

BASE DE DATOS I

Fecha de entrega[29/05/2025]

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Carrera: Ing. Software

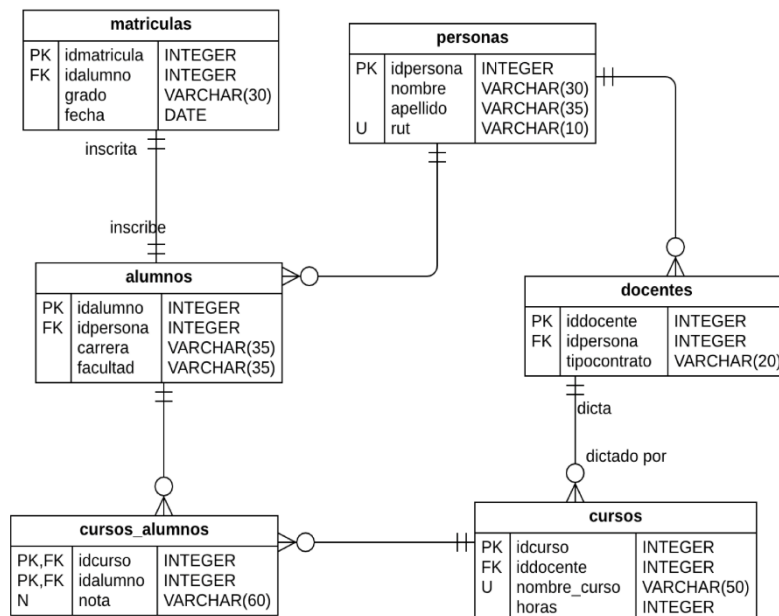
Dirigido a: Ana María Pazmiño D.

OBJETIVO PROPUESTO DE ESTUDIO:

Elaborar un diseño físico para el modelo relacional propuesto.

Ejecutar manipulación de datos.

Modelo Relacional



Diseño Físico (Script)

```
CREATE DATABASE DB_Colegio
```

GO

USE DB_Colegio

GO

```
CREATE TABLE tb_Persona(
```

idPersona INT IDENTITY(1,1) NOT NULL,

nombre VARCHAR(30) NOT NULL,

apellido VARCHAR(30) NOT NULL,

RUT CHAR(10),

CONSTRAINT PK tb_Persona PRIMARY KEY (idPersona),

CONSTRAINT UK_RUT_Persona UNIQUE(RUT),

```
        CONSTRAINT CH_RUT_Persona CHECK (LEN(RUT)=10)
    )

CREATE TABLE tb_Alumno(
    idAlumno INT IDENTITY(1,1) NOT NULL,
    idPersona INT NOT NULL,
    carrera VARCHAR(35) NOT NULL,
    facultad VARCHAR(35) NOT NULL,
    CONSTRAINT PK_tb_Alumno PRIMARY KEY (idAlumno),
    CONSTRAINT FK_tb_Alumno_tb_Persona FOREIGN KEY (idpersona)
REFERENCES tb_Persona(idPersona)
)

CREATE TABLE tb_Docente(
    idDocente INT IDENTITY(1,1) NOT NULL,
    idPersona INT NOT NULL,
    TipoContrato VARCHAR(20) NOT NULL,
    CONSTRAINT PK_tb_Docente PRIMARY KEY (idDocente),
    CONSTRAINT FK_tb_Docente_tb_Persona FOREIGN KEY (idpersona)
REFERENCES tb_Persona(idPersona),
    CONSTRAINT CH_tb_Docente_TipoContrato CHECK (TipoContrato IN
('Tiempo Completo', 'Medio Tiempo', 'Tiempo Parcial'))
)

CREATE TABLE tb_Curso(
    idCurso INT IDENTITY(1,1) NOT NULL,
    idDocente INT NOT NULL,
    nombreCurso VARCHAR(50) NOT NULL,
    horas INT NOT NULL,
    CONSTRAINT PK_tb_Curso PRIMARY KEY (idCurso),
    CONSTRAINT FK_tb_Alumno_tb_Docente FOREIGN KEY (idDocente)
REFERENCES tb_Docente(idDocente),
    CONSTRAINT CH_tb_Curso_nombreCurso UNIQUE (nombreCurso)
)

CREATE TABLE tb_Matricula(
    idMatricula INT IDENTITY(1,1) NOT NULL,
    idAlumno INT NOT NULL,
    grado VARCHAR(30) NOT NULL,
    fecha DATETIME NOT NULL,
```

```

        CONSTRAINT PK_tb_Matricula PRIMARY KEY (idMatricula),
        CONSTRAINT FK_tb_Matricula_tb_Alumno FOREIGN KEY (idAlumno)
REFERENCES tb_Alumno(idAlumno)
)

```

```

CREATE TABLE tb_Curso_Alumno(
    idCurso INT NOT NULL,
    idAlumno INT NOT NULL,
    nota VARCHAR(50) NOT NULL,
    fecha DATETIME NOT NULL,
    CONSTRAINT PK_tb_Curso_Alumno PRIMARY KEY (idCurso, idAlumno),
    CONSTRAINT FK_tb_Curso_Alumno_tb_Curso FOREIGN KEY (idCurso)
REFERENCES tb_Curso(idCurso),
    CONSTRAINT FK_tb_Curso_Alumno_tb_Alumno FOREIGN KEY (idAlumno)
REFERENCES tb_Alumno(idAlumno)
)

```

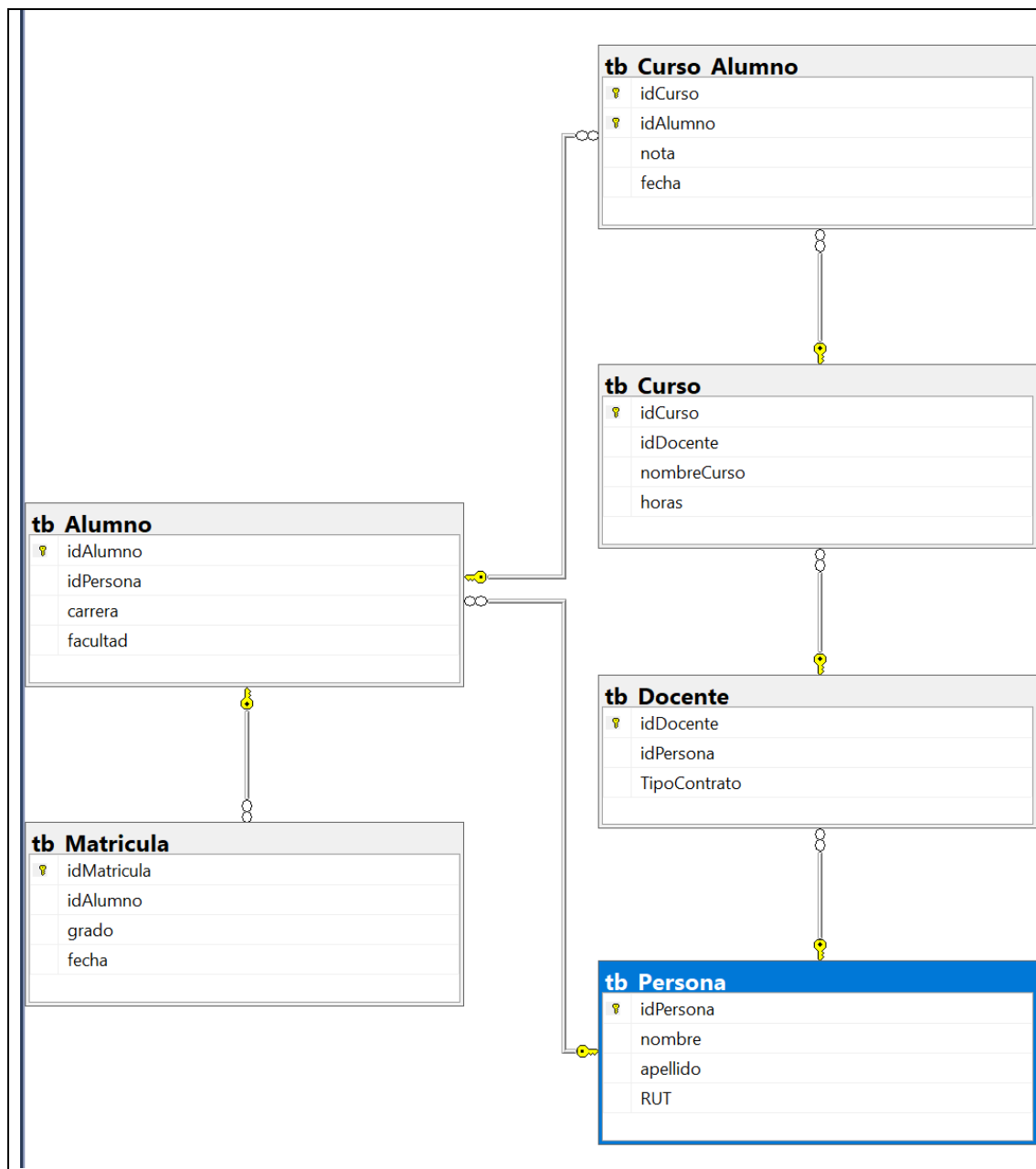
Resultado

1.-

Commands completed succesfully.

Completion time: 2025-05-29T10:18:23.3729251-05:00

2.-



INSERT
Antes
Script
Después

MODIFICACIONES

Argumentación
Script
Resultado
1.- (Imagen ejecución sin error)
2. Intento por error (trata de ingresar datos no validos según lo que acabas de configurar en el ALTER)
3. Intento por acierto (Ingresa datos validos según lo que acabas de configurar en el ALTER)

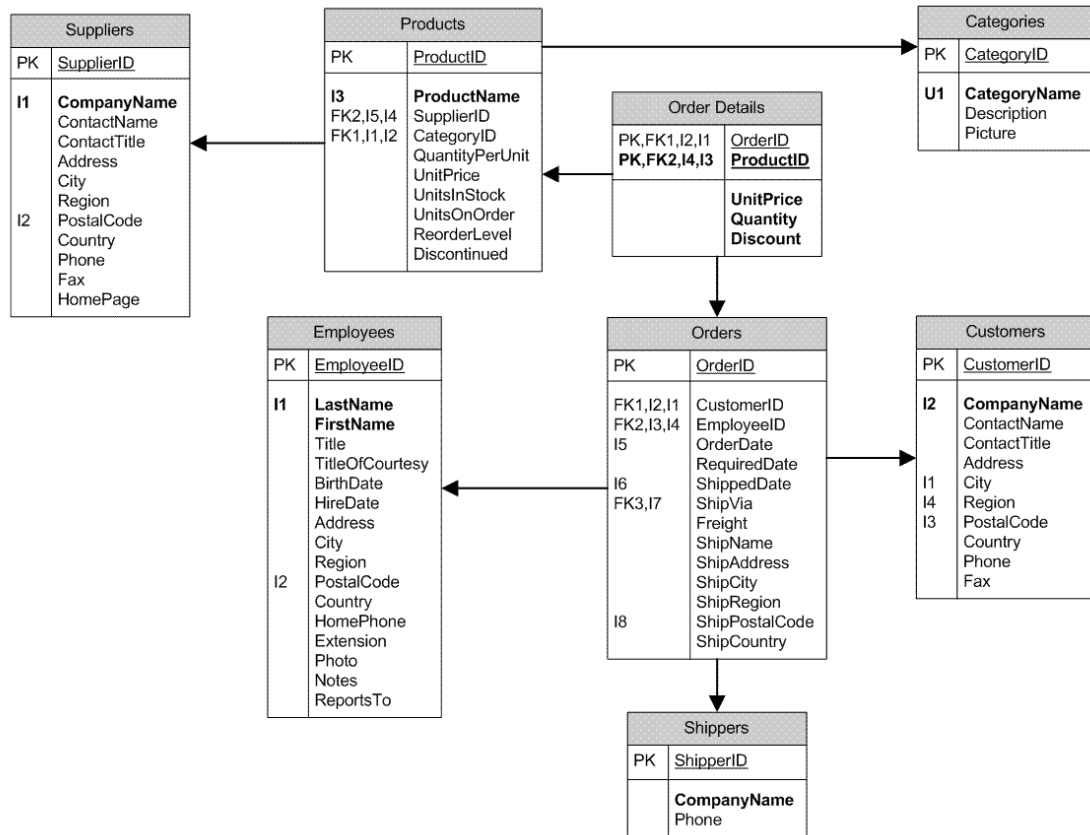
Realiza 5 updates

UPDATE
Antes
Script
Después

Realiza 5 deletes

DELETE
Antes
Script
Después

Modelo Relacional



Diseño Físico (Script)

CREATE DATABASE SouthWhite

GO

USE SouthWhite

Go

CREATE TABLE tb_Categories (

CategoryID INT IDENTITY(1,1) NOT NULL,

CategoryName VARCHAR(50) NOT NULL,

Description TEXT,

Picture IMAGE,

CONSTRAINT PK_tb_Categories PRIMARY KEY (CategoryID),

CONSTRAINT UK_tb_Categories_CategoryName UNIQUE (CategoryName)

)

CREATE TABLE tb_Suppliers (

SupplierID INT IDENTITY(1,1) NOT NULL,

CompanyName VARCHAR(100) NOT NULL,

```

ContactName VARCHAR(100),
ContactTitle VARCHAR(100),
Address VARCHAR(100),
City VARCHAR(50),
Region VARCHAR(50),
PostalCode VARCHAR(20),
Country VARCHAR(50),
Phone VARCHAR(30),
Fax VARCHAR(30),
HomePage TEXT,
CONSTRAINT PK_tb_Suppliers PRIMARY KEY (SupplierID)
)

CREATE TABLE tb_Products (
    ProductID INT IDENTITY(1,1) NOT NULL,
    ProductName VARCHAR(100) NOT NULL,
    SupplierID INT NOT NULL,
    CategoryID INT NOT NULL,
    QuantityPerUnit VARCHAR(50),
    UnitPrice MONEY,
    UnitsInStock SMALLINT,
    UnitsOnOrder SMALLINT,
    ReorderLevel SMALLINT,
    Discontinued BIT NOT NULL,
    CONSTRAINT PK_tb_Products PRIMARY KEY (ProductID),
    CONSTRAINT FK_tb_Products_tb_Suppliers FOREIGN KEY (SupplierID)
REFERENCES tb_Suppliers(SupplierID),
    CONSTRAINT FK_tb_Products_tb_Categories FOREIGN KEY (CategoryID)
REFERENCES tb_Categories(CategoryID)
)

CREATE TABLE tb_Customers (
    CustomerID CHAR(5) NOT NULL,
    CompanyName VARCHAR(100) NOT NULL,
    ContactName VARCHAR(100),
    ContactTitle VARCHAR(100),
    Address VARCHAR(100),
    City VARCHAR(50),
    Region VARCHAR(50),
    PostalCode VARCHAR(20),

```

```
Country VARCHAR(50),
Phone VARCHAR(30),
Fax VARCHAR(30),
CONSTRAINT PK_tb_Customers PRIMARY KEY (CustomerID)
)

CREATE TABLE tb_Shippers (
    ShipperID INT IDENTITY(1,1) NOT NULL,
    CompanyName VARCHAR(100) NOT NULL,
    Phone VARCHAR(30),
    CONSTRAINT PK_tb_Shippers PRIMARY KEY (ShipperID)
)

CREATE TABLE tb_Employees (
    EmployeeID INT IDENTITY(1,1) NOT NULL,
    LastName VARCHAR(50) NOT NULL,
    FirstName VARCHAR(50) NOT NULL,
    Title VARCHAR(100),
    TitleOfCourtesy VARCHAR(100),
    BirthDate DATE,
    HireDate DATE,
    Address VARCHAR(100),
    City VARCHAR(50),
    Region VARCHAR(50),
    PostalCode VARCHAR(20),
    Country VARCHAR(50),
    HomePhone VARCHAR(30),
    Extension VARCHAR(10),
    Photo IMAGE,
    Notes TEXT,
    ReportsTo INT,
    CONSTRAINT PK_tb_Employees PRIMARY KEY (EmployeeID),
    CONSTRAINT FK_tb_Employees_ReportsTo FOREIGN KEY (ReportsTo)
REFERENCES tb_Employees(EmployeeID)
)

CREATE TABLE tb_Orders (
    OrderID INT IDENTITY(1,1) NOT NULL,
    CustomerID CHAR(5),
    EmployeeID INT,
```



```

OrderDate DATE,
RequiredDate DATE,
ShippedDate DATE,
ShipVia INT,
Freight MONEY,
ShipName VARCHAR(100),
ShipAddress VARCHAR(100),
ShipCity VARCHAR(50),
ShipRegion VARCHAR(50),
ShipPostalCode VARCHAR(20),
ShipCountry VARCHAR(50),
CONSTRAINT PK_tb_Orders PRIMARY KEY (OrderID),
CONSTRAINT FK_tb_Orders_tb_Customers FOREIGN KEY (CustomerID)
REFERENCES tb_Customers(CustomerID),
CONSTRAINT FK_tb_Orders_tb_Employees FOREIGN KEY (EmployeeID)
REFERENCES tb_Employees(EmployeeID),
CONSTRAINT FK_tb_Orders_tb_Shippers FOREIGN KEY (ShipVia) REFERENCES
tb_Shippers(ShipperID)
)

```

```

CREATE TABLE tb_OrderDetails (
    OrderID INT NOT NULL,
    ProductID INT NOT NULL,
    UnitPrice MONEY NOT NULL,
    Quantity SMALLINT NOT NULL,
    Discount FLOAT NOT NULL,
    CONSTRAINT PK_tb_OrderDetails PRIMARY KEY (OrderID, ProductID),
    CONSTRAINT FK_tb_OrderDetails_tb_Orders FOREIGN KEY (OrderID)
REFERENCES tb_Orders(OrderID),
    CONSTRAINT FK_tb_OrderDetails_tb_Products FOREIGN KEY (ProductID)
REFERENCES tb_Products(ProductID)
)

```

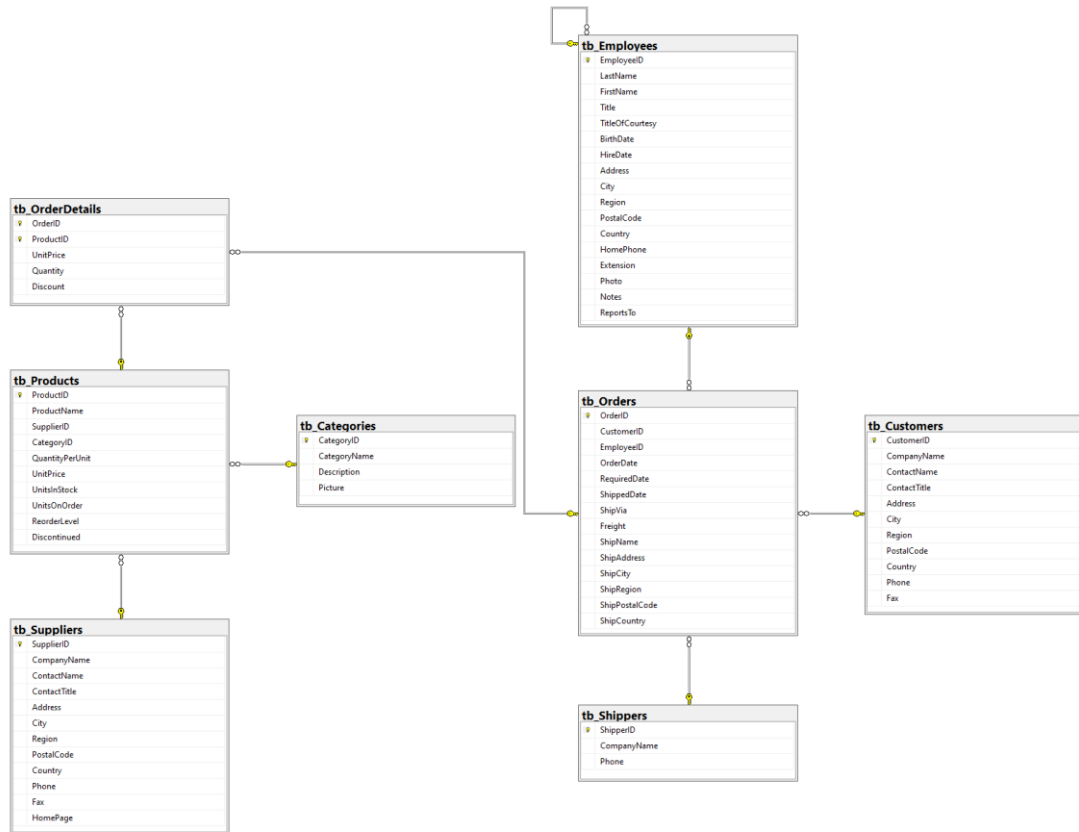
Resultado

1.-

Commands completed successfully.

Completion time: 2025-05-29T10:46:48.5999507-05:00

2.-



INSERT

Antes

Script

Después

MODIFICACIONES

Argumentación

Script

Resultado

1.- (Imagen ejecución sin error)

2. Intento por error (trata de ingresar datos no validos según lo que acabas de configurar en el ALTER)

3. Intento por acierto (Ingresa datos validos según lo que acabas de configurar en el ALTER)

Realiza 5 updates

UPDATE
Antes
Script
Después

Realiza 5 deletes

DELETE
Antes
Script
Después