Examples of Database Integrity Constraints

1. When Employee table is created WITHOUT PK Constraint and FK Constraint:
   Any Invalid Data can be inserted without getting errors as below:

```sql
use COMPANY3;
go

select * from sys.tables;
IF OBJECT_ID('dbo.Employee_Test') IS NULL
    create table Employee_Test (ssn char(9), fname varchar(10), lname varchar(10));

select * from Employee_Test;
insert into Employee_Test values ('123456789', null, 'Smith');
/* Invalid Data: Duplicate SSN value or space is inserted without error */
insert into Employee_Test values ('123456789', 'Bob', 'Smith');
insert into Employee_Test values ('123456789', '', 'Smith');

select * from Employee_Test;
delete Employee_Test;
select * from Employee_Test;
drop table dbo.Employee_Test;

--This next select will get an error because there is no Employee_Test table in the system anymore.
select * from Employee_Test;
```
2. When Employee table is created with PK Constraint and FK Constraint:

```sql
CREATE TABLE EMPLOYEE
    (Fname VARCHAR(20) NOT NULL,
     Minit CHAR,
     Lname VARCHAR(20) NOT NULL,
     Ssn CHAR(9) NOT NULL,
     Bdate DATE,
     [Address] VARCHAR(30),
     Sex CHAR NOT NULL,
     Salary DECIMAL(10, 2),
     Super_ssn CHAR(9),
     Dno INT NOT NULL,
     PRIMARY KEY (Ssn),
     FOREIGN KEY (Super_ssn)
     REFERENCES dbo.EMPLOYEE(Ssn))
```

When the table Employee already has ssn = '888661111':

use company3;
GO
delete from Employee where Minit = 'A';
select * from Employee;
go
-- Employee table has FK constraint superssn to PK ssn, so only NULL will be accepted as
missing value, not ''
Insert Into Employee Values ('James', 'A', 'Brog1', '888660000', '10-Nov-27', '450 Stone,
Houston, TX', 'M', '55000', null, '1');

--This will error out because of Duplicate PK ssn column value, so rejected as below.
Insert Into Employee Values ('James', 'A', 'Brog2', '888661111', '10-Nov-27', '450 Stone,
Houston, TX', 'M', '55000', null, '1');

--This will error out because of FK superssn column value being '' which is not an
existing value of PK ssn nor NULL, so rejected as below.
Insert Into Employee Values ('James', 'A', 'Brog3', '888662222', '10-Nov-27', '450 Stone, Houston, TX', 'M', '55000', '', '', '1');
GO
select * from Employee;