OAM CHANDRA LAASYA TUMMALA

Fashion Inventory Management and Sales Database Narrative

In the vibrant realm of women's fashion, Elite Ensemble is on a quest to win the hearts and wardrobes of style-conscious women across the nation. To achieve this mission, Elite Ensemble envisions a groundbreaking database system that transcends conventional data management. It is not just a database; it is the digital epicenter driving Elite Ensemble's rapid expansion, bridging the gap between physical stores and the burgeoning e-commerce landscape.

Users and Their Information Needs:

1. **Store Managers:** Store managers are the frontline warriors in the fashion battleground. Armed with real-time data, they need to make quick decisions about stock levels, merchandise preferences, and customer experiences. With insights into stock levels and customer data, they optimize their store's inventory, ensuring that customers find the products they desire.
2. **Sales Associates:** The database equips sales associates with a powerful tool to offer tailored product recommendations, delve into customer purchase histories, and create memorable shopping experiences. In this digital age, personalization is key to fostering customer loyalty and repeat business.
3. **Marketing Teams:** For marketing teams, data is the compass guiding campaigns. The database segments customers based on their buying behavior, preferences, and locations. Armed with this information, marketing teams craft targeted promotional campaigns, maximizing their impact and engaging customers effectively. Customer loyalty programs are fine-tuned to incentivize repeat purchases.
4. **Supply Chain Managers:** Supply chain managers are tasked with ensuring that goods flow smoothly from warehouses to stores. With the database, they synchronize inventory balances across the network, streamlining replenishment and distribution processes.
5. **Top-Level Executives:** At the executive level, data is the currency that powers strategic decisions. The database provides comprehensive reporting and analytical capabilities, delivering insights that shape critical decisions regarding pricing strategies, inventory management, marketing campaigns, product development, and expansion strategies. It provides a panoramic view of key performance indicators (KPIs) including total revenue, units sold, average transaction

size, top-selling items by category, and sales trends over time. Armed with these insights, executives can make informed choices that drive the brand's growth.

Inventory Management - Keeping the Racks Full

The core of the system houses an advanced inventory management module, ensuring that every retail store, warehouse, and distribution center remains stocked and ready to meet the ever-evolving fashion desires. Real-time insights into stock levels empower regional managers to optimize distribution and replenishment, tailoring stock levels to each store's unique needs. This system even triggers automated purchase orders to suppliers when stock levels dip, assuring uninterrupted flow.

Point-of-Sale Integration - Swift and Accurate

At the heart of every successful fashion retailer lies a robust point-of-sale system. The database seamlessly integrates with Elite Ensemble's POS terminals, guaranteeing seamless order processing and checkout. The entire product catalog, including pricing, product descriptions, and vivid imagery, is at your fingertips, making every transaction seamless.

Sales Tracking and Reporting - The Power of Data

Each completed sales transaction represents a wealth of information. The database meticulously captures item details, quantities, pricing, discounts, customer data, payment methods, store locations, and timestamps. This granular data feeds Elite Ensemble's business intelligence platform, enabling advanced analytics and reporting. It facilitates tracking of key performance indicators (KPIs) such as total revenue, units sold, average transaction size, top-selling items by category, and sales trends over time. Reports can be filtered by one or multiple store locations and date ranges, empowering Elite Ensemble with actionable insights to refine pricing strategies, optimize inventory management, craft impactful marketing campaigns, innovate in product development, and expand its channels with precision.

Customer Profiles - Personalized Shopping

Elite Ensemble's commitment extends beyond selling clothing to building enduring relationships. Detailed customer profiles house insights into purchase history, sizing preferences, favored products, and demographic data. During checkout, sales transaction details seamlessly feed into these profiles. Associates can access this treasure trove of data, providing personalized product recommendations, crafting exceptional shopping experiences, and nurturing lasting connections.

Accounting and Finance - The Business Side of Fashion

Elite Ensemble recognizes that fashion isn't just about style; it's about the numbers too. The database seamlessly integrates with Elite Ensemble's accounting system. Sales transactions automatically update revenue totals, offering real-time financial insights. Inventory value and cost adjustments are meticulously recorded, ensuring precise tracking of the cost of goods sold. Key performance indicators for revenue, margins, expenses, and profitability are monitored closely, identifying opportunities for growth and improvement

Table Name	Attribute	Contents	Data Type	Format	Range	Required	PF/FK	Reference
ITEM	**ITEM_ID**	Unique identifier for the item	VARCHAR(12)	ITXXXXXXXXXX	IT0000000001 - IT9999999999	Y	PK	
	ITEM_NAME	Name of the item	VARCHAR(100)	Xxxxx		Y		
	ITEM_DESCRIPTION	A short description of the item	VARCHAR(300)	Xxxxxx		Y		
	ITEM_PRICE	Price per unit of the inventory item	Decimal(8,2)	999999.99	0 – 999999.99	Y		
	ITEM_RECORDER_POINT	Minimum quantity triggering a reorder	INT(2)	99	0 - 99	N		
	ITEM_IDEAL_STOCK_LEVEL	Optimal quantity of the item	INT(3)	999	0 - 999	N		
	SUPPLIER_ID	Unique identifier for the supplier	VARCHAR(9)	SUPXXXXXX	SUP000001 - SUP999999	Y	FK	SUPPLIER
	ITEM_CATEGORY_ID	Unique identifier for the Item category	VARCHAR(5)	ICXXX	IC001 - IC999	Y		
LOCATION	**LOCATION_ID**	Unique identifier for the location	VARCHAR(9)	LOCXXXXXX	LOC000001 - LOC999999	Y	PK	
	LOCATION_NAME	Name of the location	VARCHAR(100)	Xxxxx		Y		
	LOCATION_TYPE	Type of location (e.g., retail store, warehouse)	ENUM	Xxxxx	"Store" , "Warehouse"	Y		
	LOCATION_STREET	Street Address of the location	VARCHAR(100)	Xxxx		Y		
	LOCATION_CITY	City Address of the location	VARCHAR(100)	Xxxxx		Y		
	LOCATION_STATE	State Address of the location	VARCHAR(100)	Xxxx		Y		
	LOCATION_PINCODE	Pincode Address of the location	INT(5)	Xxxxx		Y		
	LOCATION_CONTACT_NUMBER	Contact number for the location	VARCHAR(15)	(999)-999-9999		Y		
EMPLOYEE	**EMPLOYEE_ID**	Unique identifier for the employee	VARCHAR(7)	EMXXXXX	EM00000 – EM99999	Y	PK	
	EMPLOYEE_FNAME	First Name of the employee	VARCHAR(30)	Xxxx		Y		
	EMPLOYEE_LNAME	Last Name of the employee	VARCHAR(30)	Xxxx		Y		
	EMPLOYEE_TYPE	Type of the employee – Part type employee/ Full time employee	VARCHAR(50)	Xxxxx		Y		
	EMPLOYEE_CONTACT_NUMBER	Contact number for the employee	VARCHAR(15)	(999)-999-9999		Y		
	EMPLOYEE_DOB	Date of Birth of the Employee	Date	MM/DD/YYYY		Y		

	LOCATION_ID	Unique identifier for the location	VARCHAR(9)	LOCXXXXXX	LOC000001 - LOC999999	Y	FK	LOCATION
CUSTOMER	**CUSTOMER_ID**	Unique identifier for the customer	VARCHAR(30)	CIDXXXXXXXXXX ……	CID01 - CID9999999999…….	Y	PK	
	CUSTOMER_FNAME	First Name of the customer	VARCHAR(30)	Xxxx		Y		
	CUSTOMER_LNAME	Last Name of the Customer	VARCHAR(30)	Xxxx		Y		
	CUSTOMER_EMAIL	Email address of the customer	VARCHAR(50)	Xxxx@Xxxxx.Xxx		Y		
	CUSTOMER_CONTACT_NUMBER	Phone number of the customer	VARCHAR(15)	(999)-999-9999		Y		
	CUSTOMER_DOB	Date of Birth of the Customer	Date	MM/DD/YYYY		Y		
	CUSTOMER_AGE	Age of the customer	INT(2)	99	0 - 99	N		
	CUSTOMER_GENDER	Gender of the customer	ENUM		Male / Female/Other	Y		
	CUSTOMER_ADDRESS_STREET	Street Address of the customer	VARCHAR(100)	Xxxx		Y		
	CUSTOMER_ADDRESS_CITY	City Address of the customer	VARCHAR(100)	Xxxxx		Y		
	CUSTOMER_ADDRESS_STATE	State Address of the customer	VARCHAR(100)	Xxxx		Y		
	CUSTOMER_ADDRESS_PINCODE	Pincode Address of the customer	INT(5)	Xxxxx		Y		
SALE	**SALE_ID**	Unique identifier for the sales	INT(10)	9999999999	0000000001 - 9999999999	Y	PK	
	CUSTOMER_ID	Unique identifier for the customer	VARCHAR(30)	CIDXXXXXXXXXX ……	CID01 - CID9999999999…….	Y	FK	CUSTOMER
	EMPLOYEE_ID	Unique identifier for the employee	VARCHAR(7)	EMXXXXX	EM00000 – EM99999	Y	FK	EMPLOYEE
	LOCATION_ID	Unique identifier for the location	VARCHAR(9)	LOCXXXXXX	LOC000001 - LOC999999	Y	FK	LOCATION
	SALE_TIMESTAMP	Date and time of the transaction	Date Time	YYYY-MM-DD HH:MM:SS		Y		
	SALE_PAYMENT_METHOD	Method of payment for the transaction	ENUM		Card/ Cash	Y		
	SALE_QUANTITY	Quantity of items sold	INT(200)	9999	0 - 9999	Y		
	SALE_DISCOUNT_APPLIED	Discount applied to the sale	DECIMAL(4,2)	99.99	0 – 99.99	N		
WAREHOUSE	**WAREHOUSE_ID**	Unique identifier for the warehouse	VARCHAR(6)	WXXXXX	W00001 - W99999	Y	PK	
	WAREHOUSE_NAME	Name of the warehouse	VARCHAR(100)	Xxxxx		Y		

	LOCATION_ID	Unique identifier for the location	VARCHAR(9)	LOCXXXXXX	LOC000001 - LOC999999	Y	FK	LOCATION
SUPPLIER	**SUPPLIER_ID**	Unique identifier for the supplier	INT(9)	SUPXXXXXX	SUP000001 - SUP999999	Y	PK	
	SUPPLIER_FNAME	First Name of the supplier	VARCHAR(30)	Xxxx		Y		
	SUPPLIER_LNAME	Last Name of the supplier	VARCHAR(30)	Xxxx		Y		
	SUPPLIER_ADDRESS_STREET	Street Address of the supplier	VARCHAR(100)	Xxxx		Y		
	SUPPLIER_ADDRESS_CITY	City Address of the supplier	VARCHAR(100)	Xxxxx		Y		
	SUPPLIER_ADDRESS_STATE	State Address of the supplier	VARCHAR(100)	Xxxx		Y		
	SUPPLIER_ADDRESS_PINCODE	Pincode Address of the supplier	INT(5)	99999	0 - 99999	Y		
	SUPPLIER_CONTACT NUMBER	Contact information for the supplier	VARCHAR(15)	(999)-999-9999		Y		
	SUPPLIER_EMAILID	Email of the supplier	VARCHAR(50)	Xxxx@Xxxxx.Xxx		Y		
ITEM_WAREHOUSE_STORE	WAREHOUSE_ID	Unique identifier of the Warehouse	VARCHAR(6)	WXXXXX	W00001 - W99999	Y	PK, FK	WAREHOUSE
	STORE_ID	Unique identifier of the Store	VARCHAR(6)	SXXXXX	S00001 - S99999	Y	PK, FK	STORE
	ITEM_ID	Unique identifier for the item	VARCHAR(12)	ITXXXXXXXXXX	IT0000000001 - IT9999999999	Y	PK, FK	ITEM
MARKETING_CAMPAIGN	**CAMPAIGN_ID**	Unique identifier for the marketing campaign	VARCHAR(12)	CAMPAIGNXXXX	CAMPAIGN0001-CAMPAIGN9999	Y	PK	
	CAMPAIGN_NAME	Name of the marketing campaign	VARCHAR(100)	Xxxx		Y		
	CAMPAIGN_START_DATE	Start date of the marketing campaign	Date	MM – DD-YYYY		Y		
	CAMPAIGN_END_DATE	End date of the marketing campaign	Date	MM – DD-YYYY		Y		
	CAMPAIGN_DESCRIPTION	Description of the marketing campaign	VARCHAR(500)	Xxxx		Y		
ACCOUNTING_RECORD	**ACC_RECORD_ID**	Unique identifier for the accounting record	INT(9)	999999999	0 - 999999999	Y	PK	
	SALE_ID	Unique identifier for the sales	INT(10)	9999999999	0000000001 - 9999999999	Y	FK	SALE
	ACC_REVENUE	Total revenue	DECIMAL(9,2)	9999999.99	0 – 9999999.99	Y		
	ACC_EXPENSE	Total expenses	DECIMAL(9,2)	9999999.99	0 – 9999999.99	Y		
	ACC_PROFIT	Total profit	DECIMAL(9,2)	9999999.99	0 – 9999999.99	Y		
	EMAIL_PROMOTION_ID	Unique identifier for the email promotion	VARCHAR(50)	Xxxx@Xxxxx.Xxx		Y	PK	

EMAIL_PROMOTION	CAMPAIGN_ID	Unique identifier for the marketing campaign	VARCHAR(12)	CAMPAIGNXXXX	CAMPAIGN0001-CAMPAIGN9999	Y	FK	MARKETING_CAMPAIGN
	CUSTOMER_ID	Unique identifier for the customer	VARCHAR(30)	CIDXXXXXXXXXX ……	CID01 - CID9999999999…….	Y	FK	CUSTOMER
	EMAIL_PROMOTION_CONTENT	Content of the promotional email	VARCHAR(1000)	Xxxxx		Y		
STORE	**STORE_ID**	Unique identifier for the store	VARCHAR(6)	SXXXXX	S00001 - S99999	Y	PK	
	STORE_NAME	Name of the store	VARCHAR(50)	Xxxx		Y		
	STORE_CONTACT_NUMBER	Contact information of the Store	VARCHAR(15)	(999)-999-9999		Y		
	LOCATION_ID	Unique identifier for the location	VARCHAR(9)	LOCXXXXXX	LOC000001 - LOC999999	Y	FK	LOCATION
SALE_ITEM	ITEM_ID	Unique identifier for the item	VARCHAR(12)	ITXXXXXXXXXX	IT0000000001 - IT9999999999	Y	PK, FK	ITEM
	SALE_ID	Unique identifier for the sales	INT(10)	9999999999	0000000001 - 9999999999	Y	PK, FK	SALE

Entity Relationship Model (ERM):

Entity	Relationship	Connectivity	Bridge Entity	Entity
ITEM	is stored in	M:N	ITEM_WAREHOUSE_STORE	WAREHOUSE
ITEM	is available in	M:N	ITEM_WAREHOUSE_STORE	STORE
LOCATION	has	1:M		EMPLOYEE
LOCATION	has	1:M		WAREHOUSE
LOCATION	has	1:M		STORE
EMPLOYEE	works at	M:1		LOCATION
CUSTOMER	makes	1:M		SALE
CUSTOMER	receives	1:M		EMAIL_PROMOTION
SALE	is associated with	M:1		CUSTOMER
EMPLOYEE	handles	1:M		SALE
SALE	occurs at	M:1		LOCATION
WAREHOUSE	belongs to	1:M		LOCATION
WAREHOUSE	supplies to	M:N	ITEM_WAREHOUSE_STORE	STORE
SUPPLIER	supplies	1:M		ITEM
MARKETING_CAMPAIGN	has	1:1		EMAIL_PROMOTION
ACCOUNTING_RECORD	is associated with	1:M		SALE

SALE	is associated with	M:N	SALE_ITEM	ITEM
EMAIL_PROMOTION	is associated with	1:1		MARKETING_CAMPAIGN
EMAIL_PROMOTION	is sent to	M:1		CUSTOMER
STORE	is located at	M:1		LOCATION
STORE	Receives supplies from	M:1		WAREHOUSE

Business Rules:

ITEM – WAREHOUSE:

- Each ITEM is stored in multiple WAREHOUSE , and each WAREHOUSE can have multiple ITEM.

ITEM – STORE:

- Each ITEM is available in multiple STORE, and each STORE can offer multiple ITEM.

ITEM – SUPPLIER :

- Each ITEM is supplied by one SUPPLIER , but a SUPPLIER can supply multiple ITEM.

LOCATION – EMPLOYEE :

- Each LOCATION has multiple EMPLOYEE, but each EMPLOYEE works at only one LOCATION.

LOCATION – WAREHOUSE :

- Each LOCATION has multiple WAREHOUSE, but each WAREHOUSE belongs to only one LOCATION.

LOCATION – STORE :

- Each LOCATION has multiple STORE, but each STORE is located at only one LOCATION.

CUSTOMER – SALE :

- Each CUSTOMER makes multiple SALE , but each SALE is associated with only one CUSTOMER.

CUSTOMER – EMAIL_PROMOTION :

- Each CUSTOMER receives multiple EMAIL_PROMOTION, bust each EMAIL_PROMOTION is sent to multiple CUSTOMER.

SALE– EMPLOYEE :

- Each SALE is handled by one EMPLOYEE, but an EMPLOYEE can handle multiple SALE.

SALE – LOCATION :

- Each SALE occurs at one LOCATION , but a LOCATION can have multiple LOCATION.

WAREHOUSE – STORE:

- Each WAREHOUSE supplies to multiple STORE, and each STORE receives supplies from multiple WAREHOUSE.

MARKETING_CAMPAIGN – EMAIL_PROMOTION :

- Each MARKETING_CAMPAIGN has a EMAIL_PROMOTION, but each EMAIL_PROMOTION is associated with only one MARKET_CAMPAIGN.

ACCOUNTING_RECORD – SALE :

- Each ACCOUNTING_RECORD is associated with multiple SALE , but each SALE is associated with only one ACCOUNTING_RECORD.

SALE –ITEM :

- Each sale is associated with many ITEM, but each ITEM can be associated with multiple SALE.

INTENDED USE:

The Elite Ensemble fashion inventory and sales database is an innovative solution meticulously crafted to revolutionize and optimize the intricate operations of Elite Ensemble, a leading women's fashion retailer. This state-of-the-art database is purpose-built to serve as a centralized, all-encompassing platform, seamlessly integrating and managing every facet of the company's inventory, sales, and customer data. By consolidating and harmonizing real-time data from diverse retail locations, warehouses, and distribution centers, Elite Ensemble can harness comprehensive insights into intricate inventory levels, discerning sales performance, and evolving customer preferences. This strategic approach fosters streamlined inventory management, empowers superior customer service experience through tailored interactions, and drives targeted marketing initiatives with precision. The database's seamless synergy with Elite Ensemble's accounting system ensures impeccable financial reporting, empowering the leadership to make data-driven, informed decisions for sustained business growth, enhanced customer satisfaction, and further expansion into new markets. With its user-friendly interface and robust analytical capabilities, the Elite Ensemble fashion inventory and sales database stands as the cornerstone of Elite Ensemble's commitment to excellence and innovation within the dynamic landscape of the fashion industry.

Fashion Inventory and sales Database - Entity Relationship Diagram

ITEM(**ITEM_ID** ,ITEM_NAME, ITEM_DESCRIPTION,
ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL, SUPPLIER_ID,
ITEM_CATEGORY_ID)

LOCATION(**LOCATION_ID** , LOCATION_NAME,
LOCATION_TYPE, LOCATION_STREET, LOCATION_CITY, LOCATION_STATE,
LOCATION_PINCODE, LOCATION_CONTACT_NUMBER)

EMPLOYEE(**EMPLOYEE_ID**, EMPLOYEE_FNAME,
EMPLOYEE_LNAME, EMPLOYEE_TYPE, EMPLOYEE_CONTACT_NUMBER, EMPLOYEE_DOB,
LOCATION_ID)

CUSTOMER(**CUSTOMER_ID**, CUSTOMER_FNAME,
CUSTOMER_LNAME, CUSTOMER_EMAIL, CUSTOMER_CONTACT_NUMBER, CUSTOMER_DOB,
CUSTOMER_AGE, CUSTOMER_GENDER, CUSTOMER_ADDRESS_STREET, CUSTOMER_ADDRESS_CITY,
CUSTOMER_ADDRESS_STATE, CUSTOMER_ADDRESS_PINCODE)

SALE(**SALE_ID**, CUSTOMER_ID, EMPLOYEE_ID,
LOCATION_ID, SALE_TIMESTAMP, SALE_PAYMENT_METHOD, ITEM_ID, SALE_QUANTITY,
SALE_DISCOUNT_APPLIED)

WAREHOUSE(**WAREHOUSE_ID**, WAREHOUSE_NAME,
LOCATION_ID)

SUPPLIER(**SUPPLIER_ID**, SUPPLIER_FNAME,
SUPPLIER_LNAME, SUPPLIER_ADDRESS_STREET,SUPPLIER_ADDRESS_CITY,
SUPPLIER_ADDRESS_STATE, SUPPLIER_ADDRESS_PINCODE, SUPPLIER_CONTACT_NUMBER,
SUPPLIER_EMAILID)

ITEM_WAREHOUSE_STORE(**WAREHOUSE_ID**, **ITEM_ID**, **STORE_ID**)

MARKETING_CAMPAIGN(**CAMPAIGN_ID**,
CAMPAIGN_NAME,CAMPAIGN_START_DATE, CAMPAIGN_END_DATE, CAMPAIGN_DESCRIPTION)

ACCOUNTING_RECORD(**ACC_RECORD_ID**, SALE_ID,
ACC_REVENUE, ACC_EXPENSE, ACC_PROFIT)

EMAIL_PROMOTION(**EMAIL_PROMOTION_ID**,
CAMPAIGN_ID, CUSTOMER_ID, EMAIL_PROMOTION_CONTENT)

STORE(**STORE_ID**, STORE_NAME,
STORE_CONTACT_NUMBER, LOCATION_ID)

SALE_ITEM (**ITEM_ID** , **SALE_ID**)

PRENORMALIZATION

The following table is the combination of both WARE HOUSE and STORE , which includes ITEM table. The values that are missing are depended on the STORE_ID which is a composite primary key. Once after removal of the null values the following tables referes to normalization

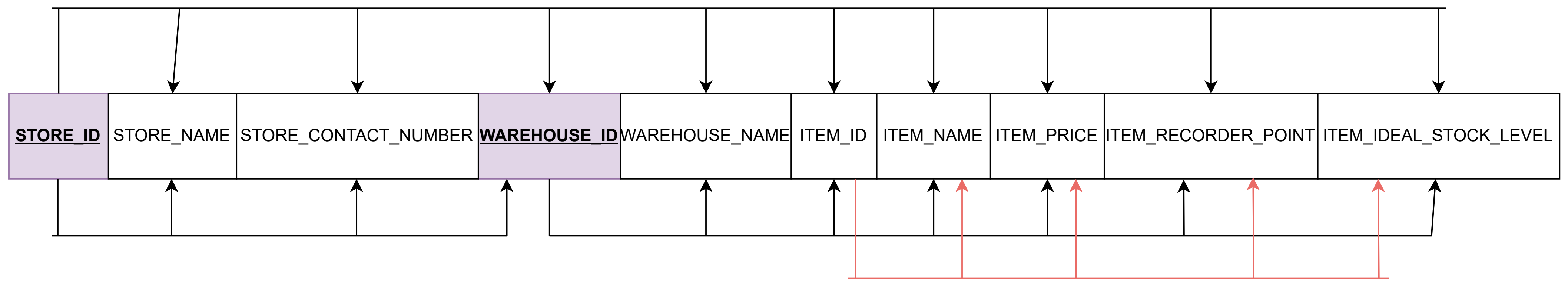
STORE_ID	STORE_NAME	STORE_CONTACT _NUMBER	WAREHOUSE_ID	WAREHOUSE_NAME	ITEM_ID	ITEM_NAME	ITEM_PRICE	ITEM_RECORDER _POINT	ITEM_IDEAL_ STOCK_LEVEL
S00006		(317)-435-6789		Greenwood Riverfront		Classic Denim Jacket			50
	Creckover Clothing	(412)-567-9871	W00035		IT0000000123	Elegant Evening Gown	200.58	10	25
S00056	Next In line Fashions		W00067	Newyork center		Leather Ankle Boots	39.79	30	
	Nivara Fashions	(314)-567-2356	W00078	St.Louis Premium	IT0000003457	Striped Cotton T-shirt		35	60

1NF: REMOVAL OF NULL VALUES AND REPEATING GROUPS

There are two Partial dependencies and one transitive dependency for the STORE, WAREHOUSE, ITEM table for normalization. So the composite primary key STORE_ID key determines the STORE_NAME, STORE_CONTACT_NUMBER, WAREHOUSE_ID and WAREHOUSE_ID key determines WAREHOUSENAME, ITEM_ID, ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL as these two serves as partial dependencies. The transitive dependency shows as ITEM_ID key determines the ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL.

STORE_ID	STORE_NAME	STORE_CONTACT _NUMBER	WAREHOUSE_ID	WAREHOUSE_NAME	ITEM_ID	ITEM_NAME	ITEM_PRICE	ITEM_RECORDER _POINT	ITEM_IDEAL_ STOCK_LEVEL
S00006	Wildwood Fashions	(317)-435-6789	W00005	Greenwood Riverfront	IT0000002345	Classic Denim Jacket	50.99	20	50
S00040	Creckover Clothing	(412)-567-9871	W00035	Castleton subcity	IT0000000123	Elegant Evening Gown	200.58	10	25
S00056	Next In line Fashions	(426)-123-9864	W00067	Newyork center	IT0003450000	Leather Ankle Boots	39.79	30	50
S00087	Nivara Fashions	(314)-567-2356	W00078	St.Louis Premium	IT0000003457	Striped Cotton T-shirt	20.45	35	60

1NF DEPENDENCY DIAGRAM



1NF (**STORE_ID**,STORE_NAME,STORE_CONTACT_NUMBER,WAREHOUSE_ID, WAREHOUSE_NAME, ITEM_ID, ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL)

Partial Dependencies:

(STORE_ID ---> STORE_NAME , STORE_CONTACT_NUMBER , WAREHOUSE_ID)

(WAREHOUSE_ID ----> WAREHOUSE_NAME, ITEM_ID, ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL
)

Transitive Dependencies:

(ITEM_ID ---> ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL)

TABLE: WAREHOUSE_ITEM

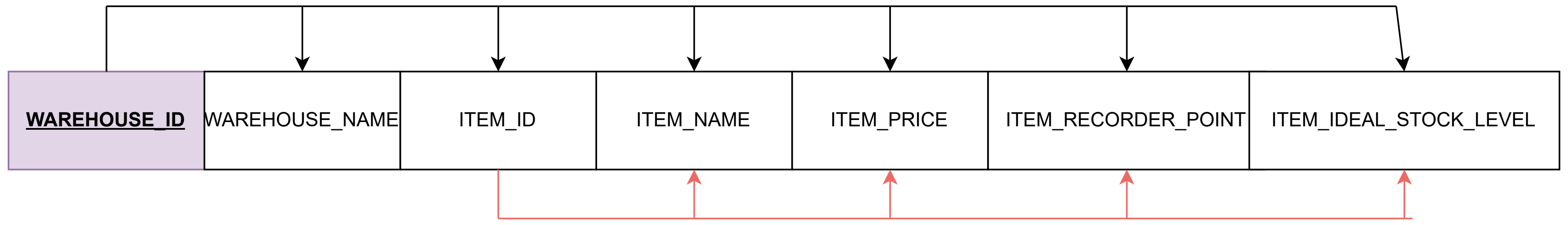
WAREHOUSE_ID	WAREHOUSE_NAME	ITEM_ID	ITEM_NAME	ITEM_PRICE	ITEM_RECORDER _POINT	ITEM_IDEAL_ STOCK_LEVEL
W00005	Greenwood Riverfront	IT0000002345	Classic Denim Jacket	50.99	20	50
W00035	Castleton subcity	IT0000000123	Elegant Evening Gown	200.58	10	25
W00067	Newyork center	IT0003450000	Leather Ankle Boots	39.79	30	50
W00078	St.Louis Premium	IT0000003457	Striped Cotton T-shirt	20.45	35	60

TABLE: STORE

STORE_ID	STORE_NAME	STORE_CONTACT _NUMBER	WAREHOUSE_ID
S00006	Wildwood Fashions	(317)-435-6789	W00005
S00040	Creckover Clothing	(412)-567-9871	W00035
S00056	Next In line Fashions	(426)-123-9864	W00067
S00087	Nivara Fashions	(314)-567-2356	W00078

2NF Dependency Diagram

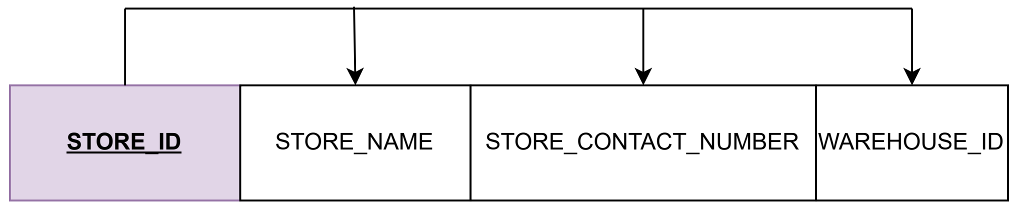
In 2NF , the table has divided into two tables those are WAREHOUSE_ITEM and STORE. There is still the transitive dependency present in the WAREHOUSE_ITEM table and that is ITEM_ID ---> ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL and this transitive dependency is driven into a new table in 3NF.



WAREHOUSE(**WAREHOUSE_ID**, WAREHOUSE_NAME,ITEM_ID,ITEM_NAME, ITEM_DESCRIPTION, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL)

Transitive dependency:

ITEM_ID ---> ITEM_NAME, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL



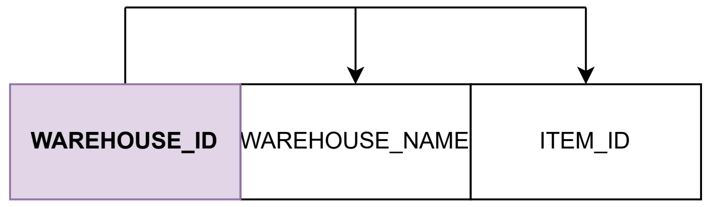
STORE(**STORE_ID**, STORE_NAME, STORE_CONTACT_NUMBER, WAREHOUSE_ID)

TABLE: WAREHOUSE

WAREHOUSE_ID	WAREHOUSE_NAME	ITEM_ID
W00005	Greenwood Riverfront	IT0000002345
W00035	Castleton subcity	IT0000000123
W00067	Newyork center	IT0003450000
W00078	St.Louis Premium	IT0000003457

TABLE: ITEM

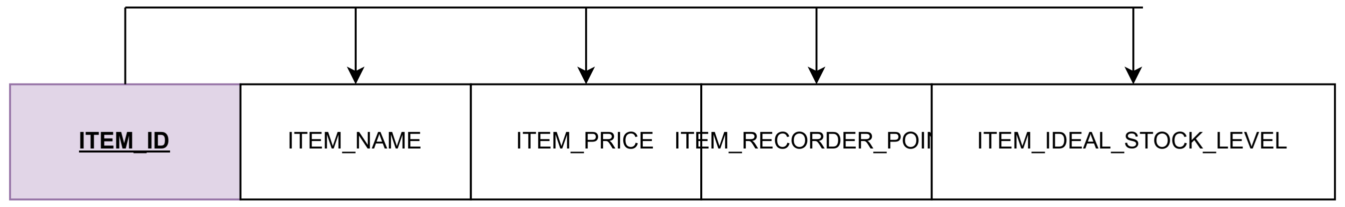
ITEM_ID	ITEM_NAME	ITEM_PRICE	ITEM_RECORDEI _POINT	ITEM_IDEAL_ STOCK_LEVEL
IT0000002	Classic Denim Jacket	50.99	20	50
IT0000000	Elegant Evening Gown	200.58	10	25
IT0003450	Leather Ankle Boots	39.79	30	50
IT0000003	Striped Cotton T-shirt	20.45	35	60



WAREHOUSE(**WAREHOUSE_ID**, WAREHOUSE_NAME, ITEM_ID)

TABLE: STORE

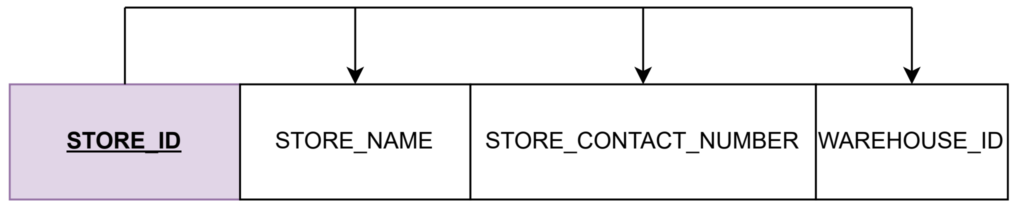
STORE_ID	STORE_NAME	STORE_CONTACT _NUMBER	WAREHOUSE_ID
S00006	Wildwood Fashions	(317)-435-6789	W00005
S00040	Creckover Clothing	(412)-567-9871	W00035
S00056	Next In line Fashions	(426)-123-9864	W00067
	S00087	Nivara Fashions	(314)-567-2356



ITEM(**ITEM_ID** ,ITEM_NAME, ITEM_DESCRIPTION, ITEM_PRICE, ITEM_RECORDER_POINT, ITEM_IDEAL_STOCK_LEVEL)

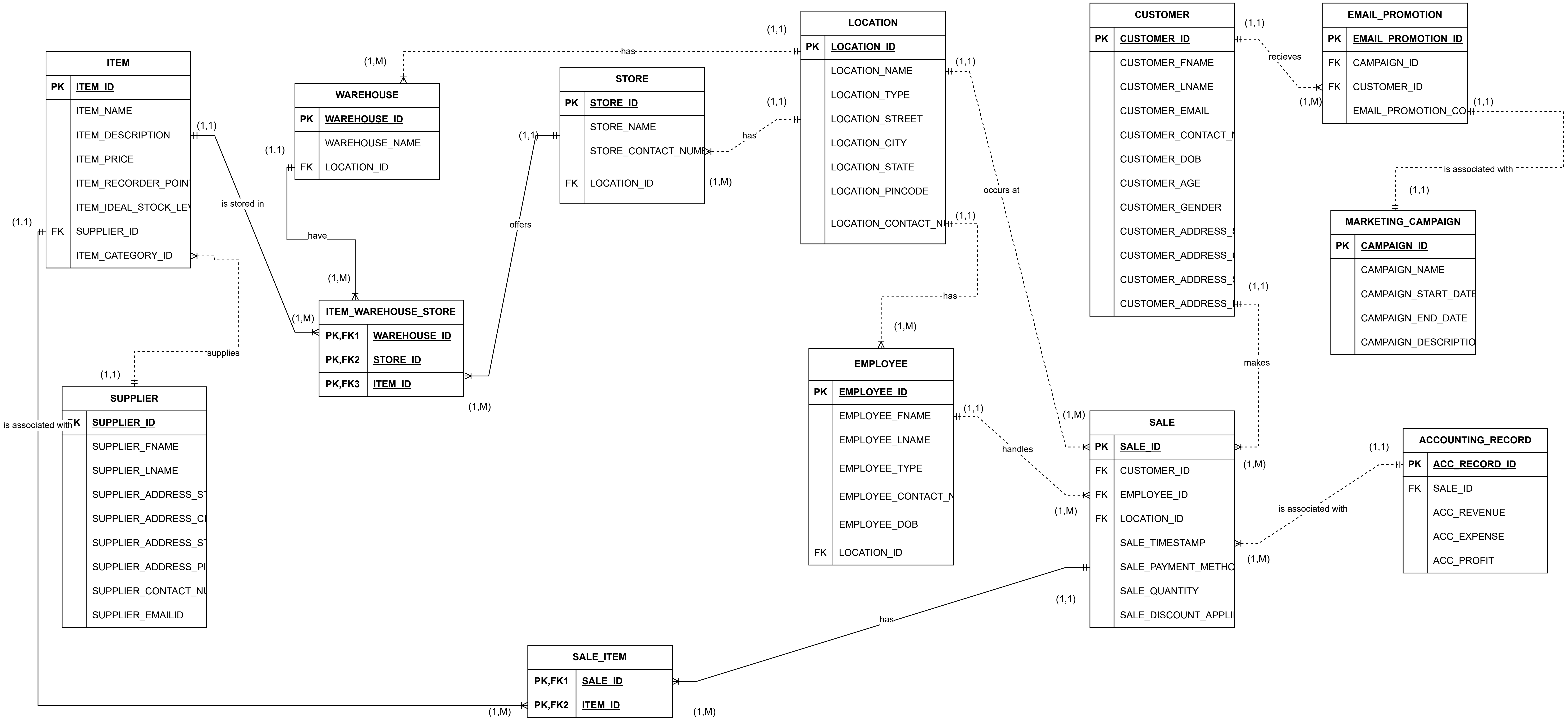
3NF DEPENDENCY DIAGRAM

In this 3NF , the re is a new table crated for the ITEM and all the tables are connected to each other through the Foreign keys and therefore there are no partial and transitive dependencies between these three tables



STORE(**STORE_ID**, STORE_NAME, STORE_CONTACT_NUMBER, WAREHOUSE_ID)

ENTITY RELATIONSHIP DIAGRAM USING CROW'S FOOT NOTATION



ITEM	
PK	ITEM_ID
	ITEM_NAME
	ITEM_DESCRIPTION
	ITEM_PRICE
	ITEM_RECORDER_POINT
	ITEM_IDEAL_STOCK_LEV
FK	SUPPLIER_ID
	ITEM_CATEGORY_ID

WAREHOUSE	
PK	WAREHOUSE_ID
	WAREHOUSE_NAME
FK	LOCATION_ID

STORE	
PK	STORE_ID
	STORE_NAME
	STORE_CONTACT_NUMB
FK	LOCATION_ID

LOCATION	
PK	LOCATION_ID
	LOCATION_NAME
	LOCATION_TYPE
	LOCATION_STREET
	LOCATION_CITY
	LOCATION_STATE
	LOCATION_PINCODE
	LOCATION_CONTACT_NU

CUSTOMER	
PK	CUSTOMER_ID
	CUSTOMER_FNAME
	CUSTOMER_LNAME
	CUSTOMER_EMAIL
	CUSTOMER_CONTACT_N
	CUSTOMER_DOB
	CUSTOMER_AGE
	CUSTOMER_GENDER
	CUSTOMER_ADDRESS_S
	CUSTOMER_ADDRESS_C
	CUSTOMER_ADDRESS_S
	CUSTOMER_ADDRESS_P

EMAIL_PROMOTION	
PK	EMAIL_PROMOTION_ID
FK	CAMPAIGN_ID
FK	CUSTOMER_ID
	EMAIL_PROMOTION_CO

MARKETING_CAMPAIGN	
PK	CAMPAIGN_ID
	CAMPAIGN_NAME
	CAMPAIGN_START_DATE
	CAMPAIGN_END_DATE
	CAMPAIGN_DESCRIPTIO

ITEM_WAREHOUSE_STORE	
PK,FK1	WAREHOUSE_ID
PK,FK2	STORE_ID
PK,FK3	ITEM_ID

SUPPLIER	
PK	SUPPLIER_ID
	SUPPLIER_FNAME
	SUPPLIER_LNAME
	SUPPLIER_ADDRESS_ST
	SUPPLIER_ADDRESS_CI
	SUPPLIER_ADDRESS_ST
	SUPPLIER_ADDRESS_PI
	SUPPLIER_CONTACT_NU
	SUPPLIER_EMAILID

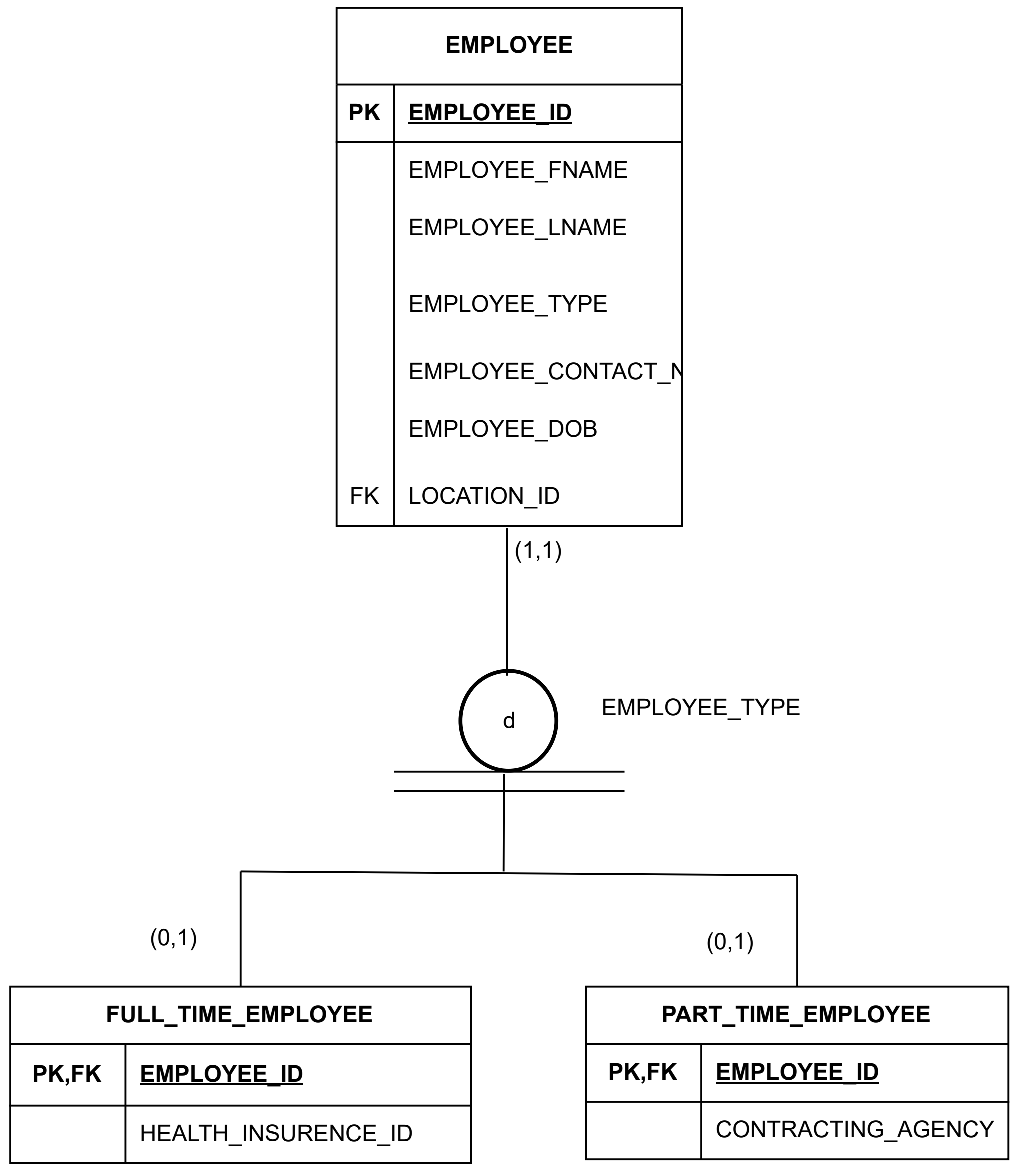
EMPLOYEE	
PK	EMPLOYEE_ID
	EMPLOYEE_FNAME
	EMPLOYEE_LNAME
	EMPLOYEE_TYPE
	EMPLOYEE_CONTACT_N
	EMPLOYEE_DOB
FK	LOCATION_ID

SALE	
PK	SALE_ID
FK	CUSTOMER_ID
FK	EMPLOYEE_ID
FK	LOCATION_ID
	SALE_TIMESTAMP
	SALE_PAYMENT_METHO
	SALE_QUANTITY
	SALE_DISCOUNT_APPLI

ACCOUNTING_RECORD	
PK	ACC_RECORD_ID
FK	SALE_ID
	ACC_REVENUE
	ACC_EXPENSE
	ACC_PROFIT

SALE_ITEM	
PK,FK1	SALE_ID
PK,FK2	ITEM_ID

SUBTYPE ENTITIES FOR EMPLOYEE ENTITY USING CROW'S FOOT NOTATION



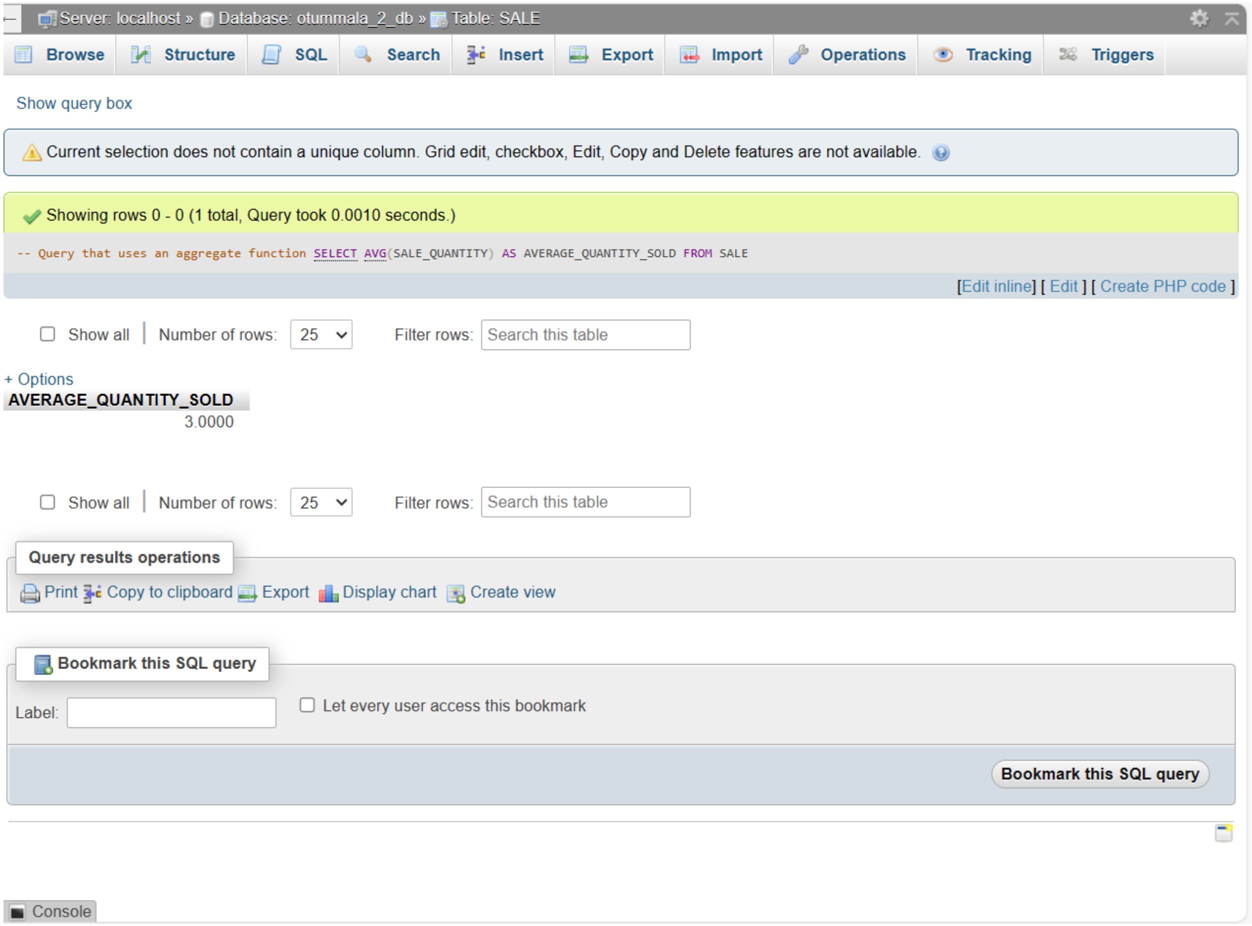
In the EMPLOYEE entity , the employee type is differentiated based on the 'EMPLOYEE_TYPE' attribute.
Now the EMPLOYEE entity has two subtypes - 'FULL_TIME_EMPLOYEE' and 'PART_TIME_EMPLOYEE'.
I have chosen the disjointed complete constraint cause the all values that are present in the EMPLOYEE will be present in the subtypes and also each employee either be Full-time employee or the Part-time employee but the employee cannot be both have both the roles.

SQL QUERY

Question 1: What is the average quantity of items sold per transaction based on the data in the SALE table?

SQL Query:

```
SELECT
  AVG(SALE_QUANTITY) AS AVERAGE_QUANTITY_SOLD
FROM
  SALE;
```



Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.

Showing rows 0 - 0 (1 total, Query took 0.0010 seconds.)

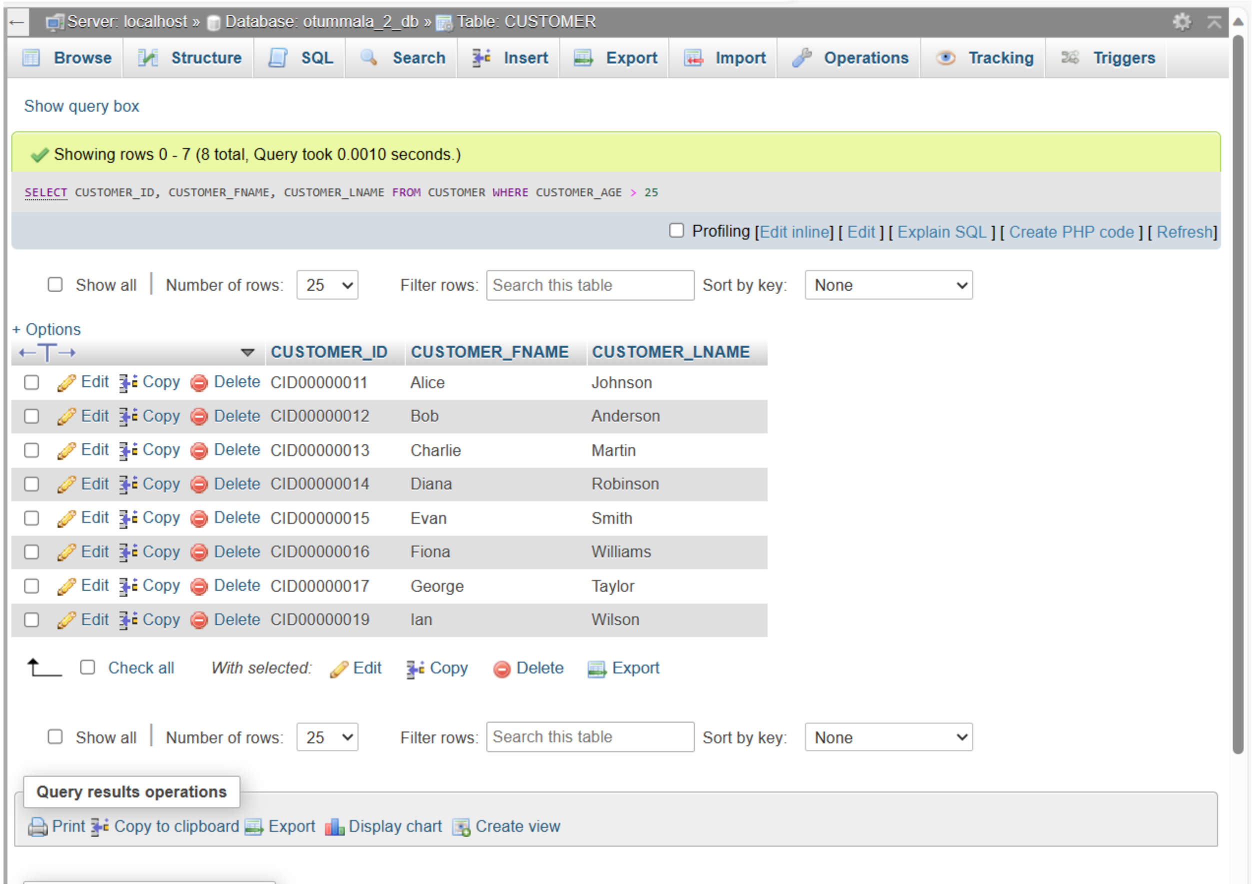
```
-- Query that uses an aggregate function SELECT AVG(SALE_QUANTITY) AS AVERAGE_QUANTITY_SOLD FROM SALE
```

AVERAGE_QUANTITY_SOLD
3.0000

Question 2: Which customers are older than 25 years based on the data in the Customer table?

SQL Query:

```
SELECT
  CUSTOMER_ID,
  CUSTOMER_FNAME,
  CUSTOMER_LNAME
FROM
  CUSTOMER
WHERE
  CUSTOMER_AGE > 25;
```



Showing rows 0 - 7 (8 total, Query took 0.0010 seconds.)

```
SELECT CUSTOMER_ID, CUSTOMER_FNAME, CUSTOMER_LNAME FROM CUSTOMER WHERE CUSTOMER_AGE > 25
```

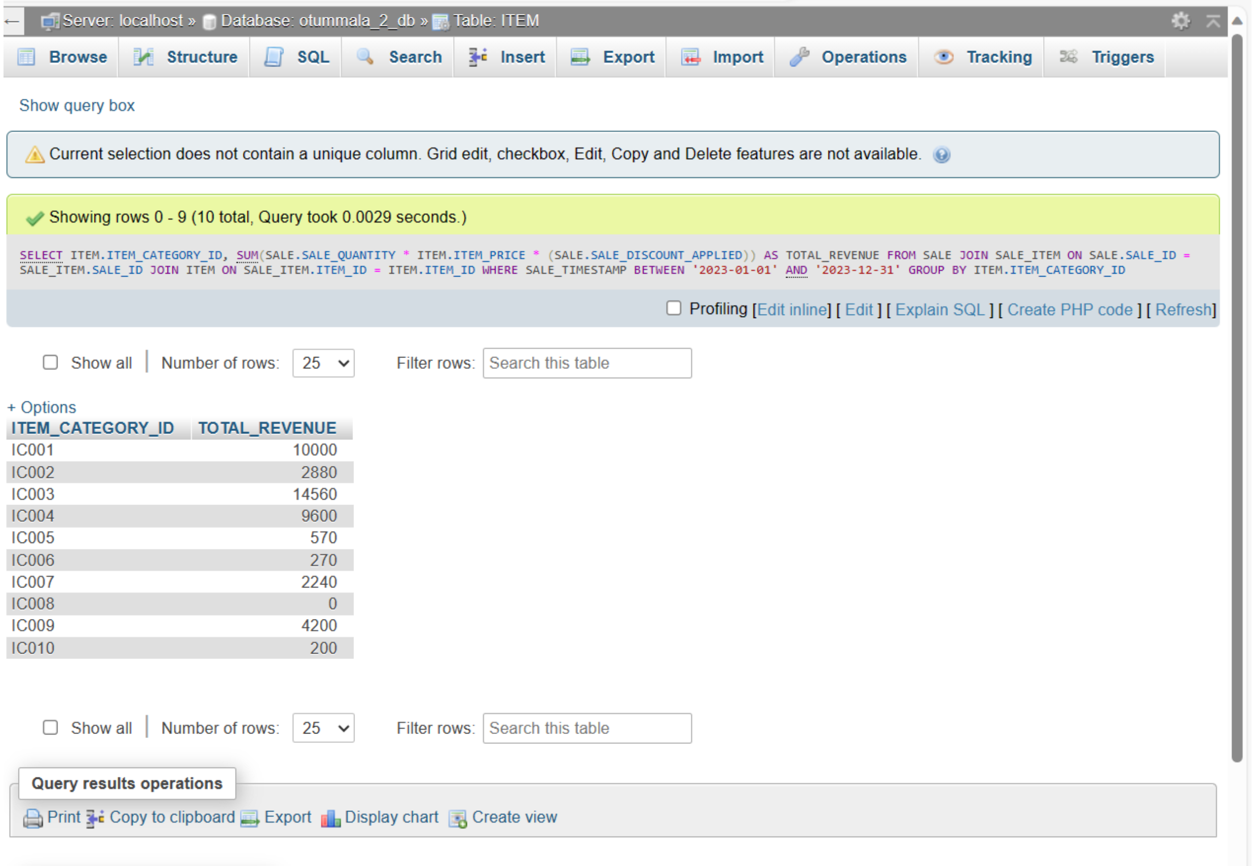
	CUSTOMER_ID	CUSTOMER_FNAME	CUSTOMER_LNAME
□ Edit Copy Delete	CID00000011	Alice	Johnson
□ Edit Copy Delete	CID00000012	Bob	Anderson
□ Edit Copy Delete	CID00000013	Charlie	Martin
□ Edit Copy Delete	CID00000014	Diana	Robinson
□ Edit Copy Delete	CID00000015	Evan	Smith
□ Edit Copy Delete	CID00000016	Fiona	Williams
□ Edit Copy Delete	CID00000017	George	Taylor
□ Edit Copy Delete	CID00000019	Ian	Wilson

Question 3: What are the total sales for each customer?

<u>SQL Query:</u>

```
SELECT
  ITEM.ITEM_CATEGORY_ID,
  SUM(SALE.SALE_QUANTITY * ITEM.ITEM_PRICE * (SALE.SALE_DISCOUNT_APPLIED)) AS
TOTAL_REVENUE
FROM
  SALE
JOIN
  SALE_ITEM ON SALE.SALE_ID = SALE_ITEM.SALE_ID
JOIN
```

```
  ITEM ON SALE_ITEM.ITEM_ID = ITEM.ITEM_ID
WHERE
  SALE_TIMESTAMP BETWEEN '2023-01-01' AND '2023-12-31'
GROUP BY
  ITEM.ITEM_CATEGORY_ID;
```



Current selection does not contain a unique column. Grid edit, checkbox, Edit, Copy and Delete features are not available.

Showing rows 0 - 9 (10 total, Query took 0.0029 seconds.)

```
SELECT ITEM.ITEM_CATEGORY_ID, SUM(SALE.SALE_QUANTITY * ITEM.ITEM_PRICE * (SALE.SALE_DISCOUNT_APPLIED)) AS TOTAL_REVENUE FROM SALE JOIN SALE_ITEM ON SALE.SALE_ID =
SALE_ITEM.SALE_ID JOIN ITEM ON SALE_ITEM.ITEM_ID = ITEM.ITEM_ID WHERE SALE_TIMESTAMP BETWEEN '2023-01-01' AND '2023-12-31' GROUP BY ITEM.ITEM_CATEGORY_ID
```

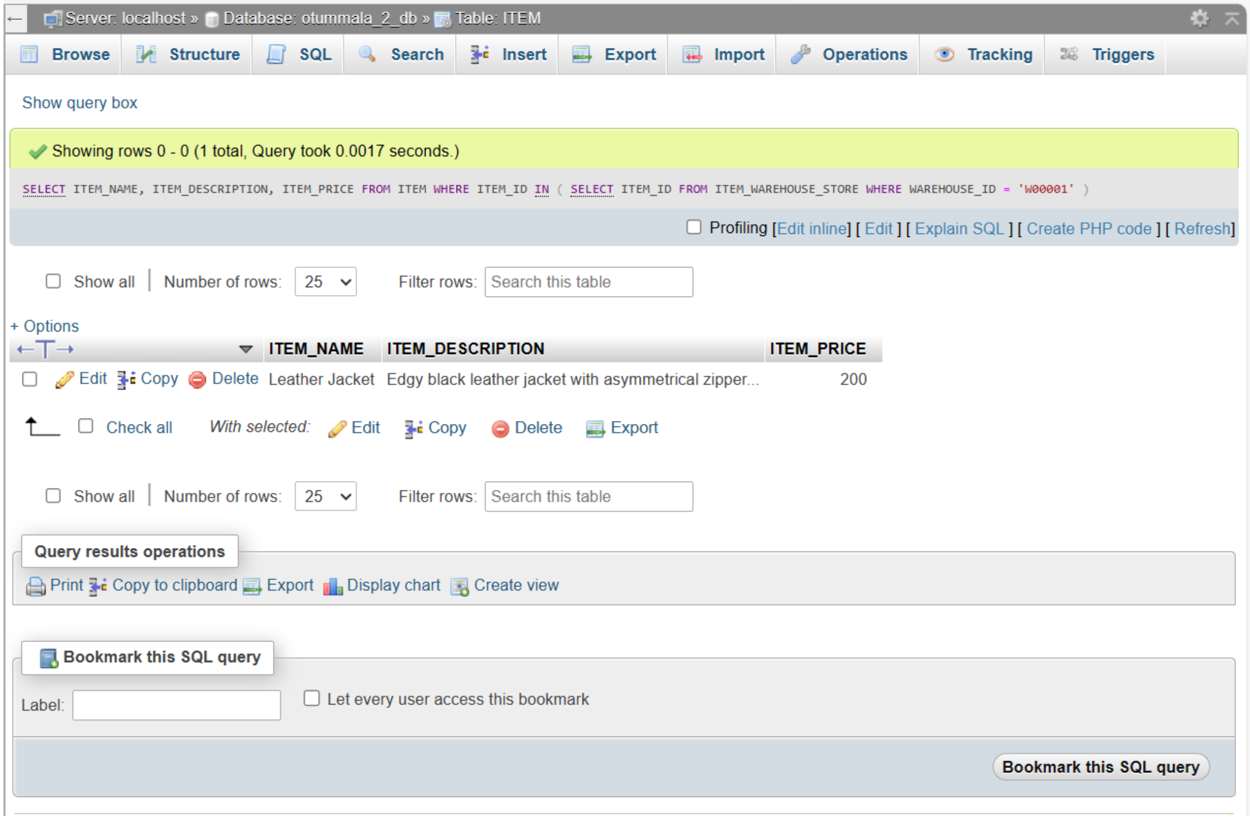
□ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
□ Show all | Number of rows: 25 Filter rows: Search this table
+ Options

ITEM_CATEGORY_ID	TOTAL_REVENUE
IC001	10000
IC002	2880
IC003	14560
IC004	9600
IC005	570
IC006	270
IC007	2240
IC008	0
IC009	4200
IC010	200

Question 4: Retrieve the list of items available in a specific warehouse (e.g., Warehouse with ID 'W00001').

SQL Query:

```
SELECT
  ITEM_NAME,
  ITEM_DESCRIPTION,
  ITEM_PRICE
FROM
  ITEM
WHERE
  ITEM_ID IN (
    SELECT
      ITEM_ID
    FROM
      ITEM_WAREHOUSE_STORE
    WHERE
      WAREHOUSE_ID = 'W00001'
  );
```



✓ Showing rows 0 - 0 (1 total, Query took 0.0017 seconds.)

```
SELECT ITEM_NAME, ITEM_DESCRIPTION, ITEM_PRICE FROM ITEM WHERE ITEM_ID IN ( SELECT ITEM_ID FROM ITEM_WAREHOUSE_STORE WHERE WAREHOUSE_ID = 'W00001' )
```

□ Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
□ Show all
Number of rows: 25
Filter rows: Search this table
+ Options

	ITEM_NAME	ITEM_DESCRIPTION	ITEM_PRICE
□ Edit Copy Delete	Leather Jacket	Edgy black leather jacket with asymmetrical zipper...	200