

Database & SQL

Day 9 Lab

Running Queries


The .SQL File is Attached

✓ Part1:

1. Create a stored procedure without parameters to show the number of students per department name.[use ITI DB]

```
--Part 1
use ITI
--1
create procedure NoStudentPerDepart as
select d.Dept_Name, count(s.St_Id) as NumberOfStudent
from Department as d join Student as s
on d.Dept_Id = s.Dept_Id
group by d.Dept_Name

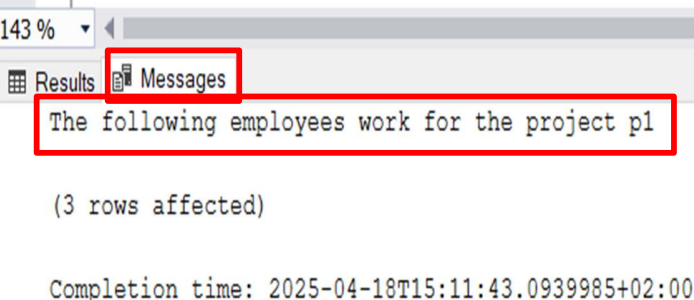
NoStudentPerDepart
execute NoStudentPerDepart
exec NoStudentPerDepart
```



	Dept_Name	NumberOfStudent
1	EL	3
2	Java	3
3	MM	2
4	SD	5

2. Create a stored procedure that will check for the # of employees in the project p1 if they are more than 3 print message to the user "The number of employees in the project p1 is 3 or more" if they are less display a message to the user "The following employees work for the project p1" in addition to the first name and last name of each one. [Company DB]

```
execute p1NoEmployee
```

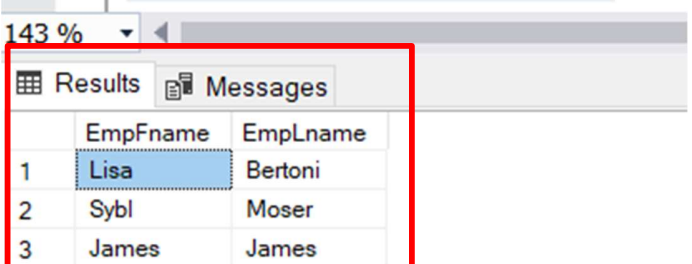


The following employees work for the project p1

(3 rows affected)

Completion time: 2025-04-18T15:11:43.0939985+02:00

```
execute p1NoEmployee
```



	EmpFname	EmpLname
1	Lisa	Bertoni
2	Sybl	Moser
3	James	James

3. Create a stored procedure that will be used in case there is an old employee has left the project and a new one become instead of him. The procedure should take 3 parameters (old Emp. number, new Emp. number and the project number) and it will be used to update works_on table. [Company DB]

```
--3
use Company_SD
create procedure UpdateEmployee
@OldEmployeeNumber int,
@NewEmployeeNumber int,
@ProjectNumber varchar (10)
as
begin
update Works_for
set ESSn = @NewEmployeeNumber
where ESSn = @OldEmployeeNumber and Pno = @ProjectNumber
end

execute UpdateEmployee 968574,321654,700
```

143 %

Messages

(1 row affected)

4. add column budget in project table and insert any draft values in it then then Create an Audit table with the following structure

ProjectNo	UserName	ModifiedDate	Budget_Old	Budget_New
p2	Dbo	2008-01-31	95000	200000

This table will be used to audit the update trials on the Budget column (Project table, Company DB)

```
--edit some values in budget column then  
select * from audit
```

--5

143 %

Results Messages

	ProjectNo	UserName	Modificationdate	BudgetOld	BudgetNew
1	200	AHMEDAYMAN\Tech Trick	2025-04-17	1500	2000
2	500	AHMEDAYMAN\Tech Trick	2025-04-17	5000	7000
3	700	AHMEDAYMAN\Tech Trick	2025-04-17	7000	8000
4	600	AHMEDAYMAN\Tech Trick	2025-04-17	5000	4000

5. Create a trigger to prevent anyone from inserting a new record in the Department table [ITI DB]

“Print a message for user to tell him that he can’t insert a new record in that table”

--5

```
create trigger t_ins  
on departments  
instead of insert  
as  
select 'you can't insert a new record in that table'  
  
insert into Departments (Dname,Dnum) values ('iti',10001)
```

143 %

Results Messages

(No column name)

1 you can't insert a new record in that table

6. Create a trigger that prevents the insertion Process for Employee table in March (April) [Company DB].

```
--6
alter trigger t_ins1
on employee
instead of insert
as
    if format(getdate(),'MMMM')='April'
        select 'not allowed'
    else
        insert into Employee
        select * from inserted

insert into Employee(SSN) values (10001)
```

Results Messages

(No column name)
not allowed

7. Create a trigger on student table after insert to add Row in Student Audit table (Server User Name , Date, Note) where note will be “[username] Insert New Row with Key=[Key Value] in table [table name]”

Server User Name	Date	Note

```
insert into Student(St_id,St_Fname,St_Lname) values (5041,'Ahmed','Ayman')
select * from Student_audit
```

143 % Results Messages

	ServerUsername	Date	Note
1	AHMEDAYMANITech Trick	2025-04-17	AHMEDAYMANInsert New Row with Key= 5041in table student

8. Create a trigger on student table instead of delete to add Row in Student Audit table (Server User Name, Date, Note) where note will be“ try to delete Row with Key=[Key Value]”

```
delete from student where st_id=5041
select * from Student_audit
```

143 %

Results Messages

	ServerUsername	Date	Note
1	AHMEDAYMAN\Tech Trick	2025-04-17	AHMEDAYMANInsert New Row with Key= 5041in table student
2	AHMEDAYMAN\Tech Trick	2025-04-17	AHMEDAYMANtry to delete Row with Key=5041in table student

- 8.—1.. Create a sequence object that allow values from 1 to 10 without cycling in a specific column and test it.

```
--8--1--sequence
create sequence Test_Sequence
start with 1
increment by 1
MinValue 1
MaxValue 10

select next value for Test_Sequence --return 1
select next value for Test_Sequence --return 2
select next value for Test_Sequence --return 3
select next value for Test_Sequence --return 4
select next value for Test_Sequence --return 5
```

143 %

Results Messages

	(No column name)
1	1
1	2
1	3
1	4
1	5

8.—2. Create full, differential Backup for SD DB.

```
--8--2
backup database SD
to disk='D:\ITI PowerBI Development\ITI Course Materials\Database & SQL\Day 9\Lab'

backup database SD
to disk='D:\ITI PowerBI Development\ITI Course Materials\Database & SQL\Day 9\Lab'
with differential
```

157 %

Messages

Msg 3201, Level 16, State 1, Line 144
Cannot open backup device 'D:\ITI PowerBI Development\ITI Course Materials\Database & SQL\Day 9\Lab'. Operating system error 5 (Access is denied.).

Msg 3013, Level 16, State 1, Line 144
BACKUP DATABASE is terminating abnormally.

- Can't backup by using code (Access is denied) Message
- so, I made the backup by using the wizard

Differential Backup:

Back Up Database - SD

Select a page

- General
- Media Options
- Backup Options

Script Help

Source

Database: SD

Recovery model: SIMPLE

Backup type: Differential

☐ Copy-only backup

Backup component:

☒ Database

☐ Files and filegroups:

Destination

Back up to: Disk

D:\ITI PowerBI Development\ITI Course Materials\Database & SQL\Day 9\Lab\differential Backup

Add...

Remove

Contents

Connection

Server: AhmedAyman\SQLEXPRESS

Connection: AHMEDAYMAN\Tech Trick

[View connection properties](#)

Progress

Ready

OK Cancel

Local Disk (D:) > ITI PowerBI Development > ITI Course Materials > Database & SQL > Day 9 > Lab

Name	Date modified	Type	Size
Ahmed Ayman Sobieh Lab Day 9.sql	18-Apr-25 2:52 PM	Microsoft SQL Ser...	8 KB
differential Backup	17-Apr-25 8:36 PM	File	1,472 KB
full Backup	17-Apr-25 8:35 PM	File	6,656 KB
Lab_updated lab.docx	17-Apr-25 3:41 PM	Microsoft Word D...	18 KB

✓ Part2:

Transform all functions in lab7 to be stored procedures

1- Month name

```
use ITI
--1
alter procedure month_name1
@x Date,
@m varchar(15) output
as

select @m = datename(mm,@x)

declare @result varchar(15)
execute month_name1 '1999-01-24',@result output
select @result as MonthName
```

157 %

Results Messages

	MonthName
1	January

2- Values in between

```
execute value_betweenp 5,12
```

157 %

Results Messages

	value
1	6
2	7
3	8
4	9
5	10
6	11

3- Student information by ID

```
--3
create procedure student_infop
@St_Id int
as
select concat(s.St_Fname, ' ', s.St_Lname) as student_fullName, d.Dept_Name
from Student as s join Department as d
on s.Dept_Id=d.Dept_Id
where s.St_Id = @St_Id

execute student_infop 10
execute student_infop 7
```

157 %

Results Messages

	student_fullName	Dept_Name
1	Fady Ali	Java

	student_fullName	Dept_Name
1	Ali Hussien	EL

4- Is Name Null?

```
declare @result nvarchar(50)
execute Is_name_nullp 1 @result output
select @result as IsNameNull
```

157 %

Results Messages

IsNameNull

1 First name & last name are not null

```
declare @result nvarchar(50)
execute Is_name_nullp 13 @result output
select @result as IsNameNull
```

157 %

Results Messages

IsNameNull

1 Last name is null

5- Manager Info by ID

```
--5
create procedure Manager_infp
@MG_Id int
as
select d.Dept_Name as department_Name, i.Ins_Name as Manager_Name, d.Manager_hiredate as Hiring_date
from Instructor as i join Department as d
on i.Ins_Id=d.Dept_Manager
where @MG_Id = I.Ins_Id

execute Manager_infp 1
```

157 %

Results Messages

	department_Name	Manager_Name	Hiring_date
1	SD	Ahmed	2000-01-01

6- Students Names

```
execute student_namep 'fullname'  
execute student_namep 'firstname'  
execute student_namep 'lastname'
```

157 %

Results Messages

Student_Full_name	
1	Ahmed Hassan
2	Amr Magdy

Student_First_name	
1	Ahmed
2	Amr

Student_second_name	
1	Hassan