INFO 6210 Data Management and Database Design

FINAL PROJECT SUBMISSION

# DATABASE DESIGN FOR REUSABLE ITEMS ON E-COMMERCE PLATFORM

**TEAM DETAILS:**

**Team Name: Thrift Green**

**Team Members:**

- o Amogha Shettar (NUID : 001585117)

- o Amoolya Shettar (NUID : 001582650)

- o Giang Vu (NUID :001537937 )

## Introduction:

Items such as furniture, clothes, footwear, containers and cans have increasingly been thrown away even when they can be reused. There is a need for an online system where all these records can be stored, that can be used again by the customers who are willing to buy them at a cheaper rate.

# Problem statement:

- Currently, most users don't have access to an online local store for used items. The buyer usually goes to a local thrift store if they want to look for used/2nd-hand items.
- Other online platforms usually are too general (like Amazon) with too much information or lack severe security/payment options (like Craigslist).
- The site is post-oriented instead of item-oriented (ie, you cannot search based on item filter, see item quantities, etc)
- Users cannot see the buyer/seller information (including selling posts, review, and other things) so mostly it is anonymous.
- Users cannot make an online payment and get the post updated automatically. They will either need to remove/update the post themselves.

# Objectives:

To design a database for reusable items which should have the following features:

· Users must be able to register by entering their details namely username, password, phone number, and email.

· System must be able to store all the details of the users and the used/2nd-hand items.

· Users must be able to login using their username and password.

· Users must be able to add and update the details of the items.

· Users must be able to view the details of the items and sellers.

· Users must be able to make a deal for the reusable items.

· Users must be able to view the details of the ordered items for payment purposes.

· Users must be able to view the payment details.

# Database design document:

- Currently, most users don't have access to an online local store for used items. The buyer usually goes to a local thrift store if they want to look for used/2nd-hand items
    + The database design with current 12 ENTITIES should support the whole online, automated process from customer/seller signing up -> search items -> transactions process -> shipping process with shippers also.
- The other sites are post-oriented instead of item-oriented (ie, you cannot search based on item filter, see item quantities, etc)
    + We have CATEGORY Entity, that has PK as CATEGORY_ID. The ITEM entity will have CATEGORY_ID as Foreign Key so that user can search item using category filter (for furniture, electronic device, etc)
- Users cannot see the buyer/seller information so mostly it is anonymous.
    + We have a separate seller and customer entity with related personal attributes so that users can retrieve info about buy/seller given their id (C_ID, S_ID)
    + Customer/Seller Entity each have a UNIQUE key as C_EMAIL & S_EMAIL to prevent duplicate entry/record when the user signs up. This will help avoid anomalies in our relational database model.
    + Item Entity will have C_ID & R_ID as FOREIGN KEY so user can retrieve and fetch data from CUSTOMER Entity & REUSABLE Entity regarding customer info & item description
    + Each Item has an S_ID (seller ID) as Foreign Key so users can always retrieve a list of items being sold by the same seller.
- Users cannot make an online payment & handle the shipment easily
    + We have a payment and cart entity to allow the user to choose checkout method/view cart items, costs, Each payment and cart will have an unique payment id and cart id. This can be used as a key for connecting to customer entity data.
    + Items will be put into CART which will be ordered by the customers by having CART_ID as a FK in ORDER entity.
    + Each Shipment assigned for a specific shipper can be viewed with SHIPPER_ID as FK in SHIPMENT Entity

# Entity Relationship Diagram (Final)
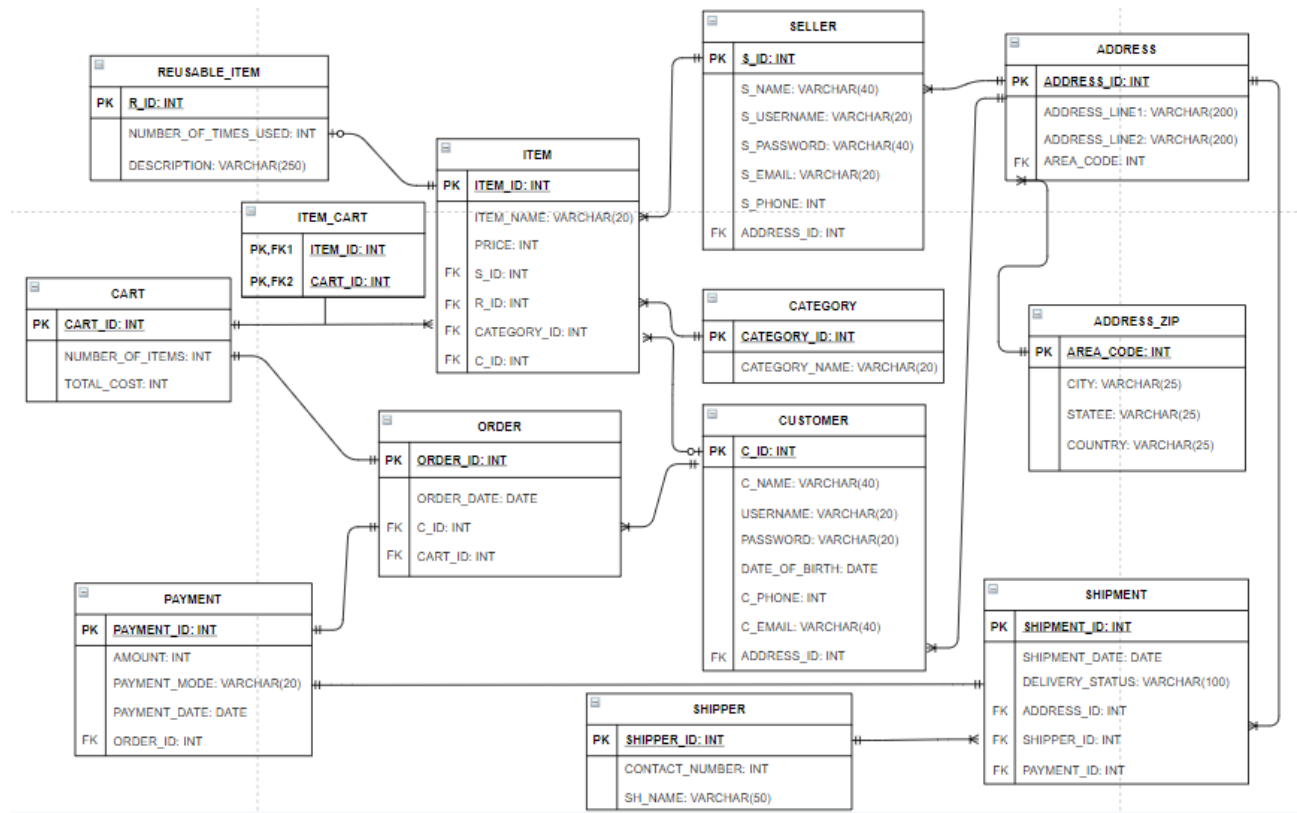


# Entity and Attributes with Data types defined:

1. SELLER ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| S_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| S_NAME | VARCHAR(40) | NOT NULL |
| S_USERNAME | VARCHAR(20) | NOT NULL |
| S_PASSWORD | VARCHAR(40) | NOT NULL |
| S_EMAIL | VARCHAR(20) | UNIQUE KEY, NOT NULL |
| S_PHONE | INTEGER | NOT NULL |
| ADDRESS_ID | INTEGER | A Foreign Key which REFERENCES ADDRESS_ID from ADDRESS ENTITY. This is used to fetch sellers's address details. |

| | | NOT NULL |
|---|---|---|

## 2. CUSTOMER ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| C_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| C_NAME | VARCHAR(40) | NOT NULL |
| PASSWORD | VARCHAR(20) | NOT NULL |
| USERNAME | VARCHAR(20) | UNIQUE KEY, NOT NULL |
| DATE_OF_BIRTH | TIMESTAMP | CURRENT_TIMESTAMP |
| C_EMAIL | VARCHAR(40) | UNIQUE KEY, NOT NULL |
| C_PHONE | INTEGER | NOT NULL |
| ADDRESS_ID | INTEGER | A Foreign Key which REFERENCES ADDRESS_ID from ADDRESS ENTITY. This is used to fetch customer's address details.<br>NOT NULL |

## 3. ITEM ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| ITEM_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| ITEM_NAME | VARCHAR(20) | NOT NULL |
| PRICE | INTEGER | NOT NULL |
| S_ID | INTEGER | A Foreign Key which REFERENCES S_ID from SELLER ENTITY. This is used to fetch seller's details.<br>NOT NULL |
| R_ID | INTEGER | A Foreign Key which REFERENCES R_ID from REUSABLE ENTITY. This is used to fetch reusable item details.<br>NOT NULL |

| | | |
|---|---|---|
| CATEGORY_ID | INTEGER | A Foreign Key which REFERENCES CATEGORY_ID from CATEGORY ENTITY. This is used to fetch category details.<br>NOT NULL |
| C_ID | INTEGER | A Foreign Key which REFERENCES C_ID from CUSTOMER ENTITY. This is used to fetch customer details.<br>NULL ALLOWED |

4. REUSABLE ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| R_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| NUMBER_OF_TIMES_USED | INTEGER | NOT NULL |
| DESCRIPTION | VARCHAR(250) | NOT NULL |

5. CATEGORY ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| CATEGORY_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| CATEGORY_NAME | VARCHAR(20) | NOT NULL |

6. CART ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| CART_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| TOTAL_COST | INTEGER | NOT NULL |
| NUMBER_OF_ITEMS | INTEGER | NOT NULL |

7. PAYMENT ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
| --- | --- | --- |
| PAYMENT_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| PAYMENT_MODE | VARCHAR(20) | NOT NULL |
| AMOUNT | INTEGER | NOT NULL |
| PAYMENT_DATE | TIMESTAMP | CURRENT_TIMESTAMP |
| ORDER_ID | INTEGER | A Foreign Key which REFERENCES ORDER_ID from ORDER ENTITY. This is used to fetch order details. NOT NULL |

8. ORDER ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
| --- | --- | --- |
| ORDER_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| ORDER_DATE | TIMESTAMP | CURRENT_TIMESTAMP |
| C_ID | INTEGER | A Foreign Key which REFERENCES C_ID from CUSTOMER ENTITY. This is used to fetch customer's details. NOT NULL |
| CART_ID | INTEGER | A Foreign Key which REFERENCES CART_ID from CART ENTITY. This is used to fetch cart details. NOT NULL |

9. SHIPMENT ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
| --- | --- | --- |
| SHIPMENT_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| SHIPMENT_DATE | TIMESTAMP | CURRENT_TIMESTAMP |
| DELIVERY_STATUS | VARCHAR(100) | NOT NULL |

| | | |
|---|---|---|
| SHIP_METHOD_DESC | VARCHAR(250) | NOT NULL |
| ADDRESS_ID | INTEGER | A Foreign Key which REFERENCES ADDRESS_ID from ADDRESS ENTITY. This is used to fetch customer's address details. NULL ALLOWED |
| SHIPPER_ID | INTEGER | A Foreign Key which REFERENCES SHIPPER_ID from SHIPPER ENTITY. This is used to fetch shipper's details. NOT NULL |
| PAYMENT_ID | INTEGER | A Foreign Key which REFERENCES PAYMENT_ID from PAYMENT ENTITY. This is used to fetch order details. NOT NULL |

10. SHIPPER ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| SHIPPER_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| CONTACT_NUMBER | INTEGER | CURRENT_TIMESTAMP |

11. ADDRESS ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| ADDRESS_ID | INTEGER | PRIMARY KEY, AUTO GENERATED |
| ADDRESS_LINE1 | VARCHAR(40) | NOT NULL |
| ADDRESS_LINE2 | VARCHAR(40) | NOT NULL |
| AREA_CODE | INTEGER | NOT NULL |
| STATE | VARCHAR(20) | NOT NULL |
| COUNTRY | VARCHAR(24) | NOT NULL |

12. ITEM_CART ENTITY

| ATTRIBUTES | DATA TYPE AND SIZE | COMMENTS |
|---|---|---|
| ITEM_ID | INTEGER | A Foreign Key which REFERENCES ITEM_ID from ITEM ENTITY. This is used to fetch item details. NOT NULL |
| CART_ID | INTEGER | A Foreign Key which REFERENCES CART_ID from CART ENTITY. This is used to fetch cart details. NOT NULL |

## Business Rules

- Each account creation will need a valid username/password/email/phone.
- Each unique email can only be associated with one account (buyer/seller/shipper)
- Each customer/seller must have one valid address.
- A seller can sell more than one item.
- Every category must have at least one item.
- An item can be bought by zero or one customer.
- An item can belong to only one category.
- The number of times a reusable item can be used is 5.
- Each customer can only have 1 active cart at a time. If they want to create a new cart, they will need to check out or remove items in the old cart.
- Cart cannot be empty when user want to check out
- No more than 15 items can be added to cart.
- Cart items will be reserved within 20 minutes for user check out. After 20 minutes, it will be available again for other users.
- After the customer confirms the order, they need to finish payment within a 20 minutes session.
- An order is associated with only one cart.
- Payment date cannot be prior to payment date.
- Shipment date cannot be prior to payment date.
- One shipper account cannot have more than 8 active shipments.
- Delivery status can only have 3 options/fields: shipping/ delivered/canceled

## Security Constraints( User level access, permissions)

There are 4 users -

Admin, Customer, Seller, and Shipper.

ADMIN-

- Admin has access to all the tables.
- Admin has READ and WRITE permissions for all the tables.
- Admin decides what data is available to the users.

CUSTOMER-

- Customer has permission to ADD, UPDATE, DELETE his/her information in the Customer table.
- Customer has WRITE permission to the Address, Address_zip table.
- Customer has READ and WRITE permission to the Cart table. A customer can ADD or DELETE items from the cart table.
- Customer has READ permission to the Payment table.
- Customer has READ only access to Item, Category, Order, Shipment, Resuable_item tables.

SELLER-

- Seller has permission to ADD, UPDATE, DELETE his/her information in the Seller table.
- Seller has WRITE permission to the Address table. In the Address table, a seller can ADD a new address, delete his/her old address.
- Seller has READ and WRITE permissions to the Item, Resuable_item tables. A seller can ADD, UPDATE items in those tables.

SHIPPER-

- Shipper has permission to ADD, UPDATE, DELETE his/her information in the Shipper table.
- Shipper has READ and WRITE permissions to the shipment table. A shipper can make changes regarding the shipment details in that table.

## DDL, DML, SQL Scripts

· The following tables are the Output

# OUTPUT

## ADDRESS_ZIP

| | AREA_CODE | CITY | STATEE | COUNTRY |
|---|---|---|---|---|
| 1 | 580023 | BANGALORE | KARNATAKA | INDIA |
| 2 | 2120 | BOSTON | MASSACHUSETTS | USA |
| 3 | 2125 | BOSTON | MASSACHUSETTS | USA |
| 4 | 10002 | MUMBAI | MAHARASHTRA | INDIA |
| 5 | 90201 | LOS ANGELES | CALIFORNIA | USA |
| 6 | 6700 | CHENNAI | TAMIL NADU | INDIA |
| 7 | 98109 | SEATTLE | WASHINGTON | USA |
| 8 | 411002 | PUNE | MAHARASHTRA | INDIA |
| 9 | 79808 | KOLKATA | WEST BENGAL | INDIA |
| 10 | 50014 | GILBERT | ARIZONA | USA |
| 11 | 70027 | KOLKATA | WEST BENGAL | INDIA |
| 12 | 60607 | CHICAGO | IILIONIS | USA |

## ADDRESS

| | ADDRESS_ID | ADDRESS_LINE1 | ADDRESS_LINE2 | AREA_CODE |
|---|---|---|---|---|
| 1 | 1001 | 45B SMITH STREET | ROXBURY ST | 2120 |
| 2 | 1002 | HNO 12 NEWBURY STREET | LONGWOOD ST | 73301 |
| 3 | 1003 | 24th OAK STREET | MASS AVENUE | 2125 |
| 4 | 1004 | 42nd CROSS | VIJAY NAGAR | 580023 |
| 5 | 1005 | 22D, BEACH STREET | BEVERLY HILLS | 90201 |
| 6 | 1006 | 18A, FENWAY PLAZA, 7th STREET | ROXBURY ST | 50014 |
| 7 | 1007 | HNO 67, VIDYA NAGAR | KESHWAPUR | 580023 |
| 8 | 1008 | 42E, PARK DRIVE | RODEO DRIVE | 90201 |
| 9 | 1009 | 2nd CUT, MASON STREET | ASHTON ST | 73301 |
| 10 | 1010 | 14F, GARDEN STREET | CHARCO ROAD | 50014 |
| 11 | 1011 | PLOT NO 2, 9th CROSS | CAMAC STREET | 70027 |
| 12 | 1012 | APT 1301, BRIGADE | BRIGADE GATEWAY | 580023 |
| 13 | 1013 | HNO 34 | MINT STREET | 6700 |
| 14 | 1014 | 21A, NEAR BOXBON | PINE STREET | 98109 |
| 15 | 1015 | 12D, LONGWOOD | LECHEMERE | 2125 |
| 16 | 1016 | APT NO 17, SHANTI APARTMENT | MG ROAD | 411002 |
| 17 | 1017 | 180D, SOLICITE ROAD | DENNY WAY | 98109 |
| 18 | 1018 | 46L LONGWOOD | SYMPONY | 2125 |
| 19 | 1019 | 56B, DEART APARTMENT | ALIZO DR | 50014 |
| 20 | 1020 | HNO 72, 5th CROSS | TRIPOTO STREET | 6700 |

## REUSABLE_ITEM

| | R_ID | NO_OF_TIMES_USED | L_DESCRIPTION |
|---|---|---|---|
| 1 | 2001 | 2 | Has been used only twice |
| 2 | 2002 | 1 | A heel you can walk in all day |
| 3 | 2003 | 2 | Built with burliest fabric package |
| 4 | 2004 | 4 | Sustainable forest woods are used for the frames. |
| 5 | 2005 | 3 | No assembly required |
| 6 | 2006 | 5 | Crafted from metal, its geometric frame features an openwork design topped off by hardware. |
| 7 | 2007 | 2 | Complete storm protection |
| 8 | 2008 | 2 | Greet guests with a warm and welcoming glow while you grab their glances with this pendent hanging overhead. |
| 9 | 2009 | 1 | With the proper ingredients, success comes naturally. Here is everything you need to make a distinctive tasting sausage stick that will be sure to tingle your taste buds. |
| 10 | 2010 | 1 | Open your door to the world of grilling with the sleek Spirit II E-210 gas grill. This two burner grill is built to fit small spaces, and packed with features such as the powerful GS4 grilling system |
| 11 | 2011 | 3 | Beautifully handmade laptop case/sleeve made in the Nepal Himalaya |
| 12 | 2012 | 5 | Designed and measured to fit a 12 to 14 laptops and with a convenient front pocket for your charger cable and notebook. |
| 13 | 2013 | 2 | Includes roll-top, 2 front zipper pockets, and 2 zippered side pockets  Endor Commando Alliance Special Forces patch is prominently featured on the front |
| 14 | 2014 | 4 | Genuine hand-seven construction for durable comfort. |
| 15 | 2015 | 4 | lightweight and Easy to Hove |
| 16 | 2016 | 3 | Made of 100 percent cotton for a comfortable. |
| 17 | 2017 | 1 | Remove dirt and impurities from your sensitive skin with our all-natural cleansing bar. |
| 18 | 2018 | 4 | Officially-licensed Star Wars merchandise. |
| 19 | 2019 | 3 | New version |
| 20 | 2020 | 3 | Room air purifier removes 99%+ of Airborne Particles. Best for Bedroom, Office, Living Room, Basement |

## CATEGORYY

| | CATEGORY_ID | CATEGORY_NAME |
|---|---|---|
| 1 | 3001 | FURNITURE |
| 2 | 3002 | CLOTH |
| 3 | 3003 | FOOTWEAR |
| 4 | 3004 | ELECTRONICS |
| 5 | 3005 | STATIONARY |
| 6 | 3006 | COSMETICS |
| 7 | 3007 | OTHERS |

## SHIPPER

| | SHIPPER_ID | SH_NAME | CONTACT_NUM |
|---|---|---|---|
| 1 | 4001 | JOHN | 6728638657 |
| 2 | 4002 | DAVID | 8768689990 |
| 3 | 4003 | RAM | 7723409876 |
| 4 | 4004 | JULIE | 7700098000 |
| 5 | 4005 | DANIEL | 9899956665 |
| 6 | 4006 | STEPHEN | 7722123443 |
| 7 | 4007 | EMILY | 8556012685 |
| 8 | 4008 | MILEY | 6777540011 |
| 9 | 4009 | MIKE | 8112345656 |
| 10 | 4010 | LISA | 9113789765 |
| 11 | 4011 | JAMES | 9904456543 |
| 12 | 4012 | Glenn | 6173409812 |

## CUSTOMER

| | C_ID | C_NAME | C_USERNAME | C_PASSWORD | DATE_OF_BIRTH | C_PHONE | C_EMAIL | ADDRESS_ID |
|---|---|---|---|---|---|---|---|---|
| 1 | 5001 Siya | Siya27 | Siya@2705 | 27-05-00 | 86766786788 | siya27@gmail.com | 1015 |
| 2 | 5002 Mathew | Mathew_Fred | Mathew#Fred | 21-04-97 | 7688099087 | freddy@gmail.com | 1011 |
| 3 | 5003 Rahul | Rahul112 | 11@Rahul | 11-01-98 | 6122219009 | rahul11@gmail.com | 1004 |
| 4 | 5004 Jenny | JennyIKnow | Jenny@1234 | 27-10-95 | 8883222098 | jenny1234@gmail.com | 1016 |
| 5 | 5005 Steve | Stevyy | 1@Stevey | 01-07-99 | 9990128410 | steve1@yahoo.com | 1019 |
| 6 | 5006 Priya | Ipriya | Priya#92002 | 09-11-02 | 9384645372 | priya92@gmail.com | 1005 |
| 7 | 5007 Katy | ItsKaty | Katy@999 | 17-09-99 | 87101012002 | katy999@gmail.com | 1001 |
| 8 | 5008 Ashish | 798Ashish | Ash#6789 | 07-02-98 | 6002304010 | ash789@yahoo.com | 1003 |
| 9 | 5009 Karan | MeKaran | Karan1234# | 12-03-04 | 8116172821 | karan1234@gmail.com | 1009 |
| 10 | 5010 Mia | MiaRight | Mia@11111 | 14-02-96 | 6434011282 | mial1111@gyahoomail.com | 1007 |
| 11 | 5011 John | Jonny | Jonny#56 | 05-06-95 | 86766786788 | jonny56@gmail.com | 1015 |
| 12 | 5012 Rohit | RohitMeh | MehreRo@12 | 12-12-98 | 8223400116 | meh_roh@gmail.com | 1007 |
| 13 | 5013 Alia | AliaCool | Alia@0398 | 03-09-98 | 9997600216 | alia0398@gmail.com | 1013 |
| 14 | 5014 Tina | Tintin | Tintin@44 | 04-04-96 | 6800333345 | tinaa44@yahoo.com | 1020 |
| 15 | 5015 Mike | Mikeyboy | Boy#1234 | 12-03-94 | 7556091009 | mike1234@gmail.com | 1012 |
| 16 | 5016 David | DavidY | David#123 | 09-11-99 | 7565111342 | david12@yahoo.com | 1008 |
| 17 | 5017 Riya | RiyaD | D@Riya12 | 21-12-00 | 8110592387 | riyaD12@yahoo.com | 1017 |
| 18 | 5018 George | Georegyy | George@1234 | 24-07-95 | 9150384926 | 1234george@gmail.com | 1002 |
| 19 | 5019 Emma | EmmaW | Emma177# | 17-07-96 | 7003160314 | wemma@gmail.com | 1018 |
| 20 | 5020 Aman | Aman10 | 0997@Aman | 09-10-97 | 8422450776 | aman0997@gmail.com | 1010 |
| 21 | 5021 Amogha | c##AmoghaInfo | A#Info6210 | 21-04-98 | 988029110 | amogha2705@gmail.com | 1001 |

## SELLERR

| | S_ID | S_NAME | S_USERNAME | S_PASSWORD | S_PHONE | S_EMAIL | ADDRESS_ID |
|---|---|---|---|---|---|---|---|
| 1 | 6001 | Camila | CamilaM | Camila#55 | 4656009000 | camila55@gmail.com | 1001 |
| 2 | 6002 | Noah | Noah_C | Noah#4567 | 8811312266 | noah45@gmail.com | 1004 |
| 3 | 6003 | Priyanka | Priyanka | Priyanka99_# | 9944654473 | priyanka9@yahoo.com | 1016 |
| 4 | 6004 | Luna | LunaLog | 1@Luna#0 | 8112204412 | luna10@gmail.com | 1019 |
| 5 | 6005 | Oliver | OliverPh | P@Oliver4 | 9778117603 | oliver4@gmail.com | 1020 |
| 6 | 6006 | Sejal | Sejal_Use | Sejal#88 | 6660952761 | sejal33@gmail.com | 1003 |
| 7 | 6007 | Thomas | ThomasE | Thomas@E15 | 8160362898 | thomas15@yahoo.com | 1012 |
| 8 | 6008 | Mila | MilaMake | Mila58## | 7600194879 | mila58@gmail.com | 1005 |
| 9 | 6009 | Diya | DiyaDay | 12@Diya12 | 7660009123 | diya@yahoo.com | 1007 |
| 10 | 6010 | Issac | Issac_N | Issac@78 | 8333045176 | issac78@gmail.com | 1010 |
| 11 | 6011 | Tejas | Tejas_U | 1234#Tejas | 9812421890 | tejas1234@gmail.com | 1013 |

## CART

| | CART_ID | NO_OF_ITEMS | TOTAL_COST |
|---|---|---|---|
| 1 | 7001 | 4 | 130 |
| 2 | 7002 | 2 | 105 |
| 3 | 7003 | 5 | 310 |
| 4 | 7004 | 3 | 105 |
| 5 | 7005 | 1 | 120 |
| 6 | 7006 | 2 | 135 |
| 7 | 7007 | 4 | 216 |
| 8 | 7008 | 3 | 525 |
| 9 | 7009 | 4 | 340 |
| 10 | 7010 | 2 | 150 |
| 11 | 7011 | 1 | 70 |
| 12 | 7012 | 4 | 270 |
| 13 | 7013 | 2 | 140 |
| 14 | 7014 | 3 | 270 |
| 15 | 7015 | 4 | 360 |
| 16 | 7016 | 6 | 540 |
| 17 | 7017 | 3 | 260 |
| 18 | 7018 | 5 | 450 |
| 19 | 7019 | 2 | 110 |
| 20 | 7020 | 6 | 510 |

## ORDERR

| | ORDER_ID | ORDER_DATE | C_ID | CART_ID |
|---|---|---|---|---|
| 1 | 8001 | 01-01-20 | 5001 | 7001 |
| 2 | 8002 | 15-01-20 | 5002 | 7002 |
| 3 | 8003 | 14-02-21 | 5003 | 7003 |
| 4 | 8004 | 28-03-20 | 5004 | 7004 |
| 5 | 8005 | 17-04-20 | 5005 | 7005 |
| 6 | 8006 | 19-05-20 | 5006 | 7006 |
| 7 | 8007 | 30-06-20 | 5007 | 7007 |
| 8 | 8008 | 26-07-20 | 5008 | 7008 |
| 9 | 8009 | 18-08-20 | 5009 | 7009 |
| 10 | 8010 | 24-09-20 | 5010 | 7010 |
| 11 | 8011 | 30-10-20 | 5011 | 7011 |
| 12 | 8012 | 02-11-20 | 5012 | 7012 |
| 13 | 8013 | 24-01-21 | 5013 | 7013 |
| 14 | 8014 | 17-02-21 | 5014 | 7014 |
| 15 | 8015 | 28-03-21 | 5015 | 7015 |
| 16 | 8016 | 16-04-21 | 5016 | 7016 |
| 17 | 8017 | 12-04-21 | 5017 | 7017 |
| 18 | 8018 | 13-04-21 | 5018 | 7018 |
| 19 | 8019 | 15-03-21 | 5019 | 7019 |
| 20 | 8020 | 03-01-21 | 5020 | 7020 |

**PAYMENT**

| | PAYMENT_ID | AMOUNT | PAYMENT_MODE | PAYMENT_DATE | ORDER_ID |
|---|---|---|---|---|---|
| 1 | 9001 | 130 | CREDIT | 01-01-20 | 8001 |
| 2 | 9002 | 105 | DEBIT | 15-01-20 | 8002 |
| 3 | 9003 | 310 | PAYPAL | 14-02-21 | 8003 |
| 4 | 9004 | 105 | CREDIT | 28-03-20 | 8004 |
| 5 | 9005 | 12 | PAYPAL | 17-04-20 | 8005 |
| 6 | 9006 | 135 | CREDIT | 19-05-20 | 8006 |
| 7 | 9007 | 216 | CREDIT | 30-06-20 | 8007 |
| 8 | 9008 | 525 | CREDIT | 26-07-20 | 8008 |
| 9 | 9009 | 340 | DEBIT | 18-08-20 | 8009 |
| 10 | 9010 | 150 | CREDIT | 24-09-20 | 8010 |
| 11 | 9011 | 70 | DEBIT | 30-10-20 | 8011 |
| 12 | 9012 | 270 | CREDIT | 02-11-20 | 8012 |
| 13 | 9013 | 140 | PAYPAL | 24-01-21 | 8013 |
| 14 | 9014 | 270 | CREDIT | 17-02-21 | 8014 |
| 15 | 9015 | 360 | CREDIT | 28-03-21 | 8015 |
| 16 | 9016 | 540 | DEBIT | 16-04-21 | 8016 |
| 17 | 9017 | 260 | CREDIT | 12-04-21 | 8017 |
| 18 | 9018 | 450 | CREDIT | 13-04-21 | 8018 |
| 19 | 9019 | 110 | DEBIT | 15-03-21 | 8019 |
| 20 | 9020 | 510 | PAYPAL | 03-01-21 | 8020 |

**SHIPMENT**

| | SHIPMENT_ID | SHIPMENT_DATE | DELIVERY_STATUS | ADDRESS_ID | SHIPPER_ID | PAYMENT_ID |
|---|---|---|---|---|---|---|
| 1 | 10001 | 01-01-20 | DELIVERED | 1015 | 4001 | 9001 |
| 2 | 10002 | 30-01-20 | DELIVERED | 1011 | 4011 | 9002 |
| 3 | 10003 | 17-04-21 | SHIPPING | 1004 | 4002 | 9003 |
| 4 | 10004 | 01-05-20 | CANCELED | 1016 | 4001 | 9004 |
| 5 | 10005 | 04-04-20 | DELIVERED | 1019 | 4003 | 9005 |
| 6 | 10006 | 30-05-20 | DELIVERED | 1005 | 4004 | 9006 |
| 7 | 10007 | 04-07-20 | DELIVERED | 1001 | 4006 | 9007 |
| 8 | 10008 | 30-07-20 | DELIVERED | 1003 | 4005 | 9008 |
| 9 | 10009 | 18-09-20 | DELIVERED | 1009 | 4007 | 9009 |
| 10 | 10010 | 30-10-20 | DELIVERED | 1007 | 4002 | 9010 |
| 11 | 10011 | 03-11-20 | CANCELED | 1015 | 4001 | 9011 |
| 12 | 10012 | 17-11-20 | DELIVERED | 1007 | 4009 | 9012 |
| 13 | 10013 | 22-02-21 | DELIVERED | 1013 | 4010 | 9013 |
| 14 | 10014 | 25-02-21 | DELIVERED | 1020 | 4011 | 9014 |
| 15 | 10015 | 04-04-21 | DELIVERED | 1012 | 4003 | 9015 |
| 16 | 10016 | 25-04-21 | SHIPPING | 1008 | 4001 | 9016 |
| 17 | 10017 | 24-04-21 | SHIPPING | 1017 | 4004 | 9017 |
| 18 | 10018 | 25-04-21 | SHIPPING | 1002 | 4006 | 9018 |
| 19 | 10019 | 20-04-21 | SHIPPING | 1018 | 4005 | 9019 |
| 20 | 10020 | 30-01-21 | CANCELED | 1010 | 4008 | 9020 |

## ITEM

| | ITEM_ID | ITEM_NAME | PRICE | S_ID | R_ID | CATEGORY_ID | C_ID |
|---|---|---|---|---|---|---|---|
| 1 | 11001 | Chair | 40 | 6001 | 2001 | 3001 | 5001 |
| 2 | 11002 | T-shirt | 10 | 6002 | 2001 | 3002 | 5002 |
| 3 | 11003 | Shoes | 30 | 6003 | (null) | 3003 | 5003 |
| 4 | 11004 | Study table | 50 | 6004 | 2005 | 3001 | 5004 |
| 5 | 11005 | Scissor | 5 | 6005 | (null) | 3005 | 5005 |
| 6 | 11006 | Smart phone | 100 | 6010 | 2019 | 3004 | 5006 |
| 7 | 11007 | Sofa | 90 | 6009 | 2006 | 3001 | 5007 |
| 8 | 11008 | Lamp | 40 | 6008 | 2008 | 3001 | 5008 |
| 9 | 11009 | Frock | 20 | 6007 | 2016 | 3002 | 5009 |
| 10 | 11010 | Laptop cover | 150 | 6006 | 2012 | 3005 | 5010 |
| 11 | 11011 | Pen stand | 10 | 6010 | 2015 | 3005 | 5011 |
| 12 | 11012 | Table | 45 | 6002 | 2004 | 3001 | 5012 |
| 13 | 11013 | Bagpack | 25 | 6003 | 2018 | 3005 | 5013 |
| 14 | 11014 | High heels | 35 | 6004 | 2002 | 3003 | 5014 |
| 15 | 11015 | Phone case | 12 | 6005 | 2007 | 3005 | 5015 |
| 16 | 11016 | Gas grill | 90 | 6002 | 2010 | 3007 | 5016 |
| 17 | 11017 | Jacket | 45 | 6009 | 2013 | 3002 | 5017 |
| 18 | 11018 | Chair | 52 | 6008 | 2001 | 3001 | 5018 |
| 19 | 11019 | Sweatshirt | 48 | 6007 | 2014 | 3002 | 5019 |
| 20 | 11020 | Soap | 16 | 6006 | 2017 | 3006 | 5020 |
| 21 | 11021 | Air purifier | 100 | 6005 | 2020 | 3007 | 5015 |

## ITEM_CART

| | ITEM_ID | ITEM_NAME | PRICE | S_ID | R_ID | CATEGORY_ID | C_ID |
|---|---|---|---|---|---|---|---|
| 1 | 11001 | Chair | 40 | 6001 | 2001 | 3001 | 5001 |
| 2 | 11002 | T-shirt | 10 | 6002 | 2001 | 3002 | 5002 |
| 3 | 11003 | Shoes | 30 | 6003 | (null) | 3003 | 5003 |
| 4 | 11004 | Study table | 50 | 6004 | 2005 | 3001 | 5004 |
| 5 | 11005 | Scissor | 5 | 6005 | (null) | 3005 | 5005 |
| 6 | 11006 | Smart phone | 100 | 6010 | 2019 | 3004 | 5006 |
| 7 | 11007 | Sofa | 90 | 6009 | 2006 | 3001 | 5007 |
| 8 | 11008 | Lamp | 40 | 6008 | 2008 | 3001 | 5008 |
| 9 | 11009 | Frock | 20 | 6007 | 2016 | 3002 | 5009 |
| 10 | 11010 | Laptop cover | 150 | 6006 | 2012 | 3005 | 5010 |
| 11 | 11011 | Pen stand | 10 | 6010 | 2015 | 3005 | 5011 |
| 12 | 11012 | Table | 45 | 6002 | 2004 | 3001 | 5012 |
| 13 | 11013 | Bagpack | 25 | 6003 | 2018 | 3005 | 5013 |
| 14 | 11014 | High heels | 35 | 6004 | 2002 | 3003 | 5014 |
| 15 | 11015 | Phone case | 12 | 6005 | 2007 | 3005 | 5015 |
| 16 | 11016 | Gas grill | 90 | 6002 | 2010 | 3007 | 5016 |
| 17 | 11017 | Jacket | 45 | 6009 | 2013 | 3002 | 5017 |
| 18 | 11018 | Chair | 52 | 6008 | 2001 | 3001 | 5018 |
| 19 | 11019 | Sweatshirt | 48 | 6007 | 2014 | 3002 | 5019 |
| 20 | 11020 | Soap | 16 | 6006 | 2017 | 3006 | 5020 |
| 21 | 11021 | Air purifier | 100 | 6005 | 2020 | 3007 | 5015 |

# Reports
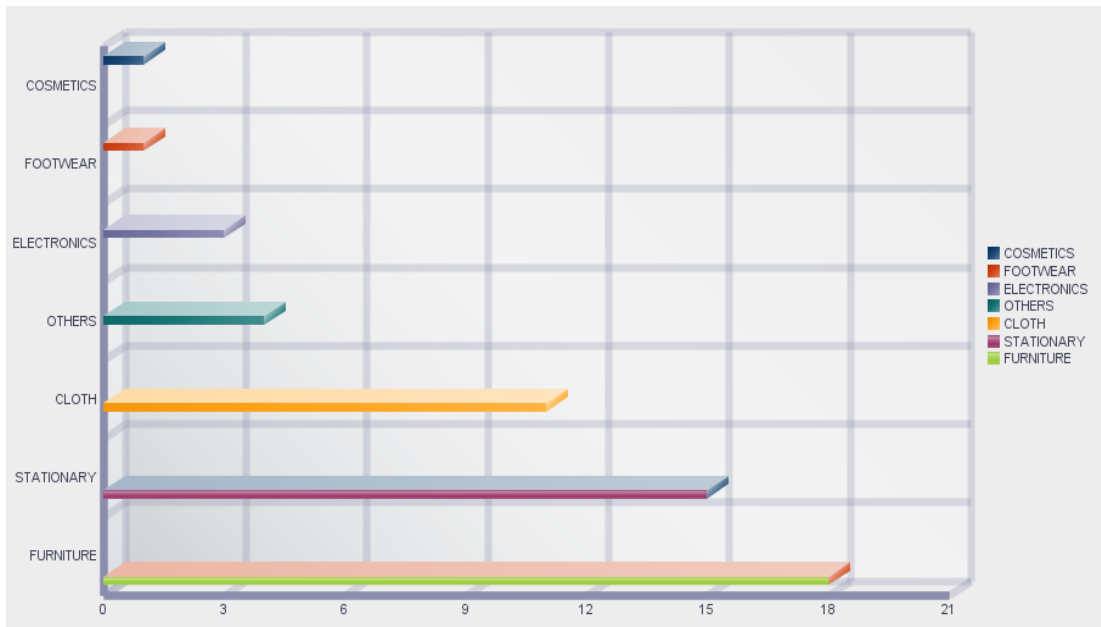


**Figure 1. Categories with count of reusable items**

| | AMOUNT | Customer Name |
|---|---|---|
| 1 | 540 | David |
| 2 | 525 | Ashish |
| 3 | 510 | Aman |
| 4 | 450 | George |
| 5 | 360 | Mike |
| 6 | 360 | Mike |
| 7 | 340 | Karan |
| 8 | 310 | Rahul |
| 9 | 270 | Rohit |
| 10 | 270 | Tina |
| 11 | 260 | Riya |
| 12 | 216 | Katy |

| | Customer name | Phone number | Address | CITY | PAYMENT_DATE | AMOUNT |
|---|---|---|---|---|---|---|
| 1 | Siya | 86766786788 | 12D, LONGWOOD | BOSTON | 01-01-20 | 130 |
| 2 | Mathew | 7688099087 | PLOT NO 2, 9th CROSS | KOLKATA | 15-01-20 | 105 |
| 3 | Rahul | 6122219009 | 42nd CROSS | BANGALORE | 14-02-21 | 310 |
| 4 | Jenny | 8883222098 | APT NO 17, SHANTI APARTMENT | PUNE | 28-03-20 | 105 |
| 5 | Steve | 9990128410 | 56B, DEART APARTMENT | GILBERT | 17-04-20 | 12 |
| 6 | Priya | 9384645372 | 22D, BEACH STREET | LOS ANGELES | 19-05-20 | 135 |
| 7 | Katy | 87101012002 | 45B SMITH STREET | BOSTON | 30-06-20 | 216 |
| 8 | Ashish | 6002304010 | 24th OAK STREET | BOSTON | 26-07-20 | 525 |
| 9 | Karan | 8116172821 | 2nd CUT, MASON STREET | AUSTIN | 18-08-20 | 340 |
| 10 | Mia | 6434011282 | HNO 67, VIDYA NAGAR | BANGALORE | 24-09-20 | 150 |
| 11 | John | 86766786788 | 12D, LONGWOOD | BOSTON | 30-10-20 | 70 |
| 12 | Rohit | 8223400116 | HNO 67, VIDYA NAGAR | BANGALORE | 02-11-20 | 270 |
| 13 | Alia | 9997600216 | HNO 34 | CHENNAI | 24-01-21 | 140 |
| 14 | Tina | 6800333345 | HNO 72, 5th CROSS | CHENNAI | 17-02-21 | 270 |
| 15 | Mike | 7556091009 | APT 1301, BRIGADE | BANGALORE | 28-03-21 | 360 |
| 16 | David | 7565111342 | 42E, PARK DRIVE | LOS ANGELES | 16-04-21 | 540 |
| 17 | Riya | 8110592387 | 180D, SOLICITE ROAD | SEATTLE | 12-04-21 | 260 |
| 18 | George | 9150384926 | HNO 12 NEWBURY STREET | AUSTIN | 13-04-21 | 450 |
| 19 | Emma | 7003160314 | 46L LONGWOOD | BOSTON | 15-03-21 | 110 |
| 20 | Aman | 8422450776 | 14F, GARDEN STREET | GILBERT | 03-01-21 | 510 |
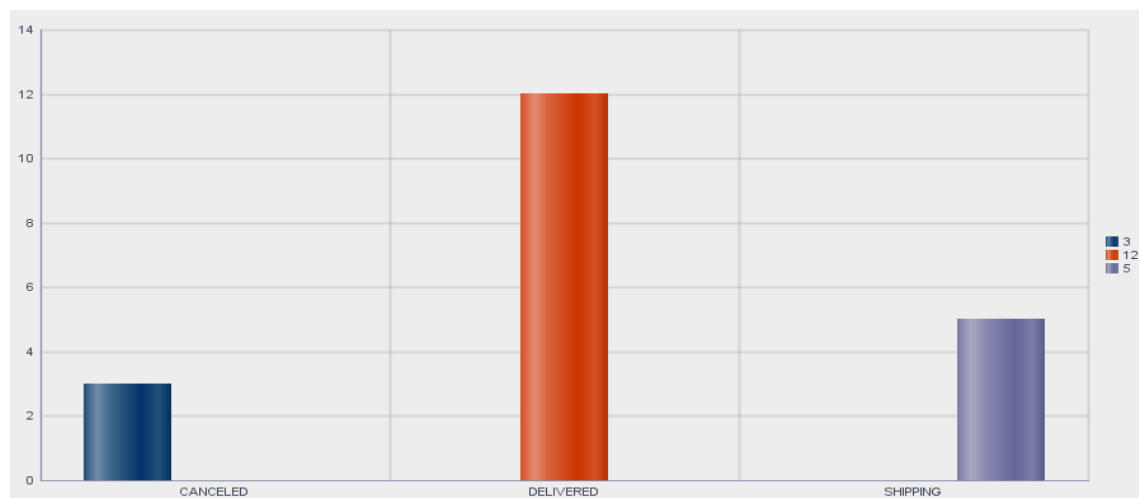


**Figure 2. Count of delivery status**
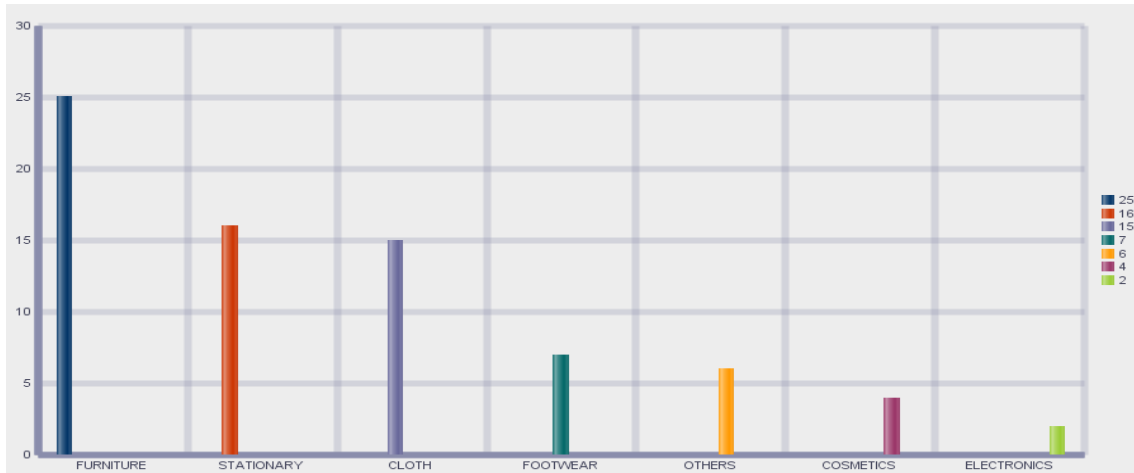
**Figure 3. Number of items in each category**

**Functions/Procedures/Triggers/Indexes**

- We will go into details during the project demo on April 29th, 2021.