



Polytechnic University of the Philippines
COLLEGE OF COMPUTER AND INFORMATION SCIENCES
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**MATLJU: A PROPOSED DATABASE MANAGEMENT SYSTEM TO
THE ALFAMART CONVENIENCE STORE BUSINESS**

A Project Paper

Presented to the Subject Professor: Prof. Lydinar Dastas

In partial fulfillment of the requirements for the subject

Information Management (COMP 20093)

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Company Profile

Chosen Company: Alfamart

Logo:



History:

In 1989, Djoko Susanto and his family launched a trade and distribution company in Jakarta that marketed a variety of products. The distribution company has a 70 percent corporate stake with PT HM. Sampoerna Tbk and a 30 percent corporate share with Susanto's PT Sigmantara Alfaindo. Susanto opened Alfa Minimart in 1999 as his first foray into the convenience store market. He opened his first branch in Karawaci, Tangerang, Banten, on Jalan Beringin Raya. Alfa Minimart expanded to 1,293 locations across Java in just six years. Alfamart was the name given to the chain after it was renamed. Alfamart had 7,000 locations in Indonesia in 2014, serving an average of 2.5 million people every day. Following its success in Indonesia, Alfamart expanded into the Philippines, a nearby country. It entered the Philippine market through a joint venture with SM Investments Corporation, with its first branch opening in Trece Martires, Cavite. Alfamart began expanding throughout the Visayas and Mindanao areas of the Philippines in 2020, mainly in Cebu, Davao, Cagayan de Oro, and Zamboanga. Alfamart Philippines launched its 1000th store in Barangay Santiago, General Trias, Cavite, on November 11, 2020.

Description:

Alfamart is a joint venture between SM and Alfamart Indonesia. Alfamart is one of Indonesia's leading mini-market chain operators with more than 15,000 branches across the country. With its entry to the Philippines, Alfamart aims to raise the retail standards by offering its customers a wider assortment of basic necessities at great value in convenient setting.

Nature of Business: Retail (Convenience Store)

Background and Description of Project

Background

As said in the Company Profile, Alfamart is a retail convenience store that is commonly found in many bustling places of each Barangays here in the Philippines. Alfamart, as a usual retail store, uses a POS System to manage every customer's transactions. However, POS System that usual retails or food-chains use only manages item orders – lists every item in their tablet (Touch Screen POS System), transactions – which is not permanently saved, and automatic in-voice or receipt creation through their POS System. Moreover, they do not have a Database Management System that will truly help them record, edit, update, and delete the data that they are acquiring in their business. Furthermore, those data can be turned into a more readable Information which they can use to improve their business if they have a Database Management System.

With that in mind, this project aims to help the Alfamart retail convenience stores to have a proper Database Management System that will also help their employees, especially the executives of the business, to have a platform that can be shared quickly and effectively to other employees and professionals. In addition, the project also aims to help the employees to have a platform which can be used to create, read, update, and delete data depending on the business's needs.

Description of Project

The project is mainly designed to be user-friendly and easily understood since it aims to be used by many Alfamart retail convenience store employees, who are mainly non-professional when it comes to programs and technology. Taking that into consideration, the program should be easy to be taught to new employees easily.

The project is developed to record and store business data. The business data is composed of the Branch Data, Employee Data, Store Orders Data, Payment Service Orders Data, and Customer Data – which are the main subjects that the project will efficiently

collect. Consequently, these data will be converted into valuable information through the Database Management System of the project – which is the project itself. Correspondingly, these subjects are assembled by or can be divided into datums. The Branch Data is assembled by Branch Name datum, Branch Location datum, Branch Dimension datum, TIN Code, and BIR permit. The Employee Data is composed of the Employee Name datum, Employee Address datum, Employee Contact datum, Employee Shift datum, and Employee Position datum. The Store Orders Data can be divided into the Store Receipt Code datum, Total Store Price datum, Store Amount Paid datum, Store Change datum, Store Time datum, and Store Date datum. The Payment Service Orders Data is composed of the Service Receipt Code datum, Service Amount datum, Service Fee datum, Total Service Price datum, Service Amount Paid datum, Service Change datum, Service Time datum, and Service Date datum. Lastly, the Customer Data is composed of the Customer Name datum and Customer Contact datum. The data that have been mentioned are also the old Entities and the datums are the Attributes of the Entities of the Database. Nevertheless, the old Entities and Attributes are further normalized in this project. With that in mind, after Normalization, the new Entities are now 11: Branch, Branch TIN, Branch BIR, Employee, Employee Information, Store Orders, Store Transactions, Store Customer, Payment Service Orders, Service Transactions, Service Customer. These Entities with their corresponding Attributes are now put into a Database, which is utilized efficiently by this project or the Database Management System.

The Algorithm of the project is also designed to be convenient and effortless to be used by the employees. The Algorithm of the project will be described and explained in the following sentences. Firstly, when the project is opened to be used, it will show a window where User will be needed to input a username and a password which only the developers and employees know, to prevent any outside party from accessing the Database. Next, after signing-in, the project will now show the main UI of the project. In the main UI, there are 6 tabs namely: Transactions, Update Data, Details, Branch & Employees, Limits, and Delete. In the Transactions Tab, Employees can input both Store Order transactions and Payment Service Order transactions of customers. Employees only need to input Total Store Order Price and Amount Paid by the customer to complete the Store Order transaction. In the said transaction, the data inputted now supplies the three Entities of the Database which are Store Orders, Store Transactions, and Store Customer. Store Orders Entity holds the Store

Receipt Code(Primary Key), Store Order Time, Store Order Date, and the foreign key Employee ID to indicate who (Employee) helped or worked for the transactions. Store Transactions Entity holds the monetary details of the transaction which are the Total Store Price, Store Amount Paid, Store Change, and the foreign key Store Receipt Code. Store Customer Entity holds the attributes: Store Receipt Code(Foreign Key), and Customer Name and Customer Contact which both can be null since Alfamart does not require customers to provide these details. For the Payment Service Transactions, it holds the also three Entities: Payment Service Orders, Service Transactions, and Service Customer, which are similar to the Store Order Transactions. The Payment Service Orders Entity holds the attributes: Service Receipt Code(Primary Key), Employee ID(Foreign Key), Payment Service, Service Order Time, and Service Order Date. The Service Transactions Entity holds the attributes: Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, and Employee ID (Foreign Key). Likewise, Service Customer Entity holds the Service Receipt Code (Foreign Key), Customer Name, Customer Contact. On the other hand, the Update Data Tab helps the user to update a certain field on a record or update the whole record in a certain Entity. In the Branch & Employees tab, it is where user can input new hired Employee's details and new registered Branch details. This tab holds the Entities: Employee, Employee Information, Branch, Branch BIR, and Branch TIN. The Employee Entity holds the attributes: Employee ID(Primary Key), Branch Location(Foreign Key), Shift Hours, and Position. The Employee Information holds the attributes: Employee Address(Primary Key), Employee ID(Foreign Key), Employee Name, and Employee Contact. The Branch Entity holds the attributes: Branch Location(Primary Key), Branch Name, and Branch Dimensions. The Branch TIN holds the attributes: TIN Code(Primary Key), and Branch Location(Foreign Key). The Branch BIR holds the attributes: BIR Permit(Primary Key), and TIN Code(Foreign Key). The Detail Tab implements the "Read" algorithm of the project. User can view the current database in every Entities – they can read all records that each Entity has. User can also view or read certain records or chosen records depending on their needs. The Limits tab acts like the Details tab wherein it also shows table of the needed information. The Limits tab helps user to identify the limits of every inputs that they will insert into the Database. The Limits tab will show – per Entity, the needed data type and data type maximum length, which I made decipherable versions

so non-IT professionals can read the information. The last tab of the project is the Delete tab which implements the “Delete” algorithm of the project. This tab helps user delete a single record, multiple records, or all records of each Entity.

Area of transaction/operation

The Alfamart operates or conduct its transactions covering two countries: having 15,000 branches inside the Philippines and 10,000 branches across Indonesia. I have chosen the Sales Department of the company to base the database on.

Entities and Attributes

Entities	Attributes									
Employee	Employee ID(PK)	Branch Location (FK)	Employee Name	Employee Contact	Employee Address	Shift Hours	Position			
Branch	Branch Location(PK)	Branch Name	TIN Code	BIR Permit	Branch Dimensions					
Customer	Store Receipt Code(FK)	Service Receipt Code(FK)	Customer Name	Customer Contact						
Store Orders	Store Receipt Code(PK)	Employee ID(FK)	Total Store Price	Store Amount Paid	Store Change	Store Order Time	Store Order Date			
Payment Service Orders	Service Receipt Code(PK)	Employee ID(FK)	Payment Service	Service Amount	Service Fee	Total Service Price	Service Amount Paid	Service Change	Service Order Time	Service Order Date

Business Rules and its source

Original (from Source):

- Alfamart reaches out to different types of customers and provides everything from their smallest to biggest needs as it offers basic groceries, select SM Bonus products, fresh items, snacks such as Turon, and personal care products at affordable prices
- It also offers bills payment service and a prepaid loading station for added convenience to shoppers
- It helps uplift communities by providing employment for locals and an opportunity for small property owners to earn by leasing their space, assuring them of stable income

Edited Version

- Each Branch of the Alfamart offers Customers to purchase things through Store Orders.
- Store Orders consists of the monetary transactions of the Customer.
- All the Branches also of the Alfamart has a range of Payment Services Orders, which consists of the monetary transactions also of the Customer, offered to the Customers.
- All Employees on all branches of Alfamart uplift and hospitably help the Customers to satisfy their needs in shopping inside the store.
- Customers also may or may not provide their name and contact when buying from the store.

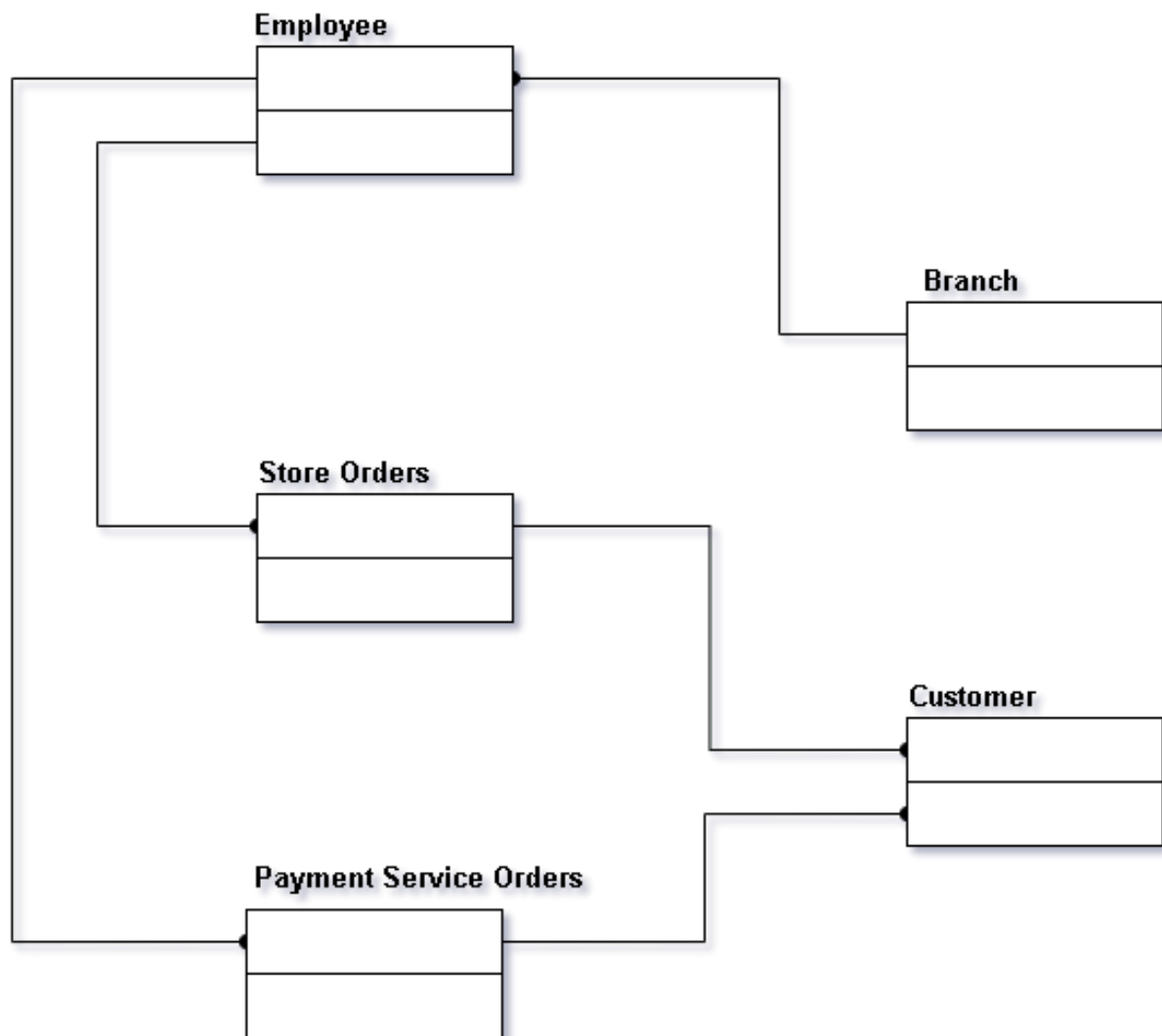
Source: Official Electronic Site

Site: <https://www.alfamart.com.ph/?fbclid=IwAR2si-al8wFoUNYfqN3daEWjW6K6ZdEtpUNeUdvmif2e5TWUzJ-jL-q4q0>

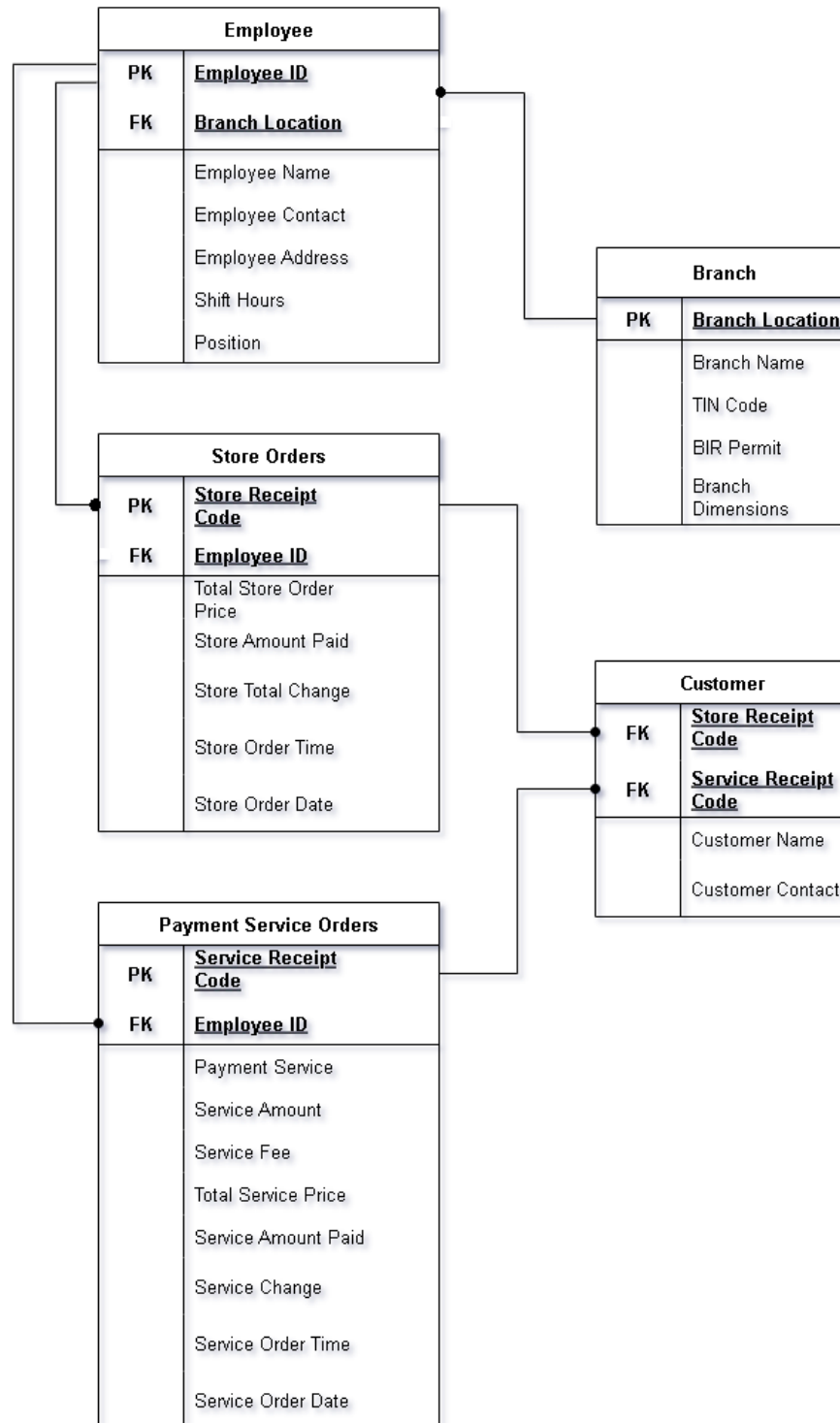
Classification of Attributes

Attributes	Classification								
Name	Required	Optional	Simple	Composite	Single-Valued	Multi-Valued	Stored	Derived	Identifier
Employee ID	√		√		√		√		√
Employee Name	√		√		√		√		
Employee Contact	√		√		√		√		
Employee Address	√		√		√		√		
Shift Hours	√		√		√		√		
Position	√		√		√		√		
Branch Location	√		√		√		√		√
Branch Name	√		√		√		√		
TIN Code	√		√		√		√		√
BIR Permit	√		√		√		√		√
Branch Dimensions	√		√		√		√		
Store Receipt Code	√		√		√		√		√
Service Receipt Code	√		√		√		√		√
Customer Name		√	√		√		√		
Customer Contact		√	√		√		√		
Total Store Price	√		√		√		√		
Store Amount Paid	√		√		√		√		
Store Change	√		√		√			√	
Store Order Time	√		√		√			√	
Store Order Date	√		√		√			√	
Payment Service	√		√		√		√		
Service Amount	√		√		√		√		
Service Fee	√		√		√		√		
Total Service Price	√		√		√			√	
Service Change								√	
Service Order Time	√		√		√		√		
Service Order Date	√		√		√		√		

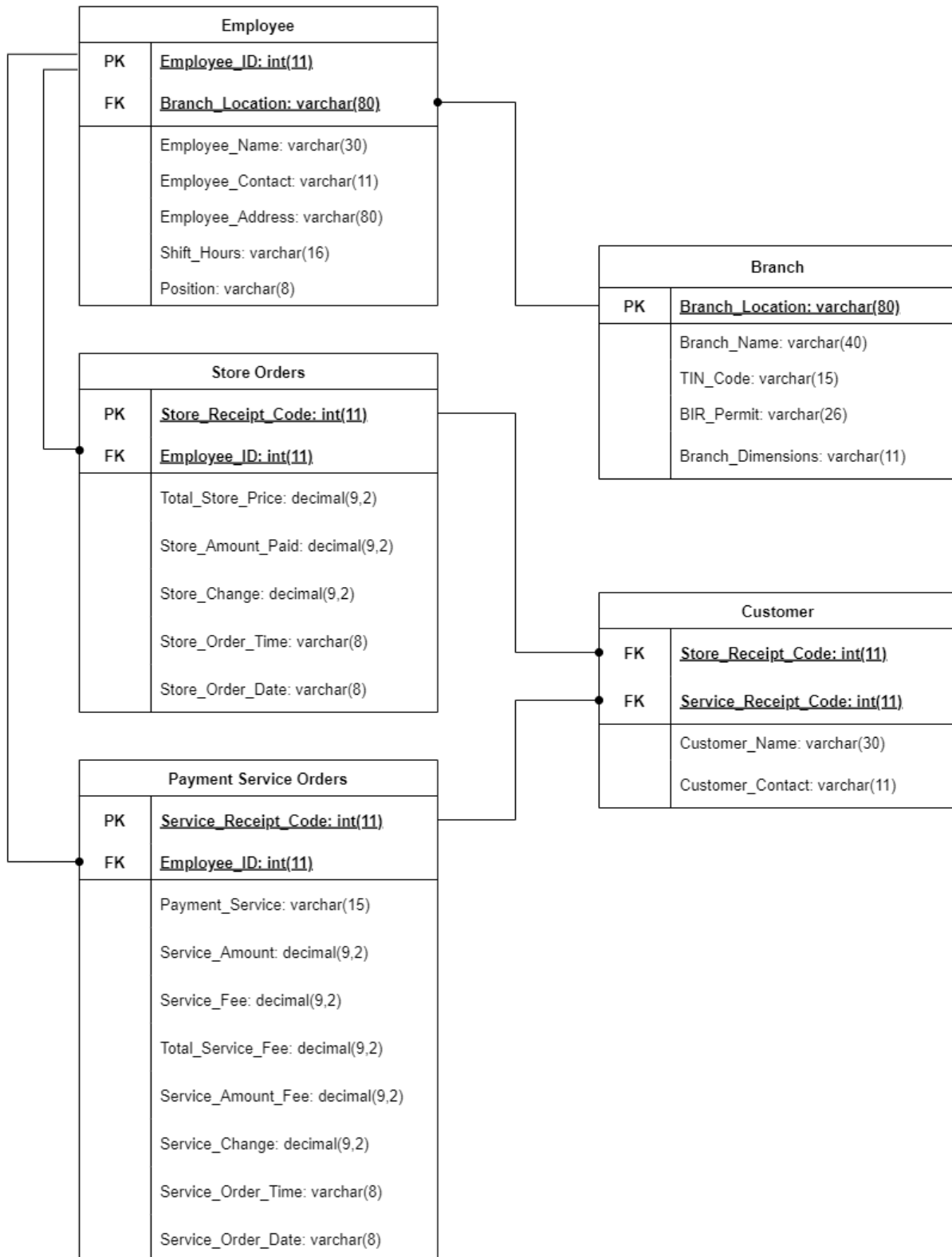
Conceptual Data Model



Logical Data Model



Physical Data Model



Entity Relational(ER) Diagram

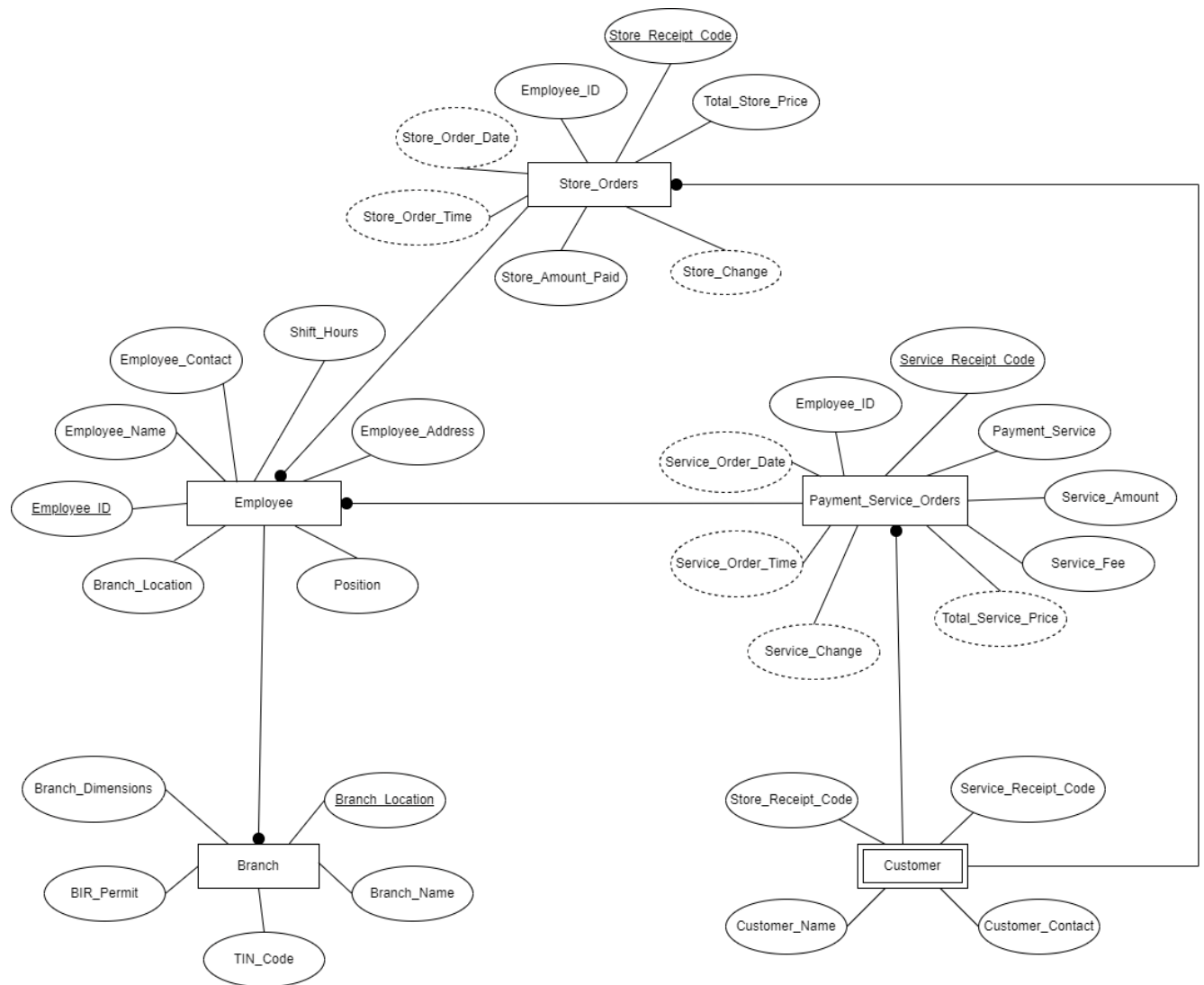


Table Preparation

Branch

Functional Dependencies:

Branch Location \rightarrow Branch Name, Tin Code, Branch Dimensions, BIR Permit
Identity Type: Non-Trivial and Full Functional Dependency

Tin Code \rightarrow Branch Location, Branch Name, Branch Dimensions, BIR Permit
Identity Type: Non-Trivial and Full Functional Dependency

BIR Permit \rightarrow Branch Location, Branch Name, Branch Dimensions, TIN Code
Identity Type: Non-Trivial and Full Functional Dependency

Attributes Closure:

Branch Location \rightarrow Branch Location
 \rightarrow Branch Location, Branch Name, Tin Code, Branch Dimensions, BIR Permit

Tin Code \rightarrow Tin Code
 \rightarrow Tin Code, Branch Location, Branch Name, Branch Dimensions, BIR Permit

BIR Permit \rightarrow BIR Permit
 \rightarrow BIR Permit, Branch Location, Branch Name, Branch Dimensions, TIN Code

Candidate Key: Tin Code, BIR Permit, Branch Location

Prime Attributes: Tin Code, BIR Permit, Branch Location

Non-Prime Attributes: Branch Dimensions, Branch Name

Employee

Functional Dependencies:

Employee ID \rightarrow Employee Name, Employee Contact, Employee Address, Shift Hours, Position, Branch Location

Identity Type: Non-Trivial and Full Functional Dependency

Employee Name, Employee Contact \rightarrow Employee Address

Identity Type: Non-Trivial and Full Functional Dependency

Attributes Closure:

Employee ID⁺ \rightarrow Employee ID

\rightarrow Employee ID, Employee Name, Shift Hours, Position,
Employee Contact, Employee Address, Branch
Location

Employee Name, Employee Contact \rightarrow Employee Name, Employee Contact

\rightarrow Employee Name, Employee Contact, Employee
Address

Candidate Key: Employee ID

Prime Attributes: Employee ID

Non-Prime Attributes: Employee Name, Shift Hours, Salary, Employee Contact, Employee Address, Branch Location

Customer

Functional Dependencies:

Store Receipt Code, Service Receipt Code \rightarrow Customer Name, Customer Contact Number

Identity Type: Non-Trivial and Partial Functional Dependency

Attributes Closure:

Store Receipt Code, Service Receipt Code \rightarrow Store Receipt Code, Service
Receipt Code

\rightarrow Store Receipt Code, Service Receipt Code,
Customer Name, Customer Contact

Candidate Key: Store Receipt Code, Service Receipt Code

Prime Attributes: Store Receipt Code, Service Receipt Code

Non-Prime Attributes: Customer Name, Customer Contact

Store Orders

Functional Dependencies:

Store Receipt Code \rightarrow Total Store Price, Store Amount Paid, Store Change, Store Order Time, Store Order Date, Employee ID

Identity Type: Non-Trivial and Full Functional Dependency

Store Amount Paid, Total Store Price \rightarrow Store Change

Identity Type: Non-Trivial and Full Functional Dependency

Attributes Closure:

Store Receipt Code \rightarrow Store Receipt Code

\rightarrow Store Receipt Code, Total Store Price, Store Amount Paid, Store Change, Store Order Time, Store Order Date, Employee ID

Store Amount Paid, Total Store Price \rightarrow Store Amount Paid, Total Store Price

\rightarrow Store Amount Paid, Total Store Price, Store Change

Candidate Key: Store Receipt Code

Prime Attributes: Store Receipt Code

Non-Prime Attributes: Total Store Price, Store Amount Paid, Store Change, Store Order Time, Store Order Date, Employee ID

Payment Service Orders

Functional Dependencies:

Service Receipt Code \rightarrow Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID

Identity Type: Non-Trivial and Full Functional Dependency

Service Amount, Service Fee \rightarrow Total Service Price

Identity Type: Non-Trivial and Full Functional Dependency

Total Service Price, Service Amount Paid \rightarrow Service Change

Identity Type: Non-Trivial and Full Functional Dependency

Attributes Closure:

Service Receipt Code \rightarrow Service Receipt Code

\rightarrow Service Receipt Code, Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID

Service Amount, Service Fee \rightarrow Service Amount, Service Fee

\rightarrow Service Amount, Service Fee, Total Service Price

Total Service Price, Service Amount Paid \rightarrow Total Service Price, Service Amount Paid

\rightarrow Total Service Price, Service Amount Paid, Service Change

Candidate Key: Service Receipt Code

Prime Attributes: Service Receipt Code

Non-Prime Attributes: Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID

Manual Form

Store Order Receipt or Invoice

Alfamart
Always there for you

ALFAMART MARKETING, INC.
ALFAMART, AMI GUITNANG BAYAN 2
ALFAMART LOT 3-D-5, BRGY. GUITNANG BAYAN
VAT-REG TIN 008-720-052-635
MIN 18031810481826553
SN# XT144486

THIS SERVES AS YOUR SALES INVOICE

GAR VHT BREAD 400	55.00
TOTAL	55.00
CASH	55.00
Change	0.00
ITEM/S PURCHASED : 1	
Vatable Sale	48.11
VAT (12%)	5.89
Vat Exempt Sale	0.00
Zero Rated Sale	0.00

Customer Name : _____
Customer Tin No. : _____
Customer Address : _____
Business Style, if any : _____

ALFAMART MARKETING, INC.
SM Corporate Bldg. E JW Diokno
Blvd, MOA Complex Pasay City
VAT-REG TIN# 008-720-052-000
ACCREDITN # 051-008720052-000678-73010
Date Issued 05/02/2014 Valid Until 07/31/2025
BIR PERMIT # FP032018-045-0206834-00635
This Invoice/Receipt shall be valid
for five (5) years from the date of the
permit to use
For exchange, std provisions on consumer
protection & product warranty will apply
SI #: 382078 23-07-2022 07:40
A: 3114 B: 01 C: 56579025 D: 781376

Scanned with CamScanner

Payment Service Receipt

9:50 54%

< GCash

Wednesday, July 20, 2022

You have received
PHP [2833.00](#) of GCash
from JENALYN DISTOR
[09058922489](#) w/ MSG: .
Your new balance is
PHP [14447.75](#). Ref. No.
[3005222188411](#).

9:58 AM

Records

Employee

Employee ID	Employee Name	Employee Contact	Employee Address	Shift Hours	Position	Branch Location
33	Jonathan Cruz	09156345464	B3 L4, Flower St., VSM 1, Brgy. GB 2, San Mateo, Rizal	M (4 am - 12 pm)	Staff	Brgy. Guitnang Bayan 2, San Mateo, Rizal
20	Kris Jacinto	09457678889	B3 L16, Muning St., VSM 1, Brgy. GB 2 San Mateo, Rizal	N (12 pm - 8 pm)	Manager	Brgy. Guitnang Bayan 1, San Mateo, Rizal
21	Shiela Garcia	09215431245	B4 L10, Sun St., Coral Village, Brgy. GB 2, San Mateo, Rizal	E (8 pm - 4 am)	Staff	Gen. Luna Avenue, San Mateo, Rizal
9	Mikaela Santos	09124546645	B5 L8, Moon St., Bankers Village, Brgy. GB 1, San Mateo, Rizal	M (4 am - 12 pm)	Staff	Brgy. Tumana, Marikina City
5	Bob Dabilder	09145467891	B5 L9, Moon St., Bankers Village, Brgy. GB 1, San Mateo, Rizal	E (8 pm - 4 am)	Manager	Sumulong Hwy., Cainta, Rizal
16	Jenny Lao	09589745663	B1 L12, Star St., Sunny Village, Brgy. Burgos, San Mateo, Rizal	M (8 pm - 4 am)	Manager	Brgy. Guitnang Bayan 2, San Mateo, Rizal

1	Honey Sui	09689778452	B31 L23, Jordan St., Leaf Village, Brgy. Tumana, Marikina City	M (8 pm - 4 am)	Manager	Brgy. Guitnang Bayan 1, San Mateo, Rizal
2	Kurt Gregory	09226541289	B4 L16, Key St., Tricity Village, Brgy. Concepcion Uno, Marikina City	M (8 pm - 4 am)	Manager	Gen. Luna Avenue, San Mateo, Rizal

Branch

Branch Location	Branch Name	TIN Code	BIR Permit	Branch Dimensions
Brgy. Guitnang Bayan 2, San Mateo, Rizal	Guitnang Bayan 2	005-720-052-515	FP072018-2SA-0174037-00515	2,500-4,000
Brgy. Guitnang Bayan 1, San Mateo, Rizal	Guitnang Bayan 1	020-930-052-623	FP072020-2SA-0589056-00589	3,000-4,000
Gen. Luna Avenue, San Mateo, Rizal	Gen. Luna Avenue	031-593-456-897	FP072018-3BC-0122156-01267	4,000-6,000
Brgy. Tumana, Marikina City	Tumana	101-560-456-897	FP072019-4SC-0447870-02210	3,500-6,000
Sumulong Hwy., Cainta, Rizal	Sumulong	020-567-413-231	FP072019-8TT-1201564-08756	4,500-8,000

Customer

Store Receipt Code	Service Receipt Code	Customer Name	Customer Contact
1	1	Julie	09124578451
2	2	n/a	0912345214
3	5	Lui	n/a
6	8	Hannah	n/a
8	9	Clom	n/a

Store Orders

Store Receipt Code	Total Store Price	Store Amount Paid	Store Change	Store Order Time	Store Order Date	Employee ID
1	100.00	150.00	50.00	9:20 am	02/05/22	33
2	200.50	250.00	49.50	2:02 am	03/11/22	21
3	150.75	151.00	0.25	11:30 am	02/05/22	21
6	27.00	30.00	3.00	3:00 pm	02/05/22	16
8	28.50	50.00	21.50	6:32 pm	02/15/22	1

Payment Service Order

Service Receipt Code	Payment Service	Service Amount	Service Fee	Total Service Price	Service Amount Paid	Service Change	Service Order Time	Service Order Date	Employee ID
1	GCash	100	2	102	110	8	9:22 am	02/05/22	33
2	Paymaya	300	2	302	319	8	11:33 am	03/11/22	21
3	ML Diamonds	149	20	169	170	1	3:02 am	02/05/22	16
6	GCash	2000	2	2002	2050	48	6:33 pm	02/15/22	1
8	Paymaya	3000	2	3002	3020	18	4:25 pm	02/20/22	2

Normalization

First Normal Form

There are no repeating groups so all tables are 1NF.

Second Normal Form

Employee

Employee ID	Employee Name	Employee Contact	Employee Address	Shift Hours	Position	Branch Location
33	Jonathan Cruz	09156345464	B3 L4, Flower St., VSM 1, Brgy. GB 2, San Mateo, Rizal	M (4 am - 12 pm)	Staff	Brgy. Guitnang Bayan 2, San Mateo, Rizal
20	Kris Jacinto	09457678889	B3 L16, Muning St., VSM 1, Brgy. GB 2 San Mateo, Rizal	N (12 pm - 8 pm)	Manager	Brgy. Guitnang Bayan 1, San Mateo, Rizal
21	Shiela Garcia	09215431245	B4 L10, Sun St., Coral Village, Brgy. GB 2, San Mateo, Rizal	E (8 pm - 4 am)	Staff	Gen. Luna Avenue, San Mateo, Rizal
9	Mikaela Santos	09124546645	B5 L8, Moon St., Bankers Village, Brgy. GB 1, San Mateo, Rizal	M (4 am - 12 pm)	Staff	Brgy. Tumana, Marikina City
5	Bob Dabilder	09145467891	B5 L9, Moon St., Bankers Village, Brgy. GB 1,	E (8 pm - 4 am)	Manager	Sumulong Hwy., Cainta, Rizal

			San Mateo, Rizal			
16	Jenny Lao	09589745663	B1 L12, Star St., Sunny Village, Brgy. Burgos, San Mateo, Rizal	M (8 pm - 4 am)	Manager	Brgy. Guitnang Bayan 2, San Mateo, Rizal
1	Honey Sui	09689778452	B31 L23, Jordan St., Leaf Village, Brgy. Tumana, Marikina City	M (8 pm - 4 am)	Manager	Brgy. Guitnang Bayan 1, San Mateo, Rizal
2	Kurt Gregory	09226541289	B4 L16, Key St., Tricity Village, Brgy. Concepcion Uno, Marikina City	M (8 pm - 4 am)	Manager	Gen. Luna Avenue, San Mateo, Rizal

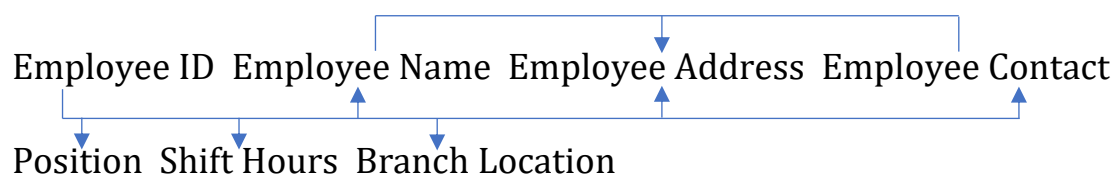
Employee(Employee ID, Employee Name, Shift Hours, Position , Employee Contact, Employee Address, Branch Location)

Functional Dependencies:

Employee ID -> Employee Name, Shift Hours, Position , Employee Contact, Employee Address, Branch Location (partial FD)

Employee Name, Employee Contact -> Employee Address (non-partial FD)

Step 1:



Candidate Keys: Employee ID, Employee Name, Employee Address

Step 2:

Employee ID+ = Employee ID

= Employee ID, Employee Name, Shift Hours, Position,
Employee Contact, Employee Address, Branch
Location

Employee Name, Employee Contact + = Employee Name, Employee Contact
= Employee Name, Employee Contact,
Employee Address

Step 3:

Prime Attributes: Employee ID

Non-Prime Attributes: Employee Name , Shift Hours, Position, Employee
Contact, Employee Address, Branch Location

Decomposition

R1(Employee ID, Shift Hours, Position, Branch Location)

R2(Employee Address, Employee Name, Employee Contact, Employee ID)

Branch

Branch Location	Branch Name	TIN Code	BIR Permit	Branch Dimensions
Brgy. Guitnang Bayan 2, San Mateo, Rizal	Guitnang Bayan 2	005-720-052-515	FP072018-2SA-0174037-00515	2,500-4,000
Brgy. Guitnang Bayan 1, San Mateo, Rizal	Guitnang Bayan 1	020-930-052-623	FP072020-2SA-0589056-00589	3,000-4,000
Gen. Luna Avenue, San Mateo, Rizal	Gen. Luna Avenue	031-593-456-897	FP072018-3BC-0122156-01267	4,000-6,000
Brgy. Tumana, Marikina City	Tumana	101-560-456-897	FP072019-4SC-0447870-02210	3,500-6,000
Sumulong Hwy., Cainta, Rizal	Sumulong	020-567-413-231	FP072019-8TT-1201564-08756	4,500-8,000

Branch(TIN Code, BIR Permit, Branch Location, Branch Dimensions
Branch Name)

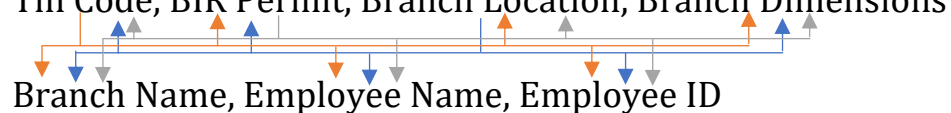
Functional Dependencies:

Branch Location -> Branch Name, TIN Code, BIR Permit, Branch Dimensions
(partial FD)

Tin Code-> Branch Location, Branch Name, BIR Permit, Branch Dimensions
(partial FD)

BIR Permit -> Branch Location, Branch Name, Tin Code, Branch Dimensions
(partial FD)

Step 1:

Tin Code, BIR Permit, Branch Location, Branch Dimensions

Branch Name, Employee Name, Employee ID

Step 2:

Tin Code+ = Tin Code
= Tin Code, BIR Permit, Branch Location, Branch Dimensions
Branch Name

BIR Permit + = BIR Permit
= BIR Permit, TIN Code, Branch Location, Branch Dimensions
Branch Name

Branch Location+ = Branch Location
= Branch Location, BIR Permit, TIN Code, Branch
Dimensions, Branch Name

Step 3:

Prime Attributes: Branch Location, TIN Code, BIR Permit

Non-Prime Attributes: Branch Dimensions, Branch Name, Employee ID

Decomposition

R1(Branch Location, Branch Dimensions, Branch Name, Employee ID)

R2(TIN Code, Branch Location)

R3(BIR Permit, TIN Code)

Customer

Store Receipt Code	Service Receipt Code	Customer Name	Customer Contact
1	1	Julie	09124578451
2	2	n/a	0912345214
3	5	Lui	n/a
6	8	Hannah	n/a
8	9	Clom	n/a

Customer(Store Receipt Code, Service Receipt Code, Customer Name, Customer Contact)

Functional Dependencies:

Store Receipt Code \rightarrow Customer Name, Customer Contact (partial FD)

Service Receipt Code \rightarrow Customer Name, Customer Contact (partial FD)

Step 1:

Store Receipt Code, Service Receipt Code, Customer Name, Customer Contact



Step 2:

Store Receipt Code \rightarrow Store Receipt Code

\rightarrow Store Receipt Code, Customer Name, Customer Contact

Service Receipt Code \rightarrow Service Receipt Code

\rightarrow Service Receipt Code, Customer Name, Customer Contact

Step 3:

Prime Attributes: Store Receipt Code, Service Receipt Code

Non-Prime Attributes: Customer Name, Customer Contact

Decomposition

R1(Store Receipt Code, Customer Name, Customer Contact)

R2(Service Receipt Code, Customer Name, Customer Contact)

Store Orders

Store Receipt Code	Total Store Price	Store Amount Paid	Store Change	Store Order Time	Store Order Date	Employee ID
1	100.00	150.00	50.00	9:20 am	02/05/22	33
2	200.50	250.00	49.50	2:02 am	03/11/22	21
3	150.75	151.00	0.25	11:30 am	02/05/22	21
6	27.00	30.00	3.00	3:00 pm	02/05/22	16
8	28.50	50.00	21.50	6:32 pm	02/15/22	1

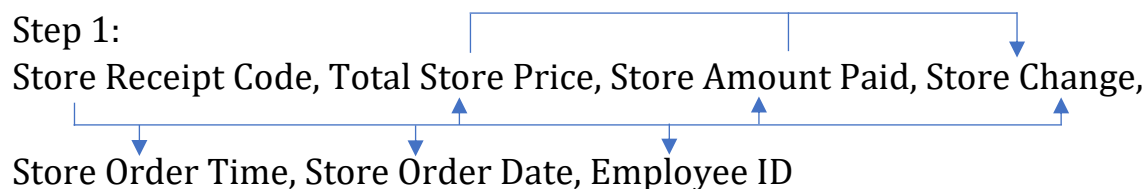
Store Orders (Store Receipt Code, Total Store Price, Store Amount Paid, Store Change, Store Order Time, Store Order Date, Employee ID)

Functional Dependencies:

Store Receipt Code \rightarrow Total Store Price, Store Amount Paid, Store Change, Store Order Time, Store Order Date, Employee ID
(partial FD)

Total Store Price, Store Amount Paid \rightarrow Store Change (non-partial FD)

Step 1:



Step 2:

Store Receipt Code \neq Store Receipt Code
 $=$ Store Receipt Code, Total Store Price, Store Amount Paid, Store Change, Store Order Time, Store Order Date, Employee ID

Total Store Price, Store Amount Paid += Total Store Price, Store Amount Paid
 = Total Store Price, Store Amount Paid,
 Store Change

Step 3:

Prime Attributes: Store Receipt Code

Non-Prime Attributes: Total Store Price, Store Amount

Paid, Store Change, Store Order Time, Store Order
 Date, Employee ID

Decomposition

R1(Store Receipt Code, Store Order Time, Store Order Date, Employee ID)

R2(Total Store Price, Store Amount Paid, Store Change, Store Receipt Code)

Payment Service Order

Service Receipt Code	Payment Service	Service Amount	Service Fee	Total Service Price	Service Amount Paid	Service Change	Service Order Time	Service Order Date	Employee ID
1	GCash	100	2	102	110	8	9:22 am	02/05/22	33
2	Paymaya	300	2	302	319	8	11:33 am	03/11/22	21
3	ML Diamonds	149	20	169	170	1	3:02 am	02/05/22	16
6	GCash	2000	2	2002	2050	48	6:33 pm	02/15/22	1
8	Paymaya	3000	2	3002	3020	18	4:25 pm	02/20/22	2

Payment Service Orders (Service Receipt Code, Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID)

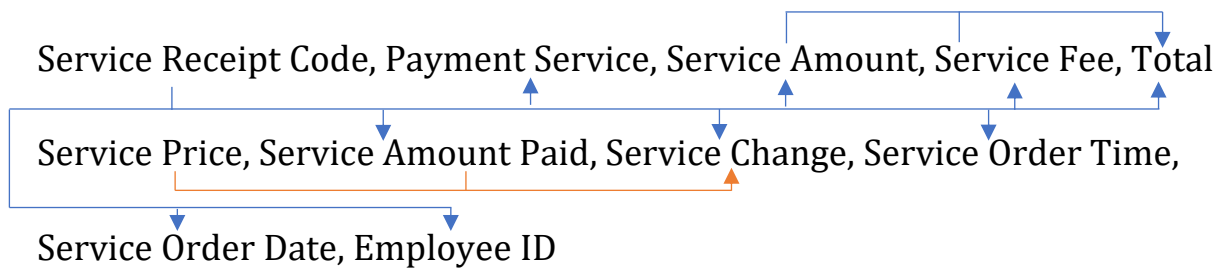
Functional Dependencies:

Service Receipt Code -> Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID (partial FD)

Service Amount, Service Fee -> Total Service Price (non-partial FD)

Total Service Price, Service Amount Paid -> Service Change(non-partial FD)

Step 1:



Step 2:

Service Receipt Code + = Service Receipt Code
= Service Receipt Code, Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID

Service Amount, Service Fee + = Service Amount, Service Fee
= Service Amount, Service Fee, Total Service Price

Total Service Price, Service Amount Paid + = Total Service Price, Service Amount Paid
= Total Service Price, Service Amount Paid, Service Change

Step 3:

Prime Attributes: Service Receipt Code

Non-Prime Attributes: Payment Service, Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Order Time, Service Order Date, Employee ID

Decomposition

R1(Service Receipt Code, Service Order Time, Service Order Date, Employee ID)

R2(Service Amount, Service Fee, Total Service Price, Service Amount Paid, Service Change, Service Receipt Code)

Third Normal Form

All tables are already in Third Normal Form.

Records After Normalization

Branch

Branch Location	Branch Name	Branch Dimensions
Brgy. Guitnang Bayan 2, San Mateo, Rizal	Guitnang Bayan 2	2,500-4,000
Brgy. Guitnang Bayan 1, San Mateo, Rizal	Guitnang Bayan 1	3,000-4,000
Gen. Luna Avenue, San Mateo, Rizal	Gen. Luna Avenue	4,000-6,000
Brgy. Tumana, Marikina City	Tumana	3,500-6,000
Sumulong Hwy., Cainta, Rizal	Sumulong	4,500-8,000

Branch TIN

TIN Code	Branch Location
005-720-052-515	Brgy. Guitnang Bayan 2, San Mateo, Rizal
020-930-052-623	Brgy. Guitnang Bayan 1, San Mateo, Rizal
031-593-456-897	Gen. Luna Avenue, San Mateo, Rizal
101-560-456-897	Brgy. Tumana, Marikina City
020-567-413-231	Sumulong Hwy., Cainta, Rizal

Branch BIR

BIR Permit	TIN Code
FP072018-2SA-0174037-00515	005-720-052-515
FP072020-2SA-0589056-00589	020-930-052-623
FP072018-3BC-0122156-01267	031-593-456-897
FP072019-4SC-0447870-02210	101-560-456-897
FP072019-8TT-1201564-08756	020-567-413-231

Employee

Employee ID	Branch Location	Shift Hours	Position
33	Brgy. Guitnang Bayan 2, San Mateo, Rizal	M (4 am -12 pm)	Staff
20	Brgy. Guitnang Bayan 2, San Mateo, Rizal	N (12 pm - 8 pm)	Manager
21	Brgy. Guitnang Bayan 2, San Mateo, Rizal	E (8 pm - 4 am)	Staff
9	Brgy. Guitnang Bayan 1, San Mateo, Rizal	M (4 am -12 pm)	Staff
5	Brgy. Guitnang Bayan 1, San Mateo, Rizal	E (8 pm - 4 am)	Manager
16	Gen. Luna Avenue, San Mateo, Rizal	M (8 pm - 4 am)	Manager
1	Brgy. Tumana, Marikina City	M (8 pm - 4 am)	Manager
2	Sumulong Hwy., Cainta, Rizal	M (8 pm - 4 am)	Manager

Employee Information

Employee Address	Employee ID	Employee Name	Employee Contact Number
B3 L4, Flower St., VSM 1, Brgy. GB 2, San Mateo, Rizal	33	Jonathan Cruz	09156345464
B3 L16, Muning St., VSM 1, Brgy. GB 2 San Mateo, Rizal	20	Kris Jacinto	09457678889
B4 L10, Sun St., Coral Village, Brgy. GB 2, San Mateo, Rizal	21	Shiela Garcia	09215431245
B5 L8, Moon St., Bankers Village, Brgy. GB 1, San Mateo, Rizal	9	Mikaela Santos	09124546645
B5 L9, Moon St., Bankers Village, Brgy. GB 1, San Mateo, Rizal	5	Bob Dabilder	09145467891
B1 L12, Star St., Sunny Village, Brgy. Burgos, San Mateo, Rizal	16	Jenny Lao	09589745663
B31 L23, Jordan St., Leaf Village, Brgy. Tumana, Marikina City	1	Honey Sui	09689778452
B4 L16, Key St., Tricity Village, Brgy. Concepcion Uno, Marikina City	2	Kurt Gregory	09226541289

Store Orders

Store Receipt Code	Employee ID	Store Order Time	Store Order Date
1	33	9:20 am	02/05/22
2	21	2:02 am	03/11/22
3	21	11:30 am	02/05/22
6	16	3:00 pm	02/05/22
8	1	6:32 pm	02/15/22

Store Transactions

Store Receipt Code	Total Store Price	Store Amount Paid	Store Change
1	100.00	150.00	50.00
2	200.50	250.00	49.50
3	150.75	151.00	0.25
6	27.00	30.00	3.00
8	28.50	50.00	21.50

Store Customer

Store Receipt Code	Customer Name	Customer Contact
1	Julie	09124578451
2	Mikel	09225461253
3	n/a	0912345214
6	n/a	n/a
8	Jon	n/a

Payment Service Orders

Service Receipt Code	Employee ID	Payment Service	Service Order Time	Service Order Date
1	33	GCash	9:22 am	02/05/22
2	21	Paymaya	11:33 am	03/11/22
3	16	ML Diamonds	3:02 am	02/05/22

6	1	GCash	6:33 pm	02/15/22
8	2	Paymaya	4:25 pm	02/20/22

Service Transactions

Service Receipt Code	Service Amount	Service Fee	Total Service Price	Service Amount Paid	Service Change
1	100	2	102	110	8
2	300	2	302	319	8
3	149	20	169	170	1
6	2000	2	2002	2050	48
8	3000	2	3002	3020	18

Service Customer

Service Receipt Code	Customer Name	Customer Contact
1	Julie	09124578451
2	n/a	0912345214
5	Lui	n/a
8	Hannah	n/a
9	Clom	n/a

Entity-Attributes Parenthesis (Shorthand Notation)

- branch(Branch_Location, Branch_Name, Branch_Dimensions)
- branch_tin(TIN_Code, Branch_Location)
- branch_bir(BIR_Permit, TIN_Code)
- employee(Employee_ID, Branch_Location, Shift_Hours, Position)
- employee_information(Employee_Address, Employee_ID, Employee_Name, Employee_Contact)
- store_orders(Store_Receipt_Code, Employee_ID, Store_Order_Time, Store_Order_Date)
- store_transactions(Store_Receipt_Code, Total_Store_Price, Store_Amount_Paid, Store_Change)
- store_customer(Store_Receipt_Code, Customer_Name, Customer_Contact)
- payment_service_orders(Service_Receipt_Code, Employee_ID, Service_Order_Time, Service_Order_Date)
- service_transactions(Service_Receipt_Code, Service_Amount, Service_Fee, Total_Service_Price, Service_Amount_Paid, Service_Change)
- service_customer(Service_Receipt_Code, Customer_Name, Customer_Contact)

Data Dictionary

Branch

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	Branch_Location	varchar	80	Branch Location
	Branch_Name	varchar	40	Branch Name
	Branch_Dimensions	varchar	11	Branch Dimensions

Branch TIN

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	TIN_Code	varchar	15	TIN Code
FK	Branch_Location	varchar	80	Branch Location

Branch BIR

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	BIR_Permit	varchar	26	BIR Permit
FK	TIN_Code	varchar	15	TIN Code

Employee

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	Employee_ID	int	11	Employee ID
FK	Branch_Location	varchar	80	Branch Location
	Shift_Hours	varchar	16	Shift Hours
	Position	varchar	8	Position

Employee_Information

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	Employee_Address	varchar	80	Employee Address
FK	Employee_ID	int	11	Employee ID
	Employee_Name	varchar	30	Employee Name
	Employee_Contact	varchar	11	Employee Contact

Payment_Service_Orders

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	Service_Receipt_Code	int	11	Service Receipt Code
	Employee_ID	int	11	Employee ID
	Payment_Service	varchar	15	Payment Service
	Service_Order_Time	varchar	8	Service Order Time
	Service_Order_Date	varchar	8	Service Order Date

Service_Customer

PK/FK	Attributes	Data Type	Data Type Size	Description
FK	Service_Receipt_Code	int	11	Service Receipt Code
	Customer_Name	varchar	30	Customer Name
	Customer_Contact	varchar	11	Customer Contact

Service_Transactions

PK/FK	Attributes	Data Type	Data Type Size	Description
FK	Service_Receipt_Code	int	11	Service Receipt Code
	Service_Amount	decimal	9,2	Service Amount
	Service_Fee	decimal	9,2	Service Fee
	Total_Service_Price	decimal	9,2	Total Service Price
	Service_Amount_Paid	decimal	9,2	Service Amount Paid
	Service_Change	decimal	9,2	Service Change

Store_Orders

PK/FK	Attributes	Data Type	Data Type Size	Description
PK	Store_Receipt_Code	int	11	Store Receipt Code
FK	Employee_ID	Int	11	Employee ID
	Store_Order_Time	varchar	8	Store Order Time
	Store_Order_Date	varchar	8	Store Order Date

Store_Transactions

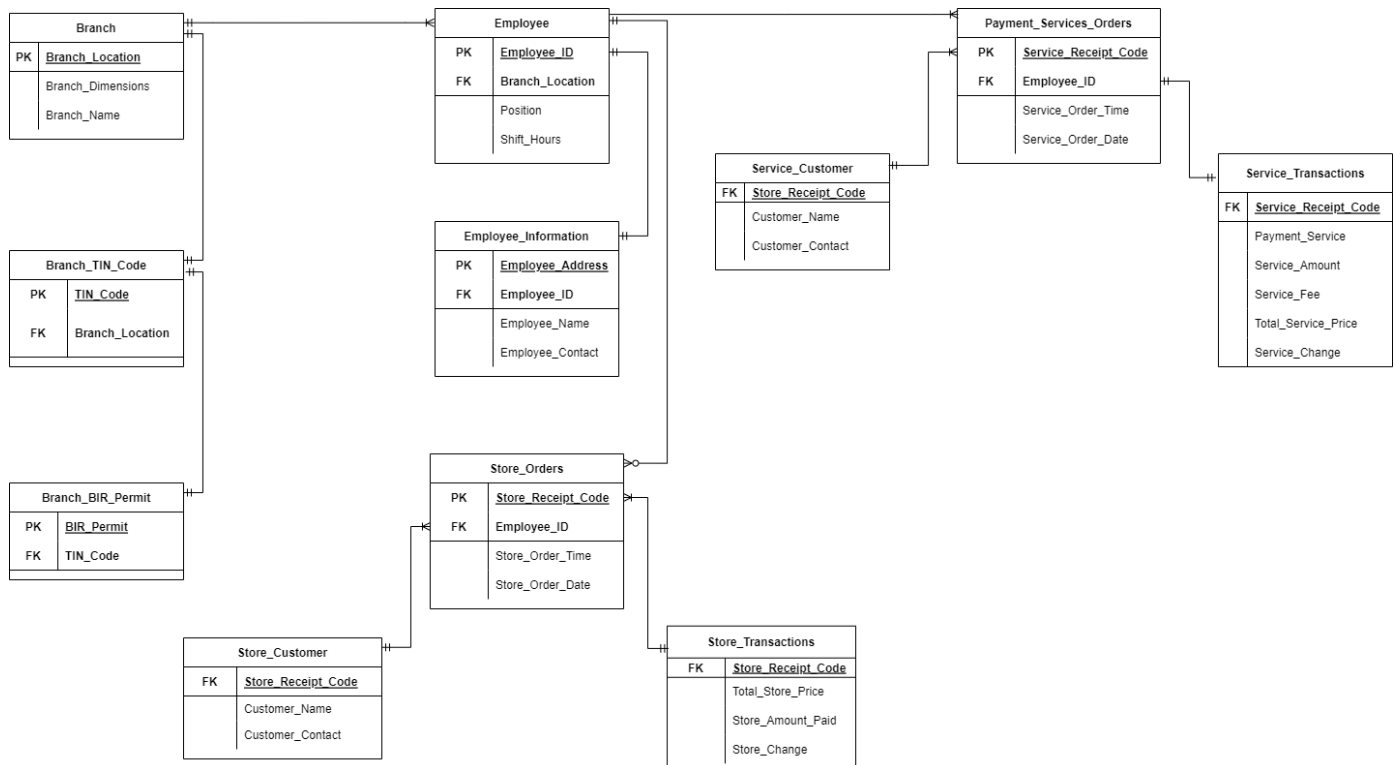
PK/FK	Attributes	Data Type	Data Type Size	Description
FK	Store_Receipt_Code	int	11	Store Receipt Code
	Total_Store_Price	decimal	9,2	Total Store Price
	Store_Amount_Paid	decimal	9,2	Store Amount Paid

	Store_Change	decimal	9,2	Store Change
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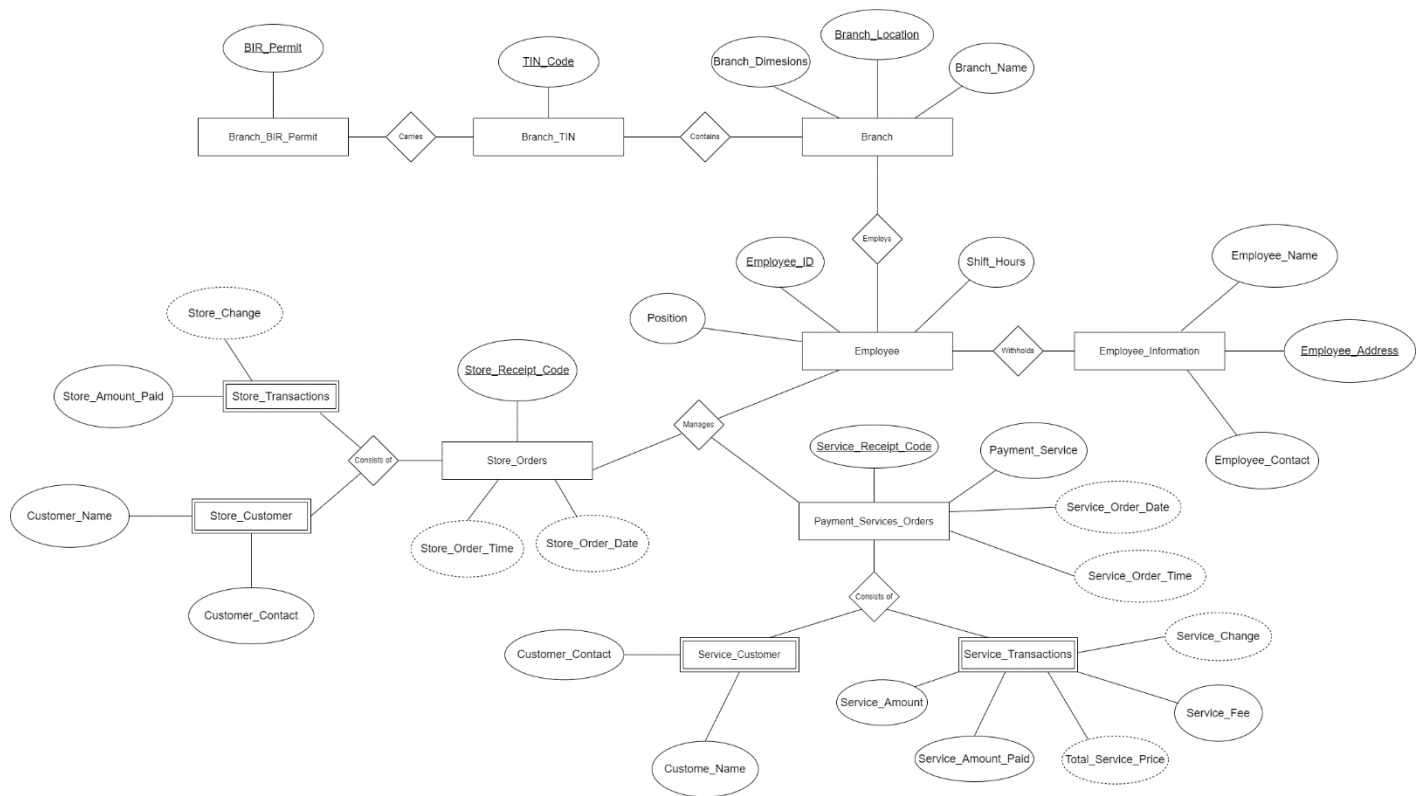
Store_Customer

PK/FK	Attributes	Data Type	Data Type Size	Description
FK	Store_Receipt_Code	int	11	Store Receipt Code
	Customer_Name	varchar	30	Customer Name
	Customer_Contact	varchar	11	Customer Contact

Entity-Relationship Diagram



Enhanced Entity-Relationship Diagram



SQL Statements

IN, WHERE, FROM, BETWEEN Statements

- IN Statement

Objective: For multiple values specification.

SQL Code: `SELECT * FROM employee WHERE Employee_ID IN (2,6);`

Output:

Employee_ID	Branch_Location	Shift_Hours	Position
2	Sampaguita St., Brgy. Huilk, Quezon City	M(4PM-12PM)	Staff
6	Mahogany St., Brgy Malutang, Jordan City	M(4AM-12PM)	Staff

- WHERE Statement

Objective: Returns data that match a set condition.

SQL Code: `SELECT * FROM branch WHERE Branch_Name = 'Huilk';`

Output:

Branch_Location	Branch_Name	Branch_Dimensions
Sampaguita St., Brgy. Huilk, Quezon City	Huilk	2,500-4,000

- FROM Statement

Objective: Specifies the table where user needs data from.

SQL Code: `SELECT Store_Order_Time FROM store_orders;`

Output:

Store_Order_Time
04:52 PM
04:52 PM
04:52 PM
04:53 PM

- BETWEEN Statement

Objective: Return results that fit a specified range.

SQL Code: `SELECT Customer_Name FROM store_customer WHERE Store_Receipt_Code BETWEEN 50 AND 53;`

Output:

Customer_Name
Hannah
Jomar
Dalton

GROUP BY, HAVING Statements

- GROUP BY Statement

Objective: Groups rows with the same values into summary rows. Used for aggregate functions.

SQL Code: `SELECT Customer_Name, Customer_Contact FROM service_customer GROUP BY Customer_Name;`

Output:

Customer_Name	Customer_Contact
Gamburza	09512123456
Julian	09563241156

- HAVING Statement

Objective: Return results that match a set condition. Used for aggregate functions.

SQL Code: `SELECT Total_Store_Price, Store_Amount_Paid, Store_Change FROM store_transactions GROUP BY Total_Store_Price HAVING Total_Store_Price > 800;`

Output:

Total_Store_Price	Store_Amount_Paid	Store_Change
875.00	1000.00	125.00
1007.50	1050.00	42.50

Multiple Table Processing

- 1.) Requirement: Join chosen Record Data from two different Tables

SQL Code: SELECT c.Customer_Name, c.Store_Receipt_Code, t.Total_Store_Price
FROM store_customer c INNER JOIN store_transactions t ON
c.Store_Receipt_Code = t.Store_Receipt_Code

Output:

Customer_Name	Store_Receipt_Code	Total_Store_Price
Hannah	50	50.75
Jomar	51	80.55
Dalton	52	1007.50
	53	875.00

- 2.) Requirement: Join chosen Record Data from two different Tables, but Data from the first identified Table, through the keyword WHERE, will be "NULL" if set condition is false.

SQL Code: SELECT c.Customer_Name, c.Store_Receipt_Code, t.Total_Store_Price
FROM store_customer c RIGHT JOIN store_transactions t ON
c.Store_Receipt_Code = t.Total_Store_Price

Output:

Customer_Name	Store_Receipt_Code	Total_Store_Price
NULL	NULL	50.75
NULL	NULL	80.55
NULL	NULL	1007.50
NULL	NULL	875.00

- 3.) Requirement: Join chosen Record Data from two different Tables, but Data from the added or joined Table, through the keyword JOIN, will be "NULL" if set condition is false.

SQL Code: SELECT c.Customer_Name, c.Store_Receipt_Code, t.Total_Store_Price
FROM store_customer c LEFT JOIN store_transactions t ON
c.Store_Receipt_Code = t.Total_Store_Price

Output:

Customer_Name	Store_Receipt_Code	Total_Store_Price
Hannah	50	NULL
Jomar	51	NULL
Dalton	52	NULL
	53	NULL

- 4.) Requirement: Create a Cartesian product, where database will create a result set with all possible combinations of input rows.

SQL Code: SELECT store_customer CROSS JOIN service_customer;

Output:

Store_Receipt_Code	Customer_Name	Customer_Contact	Service_Receipt_Code	Customer_Name	Customer_Contact
50	Hannah	09125412354	31	Julian	09563241156
50	Hannah	09125412354	32	Gamburza	09512123456
51	Jomar	09215478120	31	Julian	09563241156
51	Jomar	09215478120	32	Gamburza	09512123456
52	Dalton		31	Julian	09563241156
52	Dalton		32	Gamburza	09512123456
53			31	Julian	09563241156
53			32	Gamburza	09512123456

- 5.) Requirement: Compare data rows within the same Table.

SQL Code: SELECT c1.Store_Amount_Paid, c1.Store_Receipt_Code, c2.Store_Receipt_Code
FROM store_transactions c1 INNER JOIN store_transactions c2 ON
c1.Store_Amount_Paid = c2.Store_Amount_Paid AND
c1.Store_Receipt_Code!=c2.Store_Receipt_Code;

Output:

Store_Amount_Paid	Store_Receipt_Code	Store_Receipt_Code
500.00	55	54
500.00	54	55

6.) Requirement: Create multiple records into multiple Tables

SQL Code: INSERT INTO `employee` (`Employee_ID`, `Branch_Location`, `Shift_Hours`, `Position`) VALUES ('17', 'Mahogany St., Brgy Malutang, Jordan City', 'M (4 AM - 12 PM)', 'Staff');
 INSERT INTO `employee_information` (`Employee_Address`, `Employee_ID`, `Employee_Name`, `Employee_Contact`) VALUES ('Block 2 Lot 5, Mahalimuyak Village, Brgy. Malutang, Jordan City', '17', 'Zian Santos', '09141124581');

Output:

Employee_ID	Branch_Location	Shift_Hours	Position
2	Sampaguita St., Brgy. Huilk, Quezon City	M (4 PM - 12 PM)	Staff
6	Mahogany St., Brgy Malutang, Jordan City	M (4 AM - 12 PM)	Staff
9	Masigla St., Brgy. Ballers Bayan, Quezon City	E (8 PM - 4 AM)	Staff
10	Masigla St., Brgy. Ballers Bayan, Quezon City	M (4 AM - 12 PM)	Manager
16	Mahogany St., Brgy Malutang, Jordan City	E (8 PM - 4 AM)	Staff
17	Mahogany St., Brgy Malutang, Jordan City	M (4 AM - 12 PM)	Staff

Employee_Address	Employee_ID	Employee_Name	Employee_Contact
Block 1 Block 2, Ho Village, Brgy. Jiji, Jo city	2	Job Santino	09563214741
Block 2 Lot 5, Mahalimuyak Village, Brgy. Malutang...	17	Zian Santos	09141124581
Block 3 Lot 10, Peke Village, Brgy. Ballers, Quezo...	9	Allan Cayetano	0956214521
Block 4 Lot 1, Masigla St. Brgy. Matapang, Parañaq...	10	Voltaire Dumaraog	09562642125
Block 4 Lot 15, Villa Andreas, Brgy. Malutang, Jor...	6	Harry Corbin	09452111474

7.) Requirement: Read all records from multiple Tables

SQL Code: SELECT * FROM `employee` INNER JOIN `employee_information` ON `employee`.`Employee_ID`=`employee_information`.`Employee_ID`

Output:

Employee_ID	Branch_Location	Shift_Hours	Position	Employee_Address	Employee_ID	Employee_Name	Employee_Contact
2	Sampaguita St., Brgy. Huilk, Quezon City	M (4 PM - 12 PM)	Staff	Block 1 Block 2, Ho Village, Brgy. Jiji, Jo city	2	Job Santino	09563214741
17	Mahogany St., Brgy Malutang, Jordan City	M (4 AM - 12 PM)	Staff	Block 2 Lot 5, Mahalimuyak Village, Brgy. Malutang...	17	Zian Santos	09141124581
9	Masigla St., Brgy. Ballers Bayan, Quezon City	E (8 PM - 4 AM)	Staff	Block 3 Lot 10, Peke Village, Brgy. Ballers, Quezo...	9	Allan Cayetano	0956214521
10	Masigla St., Brgy. Ballers Bayan, Quezon City	M (4 AM - 12 PM)	Manager	Block 4 Lot 1, Masigla St. Brgy. Matapang, Parañaq...	10	Voltaire Dumaraog	09562642125
6	Mahogany St., Brgy Malutang, Jordan City	M (4 AM - 12 PM)	Staff	Block 4 Lot 15, Villa Andreas, Brgy. Malutang, Jor...	6	Harry Corbin	09452111474

8.) Requirement: Read all records from multiple Tables

```
SQL Code: UPDATE `branch_tin` SET `TIN_Code` = '556-458-412-451' WHERE
`branch_tin`.`TIN_Code` = '125-458-412-451';
UPDATE `branch_bir` SET `BIR_Permit` = 'YT012022-9ZZ-0157415-
88410' WHERE `branch_bir`.`BIR_Permit` = 'AA372014-2SA-0174037-
00515';
```

Output:

TIN_Code	Branch_Location
556-458-412-451	Jonas St., Brgy. Hojia, Quezon City
444-555-666-777	Mahogany St., Brgy Malutang, Jordan City
111-222-333-444	Masigla St., Brgy. Ballers Bayan, Quezon City
005-568-458-453	Sampaguita St., Brgy. Huilk, Quezon City

BIR_Permit	TIN_Code
YT012022-9ZZ-0157415-88410	005-568-458-453
BC392020-3CD-0174037-00515	111-222-333-444
AB072018-2SA-0174037-11515	444-555-666-777
BB372017-2SA-0174037-00515	556-458-412-451

9.) Requirement: Delete multiple Records from multiple Tables

```
SQL Code: DELETE FROM branch WHERE `branch`.`Branch_Location` = 'Jonas St.,
Brgy. Hojia, Quezon City';
```



```
DELETE FROM store_orders WHERE `store_orders`.`Store_Receipt_Code`
= '55';
```

Output:

Branch_Location	Branch_Name	Branch_Dimensions
Mahogany St., Brgy Malutang, Jordan City	Malutang	4,500-5,000
Masigla St., Brgy. Ballers Bayan, Quezon City	Ballers Bayan	5,000-5,500
Sampaguita St., Brgy. Huilk, Quezon City	Huilk	2,500-4,000

Store_Receipt_Code	Employee_ID	Store_Order_Time	Store_Order_Date
50	2	04:52 PM	07/22/22
51	2	04:52 PM	07/22/22
52	2	04:52 PM	07/22/22
53	2	04:53 PM	07/22/22
54	2	06:28 PM	07/22/22

10.) Requirement: Drop Multiple Tables

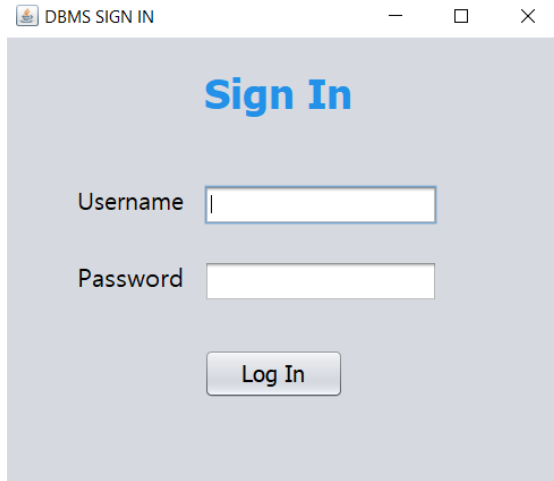
SQL Code: DROP TABLE `sample_table1`; DROP TABLE `sample_table2`;

Output:

Table
branch
branch_bir
branch_tin
employee
employee_information
payment_service_orders
service_customer
service_transactions
store_customer
store_orders
store_transactions

User Interface

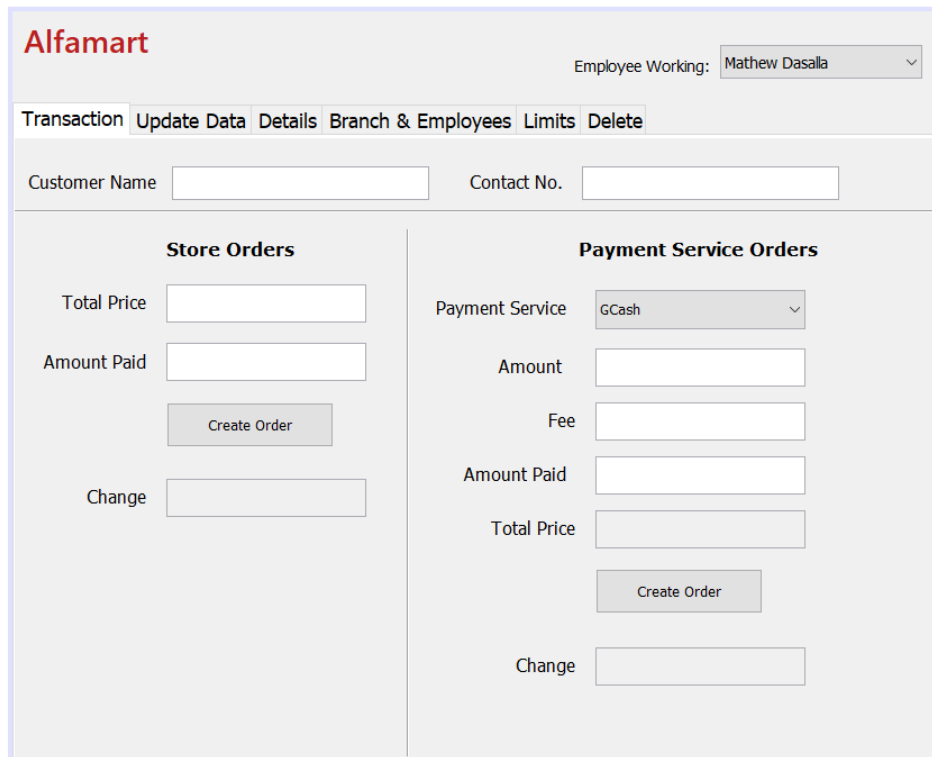
Sign In



A screenshot of a web application window titled "DBMS SIGN IN". The window has a light gray background. At the top, the title bar shows a small icon, the text "DBMS SIGN IN", and standard window control buttons (minimize, maximize, close). Below the title bar, the text "Sign In" is displayed in a large, bold, blue font. Underneath, there are two input fields: "Username" and "Password". The "Username" field has a blue border and a cursor. Below these fields is a "Log In" button with a gray gradient and rounded corners.

Description: In this part, the user will be needing to input the right Username and Password which will be provided by the developers. This prevents any outside party from accessing the Database Management System or the project itself.

Transaction Tab



A screenshot of the "Alfamart" Transaction Tab interface. The interface has a light gray background. At the top left, the "Alfamart" logo is displayed in red. To the right of the logo, there is a dropdown menu labeled "Employee Working:" with "Mathew Dasalla" selected. Below the logo and employee name, there is a horizontal tab bar with the following tabs: "Transaction", "Update Data", "Details", "Branch & Employees", "Limits", and "Delete". The "Transaction" tab is currently selected. Below the tab bar, there are two input fields: "Customer Name" and "Contact No.". Below these fields, the interface is divided into two columns. The left column is titled "Store Orders" and contains three input fields: "Total Price", "Amount Paid", and "Change". Below the "Amount Paid" field is a "Create Order" button. The right column is titled "Payment Service Orders" and contains a dropdown menu labeled "Payment Service" with "GCash" selected. Below this dropdown are four input fields: "Amount", "Fee", "Amount Paid", and "Total Price". Below the "Total Price" field is a "Create Order" button. At the bottom of the right column is a "Change" input field.

Description: This is the first tab and main UI that will be shown to the user after signing in. In this tab, Employees will be needed to choose their corresponding names in the upper-right of the project, where “Employee Working” is located, for their ID to be linked with every transaction of the Customers. For Store Orders, Employees will only need to input the “Total Price” and “Amount Paid” for every transaction. The Change will automatically be outputted for Employees to view. Likewise, for Payment Service Orders, “Payment Service”, “Amount”, “Fee” and “Amount Paid” is all needed to be inputted by the Employee and the “Total Price” and “Change” will automatically be outputted on the Project or program. Moreover, the data taken is also automatically inserted into the Database.

Update Data Tab

Description: The Update Tab focuses on the “Update” algorithm of the project or program. This tab helps Employees to update a whole record (Whole Record Update) or update a certain attribute (Single Attribute Update) of the chosen record. Employees must choose the Table that they need to edit and also the “Type” of the data that they know. The Type corresponds to either the “Row No.” or “1st Field Data” of the Record, which is always unique for all the Tables, in order for the program to find the certain Record that the Employee or user wants to update. The Type Data hereby is the actual “Row No.” or actual “1st Field Data”. For the Single Attribute Update, the user needs to choose the Field or Attribute that is needed to be updated, and the corresponding “New Field Data” or the new data of the chosen attribute. For the Whole Record Update, the user can update all attributes of the chosen record simultaneously. Nevertheless, Foreign Keys and Derived Attributes are prohibited from editing to avoid redundancy and incorrectness of data collected.

Details Tab

The screenshot displays the 'Alfamart' application interface. At the top left is the 'Alfamart' logo. At the top right, there is a label 'Employee Working:' followed by a dropdown menu showing 'Mathew Dasalla'. Below this is a horizontal navigation bar with tabs: 'Transaction', 'Update Data', 'Details' (which is active), 'Branch & Employees', 'Limits', and 'Delete'. Under the 'Details' tab, there is a section with the following controls: a 'Table' dropdown menu currently set to 'Branch', a 'From Row No.:' text input field, a 'To Row No.:' text input field, a 'Read Chosen Rows' button, a '1st Field Data:' text input field, a 'Read Specific Row' button, and a 'Read All Rows' button. Below these controls is a table with four columns labeled 'Title 1', 'Title 2', 'Title 3', and 'Title 4'. The table has five rows, with the first row containing the column headers and the subsequent four rows being empty. Below the table is a large, empty rectangular area.

Description: The Details Tab implements the “Read” Algorithm of the program. This tab helps user to Read Tables or any specific number of Records in the Database. Likewise, user is needed to choose the Table that is needed to be seen or read. After choosing the right table, user can choose to read all rows or all records inside that Table or choose specific records through providing the Row Numbers: “From Row No. ”, which represents the Starting Record that will be read, and “To Row No.”, which represents the Last Record that will be read. Moreover, the user can choose to read only one record. To read one record, user will be needed to input the 1st Field Data of that record, or the first data that will be seen in that record or input the row number of that certain record in both “From Row No.” and “To Row No.” text fields.

Branch & Employees Tab

Alfamart

Employee Working: Mathew Dasalla

TransactionUpdate DataDetailsBranch & EmployeesLimitsDelete

Branch Registry

Branch Name

Branch Dimensions

TIN Code

Address

BIR Permit

Register

Employee Registry

Employee Name

Shift HoursM (4 AM - 12 PM)

Contact Number

Address

PositionStaff

Branch LocationItem 1

Register

Description: The Branch & Employees Tab represents the “Create” function or algorithm of the program, that creates details regarding the Employees and Branches of Alfamart. The Branch Registry is where new Branch of Alfamart is registered. All details are needed to be provided in order to successfully register a new Branch. Similarly, in the Employee Registry, all details asked are needed to be provided in order for the new Employee be registered.

Limits Tab

The screenshot shows the 'Limits' tab in the Alfamart application. At the top left is the 'Alfamart' logo. To its right is a dropdown menu labeled 'Employee Working:' with 'Mathew Dasalla' selected. Below these are navigation tabs: 'Transaction', 'Update Data', 'Details', 'Branch & Employees', 'Limits' (which is active), and 'Delete'. Under the 'Limits' tab, there is a 'Table' label followed by a dropdown menu showing 'Branch'. To the right of this is a 'Read Limits' button. Below these elements is a table with three columns: 'Field', 'Limit', and 'Maximum Value/Length'. The table body is currently empty.

Field	Limit	Maximum Value/Length
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Description: The Limits Tab serves as the guide for the users or employees regarding the restrictions on each data that they will input in the Database. Moreover, the language used in this tab is user-friendly and beginner-friendly, which any non-IT professional will understand. For example, “Data Type” was changed in to “Limit” and “Varchar” is changed into “Letters”. In the same way, Table is needed to be chosen in order for the program to input the restrictions about that chosen Table.

Delete Tab

Alfamart

Employee Working: Mathew Dasalla

Transaction Update Data Details Branch & Employees Limits **Delete**

Table Branch

Multiple Records Delete

From Row No.:

To Row No.:

Delete Chosen Records

Delete All Records

One Record Delete

Type 1st Field Data

Type Data

Delete One Record

Description: The Delete Tab implements the “Delete” function of the program. The Tab is divided into two parts which are Multiple Records Delete and One Record Delete. Likewise, to delete a record or multiple records, corresponding Table to be deleted is needed to be selected. The Multiple Records Delete helps user to delete more than one Records simultaneously that are in the same Table. Row numbers of the chosen Records to be deleted are needed to be provided to delete those Records. On the other hand, when deleting one record, Type is needed to be selected to indicate the data: 1st Field Data or row number, that the user has on the certain Record that will be deleted, to delete that corresponding one Record.