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3.29.2020

SQL Database Design

1. This table is in 1NF because it doesn’t have any repeating rows but is not in 2NF because “Guides” is dependent on “Reservations” and “Trip”, but “Customer” is only dependent on “Reservation” (Customer only dependent of portion of primary key). To convert it to 2NF, I would remove “Guides” and put it in a “Trip” table with “Guides” being an attribute for “Trip”.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Reservations** | **Trip** | **Guides** | **Customer** | **Customer Name** |
| 160001 | 1 | GZ01 | 101 | Liam |
| 160001 | 5 | KA01 | 101 | Liam |
| 160002 | 3 | ASL01 | 102 | Arnold |
| 160003 | 1 | RH01 | 103 | Sujata |
| 160004 | 10 | GZ01 | 104 | Ryan |
| 160005 | 8 | BR01 | 105 | Kyle |
| 160006 | 8 | BR01 | 106 | Joseph |

This is 2NF because each dependent is only dependent on the one, full primary key (Reservations/Trip), however, it’s not 3NF because there are more than 1 non-candidate determinants (Customer). To make this 3NF, remove Customer’s Name and use it as an attribute to a “Customer” table.

|  |  |  |  |
| --- | --- | --- | --- |
| **Reservations** | **Trip** | **Customer** | **Customers Name** |
| 160001 | 1 | 101 | Liam |
| 160001 | 5 | 101 | Liam |
| 160002 | 3 | 102 | Arnold |
| 160003 | 1 | 103 | Sujata |
| 160004 | 10 | 104 | Ryan |
| 160005 | 8 | 105 | Kyle |
| 160006 | 8 | 106 | Joseph |

|  |  |
| --- | --- |
| **Trip** | **Guides** |
| 1 | GZ01 |
| 5 | KA01 |
| 3 | ASL01 |
| 1 | RH01 |
| 10 | GZ01 |
| 8 | BR01 |
| 8 | BR01 |

1. TRIP (TRIP\_ID, TRIP\_NAME, STATE\_ABBREVIATION, STATE\_NAME, (GUIDE\_NAME, GUIDE\_LAST, GUIDE\_FIRST))

**Functional Dependencies**

TRIP\_ID -> TRIP\_NAME, STATE\_ABBREVIATION, STATE\_NAME

GUIDE\_NAME -> GUIDE\_LAST, GUIDE\_FIRST

**3NF**

Trip (TRIP\_ID, TRIP\_NAME, STATE\_ABBREVIATION, GUIDE\_NAME)

State (STATE\_ABBREVIATION, STATE\_NAME)

Guide (GUIDE\_NAME, GUIDE\_LAST, GUIDE\_FIRST)

1. 1. Participant (Participant\_Number, Last\_Name, First\_Name, Address, City, State, Zip, Phone, DOB)
   2. Adventure Class (Class\_Number, Description, Max\_Attendees, Fee)
   3. ParticipantClass (Participant\_Number, Last\_Name, First\_Name, (Class\_Number, Class\_Description, Class\_Date))

PARTICIPANT CLASS

* 1. EVENT (Class\_Date, Class\_Number, Class\_Description, (Participant\_Number, Last\_Name, First\_Name))

CLASS PARTICIPANT

(I’m not exactly sure I understand what’s being asked for question 3. If I do a, b, c, and d, then I get the answer above. If I’m just trying to create a database for the information given, then my answer is below.)

Participant (Participant\_Number, Last\_Name, First\_Name, Address, Zip, Phone, DOB)

Zip (ZIP, City, State)

Class (Class\_Number, Description, Max\_Attendees, Fee)

Guide (GUIDE\_NUM, GUIDE\_FIRST, GUIDE\_LAST)

Event (CLASS\_DATE, CLASS\_NUMBER, PARTICIPANT\_NUMBER, GUIDE\_NUM)

