

Faculty of Engineering, University Of Jaffna
Department Of Computer Engineering
EC5070 – Database Systems
Lab Instruction Sheet 01

Date: 23-Apr-2021

Time: 13:30 to 16:30

Intended Learning Outcome:

After today's class you will be able to

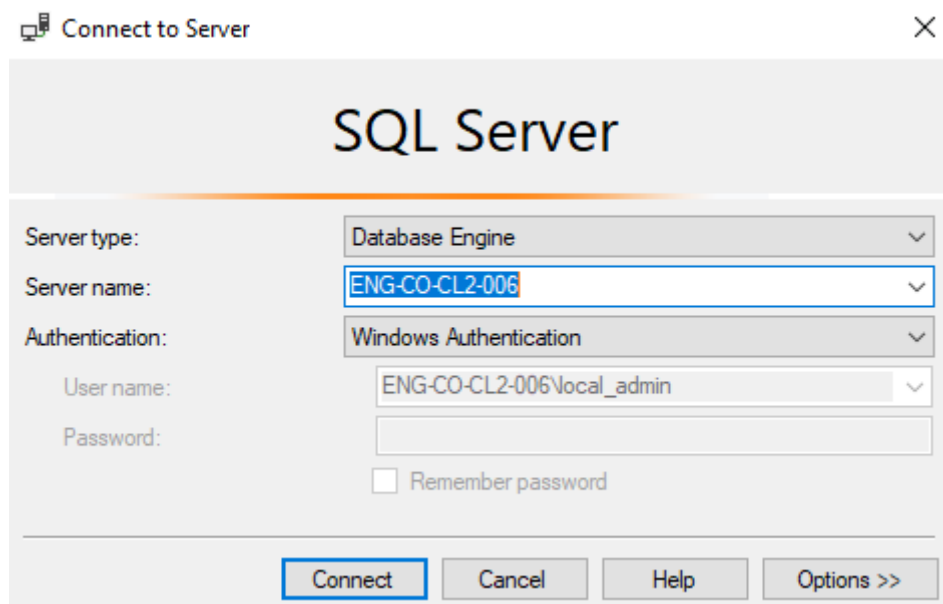
- Use a commercial Database Management System Ms SQLServer
- Apply the Query Languages for database definition and manipulation

Instructions:

- Any plagiarized work will be given 0 marks.
- Submit your lab work as a zip file named LAB01_20YYEXXX (20YYEXXX – Your Registration Number) on/before the given deadline via teams.
- The zip file should contains all code files, screen shots and your report.

Step 01

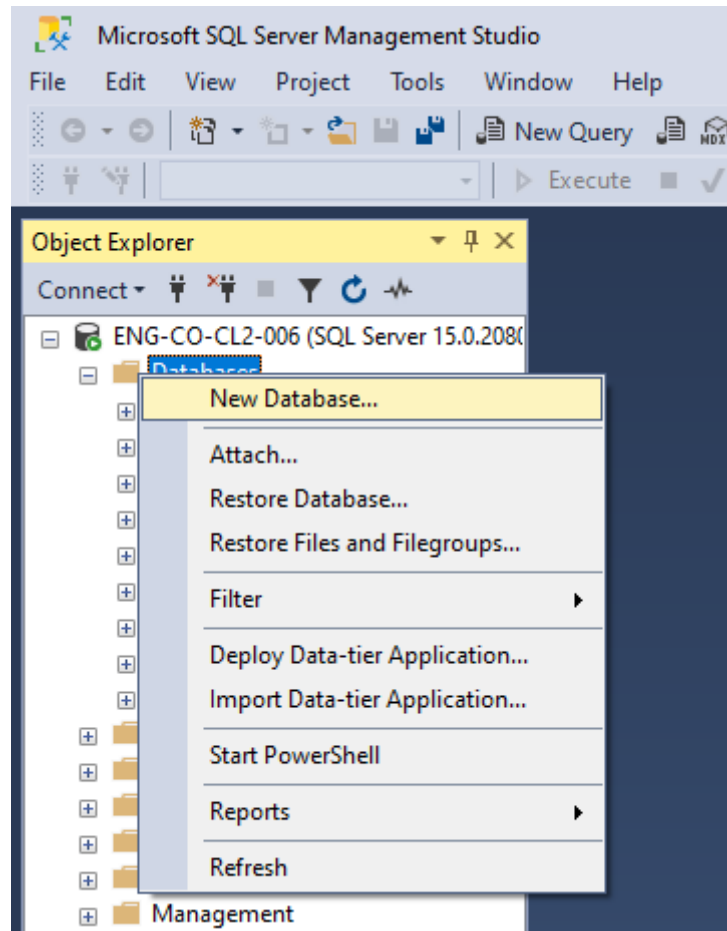
- Connect to a SQL Server instance



Note: Don't connect with Server Name as **SQLEXPRESS**

Step 02

- Create a database with the last 3 digits of your registration number with “e”



New Database

Select a page

- General
- Options
- Filegroups

Script Help

Database name: e023

Owner: <default>

☒ Use full-text indexing

Database files:

Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize
e023	ROWS...	PRIMARY	8	By 64 MB, Unlimited
e023_log	LOG	Not Applicable	8	By 64 MB, Unlimited

Connection

Server: ENG-CO-CL2-006

Connection: ENG-CO-CL2-006\local_admin

[View connection properties](#)

Progress

Ready

Add Remove

OK Cancel

- After that you should type the below command to select the database and click on "Execute"

```
SQLQuery1.sql - EN...6\local_admin (60))
use e023
```

Step 03

- Create the table name as "EMPLOYEE"

```
CREATE TABLE EMPLOYEE
( Fname VARCHAR(15) NOT NULL, -- Adding columns
  Minit CHAR,
  Lname VARCHAR(15) NOT NULL, -- NOT NULL means the domain must have a value
  Ssn CHAR(9) NOT NULL, -- CHAR padded to 9 spaces
  Bdate DATE, -- Date, YYYY-MM-DD
  Address VARCHAR(30), -- Variable length CHAR array (string)
  Sex CHAR, -- Single character
  Salary DECIMAL(10,2), -- Decimal up to a precision of two decimal points
  Super_ssn CHAR(9),
  Dno INT NOT NULL,
  PRIMARY KEY (Ssn) -- Primary key constraint);
```

- Create the table name as "DEPARTMENT"

```
-- Create DEPARTMENT table
CREATE TABLE DEPARTMENT
( Dname VARCHAR(15) NOT NULL,
  Dnumber INT NOT NULL,
  Mgr_ssn CHAR(9) NOT NULL,
  Mgr_start_date DATE,
  PRIMARY KEY (Dnumber),
  UNIQUE (Dname), -- Unique value constraint - no Departments can have the same name
  FOREIGN KEY (Mgr_ssn) REFERENCES EMPLOYEE(Ssn) ); -- Foreign key constraint
-- Now that the DEPARTMENT table is defined, add the Foreign Key constraints
-- to the EMPLOYEE table.
-- Super_ssn references Ss
```

Step 04

Insert the values into the table

```
INSERT INTO e023.dbo.EMPLOYEE values
('John', 'B', 'Smith', '123456789', '1955-01-09', '731 Fondren, Houston, TX', 'M', 30000,
'987654321', 5),
('Franklin', 'T', 'Wong', '333445555', '1945-12-08', '638 Voss, Houston, TX', 'M', 40000,
'888665555', 5),
('Joyce', 'A', 'English', '453453453', '1962-12-31', '5631 Rice, Houston, TX', 'F',
25000, '333445555', 5),
('Ramesh', 'K', 'Narayan', '666884444', '1952-09-15', 'Fire Oak, Humble, TX', 'M', 38000,
'333445555', 5),
('James', 'E', 'Borg', '888665555', '1927-11-10', 'Stone, Houston, TX', 'M', 55000, NULL,
1),
('Jennifer', 'S', 'Wallace', '987654321', '1931-06-20', 'Berry, Bellaire, TX', 'F',
43000, '888665555', 4),
('Ahmad', 'V', 'Jabbar', '987987987', '1959-03-29', 'Dallas, Houston, TX', 'M', 25000,
'987654321', 4),
('Alicia', 'J', 'Zelaya', '999887777', '1958-06-19', 'Castle, SPring, TX', 'F', 25000,
'987654321', 4)
;
```

Step 05

SQLQuery5.sql - EN...6\local_admin (57)

SQLQuery2.sql - EN...6\local_admin (70))*

select * from EMPLOYEE

100 %

Results

Messages

	Fname	Minit	Lname	Ssn	Bdate	Address	Sex	Salary	Super_ssn	Dno
1	John	B	Smith	123456789	1955-01-09	731 Fondren, Houston, TX	M	30000.00	987654321	5
2	Franklin	T	Wong	333445555	1945-12-08	638 Voss, Houston, TX	M	40000.00	888665555	5
3	Joyce	A	English	453453453	1962-12-31	5631 Rice, Houston, TX	F	25000.00	333445555	5
4	Ramesh	K	Narayan	666884444	1952-09-15	Fire Oak, Humble, TX	M	38000.00	333445555	5
5	James	E	Borg	888665555	1927-11-10	Stone, Houston, TX	M	55000.00	NULL	1
6	Jennifer	S	Wallace	987654321	1931-06-20	Berry, Bellaire, TX	F	43000.00	888665555	4
7	Ahmad	V	Jabbar	987987987	1959-03-29	Dallas, Houston, TX	M	25000.00	987654321	4
8	Alicia	J	Zelaya	999887777	1958-06-19	Castle, SPring, TX	F	25000.00	987654321	4

- To view the inserted values To view the particular values only

SQLQuery1.sql - EN...6\local_admin (60))

```
select Pname, Dnum
from PROJECT
```

100 %

Results Messages

	Pname	Dnum
1	ProductX	5
2	ProductY	5
3	ProductZ	5
4	Comput	4
5	Reorga	1
6	Newbe	4

- Table join

SQLQuery1.sql - EN...6\local_admin (60))

```
select Dlocation
From DEPT_LOCATIONS as d1
join EMPLOYEE as e
on d1.Dnumber=e.Dno
where e.Fname= 'Ahmad'
```

100 %

Results Messages

	Dlocation
1	Stafford

Exercises

1. Create the below tables with constraints:
 - i. Employee (Fname ,Minit, Lname, Bdate, Address , Sex , Super_ssn ,Dno, Ssn)
 - ii. DEPARTMENT(Dname,Dnumber, Mgr_ssn, Mgr_start_date , Dname)
 - iii. DEPT_LOCATIONS (Dnumber, Dlocation)
 - iv. WORKS_ON (Essn, Pno, Hours)
 - v. DEPENDENT(Essn, Dependent_name, Sex, Bdate, Relationship)
 - vi. PROJECT(Pname,Pnumber,Plocation,Dnum,
2. Insert the values to the DEPARTMENT, DEPENDENT, DEPT_LOCATIONS, WORKS_ON and PROJECT tables:
 - The values of the employee's first names should be have your friend's names who are sitting near of you at the practical time
 - You should insert **exact 4 records**
3. Check the all INSERT statements ran successfully.
4. Generate ER diagram for this above scenario.
5. Write SQL queries for the below questions:
 - a. Find the all details for the employee who has a particular ssn number in the EMPLOYEE table
 - b. Find the First name and address of the employee who got the salary more than 35,000
 - c. Find the department Names and its location details
 - d. Find the Department location for the particular employee
 - e. Find the managers names of the department
 - f. Find the relationship of the employees with their dependents names