

## Lab 9: Tables

1. Create the following tables with appropriate data types and constraints:

Table Name: Users		
Column Name	Column Type	Notes
NTID	text, max length of 20	Primary Key
FirstName	text, max length of 50	Required
MiddleInitial	text, max length of 1	Optional
LastName	text, max length of 50	Required
EmailAddress	text, max length of 100	Optional
Password	text, max length of 50	Optional

Answer:

```
CREATE TABLE Users (
    NTID                VARCHAR(20)        PRIMARY KEY,
    FirstName            VARCHAR(50)        NOT NULL,
    MiddleInitial        VARCHAR(1),
    LastName             VARCHAR(50)        NOT NULL,
    EmailAddress         VARCHAR(100),
    Password             VARCHAR(50),
);
```

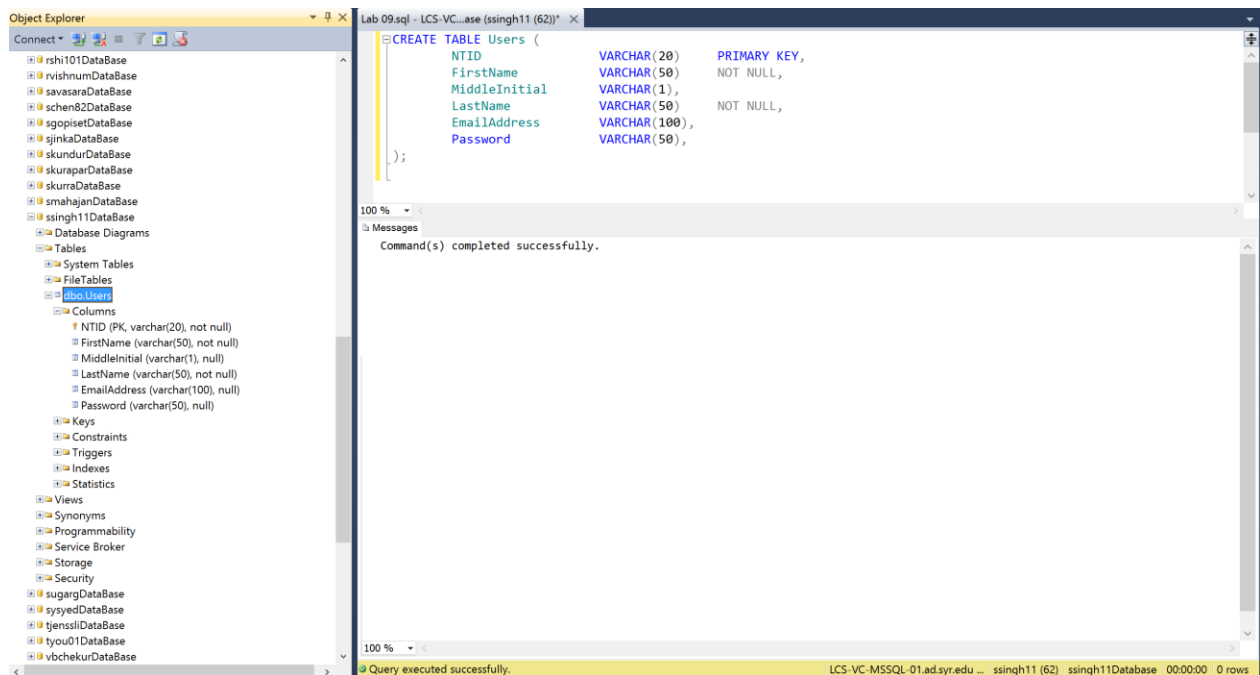


Table Name: Courses		
Column Name	Column Type	Notes
CourseId	number	Primary Key, auto generated, starts at 1
CourseCode	text, max length of 10	Required
CourseTitle	text, max length of 50	Required
Faculty	text, max length of 20	Optional, references Users
OpenSeats	Number	Required

Answer:

```
CREATE TABLE Courses (
    CourseId          INTEGER          PRIMARY KEY          IDENTITY(1,1),
    CourseCode        VARCHAR(10)      NOT NULL,
    CourseTitle        VARCHAR(50)      NOT NULL,
    Faculty            VARCHAR(20)      REFERENCES Users(NTID),
    OpenSeats          INTEGER          NOT NULL
);
```

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the Object Explorer displays the database structure, including the 'dbo.Courses' table with its columns and constraints. The main window shows the executed query and a message indicating success.

```
CREATE TABLE Courses (
    CourseId          INTEGER          PRIMARY KEY          IDENTITY(1,1),
    CourseCode        VARCHAR(10)      NOT NULL,
    CourseTitle        VARCHAR(50)      NOT NULL,
    Faculty            VARCHAR(20)      REFERENCES Users(NTID),
    OpenSeats          INTEGER          NOT NULL
);
```

Command(s) completed successfully.

Query executed successfully. LCS-VC-MSSQL-01.ad.syr.edu ... ssingh11 (51) ssingh11Database 00:00:00 0 rows

<b>Table: LetterGrades</b>		
Column Name	Column Type	Notes
LetterGradeId	number	Primary Key, auto generated, starts at 1
LetterGrade	text, max length of 2	Required
Description	text, max length of 50	Optional

Answer:

```
CREATE TABLE LetterGrades (
    LetterGradeId      INTEGER      PRIMARY KEY      IDENTITY(1,1),
    LetterGrade        VARCHAR(2)   NOT NULL,
    Description        VARCHAR(50)
);
```

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the Object Explorer shows the database structure, with 'dbo.LetterGrades' selected under the 'Tables' folder. The main pane shows the SQL script that was executed: `CREATE TABLE LetterGrades ( LetterGradeId INTEGER PRIMARY KEY IDENTITY(1,1), LetterGrade VARCHAR(2) NOT NULL, Description VARCHAR(50) );`. Below the script, the Messages pane indicates 'Command(s) completed successfully.' The status bar at the bottom confirms 'Query executed successfully.' and shows the connection details: 'LCS-VC-MSSQL-01.ad.syr.edu ... ssingh11 (51) ssingh11Database 00:00:00 0 rows'.

<b>Table Name: CourseGrade</b>		
<b>Column Name</b>	<b>Column Type</b>	<b>Notes</b>
GradingScaleId	number	Primary Key, auto generated, starts at 1
LetterGradeId	number	Required, references LetterGrades
CourseId	number	Required, references Courses
GradeValue	number	Required, >= 0

Answer:

```
CREATE TABLE CourseGrade (
    GradingScaleId    INTEGER    PRIMARY KEY IDENTITY(1,1),
    LetterGradeId     INTEGER    NOT NULL    REFERENCES LetterGrades(LetterGradeId),
    CourseId          INTEGER    NOT NULL    REFERENCES Courses(CourseId),
    GradeValue        INTEGER    NOT NULL    CHECK(GradeValue>=0)
);
```

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the Object Explorer shows the database structure, including the 'dbo.CourseGrade' table with its columns: GradingScaleId (PK, int, not null), LetterGradeId (FK, int, not null), CourseId (FK, int, not null), and GradeValue (int, not null). The main window shows the execution of a T-SQL script that creates the 'CourseGrade' table with the specified constraints. The Messages pane at the bottom indicates that the command completed successfully.

```
CREATE TABLE CourseGrade (
    GradingScaleId    INTEGER    PRIMARY KEY IDENTITY(1,1),
    LetterGradeId     INTEGER    NOT NULL    REFERENCES LetterGrades(LetterGradeId),
    CourseId          INTEGER    NOT NULL    REFERENCES Courses(CourseId),
    GradeValue        INTEGER    NOT NULL    CHECK(GradeValue>=0)
);
```

100 %

Messages

Command(s) completed successfully.

100 %

Query executed successfully. LCS-VC-MSSQL-01.ad.syr.edu ... ssingh11 (51) ssingh11Database 00:00:00 0 rows

Table Name: CourseEnrollment		
Column Name	Column Type	Notes
EnrollmentId	number	primary key, auto generated, starts at 1
StudentId	text, max length 20	Required, references Users
CourseId	number	Required, references Courses
FinalGrade	number	Optional, >=0.00, <=100.00

Answer:

```
CREATE TABLE CourseEnrollment (
    EnrollmentId    INTEGER          PRIMARY KEY          IDENTITY(1,1),
    StudentId       VARCHAR(20)      NOT NULL           REFERENCES Users(NTID),
    CourseId        INTEGER          NOT NULL           REFERENCES Courses(CourseId),
    FinalGrade      INTEGER          CHECK(FinalGrade BETWEEN 0.00 AND 100.00)
);
```

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the Object Explorer shows the database structure, with the 'dbo.CourseEnrollment' table highlighted under the 'Tables' folder. The main window shows the execution of a SQL script. The script is as follows:

```
CREATE TABLE CourseEnrollment (
    EnrollmentId    INTEGER          PRIMARY KEY          IDENTITY(1,1),
    StudentId       VARCHAR(20)      NOT NULL           REFERENCES Users(NTID),
    CourseId        INTEGER          NOT NULL           REFERENCES Courses(CourseId),
    FinalGrade      INTEGER          CHECK(FinalGrade BETWEEN 0.00 AND 100.00)
);
```

The Messages pane at the bottom indicates that the command was completed successfully. The status bar at the bottom shows 'Query executed successfully.' and 'LCS-VC-MSSQL-01.ad.syr.edu ... ssingh11 (59) ssingh11Database 00:00:01 0 rows'.