# Project 02 - CPSC 440

In this project, you will create a database and database objects to model and support ticket sales for a theater production. Your one and only deliverable will be a SQL file consisting entirely of your code, in plain text. It must run on a PostgreSQL database as a complete script.

Start this assignment by looking at the color diagram at the very bottom of the document. This is a graph of seats as laid out in a theater. Your SQL code will create tables to store information relating to these seats, along with tickets and private and public customer data.

This ERD shows the required tables and their relationships :
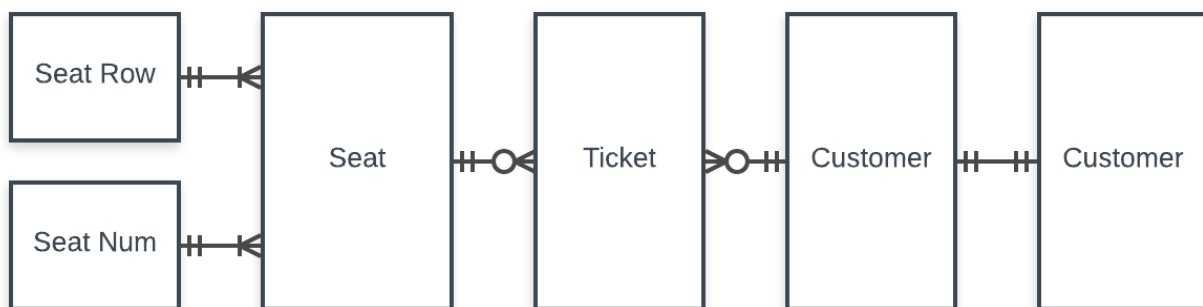
Requirements:

1. DROP then CREATE a SCHEMA named **private**. Use *cascade* and *if exists* so that the commands succeed no matter the starting state of the database. Only specified tables will be placed in the **private** schema.

   All tables with be in the **public** schema unless otherwise specified. You do not need to create **public** as it already exists by default in the postgres database.

   As you create tables, select appropriate types for all columns. Variable-length text should be **text**, while fixed 1 or 2 character fields should be **char(1)** or **char(2)**. IDs should be **int** unless otherwise specified. Use **timestamp** for performance dates and times.

2. CREATE TABLES **SeatRow** and **SeatNum** to hold lists of all seat rows and numbers. **SeatRow** should have one column called **row** holding values A through R and AA,BB...HH. **SeatNum** should have one column called **num** holding values 1-15 and 101-126. PK

3. CREATE TABLE **Seat** with columns **SeatRow**, **SeatNumber**, **Section**, **Side**, **PricingTier**, and **Wheelchair**. Use *not null* and *check* to constrain values where and if appropriate. Use the **SeatRow** and **SeatNumber** as a composite PK. Put these two columns into two FKs referencing the previous tables' columns.

4. INSERT INTO **Seat** to populate it with the following:

   1. All seats are shown in the illustration in the appendix below. Use this as a guide.
   2. Side holds values 'Right', 'Middle', or 'Left'.

3. Section holds values 'Balcony' or 'Main Floor'.
4. PricingTier is shows by the color codes and holds values 'Upper Balcony', 'Side', or 'Orchestra'.
5. Wheelchair and Handicapped seating occupy rows PQR, numbers 109-122. These 42 entries should be marked Wheelchair=true. All others seats have Wheelchair=false.
6. There is no Row **I** (the letter after **H**).
7. There are 805 seats in the theater. SELECT COUNT(*) should reflect this.
8. You can use tricks to make this easier. Seat table population can be accomplished with INSERT INTO SEAT SELECT... using Row/Num table joins and filters.
9. You can also do quite a bit of work by using UPDATE and exploiting patterns in seat numbering and sections. For example, even numbers over 100 are always on the right. SQL supports the modulo operator (100%2 = 0) for checking odds/evens.

5. CREATE TABLE Customer (in the **public** schema) with columns **CustomerID** (PK), **FirstName**, and **LastName**.
6. CREATE TABLE Customer (in the **private** schema) with columns **CustomerID** (PK) and **CreditCard** (bigint). Make CustomerID an FK referencing the public Customer table.
7. CREATE TABLE **Ticket** with columns **TicketNumber**, **CustomerID**, **SeatRow**, **SeatNumber**, and **ShowTime**. Generate ticket numbers automatically using the "serial" data type, and make it the primary key. Create a constraint ensuring that the no two tickets sell the same seat for the same show (unique composite seat row, seat number, show time). Make CustomerID an FK referencing the public Customer table.
8. INSERT INTO tables **public Customer**, **private Customer**, and **Ticket** some data to show that Mike Johnson (Customer ID of 1234) has bought tickets for Row A, Numbers 6, 8, 10, and 9 for a show on Dec 15 2017 at 2:00pm. He used a credit card with number 1234 5678 8765 4321. You will need several INSERT statements to accomplish this.

Appendix 1: Phi Beta Kappa Memorial Hall

Phi Beta Kappa Memorial Hall

Right Side

	118	116	114	112	110	108	106	104	102	HH
	120	118	116	114	112	110	108	106	104	102	GG
122	120	118	116	114	112	110	108	106	104	102	FF
122	120	118	116	114	112	110	108	106	104	102	EE

126	124	122	120	118	116	114	112	110	108	106	104	102	DD
124	122	120	118	116	114	112	110	108	106	104	102	CC
124	122	120	118	116	114	112	110	108	106	104	102	BB
124	122	120	118	116	114	112	110	108	106	104	102	AA

BALCONY

HH	2	4	6	8	10	11	9	7	5	3	1	HH
GG	2	4	6	8	10	11	9	7	5	3	1	GG
FF	2	4	6	8	10	9	7	5	3	1	FF
EE	2	4	6	8	10	9	7	5	3	1	EE

DD	2	4	6	8	10	12	14	13	11	9	7	5	3	1	DD
CC	2	4	6	8	10	12	14	13	11	9	7	5	3	1	CC
BB	2	4	6	8	10	12	14	13	11	9	7	5	3	1	BB
AA	2	4	6	8	10	12	13	11	9	7	5	3	1	AA

Left Side

HH	101	103	105	107	109	111	113	115	117	
GG	101	103	105	107	109	111	113	115	117	119	
FF	101	103	105	107	109	111	113	115	117	119	121	
EE	101	103	105	107	109	111	113	115	117	119	121	

DD	101	103	105	107	109	111	113	115	117	119	121	123	125
CC	101	103	105	107	109	111	113	115	117	119	121	123
BB	101	103	105	107	109	111	113	115	117	119	121	123
AA	101	103	105	107	109	111	113	115	117	119	121	123

Right Side (Main)

Wheelchair and Handicap Seating

108	106	104	102	R
108	106	104	102	Q
108	106	104	102	P
122	120	118	116	114	112	110	108	106	104	102	O
120	118	116	114	112	110	108	106	104	102	N
120	118	116	114	112	110	108	106	104	102	M
120	118	116	114	112	110	108	106	104	102	L
120	118	116	114	112	110	108	106	104	102	K
118	116	114	112	110	108	106	104	102	J
118	116	114	112	110	108	106	104	102	H
118	116	114	112	110	108	106	104	102	G
118	116	114	112	110	108	106	104	102	F
116	114	112	110	108	106	104	102	E
116	114	112	110	108	106	104	102	D
116	114	112	110	108	106	104	102	C
116	114	112	110	108	106	104	102	B
114	112	110	108	106	104	102	A

MAIN FLOOR

R	2	4	6	8	10	12	14	15	13	11	9	7	5	3	1
Q	2	4	6	8	10	12	14	15	13	11	9	7	5	3	1
P	2	4	6	8	10	12	14	13	11	9	7	5	3	1
O	2	4	6	8	10	12	14	13	11	9	7	5	3	1
N	2	4	6	8	10	12	14	13	11	9	7	5	3	1
M	2	4	6	8	10	12	13	11	9	7	5	3	1
L	2	4	6	8	10	12	13	11	9	7	5	3	1
K	2	4	6	8	10	12	13	11	9	7	5	3	1
J	2	4	6	8	10	12	11	9	7	5	3	1
H	2	4	6	8	10	12	11	9	7	5	3	1
G	2	4	6	8	10	12	11	9	7	5	3	1
F	2	4	6	8	10	11	9	7	5	3	1
E	2	4	6	8	10	11	9	7	5	3	1
D	2	4	6	8	10	11	9	7	5	3	1
C	2	4	6	8	10	9	7	5	3	1
B	2	4	6	8	10	9	7	5	3	1
A	2	4	6	8	10	9	7	5	3	1

Left Side (Main)

Wheelchair and Handicap Seating

R	101	103	105	107
Q	101	103	105	107
P	101	103	105	107
O	101	103	105	107	109	111	113	115	117	119	121
N	101	103	105	107	109	111	113	115	117	119
M	101	103	105	107	109	111	113	115	117	119
L	101	103	105	107	109	111	113	115	117	119
K	101	103	105	107	109	111	113	115	117	119
J	101	103	105	107	109	111	113	115	117
H	101	103	105	107	109	111	113	115	117
G	101	103	105	107	109	111	113	115	117
F	101	103	105	107	109	111	113	115	117
E	101	103	105	107	109	111	113	115
D	101	103	105	107	109	111	113	115
C	101	103	105	107	109	111	113	115
B	101	103	105	107	109	111	113	115
A	101	103	105	107	109	111	113

Legend:
- Upper Balcony
- Side
- Orchestra