SHELL GASOLINE STATION MANAGEMENT SYSTEM

An IT12L Final Project Requirement

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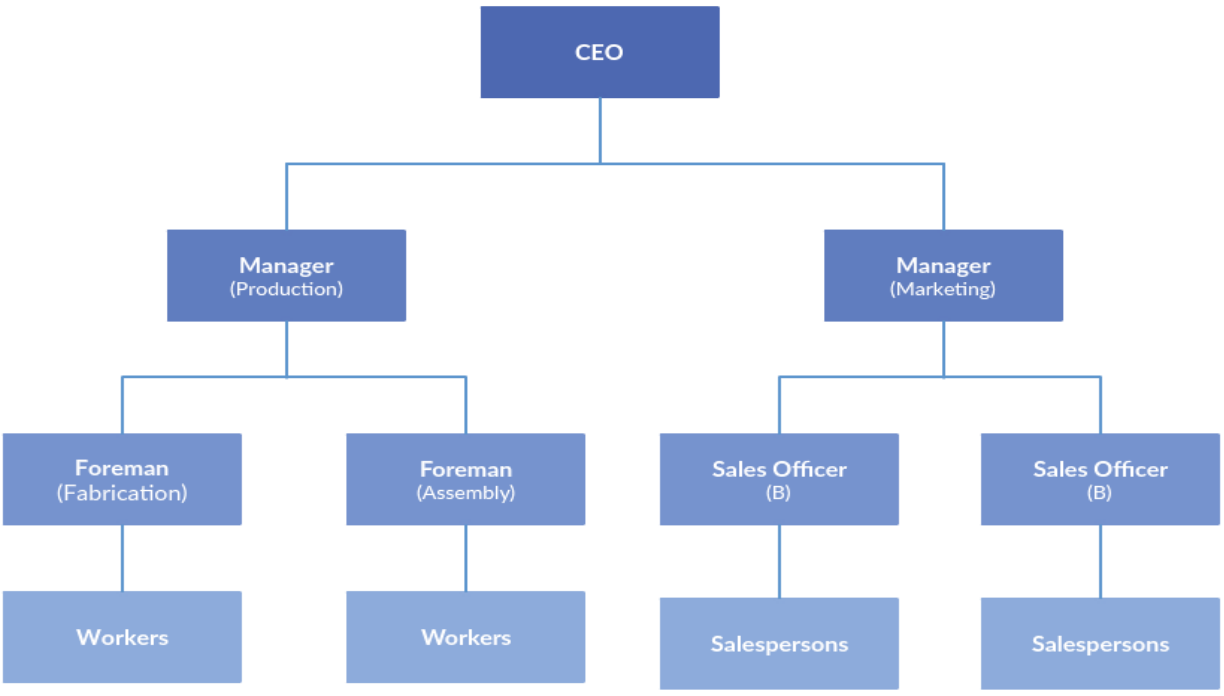
INTRODUCTION

THE ORGANIZATION

The Shell Company, a global energy and petrochemicals corporation, stands as an iconic figure in the energy sector. Renowned for its extensive reach, innovative approaches, and commitment to sustainable practices, Shell has established itself as a leader in providing oil, gas, and renewable energy solutions worldwide. With a rich history spanning over a century, the company's dedication to technological advancements, environmental stewardship, and community engagement has not only shaped its identity but has also positioned it as a driving force in the evolution of the energy industry. Shell's multifaceted operations, spanning exploration, production, refining, and distribution, reflect its relentless pursuit of excellence, seeking to meet the world's energy needs while advocating for a more sustainable and cleaner energy future.



BUSINESS ACTIVITIES/ PROCESSES

- **Sales**

  Here are the key processing steps in a shell gasoline station sales process:

  Step 1: Customer Arrival

  - Customer pulls up to the fueling area and waits.

  Step 2: Attendant Assistance

  - Attendant greets the customer and asks about their fueling needs.

  Step 3: Fuel Dispensing

  - Attendant checks fuel availability.
  - If available, the attendant operates the fuel dispenser and fills the vehicle.
  - If not available, the attendant will inform the customer and wait for their decision whether choose other fuel or drive away.

  Step 4: Inventory Management

  - Fuel dispensed affects inventory levels.

  Step 5: Payment and Discounts

  - Customer pays for the fuel (cash).
  - Discounts applied based on loyalty programs, credit/debit card rewards, discount/promotion days, or bulk purchases.

  Step 6: Receipt

  - The cashier will issue a receipt.

Step 7: Record Keeping

- Transaction details are recorded for inventory reconciliation and regulatory purposes.

Step 8: Customer Departure

- After the transaction is complete, the customer can safely depart from the station.

- **Delivery**

Here are the key processing steps in the purchasing process for the shell gasoline station:

Step 1: Order Placement

- Measure fuel levels manually.
- Place orders with Shell suppliers/refineries when fuel reaches a threshold.

Step 2: Delivery Scheduling

- Shell suppliers/refineries schedules the delivery of fuel based on the station's order and delivery routes.

Step 3: Receiving Deliveries

- Station oversees fuel unloading from supplier’s tanker trucks.

Step 4: Invoice and Payment

- Receive invoice from Shell suppliers/refineries.
- Process payment based on franchise agreement terms.

Step 5: Inventory Update

- Update inventory to reflect received fuel.

Step 6: Documentation and Record-Keeping

- Maintain records of deliveries, invoices and payments.

- **Inventory**

Here are the steps in the inventory process:

Step 1: Physical Inventory Count

- Physical count the fuel in the storage tanks.

Step 2: System Inventory

- Utilize the system or software to track and record the inventory levels.

Step 3: Inventory Reconciliation

- Regularly compare the physical inventory count with the system's recorded inventory levels to identify discrepancies or differences.

Step 4: Stock Position Report

- Generate stock position report from the reconciliation.
- Report any inconsistencies or discrepancies found during the reconciliation process to ensure accuracy.

IDENTIFIED PROBLEMS

- **Security Vulnerabilities**

Risks of data breaches or unauthorized access to sensitive and confidential information.

- **Inventory Management Challenges**

  Inaccurate inventory records or difficulties in tracking stock levels.

- **Inadequate Transaction Record-Keeping**

  The lack of systematic and robust transaction recording system within the organization has led to inefficiencies in tracking, analyzing, and managing financial activities.

OBJECTIVES

- **Security Reinforcement**

  Strengthen security measures to safeguard information that is critical to the business and ensuring compliance and building trust.

- **Optimized Inventory Management**

  Improve accuracy in inventory tracking, enabling better stock management and minimizing discrepancies.

- **Enhance Reporting Functionality**

  Develop and implement a structured transaction recording system that captures all financial activities accurately and efficiently real-time.

COST BENEFIT ANALYSIS

DEVELOPMENT COSTS:

Personnel

3	Programmer/Analyst (40 hours, Php 200/hour)	Php	24,000.00

New Hardware & Software

1	Dell OptiPlex 5070 (Computer)	Php	50,000.00
1	Dell P Series (Monitor)	Php	10,000.00
1	Verifone VX 520 (Card Reader)	Php	10,000.00
1	Epson TM-T20II (Receipt Printer)	Php	15,000.00
1	CyberPower CP1500PFCLCD (UPS)	Php	10,000.00

Total Development Cost **Php 119,000.00**

PROJECTED ANNUAL OPERATING COSTS:

Personnel

3	Programmer/Analyst (40 hours, Php 200/hour)	Php	24,000.00

Expenses

3	Epson 8750 Ribbon Cartridge (Php 120.00 each)	Php	360.00
5	Box Continuous Paper (Php 600.00 each)	Php	3,000.00

Total Projected Annual Cost **Php 27,360.00**

PROJECT A: DEVELOPMENT

YEAR	COSTS	CUMULATIVE COSTS	BENEFITS	CUMULATIVE BENEFITS
0	₱ 119,000	₱ 119,000	₱ 30,000	₱ 30,000
1	₱ 33,700	₱ 152,700	₱ 60,000	₱ 90,000
2	₱ 35,000	₱ 187,700	₱ 63,000	₱ 153,000
3	₱ 40,000	₱ 227,700	₱ 67,000	₱ 220,000
4	₱ 44,500	₱ 272,200	₱ 70,000	₱ 290,000
5	₱ 48,000	₱ 320,200	₱ 73,000	₱ 363,000

PROJECT B: ALTERNATIVE (MAINTENANCE COST)

YEAR	COSTS	CUMULATIVE COSTS	BENEFITS	CUMULATIVE BENEFITS
0	₱ 150,000	₱ 150,000	₱ 40,000	₱ 40,000
1	₱ 45,000	₱ 195,000	₱ 75,000	₱ 115,000
2	₱ 50,000	₱ 245,000	₱ 80,000	₱ 195,000
3	₱ 60,000	₱ 305,000	₱ 90,000	₱ 285,000
4	₱ 70,000	₱ 375,000	₱ 95,000	₱ 380,000
5	₱ 80,000	₱ 455,000	₱ 110,000	₱ 490,000

- **RETURN OF INVESTMENT (ROI)**

PROJECT A

ROI = (₱ 363,000 - ₱ 320,200) / ₱ 320,200

= 0.1337 * 100%

= **13.37%**

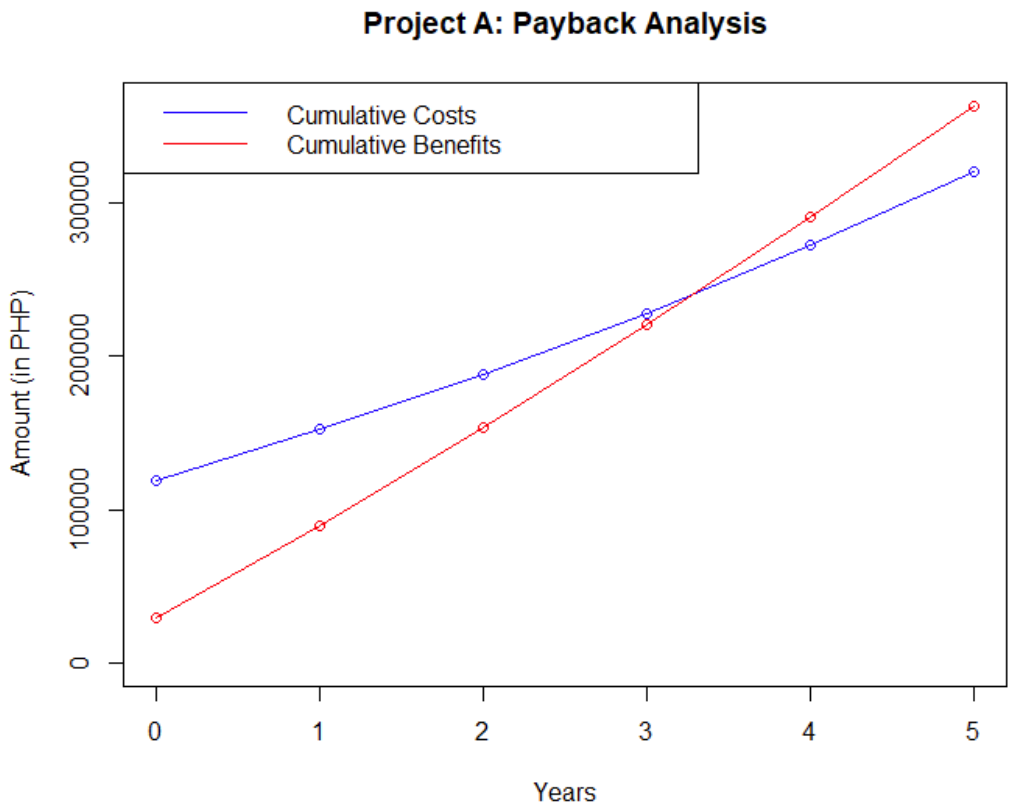
PROJECT B

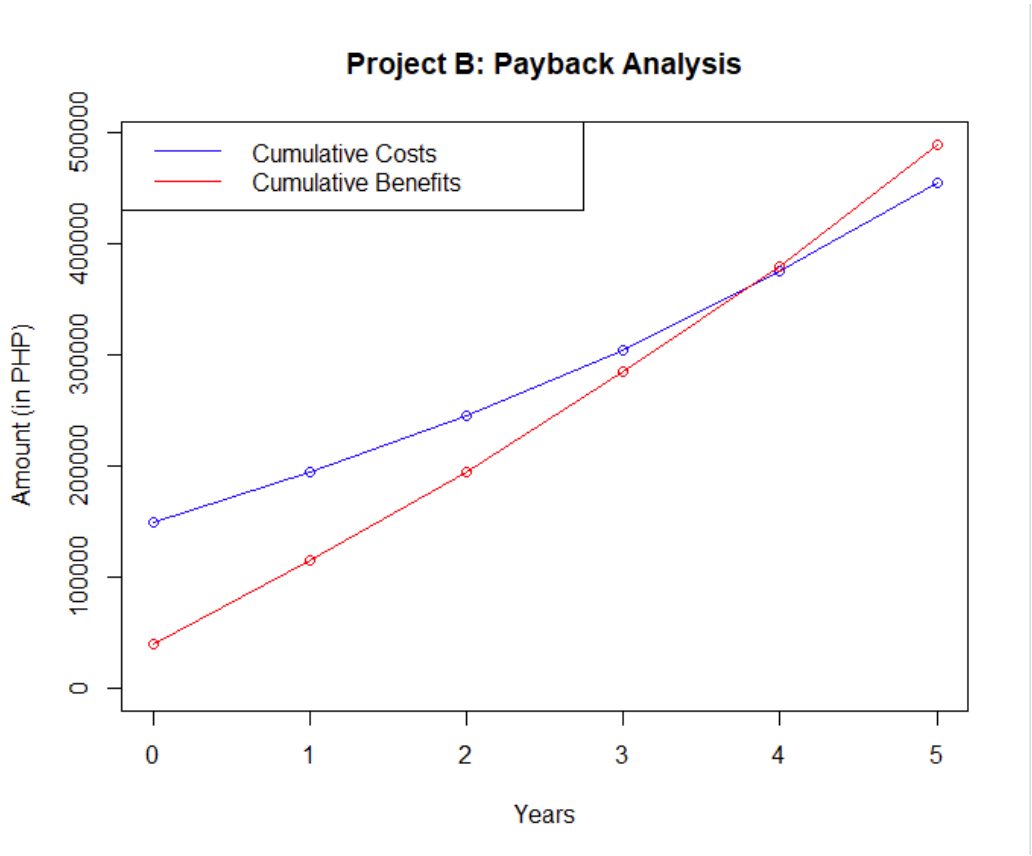
ROI = (₱ 490,000 - ₱ 455,000) / ₱ 455,000

= 0.0769 * 100%

= **7.69%**

- **PAYBACK**





- **NET PRESENT VALUE (NPV)**

PROJECT A

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Benefits	₱ 30,000	₱ 60,000	₱ 63,000	₱ 67,000	₱ 70,000	₱ 73,000	
Factor	1.000	0.909	0.826	0.751	0.683	0.621	
PV of Benefits	₱ 30,000	₱ 66,007	₱ 52,038	₱ 50,317	₱ 47,810	₱ 45,333	₱ 291,505

Costs	₱ 119,000	₱ 33,700	₱ 35,000	₱ 40,000	₱ 44,500	₱ 48,000	
Factor	1.000	0.909	0.826	0.751	0.683	0.621	
PV of Costs	₱ 119,000	₱ 30,634	₱ 28,910	₱ 30,040	₱ 30,394	₱ 29,808	₱ 268,786

Net Present Value:	**₱ 22,719**

PROJECT B

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Benefits	₱ 40,000	₱ 75,000	₱ 80,000	₱ 90,000	₱ 95,000	₱ 110,000	
Factor	1.000	0.909	0.826	0.751	0.683	0.621	
PV of Benefits	₱ 40,000	₱ 68,175	₱ 66,080	₱ 67,590	₱ 64,885	₱ 68,310	₱ 375,040
Costs	₱ 150,000	₱ 45,000	₱ 50,000	₱ 60,000	₱ 70,000	₱ 80,000	
Factor	1.000	0.909	0.826	0.751	0.683	0.621	
PV of Costs	₱ 150,000	₱ 40,905	₱ 41,300	₱ 45,060	₱ 47,810	₱ 49,680	₱ 374,755

Net Present Value:	**₱ 285.00**

FINDINGS

EVENT TABLE

Sales Event Table

EVENT	TRIGGER	SOURCE	ACTIVITY	RESPONSE	DESTINATION
Purchase Fuel	Fuel request	Customer	System requests payment	Record Transaction	Cashier
Payment	Transaction	Customer	Calculate transaction details	Receipt issued	Customer
Inventory Update	Transaction Record		Deduct recorded stocks	New stocks level record	Cashier

Delivery Event Table

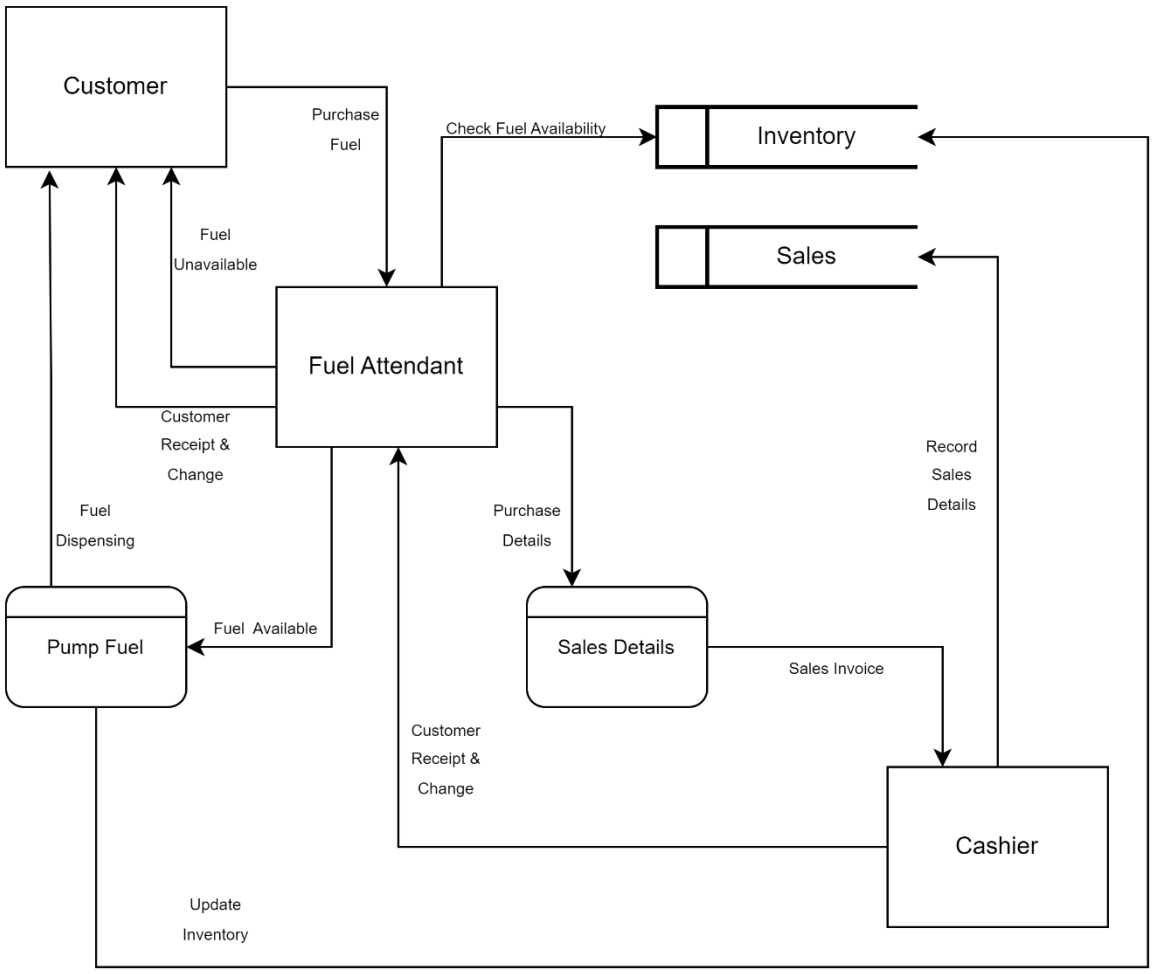
Event	Trigger	Source	Activity	Response	Destination
Check Inventory	Regular Inventory Assessment	Management	Measurement of fuel levels	Produce reports	Management
Order Placement	Request for fuel order placement	Management	Place an order	Record order transaction details	Shell Company
Delivery Scheduling	Scheduled delivery	Management	Schedule fuel	Delivery Schedule	Shell Company
Receive Order	Delivery arrival	Management	Update Inventory	Record quantity received.	Management
Inventory Update	Transaction Record		Increase Recorded Stocks	New stocks level record	Management

Inventory Event Table

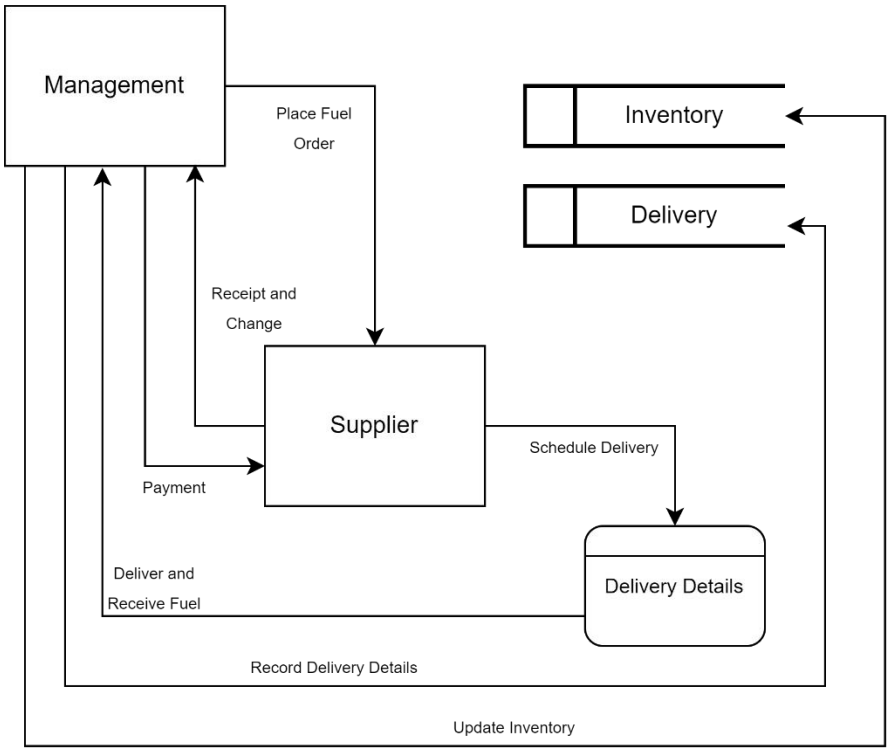
Event	Trigger	Source	Activity	Response	Destination
Inventory Reconciliation	Regular inventory assessment	Management	Comparison of physical count with system-recorded inventory	Identification of discrepancies or differences	Management
Stock Position Report	Completion of reconciliation assessment		Generation of stock position report based on the comparison	Detailed report highlighting inconsistencies	Management

DATA FLOW DIAGRAMS

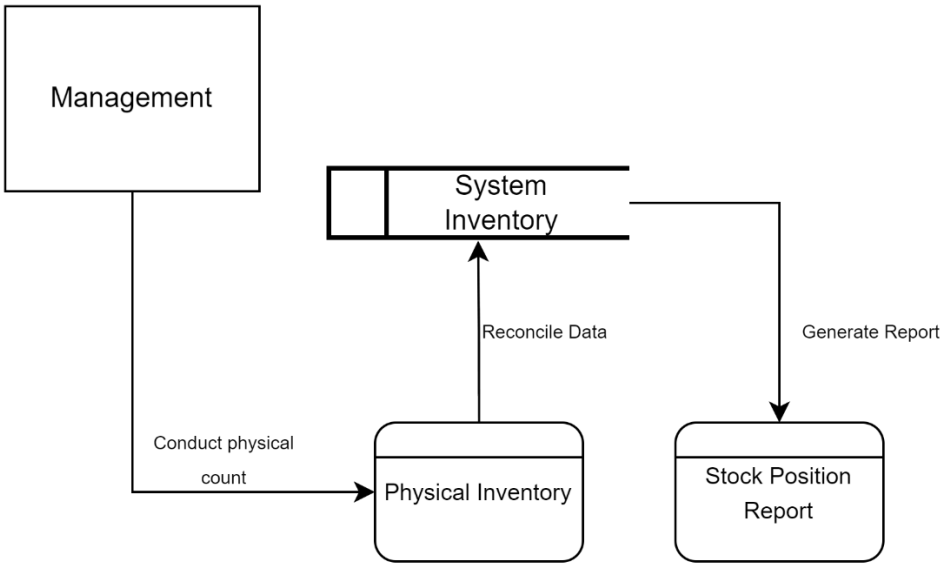
Sales



Delivery

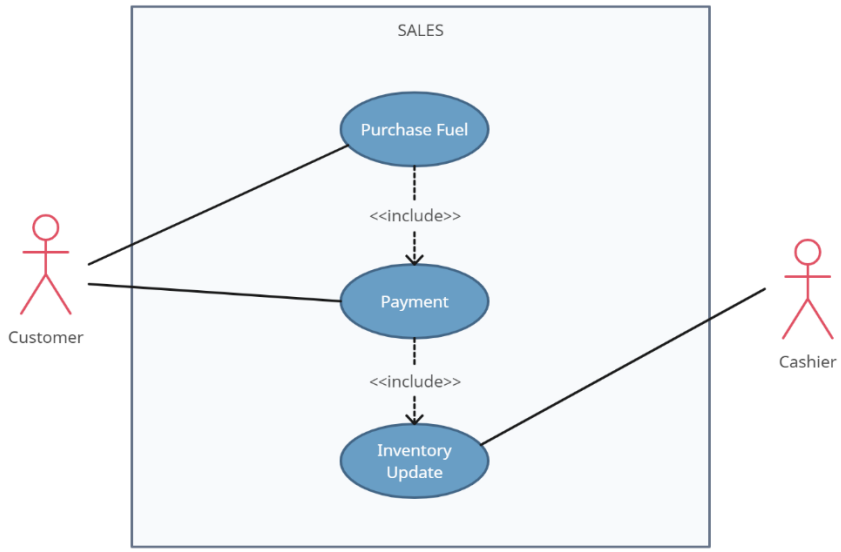


Inventory

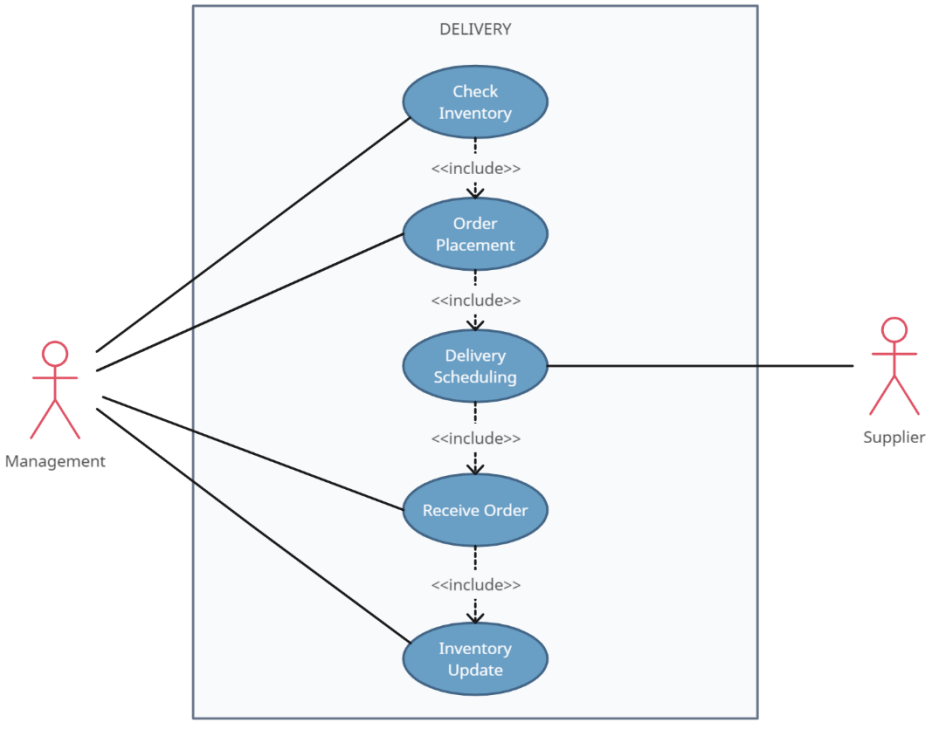


USE CASE DIAGRAMS

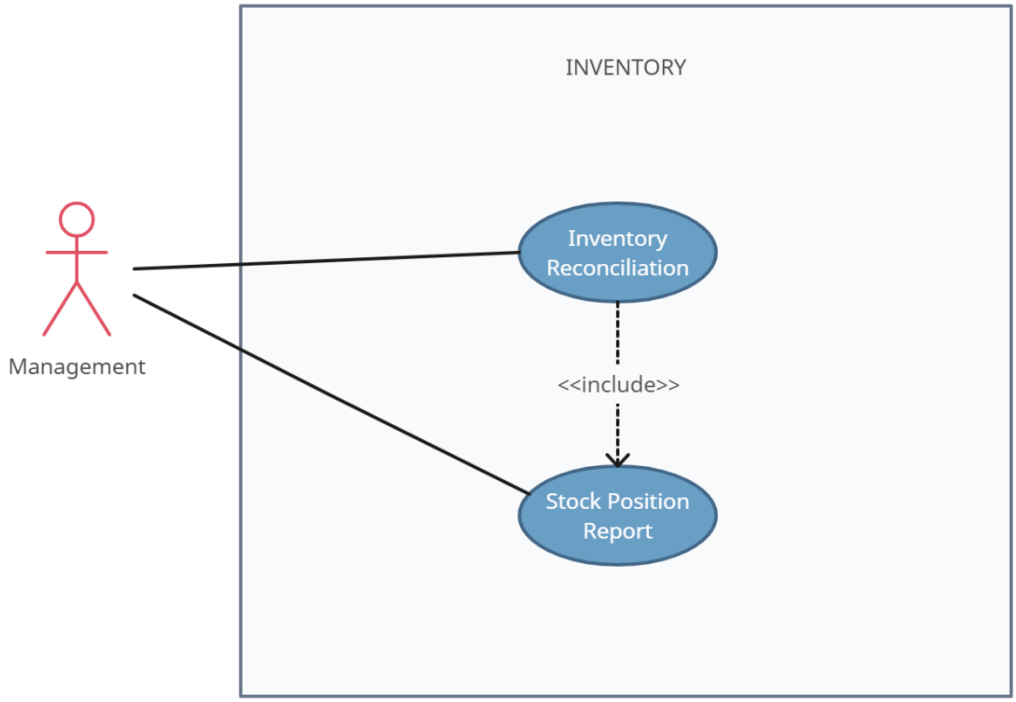
Sales



Delivery



Inventory



FULLY DEVELOPED USE CASE DESCRIPTION

Use case name	**Sales**
Triggering Event	A customer arrives at the fuel station and intends to purchase fuel.
Brief description	This use case involves the customer's interaction with the fuel station system to select and purchase fuel. It includes steps such as confirming the fuel choice, payment processing, fuel dispensing, and receipt generation.
Primary Actor	Customer
Secondary Actors	Fuel Attendant, Cashier
Preconditions	• The system is operational.

	• The customer has initiated the sales process.
Postconditions	• The customer has paid for the fuel and received a receipt. • The fuel has been dispensed if the payment is successful. • Inventory has been updated if fuel was purchased.
Flow of activities	1. Customer selects the type and quantity of fuel. 2. Fuel attendant verifies fuel availability. 3. Customer confirms the purchase. 4. Fuel attendant enables the pump and start fuel dispensing and update the inventory. 5. Customer pays for the purchase. 6. Cashier generates a receipt for the transaction and change if there is.
Exception conditions	• Fuel selected by the customer is unavailable. • Pump malfunctions during fuel dispensing. • Receipt generation fails. • System encounters unexpected errors or outages during the process.

Use case name	**Delivery**
Triggering Event	The fuel station places an order for fuels with the supplier.
Brief description	This use case involves the supplier's interaction with the fuel station's order for fuels. It encompasses verifying inventory, receiving and fulfilling the order, scheduling the delivery, and managing payment and documentation.
Primary Actor	Supplier
Secondary Actors	Management

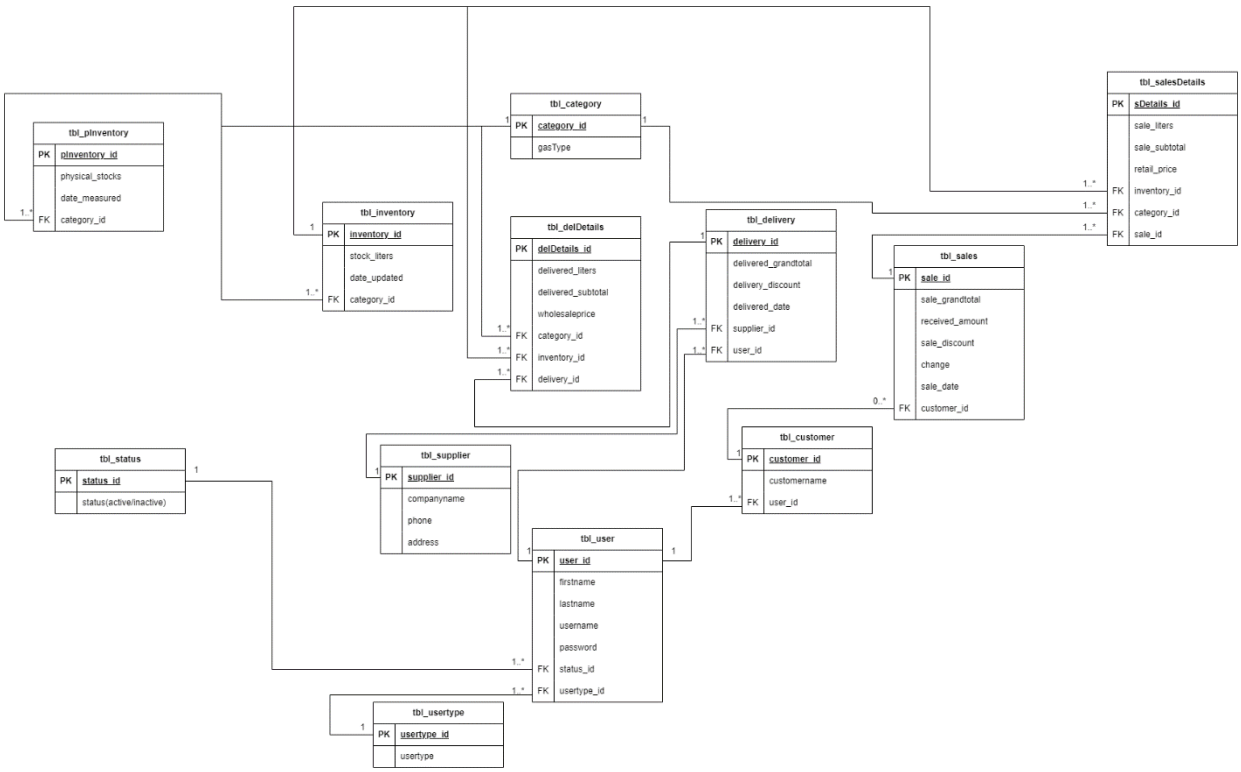
Preconditions	• The fuel station has placed an order for fuels. • The delivery schedule has been established.
Postconditions	• Fuels ordered are received and documented accurately. • Payment for the purchase is confirmed and a receipt is generated. • Inventory is updated based on the received delivery.
Flow of activities	1. Fuel station checks inventory. 2. Fuels station places an order. 3. Supplier schedules the delivery. 4. Fuels are delivered and received. 5. Payment is made and a receipt is generated.
Exception conditions	• Incorrect fuels delivered. • Delivery delay or scheduling conflicts. • Payment discrepancy issues. • Inventory discrepancies upon receipts.

Use case name	**Inventory**
Triggering Event	Inventory occurs at regular intervals (1 day) or deemed necessary by management to update and ensure the accuracy of the fuel inventory records.
Brief description	Involves management's oversight and control of fuel inventory within the fuel station.
Primary Actor	Management

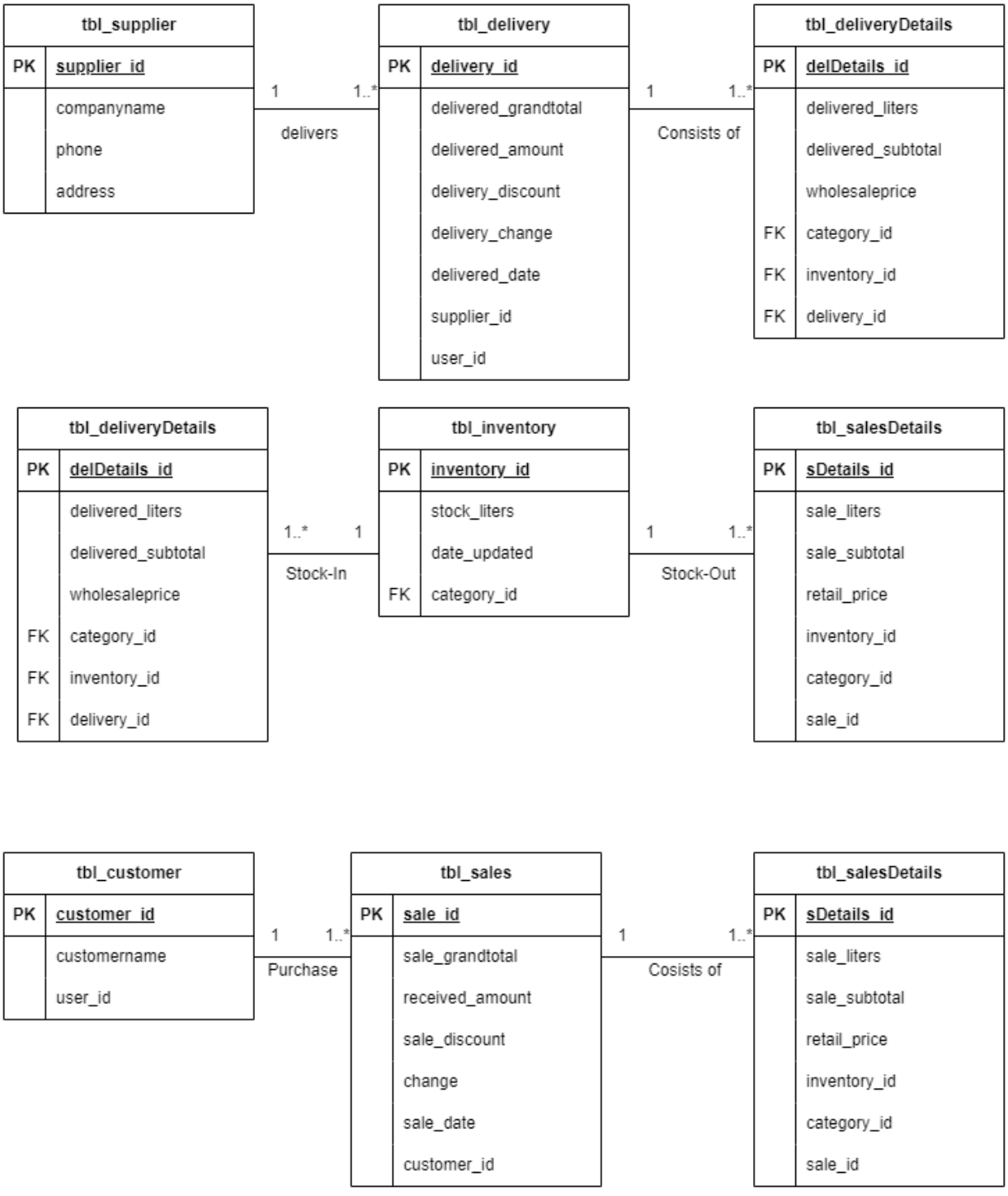
Preconditions	• Access to the system/database containing inventory records. • Availability of sales report and physical counting procedures.
Postconditions	• Updated and reconciled inventory records. • Generated inventory reports reflecting current stock levels.
Flow of activities	1. Physical counting of fuel inventory. 2. Integrating sales report into the inventory records. 3. Reconciling physical counts with system inventory (inventory records). 4. Generating a stock position report to identify if there is a discrepancy.
Exception conditions	• Significant discrepancies between counts and sales reports. • Technical issues hindering accurate inventory tracking or report generation.

DATABASE DESIGN

Entity Relationship Diagram



Domain Class Diagram



Sales

Entities:

- tbl_customer
- tbl_sales
- tbl_salesDetails

Relationship:

- customer purchase product
- product consists of product details

Cardinalities

- one customer can purchase one or many products
- one purchase may include one or many products

Delivery

Entities:

- tbl_supplier
- tbl_delivery
- tbl_delDetails

Relationship:

- supplier delivers supply
- delivery consists of supply details

Cardinalities:

- one supplier can deliver one or many supplies
- one supply may include one or many supplies

Inventory

Entities:

- tbl_delDetails
- tbl_inventory
- tbl_salesDetails

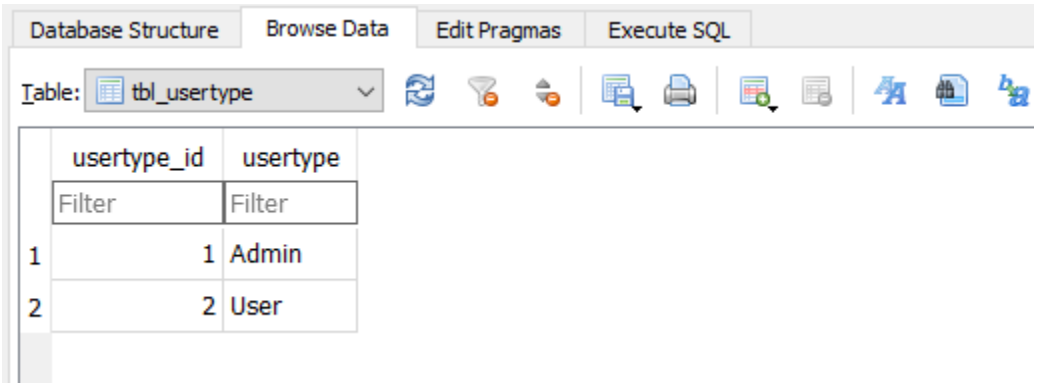
Relationship:

- Delivery Details for Stocking In
- Sales Details for Stocking Out

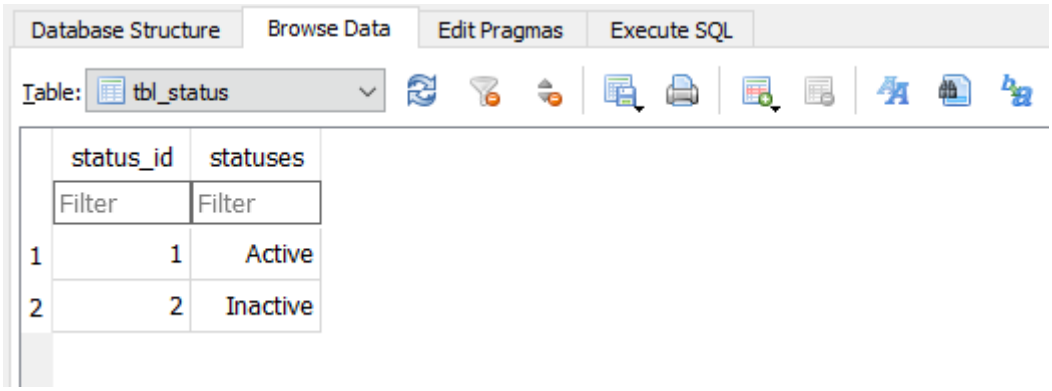
Cardinalities:

- Inventory can have one or many delivery details for Stocking In
- Inventory can have one or many sales details for Stocking Out

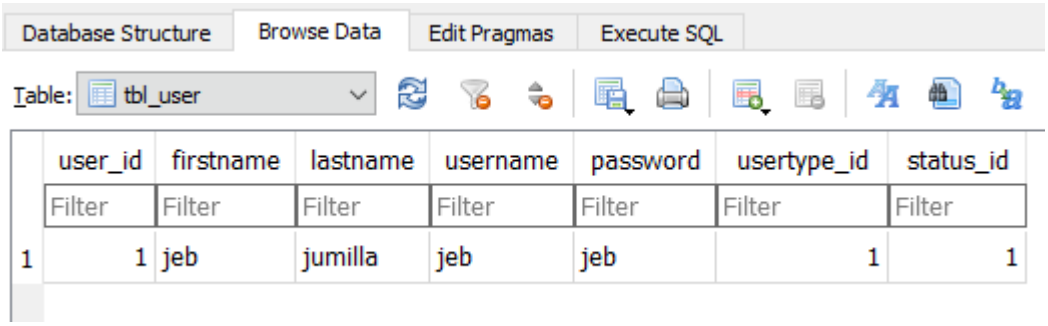
Physical Database Design



	usertype_id	usertype
	Filter	Filter
1	1	Admin
2	2	User



	status_id	statuses
	Filter	Filter
1	1	Active
2	2	Inactive



	user_id	firstname	lastname	username	password	usertype_id	status_id
	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	1	jeb	jumilla	jeb	jeb	1	1

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_category

	category_id	gasType
	Filter	Filter
1	1	Diesel
2	2	Premium
3	3	Regular

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_supplier

supplier_id	suppliername	user_id
Filter	Filter	Filter

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_delivery

Filter in any column

delivery_id	delivered_grandtotal	delivered_amount	delivery_discount	delivery_change	delivered_date	supplier_id
Filter	Filter	Filter	Filter	Filter	Filter	Filter

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_delDetails

Filter in any column

delDetails_id	delivered_liters	wholesaleprice	delivered_subtotal	category_id	inventory_id	delivery_id
Filter	Filter	Filter	Filter	Filter	Filter	Filter

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_inventory

	inventory_id	stock_liters	date_updated	category_id
	Filter	Filter	Filter	Filter
1	1	0.0	2023-11-22	1
2	2	0.0	2023-11-22	2
3	3	0.0	2023-11-22	3

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_pInventory

	pInventory_id	physical_stocks	date_measured	category_id
	Filter	Filter	Filter	Filter
1	1	0.0	2023-11-22	1
2	2	0.0	2023-11-22	2
3	3	0.0	2023-11-22	3

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_customer

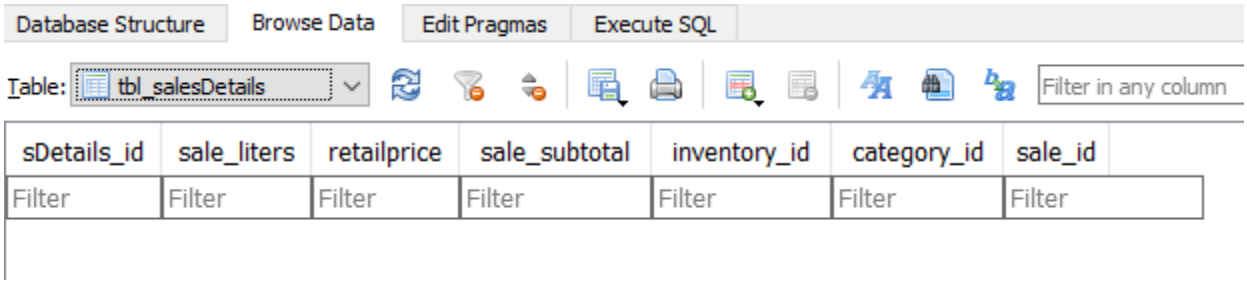
customer_id	customername	user_id
Filter	Filter	Filter

Database Structure | Browse Data | Edit Pragmas | Execute SQL

Table: tbl_sales

Filter in any column

sale_id	sale_grandtotal	received_amount	sale_discount	change	sale_date	customer_id
Filter	Filter	Filter	Filter	Filter	Filter	Filter



DATABASE DICTIONARY

Table Name: tbl_usertype

Primary Key: usertype_id

Foreign Key(s): None

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
usertype_id	Int	1	None	A number can be used more than once and cannot be duplicated	Cannot be changed and it is unique	None	A usertype_id in the tbl_usertype must match in the tbl_user	Admin
usertype	Text	5	None	None	Cannot be change once it is set	None	none	Admin

Table Name: tbl_status

Primary Key: status_id

Foreign Key(s): None

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
status_id	Int	1	None	A number can be used more than once and cannot be duplicated	Cannot be changed and it is unique	None	A status_id in the tbl_status must match in the status_id in tbl_user	Admin
statuses	Int	8	None	None	Cannot be change once it is set	None	none	Admin

Table Name: tbl_user
Primary Key: user_id
Foreign Key(s): usertype_id
status_id
Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
user_id	Int	4	None	Unique, a number cannot be duplicated, increments only by one	Cannot be changed once it is created	Previous value plus 1	A user_id from the tbl_user must match in the user_id in tbl_supplier and tbl_customer	Admin
firstname	Text	12	none	None	Cannot be changed	None	None	Admin/Cashier
Lastname	Text	12	None	None	Cannot be changed	None	None	Admin/Cashier
Username	Text	12	None	Unique and cannot be duplicated	Cannot be changed	None	None	Admin/Cashier

Password	Text	8	None	Hidden	None	None	None	Admin/Cashier
Usertype_id	Int	1	None	numeric only	Cannot be changed once it is created	None	A usertype_id from the tbl_user must match in the usertype_id in tbl_usertype	Admin
Status_id	Int	1	None	None	Active/Inactive	none	A status_id from the tbl_user must match in the status_id in the tbl_status	Admin

Table Name: tbl_ category

Primary Key: category_id

Foreign Key(s): None

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
category_id	Int	1	None	Cannot be duplicated	Cannot be changed and it is unique	None	A status_id in the tbl_status must match in the status_id in tbl_user	Admin/Cashier
gasType	Text	7	None	None	Cannot be change	None	none	Admin/Cashier

Table Name: tbl_supplier

Primary Key: supplier_id

Foreign Key(s): None

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
supplier_id	Int	4	None	cannot be duplicated	Cannot be changed and it is unique	None	A usertype_id in the tbl_usertype must match in the tbl_user	Admin/Cashier
suppliername	Text	12	None	None	Cannot be change	None	None	Admin/Cashier
User_id	Int	4	None	None	Cannot be changed once it is created	None	A user_id from the tbl_supplier must match in the user_id in tbl_user	Admin/Cashier

Table Name: tbl_delivery

Primary Key: delivery_id

Foreign Key(s): supplier_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership

delivery_id	Int	20	None	A number cannot be duplicated, increments only by one	Cannot be changed once it is created and it is unique	Previous value plus 1	A delivery_id from the tbl_delivery must match in the delivery_id in tbl_delDetails	Cashier
Delivered_grandtotal	Real	7	pesos	None	Cannot be changed once it is created	Sum of subtotal	None	Supplier
Delivered_amount	Real	7	Pesos	None	Cannot be changed once it is created	None	None	Management/ Cashier
Delivery_discount	Real	3	percentage	None	Cannot be changed once it is created	discount /100	None	Supplier
Delivery_change	Real	7	Pesos	None	Cannot be changed once it is created	Change = grandtotal – (grandtotal * discount)	None	Management/ Cashier
Delivered_date	Datetime	8	Month, day, year, hour, minute, second	numeric only	Cannot be changed once it is created	Current system date	none	Management/ Supplier

supplier_id	Int	4	None	Cannot be duplicated	Cannot be changed once it is created	none	A supplier_id from the tbl_delivery must match in the supplier_id in tbl_supplier	Cashier

Table Name: tbl_delDetails

Primary Key: delDetails_id

Foreign Key(s): category_id

inventory_id

delivery_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
delDetails_id	Int	20	None	A number cannot be duplicated, increments only by one	Cannot be changed once it is created and it is unique	Previous value plus 1	none	Management/Cashier
Delivered_liters	Real	6	liters	None	Cannot be changed once it is created	none	None	Supplier/Management
wholesaleprice	Real	2	Pesos	None	Cannot be changed once it is created	None	None	Supplier

Delivered_subtotal	Real	7	pesos	None	Cannot be changed once it is created	Liters * wholesaleprice	None	Cashier
Category_id	Real	1	none	numeric only	Cannot be changed once it is created	none	A category_id in a tbl_delDetails must match a category_id in the tbl_category	Management/Cashier
Inventory_id	Int	1	None	numeric only	Cannot be changed once it is created	None	A inventory_id in a tbl_delDetails must match a inventory_id in the tbl_inventory	Management/Cashier
delivery_id	Int	20	None	none	Cannot be changed once it is created	none	A delivery_id in a tbl_delDetails must match a delivery_id in the tbl_delivery	Cashier

Table Name: tbl_inventory

Primary Key: inventory_id

Foreign Key(s): category_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
inventory _id	Int	1	None	Numeric only	Cannot be changed and it is unique	None	A usertype_id in the tbl_usertype must match in the tbl_user	Admin/Cashier
Stock_liters	Real	6	liters	Numeric only	None	None	none	Admin/Cashier
Date_updated	datetime	8	Month, day, year, hour, minute, second	none	Cannot be changed once it is created	Current system date	none	Admin/Cashier
Category_id	Int	1	none	numeric only	Cannot be changed once it is created	none	A category_id in a tbl_inventory must match a category_id in the tbl_category	Admin/Cashier

Table Name: tbl_pInventory

Primary Key: pInventory_id

Foreign Key(s): category_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership

pInventory_id	Int	1	None	Numeric only	Cannot be changed and it is unique	None	none	Management/Cashier
Physical_stocks	Real	6	liters	Numeric only	None	None	none	Management/Cashier
Date_measured	datetime	8	Month, day, year, hour, minute, second	numeric only	Cannot be changed once it is created	Current system date	none	Management/Cashier
Category_id	Int	1	none	numeric only	Cannot be changed once it is created	none	A category_id in a tbl_inventory must match a category_id in the tbl_category	Management/Cashier

Table Name: tbl_customer

Primary Key: customer_id

Foreign Key(s): user_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
customer_id	Int	4	None	Numeric only	Cannot be changed and it is unique	None	none	Cashier
customername	Text	12	liters	None	Cannot be changed	None	none	Cashier
User_id	Int	4	None	numeric only	Cannot be changed once it is created	None	A user_id in a tbl_customer must match a user_id in the tbl_user	Cashier

Table Name: tbl_sales

Primary Key: sale_id

Foreign Key(s): customer_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership
sale_id	Int	20	None	A number cannot be duplicated, increments only by one	Cannot be changed once it is created and it is unique	Previous value plus 1	A sale_id from the tbl_sales must match in the sale_id in tbl_salesDetails	Cashier
sale_grandtotal	Real	7	pesos	None	Cannot be changed once it is created	Sum of subtotal	None	Cashier
received_amount	Real	7	Pesos	None	Cannot be changed once it is created	None	None	Management/ Cashier
sale_discount	Real	3	percentage	None	Cannot be changed once it is created	discount /100	None	Management
change	Real	7	Pesos	None	Cannot be changed once it is created	Change = grandtotal – (grandtotal * discount)	None	Management/ Cashier

sale_date	Datetime	8	Month, day, year, hour, minute, second	numeric only	Cannot be changed once it is created	Current system date	none	Management/ Cashier
customer_id	Int	4	None	Cannot be duplicated	Cannot be changed once it is created	none	A customer_id from the tbl_sales must match in the customer_id in tbl_customer	Cashier

Table Name: tbl_salesDetails

Primary Key: sDetails_id

Foreign Key(s): category_id

inventory_id

sale_id

Database Name: gas

Name	Data Type	Field Size	Unit of Measure	Data Integrity Rules	Maintenance Controls	Formula	Referential Integrity	Ownership

sDetails_id	Int	20	None	A number cannot be duplicated, increments only by one	Cannot be changed once it is created and it is unique	Previous value plus 1	none	Management/Cashier
sale_liters	Real	6	liters	None	Cannot be changed once it is created	none	None	Cashier/Management
retailprice	Real	2	Pesos	None	Cannot be changed once it is created	Wholesaleprice+ (wholesaleprice * 0.06)	None	Management
sale_subtotal	Real	7	pesos	None	Cannot be changed once it is created	Liters * retailprice	None	Cashier
Category_id	Real	1	none	numeric only	Cannot be changed once it is created	none	A category_id in a tbl_delDetails must match a category_id in the tbl_category	Management/Cashier
Inventory_id	Int	1	None	numeric only	Cannot be changed once it is created	None	A inventory_id in a tbl_delDetails must match a inventory_id in the tbl_inventory	Management/Cashier
sale_id	Int	20	None	none	Cannot be changed once it is created	none	A delivery_id in a tbl_delDetails must match a delivery_id in the tbl_delivery	Cashier

DATABASE CAPACITY

Table Name: tbl_usertype

Record Size: 6

No. of Instances: 2

Table Size: 12

Field Name	**Field Size**
Usertype_id	1
usertype	5

Table Name: tbl_status

Record Size: 9

No. of Instances: 2

Table Size: 18

Field Name	**Field Size**
status_id	1
statuses	8

Table Name: tbl_user

Record Size: 50

No. of Instances: 4

Table Size: 200

Field Name	Field Size
User_id	4
Firstname	12
Lastname	12

Username	12
Password	8
Usertype_id	1
Status_id	1

Table Name: tbl_category

Record Size: 8

No. of Instances: 3

Table Size: 24

Field Name	**Field Size**
category_id	1
gasType	7

Table Name: tbl_supplier

Record Size: 20

No. of Instances: 0

Table Size: 0

Field Name	**Field Size**
supplier_id	4
Suppliername	12
User_id	4

Table Name: tbl_delivery

Record Size: 56

No. of Instances: 0

Table Size: 0

Field Name	Field Size
delivery_id	20

Delivered_grandtotal	7
Delivered_amount	7
Delivery_discount	3
Delivery_change	7
Delivered_date	8
Supplier_id	4

Table Name: tbl_delDetails

Record Size: 52

No. of Instances: 0

Table Size: 0

Field Name	Field Size
delDetails_id	20
Delivered_liters	6
Wholesaleprice	2
Delivered_subtotal	7
Category_id	1
Inventory_id	1
Delivery_id	20

Table Name: tbl_inventory

Record Size: 16

No. of Instances: 3

Table Size: 48

Field Name	Field Size
Inventory_id	1
Stocks_liters	6
Date_updated	8
Category_id	1

Table Name: tbl_pInventory

Record Size: 16

No. of Instances: 3

Table Size: 48

Field Name	Field Size
pInventory_id	1
physical_liters	6
Date_measured	8
Category_id	1

Table Name: tbl_customer

Record Size: 20

No. of Instances: 0

Table Size: 0

Field Name	Field Size
customer_id	4
customername	12
User_id	4

Table Name: tbl_sales

Record Size: 56

No. of Instances: 0

Table Size: 0

Field Name	Field Size
sale_id	20
sale_grandtotal	7
received_amount	7
sale_discount	3
change	7
sale_date	8
customer_id	4

Table Name: tbl_delDetails

Record Size: 52

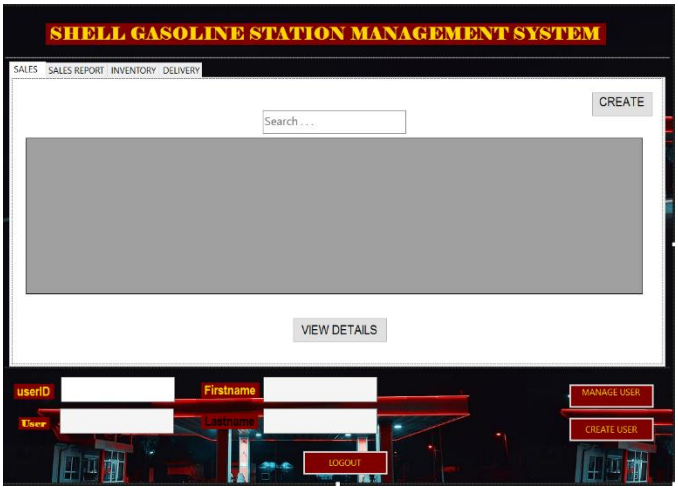
No. of Instances: 0

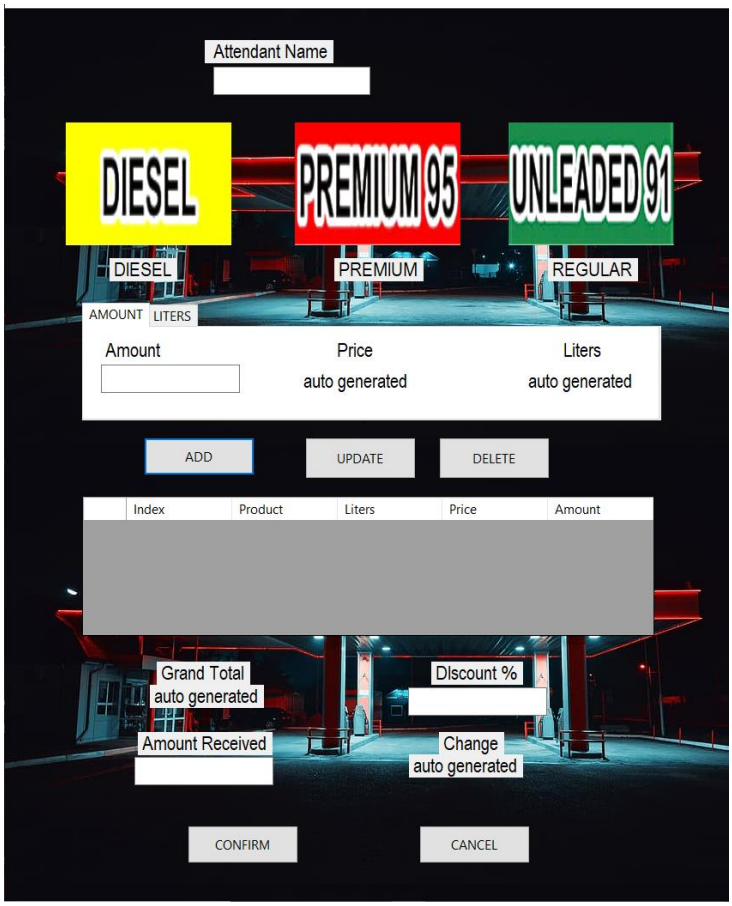
Table Size: 0

Field Name	Field Size
sDetails_id	20
sale_liters	6
retailprice	2
sale_subtotal	7
Category_id	1
Inventory_id	1
sale_id	20

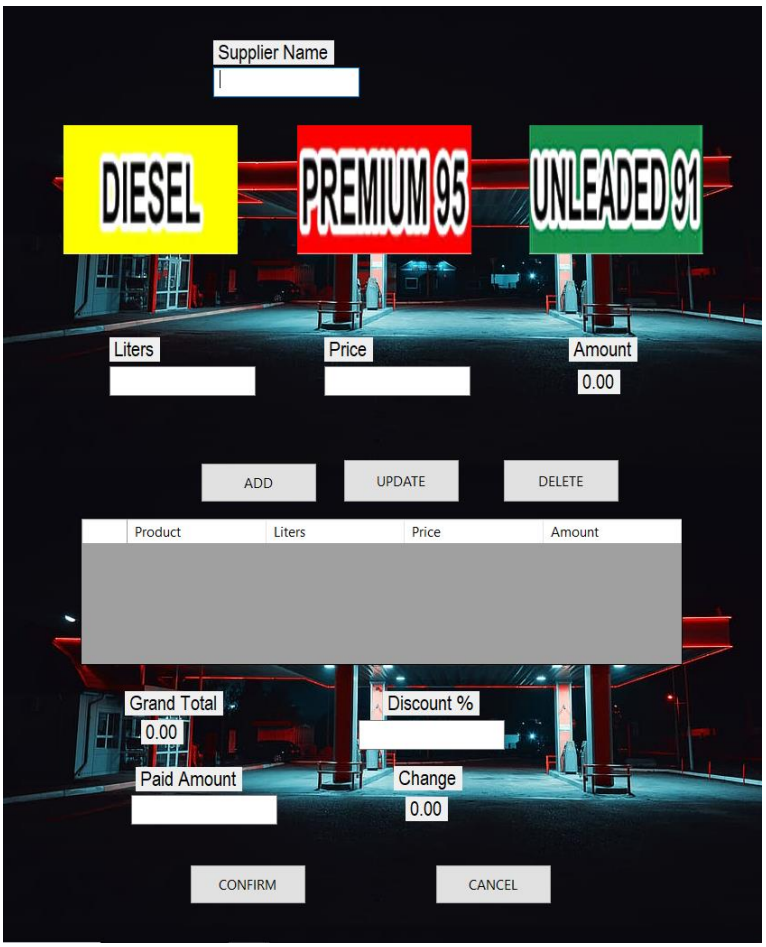
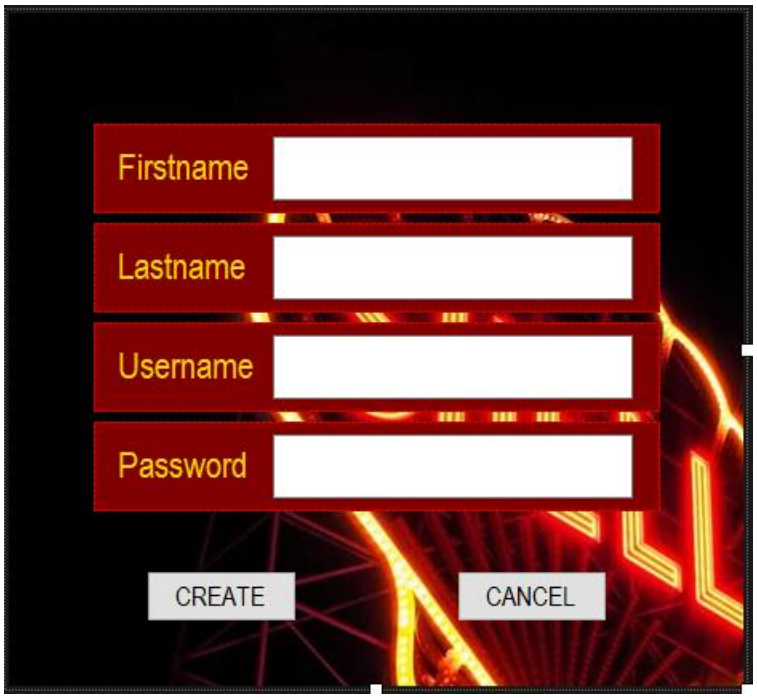
USER INTERFACE

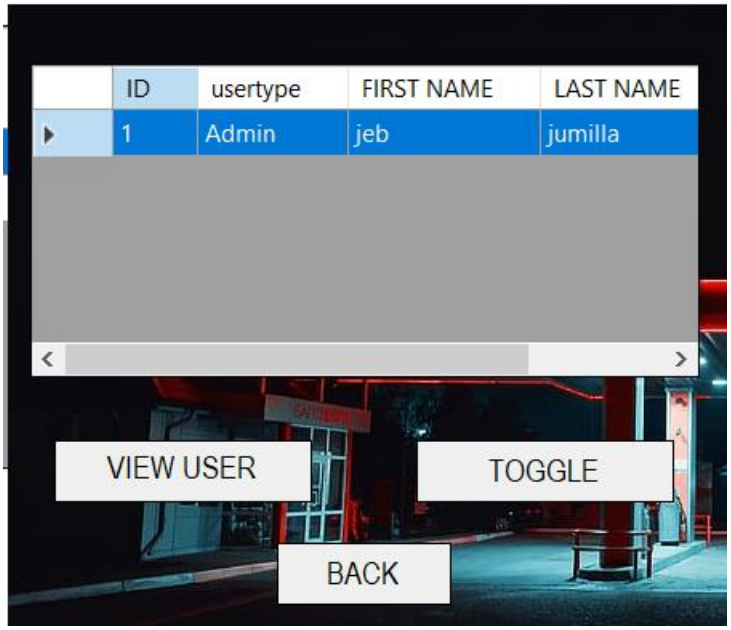
INPUT AND OUTPUT

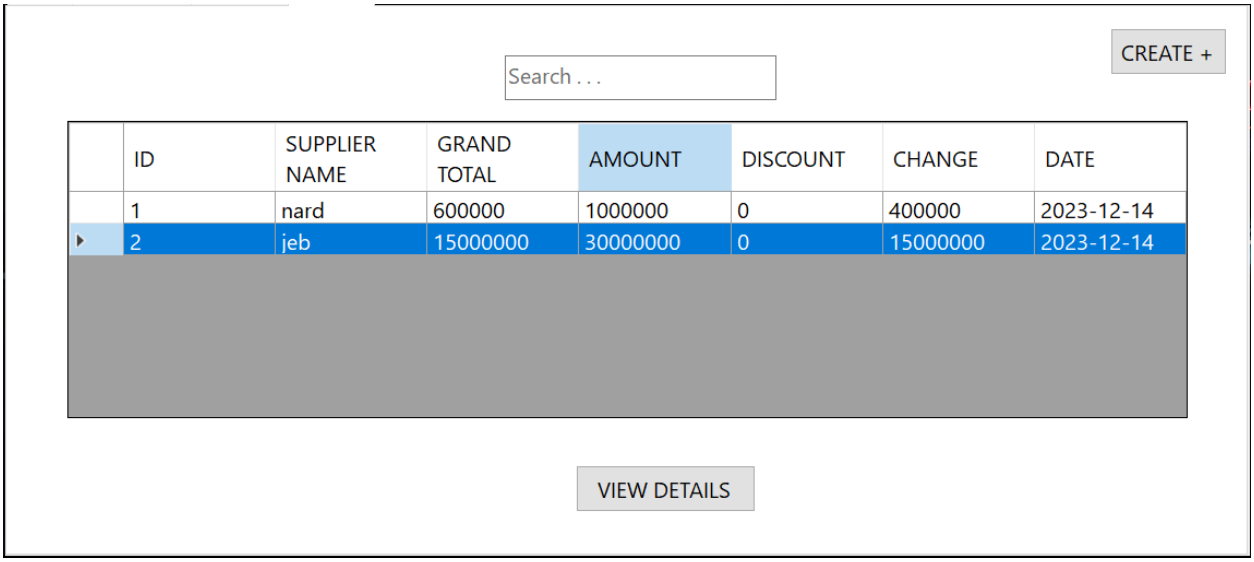
	The Log in page, this form is required the user to input their credentials (usually a username and password) to access the restricted system.
	This is the main part of the system where it contains sales, sales report, inventory, delivery, manage user and create user.



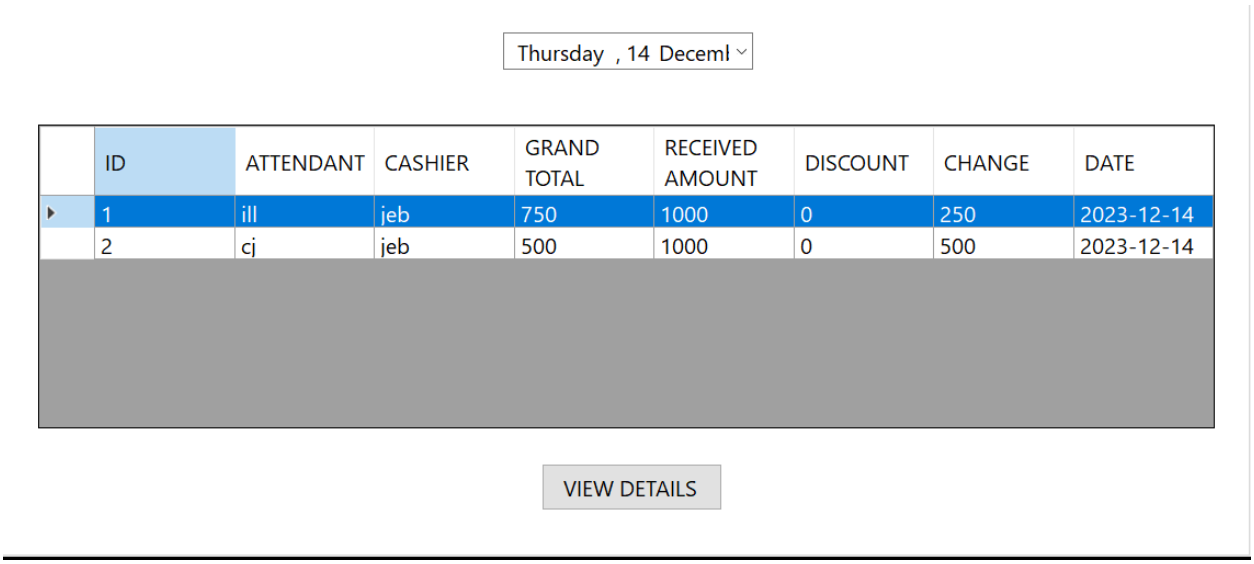
In sales, when you press create, this form is for the user who will purchase the gasoline product through the walk-in, first is the name of the buyer then the type of the diesel, premium 95 or unleaded 91, there are two ways to gasoline purchase, in liters or amount. It can also be edited if there is a mistake when choosing how much the customer will purchase.

	In delivery, when you press create this form is for stocking in, first is the management of gas station then the type (diesel, premium 95 or unleaded 91), there are two ways also of gasoline purchase, in liters or amount. It can also be edited if there is a mistake when choosing how much the owner they purchase.
	In this form, it is for creating a new user account for the system it contains first name, last name, username, and password.

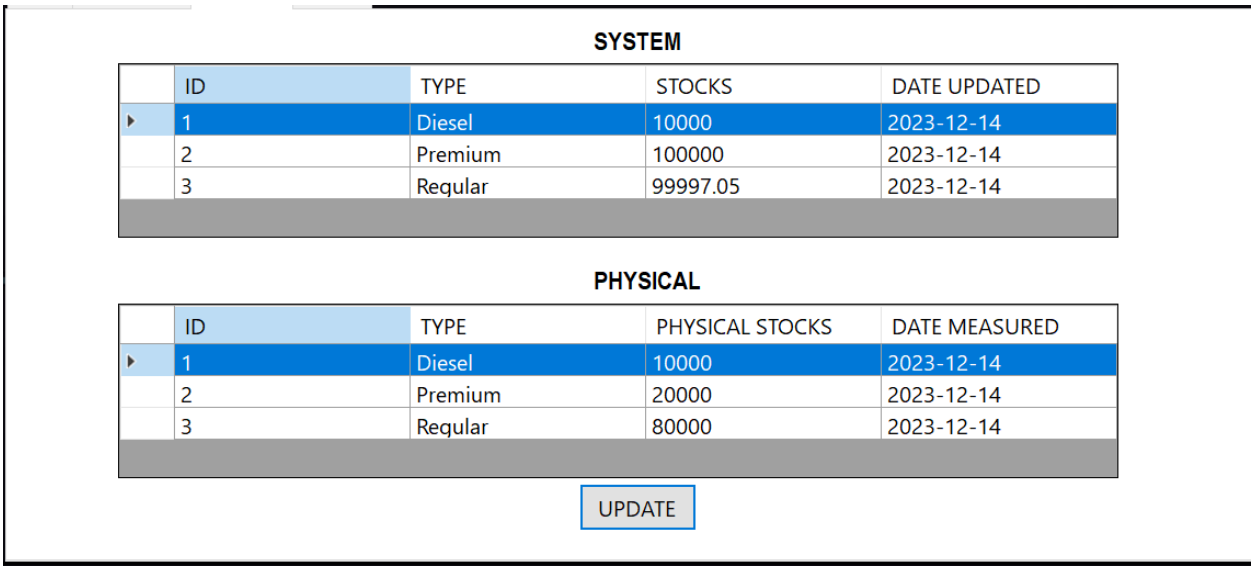
	In this form you can see the users who are registered in the system, you can see it when you press the manage user in the main form.



This grid form is the result of fuel stocking in, you can see the sales records.



This form is the sales report for the month, the customer record can be seen here.



This inventory form allows you to compare the physical count and system inventory. There are three outputs in each comparison between the physical count and system inventory that indicate whether or not they match. The first is if the physical count is higher than the system inventory and vice versa, if both are equal, then the system shows no discrepancy.

TEST CASE DESIGN

CS12L/IT12L/AIS311L
Functional test case Specification

SUMMARY OF TEST CASES EXECUTED

Group Name:	**Gas De Migos Madre**
Proponents:	
Module Name:	**Shell Gasoline Management System**
Submodule Name:	**Login** **Sales** **Sales Details** **Sales Report** **Inventory** **Delivery** **Delivery Details** **Manage User** **Create User** **User Sales** **Receipt**

SCENARIOS	EXPECTED RESULT	ACTUAL RESULT	TEST RESULT (Passed/ Failed)
Login	Landing page contains tabs (Sales, Sales report, Inventory and Delivery) and display the info of user can create ang manage user.		
Delivery: Can create new stocks of gas (diesel, premium 95, unleaded 91).	Able to see, choose two suppliers, add different types of gas to the data grid, update, and remove data. You can enter the preferred gas quantity in liters and receive a discount. Has correct calculations. Prompt screen appears: Created Successfully.		
Deliver: Viewing Details	Shows Supplier and Transaction Details.		
Delivery: Search	Can search by typing of company name.		
Sales: Creating new walk-in sales can't create if there are no stocks in inventory.	Prompt screen appears: Insufficient Stocks.		
Sales: Create new walk-in sales	Able to choose a different gas type and enter the name of the consumer. Customers can purchase either by amount or by quantity of gas depending on their preference. Each selected gas retail price is provided based on the delivery transaction wholesale price. There may also be a discount. Has correct calculations. Prompt screen appears: Created Successfully.		
Sales: Search	Can search by typing a name of customer.		

SCENARIOS	EXPECTED RESULT	ACTUAL RESULT	TEST RESULT (Passed/ Failed)
Sales: Viewing Details	Shows Customer Transaction Details.		
Receipt	Can print receipt that shows record of transactions between the gasoline station and customer.		
Delivery and Sales	when adding another product if it has already been added to the Data table then it will perform addition instead of duplication of the existing data.		
Inventory: Stock-In/Stock-Out	automatically added and subtracted if there are transactions.		
Inventory: Reconciliation between System and Physical Measure	Can compare the remaining stocks between system and physical measure in different types of gas. It also shows the difference of stocks between the physical measured stocks and system stocks. If the system stocks are greater than physical stocks: Prompt screen appears: System Stock is greater than physical stocks. If the physical stocks are greater than system stocks: Prompt screen appears: Physical Stocks are greater than System stocks. If the system and physical stocks are match: Prompt screen appears: No Discrepancy.		

SCENARIOS	EXPECTED RESULT	ACTUAL RESULT	TEST RESULT (Passed/ Failed)
Sales Report: Viewing Details	Shows the sales by day.		
Manage User	Shows multiple users.		
Manage User: View user	Shows record of sales by users.		
Create User	Can create another user.		
Toggle: user	Can make the user’s account active and inactive.		