

Mojo transportation Optimization

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In this situation, if the rent lease form has two customer ID, which means both customer going to operate the transportation, or both customers are in the renting contract. It will not satisfy the first normal form, because first normal form the value should be atomic, cannot be multi-value

What not to do for the First Normal Form: (data are just dummy data)

Rent (Table)

<u>Make</u>	Model	CustomerID
Honda	Civic	cc123, cc124
Ford	Mustang	cc333
Bmw	X5	cc221

What we need to do to satisfy the First Normal Form:

<u>Make</u>	Model	CustomerID
Honda	Civic	cc123
Honda	Civic	cc124
Ford	Mustang	cc333
Bmw	X5	cc221

For the Second Normal Form:

Customer (Dummy Data)

What we can determine the customer's Fname is customer ID and SSN

<u>customer_ID</u>	<u>SSN</u>	DOB	Fname	Lname	Sex
cc123	12312312312	11-11-2000	Jeremy	Clarkson	M
cc124	21332121231	2-2-1999	Bailey	Kim	F

So to satisfy the Second Normal Form, if we know the customer_id and know the SSN, Because this is a Full Functional Dependency, we should able to determine the customer's other information, such as Dob,fname,lname,and sex.

But if we only have the Dob, or even we have the fname, its not functional dependency, we cant get the customer_ID, or ssn, or anything other customer's information.

because it couldn't satisfy the second normal form, or it's a partial functional dependency. Depends on the whole key

Third Normal Form

<u>customer_ID</u>	<u>SSN</u>	DOB	Fname	Lname	Sex
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<u>Make</u>	<u>Model</u>	<u>CustomerID</u>
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Customer_ID → SSN, DOB, Fname, Lname, Sex, Rent.Make, Rent. Model

SSN → Customer_ID , DOB, Fname, Lname, Sex

Rent.Customer_ID → SSN, DOB, Fname, Lname, Sex, Rent.Make, Rent. Model

Not To Do:

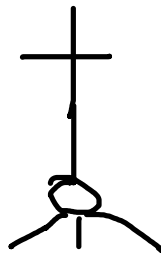
DOB, Fname → Customer_ID

Denormalization:

Normalized database:

Customer:

<u>customer_ID</u>	<u>SSN</u>	DOB	Fname	Lname	Sex
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Rent:

<u>Make</u>	<u>Model</u>	<u>CustomerID</u>
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Denormalized: this is just for a company wants to have the history of the customer, who rented what kind of vehicle.

Customer_history:

<u>customer_ID</u>	<u>SSN</u>	DOB	Fname	Lname	Sex	Rented.Make	Rented.Model
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Rented:

<u>Make</u>	<u>Model</u>	<u>CustomerID</u>
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