**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:

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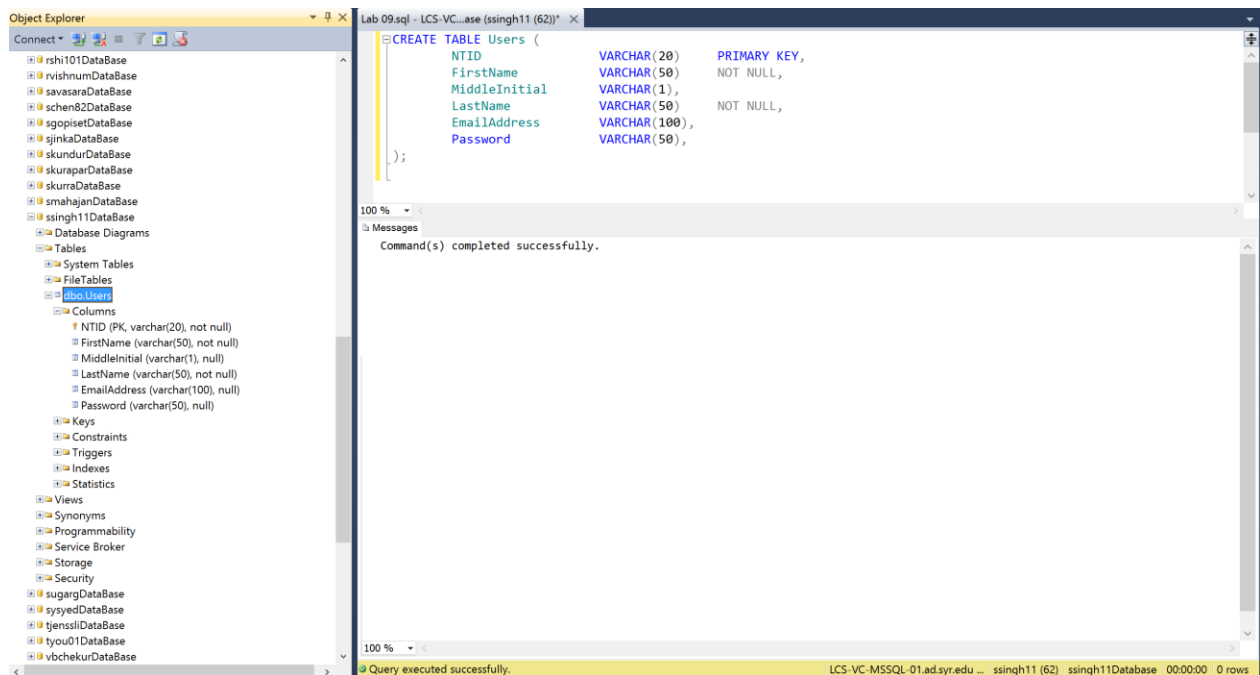
| Table Name: Courses | | |
| --- | --- | --- |
| Column Name | Column Type | Notes |
| CourseId | number | Primary Key, auto generated, starts at 1 |
| CourseCode | text, max length of 10 | Required |
| CourseTitle | text, max length of 50 | Required |
| Faculty | text, max length of 20 | Optional,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

Answer:

```sql
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
);
```

| Table: LetterGrades | | |
|---|---|---|
| **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:

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

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

Answer:

```sql
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)
);
```

| 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:

```sql
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)

);
```