**Create sample database using GUI with all default settings:**

**Example 5.4**

* **Data Types, Nullability, Default Clause, identity property**

USE sample;  
CREATE TABLE employee  (emp\_no INTEGER NOT NULL,  
                        emp\_fname CHAR(20) NOT NULL,  
                        emp\_lname CHAR(20) NOT NULL,  
                        dept\_no CHAR(4) NULL);  
CREATE TABLE department(dept\_no CHAR(4) NOT NULL,  
                        dept\_name CHAR(25) NOT NULL,  
                        location CHAR(30) NULL);  
CREATE TABLE project   (project\_no CHAR(4) NOT NULL,  
                        project\_name CHAR(15) NOT NULL,  
                        budget FLOAT NULL);  
CREATE TABLE works\_on  (emp\_no INTEGER NOT NULL,  
                        project\_no CHAR(4) NOT NULL,  
                        job CHAR (15) NULL,  
                        enter\_date DATE NULL);

**Example 5.5**

* **SQL\_Vairant**

USE sample;  
CREATE TABLE Item\_Attributes (  
 item\_id INT NOT NULL,  
 attribute NVARCHAR(30) NOT NULL,  
 value SQL\_VARIANT NOT NULL,  
 PRIMARY KEY (item\_id, attribute) )

**Example 5.6**

* **Unique clause of constraints**

USE sample;  
CREATE TABLE projects  (project\_no CHAR(4) DEFAULT 'p1',  
                       project\_name CHAR(15) NOT NULL,  
                       budget FLOAT NULL  
 CONSTRAINT unique\_no UNIQUE (project\_no));

**Example 5.7**

* **Primary Key cluase**

USE sample;  
CREATE TABLE employee  (emp\_no INTEGER NOT NULL,  
                 emp\_fname CHAR(20) NOT NULL,  
                 emp\_lname CHAR(20) NOT NULL,  
                 dept\_no CHAR(4) NULL,  
                CONSTRAINT prim\_empl PRIMARY KEY (emp\_no));

**Example 5.8**

* **Primary key clause different ways, also no constraint name**

USE sample;  
CREATE TABLE employee  
      (emp\_no INTEGER NOT NULL CONSTRAINT prim\_empl PRIMARY KEY,  
       emp\_fname CHAR(20) NOT NULL,  
       emp\_lname CHAR(20) NOT NULL,  
       dept\_no CHAR(4) NULL);

**Example 5.9**

* **Check constraint, name and unnamed**

USE sample;  
CREATE TABLE customer  
     (cust\_no INTEGER NOT NULL,  
     cust\_group CHAR(3) NULL,  
     CHECK (cust\_group IN ('c1', 'c2', 'c10')));

**Example 5.10**

* **Foreign Key**

USE sample;  
CREATE TABLE works\_on  (emp\_no INTEGER NOT NULL,  
            project\_no CHAR(4) NOT NULL,  
               job CHAR (15) NULL,  
              enter\_date DATE NULL,  
              CONSTRAINT prim\_works PRIMARY KEY(emp\_no, project\_no),  
              CONSTRAINT foreign\_works FOREIGN KEY(emp\_no)  
                     REFERENCES employee (emp\_no));

**Example 5.11**

**--- Recreate the tables again, drop original**

USE sample;  
CREATE TABLE department(dept\_no CHAR(4) NOT NULL,  
                        dept\_name CHAR(25) NOT NULL,  
                        location CHAR(30) NULL,  
                       CONSTRAINT prim\_dept PRIMARY KEY (dept\_no));  
CREATE TABLE employee  (emp\_no INTEGER NOT NULL,   
            emp\_fname CHAR(20) NOT NULL,  
            emp\_lname CHAR(20) NOT NULL,  
           dept\_no CHAR(4) NULL,  
           CONSTRAINT prim\_emp PRIMARY KEY (emp\_no),  
           CONSTRAINT foreign\_emp FOREIGN KEY(dept\_no) REFERENCES department(dept\_no));  
CREATE TABLE project   (project\_no CHAR(4) NOT NULL,  
           project\_name CHAR(15) NOT NULL,  
           budget FLOAT NULL,  
          CONSTRAINT prim\_proj PRIMARY KEY (project\_no));  
CREATE TABLE works\_on  (emp\_no INTEGER NOT NULL,  
  project\_no CHAR(4) NOT NULL,  
  job CHAR (15) NULL,  
  enter\_date DATE NULL,  
  CONSTRAINT prim\_works PRIMARY KEY(emp\_no, project\_no),  
  CONSTRAINT foreign1\_works FOREIGN KEY(emp\_no) REFERENCES employee(emp\_no),  
  CONSTRAINT foreign2\_works FOREIGN KEY(project\_no) REFERENCES project(project\_no));

**Example 5.12**

**-CASCADE**

USE sample;

CREATE TABLE works\_on1

(emp\_no INTEGER NOT NULL,

project\_no CHAR(4) NOT NULL,

job CHAR (15) NULL,

enter\_date DATE NULL,

CONSTRAINT prim\_works1 PRIMARY KEY(emp\_no, project\_no),

CONSTRAINT foreign1\_works1 FOREIGN KEY(emp\_no)

REFERENCES employee(emp\_no) ON DELETE CASCADE,

CONSTRAINT foreign2\_works1 FOREIGN KEY(project\_no)

REFERENCES project(project\_no) ON UPDATE CASCADE);

**Example 5.13**

USE sample;  
CREATE SYNONYM dept

FOR department;

**Example 5.14**

* **Alias Data Type**

USE sample;  
CREATE TYPE zip  
 FROM SMALLINT NOT NULL;

**Example 5.15**

USE sample;  
CREATE TABLE customer  
 (cust\_no INT NOT NULL,  
 cust\_name CHAR(20) NOT NULL,  
 city CHAR(20),  
 zip\_code ZIP,  
 CHECK (zip\_code BETWEEN 601 AND 99950))

**Example 5.16**

**-Create table type**

USE sample;  
CREATE TYPE person\_table\_t AS TABLE   
    ( name VARCHAR(30), salary DECIMAL(8,2));

**Example 5.17**

USE master;  
GO  
ALTER DATABASE projects  
ADD FILE (NAME=projects\_dat1,  
      FILENAME = 'C:\projects1.mdf', SIZE = 10,  
      MAXSIZE = 100, FILEGROWTH = 5);

**Example 5.18**

USE master;

ALTER DATABASE sample

ADD FILEGROUP Employee\_FSGroup CONTAINS FILESTREAM;

GO

ALTER DATABASE sample

ADD FILE (NAME= employee\_FS,

FILENAME = 'C:\DUSAN\emp\_FS')

TO FILEGROUP Employee\_FSGroup

**Example 5.19**

**-Filestream / Need to enable thru Configuration Service**

USE sample;

CREATE TABLE employee\_info

(id UNIQUEIDENTIFIER ROWGUIDCOL NOT NULL UNIQUE,

filestream\_data VARBINARY(MAX) FILESTREAM NULL)

**Example 5.20**

USE master;

EXEC sp\_configure 'show advanced options' , 1;

RECONFIGURE WITH OVERRIDE;

EXEC sp\_configure 'contained database authentication' , 1;

RECONFIGURE WITH OVERRIDE;

ALTER DATABASE my\_sample SET CONTAINMENT = PARTIAL;

EXEC sp\_configure 'show advanced options' , 0;

RECONFIGURE WITH OVERRIDE;

**Example 5.21**

**--ALTER statement ADD/Drop**

USE sample;  
ALTER TABLE employee  
     ADD telephone\_no CHAR(12) NULL;

**Example 5.22**

USE sample;  
ALTER TABLE employee  
     DROP COLUMN telephone\_no;

**Example 5.23**

USE sample;  
ALTER TABLE department  
     ALTER COLUMN location CHAR(25) NOT NULL;

**Example 5.24**

* **ALTER/ADD CONSTRAINT**

USE sample;  
CREATE TABLE sales  
     (order\_no INTEGER NOT NULL,  
     order\_date DATE NOT NULL,  
     ship\_date DATE NOT NULL);

GO

ALTER TABLE sales  
     ADD CONSTRAINT order\_check CHECK(order\_date <= ship\_date);

**Example 5.25**

**--PRIMARY KEY ADDED**

USE sample;  
ALTER TABLE sales  
     ADD CONSTRAINT primaryk\_sales PRIMARY KEY(order\_no)

**Example 5.26**

USE sample;  
ALTER TABLE sales  
DROP CONSTRAINT order\_check;

**Example 5.27**

* **Disable check constraint**
* USE sample;  
  ALTER TABLE sales  
   NOCHECK CONSTRAINT ALL;

**-Show scripting through GUI**

**Example 5.28**

USE sample;  
EXEC sp\_rename @objname = department, @newname = subdivision

**Example 5.29**

USE sample;  
EXEC sp\_rename @objname = 'sales.order\_no' , @newname = ordernumber