

CIS 5500: Database and Information Systems

Homework 2: Relational DB Design

February 26, 2026

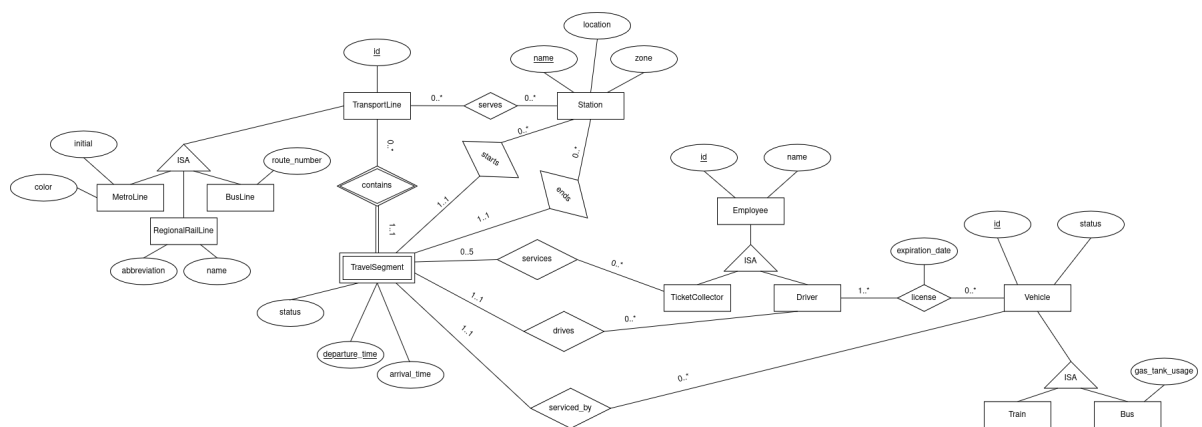
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Spring 2026

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1. Question 1 (30 points)

A. (20 points)



B. (5 points)

Ans: It is possible to have a start or end stop that does not have a Transport-Line assigned to it. We can add a not exists constraint to the stations table to check that a station can be a stop if and only if it exists in the TransportLine table **double check this!**

C. (5 points)

Ans: Add an attribute to the relationship **serves** that is called **no_of_platforms**. We also add an attribute to the Station entity set **maximum_no_of_platforms**. We add a constraint that ensures that **no_of_platforms** is less than or equal to **maximum_no_of_platforms**.

2. Question 2 (20 points)**A. 12 points****Ans:**

```
CREATE TABLE Artists(  
  ArtistID INT PRIMARY KEY,  
  Name VARCHAR(50) NOT NULL,  
  Nationality VARCHAR(50) NOT NULL,  
  BirthYear INT(4) NOT NULL  
);  
  
CREATE TABLE Customers(  
  CustomerID INT PRIMARY KEY,  
  Name VARCHAR(50) NOT NULL,  
  Email VARCHAR(100) NOT NULL  
);  
  
CREATE TABLE Artworks(  
  ArtworkID INT PRIMARY KEY,  
  OwnerID INT FOREIGN KEY REFERENCES Customers(CustomerID),  
  CreatorID INT FOREIGN KEY REFERENCES Artists(ArtistID),  
  Title VARCHAR(50) NOT NULL,  
  AYear INT(4),  
  Medium VARCHAR(50)  
);  
  
CREATE TABLE Exhibitions(  
  ExhibitionID INT PRIMARY KEY,  
  ExhibitionName VARCHAR(100) NOT NULL  
);  
  
CREATE TABLE DisplayedIn(  
  ArtworkID INT,  
  ExhibitionID INT,  
  PRIMARY KEY (ArtworkID, ExhibitionID),  
  FOREIGN KEY (ArtworkID) REFERENCES Artworks(ArtworkID),  
  FOREIGN KEY (ExhibitionID) REFERENCES  
    Exhibitions(ExhibitionID),  
  StartDate DATE,  
  EndDate DATE  
);
```

B. 4 points

C. 4 points

3. Question 3 (40 points)

A. 4 points

B. 4 points

C. 6 points

D. 5 points

E. 2 points

F. 2 points

G. 12 points

H. 5 points