

An Introduction to Relational Databases

The Bus Trip Scenario

Task 1

Open the simulator.

You should see:

- The **front-end** of the application ie what the user sees. It is a form.
- The **back-end** of the application ie what the user doesn't see. In this case, 4 database tables

Answer the following questions:

1. How many records are in the following database tables when we first open the app?

Customer	TripOption	Driver	Trip

2. Complete the form with this information:

0909999999	London→Manchester	any date
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Explain at least 3 things that happened in the database after entering this data:

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3. Complete this form with this information:

0909999999	Liverpool→York	any date
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Did you have to reenter the Customer Name this time?

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Look at the **Trip** table. Complete the information for the first trip listed in the table?

Customer Name	
Route	
Duration	
Driver Name	

Imagine if this app only used **one** database table eg:

TripID(PK)	CustName	Phone	Route	Duration	DriverName	DriverPhone	Date
1	Jack Jones	0809999999	Liverpool→York	2.5hours	Janet Smith	07123456789	2026/01/15
2							

4. In the above table, for **TripID** 2, write another trip for *Jack Jones* on the *Liverpool→York* route.

Take a moment to think -***Do we need to enter data into all of the fields?***

YES/NO

Justify your answer here.

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Regardless of what you wrote for the previous question, in the digital app which has 4 tables:

- we do not have to reenter the Customer name each time a trip is booked
 - we do not need to reenter the Route information - we simply select it.
 - we do not need to reenter the Driver's phone number
5. Can you think of some **consequences** of having to enter the same data multiple times into a database table eg the Customer's Phone Number **or** not entering that data:
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"Relational Databases reduce **data redundancy** and promote **data consistency**."

6. Do a little research on these two ideas. Put any thoughts or questions that you have about them here:

7. Circle the **Primary Key** of each table. Can you figure out the relationships between the 4 tables? Draw lines between **fields** in any tables that you think create those relationships:

Customer Table

CustomerID	Name	Phone
1	Jack Jones	08075024984

TripOption Table

TripOptionID	Route	Duration
1	London → Manchester	4h
2	Leeds → Edinburgh	3h
3	Birmingham → Bristol	2h
4	Liverpool → York	2.5h
5	Oxford → Cambridge	2h

Driver Table

DriverID	Name	Phone
1	Janet Smith	07123456789
2	Alex Rodeo	07987654321
3	Chris Patel	07001122334
4	Morgan Lee	07888999111

Trip Table

TripID	CustomerID	TripOptionID	DriverID	Date
1	1	4	1	2026-01-15
2	1	3	4	2026-02-04