

**AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES**  
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Name: GROUP 9  
Course: DATABASE AND DATA MANAGEMENT

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Assignment Number: 1  
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## **Title of Project**

### **Grocery Management System**

This Database Design for Grocery Management System designed to handle grocery stock in, restock, sales, returns, purchase and other stuff. Point of Sales and Inventory System Database Design stable revenue system are reasons in which the grocery store offer more jobs and opportunities to engage inside the earning activities.

In order to make this business become easier, we made Database Design for Grocery Management System Project which they can manage the transaction of their business more effectively and efficiently. In over all this system will gives to the customer and to the owner a convenience timed and easiest way to manage their business.

- Manage products
- Stored all the data
- Manage customer
- Monitor the number of customer

## **Introduction**

The Research will focus strictly on the following procedure, listed below:

- Creation of Data Dictionaries
- Creation of Tables and the link between them.
- Description of the roles of the tables.
- SQL script of all the tables.

# Data Dictionaries

## Customers table

*customer\_id* (int) ,(primary key): Unique identifier for each customer

*first\_name*(varchar(20)): First name of the customer

*last\_name*(varchar(20)): Last name of the customer

sex (char (1)(check sex = 'F' or sex = 'M')) : The gender of the customer

*phone\_number* (int): Phone number of the customer

*purchase\_product* (varchar(20)) : The name of the product that customer purchase

## Employee table

*employee\_id* (int), (primary key): Unique identifier for each employee

*first\_name* (varchar(20)): First name of the employee

*last\_name* (varchar(20)): Last name of the employee

sex (char (1)(check sex = 'F' or sex = 'M')) : The gender of the employee

dob(date) :The date of birth of the employee

*phone\_number* (int): Phone number of the employee

*job\_title* (varchar(30)) : The title of the job of the employee

salary(numeric(12,2)) : The salary of the employee

*Start\_date\_ofwork* (date) : The starting date of work fro the employee

## Products table

*serial\_num\_product* (int),( primary key): Unique identifier for each product

*product\_name* (varchar(15)): Name of the product

price (numeric(10,2)): Price of the product

description (varchar(500)): Description of the product

preference product(int) :The type of product the customer prefer

category (varchar(50)): Category of the product (e.g., dairy, produce, meat, etc.)

### **Sales table**

*customer\_id* (int): ID of customer who purchase product

*sales\_serial* :(int) ,primary key

*serial\_num\_product* (varchar(50),foreign key): Serial number of product sold

*quantity\_of\_product* ( int(500)) : Quantity of product sold

dop (date) : date of purchase product

category (varchar(50)): Category of the product (e.g., dairy, produce, meat, etc.)

### **Store\_locations table**

*store\_id* (int), (primary key): Unique identifier for each store location

*store\_name* (varchar(20)): Name of the store location

*order\_id* :int

city (varchar(20)): City where the store location is located

province(varchar(50)): province where the store location is located

### **Orders table**

*order\_id* (int),( primary key): Unique identifier for each order

*store\_id* (int), foreign key): ID of the store location

*order\_date* (date): Date the order was placed

*sales\_id* (int ),(foregin key)

*total\_price* (numeric(10,2)): Total price of the order

## List of Tables

Table 1: Customers Table

Attributes	Type	Constraints length	Description
Customer_id	integer	16	primary key: Unique identifier for each customer
first_name	varchar	20	First name of the customer
last_name	varchar	20	Last name of the customer
sex	char	1	The gender of the customer
phone_number	integer	15	Phone number of the customer
purchase_product	varchar	20	The name of the product that customer purchase

Table 2: Employee Table

Attribute	Type	Constraints Length	Description
employee_id	integer	16	primary key: Unique identifier for each employee
first_name	varchar	20	First name of the employee
last_name	varchar	20	Last name of the employee
sex	char	1	The gender of the employee
date_of_birth	date		The date of birth of the employee
phone_number	integer	20	Phone number of the employee
job_title	varchar	30	The title of the job of the employee
salary	numeric	12,2	The salary of the employee
start_date	date		Starting date of work for the employee

Table 3: Products Table

Attribute	Type	Constraints Length	Description
serial_num_product	integer	20	Unique identifier for each product
product_name	varchar	30	Name of the product
price	numeric	(10,2)	Price of the product
description	varchar	500	Description of the product
category	varchar	50	Category of the product (e.g., dairy, produce, meat,
preference product	int		The type of product the customer prefer

Table 4: Sales Table

Attribute	Type	constraint length	Description
product_name	varchar	25	Name of each product sold
customer_id	integer	30	foreign key to customer_customers.id: ID of customer who purchased the product
serial_num_product	varchar	50	foreign key: Serial number of product sold
quantity_of_product	integer	500	Quantity of product sold
dop	date		Date of purchase of the product
category	varchar	50	Category of the product (e.g., dairy, produce, meat, etc.)

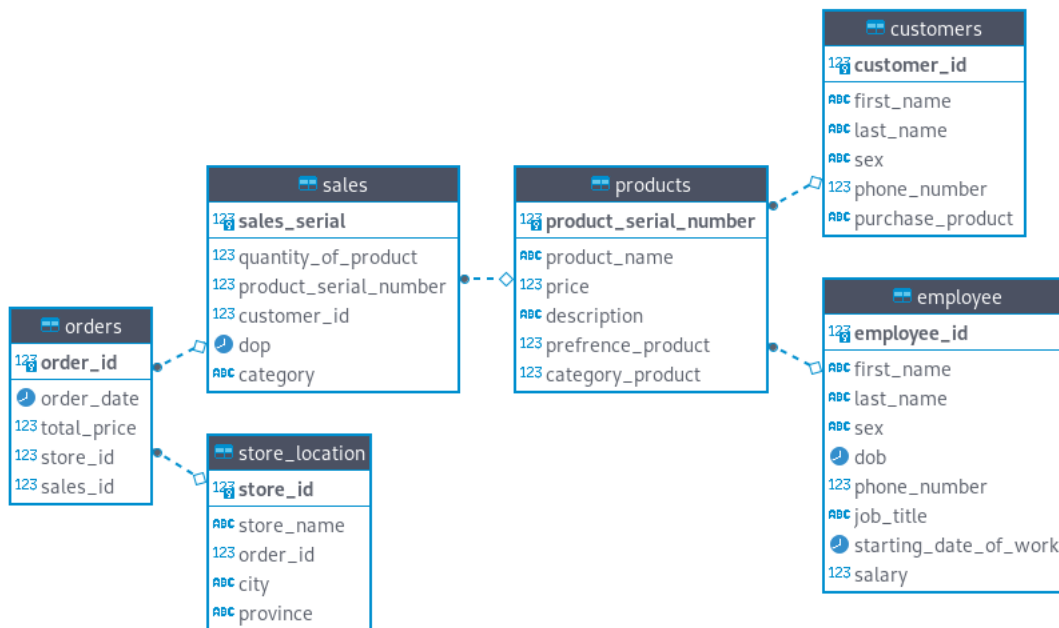
Table 5: Orders Table

Attributes	Type	Constraints length	Description
order_id	integer	20	Unique identifier for each order
store_id	integer		ID of the store location
sales_id	integer		ID of the sales
order_date	date	-	Date the order was placed
total_price	numeric	(10,2)	Total price of the order

Table 6: Store Location Table

Attributes	Type	Constraints length	Description
store_id	integer	20	primary key: Unique identifier for each store location
order_id	int		The ID if the Order
store_name	varchar	20	Name of the store location
city	varchar	20	City where the store location is located
province	varchar	50	Province where the store location is located

## Link Between Tables



## Roles of all Tables

### Customer Table

This table contains a description of details about the customers that patronize their products and their relationship to the database. This content of the customer's table is very relevant because buying and selling in a grocery store depends on the clients. The information on the client will help to improve customer services. For example, if a customer complains, the owner can easily contact the customer and resolve the issue.

### Employee Table

The employee table basically contains information about all the workers in the grocery store. These details help the owner to know the roles of each employee and their working departments, as well as to easily analyze the performance of all employees in the grocery store.

### Products Table

The products table helps with keeping track of inventory. In this case, the owner is able to know the available stock and to have information about expired products in order to prevent the issue of selling damaged, expired, or wrongly issued products to clients. Another important factor is the product table, which helps with the pricing and promotion of products.

### Sales Table

This is another crucial table for tracking revenue and the performance of the business. Revenue tracking can help you determine which products are the most popular and which are obsolete. This saves the owner from investing in products that the customers may not be interested in purchasing.

However, this feature could be used for the purpose of forecasting and analysing market trends in order to make a good decision or plan for the future.

### **Order Table**

This table contains information about the orders made by clients. This helps a lot with customer service by attending to complaints from clients and tracking customer preferences. Also, it is relevant in making data-driven decisions to improve the satisfaction of clients.

### **Store Location Table**

This table provides information on all the stores in operation as well as the store with the highest purchasing power, as this will help the business owner predict the extent to which the business will succeed. Tracking sales at each location, for example, can help identify which stores are performing well as well as the challenges that the stores that are not performing well face.

Lastly, knowing which products sell quickly at a store helps in meeting the right demands of the customers in that region.