Relational Mapping phase

- **Gaddi Gang**

Note:- There exists errors and discrepancies with the modified er diagram of our project made by team innovators. In order to avoid confusion, we have implemented the modified er diagram version regardless

1. Stepwise conversion:-

Step 1

Mapping of regular entity types

Volunteer							
Volunteer_id	Volunteer_name	Time_slot	Age	Birth_date	Address	FIO_incharge	Restaurant_incharge

Restaurant				
Restaurant_id	Address	Name	Surplus_food	times_for_collection

Food Intensive organisation							
Organisation_id	Name	No_of_people_to_lead	No_of_vegetarians	No_of_non_vegetarians	Meal_timings	Address	Meal_preference

Step 2

Mapping of weak entity types

Donation		
Donation_id	Benefactor_id	Donation_amount

Food						
Meal_id	State_of_food	Expiration date	Meal_name	preference	serving_size	time_of_making

Step 3

Mapping of binary 1:1 relationship types
No binary 1:1 relationship types exist in this database

Step 4

Mapping of 1:N relationships types

Incharge of	
Volunteer	Food intensive organisations

Incharge of	
Volunteer	Restaurant

Step 5

Mapping of binary M:N relationship types
No binary M:N relationship types exist in this database

Step 6

Mapping of multivalued attributes

Restaurants_handled	
Restaurants in charge	Volunteer_id

FIO_handled	
FIO_incharge	Volunteer_id

Time_for_meals	
Meal_timings	Organisation_id

Collection	
Times_of_collection	Restaurant_id

Excess_food	
Surplus_food	Restaurant_id

Step 7

Mapping of N-ary relationship types

Food transferred from		
Food intensive organisations	Restaurant	Food

Step 8

Mapping specialization or generalization

No subclasses exist in this database

Step 9

Mapping of union types (categories)

No union types exist in this database

2. Relational Model obtained from ER diagram

No changes to the given ER diagram

Volunteer							
Volunteer_id	Volunteer_name	Time_slot	Age	Birth_date	Address	FIO_incharge	Restaurant_incharge

Restaurant				
Restaurant_id	Address	Name	Surplus_food	times_for_collection

Food Intensive organisation							
Organisation_id	Name	No_of_people_to_lead	No_of_vegetarians	No_of_non_vegetarians	Meal_timings	Address	Meal_preference

Donation		
Donation_id	Benefactor_id	Donation_amount

Food						
Meal_id	State_of_food	Expiration date	Meal_name	preference	serving_size	time_of_making

Incharge of	
Volunteer	Food intensive organisations

Incharge of	
Volunteer	Restaurant

Restaurants_handled	
Restaurants in charge	Volunteer_id

FIO_handled	
FIO_incharge	Volunteer_id

Time_for_meals	
Meal_timings	Organisation_id

Collection	
Times_of_collection	Restaurant_id

Excess_food	
Surplus_food	Restaurant_id

Food transferred from		
Food intensive organisations	Restaurant	Food

3. Conversion To Normal Forms

1st Normal Form (reduce all multivalued , composite and nested attributes)

- Meal Timings : Make a new Table as follows :

Meal Timings			
Organization Id	Morning	Afternoon	Night

- Times For Collection : It can also be broken down to three time periods

Time for Collection			
Restaurant Id	Morning	Afternoon	Night

- Surplus Food, FIO_InCharge and Restaurant_inCharge can be broken down as follows :

Surplus Food	
Restaurant Id	Amount Of Surplus

FIO_inCharge	
Organization Id	No of Volunteers

Restaurant_inCharge	
Restaurant Id	No of Volunteers

- To compensate for the changes made , the following tables must be changed as well :

  - Removed the entries FIO_inCharge and Restaurant_inCharge

Volunteer					
Volunteer_id	Volunteer_name	Time_slot	Age	Birth_date	Address

  - Added the Entry FIO_inCharge to FIO table

Food Intensive organisation								
Organi sation_ id	Name	No_of_ people _to_lea d	No_of_ vegetar ians	No_of_ non_ve getaria ns	Meal_ti mings	Addres s	Meal_p referen ce	No of Volunt eers

○ Added the Entry Restaurant_inCharge to Restaurant table

Restaurant					
Restaurant_ id	Address	Name	Surplus_foo d	times_for_c ollection	No of Volunteers

2nd Normal Form

We don't have any functional dependencies with proper subsets, in the database

3rd Normal Form

We don't have any transitive functional dependencies in the database

4. Example For Database

Volunteer					
Volunteer_i d	Volunteer_n ame	Time_slot	Age	Birth_date	Address
1	happy	Morning	23	15-02-1996	Gacchibowli
3	sad	Evening	32	22-04-1987	Kondapur

Food Intensive organisation							
Organisation_id	Name	No_of_people_to_feed	No_of_vegetarians	No_of_non_vegetarians	Address	Meal_preference	No of Volunteers
15	Bharatiya orphanage	35	16	19	Jubilee hills	0	2

Meal Timings			
Organization Id	Morning	Afternoon	Night
15	1	0	0

Restaurant					
Restaurant_id	Address	Name	Amount of Surplus	times_for_collection	No of Volunteers
2	Gacchibowli	Subway	20	Morning	1
7	kodapur	Pakwaan briyani	18	Evening	1

Donation		
Donation_id	Benefactor_id	Donation_amount
3	15	2,00,000
5	15	15,000

Food						
Meal_id	State_of_food	Expiration date	Meal_name	preference	serving_size	time_of_making
3	liquid	15-9-2019	Butter chicken masala	1	1	6:00 pm
6	solid	3-9-2019	paratha	0	4	3:30 pm
8	liquid	15-9-2019	Tomato soup	0	2	12:00pm

Time for Collection			
Restaurant Id	Morning	Afternoon	Night
2	0	1	0
7	0	0	1