

Project Documentation: AutoMart Sales and Service Management System (ASSMS)

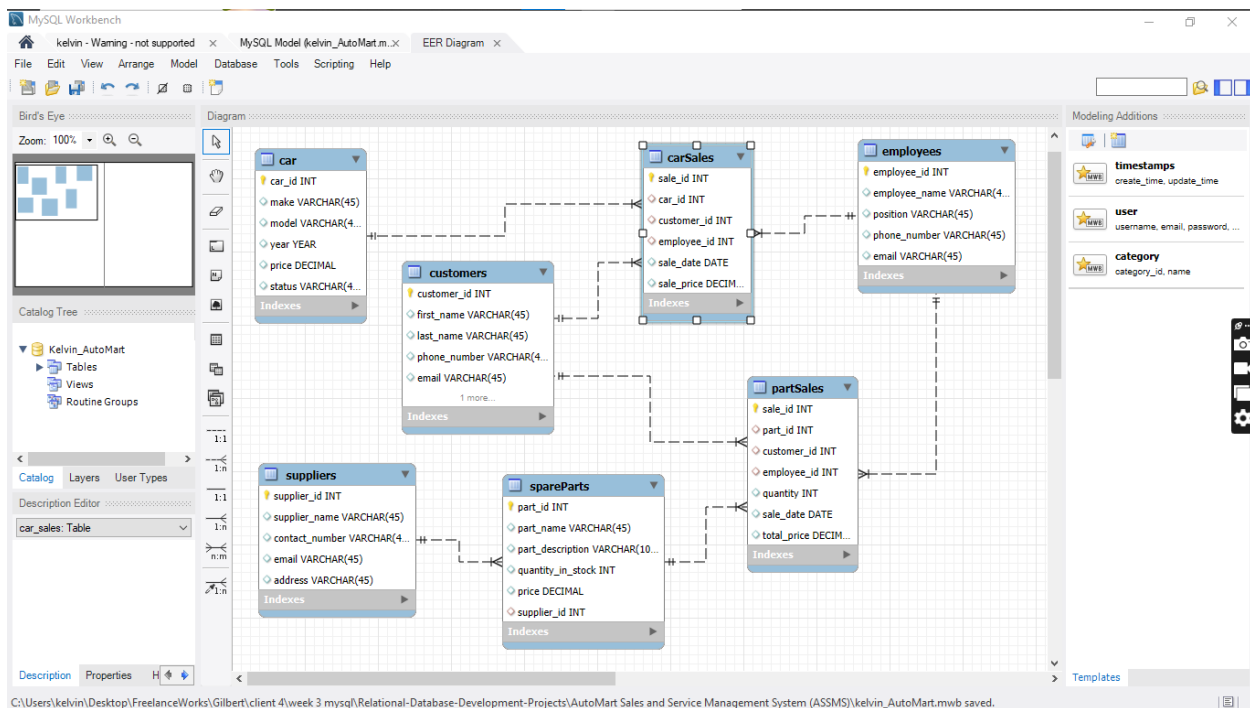
1. Introduction

This document outlines the steps I took developing the AutoMart Sales and Service Management System (ASSMS) database system, including the design, implementation, and data manipulation within a relational database using MySQL Workbench.

2. Entity-Relationship Diagram (ERD)

Description

The first step in the database development process involved designing an Entity-Relationship Diagram (ERD) to model the relationships between different entities in the AutoMart system, such as cars, customers, sales, and service records.



3. Database Schema Generation

Description

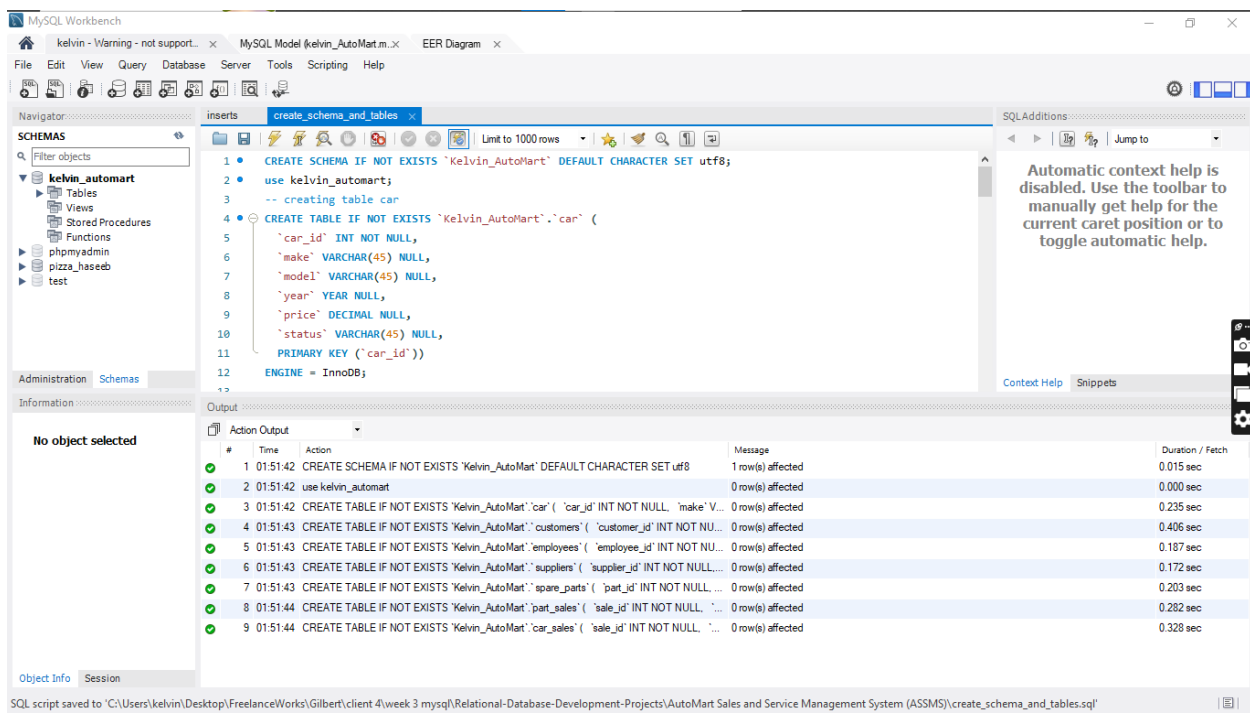
After finalizing the ERD, I used MySQL Workbench's Generate feature to create the database schema. This process translated the ERD into SQL statements that define the structure of the database and the tables.

4. Table Creation

Description

The generated SQL statements were executed in MySQL Workbench to create the necessary tables for the AutoMart system. Below is a summary of the main tables created:

- **car:** Stores information about the cars available for sale.
- **customer:** Contains details of customers.
- **sales:** Records sales transactions.
- **service:** Tracks service records for each car.



The screenshot shows the MySQL Workbench interface with the 'create_schema_and_tables' script being executed. The 'Output' tab displays the following results:

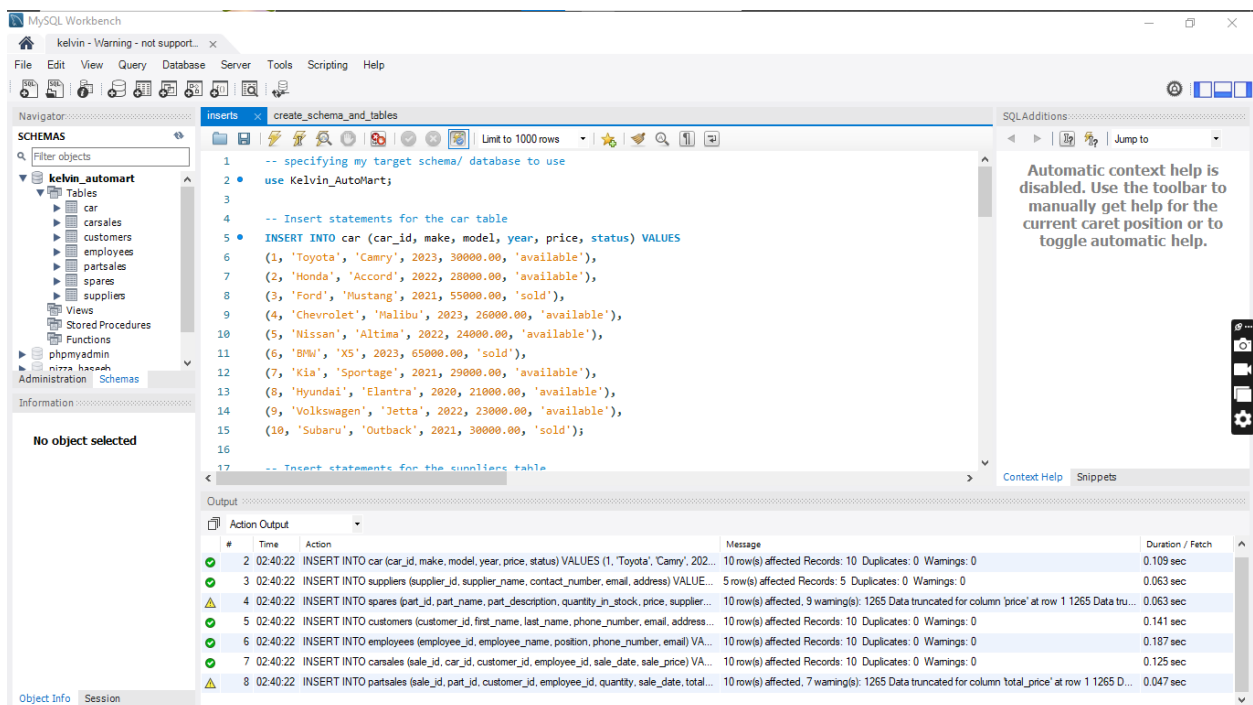
#	Time	Action	Message	Duration / Fetch
1	01:51:42	CREATE SCHEMA IF NOT EXISTS 'Kelvin_AutoMart' DEFAULT CHARACTER SET utf8;	1 row(s) affected	0.015 sec
2	01:51:42	use kelvin_automart;	0 row(s) affected	0.000 sec
3	01:51:42	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'car' ('car_id' INT NOT NULL, 'make' VARCHAR(45) NULL, 'model' VARCHAR(45) NULL, 'year' YEAR NULL, 'price' DECIMAL NULL, 'status' VARCHAR(45) NULL, PRIMARY KEY ('car_id')) ENGINE = InnoDB;	0 row(s) affected	0.235 sec
4	01:51:43	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'customers' ('customer_id' INT NOT NULL, 'first_name' VARCHAR(45) NULL, 'last_name' VARCHAR(45) NULL, 'email' VARCHAR(45) NULL, 'password' VARCHAR(45) NULL, 'phone' VARCHAR(15) NULL, PRIMARY KEY ('customer_id')) ENGINE = InnoDB;	0 row(s) affected	0.406 sec
5	01:51:43	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'employees' ('employee_id' INT NOT NULL, 'first_name' VARCHAR(45) NULL, 'last_name' VARCHAR(45) NULL, 'email' VARCHAR(45) NULL, 'password' VARCHAR(45) NULL, 'phone' VARCHAR(15) NULL, PRIMARY KEY ('employee_id')) ENGINE = InnoDB;	0 row(s) affected	0.187 sec
6	01:51:43	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'suppliers' ('supplier_id' INT NOT NULL, 'first_name' VARCHAR(45) NULL, 'last_name' VARCHAR(45) NULL, 'email' VARCHAR(45) NULL, 'password' VARCHAR(45) NULL, 'phone' VARCHAR(15) NULL, PRIMARY KEY ('supplier_id')) ENGINE = InnoDB;	0 row(s) affected	0.172 sec
7	01:51:43	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'spare_parts' ('part_id' INT NOT NULL, 'part_name' VARCHAR(45) NULL, 'part_desc' VARCHAR(45) NULL, 'part_price' DECIMAL NULL, 'part_status' VARCHAR(45) NULL, PRIMARY KEY ('part_id')) ENGINE = InnoDB;	0 row(s) affected	0.203 sec
8	01:51:44	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'part_sales' ('sale_id' INT NOT NULL, 'part_id' INT NOT NULL, 'car_id' INT NOT NULL, 'sale_date' DATE NULL, 'sale_price' DECIMAL NULL, PRIMARY KEY ('sale_id')) ENGINE = InnoDB;	0 row(s) affected	0.282 sec
9	01:51:44	CREATE TABLE IF NOT EXISTS 'Kelvin_AutoMart'.'car_sales' ('sale_id' INT NOT NULL, 'car_id' INT NOT NULL, 'customer_id' INT NOT NULL, 'sale_date' DATE NULL, 'sale_price' DECIMAL NULL, PRIMARY KEY ('sale_id')) ENGINE = InnoDB;	0 row(s) affected	0.328 sec

SQL script saved to 'C:\Users\kelvin\Desktop\Freelance\Works\Gilbert\client 4\week 3 mysql\Relational-Database-Development-Projects\AutoMart Sales and Service Management System (ASSMS)\create_schema_and_tables.sql'

5. Data Insertion

Description

After creating the tables, I inserted initial data into each table using SQL INSERT statements. This step populates the database with sample records for testing and queries.

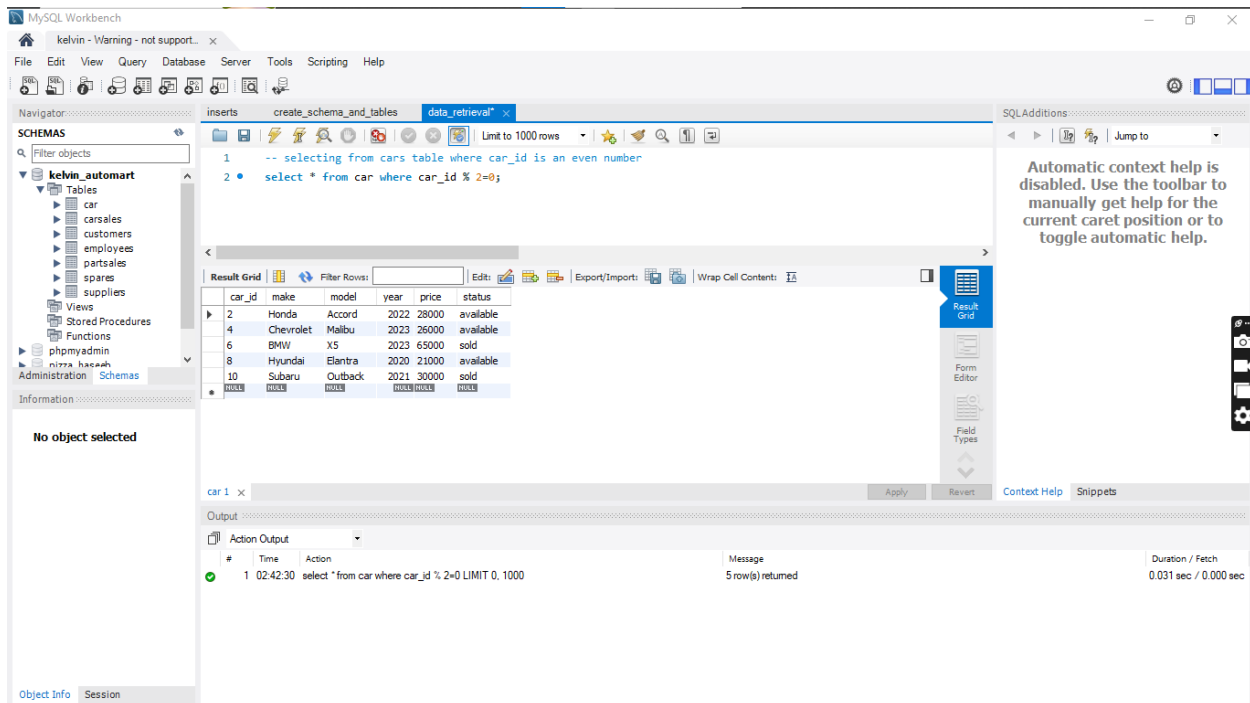


6. Data Queries

Description

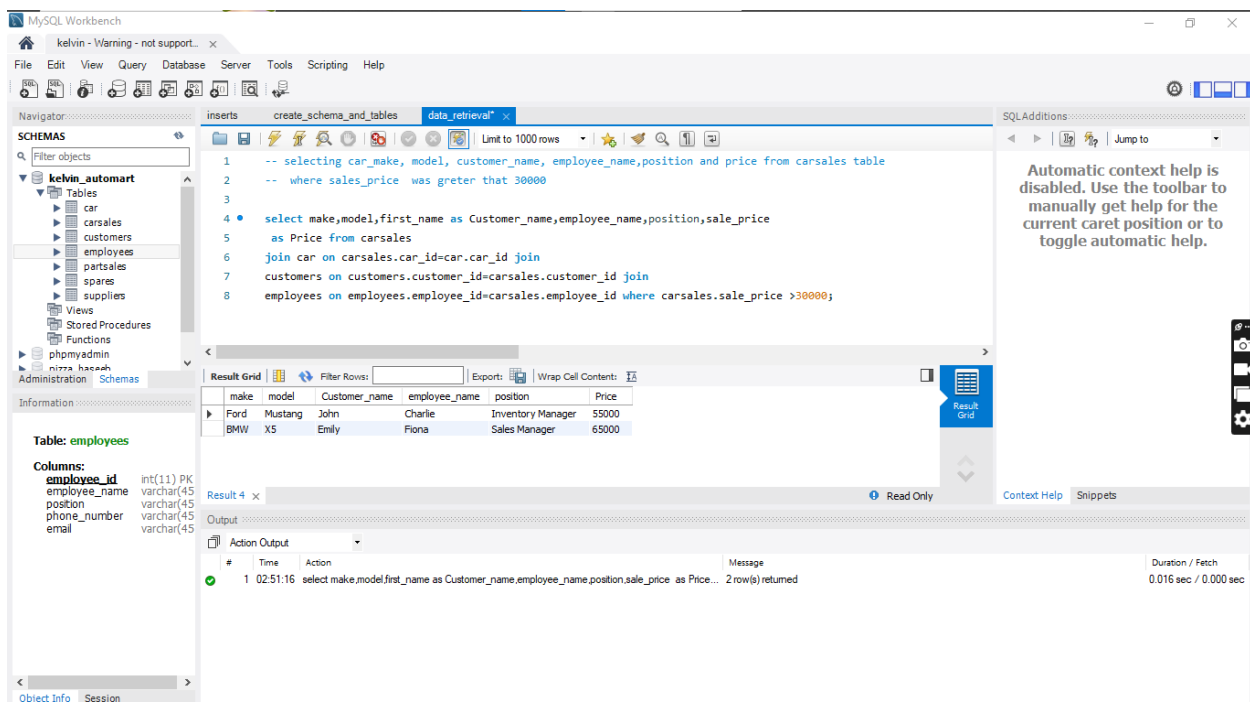
To verify the integrity of the data stored in the database, I executed several queries. These queries helped in understanding how data was stored and enabled me to retrieve specific information.

CARS TABLE QUERY



CARSALES TABLE QUERY

selecting car_make, model, customer_name, employee_name, position and price from carsales table where sales_price was greter that 30000.



Retrieve all customers data from customers' table.

The screenshot shows the MySQL Workbench interface. The 'Schemas' pane on the left displays the 'kelvin_automart' database with various tables. The 'Table: customers' is selected, showing its columns: customer_id, first_name, last_name, phone_number, email, and address. The SQL editor in the center contains the query: `select * from customers ;`. The 'Result Grid' shows 10 rows of customer data. The 'Output' pane at the bottom indicates that 10 rows were returned.

customer_id	first_name	last_name	phone_number	email	address
1	Mark	Garcia	(221) 382-7719	mark.garcia@example.com	14187 Wright Coves Suite 348, Millerburgh, DC,...
2	Anna	Johnson	(223) 555-0123	anna.johnson@example.com	5672 Oak Street, Springfield, IL, 62701
3	John	Smith	(224) 876-5432	john.smith@example.com	4501 Maple Avenue, Chicago, IL, 60614
4	Jessica	Brown	(225) 432-1987	jessica.brown@example.com	789 Birch Lane, Madison, WI, 53703
5	David	Lee	(226) 098-7654	david.lee@example.com	123 Pine Road, Seattle, WA, 98101
6	Emily	Davis	(227) 321-4567	emily.davis@example.com	456 Cedar Court, Phoenix, AZ, 85001
7	James	Wilson	(228) 654-3210	james.wilson@example.com	789 Walnut Drive, Orlando, FL, 32801
8	Sophia	Miller	(229) 789-0123	sophia.miller@example.com	123 Elm Street, New York, NY, 10001
9	Michael	Taylor	(231) 987-6543	michael.taylor@example.com	654 Chestnut Blvd, Los Angeles, CA, 90001
10	Olivia	Anderson	(231) 555-0199	olivia.anderson@example.com	321 Spruce Avenue, Miami, FL, 33101

Retrieved employees records where position was “sales associate”

The screenshot shows the MySQL Workbench interface. The 'Schemas' pane on the left displays the 'kelvin_automart' database. The 'Table: customers' is still selected. The SQL editor in the center contains the query: `select * from employees where position = "Sales Associate";`. The 'Result Grid' shows 4 rows of employee data. The 'Output' pane at the bottom indicates that 4 rows were returned.

employee_id	employee_name	position	phone_number	email
2	Bob	Sales Associate	(300) 333-4444	bob@example.com
5	Ethan	Sales Associate	(300) 999-0000	ethan@example.com
7	George	Sales Associate	(301) 234-5678	george@example.com
9	Ian	Sales Associate	(301) 456-7890	ian@example.com

Retrieved some information from partsales table by performing joins with employee and customer tables via their relationship keys.

```
“select part_name as SpareName, part_description as About_It, last_name as  
Customer, employee_name as Seller, position, quantity, total_price from  
partsales join spares on spares.part_id=partsales.part_id join customers on  
customers.customer_id= partsales.customer_id  
join employees on employees.employee_id = partsales.employee_id;”
```

The screenshot shows the MySQL Workbench interface. The SQL editor contains the following query:

```
1 select part_name as SpareName, part_description as About_It, last_name as  
2 Customer, employee_name as Seller, position, quantity, total_price from  
3 partsales join spares on spares.part_id=partsales.part_id join customers on  
4 customers.customer_id= partsales.customer_id  
5 join employees on employees.employee_id = partsales.employee_id;
```

The Results Grid displays the following data:

SpareName	About_It	Customer	Seller	position	quantity	total_price
Oil Filter	High-efficiency oil filter	Garcia	Alice	Sales Manager	2	32
Air Filter	Replacement air filter	Johnson	Bob	Sales Associate	1	13
Brake Pads	Front brake pads set	Smith	Charlie	Inventory Manager	4	183
Spark Plugs	Set of 4 spark plugs	Brown	Diana	Customer Service	2	50
Battery	12V car battery	Lee	Ethan	Sales Associate	1	90
Tire	All-season tire	Davis	Fiona	Sales Manager	2	240
Windshield Wiper	Front windshield wiper	Wilson	George	Sales Associate	3	57
Headlight Bulb	Halogen headlight bulb	Miller	Hannah	Inventory Clerk	5	50
Brake Fluid	High-performance brake fluid	Taylor	Ian	Sales Associate	10	105
Fuel Filter	Inline fuel filter	Anderson	Jasmine	Sales Manager	6	120

The left sidebar shows the Schemas tree with the 'kelvin_automart' database selected. The 'employees' table is highlighted in the table list. The bottom status bar shows 'Result 13' and 'Read Only'.

I retrieved data from spares table joining it with suppliers table since they have a relationship.

```
“select part_name as SparePart , price , part_description as Its_Work ,  
supplier_name as Supplier, contact_number as Contact, address from  
spares join suppliers on spares.supplier_id =suppliers.supplier_id;”
```

MySQL Workbench

kelvin - Warning - not support...

File Edit View Query Database Server Tools Scripting Help

Navigator: kelvin - Warning - not support... create_schema_and_tables data_retrieval

SCHEMAS

Filter objects

kelvin_automart

Tables

car

carsales

customers

employees

partsales

spares

suppliers

Views

Stored Procedures

Functions

phpmyadmin

nrtz_hesah

Administration Schemas

Information

Table: suppliers

Columns:

supplier_id int(11) PK

supplier_name varchar(45)

contact_number varchar(45)

email varchar(45)

address varchar(45)

1 select part_name as SparePart , price , part_description as Its_Work ,

2 supplier_name as Supplier, contact_number as Contact, address from

3 spares join suppliers on spares.supplier_id =suppliers.supplier_id;

Result Grid

SparePart	price	Its_Work	Supplier	Contact	address
Oil Filter	16	High-efficiency oil filter	Auto Parts Inc.	(400) 111-1111	123 Auto St, Los Angeles, CA, 90001
Spark Plugs	25	Set of 4 spark plugs	Auto Parts Inc.	(400) 111-1111	123 Auto St, Los Angeles, CA, 90001
Windshield Wiper	19	Front windshield wiper	Auto Parts Inc.	(400) 111-1111	123 Auto St, Los Angeles, CA, 90001
Fuel Filter	20	Inline fuel filter	Auto Parts Inc.	(400) 111-1111	123 Auto St, Los Angeles, CA, 90001
Air Filter	13	Replacement air filter	Quality Cars Ltd.	(400) 222-2222	456 Quality Ave, Chicago, IL, 60601
Battery	90	12V car battery	Quality Cars Ltd.	(400) 222-2222	456 Quality Ave, Chicago, IL, 60601
Headlight Bulb	10	Halogen headlight bulb	Quality Cars Ltd.	(400) 222-2222	456 Quality Ave, Chicago, IL, 60601
Brake Pads	46	Front brake pads set	Spare Parts Co.	(400) 333-3333	789 Spare Blvd, Miami, FL, 33101
Tire	120	All-season tire	Spare Parts Co.	(400) 333-3333	789 Spare Blvd, Miami, FL, 33101
Brake Fluid	11	High-performance brake fluid	Spare Parts Co.	(400) 333-3333	789 Spare Blvd, Miami, FL, 33101

Result 15 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	03:18:44	select part_name as SparePart , price , part_description as Its_Work , supplier_name as Suppl...	10 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQL Additions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Retrieved suppliers' information from suppliers table” **select * from suppliers;”**

MySQL Workbench

kelvin - Warning - not support...

File Edit View Query Database Server Tools Scripting Help

Navigator: kelvin - Warning - not support... create_schema_and_tables data_retrieval

SCHEMAS

Filter objects

kelvin_automart

Tables

car

carsales

customers

employees

partsales

spares

suppliers

Views

Stored Procedures

Functions

phpmyadmin

nrtz_hesah

Administration Schemas

Information

Table: suppliers

Columns:

supplier_id int(11) PK

supplier_name varchar(45)

contact_number varchar(45)

email varchar(45)

address varchar(45)

1 -- Retrieving suppliers information from suppliers table

2 select * from suppliers;

3

Result Grid

supplier_id	supplier_name	contact_number	email	address
1	Auto Parts Inc.	(400) 111-1111	info@autoparts.com	123 Auto St, Los Angeles, CA, 90001
2	Quality Cars Ltd.	(400) 222-2222	contact@qualitycars.com	456 Quality Ave, Chicago, IL, 60601
3	Spare Parts Co.	(400) 333-3333	support@spareparts.com	789 Spare Blvd, Miami, FL, 33101
4	Vehicle Solutions	(400) 444-4444	service@vehiclesolutions.com	321 Vehicle Rd, New York, NY, 10001
5	Speedy Car Supplies	(400) 555-5555	sales@speedycars.com	654 Speedy Ln, Houston, TX, 77001
6	NULL	NULL	NULL	NULL

suppliers 17 x

Output

Action Output

#	Time	Action	Message	Duration / Fetch
1	03:20:58	select * from suppliers LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

SQL Additions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

7. Conclusion

The project successfully implemented the AutoMart Sales and Service Management System (ASSMS) using a structured approach that included ERD design, database schema generation, data insertion, and querying. The results show that the data is accurately represented and can be efficiently manipulated.