

Part A: Design a database that will effectively store the data that is presented in the following related forms. Using MySQL Workbench, draw an ERD to present the design. Include entities, PKs, FKs, unique constraints, optional and mandatory fields and indicate 1:1, 1:M and M:N relationships

Note the following facts:

- The company owns several offices. Each office is at a different location and has one manager. A manager must be a driving instructor.
- Each driving lesson costs \$45, lasts for 1 hour.
- 5 Hour Class - \$50.00
- Driving Test can't be scheduled before the client completes the 5 hour class
- Driving lessons start at 8:00am. The last lesson of the day begins at 8:00pm
- An employee can be both an instructor and a manager
- An instructor can only give one lesson at a time to a client
- An instructor can only be assigned one car at any given time
- A client can switch to a different instructor but each lesson is given by one instructor.
- If a client doesn't choose a specific instructor, he will be assigned any instructor who is free to give a lesson on the date and at the time the client has requested.
- A client generally must complete several lessons before he can pass the driving exam.
- A client can't schedule a lesson with an instructor that is on vacation.
- Sample Reasons for test failure
 - Inappropriate speed
 - Incorrect position for right turn
 - Lack of steering control
 - Incorrect positioning on road
 - Incorrect use of signals
 - Hit sidewalk or curb
 - Ineffective observation
 - Inadequate observation
- An instructor can't complete a lesson completion form for a lesson that has not been scheduled

Part B:

- a) Using SQL Server, implement the database you designed to complete Part A. Include entities, PKs, FKs, unique constraints, check constraints.
- b) Implement the following constraints
 - a. Lesson can't be scheduled to start before 8am or after 8pm
 - b. The school doesn't purchase a car that is more than 5 years old
 - c. A Client can't register unless he is at least 18 years old.
- c) Populate the database with at least 5 records in each table.

Part C:

Write queries to answer each of the following questions

1. For each instructor, list the instructor name, hiredate, instructor license id, and the number of lessons he/she has given
2. For each client, list the client name and his/her instructor's name
3. For each client, list the client name and the date and time of each lesson that has been completed
4. For each car, list the purchase date and the date of each time it has been inspected
5. For each car, list the car type, the name of the instructor to whom it has been assigned and types of repairs that have been performed on the car.
6. List the vin number of each car for which more than three repairs have been performed
7. List the name of each client who has completed more than 5 lessons
8. List the name of each employee who is not a driving instructor (perform this query two different ways)
9. For each instructor, list his full name and the total number of miles he has accumulated while giving lessons.
10. List how many of each type of employee are currently employed by the driving school.
11. For each car, list how many times it has been inspected. Include cars that have not been inspected.
12. For each type of car owned by the driving school, list how many repairs have been performed on that type of car
13. For each instructor, how much money has the school received for lessons completed.
14. How many clients have failed a driving test?
15. List the name of the instructor who has his instructor license the longest amount of time
16. List the clients who have not completed lessons that they scheduled.
17. List the name of the instructor who has given the most lessons.
18. List the name of the student who has taken some lessons from **both** instructor 'x' and instructor 'y'. You can identify the instructors based on the ones you entered into your database.
19. Extra Credit: Which students took lessons from the same instructors as student 'x'. (Hint: Divide query)

MSIN615 Database Management
Spring 2018 Final Project

Data Entry Forms

Employee Data Entry Form		
Name:	First Name	
	Last Name	
Address:		
	Street	
	City	
	State	
	Zip Code	
Cell Phone Number:		
email Address:		
EmployeeType		
HireDate		
BirthDate		
For Office Use Only		
Employee ID:		

Driving Instructor Data Entry Form		
Name:	First Name	
	Last Name	
Address:		
	Street	
	City	
	State	
	Zip Code	
Cell Phone Number:		
email Address:		
EmployeeType (senior instructor, instructor)		
HireDate		
BirthDate		
Driver's License ID:		
Expiration Date:		
Driving Instructor License ID		
Date Issued:		
For Office Use Only		
Employee ID:		

MSIN615 Database Management
Spring 2018 Final Project

Driving School Client Application Form			
			Application Date:
Name:	First Name		
	Last Name		
Address:			
	Street		
	City		
	State		
	Zip Code		
Cell Phone Number:			
email Address:			
Birth Date:			
Driving Permit ID:			
Driving Permit State:			
Requested Instructor: (may be left blank)			
For Office Use Only:			
Client ID:			

Car Purchase Form		
Date of Purchase:		
Car VIN:		
Year:		
Car Type:		
(minivan, sedan, compact car midsize car, station wagon, van)		
Condition: New, Used		
Manufacturer:		

Internet Resource : Realistic Data Values

https://en.wikipedia.org/wiki/Car_classification#Classification_methods

Completed to assign a specific car to a specific instructor. An instructor can only be assigned one car at any given time.

Driving School Car Allocation Form		
		Car Allocation Date:
Driving Instructor ID:		
First Name:		
Last Name:		
Car VIN (Vehicle Identification Number)		

Completed by a Client to request to be assigned to a certain instructor

Instructor Request Form			
			Request Date:
Client ID:			
Instructor ID:			
	First Name:		
	Last Name:		
For Office Use Only			
Request Granted: Y/N			

Completed for each client who requests one or more lessons.

MSIN615 Database Management
Spring 2018 Final Project

Driving Lesson Request Form			
Client ID:			
Instructor ID: (optional)			
Date	Start Time	End Time	

Completed by the instructor after each completed lesson

Lesson Completion Form							
Instructor ID:	Client ID:	Lesson Date:	Start Time	End Time:	Mileage	Payment	
Comments							

Instructor Vacation Request Form		
Instructor ID:	From Date	To Date

Client Road Test Completion Form							
Client ID:							
Instructor ID:							
Road Test Date:							
Result: Pass / Fail							
Reason(s) For Failure:							

Car Inspection Form	
Car VIN:	
Date Inspected:	

Car Repair Form	
Repair Date	
Car VIN	
Repair Type (brakes, oil change, replace tires, body repairs)	