Management Studio interface. The top window is titled 'SQLQuery1.sql - LA...K6284L\schoo (63)\*' and contains the following SQL code:

```
SELECT Dep_num, COUNT(*) AS Total_Employees
FROM Employee
GROUP BY Dep_num
ORDER BY Total_Employees DESC;
```

The bottom window is titled 'Results' and displays the following data:

	Dep_num	Total_Employees
1	11	3
2	12	2

## 1. Insert rows to tables with your choice.

```
SQLQuery2.sql - LA...K6284L\schoo (68)*  X LAPTOP-ILK6284L\S...ee - dbo.Employee
INSERT INTO dbo.Employee (Emp_id, Emp_name, Emp_Mobile, Dep_num, Emp_Adress)
VALUES
(4, 'lamia', '05566666', 11, 'Riyadh'),
(5, 'Sara', '08888889', 12, 'Riyadh');

(2 rows affected)

Completion time: 2025-04-29T21:18:32.0225545+03:00
```

### 1. Read data from tables with WHERE clause.

```
SQLQuery2.sql - LA...K6284L\schoo (68)*  X SQLQuery4.sql - LA...K6284L\schoo (52)*  X LAPTOP-ILK6284L\S...ee - dbo.Employee
SELECT *
FROM Employee
WHERE Emp_Adress = 'Riyadh';

100 %  ▾
Results  Messages
```

	Emp_id	Emp_name	Emp_Mobile	Dep_num	Emp_Adress
1	1	lamia	05566666	11	Riyadh
2	2	sara	08888889	11	Riyadh
3	4	lamia	05566666	11	Riyadh
4	5	Sara	08888889	12	Riyadh

```
SQLQuery2.sql - LA...K6284L\schoo (68)*  X SQLQuery4.sql - LA...K6284L\schoo (52)*  X
SELECT Emp_name, Emp_Mobile
FROM Employee
WHERE Dep_num = 11;

100 %  ▾
Results  Messages
```

	Emp_name	Emp_Mobile
1	lamia	05566666
2	sara	08888889
3	lamia	05566666

2. Read data from tables using **GROUP BY** and **ORDER BY**.

The screenshot shows a SQL Server Management Studio window. The query pane contains the following T-SQL code:

```
SELECT Dep_num, COUNT(*) AS Total_Employees
FROM Employee
GROUP BY Dep_num
ORDER BY Dep_num;
```

The results pane displays a table with two rows:

Dep_num	Total_Employees
11	3
12	2

The status bar at the bottom indicates "Query executed successfully." and "Employee | 00:00:00 | 2 rows".

3. Add **CONSTRAINT** for **FOREIGN KEY**.

The screenshot shows a SQL Server Management Studio window. The query pane contains the following T-SQL code:

```
ALTER TABLE Employee
ADD CONSTRAINT FK_Department_New
FOREIGN KEY (Dep_num)
REFERENCES Department(Dep_num);
```

The results pane shows a message: "Commands completed successfully." and the completion time: "Completion time: 2025-04-29T21:48:16.6763614+03:00".

4. Read data from 2 table using **JOIN**.

The screenshot shows a SQL Server Management Studio window. The query pane contains the following T-SQL code:

```
LAPTOP-ILK6284L\S... dbo.Assignment
SELECT
    Assignment.Emp_id,
    Employee.Emp_name,
    Assignment.proj_code
FROM
    Assignment
JOIN
    Employee ON Assignment.Emp_id = Employee.Emp_id;
```

The results pane displays a table with three rows:

Emp_id	Emp_name	proj_code
1	lamia	8
2	sara	7
3	remaa	6

5.Create a **VIEW** with your choice.

The screenshot shows a SQL query window in SQL Server Management Studio. The query is:

```
CREATE VIEW EmployeeProjectView AS
SELECT
    Fixed.Emp_id,
    Assignment.proj_code
FROM
    Fixed
JOIN
    Assignment ON Fixed.Emp_id = Assignment.Emp_id;
```

Below the query window, the Messages pane displays:

Commands completed successfully.  
Completion time: 2025-04-29T22:07:05.2279585+03:00

## Part 4 – Storage and Security Phase :

- CHECK CONSTRAINT code

The screenshot shows a SQL query window in SQL Server Management Studio. The query is:

```
CREATE TABLE Employees (
    EmployeeID INT PRIMARY KEY,
    Name VARCHAR(100),
    Position VARCHAR(50),
    Salary DECIMAL(10,2),
    CHECK (Salary >= 3000)
);
```

The status bar at the bottom indicates "00 %" completion and "Messages" with the text "Commands completed successfully." The completion time is listed as "Completion time: 2025-04-29T22:22:54.8796398+03:00".

▪ TRIGGER code

The screenshot shows a SQL query window with the following trigger code:

```
CREATE TRIGGER PreventManagerDeletion
ON Employees
AFTER DELETE
AS
BEGIN
    IF EXISTS (
        SELECT * FROM deleted WHERE Position = 'Manager'
    )
    BEGIN
        RAISERROR ('Cannot delete a Manager!', 16, 1);
        ROLLBACK TRANSACTION;
    END
END;
```

Below the code, the message pane shows:

100 % Messages  
Commands completed successfully.  
Completion time: 2025-04-29T22:25:55.0887277+03:00

▪ give OR take away (permissions) code.

The screenshot shows a SQL query window with the following permission grant code:

```
CREATE LOGIN user_lulu WITH PASSWORD = 'StrongPass123!';
CREATE USER user_lulu FOR LOGIN user_lulu;
GRANT SELECT, INSERT, UPDATE ON Employees TO user_lulu;
```

Below the code, the message pane shows:

100 % Messages  
Commands completed successfully.  
Completion time: 2025-04-29T22:31:12.5161766+03:00

100 % Query executed successfully. LAPTOP-ILK6284L\SQLEXPRESS ... | LAPTOP-ILK6284L\schoo ... | master | 00:00:00 | 0 rows