DATABASE DESIGN LABORATORY REPORT

LABORATORY REPORT

Common Data	
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Laboratory place	**IL206**
Laboratory time	**26TH February,10.15am-11.45 pm**
Title or Sequence number	**1**

Exercises	
Task 1	☐
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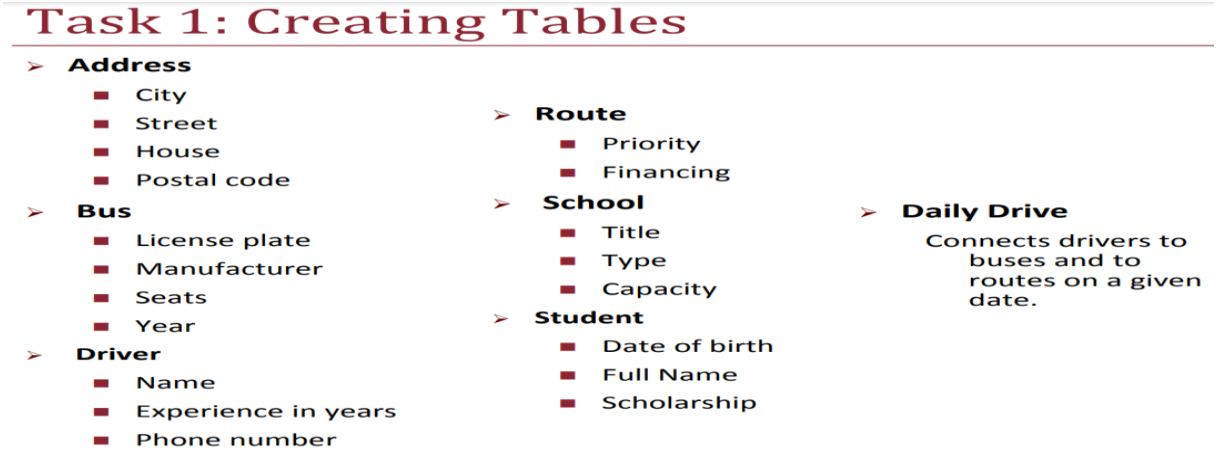
Task 4	☐

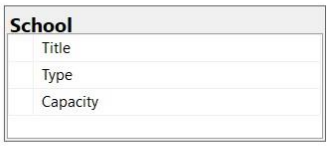
EXERCISES

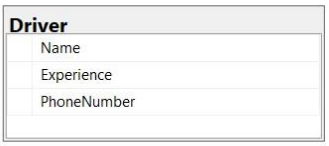
TASK #1

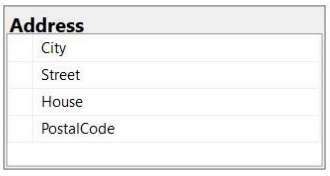
Problem statement: Create at least six tables by following the given information about entities and attributes.



Solution:







Reasoning:

To create tables, after creating a database named MyLab1 , I expanded the options under that database and right clicked on the Tables option and then selected **New** and then **Table**. Then I gave appropriate **Column Names**, **Data Types** and **Nulls** if applicable. Like this I created six tables that can be seen above.

TASK #2

Problem statement: We have to define keys (unique IDs) for tables. Also, we need to create a DailyDrive table (by observing the Entity-Relation diagram) . Specify relations between tables according to the provided Entity-Relation Diagram. And finally checking the correctness.

Solution:

Reasoning:

We can set a primary key for each table by clicking right click on any data of the column name and then select **Set Primary Key**. But we need to be assure that this data is unique for this specific column and table.

From observing the entity relation diagram I have realized that the DailyDrive table has to connected with route, driver and bus table. So apart from **Date** and it's **primary key ID** , the DailyDrive table also need to have **BusID**, **DriverID** and **RouteID**.

To specify relations between tables according to the provided Entity-Relation Diagram, first we need to understand which table need to be connected with which table and then we need to decide **foreign keys** for each table and add them. And finally we can see the relation above.

Finally, to check the correctness of the relations we can read the general statement and find the relations mentioned there matches with our above picture. We will also realize the correctness of the relation while inputting data in the 3rd task and then finding an information in the 4th task.

TASK #3

Problem statement: Add some test data to tables (4-5 rows)

Solution:

DateofBirth	FullName	Scholarship	ID	AddressID	SchoolID
2000-10-09	Anjan	True	1	1	1
2000-09-09	John	False	2	2	2
2000-12-12	Nguyen Ky	False	3	3	3
2000-04-04	Szabo	True	4	4	4

Student Table

Title	Type	Capacity	ID
BME	Govt.	1000	1
Debrecen	Govt.	1500	2
Pecs	Private	500	3
ELTE	Govt.	900	4
Semmelewis	Private	300	5

School Table

Priority	Financing	ID	SchoolID
1	*NULL*	1	1
2	*NULL*	2	2
3	*NULL*	3	3
4	*NULL*	4	4
5	*NULL*	5	5

Route Table

Name	Experience	PhoneNum...	ID
Steve	5	12345	1
Micahel	4	23456	2
John Smith	6	345567	3
Peter	2	467467	4
David	1	45789544	5

Driver Table

Date	BusID	DriverID	RouteID	ID
2015-08-02	1	1	1	1
2015-08-02	2	2	2	2
2015-08-02	3	3	3	3
2015-09-02	1	1	1	4
2015-09-02	2	2	2	5
2015-09-02	3	3	3	6
2015-10-02	1	1	1	7
2015-10-02	2	2	2	8
2015-10-02	3	3	3	9

DailyDrive Table

City	Street	House	PostalCode	ID	RouteID
Budapest	Oktober	1	4	1	1
Budapest	Kossuth	2	2	2	2
Budapest	Ulloi	3	3	3	3
Budapest	Petofi	4	4	4	4

Address Table

LicensePlate	Manufactur...	Seats	Year	ID
123AB	Toyota	50	2019	1
234CD	Toyota	60	2018	2
345DF	Mercedes	50	2015	3
456ER	Merceds	70	2019	4
567WE	BMW	50	2010	5

Bus Table

Reasoning:

As per the instruction, after right clicking on a table , we should choose Edit first 200 rows and then insert out data. But we have to be aware about the fact that there are foreign keys on many tables. So first we should fill the tables which don't have any foreign key , and then subsequently following the relation.

TASK #4

Problem statement: Finding Driver's Name and Contact number by the information -> Name of the schoolboy: Nguyen Ky , Exact date when he lost his bag: 8 February 2015.

Solution:

	Student Name	Date	Driver Name	Contact Number
1	Nguyen Ky	2015-08-02	John Smith	345567

Query executed successfully.

Reasoning: To find this solution, I have used the join functionality of SQL. There are some kind of joins, but for this case we need to use inner join, which will help us to join all the necessary tables and then extract out the necessary information we need. For that I have used following lines of code:

```
select Student.FullName As 'Student Name',DailyDrive.Date As Date,Driver.Name As
'Driver Name',Driver.PhoneNumber As 'Contact Number'
/*First we need to select the columns from each table which are necessary */

from Student /*Student name is the key to find the driver's name, so we will start
linking from the student table */

inner join Address on Student.AddressID = Address.ID /*as student table is connected
with address table */
inner join Route on Address.RouteID = Route.ID /* address table is connected with
route table with another foreign key*/
inner join DailyDrive on Route.ID = DailyDrive.RouteID /*route table is connected with
Dailydrive table */
inner join Driver on Driver.ID = DailyDrive.DriverID /* and finally finding the driver
ID as it was a foreign key in the DailyDrive table*/

where Student.FullName = 'Nguyen Ky' and DailyDrive.Date = '2015-08-02' /* searching
with our info*/
```

By reading the comments it is easily understandable that how I used the inner join to connect the necessary tables and extract the information that we wanted.

INSTRUCTIONS

1. **Problem statement is mandatory.**
2. **A solution without explanation is NOT accepted.**
3. **If you need to copy the source code, you can do it with copy/paste commands. Please do not use screenshots for code listings.**
4. **Other screenshots (figures, graphs, etc.) should be scaled appropriately. Please cut off unnecessary elements on the images.**