GW

WHEELS

Hrutik Jitendra Naik
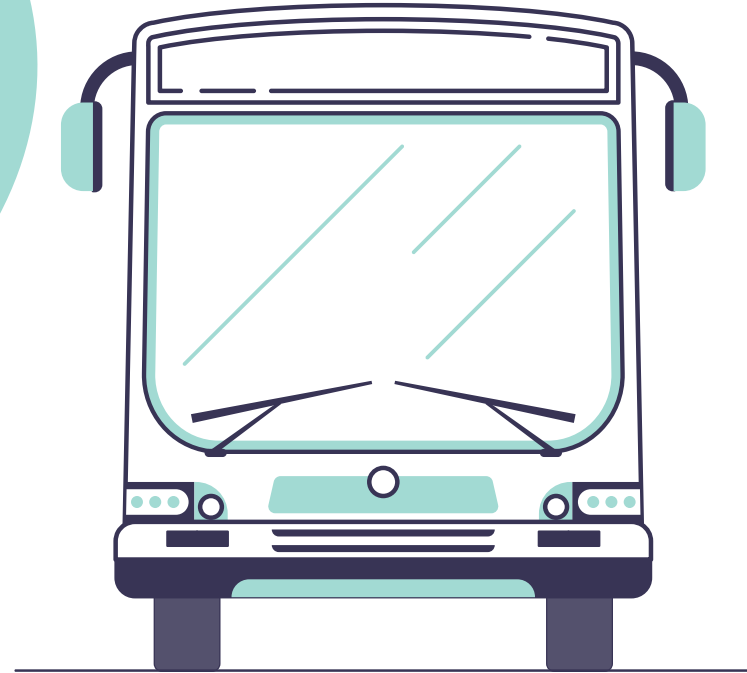Database Management Systems

GW WHEELS

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01

Problem Statement

Problem Statement

Build applications for a bus company that operates between Washington and New York City. In Washington it picks up and discharges passengers in Chinatown and at GWU. In New York it picks up and discharges passengers at Times Square and Madison Square Garden. Your database is to support ticket sales and scheduling and management of the fleet of buses. Seats are not reserved. There are two kinds of buses, some with 30 seats and some with 50 seats. You are to provide two applications, one for ordering and one for managing the service, such as changing schedules and changing the bus inventory.
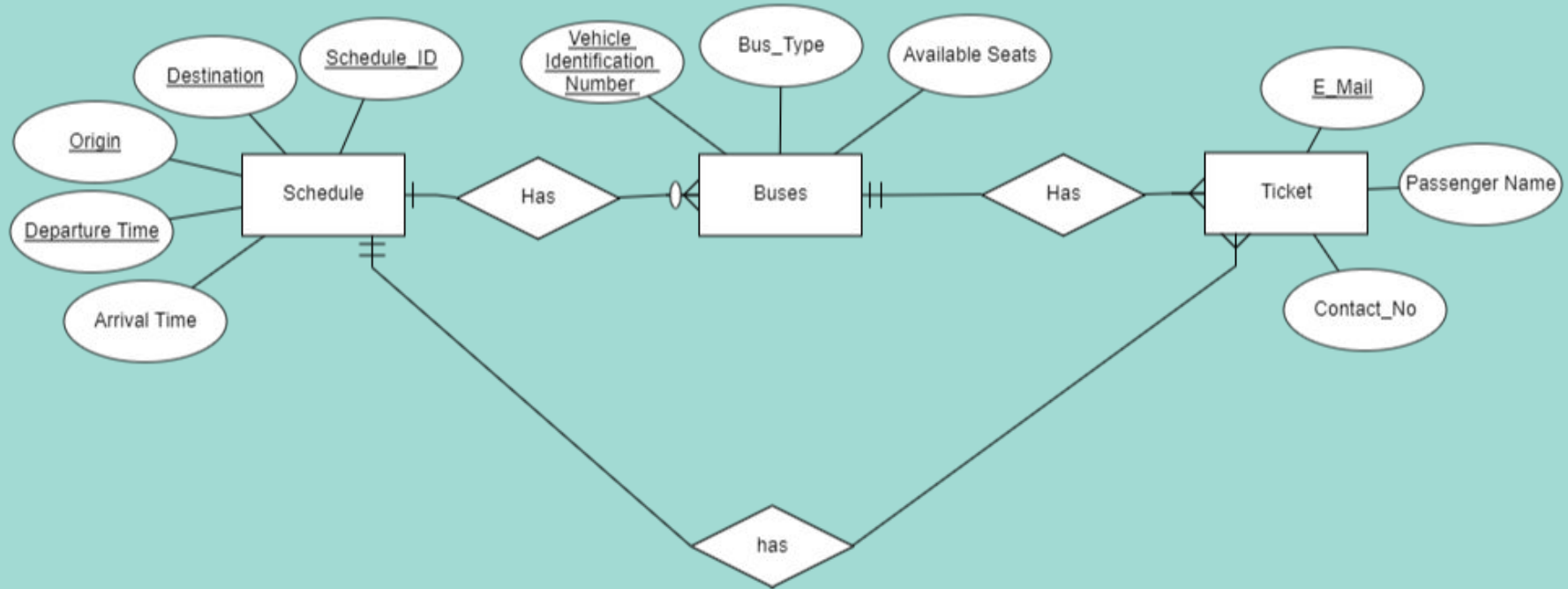
02

Chen – Style ERD

Chen – Style ERD

GW WHEELS

03

Relational Schema

Relational Schema

Buses
Vehicle Identification Number
Bus_Type
Available Seats
Schedule_ID   (FK)

Schedule
Schedule_ID
Departure Time   (U)
Arrival Time
Origin   (U)
Destination   (U)

Ticket
E_Mail
Passenger Name
Contact_No
Vehicle Identification Number   (FK)
Schedule_ID   (FK)
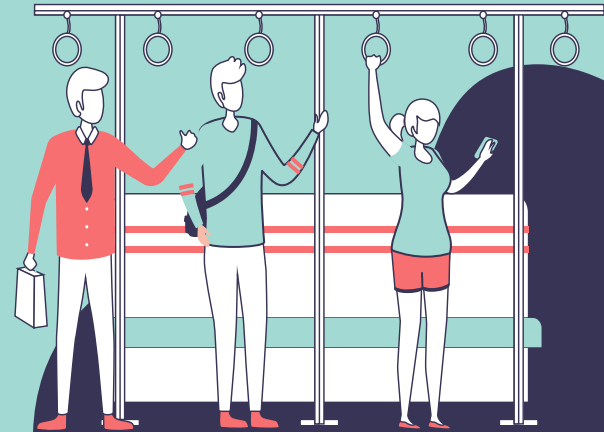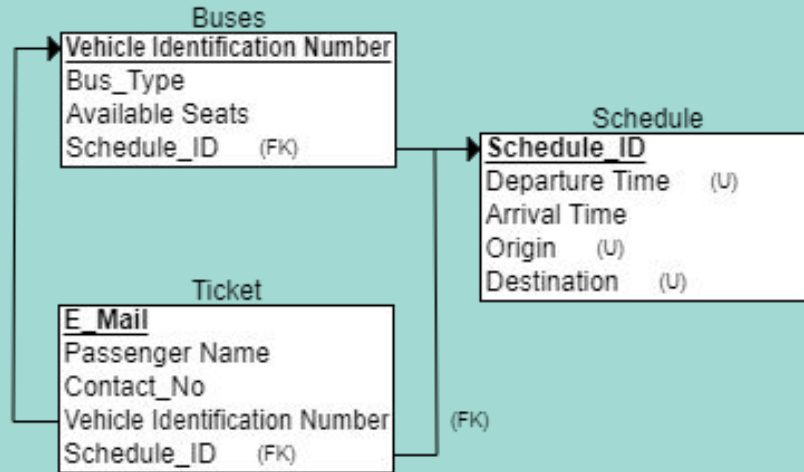
04

SQL Script

SQL Script

CREATE TABLE Schedule
(
  Schedule_ID INT,
  Departure_Time INT NOT NULL,
  Arrival_Time INT NOT NULL,
  Origin VARCHAR(255) NOT NULL,
  Destination VARCHAR(255) NOT NULL,
  PRIMARY KEY (Schedule_ID, Departure_Time, Origin, Destination)
);

CREATE TABLE Buses
(
  VIN VARCHAR(255) ,
  Bus_Type INT,
  Available_Seats INT NOT NULL,
  Departure_Time INT NOT NULL,
  Origin VARCHAR(255) NOT NULL,
  Destination VARCHAR(255) NOT NULL,
  Schedule_ID INT,
  PRIMARY KEY (VIN, Bus_Type),
  FOREIGN KEY (Schedule_ID, Departure_Time, Origin, Destination)
REFERENCES Schedule(Schedule_ID, Departure_Time, Origin, Destination)
);

CREATE TABLE Ticket
(
  Passenger_Name VARCHAR(255) NOT NULL,
  Contact_No VARCHAR(255) NOT NULL,
  E_Mail VARCHAR(255) NOT NULL,
  VIN VARCHAR(255),
  Bus_Type INT,
  Departure_Time INT NOT NULL,
  Origin VARCHAR(255) NOT NULL,
  Destination VARCHAR(255) NOT NULL,
  Schedule_ID INT,
  PRIMARY KEY (E_Mail),
  FOREIGN KEY (VIN,Bus_Type) REFERENCES
Buses(VIN,Bus_Type),
  FOREIGN KEY (Schedule_ID, Departure_Time,
Origin, Destination) REFERENCES
Schedule(Schedule_ID,Departure_Time, Origin,
Destination)
);

05

Database

Buses Table

BUSES

Columns | Data | Indexes | Constraints | Grants | Statistics | Triggers | Dependencies | DDL | Sample Queries

+ Insert Row | Columns... | Filter... | Count Rows | Load Data | Download | Refresh

VIN	BUS_TYPE	AVAILABLE_SEATS	DEPARTURE_TIME	ORIGIN	DESTINATION	SCHEDULE_ID
GWUTS01	30	29	900	GWU	Times Square	1
GWUTS02	50	50	900	GWU	Times Square	2
GWUTS03	30	30	1200	GWU	Times Square	3
GWUTS04	50	48	1200	GWU	Times Square	4
GWUTS05	30	30	1500	GWU	Times Square	5
GWUTS06	50	50	1500	GWU	Times Square	6
GWUTS07	30	30	1800	GWU	Times Square	7
GWUTS08	50	50	1800	GWU	Times Square	8
GWUMSG01	30	30	900	GWU	MSG	9
GWUMSG02	50	50	900	GWU	MSG	10
GWUMSG03	30	30	1200	GWU	MSG	11
GWUMSG04	50	50	1200	GWU	MSG	12
GWUMSG05	30	30	1500	GWU	MSG	13
GWUMSG06	50	50	1500	GWU	MSG	14
GWUMSG07	30	30	1800	GWU	MSG	15
GWUMSG08	50	50	1800	GWU	MSG	16

Schedule Table

	SCHEDULE_ID	DEPARTURE_TIME	ARRIVAL_TIME	ORIGIN	DESTINATION
✎	5	1500	1800	GWU	Times Square
✎	1	900	1200	GWU	Times Square
✎	3	1200	1500	GWU	Times Square
✎	4	1200	1500	GWU	Times Square
✎	6	1500	1800	GWU	Times Square
✎	2	900	1200	GWU	Times Square
✎	7	1800	2100	GWU	Times Square
✎	8	1800	2100	GWU	Times Square
✎	9	900	1200	GWU	MSG
✎	10	900	1200	GWU	MSG
✎	11	1200	1500	GWU	MSG
✎	12	1200	1500	GWU	MSG
✎	13	1500	1800	GWU	MSG
✎	14	1500	1800	GWU	MSG
✎	15	1800	2100	GWU	MSG
✎	16	1800	2100	GWU	MSG
✎	17	900	1200	Chinatown	MSG
✎	18	900	1200	Chinatown	MSG

SCHEDULE

Columns | Data | Indexes | Constraints | Grants | Statistics | Triggers | Dependencies | DDL | Sample Queries

+ Insert Row | Columns... | Filter... | Count Rows | Load Data | Download | Refresh

Ticket Table

GW WHEELS

	PASSENGER_NAME	CONTACT_NO	E_MAIL	BUS_TYPE	DEPARTURE_TIME	ORIGIN	DESTINATION
	Pranjali Naik	2025804873	pranjalinaik44@gmail.com	30	900	GWU	Times Square
	Hrutik Naik	55555555555	hrutiknaik@gwu.edu	50	1200	GWU	Times Square
	Dave Roberts	11111111111	dave@gwu.edu	50	1200	GWU	Times Square

TICKET

Columns Data Indexes Constraints Grants Statistics Triggers Dependencies DDL Sample Queries

+ Insert Row   Columns...   Filter...   Count Rows   Load Data   Download   Refresh

06

Application

Ticket Booking Page – Customer

GW WHEELS

Ticket Confirmation Page – Customer

☰ Ticket Booking

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Ticket Booking

Ticket

Email
cruise@gmail.com

Passenger Name
Tom Cruise

Contact No
00000000007

Bus Type
30-Seater

Departure Time
15:00 PM

Origin
ChinaTown

Destination
MSG

✓ Congratulations! Your Ticket has been booked See You There ~GW WHEELS

Cancel Create

Cancel Create

Schedule Management Page

GW WHEELS

		Schedule ID	Departure Time	Arrival Time	Start Point	End Point
✓		5	1500	1800	GWU	Times Square
		1	900	1200	GWU	Times Square
		3	1200	1500	GWU	Times Square
		4	1200	1500	GWU	Times Square
		6	1500	1800	GWU	Times Square
		2	900	1200	GWU	Times Square
		7	1800	2100	GWU	Times Square
		8	1800	2100	GWU	Times Square
		9	900	1200	GWU	MSG
		10	900	1200	GWU	MSG
		11	1200	1500	GWU	MSG
		12	1200	1500	GWU	MSG
		13	1500	1800	GWU	MSG
		14	1500	1800	GWU	MSG
		15	1800	2100	GWU	MSG
		16	1800	2100	GWU	MSG
		17	900	1200	Chinatown	MSG
		18	900	1200	Chinatown	MSG
		19	1200	1500	Chinatown	MSG
		20	1200	1500	Chinatown	MSG
		21	1500	1800	Chinatown	MSG

Ticket Management System

👤 hrutiknaik@gwu.edu

- Home
- Schedule Management
- Bus Management
- Ticket Management

Schedule Management

Search: All Text Columns | Go | Actions ⌄ | Edit | Save | Add Row | Reset

Bus Management Page

Ticket Management System   hrutiknaik@gwu.edu

Bus Management

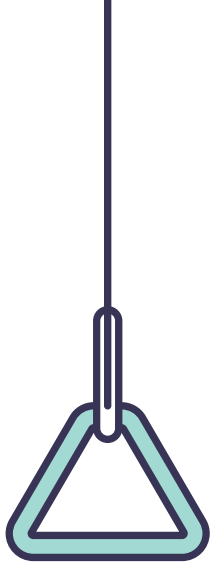Search: All Text Columns   Go   Actions   Edit   **Save**   Add Row   Reset

		Vehicle Identification Number	Bus Type	Available Seats	Departure Time	Origin	Destination
✓	☰	GWUTS01	30	29	900	GWU	Times Square
	☰	GWUTS02	50	50	900	GWU	Times Square
	☰	GWUTS03	30	30	1200	GWU	Times Square
	☰	GWUTS04	50	48	1200	GWU	Times Square
	☰	GWUTS05	30	30	1500	GWU	Times Square
	☰	GWUTS06	50	50	1500	GWU	Times Square
	☰	GWUTS07	30	30	1800	GWU	Times Square
	☰	GWUTS08	50	50	1800	GWU	Times Square
	☰	GWUMSG01	30	30	900	GWU	MSG
	☰	GWUMSG02	50	50	900	GWU	MSG
	☰	GWUMSG03	30	30	1200	GWU	MSG
	☰	GWUMSG04	50	50	1200	GWU	MSG
	☰	GWUMSG05	30	30	1500	GWU	MSG
	☰	GWUMSG06	50	50	1500	GWU	MSG
	☰	GWUMSG07	30	30	1800	GWU	MSG
	☰	GWUMSG08	50	50	1800	GWU	MSG
	☰	CHMSG01	30	30	900	Chinatown	MSG
	☰	CHMSG02	50	50	900	Chinatown	MSG
	☰	CHMSG03	30	30	1200	Chinatown	MSG

Sidebar

- Home
- Schedule Management
- Bus Management
- Ticket Management

Tickets Booked Page

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⌂ Home	
Schedule Management	
Bus Management	
Ticket Management	

Ticket Management

E Mail ↑≡	Passenger Name	Contact No	Bus Type	Departure Time	Origin	Destination
cruise@gmail.com	Tom Cruise	00000000007	30	1500	ChinaTown	MSG
dave@gwu.edu	Dave Roberts	1111111111111	50	1200	GWU	Times Square
hrutiknaik@gwu.edu	Hrutik Naik	55555555555	50	1200	GWU	Times Square
pranjalinaik44@gmail.com	Pranjali Naik	2025804873	30	900	GWU	Times Square

Thank You