# **Group 3** - KIRTHANA BALASUBRAMANIAN RAGAVI SANKARAN RAMESHBABU SANJANA BUCHALA

# DELIVERING HAPPINESS FOR UNDERPRIVILEGED IN DALLAS

# **PART 1:**

## **INTRODUCTION:**

- Phenomena Delivering donations to underprivileged
- Information System An information system which collects and delivers donations to underprivileged at their doorsteps.

#### **BUSINESS PROCESSES:**

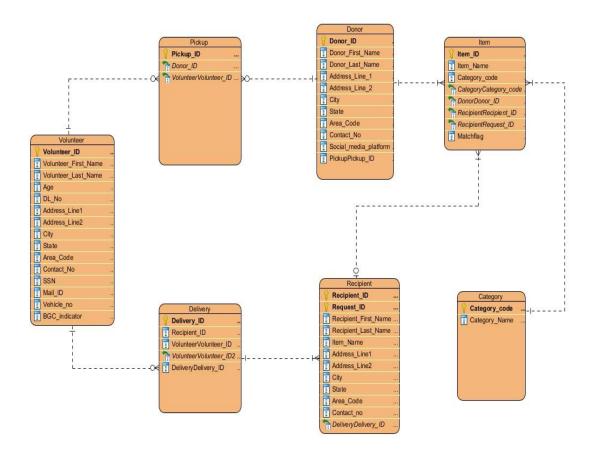
- Collect volunteer information (BP1):
  - √ Post volunteer requirement(A1)
  - ❖ FUCNTIONAL REQUIRMENT:
    - Information regarding volunteer requirements should be posted
    - ✓ Collect and store volunteer data(A2)
  - **❖** FUCNTIONAL REQUIRMENT:
    - Volunteers should apply for the post
    - Volunteers should own a vehicle
    - Volunteers should have a valid driver's license
  - ❖ DATA REQUIREMENT:
    - A volunteer (Volunteer\_ID as the PK in VOLUNTEER table) has all the volunteer data.
    - √ Segregate volunteers based on availability and location(A3)
  - ❖ FUCNTIONAL REQUIRMENT:
    - Volunteers should be residents of Dallas
    - Volunteers should pass a background check
  - **❖** DATA REQUIREMENT:
    - A volunteer can collect items from one or many donors (Donor\_ID as the PK in DONOR table); a donor can contribute items to one or more volunteers
- Collect donor details and requests (BP2):
  - ✓ Gather donor requests and information via social media (A1)
  - **❖** FUNCTIONAL REQUIREMENTS:
    - Awareness should be created about the initiative

- Donors should have an account on social media platforms
- Donors should post donor requests on social media platforms using hashtags
- **❖** DATA REQUIREMENTS:
  - List of all the donor details and requests (Donor\_ID are the PK in the DONOR table)
  - ✓ Check availability of volunteers (A2)
- ❖ FUNCTIONAL REQUIREMENTS:
  - Assign a volunteer to collect the donation based on the area code of the donor
- **❖** DATA REQUIREMENTS:
  - List of the volunteers is managed
- Segregating the items (BP3):
  - √ Categorize donations based on item type (A1)
  - ❖ FUNCTIONAL REQUIREMENT:
    - Donation item type should be identified
    - The identified item should be categorized into domains like stationary, clothing, books, etc.
  - **❖** DATA REQUIREMENTS:
    - Every item can have only one category (Category\_ID as the PK in CATEGORY table). But one category can have one or more items.
    - ✓ Pack the items according to the recipient requests (A2)
  - ❖ FUNCTONAL REQUIREMENTS:
    - Categorized items should be packed according to recipient needs
- Collect recipient details and requests (BP4):
  - √ Gather recipient requests from NGOs (A1)
  - ❖ FUNCTONAL REQUIREMENTS:
    - Recipients should be registered to a government recognized NGO
    - Recipients should provide their requirements to the NGOs
  - **❖** DATA REQUIREMENTS:
    - List of all the recipient details and requests are gathered
    - ✓ Segregate the recipient request based on the item type (A2)
  - ❖ FUNCTIONAL REQUIREMENTS:
    - Requests should be organized based on the categories
  - ❖ DATA REQUIREMENTS:

- List of all the recipient's requests is then categorized
- > Deliver the items to the recipient (BP5):
  - ✓ Pick up the items from the collection point (A1)
  - ❖ FUNCTIONAL REQUIREMENTS:
    - Available volunteers should be contacted for delivery
    - Volunteers should be given the recipient location
    - Volunteers should pick up the packed donation from the collection point
  - **❖** DATA REQUIREMENTS:
    - A volunteer (Volunteer\_ID) can have one or more delivery under his/her name (Delivery\_ID as the PK in the Delivery table).
    - ✓ Deliver items to the recipient (A2)
  - ❖ FUNCTIONAL REQUIREMENST:
    - Volunteers should deliver the donation to the recipient's doorstep
  - **❖** DATA REQUIREMENTS:
    - A recipient (Recipient\_ID is the PK in the RECIPIENT table) can receive one or more items (Recipient\_ID as the FK in ITEM table). One item can have only one recipient.

# **PART 2:**

# **ENTITY RELATIONSHIP DIAGRAM:**



# **PART 3:**

## **NORMALIZED TABLE:**

# **Table requirements:**

- > BP1 Requirements: There is a volunteer table which has the following fields,
  - Volunteer ID (Primary Key)
  - Volunteer First Name (Not Null)
  - Volunteer Last Name (Not Null)
  - Age
  - Driver's License ID (Unique Key)

- Address Line 1
- Address Line 2
- City (Resident of Dallas)
- State (Texas Mandatory)
- Area Code
- Contact Number
- SSN (Unique Key)
- Mail ID (Can be null)
- Vehicle Number (Not Null)
- BGC Indicator
- > BP2 Requirements: The donor information is stored in a separate database,
  - Donor ID (Primary Key)
  - Donor First Name
  - Donor Last Name
  - Item Name (Foreign Key)
  - Address Line 1
  - Address Line 2
  - City
  - State
  - Area Code
  - Contact Number
  - Social media platform
- ➤ BP3 Requirements: The items and the categories they fall under are stored in two different databases namely item and category,
  - Item table,
  - Item name (Primary key)
  - Item ID
  - Category code (Foreign Key)
    - Category table,
  - Category Name
  - Category code (Primary Key)
- ➤ BP4 Requirements: The recipient information is stored in the recipient table with the below details,
  - Recipient ID (Primary Key)
  - Recipient First Name
  - Recipient Last Name
  - Delivery\_ID (Foreign Key)

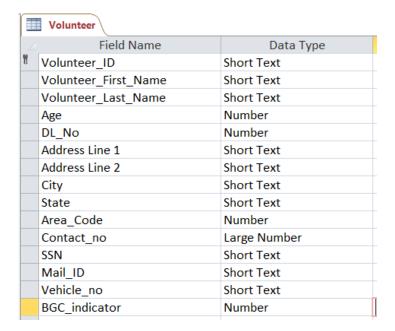
- Address Line 1
- Address Line 2
- City
- State
- Area Code
- Contact Number
- ➤ BP5 Requirements: The pickup and delivery information are stored in pickup and delivery table respectively,

## Pickup table,

- Volunteer ID (Foreign Key)
- Donor ID
- Pickup ID (Primary Key)

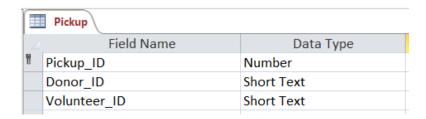
## Delivery table,

- Delivery\_ID (Primary Key)
- Donor\_ID
- Volunteer\_ID (Foreign Key)
- Recipient\_ID
- Table Design:
  - ➤ Volunteer Table:
    - Volunteer\_ID is the Primary Key of the table
    - DL\_No is the Unique Key
    - SSN is the Unique Key



# ➤ Pickup Table:

- Pickup\_ID is the Primary Key of the table
- Donor\_ID is the Foreign Key of the table
- Volunteer\_ID is the Foreign Key of the table



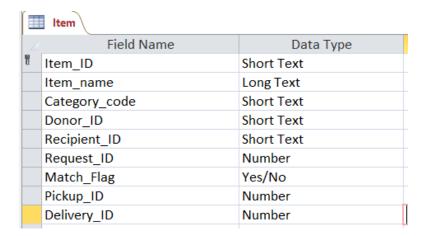
## ➤ Donor Table:

• Donor\_ID is the Primary Key of the table

	Donor							
4	Field Name	Data Type						
Tį.	Donor_ID	Short Text						
	Donor_First_Name	Short Text						
	Donor_Last_Name	Short Text						
	Address_Line_1	Short Text						
	Address_Line_2	Short Text						
	City	Short Text						
	State	Short Text						
	Area_Code	Number						
	Contact_No	Large Number						
	Social_media_platform	Short Text						
	Pickup_ID	Number						

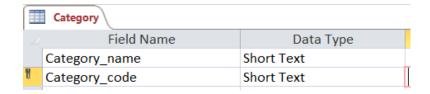
#### ➤ Item Table:

- Item\_id is the Primary Key of the table
- Category\_code is the Foreign Key of the table
- Donor\_ID is the Foreign Key of the table
- Recipient\_ID is the Foreign Key of the table



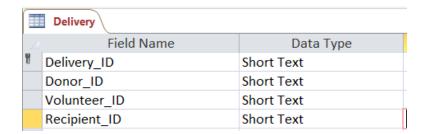
## ➤ Category Table:

• Category\_code is the Primary Key of the table



## ➤ Delivery Table:

- Delivery\_ID is the Primary Key of the table
- Volunteer\_ID is the Foreign Key of the table

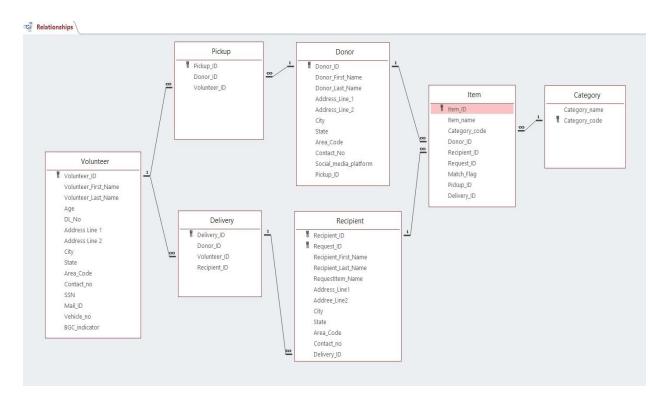


## ➤ Recipient Table:

- Recipient\_ID is the Primary Key of the table
- Delivery\_ID is the Foreign Key of the table

	Recipient						
_	Field Name	Data Type					
Ħ	Recipient_ID	Short Text					
T.	Request_ID	Number					
	Recipient_First_Name	Short Text					
	Recipient_Last_Name	Short Text					
	RequestItem_Name	Short Text					
	Address_Line1	Short Text					
	Addree_Line2	Short Text					
	City	Short Text					
	State	Short Text					
	Area_Code	Number					
	Contact_no	Large Number					
	Delivery_ID	Short Text					

# **Relationship Diagram:**



# **PART 4:**

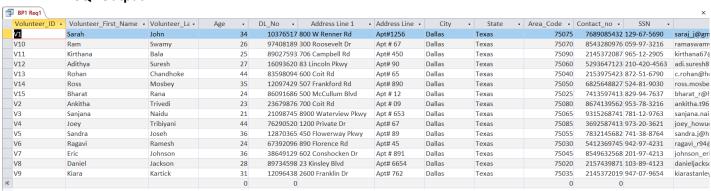
# **SQL QUERIES:**

- 1. BP1 Data Requirements:
  - A volunteer table has all the volunteer data:

## **SQL** query:

SELECT \* FROM VOLUNTEER;

#### **SQL Output:**



A volunteer can collect items from one or many donors.

#### **SQL** query:

SELECT VOLUNTEER.VOLUNTEER\_ID, VOLUNTEER.VOLUNTEER\_FIRST\_NAME,
VOLUNTEER.SSN, VOLUNTEER.VEHICLE\_NO, DONOR.DONOR\_FIRST\_NAME,
PICKUP.PICKUP\_ID
FROM VOLUNTEER
INNER JOIN
(DONOR INNER JOIN PICKUP ON DONOR.DONOR\_ID = PICKUP.DONOR\_ID)
ON VOLUNTEER.VOLUNTEER\_ID = PICKUP.VOLUNTEER\_ID;

# **SQL Output:**

BP1 Req2					
∠ volunteer_id ▼	volunteer_first_name •	ssn +	vehicle_no +	donor_first_r -	pickup_id -
V6	Ragavi	942-97-4231	XYZ 4356	Emma	1
V2	Ankitha	953-78-3216	MOP 6348	Anna	2
V9	Kiara	947-07-9654	PKL 9807	Deepika	
V7	Eric	201-97-4213	MNO 4589	Sophie	4
V5	Sandra	741-38-8764	MSD 3658	Elvis	5 6
V3	Sanjana	781-12-9763	TDV 6574	Huma	
V1	Sarah	129-67-5690	GRT 1748	Patricia	7
V1	Sarah	129-67-5690	GRT 1748	Patricia	8
V3	Sanjana	781-12-9763	TDV 6574	Huma	9
V5	Sandra	741-38-8764	MSD 3658	Elvis	10
V6	Ragavi	942-97-4231	XYZ 4356	Emma	11
V13	Rohan	872-51-6790	KJO 7860	Mathew	12
V13	Rohan	872-51-6790	KJO 7860	Mathew	13
V14	Ross	524-81-9030	HGU 9453	Vivian	14
V12	Adithya	210-420-4563	SOT 1786	Annie	15
V10	Ram	059-97-3216	FRH 4368	Salma	16
V15	Bharat	829-94-7637	DEF 1256	Ronald	17
V11	Kirthana	965-12-2905	XYZ 7890	Christina	18
V8	Daniel	103-89-4123	ABC 1234	Ella	19
V4	Joey	973-20-3621	GJM 2456	Brad	20

# **2.** BP2 Data Requirements:

• List of all the donor details and requests.

# SQL query:

SELECT \* FROM DONOR;

# **SQL Output:**

Donor_ID ▼	Donor_First_ •	Donor_Last_ ▼	Address_Line_1 -	Address_Line -	City -	State •	Area_Code ▼	Contact_No •	Social_media_platfc ▼	Pickup_ID ▼
D1	Emma	Watson	2700 Coit Rd	Apt # 891	Dallas	Texas	75030	5832145682	Facebook	1
D10	Anna	Willaim	600 W Renner Rd	Apt # 653	Dallas	Texas	75080	9689085432	Facebook	2
D11	Deepika	Padukone	128 Coit Rd	Apt # 09	Dallas	Texas	75035	7157439871	Facebook	3
D12	Sophie	Turner	800 Campbell Rd	Apt# 89	Dallas	Texas	75045	7315268741	Twitter	4
D13	Elvis	Ragaland	4518 Private Dr	Apt# 450	Dallas	Texas	75055	7543280976	Twitter	5
D14	Huma	Qureshi	875 McCullum Blvd	Apt# 762	Dallas	Texas	75065	3549632568	Facebook	6
D15	Patricia	Holmes	170 Kinsley Blvd	Apt # 12	Dallas	Texas	75075	5825648827	Twitter	7
D2	Mathew	Thomas	6511 Florence Rd	Apt# 65	Dallas	Texas	75040	6293647123	Facebook	12
D3	Vivian	Richards	900 Franklin Dr	Apt # 09	Dallas	Texas	75050	9413597413	Facebook	14
D4	Annie	Hathway	2718 Frankford Rd	Apt# 6654	Dallas	Texas	75060	4412369745	Twiiter	15
D5	Salma	Jones	6500 Conshocken Dr	Apt# 890	Dallas	Texas	75070	2153975423	Twitter	16
D6	Ronald	Weasley	72 Lincoln Pkwy	Apt# 45	Dallas	Texas	75025	6692587413	Twitter	17
D7	Christina	Perry	90 Flowerway Pkwy	Apt# 90	Dallas	Texas	75020	3145372087	Snapchat	18
D8	Ella	Johnson	309 Roosevelt Dr	Apt# 67	Dallas	Texas	75020	5674139562	Snapchat	19
D9	Brad	Presley	1890 Waterview Pkwy	Apt # 67	Dallas	Texas	75085	6145372019	Facebook	20
							0	0		0

# 3. BP3 Data Requirements:

• Every item can have only one category.

# **SQL** query:

SELECT CATEGORY.\*, ITEM.\*

FROM CATEGORY

INNER JOIN ITEM

ON

CATEGORY.CATEGORY\_CODE = ITEM.CATEGORY\_CODE;

# **SQL Output:**

Category_name	Category.Cat 🕶	Item_ID •	Item_name	<ul> <li>Item.Category_coc •</li> </ul>	Donor_ID ▼	Recipient_ID -	Request_ID •	Match_Flag •	Pickup_ID 🕶	Delivery_ID ▼
Clothing	C1	1	Sweater	C1	D1	R1	1	~	1	1
Clothing	C1	17	Men's winter jacket	C1	D14	R6	1	~	3	8
Clothing	C1	2	Men's sweatshirt	C1	D2	R10	1		5	10
Clothing	C1	3	Women's formal shirt	C1	D3	R11	1	~	11	11
Stationery	C2	18	Paint brush	C2	D13	R7	1	~	5	5
Stationery	C2	4	Pencil	C2	D4	R12	1	~	15	14
Stationery	C2	5	Eraser	C2	D5	R13	1	~	13	15
Stationery	C2	6	Crayons	C2	D6	R14	1	~	14	13
Footwear	C3	19	Sneakers	C3	D1	R8	1	✓	6	9
Footwear	C3	7	Women's boots	C3	D7	R15	1	~	12	9
Footwear	C3	8	Flip flops	C3	D8	R2	1	~	4	10
Footwear	C3	9	Women's formal shoes	C3	D9	R3	1	~	4	4
Food	C4	10	Eggs	C4	D10	R1	2	~	2	2
Food	C4	11	Chicken	C4	D11				4	
Food	C4	12	Cheese	C4	D12	R2	2	~	5	3
Food	C4	20	Bread	C4	D2	R9	1	~	7	10
Books	C5	13	High School Physics	C5	D13				8	
Books	C5	14	Middle school Mathematics	C5	D14				9	
Books	C5	15	Geology for beginners	C5	D15	R4	1	~	10	6
Books	C5	16	History of USA	C5	D15	R5	1	~	3	7

**4. BP4 Data Requirements:** List of all the recipient details and requests are gathered.

#### **SQL** query:

**SELECT \* FROM RECIPIENT;** 

### **SQL Output:**



#### 5. BP5 Requirements:

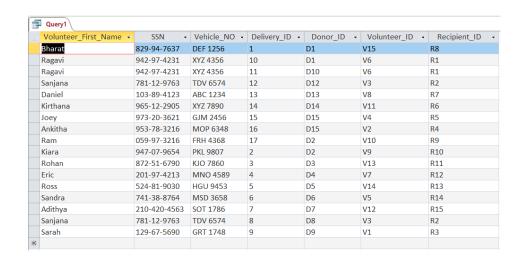
 A volunteer (Volunteer\_ID) can have one or more delivery under his/her name (Delivery\_ID as the PK in the Delivery table).

## **SQL** query:

SELECT VOLUNTEER.VOLUNTEER\_FIRST\_NAME, VOLUNTEER.SSN, VOLUNTEER.VEHICLE\_NO, DELIVERY.\*

FROM VOLUNTEER
INNER JOIN DELIVERY
ON VOLUNTEER.VOLUNTEER\_ID = DELIVERY.VOLUNTEER\_ID;

## **SQL Output:**



• A recipient (Recipient\_ID is the PK in the RECIPIENT table) can receive one or more items (Recipient\_ID as the FK in ITEM table). One item can have only one recipient.

# **SQL** query:

SELECT DELIVERY\_ID, RECIPIENT.RECIPIENT\_FIRST\_NAME, ITEM.\*
FROM

(DELIVERY INNER JOIN RECIPIENT ON DELIVERY.DELIVERY\_ID = RECIPIENT.DELIVERY\_ID) INNER JOIN

ITEM

ON RECIPIENT.RECIPIENT\_ID = ITEM.RECIPIENT\_ID;

# **SQL Output:**

BP5 Req2									
Delivery.Deliv -	Recipient_First_N: •	Item_ID ▼	Item_name ▼	Category_code •	Donor_ID →	Recipient_ID -	Request_ID - Match_Fla	Pickup_ID	Item.Delivery •
10	Isabella	1	Sweater	C1	D1	R1	1 🗸		1
10	Isabella	10	Eggs	C4	D10	R1	2		2
2	Donald	2	Men's sweatshirt	C1	D2	R10	1		5 1
3	Harry	3	Women's formal shirt	C1	D3	R11	1 🗸	1	1 1
4	Emma	4	Pencil	C2	D4	R12	1 🗸	1	.5 1
5	Sharon	5	Eraser	C2	D5	R13	1 🗸	1	.3 1
6	Gerald	6	Crayons	C2	D6	R14	1 🗸	1	.4 1
7	Margaret	7	Women's boots	C3	D7	R15	1 🗸	1	.2
12	Edward	12	Cheese	C4	D12	R2	2		5
12	Edward	8	Flip flops	C3	D8	R2	1 🗸		4 1
9	Dmitri	9	Women's formal shoes	C3	D9	R3	1 🗸		4
16	Maria	15	Geology for beginners	C5	D15	R4	1 🗸	1	.0
15	Peter	16	History of USA	C5	D15	R5	1 🗸		3
14	Alice	17	Men's winter jacket	C1	D14	R6	1 🗸		3
13	Keziah	18	Paint brush	C2	D13	R7	1 🗸		5
1	Sophia	19	Sneakers	C3	D1	R8	1 🗸		6

## **APPENDICES:**

## **JOURNAL:**

**QUESTON 1:** Would having a BGC flag help in identifying the volunteers that are approved to work?

**RESPONSE:** Yes, it would help avoid creating trouble and protecting the donors since the volunteers go to their homes to pick-up donations

**QUESTION 2:** Do you think that the segregation of the available volunteers be done using the location?

**RESPONSE:** Using Area code segregation would be easier and effective.

**QUESTION 3:** Collecting data for donation requests is important, so will social media be a good platform?

**RESPONSE:** Yes, it would be a good option since everybody has internet and therefore can be a cost-friendly promotion too.

**QUESTION 4:** Segregating the received donation items can be segregated into damaged, undamaged then categories?

**RESPONSE:** Returning the damaged good by the volunteer on pickup is better and categorizing the undamaged items into division like clothing, footwear etc. will help be most organized and run queries effectively

**REPLY:** Checking for damaged good on while pickup is tedious job. So, we think separating them and the categorizing the undamaged item will be better.

**QUESTION 5:** One volunteer can deliver the requested donations to the respective recipients if the drop locations are not very far apart.

**RESPONSE:** Yes, in the same way how one volunteer can pick-up donations from multiple donors

# PART 1: Business process with their corresponding functional and data requirement

**FEEDBACK** – All the business processes are neatly noted. Each business process has relevant functional and data requirements

**RESPONSE/ACTION** – Proof read once more and then proceeded to the part 2 of the project

## **PART 2: Entity Relationship Diagram**

**FEEDBACK** – The relationship between pickup and donor table could be many to many. Review all the relationships and added category id in the item table.

**RESPONSE/ACTION** – Took the feedback under consideration, made the relationship between the pickup and delivery table and added the Fk to the item table. After which the functional and data requirements for their respective activity was also updated and proceeded to the part 3 of the project.

# PART 3: Logical database design - Normalized table

**FEEDBACK** – The table design is correctly related and clearly represented

**RESPONSE/ACTION** – Crossed checked all the relationships and the proceeded to the part 4 of the project

# **PART 4: SQL Queries**

**FEEDBACK** – The required data was correctly obtained using the relevant queries

**RESPONSE/ACTION** – Verified all the obtained data from the result of the query and concluded the project