

## Practice Problem on ERD Construction

Assume that you will run a survey on campus using the form titled “*Places you’d like to visit!*” given below. You are required to construct an Entity Relationship Diagram (ERD) showing the tables that will efficiently store all the data you will collect through the survey. Make sure that the tables in your ERD are in third normal form.

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### *Places you’d like to visit!*

First Name: .....

Last Name: .....

Department: .....

Faculty: .....

Age Group (please tick one): (a) 18-20 (b) 21-25 (c) 26-30 (d) 31-35 (e) 36 or above

List up to five of your favorite places to travel to: (1) .....

(2) .....

(3) .....

(4) .....

(5) .....

***Thanks for letting us know!***

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# ERD Construction

You can start by creating an unnormalized table that will store all the data you will collect through the survey using the given form. Then fill out the table with some arbitrary but realistic data. This helps in identifying repeating groups, redundant data, and any transitive dependency that may exist in the table you first create. Such a table for this problem is given below.

## Participant

ParticipantID	FirstName	LastName	Department	Faculty	AgeGroup	Place
000001	John	Doe	Computer Science	Science	A	Jasper
						Egypt
						Paris
000002	Richard	Miles	Music	Art History	C	Rome
						Jasper
000003	Mary	Lange	Computer Science	Science	B	Mexico
000004	Jane	Roe	Biomechanics	Kinesiology	A	Paris
						Egypt

Now follow the database normalization steps from the practice problem available on the following link to normalize the *Participant* table up to third normal form:

[http://pages.cpsc.ucalgary.ca/~tamj/203/assignments/practice/Normalization\\_Solution.pdf](http://pages.cpsc.ucalgary.ca/~tamj/203/assignments/practice/Normalization_Solution.pdf).

The next three sections show the tables you should get 1NF, 2NF, and 3NF.

## Tables in First Normal Form (1NF):

### Participant1NF

ParticipantID	FirstName	LastName	AgeGroup	Department	Faculty
000001	John	Doe	A	Computer Science	Science
000002	Richard	Miles	C	Music	Art History
000003	Mary	Lange	B	Computer Science	Science
000004	Jane	Roe	A	Biomechanics	Kinesiology

### FavoritePlace1NF

ParticipantID	Place
000001	Jasper
000001	Egypt
000001	Paris
000002	Rome
000002	Jasper
000003	Mexico
000004	Paris
000004	Egypt

## Tables in Second Normal Form (2NF):

**Participant2NF**

ParticipantID	FirstName	LastName	AgeGroup	Department	Faculty
000001	John	Doe	A	Computer Science	Science
000002	Richard	Miles	C	Music	Art History
000003	Mary	Lange	B	Computer Science	Science
000004	Jane	Roe	A	Biomechanics	Kinesiology

**FavoritePlace2NF**

ParticipantID	Place
000001	Jasper
000001	Egypt
000001	Paris
000002	Rome
000002	Jasper
000003	Mexico
000004	Paris
000004	Egypt

## Tables in Third Normal Form (3NF):

**Participant3NF**

ParticipantID	FirstName	LastName	AgeGroup	Department
000001	John	Doe	A	Computer Science
000002	Richard	Miles	C	Music
000003	Mary	Lange	B	Computer Science
000004	Jane	Roe	A	Biomechanics

**DeptFaculty3NF**

Department	Faculty
Biomechanics	Kinesiology
Computer Science	Science
Music	Art History

**FavoritePlace3NF**

ParticipantID	Place
000001	Jasper
000001	Egypt
000001	Paris
000002	Rome
000002	Jasper
000003	Mexico
000004	Paris
000004	Egypt

Fig. 1 shows the Entity Relationship Diagram (ERD) with the tables in 3NF.

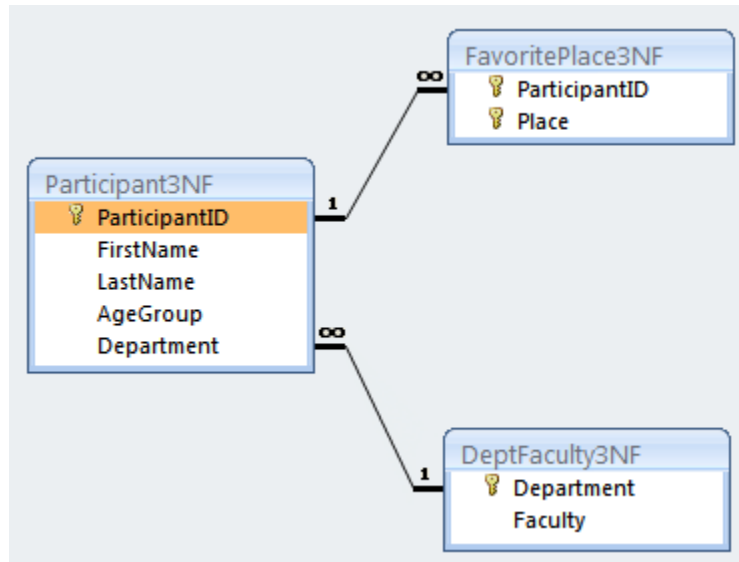


Fig. 1 The Entity Relationship Diagram (ERD)