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|  | Car Industry Data Warehousing Project  Data Design Document    Version 1.0 |



National University of Computer and Emerging Sciences

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**Group ID**

DW\_F19\_Group01

**Project Team**

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Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| October 5, 2019 | 0.1 | Revision of Integrated ER diagram, identified incomplete attributes in customer and address tables. | Hammad Ikhlaq |
| October 6, 2019 | 0.2 | Finalized Data Mart 1, removed address lines from Customer Dimension | Ahmad Shafique |
| October 8, 2019 | 0.3 | Finalized Data Mart 2 and Data Mart 3, updated data types of Car’s table attributes | Bilal Ashfaq |
| October 9, 2019 | 1.0 | Finalized Data Dictionaries, refined foreign key relations of Parts table | Sajjad Zaidi |

Job Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Job Performed** | **Performed By** | **Job Description** | **Time Taken** |
| Introduction & Project Overview  Data Dictionary of mart 2. | Sajjad Zaidi | Involved introduction and overall description of the project.  and  Detailed data dictionary of Car Service Center data mart | 4 hours 20 minutes |
| Integrated ER diagram  Data Dictionary of source systems | Hammad Iklaq | Combine all the E.R. models into one target system.  and  Detailed data dictionary of source operational systems | 6 hours 30 minutes |
| Logical and physical model of Data mart 2  Logical Model, partial physical model and data dictionary of data mart 3. | Bilal Ashfaq | Design logical and physical model of Car Service Center data mart  and  Design logical and physical model of Car Parts Supplier data mart along with its detailed data dictionary. | 7 hours 10 minutes |
| Partial Physical model of data mart 3  Logical, physical modeling and data dictionary of data mart 1. | Ahmad Shafique | Refine physical model of Car Parts Supplier data mart  and  Design logical and physical model of Car Sales data mart along with its detailed data dictionary. | 7 hours 20 mintues |

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Data Design Document

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# Introduction

## Purpose

The purpose behind making this document is to give a detailed view of the project. It defines each thing and their association with one another. This will provide a deep understanding of the design and implementation to the audience of this document. The audience comprises of developers and users of this data warehouse, and software designers who will add, modify or maintain underlying software which enables end users to use this warehouse to the fullest. We hope, this would give them, useful information and steps, to carry out things. This document provides all the tiny details of data warehousing creation such as normalized design of the data warehouse, dimensional design of the data warehouse.

## Scope

This document covers much of the design ideas and main implementation features of the car industry data warehouse. Section 1.0 provides an introduction of the project, Section 2.0 provides a Project Overview while In Section 3.0 a high level Plan for the project including integrated ER model of target data warehouse and Dimensional models of data mars. There are basically three major business processes or OLTP systems involved in the product development and they are:

* Car Sales
* Car Service Center
* Car parts Supplier

So, all the Strategic information or BI will be done by getting the information from these systems and the Resulting Data warehouse will include the corresponding three Data marts of the data ware house.

This document is aimed to provide necessary information for the users and the developers to guide them for future use or maintenance respectively. This document is aimed to provide the executives a Q&A reference. We have tried to make it clear and understandable containing all needed information. Some very minor information may be not discussed in the document, otherwise it should be considered as a complete design specification document for car industry data warehouse.

## Definitions, Acronyms and Abbreviations

This section shall list all the definitions, acronyms and abbreviations that have been used in the document e.g.

* SRS – Software Requirements Specification
* Q&A – An abbreviation for "Question and Answer."
* GUI – (Graphical User Interface) - a visually based application that serves to provide an interactive medium between the user and the application.
* E-R – Entity-Relationship
* ETL – Extraction, Transformation, Loading (of data for Data warehouse)
* DW – Abbreviation of Data Warehouse
* SRS – Software Requirements Specification
* SDS – Software Design Specifications
* OLTP – Online Transaction Processing Systems (Operational Systems)
* BI – business Intelligence

## References

# Project Overview

## 2.1. Project Description

This project deals with car industry, which sales different kinds of cars, provides car servicing and buys car parts from different suppliers. Our project will help them to analyze their data according to their business questions.

## 2.2. Goals

The goals of the project are categorized as following:

* Building a data warehouse comprising the three systems.
* The system must provide data in such a form, which is readily available for the analysis purpose.
* The system must be optimized for complex queries.
* Getting a clear picture of requirements and that will ultimately lead to a better data warehouse design.

## Scope

The design of the data warehouse will allow executives of car industry to efficiently monitor the business activities of all its sub-businesses and find needed information faster and in form of reports or graphs. Our product aims to improve the user's business efficiency through a well-defined and easy-to-navigate data warehouse.

The scope of the target system mainly covers following business processes.

* Sales and profitability given by products and customers.
* Quality of service provided to customers.
* Efficiency of shipment of car parts by suppliers
* Efficiency of mechanics on our payroll

## 2.4. High Level User Requirements

The required system is a data warehouse system, which is used for business analysis purposes. The major analysis needs are as following:

* Which car is on demand the most?
* How many customers bought a particular car?
* Which car features are most preferred by customers?
* Which manufacture cars mostly came for service?
* Which mechanic resolved cars issues the most?
* Which is the most demanding car part?
* Which car model part is most demanding?
* Who are most valuable car parts suppliers?

## Source System

There are three source systems

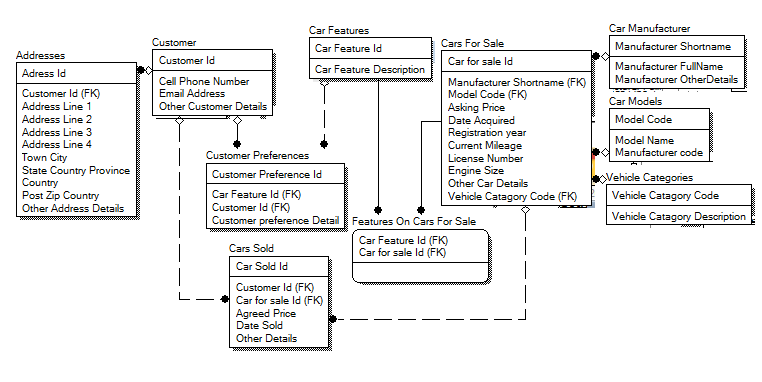
1. Car Sales: This comprises of all the information about the cars being sold and about the customers who buy them

2. Car Service Center: This comprises of all the information about the cars being repaired and parts required to do so. It includes information about mechanics who repairs the car and the defects being repaired in a car.

3. Car parts Supplier: This mainly holds information about parts bought and about vendors from which they were bought.

## 2.5.1 Car Sales information system

# Data Model:



# Data Dictionary:

|  |  |  |  |
| --- | --- | --- | --- |
| **Table name** | Customer | **Database name** | Car Sales Information System |
| **Description** | This will provide information regarding customers. | | |
| **Attributes** | Customer id, Cell Phone Number, Email Address, Other Customer Details | | |
| **Primary keys** | Customer id | | |
| **Foreign keys** | - | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Customer id | It is the unique customer ssn or id | DECIMAL(10) | PK |
| Cell Phone Number | It will tell the contact number of the customer. | CHAR(18) | - |
| Email Address | It will tell the email address of the customer. | CHAR(18) | - |
| Other Customer Details | It will tell the other details of the customer. | CHAR(500) | - |

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Addresses | Database name | Car Sales Information System |
| Description | This will provide information regarding addresses. | | |
| Attributes | Address id, Customer id, Address Line 1,Address Line 2,Address Line 3, Address Line 4, Town City, State Country Province, Country, Post Zip Country, Other Address Details | | |
| Primary keys | Address id | | |
| Foreign keys | Customer id | | |

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|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Address id | It will uniquely store the addresses. | DECIMAL(10) | PK |
| Customer Id | It will store the customer whose address is in the table. | DECIMAL(10) | FK |
| Address Line 1 | provides the information regarding first address of the customer | CHAR(18) | - |
| Address Line 2 | provides the information regarding second address of the customer | CHAR(18) | - |
| Address Line 3 | provides the information regarding third address of the customer | CHAR(18) | - |
| Address Line 4 | provides the information regarding fourth address of the customer | CHAR(18) | - |
| Town City | provides the information regarding town and city | CHAR(18) | - |
| State Country Province | provides the information regarding state, country and province | CHAR(18) | - |
| Country | provides the information regarding country name | CHAR(18) | - |
| Post Zip Country | provides the information regarding zip code | DECIMAL(6) | - |
| Other Address Details | provides extra information regarding address | CHAR(500) | - |

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Customer Preferences | Database name | Car Sales Information System |
| Description | This will provide information regarding the preferences of customers about the car. | | |
| Attributes | Customer Preference Id, Car Feature Id, Customer Id, Customer Preference Detail | | |
| Primary keys | Customer Preference Id | | |
| Foreign keys | Car Feature Id, Customer Id | | |

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|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Customer Preference Id | It will uniquely store the preferences of customers about car. | DECIMAL(10) | PK |
| Car Feature Id | It will store the car feature which a customer demands. | DECIMAL(10) | FK |
| Customer Id | It will store the customer whose preferences is in the table. | DECIMAL(10) | FK |
| Customer Preference Detail | provides the additional information regarding customer’s preference | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Features | Database name | Car Sales Information System |
| Description | This will provide information regarding the features of the car. | | |
| Attributes | Car Feature Id, Car Feature Description | | |
| Primary keys | Car Feature Id | | |
| Foreign keys | - | | |

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|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Car Feature Id | It will uniquely store the features of cars. | DECIMAL(10) | PK |
| Car Feature Description | provides additional information regarding a particular feature | CHAR(500) | - |

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| --- | --- | --- | --- |
| Table name | Features On Car For Sale | Database name | Car Sales Information System |
| Description | This will provide information regarding the features of the car that are for sale. | | |
| Attributes | Car Feature Id, Car for sale Id | | |
| Primary keys | Car Feature Id, Car for sale Id | | |
| Foreign keys | Car Feature Id, Car for sale Id | | |

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|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Car Feature Id | It will uniquely store the features of cars. | DECIMAL(10) | PK, FK |
| Car for sale Id | It will uniquely store the cars that are for sale. | DECIMAL(10) | PK, FK |

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Sold | Database name | Car Sales Information System |
| Description | This will provide information of the sold cars. | | |
| Attributes | Car Sold Id, Customer Id, Car for sale Id, Agreed Price, Data Sold, Other Details | | |
| Primary keys | Car Sold Id | | |
| Foreign keys | Customer Id, Car for sale Id | | |

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|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Car Sold Id | It will store the unique id of sold car. | DECIMAL(10) | PK |
| Customer Id | It will store the customer whose car is in the table. | DECIMAL(10) | FK |
| Car for sale Id | provides the information regarding car. | DECIMAL(10) | FK |
| Agreed Price | provides the price in which the car was sold | FLOAT | - |
| Date Sold | provides the date at which the car was sold | DATE | - |
| Other Details | provides extra information regarding the sold car | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car for Sale | Database name | Car Sales Information System |
| Description | This will provide information about the cars that are for sale. | | |
| Attributes | Car for sale Id, Manufacturer Shortname, Model Code, Asking Price, Date Acquired, Registration year, Current Mileage, License Number, Engine Size, Vehicle Category Code, Other Car Details | | |
| Primary keys | Car for sale Id | | |
| Foreign keys | Manufacturer Shortname, Model Code, Vehicle Category Code | | |

# 

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|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Car for sale Id | It will store the unique id of the car that is for sale. | DECIMAL(10) | PK |
| Manufacturer Shortname | It will store the short name of the car’s manufacturer. | CHAR(18) | FK |
| Model Code | provides the model of the selling car. | CHAR(18) | FK |
| Asking Price | provides the price demnded for the car | FLOAT | - |
| Date Acquired | provides the date at which the car was acquired | DATE | - |
| Registration year | provides the year at which the car was registered | INT | - |
| Current Mileage | provides the information about the current mileage of the car. | FLOAT | - |
| Engine Size | provides the information about the engine size of the car. | INT | - |
| Vehicle Category Code | provides the information about the category of the car | CHAR(18) | FK |
| License Number | provides the license number of the car. | CHAR(18) | - |
| Other Car Details | provides extra information regarding the sold car | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Manufacturer | Database name | Car Sales Information System |
| Description | This will provide information about the manufacturer of the car. | | |
| Attributes | Manufacturer Shortname, Manufacturer Fullname, Manufacturer Other Details | | |
| Primary keys | Manufacturer Shortname | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Manufacturer Shortname | It will uniquely store the short name of a car manufacturer. | CHAR(18) | PK |
| Manufacturer Fullname | It will store the full name of a car manufacturer. | CHAR(18) | - |
| Manufacture Details | provides extra information regarding the car manufacturer | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Models | Database name | Car Sales Information System |
| Description | This will provide information about the Models of the car. | | |
| Attributes | Model Code, Model Name, Manufacturer code | | |
| Primary keys | Model Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Model Code | It will uniquely store the code of a car model. | CHAR(18) | PK |
| Model Name | It will store the name of a car model. | CHAR(18) | - |
| Manufacture code | It will store the code of a car manufacturer. | CHAR(18) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Vehicles Categories | Database name | Car Sales Information System |
| Description | This will provide information about the Categories of the car. | | |
| Attributes | Vehicle Category code, Vehicle Category Description | | |
| Primary keys | Vehicle Category code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Vehicle Category code | It will uniquely store the code of a car category. | CHAR(18) | PK |
| Vehicle Category Description | It will store the description of a car category. | CHAR(18) | - |

## 2.5.2 Car Service Center information system

# Data Model:

# 

**Data Dictionary:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Table name** | Contacts | **Database name** | Car Service Center Information System |
| **Description** | This will provide information regarding the person who has booked for car service. | | |
| **Attributes** | Contact Id, First Name, Middle Name, Last Name, Gender, Email Address, Phone Number, Address Line 1, Address Line 2, Address Line 3, Address Line 4, Town city, State Country Province, Country, Other Details | | |
| **Primary keys** | Contact id | | |
| **Foreign keys** | - | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Contact id | It is the unique customer ssn or id | DECIMAL(10) | PK |
| First Name | It will tell the first name of the person who has booked service. | CHAR(18) | - |
| Middle Name | It will tell the middle name of the person who has booked service. | CHAR(18) | - |
| Last Name | It will tell the last name of the person who has booked service. | CHAR(18) | - |
| Phone Number | It will tell the contact number of the person who has booked service. | CHAR(18) | - |
| Address Line 1 | provides the information regarding first address of the customer | CHAR(18) | - |
| Address Line 1 | provides the information regarding first address of the customer | CHAR(18) | - |
| Address Line 2 | provides the information regarding second address of the customer | CHAR(18) | - |
| Address Line 3 | provides the information regarding third address of the customer | CHAR(18) | - |
| Address Line 4 | provides the information regarding fourth address of the customer | CHAR(18) | - |
| Town City | provides the information regarding town and city | CHAR(18) | - |
| State Country Province | provides the information regarding state, country and province | CHAR(18) | - |
| Country | provides the information regarding country name | CHAR(18) | - |
| Email Address | It will tell the email address of the person who has booked service. | CHAR(18) | - |
| OtherDetails | It will tell the other details of the person who has booked service. | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Manufacturer | Database name | Car Service Center Information System |
| Description | This will provide information about the manufacturer of the car. | | |
| Attributes | Car Manufacturer Code, Manufacturer name, Manufacturer Other Details | | |
| Primary keys | Car Manufacturer Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Car Manufacturer Code | It will uniquely store the code of a car manufacturer. | CHAR(18) | PK |
| Manufacturer name | It will store the name of a car manufacturer. | CHAR(18) | - |
| Manufacture Details | provides additional information regarding the car manufacturer | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Models | Database name | Car Service Center Information System |
| Description | This will provide information about the Models of the car. | | |
| Attributes | Model Code, Model Name, Car Manufacturer code, Other Details | | |
| Primary keys | Model Code | | |
| Foreign keys | Car Manufacturer code | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Model Code | It will uniquely store the code of a car model. | CHAR(18) | PK |
| Model Name | It will store the name of a car model. | CHAR(18) | - |
| Car Manufacture code | It will store the code of a car manufacturer. | CHAR(18) | FK |
| Other Details | provides additional information regarding the car model | CHAR(500) | - |

# 

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Cars | Database name | Car Service Center Information System |
| Description | This will provide information of the cars. | | |
| Attributes | License number, Car Year of manufacture, Model Code, Customer id, Current Mileage, Engine Size, Other Car Details | | |
| Primary keys | License number | | |
| Foreign keys | Model Code | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| License number | It will uniquely store the license number of a car. | CHAR(18) | PK |
| Year of manufacture | It will store the year in which the car manufactured. | INT | - |
| Model code | It will store the code of a car model. | CHAR(18) | FK |
| Customer id | It will store the customer of the car. | DECIMAL(10) | - |
| Current Mileage | It will store the current mileage of the car. | INT | - |
| Other Car Details | provides additional information regarding the car | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Defects | Database name | Car Service Center Information System |
| Description | This will provide information of the defects of the car. | | |
| Attributes | Defect Id, License number, Defect Description,Car Defect Reported, , Other Details | | |
| Primary keys | Defect Id | | |
| Foreign keys | License number | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Defect Id | It will uniquely store the Id of a car’s defect. | DECIMAL(10) | PK |
| License number | It will uniquely store the license number of a car. | CHAR(18) | FK |
| Defect Description | Provides description about the defect | CHAR(18) | - |
| Car Defect reported | It will store the reported defect of the car. | CHAR(18) | - |
| Other Details | provides additional information regarding the defect | CHAR(500) | - |

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Service Bookings | Database name | Car Service Center Information System |
| Description | This will provide information of the Service Booking of the car. | | |
| Attributes | Booking Id, Contact Id, , License number, Date of Booking, Booking Details | | |
| Primary keys | Booking Id | | |
| Foreign keys | Contact Id, License number | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Booking Id | It will uniquely store the Id of a car’s Booking. | DECIMAL(10) | PK |
| Customer id | It will store the customer of the car. | DECIMAL(10) | FK |
| License number | It will uniquely store the license number of a car. | CHAR(18) | FK |
| Date of Booking | Provides date of the booking | DATE | - |
| Booking Details | provides additional information regarding car’s booking | CHAR(500) | - |

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Parts | Database name | Car Service Center Information System |
| Description | This will provide information of the parts of the car. | | |
| Attributes | Part Id, Part Name, Parent Part id, Part Description, Number in Stocks, Weight, Condition, Mileage Donor Vehicle, Other Details | | |
| Primary keys | Part Id | | |
| Foreign keys | - | | |

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| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Part Id | It will uniquely store the Id of a car’s part. | DECIMAL(10) | PK |
| Part Name | It will store the name of the car’s part. | CHAR(18) | - |
| Parent Part Id | It will store the id of a car’s parent part. | DECIMAL(10) | - |
| Part Description | Provides description of the part | CHAR(18) | - |
| Number in Stock | It will store the number of the car’s part in stock. | INT | - |
| Weight | It will store the weight of the car’s part. | FLOAT | - |
| Condition | It will store the condition of the car’s part. | CHAR(18) | - |
| Other Details | provides additional information regarding car’s part | CHAR(500) | - |

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| --- | --- | --- | --- |
| Table name | Parts Order List | Database name | Car Service Center Information System |
| Description | This will provide information of the list of booked parts of the car. | | |
| Attributes | Booking Id, Part Id | | |
| Primary keys | Booking Id | | |
| Foreign keys | Booking Id, Part Id | | |

# 

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| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Booking Id | It will store the Id of a car’s part booking. | DECIMAL(10) | PK, FK |
| Part Id | It will store the id of a car’s part. | DECIMAL(10) | PK, FK |

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|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Mechanics | Database name | Car Service Center Information System |
| Description | This will provide information of the mechanic of the car. | | |
| Attributes | Mechanic Id, Mechanic Name, Mechanic Details, | | |
| Primary keys | Mechanic Id | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Mechanic Id | It will store the Id of a car’s mechanic. | DECIMAL(10) | PK |
| Mechanic Name | It will store the name of a car’s mechanic. | CHAR(18) | - |
| Mechanic Details | It will store the details of a car’s mechanic. | CHAR(500) | - |

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| --- | --- | --- | --- |
| Table name | Mechanic on Services | Database name | Car Service Center Information System |
| Description | This will provide information of booked mechanic of the car. | | |
| Attributes | Booking Id, Mechanic Id | | |
| Primary keys | Booking Id | | |
| Foreign keys | Booking Id, Mechanic Id | | |

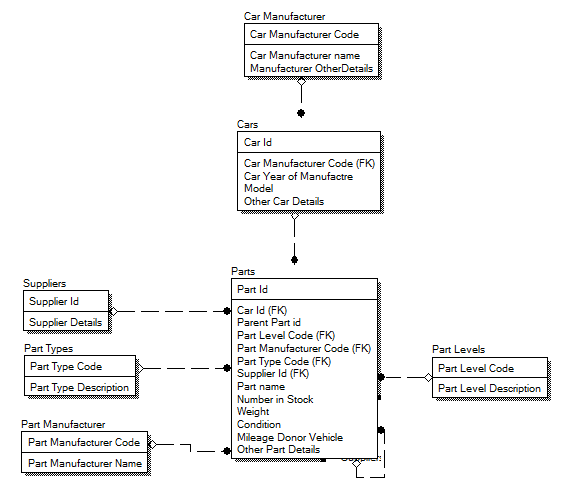
# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Booking Id | It will store the Id of a car’s mechanic booking. | DECIMAL(10) | PK, FK |
| Mechanic Id | It will store the id of a car’s mechanic. | DECIMAL(10) | PK, FK |

## 

## 2.5.3 Car Part Supplier information system

# Data Model:



**Data Dictionary:**

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Parts | Database name | Car Service Center Information System |
| Description | This will provide information of the parts of the car. | | |
| Attributes | Part Id, Parent Part id, Car Id, Part Level Code, Part Manufacturer Code, Part Type Code, Supplier Id, Part name, Number in Stocks, Weight, Condition, Mileage Donor Vehicle, Other Part Details | | |
| Primary keys | Part Id | | |
| Foreign keys | Car Id, Part Level Code, Part Manufacturer Code, Part Type Code, Supplier Id | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Part Id | It will uniquely store the Id of a car’s part. | DECIMAL(10) | PK |
| Part Name | It will store the name of the car’s part. | CHAR(18) | - |
| Car Id | It will uniquely store the Id of a car. | DECIMAL(10) | FK |
| Parent Part Id | It will store the id of a car’s parent part. | DECIMAL(10) | FK |
| Part Level Code | Provides description of the part’s level | CHAR(18) | FK |
| Part Manufacturer code | Provides description of the part’s manufacturer | CHAR(18) | FK |
| Part Type Code | Provides description of the part’s type | CHAR(18) | FK |
| Supplier Id | Provides description of the part’s supplier | DECIMAL(10) | FK |
| Number in Stock | It will store the number of the car’s part in stock. | INT | - |
| Weight | It will store the weight of the car’s part. | FLOAT | - |
| Condition | It will store the condition of the car’s part. | CHAR(18) | - |
| Other Details | provides additional information regarding car’s part | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Cars | Database name | Car Part Supplier Information System |
| Description | This will provide information about the cars that are associated with specific parts. | | |
| Attributes | Car Id, Car Manufacturer Code, Model, Car year of Manufacture, Other Car Details | | |
| Primary keys | Car Id | | |
| Foreign keys | Car Manufacturer Code | | |

# 

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Car Id | It will store the unique id of the car whose parts are given. | DECIMAL(10) | PK |
| Manufacturer Code | It will store the code of the car’s manufacturer. | CHAR(18) | FK |
| Model | provides the model of the associate car. | CHAR(18) | - |
| Car year of Manufacture | provides the year at which the car was manufactured | INT | - |
| Other Car Details | provides extra information regarding the car | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Car Manufacturer | Database name | Car Part Supplier Information System |
| Description | This will provide information about the manufacturer of the car. | | |
| Attributes | Car Manufacturer Code, Manufacturer name, Manufacturer Other Details | | |
| Primary keys | Car Manufacturer Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Manufacturer Code | It will uniquely store the code of a car manufacturer. | CHAR(18) | PK |
| Manufacturer name | It will store the name of a car manufacturer. | CHAR(18) | - |
| Manufacture Other Details | provides extra information regarding the car manufacturer | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Supplier | Database name | Car Part Supplier Information System |
| Description | This will provide information about the supplier of the car’s part. | | |
| Attributes | Supplier Id, Supplier Details | | |
| Primary keys | Supplier Id | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Supplier Id | It will uniquely store the id of a car supplier. | DECIMAL(10) | PK |
| Supplier Details | provides extra information regarding the car’s part supplier | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Part Types | Database name | Car Part Supplier Information System |
| Description | This will provide information about the supplier of the car’s part types. | | |
| Attributes | Part Type Code, Part Type Description | | |
| Primary keys | Part Type Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Part Type Code | It will uniquely store the id of a car part type. | DECIMAL(10) | PK |
| Part Type Description | provides extra information regarding the car’s part type | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Part Manufacturer | Database name | Car Part Supplier Information System |
| Description | This will provide information about the supplier of the car’s part manufacturer. | | |
| Attributes | Part Manufacturer Code, Part Manufacturer Name | | |
| Primary keys | Part Manufacturer Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Part Manufacturer Code | It will uniquely store the id of a car’s part manufacturer. | CHAR(18) | PK |
| Part Manufacturer Name | provides name of the car’s part manufacturer | CHAR(18) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Part Types | Database name | Car Part Supplier Information System |
| Description | This will provide information about the supplier of the car’s part types. | | |
| Attributes | Part Type Code, Part Type Description | | |
| Primary keys | Part Type Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Part Type Code | It will uniquely store the id of a car part type. | DECIMAL(10) | PK |
| Part Type Description | provides extra information regarding the car’s part type | CHAR(500) | - |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Table name | Part Levels | Database name | Car Part Supplier Information System |
| Description | This will provide information about the supplier of the car’s part Levels. | | |
| Attributes | Part Level Code, Part Level Description | | |
| Primary keys | Part Level Code | | |
| Foreign keys | - | | |

# 

|  |  |  |  |
| --- | --- | --- | --- |
| Attribute Name | Description | Data type | Domain Constraint |
| Part Level Code | It will uniquely store the id of a car’s part level. | CHAR(18) | PK |
| Part Level Description | provides additional information regarding the car’s levels | CHAR(500) | - |

# 

# Data Marts Design

## Car Sales Data Mart

* + 1. **Logical Model**

Customer Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Customer id | It is the unique customer ssn or id | 4215125622 |
| First name | It is the first name of customer | Thomas |
| Middle name | It is the middle name of customer | Nicholas |
| Last name | It is the last name of customer | Edison |
| Gender | It is the gender of customer | M |
| Email address | It will tell the email address of the customer. | tnedison@email.com |
| phone number | It will tell the contact number of the customer. | 00923659587845 |
| Address Line 1 | provides the information regarding first address of the customer | House #14, Street #7 |
| Address Line 2 | provides the information regarding second address of the customer | House #15, Street #7 |
| Address Line 3 | provides the information regarding third address of the customer | House #16, Street #7 |
| Address Line 4 | provides the information regarding fourth address of the customer | House #17, Street #7 |
| Town id | provides the information regarding town id | 24 |
| City id | provides the information regarding city id | 042 |
| State | provides the information regarding state | Lahore |
| County | provides the information regarding county | DHA |
| Province id | provides the information regarding province | 2 |
| Country | provides the information regarding country name | Pakistan |
| Postal code | provides the information regarding postal zip code | 54700 |
| Other Details | provides extra information regarding customer |  |

Customer Preferences Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Customer Preference Id | It will uniquely store the preferences of customers about car. | 1233265 |
| Car Feature Id | It will store the car feature which a customer demands. | 123 |
| Customer Id | It will store the customer whose preferences is in the table. | 4215125622 |
| Customer Preference Detail | provides the additional information regarding customer’s preference |  |

Car Feature Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Car Feature Id | It will uniquely store the features of cars. | 123 |
| Car Feature Description | provides additional information regarding a particular feature | Air conditioning |

Features on Cars for Sale Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Car Feature Id | It will uniquely store the features of cars. | 123 |
| Car for sale Id | It will uniquely store the cars that are for sale. | 75 |

Cars Sold Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Car Sold Id | It will store the unique id of sold car. | 7465 |
| Customer Id | It will store the customer id to whom car is sold. | 4215125622 |
| Car for sale Id | provides the information regarding car. | 75 |
| Agreed Price | provides the price in which the car was sold in rupees | 1200000 |
| Date Sold | provides the date at which the car was sold | 11-11-2019 |
| Other Details | provides extra information regarding the sold car |  |

Cars for Sale Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Car for sale Id | It will store the unique id of the car that is for sale. | 4215125622 |
| Manufacturer Shortname | It will store the short name of the car’s manufacturer. | Toyota |
| Model Code | provides the model of the selling car. | 4 |
| Asking Price | provides the price demnded for the car | 1300000 |
| Date Acquired | provides the date at which the car was acquired | 15-04-2019 |
| Registration year | provides the year at which the car was registered | 2019 |
| Current Mileage | provides the information about the current mileage of the car. | 7156 |
| Vehicle Category Code | provides the information about the category of the car | 3 |
| Other Car Details | provides extra information regarding the sold car |  |

Car Manufacturer Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Manufacturer Shortname | It will uniquely store the short name of a car manufacturer. | Toyota |
| Manufacturer Fullname | It will store the full name of a car manufacturer. | Toyota Motor Corporation |
| Manufacture Details | provides extra information regarding the car manufacturer | A Japanese multinational automotive manufacturer headquartered in Toyota, Aichi, Japan |

Car Models Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Model Code | It will uniquely store the code of a car model. | 4 |
| Model Name | It will store the name of a car model. | XLi |
| Manufacturer code | It will store the code of a car manufacturer. | Toyota |
| Other Details | provides extra information regarding the sold car |  |

Vehicle Categories Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Vehicle Category code | It will uniquely store the code of a car category. | 3 |
| Vehicle Category Description | It will store the description of a car category. | Sedan |

Time Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Day | It keeps the value of a particular day | Saturday |
| Week | It keeps the value of a particular week | Week1 |
| Month | It keeps the value of a particular month | June |
| Quarter | It keeps the value of a particular Quarter | Second Quarter |
| Year | It keeps the value of a particular Year | 2007 |

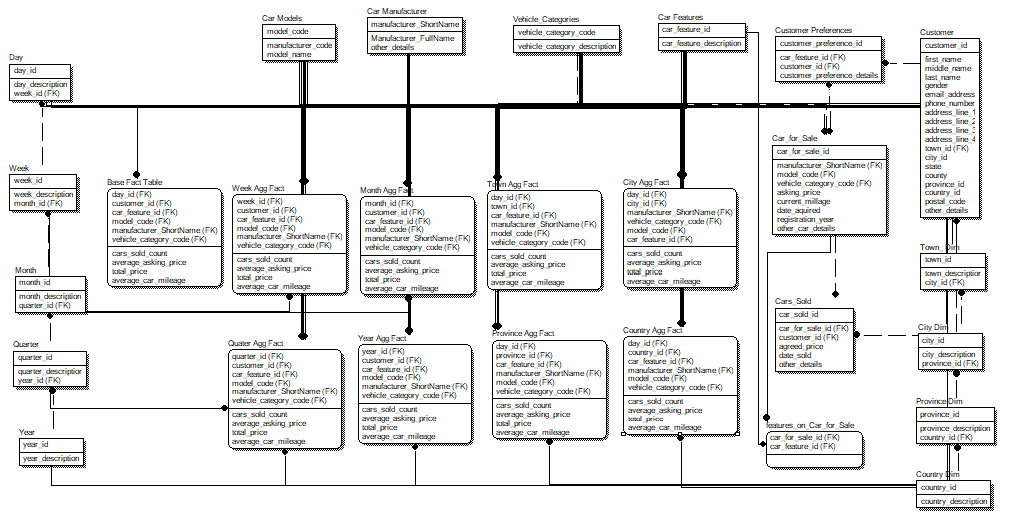
Location Dimension

|  |  |  |
| --- | --- | --- |
| **Attribute Name** | **Description** | **Sample Values** |
| Town | It keeps the value of a particular town | Johar Town |
| City | It keeps the value of a particular city | Lahore |
| Province | It keeps the value of a particular province | Punjab |
| Country | It keeps the value of a particular country | Pakistan |

Car Sales Fact

|  |  |  |
| --- | --- | --- |
| **Fact Name** | **Description** | **Default Aggregation rule** |
| Cars sold count | It will be the count of cars sold | One-Way |
| Average asking price | It will be the average price asked for cars that were sold | One-Way |
| Total price | It will be the total amount of cars that were sold | One-Way |
| Average car mileage | It will be average mileage of cars that were sold | One-Way |

**3.1.2. Physical Model**



**3.1.3. Data Dictionary:**

Customer Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Customer | **Database name** | Car Sales Information System |
| **Description** | This will provide information regarding customers. | | |
| **Attributes** | customer  id, first name, middle name, last name, gender, email address, phone number, address line 1, address line 2, address line 3, address line 4, town id, city id, state, county, province id, country id, postal code, other details | | |
| **Primary keys** | customer id | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Base Fact Table, Weekly Agg Fact Table, Monthly Agg Fact Table, Quarter Agg Fact Table, Yearly Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Customer  id** | It is the unique customer ssn or id | DECIMAL(10) | PK |
| **First name** | It is the first name of customer | CHAR(18) | - |
| **Middle name** | It is the middle name of customer | CHAR(18) | - |
| **Last name** | It is the last name of customer | CHAR(18) | - |
| **Gender** | It is the gender of customer | CHAR (1) | - |
| **Email address** | It will tell the email address of the customer. | CHAR (50) | - |
| **phone number** | It will tell the contact number of the customer. | CHAR(18) | - |
| **Address Line 1** | provides the information regarding first address of the customer | CHAR(18) | - |
| **Address Line 2** | provides the information regarding second address of the customer | CHAR(18) | - |
| **Address Line 3** | provides the information regarding third address of the customer | CHAR(18) | - |
| **Address Line 4** | provides the information regarding fourth address of the customer | CHAR(18) | - |
| **Town id** | provides the information regarding town id | DECIMAL(10) | - |
| **City id** | provides the information regarding city id | DECIMAL(10) | - |
| **State** | provides the information regarding state | CHAR(18) | - |
| **County** | provides the information regarding county | CHAR(18) | - |
| **Province id** | provides the information regarding province | DECIMAL(10) | - |
| **Country** | provides the information regarding country name | CHAR(18) | - |
| **Postal code** | provides the information regarding postal zip code | DECIMAL(6) | - |
| **Other Details** | provides extra information regarding customer | CHAR(500) | - |

Customer Preferences Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Customer Preferences | **Database name** | Car Sales Information System |
| **Description** | This will provide information regarding the preferences of customers about the car. | | |
| **Attributes** | Customer Preference Id, Car Feature Id, Customer Id, Customer Preference Detail | | |
| **Primary keys** | Customer Preference Id | | |
| **Foreign keys** | Car Feature Id, Customer Id | | |
| **Associated Fact Tables** | - | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Customer Preference Id** | It will uniquely store the preferences of customers about car. | DECIMAL(10) | PK |
| **Car Feature Id** | It will store the car feature which a customer demands. | DECIMAL(10) | FK |
| **Customer Id** | It will store the id of customer whose preferences is in the table. | DECIMAL(10) | FK |
| **Customer Preference Detail** | provides the additional information regarding customer’s preference | CHAR(500) | - |

Car Features Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Car Features | **Database name** | Car Sales Information System |
| **Description** | This will provide information regarding the features of the car. | | |
| **Attributes** | Car Feature Id, Car Feature Description | | |
| **Primary keys** | Car Feature Id | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Base Fact Table, Weekly Agg Fact Table, Monthly Agg Fact Table, Quarter Agg Fact Table, Yearly Agg Fact Table, Town Agg Fact Table, City Agg Fact Table, Province Agg Fact Table, Country Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | PK |
| **Car Feature Description** | provides additional information regarding a particular feature | CHAR(500) | - |

Features on Cars for Sale Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Features On Car For Sale | **Database name** | Car Sales Information System |
| **Description** | This will provide information regarding the features of the car that are for sale. | | |
| **Attributes** | Car Feature Id, Car for sale Id | | |
| **Primary keys** | Car Feature Id, Car for sale Id | | |
| **Foreign keys** | Car Feature Id, Car for sale Id | | |
| **Associated Fact Tables** | - | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | PK, FK |
| **Car for sale Id** | It will uniquely store the cars that are for sale. | DECIMAL(10) | PK, FK |

Cars Sold Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Car Sold | **Database name** | Car Sales Information System |
| **Description** | This will provide information of the sold cars. | | |
| **Attributes** | Car Sold Id, Customer Id, Car for sale Id, Agreed Price, Date Sold, Other Details | | |
| **Primary keys** | Car Sold Id | | |
| **Foreign keys** | Customer Id, Car for sale Id | | |
| **Associated Fact Tables** | - | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Car Sold Id** | It will store the unique id of sold car. | DECIMAL(10) | PK |
| **Customer Id** | It will store the id of customer whose car is in the table. | DECIMAL(10) | FK |
| **Car for sale Id** | provides the information regarding car. | DECIMAL(10) | FK |
| **Agreed Price** | provides the price in which the car was sold | FLOAT | - |
| **Date Sold** | provides the date at which the car was sold | DATE | - |
| **Other Details** | provides extra information regarding the sold car | CHAR(500) | - |

Cars for Sale Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Car for Sale | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the cars that are for sale. | | |
| **Attributes** | Car for sale Id, Manufacturer Shortname, Model Code, Asking Price, Date Acquired, Registration year, Current Mileage, Vehicle Category Code, Other Car Details | | |
| **Primary keys** | Car for sale Id | | |
| **Foreign keys** | Manufacturer Shortname, Model Code, Vehicle Category Code | | |
| **Associated Fact Tables** | - | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Car for sale Id** | It will store the unique id of the car that is for sale. | DECIMAL(10) | PK |
| **Manufacturer Shortname** | It will store the short name of the car’s manufacturer. | CHAR(18) | FK |
| **Model Code** | provides the model of the selling car. | CHAR(18) | FK |
| **Asking Price** | provides the price demnded for the car | FLOAT | - |
| **Date Acquired** | provides the date at which the car was acquired | DATE | - |
| **Registration year** | provides the year at which the car was registered | INT | - |
| **Current Mileage** | provides the information about the current mileage of the car. | FLOAT | - |
| **Vehicle Category Code** | provides the information about the category of the car | CHAR(18) | FK |
| **Other Car Details** | provides extra information regarding the sold car | CHAR(500) | - |

Car Manufacturer Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Car Manufacturer | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the manufacturer of the car. | | |
| **Attributes** | Manufacturer Shortname, Manufacturer Fullname, Manufacturer Other Details | | |
| **Primary keys** | Manufacturer Shortname | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Base Fact Table, Weekly Agg Fact Table, Monthly Agg Fact Table, Quarter Agg Fact Table, Yearly Agg Fact Table, Town Agg Fact Table, City Agg Fact Table, Province Agg Fact Table, Country Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | PK |
| **Manufacturer Fullname** | It will store the full nameof a car manufacturer. | CHAR(18) | - |
| **Manufacture Details** | provides extra information regarding the car manufacturer | CHAR(500) | - |

Car Models Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Car Models | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the Models of the car. | | |
| **Attributes** | Model Code, Model Name, Manufacturer code | | |
| **Primary keys** | Model Code | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Base Fact Table, Weekly Agg Fact Table, Monthly Agg Fact Table, Quarter Agg Fact Table, Yearly Agg Fact Table, Town Agg Fact Table, City Agg Fact Table, Province Agg Fact Table, Country Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | PK |
| **Model Name** | It will store the nameof a car model. | CHAR(18) | - |
| **Manufacture code** | It will store the codeof a car manufacturer. | CHAR(18) | - |

Vehicle Categories Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Vehicles Categories | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the Categories of the car. | | |
| **Attributes** | Vehicle Category code, Vehicle Category Description | | |
| **Primary keys** | Vehicle Category code | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Base Fact Table, Weekly Agg Fact Table, Monthly Agg Fact Table, Quarter Agg Fact Table, Yearly Agg Fact Table, Town Agg Fact Table, City Agg Fact Table, Province Agg Fact Table, Country Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Vehicle Category code** | It will uniquely store the codeof a car category. | CHAR(18) | PK |
| **Vehicle Category Description** | It will store the description of a car category. | CHAR(18) | - |

Day Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Day | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the Day on which cars are sold. | | |
| **Attributes** | Day id, Day description, Week id | | |
| **Primary keys** | Day id | | |
| **Foreign keys** | Week id | | |
| **Associated Fact Tables** | Base Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Day id** | It will uniquely store the id of a day | DECIMAL(5) | PK |
| **Day Description** | It will store the description of a day. | CHAR(18) | - |
| **Week id** | It will uniquely store the id of a week | DECIMAL(5) | FK |

Week Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Week | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the week in which cars are sold. | | |
| **Attributes** | Week id, Week description, Month id | | |
| **Primary keys** | Week id | | |
| **Foreign keys** | Month id | | |
| **Associated Fact Tables** | Weekly Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Week id** | It will uniquely store the id of a week | DECIMAL(5) | PK |
| **Week Description** | It will store the description of a week. | CHAR(18) | - |
| **Month id** | It will uniquely store the id of a month | DECIMAL(5) | FK |

Month Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Month | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the month in which cars are sold. | | |
| **Attributes** | Month id, Month description, Quarter id | | |
| **Primary keys** | Month id | | |
| **Foreign keys** | Quarter id | | |
| **Associated Fact Tables** | Monthly Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Month id** | It will uniquely store the id of a month | DECIMAL(5) | PK |
| **Month Description** | It will store the description of a month. | CHAR(18) | - |
| **Quarter id** | It will uniquely store the id of a quarter | DECIMAL(5) | FK |

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Quarter | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the Quarter in which cars are sold. | | |
| **Attributes** | Quarter id, Quarter description, Year id | | |
| **Primary keys** | Quarter id | | |
| **Foreign keys** | Year id | | |
| **Associated Fact Tables** | Quarter Agg Fact Table | | |

Quarter Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Quarter id** | It will uniquely store the id of a quarter | DECIMAL(5) | PK |
| **Quarter Description** | It will store the description of a quarter. | CHAR(18) | - |
| **Year id** | It will uniquely store the id of a year | DECIMAL(5) | FK |

Year Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Year | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the Day on which cars are sold. | | |
| **Attributes** | Year id, Year description | | |
| **Primary keys** | Year id | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Yearly Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Year id** | It will uniquely store the id of a year | DECIMAL(5) | PK |
| **Year Description** | It will store the description of a year. | CHAR(18) | - |

Town Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Town Dim | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the town in which cars are sold. | | |
| **Attributes** | Town id, Town description, City id | | |
| **Primary keys** | Town id | | |
| **Foreign keys** | City id | | |
| **Associated Fact Tables** | Town Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Town id** | It will uniquely store the id of a town | DECIMAL(5) | PK |
| **Town Description** | It will store the description of a town. | CHAR(18) | - |
| **City id** | It will uniquely store the id of a city | DECIMAL(5) | FK |

City Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | City Dim | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the city in which cars are sold. | | |
| **Attributes** | City id, City description, Province id | | |
| **Primary keys** | City id | | |
| **Foreign keys** | Province id | | |
| **Associated Fact Tables** | City Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **City id** | It will uniquely store the id of a city | DECIMAL(5) | PK |
| **City Description** | It will store the description of a city. | CHAR(18) | - |
| **Province id** | It will uniquely store the id of a province | DECIMAL(5) | FK |

Province Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Province Dim | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the province in which cars are sold. | | |
| **Attributes** | Province id, Province description, Country id | | |
| **Primary keys** | Province id | | |
| **Foreign keys** | Country id | | |
| **Associated Fact Tables** | Province Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Province id** | It will uniquely store the id of a province | DECIMAL(5) | PK |
| **Province Description** | It will store the description of a province. | CHAR(18) | - |
| **Country id** | It will uniquely store the id of a country | DECIMAL(5) | FK |

Country Dimension

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Country Dim | **Database name** | Car Sales Information System |
| **Description** | This will provide information about the country in which cars are sold. | | |
| **Attributes** | Country id, Country description | | |
| **Primary keys** | Country id | | |
| **Foreign keys** | - | | |
| **Associated Fact Tables** | Country Agg Fact Table | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Country id** | It will uniquely store the id of a country | DECIMAL(5) | PK |
| **Country Description** | It will store the description of a country. | CHAR(18) | - |

Base Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Base Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the base fact table | | |
| **Attributes** | Day id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Day id | | |
| **Foreign keys** | Day id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Customer, Day, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Day id** | It will uniquely store the id of a day | DECIMAL(5) | PK, FK |
| **Customer  id** | It is the unique customer ssn or id | DECIMAL(10) | FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Weekly Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Weekly Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the weekly aggregate fact table | | |
| **Attributes** | Week id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Week id | | |
| **Foreign keys** | Week id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Customer, Week, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Week id** | It will uniquely store the id of a week | DECIMAL(5) | PK, FK |
| **Customer  id** | It is the unique customer ssn or id | DECIMAL(10) | FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Monthly Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Monthly Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the monthly aggregate fact table | | |
| **Attributes** | Month id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Month id | | |
| **Foreign keys** | Month id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Customer, Month, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Month id** | It will uniquely store the id of a month | DECIMAL(5) | PK, FK |
| **Customer  id** | It is the unique customer ssn or id | DECIMAL(10) | FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Quarterly Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Quarterly Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the quarterly aggregate fact table | | |
| **Attributes** | Quarter id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Primary keys** | Quarter id | | |
| **Foreign keys** | Quarter id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Customer, Quarter, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Quarter id** | It will uniquely store the id of a quarter | DECIMAL(5) | PK, FK |
| **Customer  id** | It is the unique customer ssn or id | DECIMAL(10) | FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Yearly Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Yearly Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the yearly aggregate fact table | | |
| **Attributes** | Year id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Year id | | |
| **Foreign keys** | Year id, Customer id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Customer, Year, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Year id** | It will uniquely store the id of a year | DECIMAL(5) | PK, FK |
| **Customer  id** | It is the unique customer ssn or id | DECIMAL(10) | FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Town Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Town Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the daily town aggregate fact table | | |
| **Attributes** | Day id, Town id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Day id, Town id | | |
| **Foreign keys** | Day id, Town id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Town, Day, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Town id** | It will uniquely store the id of a town | DECIMAL(5) | PK, FK |
| **Day id** | It will uniquely store the id of a day | DECIMAL(5) | PK, FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

City Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | City Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the daily city aggregate fact table | | |
| **Attributes** | Day id, City id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Day id, City id | | |
| **Foreign keys** | Day id, City id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | City, Day, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **City id** | It will uniquely store the id of a city | DECIMAL(5) | PK, FK |
| **Day id** | It will uniquely store the id of a day | DECIMAL(5) | PK, FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Province Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Province Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the daily province aggregate fact table | | |
| **Attributes** | Day id, Province id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Day id, Province id | | |
| **Foreign keys** | Day id, Province id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Province, Day, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Province id** | It will uniquely store the id of a province | DECIMAL(5) | PK, FK |
| **Day id** | It will uniquely store the id of a day | DECIMAL(5) | PK, FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

Country Aggregate Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Fact Table name** | Country Agg Fact Table | **Database name** | Car Sales Information System |
| **Description** | This is the daily country aggregate fact table | | |
| **Attributes** | Day id, Country id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code, Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Primary keys** | Day id, Country id | | |
| **Foreign keys** | Day id, Country id, Car feature id, Model code, Manufacturer ShortName, Vehicle category code | | |
| **Facts/ Measures** | Cars sold count, Average asking price, Total price, Average car mileage | | |
| **Associated Dimensions** | Country, Day, Car Features, Car Models, Car Manufacturer, Vehicle categories | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute Name** | **Description** | **Data type** | **Domain Constraint** |
| **Country id** | It will uniquely store the id of a country | DECIMAL(5) | PK, FK |
| **Day id** | It will uniquely store the id of a day | DECIMAL(5) | PK, FK |
| **Car Feature Id** | It will uniquely store the features of cars. | DECIMAL(10) | FK |
| **Model Code** | It will uniquely store the codeof a car model. | CHAR(18) | FK |
| **Manufacturer Shortname** | It will uniquely store the short nameof a car manufacturer. | CHAR(18) | FK |
| **Vehicle Category code** | It will uniquely store the code of a car category. | CHAR(18) | FK |
| **Cars sold count** | It will be the count of cars sold | DECIMAL(5) | - |
| **Average asking price** | It will be the average price asked for cars that were sold | DECIMAL(10) | - |
| **Total price** | It will be the total amount of cars that were sold | DECIMAL(10) | - |
| **Average car mileage** | It will be average mileage of cars that were sold | DECIMAL(5) | - |

## Car Service Data Mart

### **Logical Model**

#### Day Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| day\_id  day\_description  week\_id | It keeps the primary key value of a particular row  It keeps the value of a particular day  It is the foreign key to week dimension | 5  Saturday  2 |

#### Week Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| week\_id  week\_description  month\_id | It keeps the primary key value of a particular row  It keeps the value of a particular week  It is the foreign key to month dimension | 2  Week1  8 |

#### Month Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| month\_id  month\_description  quarter\_id | It keeps the primary key value of a particular row  It keeps the value of a particular month  It is the foreign key to quarter dimension | 9  June  3 |

#### Quarter Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| quarter\_id  quarter\_description  year\_id | It keeps the primary key value of a particular row  It keeps the value of a particular week  It is the foreign key to week dimension | 3  Third Quarter  13 |

#### Year Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| year\_id  year \_description | It keeps the primary key value of a particular row  It keeps the value of a particular year | 5  2019 |

**Hierarchy:**

Day

Week

Month

Quarter

Year

Customer dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| first\_name | Customer first name | Chandler |
| middle name | Customer Last name | Muriel |
| last\_name | When the customer did his first purchase. | Bing |
| gender | Male/Female | M/F |
| email\_address | It keeps email id of the customer | ali.tahir@arbisoft.com |
| marital\_status | It keeps marital status of the customer. | S/M |
| town\_id | It keeps the foreign key to the town dimension. | 23 |
|  |  |  |

Town dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| town\_id  town \_description  city\_id | It keeps the primary key value of a particular row  It keeps the value of a particular town  It is the foreign key to city dimension | 5  Ali Ghar  45 |

City dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| city\_id  city \_description  province\_id | It keeps the primary key value of a particular row  It keeps the value of a particular city  It is the foreign key to province dimension | 12  Lahore  3 |

Province dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| province\_id  province \_description  country\_id | It keeps the primary key value of a particular row  It keeps the value of a particular province.  It is the foreign key to city dimension | 5  Punjab  7 |

Country dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| country\_id  country \_description | It keeps the primary key value of a particular row  It keeps the value of a particular country | 5  Pakistan |

**Hierarchy:**

Customer

Town

City

Province

Country

Part dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| part\_id | It keeps the primary key value of a particular row | 45454 |
| part\_name | It keeps the name of part. | Tire |
| part\_description | It keeps description about the part. | Diamond Tire small size |
| number\_in\_stock | It keeps the stock number of the part | 44 |
| other\_detais | Additional information about the part |  |

Defect dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| defect\_id | It keeps the primary key value of a particular row | 234 |
| defect\_description | It keeps description about the defect. | Increased Engine Combustion |
| other\_detais | Additional information about the defect |  |

Car dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| licence\_number | License plate number. | EOU 4916 |
| current\_milage | It keeps value of mileage of the car. | 7 Kilometer per liter |
| engine\_size | It contains size of car engine. | 660 CC |
| other\_car\_details |  |  |

Mechanic dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| mechanic\_id | Mechanic id number | 256 |
| mechanic\_name | It contains the name of mechanic. | Ali Tahir |
| mechanic\_details |  |  |

Manufacture dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| manufacture\_code | Manufacture code number | 164151 |
| manufacture \_name | It contains the name of mechanic. | Toyota |
| manufacture\_details |  |  |

Model dimension

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| model\_code | Model id number | 256 |
| model\_name | It contains the name of model. | Corolla xli |
| model\_year | It contains year of release of model | 2016 |

#### **Fact Tables:**

#### Base Fact Table:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. |  |
| cost | It measures the cost on a service relative to dimensions. |  |
| defects | Defects per car or per mechanic. |  |
| parts | Parts per service |  |

Mechanic

Day

Defect

Customer

Base Fact Table

Manufacture

Parts

Model

Car

Week Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Week

Defect

Customer

Week Agg Fact

Manufacture

Parts

Model

Car

Month Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Month

Defect

Customer

Month Agg Fact

Manufacture

Parts

Model

Car

Quarter Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Quarter

Defect

Customer

Quarter Agg Fact

Manufacture

Parts

Model

Car

Year Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Year

Defect

Customer

Year Agg Fact

Manufacture

Parts

Model

Car

Town Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Day

Defect

Town

Town Agg Fact

Manufacture

Parts

Model

Car

City Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Day

Defect

City

City Agg Fact

Manufacture

Parts

Model

Car

Province Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Day

Defect

Province

Province Agg Fact

Manufacture

Parts

Model

Car

Country Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| amount | It measures the profit relative to dimensions. | One way Aggregate |
| cost | It measures the cost on a service relative to dimensions. | One way Aggregate |
| defects | Defects per car or per mechanic. | One way Aggregate |
| parts | Parts per service | One way Aggregate |

Mechanic

Day

Defect

Country

Country Agg Fact

Manufacture

Parts

Model

Car

### **Physical Model**

### **C:\Users\92321\Pictures\Screenshots\mart pic1.png**

### **Data Dictionary**

Day Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Day | **Model name** | Service DM |
| **Description** | Record time in day format | | |
| **Attributes** | day\_id, day\_description, week\_id | | |
| **Primary keys** | day\_id | | |
| **Foreign keys** | week\_id | | |
| **Associated Fact Tables** | Base Fact Table | | |

| **Attribute(s) of "Day" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | Primary key of Day dimension | integer | Yes | No |
| day\_description | day information | varchar(20) | No | No |
| week\_id | foreign key to week dimension | integer | No | Yes |

#### Week Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Week | Model name | Service DM |
| Description | Record time in week format | | |
| Attributes | week\_id, week\_description ,month\_id | | |
| Primary keys | week\_id | | |
| Foreign keys | month\_id | | |
| Associated Fact Tables | Week Agg Fact | | |

| **Attribute(s) of "Week" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| week\_id | Primary key of week dimension | integer | Yes | No |
| week\_description | week information | varchar(20) | No | No |
| month\_id | foreign key to month dimension | integer | No | Yes |

Month Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Month | Model name | Service DM |
| Description | Record time in month format | | |
| Attributes | month\_id , month\_description, quarter\_id, | | |
| Primary keys | month\_id | | |
| Foreign keys | quarter\_id | | |
| Associated Fact Tables | Month Agg Fact | | |

| **Attribute(s) of "Month" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| month\_id | Primary key of month dimension | integer | Yes | No |
| month \_description | month information | varchar(20) | No | No |
| quarter\_id | foreign key to quarter dimension | integer | No | Yes |

#### Quarter Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Quarter | Model name | Service DM |
| Description | Record time in quarter format | | |
| Attributes | quarter\_id, quarter\_description, year\_id | | |
| Primary keys | quarter\_id | | |
| Foreign keys | year\_id | | |
| Associated Fact Tables | Year Agg Fact | | |

| **Attribute(s) of "Quarter" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| quarter\_id | Primary key of quarter dimension | integer | Yes | No |
| quarter \_description | quarter information | varchar(20) | No | No |
| year\_id | foreign key to year dimension | integer | No | Yes |

Year Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Year | Model name | Service DM |
| Description | Record time in year format | | |
| Attributes | year\_id , year\_description | | |
| Primary keys | year\_id | | |
| Foreign keys |  | | |
| Associated Fact Tables |  | | |

| **Attribute(s) of "Year" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| year\_id | Primary key of year dimension | integer | Yes | No |
| year \_description | year information | varchar(20) | No | No |

#### Mechanic Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension name** | Mechanic | **Model name** | Service DM |
| **Description** | Record details of mechanic | | |
| **Attributes** | Mechanic id, mechanic name, mechanic details | | |
| **Primary keys** | mechanic \_id | | |
| **Foreign keys** |  | | |
| **Associated Fact Tables** | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Mechanic" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| mechanic \_id | Primary key of mechanic dimension | integer | Yes | No |
| mechanic \_name | Name of mechanic | varchar(20) | No | No |
| Mechanic\_details | Details of mechanic dimension | varchar(20) | No | No |

#### Manufacturer Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Manufacturer | Model name | Service DM |
| Description | This table will keep information about parts manufacturers. | | |
| Attributes | Manufacturer\_code, Manufacturer\_Name, Manufacturer \_details | | |
| Primary keys | Manufacturer\_code | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Manufacturer" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| pManufacturer\_code | primary key of parts manufacturer dimension | integer | Yes | No |
| Manufacturer\_Name | parts manufacturer Name | varchar(20) | No | No |
| Manufacturer \_details | Details of manufacturer | varchar(20) | No | No |

#### Model Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Model | Model name | Service DM |
| Description | This table will keep information about models of cars. | | |
| Attributes | model\_code, model\_name, model year | | |
| Primary keys | model\_code | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Car Model" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| model\_code | primary key of car model dimension | integer | Yes | No |
| model\_name | car model Name | varchar(20) | No | No |
| Model\_year | Year of model | varchar(20) | No | No |

#### Customer Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Customer | Model name | Service DM |
| Description | This table will keep information about models of customers. | | |
| Attributes | Contact\_id, name,gender,email,phone\_number,address,marital\_status,town\_id | | |
| Primary keys | Contact\_id | | |
| Foreign keys | Town\_id | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact,town Agg table | | |

| **Attribute(s) of "Customer" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| Contact\_id | primary key of customer dimension | integer | Yes | No |
| name | Name of customer | varchar(20) | No | No |
| gender | Gender of customer | Char(1) | No | No |
| email | Email address of customer | varchar(20) | No | No |
| Phone number | Phone num of customer | varchar(20) | No | No |
| address | Address of customer | varchar(20) | No | No |
| Marital status | Marital status of customer | varchar(20) | No | No |
| Town id | FK of town table | integer | No | Yes |

#### Town Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Town | Model name | Service DM |
| Description | This table will keep information about towns | | |
| Attributes | Town\_id,town\_desc,city\_id | | |
| Primary keys | Town\_id | | |
| Foreign keys | City\_id | | |
| Associated Fact Tables | Town Agg fact table | | |

| **Attribute(s) of "town" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| Town\_id | primary key of town table | integer | Yes | No |
| Town\_desc | Descrition of town | varchar(20) | No | No |
| City\_id | Foreign key of city table | integer | No | Yes |

#### City Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | City | Model name | Service DM |
| Description | This table will keep information about cities | | |
| Attributes | city\_id,town\_desc,province\_id | | |
| Primary keys | city\_id | | |
| Foreign keys | Province\_id | | |
| Associated Fact Tables | City Agg fact table | | |

| **Attribute(s) of "City" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| City \_id | primary key of City table | integer | Yes | No |
| City \_desc | Descrition of City | varchar(20) | No | No |
| Province\_id | Foreign key of province table | integer | No | Yes |

#### Province Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Province | Model name | Service DM |
| Description | This table will keep information about provinces | | |
| Attributes | province \_id,t province \_desc, country\_id | | |
| Primary keys | province \_id | | |
| Foreign keys | Country\_id | | |
| Associated Fact Tables | Province Agg fact table | | |

| **Attribute(s) of "Province" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| Province \_id | primary key of Province table | integer | Yes | No |
| Province \_desc | Description of Province | varchar(20) | No | No |
| Country\_id | Foreign key of country table | integer | No | Yes |

#### Country Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Country | Model name | Service DM |
| Description | This table will keep information about countries | | |
| Attributes | Country \_id, Country \_desc | | |
| Primary keys | Country \_id | | |
| Foreign keys |  | | |
| Associated Fact Tables | Country Agg fact table | | |

| **Attribute(s) of "Country" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| Country \_id | primary key of Country table | integer | Yes | No |
| Country \_desc | Description of Province | varchar(20) | No | No |

#### Parts Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Parts | Model name | Service DM |
| Description | It will keep the all the information about parts | | |
| Attributes | part\_id, part\_name , part\_desc, number\_in\_stock, other \_details | | |
| Primary keys | part\_id | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact, Town Agg, City Agg, Province Agg Country Agg | | |

| **Attribute(s) of "Parts" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| part\_id | primary key of parts dimension | integer | Yes | No |
| Part\_name | Name of car part | varchar(20) | No | No |
| part\_desc | description of car part | varchar(20) | No | No |
| Other\_details | details of car part | varchar(20) | No | No |

#### Defect Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | defect | Model name | Service DM |
| Description | This table will keep information about defects in cars | | |
| Attributes | defect\_id,t defect \_desc, other\_details | | |
| Primary keys | defect \_id | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact, Town Agg, City Agg, Province Agg Country Agg | | |

| **Attribute(s) of "Defect" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| defect\_id | primary key of defect table | integer | Yes | No |
| defect \_desc | Description of defects | varchar(20) | No | No |
| Other\_details | Other details of defect table | integer | No | no |

Car Dimension Table:

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Car | Model name | Service DM |
| Description | This table will keep the information of cars. | | |
| Attributes | License\_num, current\_mileage, engine\_size,\_other\_car\_details | | |
| Primary keys | License\_num | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact, Town Agg, City Agg, Province Agg Country Agg | | |

| **Attribute(s) of "Car" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| License\_num | primary key of car dimension | integer | Yes | No |
| Current\_mileage | The mileage car is driven | int | No | No |
| Engine\_size | Size of engine | int | No | No |
| other\_car\_details | Other Details of car | varchar(20) | No | No |

#### Base Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Base Fact Table | Model name | Service DM |
| Description | It calculates general low granularity facts related to parts being service for example quantity supplied, cost, and profit gain. | | |
| Attributes | day\_id, contact id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | day\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | day\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Day and customer | | |

| **Attribute(s) of "Base Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | foreign key to day dimension | integer | Yes | Yes |
| Contact\_id | foreign key to customer dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Week Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Week Agg fact Table | Model name | Service DM |
| Description | It calculates sums of facts week wise | | |
| Attributes | week\_id, contact id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | week\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | week\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, week and customer | | |

| **Attribute(s) of "week agg fact table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints) Is PK** | **Is FK** |
| week\_id | foreign key to week dimension | integer | Yes | Yes |
| Contact\_id | foreign key to customer dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Month Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Month Agg Fact Table | Model name | Service DM |
| Description | It calculatessum of facts month wise. | | |
| Attributes | month\_id, contact id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | month\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | month\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Month and customer | | |

| **Attribute(s) of "month Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints) Is PK** | **Is FK** |
| month\_id | foreign key to month dimension | integer | Yes | Yes |
| Contact\_id | foreign key to customer dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Quarter Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Quarter Agg Fact Table | Model name | Service DM |
| Description | It calculates sums of facts quarter wise | | |
| Attributes | quarter\_id, contact id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | quarter\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | quarter\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects,quarter and customer | | |

| **Attribute(s) of "Quarter Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| Quarter\_id | foreign key to quarter dimension | integer | Yes | Yes |
| Contact\_id | foreign key to customer dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Year Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Year Agg Fact Table | Model name | Service DM |
| Description | It calculates sums of facts year wise | | |
| Attributes | Year\_id, contact id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | Year\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | Year\_id, contact id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Year and customer | | |

| **Attribute(s) of "Year Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| Year\_id | foreign key to Year dimension | integer | Yes | Yes |
| Contact\_id | foreign key to customer dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Town Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Town Agg Fact Table | Model name | Service DM |
| Description | It calculates sums of facts town wise. | | |
| Attributes | day\_id, town\_id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | day\_id, town\_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | day\_id, town\_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Day and own | | |

| **Attribute(s) of "Town Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | foreign key to day dimension | integer | Yes | Yes |
| Town\_id | foreign key to town dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### City Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | City Agg Fact Table | Model name | Service DM |
| Description | It calculates sums of facts city wise | | |
| Attributes | day\_id, city\_id, part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | day\_id, city\_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | day\_id, city\_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Day and city | | |

| **Attribute(s) of "City Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | foreign key to day dimension | integer | Yes | Yes |
| City\_id | foreign key to city dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Province Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Province Agg Fact Table | Model name | Service DM |
| Description | It calculates sums of facts province wise. | | |
| Attributes | day\_id,province\_id,part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | day\_id, province\_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | day\_id, province\_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Day and province | | |

| **Attribute(s) of "Province Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | foreign key to day dimension | integer | Yes | Yes |
| Province\_id | foreign key to province dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

#### Country Agg Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Country Agg Fact Table | Model name | Service DM |
| Description | It calculates sums of facts province wise. | | |
| Attributes | day\_id,country\_id,part\_id, defect\_id, license\_num, model\_code, Manufacturer\_code, mechanic\_id ,amount, cost,defects,parts | | |
| Primary key | day\_id, country \_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Foreign keys | day\_id, country \_id, part\_id, defect\_id, license\_num,, model\_code, Manufacturer\_code, mechanic\_id | | |
| Facts / Measures | amount, cost,defects,parts | | |
| Associated  Dimensions | Mechanic, Parts, Parts Manufacturer, Car, Car Model, Defects, Day and country | | |

| **Attribute(s) of "country Agg Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | foreign key to day dimension | integer | Yes | Yes |
| Country\_id | foreign key to country dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| defect\_id | foreign key to defect dimension | integer | Yes | Yes |
| License\_num | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| Manufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| Mechaninc\_id | foreign key to mechanic dimension | integer | Yes | Yes |
| Amount | Total amount | integer | No | No |
| cost | Total cost of serviced parts | integer | No | No |
| defect | Defect wise | integer | No | No |
| parts | Total parts service | integer | No | No |

## Data Mart 3 – Car Parts Supplier

### **3.3.1. Logical Model**

#### Day Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| day\_id  day\_description  week\_id | It keeps the primary key value of a particular row  It keeps the value of a particular day  It is the foreign key to week dimension | 5  Saturday  2 |

#### Week Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| week\_id  week\_description  month\_id | It keeps the primary key value of a particular row  It keeps the value of a particular week  It is the foreign key to month dimension | 2  Week1  8 |

#### Month Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| month\_id  month\_description  quarter\_id | It keeps the primary key value of a particular row  It keeps the value of a particular month  It is the foreign key to quarter dimension | 9  June  3 |

#### Quarter Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| quarter\_id  quarter\_description  year\_id | It keeps the primary key value of a particular row  It keeps the value of a particular week  It is the foreign key to week dimension | 3  Third Quarter  13 |

#### Year Dimension:

#### 

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| year\_id  year \_description | It keeps the primary key value of a particular row  It keeps the value of a particular year | 5  2019 |

**Hierarchy:**

Day

Week

Month

Quarter

Year

Parts Dimension:

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| part\_id | It keeps the primary key value of a particular row | 45454 |
| part\_name | It keeps the name of part. | Tire |
| part\_type\_code | It contains foreign key to Parts\_Type table. | 12 |
| part\_level\_code | It contains foreign key to Parts\_Level table. | 4 |
| parent\_part\_id | It contains the id of parent part if any. | 134 |
| weight | It contains weight of the part in KG | 5 |
| condition | It contains the condition of part in rating which ranges from 1 to 10 | 6 |
| mileage\_donor\_vehicle | Mileage of vehicle which initially used this part in kilometers. | 27898 |
| part\_price | It contains price of the part is Pakistani rupees. | 500 |
| other\_part\_details | Additional information about the part |  |

Supplier Dimension:

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| supplier\_id | It keeps the primary key value of a particular row | 456 |
| supplier\_details | Additional information about the supplier |  |

Parts Manufacturer Dimension:

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| pManufacturer\_code | It keeps the primary key value of a particular row | 34 |
| Manufacturer\_Name | It keeps name of the manufacturer. | Diamond Tires |
| other\_details | Additional information about the part manufacturer |  |

Car Dimension:

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| car\_id | It keeps the primary key value of a particular row | 4500 |
| car\_year\_of\_manufacture | It keeps the year that car was manufactured. | 2001 |
| other\_car\_details | Additional information about the car |  |

Car Model Dimension:

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| model\_code | It keeps the primary key value of a particular row | 67 |
| model\_name | It keeps name of the car model. | Corolla xli |

Car Manufacturer Dimension:

|  |  |  |
| --- | --- | --- |
| Attribute Name | Description | Sample Values |
| cManufacturer\_code | It keeps the primary key value of a particular row | 24 |
| Manufacturer\_Name | It keeps name of the manufacturer. | Honda |
| other\_detais | Additional information about the car manufacturer |  |

#### **Fact Tables:**

#### Base Fact Table:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| quantity | It measures the parts quantity sold relative to dimensions. |  |
| cost | It measures price/cost of parts relative to dimensions. |  |
| profit | It measures total profit relative to dimensions. |  |

Supplier

Day

Parts

Car Manufacturer

Car

Base Fact Table

Parts Manufacturer

Car Model

#### Week Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| quantity | It measures the parts quantity sold relative to dimensions. | One way aggregate |
| cost | It measures price/cost of parts relative to dimensions. | One way aggregate |
| profit | It measures total profit relative to dimensions. | One way aggregate |

Supplier

Week

Parts

Car Manufacturer

Car

Week Agg Fact

Parts Manufacturer

Car Model

#### Month Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| quantity | It measures the parts quantity sold relative to dimensions. | One way aggregate |
| cost | It measures price/cost of parts relative to dimensions. | One way aggregate |
| profit | It measures total profit relative to dimensions. | One way aggregate |

Supplier

Month

Parts

Car Manufacturer

Car

Month Agg Fact

Parts Manufacturer

Car Model

#### Quarter Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| quantity | It measures the parts quantity sold relative to dimensions. | One way aggregate |
| cost | It measures price/cost of parts relative to dimensions. | One way aggregate |
| profit | It measures total profit relative to dimensions. | One way aggregate |

Supplier

Quarter

Parts

Car Manufacturer

Car

Quarter Agg Fact

Parts Manufacturer

Car Model

#### Year Agg Fact:

|  |  |  |
| --- | --- | --- |
| Fact Name | Description | Default Aggregation rule |
| quantity | It measures the parts quantity sold relative to dimensions. | One way aggregate |
| cost | It measures price/cost of parts relative to dimensions. | One way aggregate |
| profit | It measures total profit relative to dimensions. | One way aggregate |

Supplier

Year

Parts

Car Manufacturer

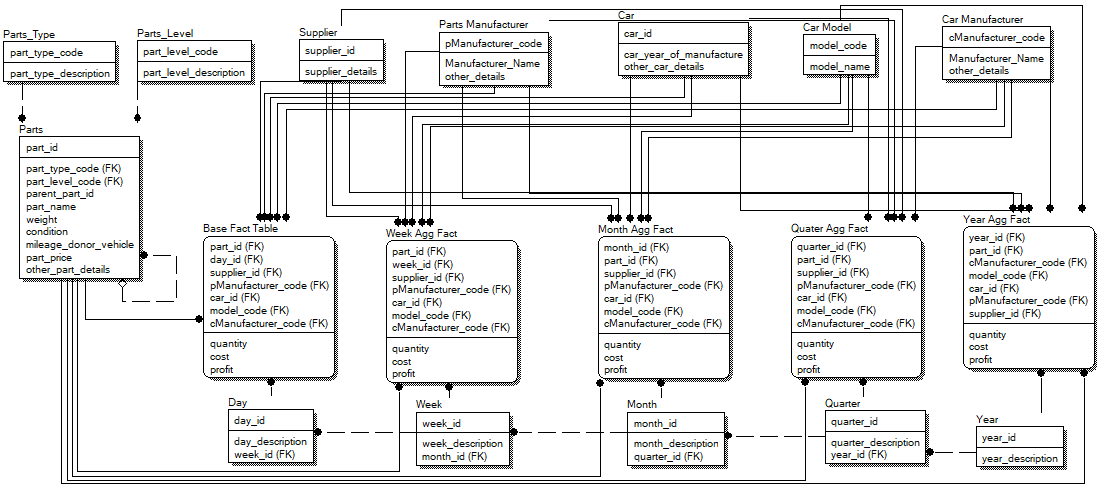
Car

Year Agg Fact

Parts Manufacturer

Car Model

### **Physical Model**



### **Data Dictionary:**

#### Parts Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Parts | Model name | Supplier DM |
| Description | It will keep the all the information about part. | | |
| Attributes | part\_id , part\_type\_code , part\_level\_code , parent\_part\_id , part\_name , weight, condtion , mileage\_donor\_vehicle , part\_price, other\_part\_details | | |
| Primary keys | part\_id | | |
| Foreign keys | part\_level\_code, part\_type\_code | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Parts" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| part\_id | primary key of parts dimension | integer | Yes | No |
| part\_type\_code | Foreign key to Parts\_Type table. | integer | No | yes |
| part\_level\_code | Foreign key to Parts\_Level table. | integer | No | Yes |
| parent\_part\_id | key of parent Parts if any | integer | No | No |
| part\_name | Name of part | varchar(20) | No | No |
| weight | Wight of part in KG | float | No | No |
| condtion | Scale from 1 to 10 about condition of part | integer | No | No |
| mileage\_donor\_vehicle | Mileage in kilometers of vehicle that last used the part | integer | No | No |
| part\_price | Price of part | integer | No | No |
| other\_part\_details | Other details if any | varchar(20) | No | No |

Day Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Day | Model name | Supplier DM |
| Description | Record time in day format | | |
| Attributes | day\_id, day\_description, week\_id | | |
| Primary keys | day\_id | | |
| Foreign keys | week\_id | | |
| Associated Fact Tables | Base Fact Table | | |

| **Attribute(s) of "Day" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | Primary key of Day dimension | integer | Yes | No |
| day\_description | day information | varchar(20) | No | No |
| week\_id | foreign key to week dimension | integer | No | Yes |

Week Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Week | Model name | Supplier DM |
| Description | Record time in week format | | |
| Attributes | week\_id, week\_description ,month\_id | | |
| Primary keys | week\_id | | |
| Foreign keys | month\_id | | |
| Associated Fact Tables | Week Agg Fact | | |

| **Attribute(s) of "Week" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| week\_id | Primary key of week dimension | integer | Yes | No |
| week\_description | week information | varchar(20) | No | No |
| month\_id | foreign key to month dimension | integer | No | Yes |

Month Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Month | Model name | Supplier DM |
| Description | Record time in month format | | |
| Attributes | month\_id , month\_description, quarter\_id, | | |
| Primary keys | month\_id | | |
| Foreign keys | quarter\_id | | |
| Associated Fact Tables | Month Agg Fact | | |

| **Attribute(s) of "Month" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| month\_id | Primary key of month dimension | integer | Yes | No |
| month \_description | month information | varchar(20) | No | No |
| quarter\_id | foreign key to quarter dimension | integer | No | Yes |

#### Quarter Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Quarter | Model name | Supplier DM |
| Description | Record time in quarter format | | |
| Attributes | quarter\_id, quarter\_description, year\_id | | |
| Primary keys | quarter\_id | | |
| Foreign keys | year\_id | | |
| Associated Fact Tables | Year Agg Fact | | |

| **Attribute(s) of "Quarter" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| quarter\_id | Primary key of quarter dimension | integer | Yes | No |
| quarter \_description | quarter information | varchar(20) | No | No |
| year\_id | foreign key to year dimension | integer | No | Yes |

Year Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Year | Model name | Supplier DM |
| Description | Record time in year format | | |
| Attributes | year\_id , year\_description | | |
| Primary keys | year\_id | | |
| Foreign keys |  | | |
| Associated Fact Tables |  | | |

| **Attribute(s) of "Year" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| year\_id | Primary key of year dimension | integer | Yes | No |
| year \_description | year information | varchar(20) | No | No |

#### Supplier Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Supplier | Model name | Supplier DM |
| Description | Records information about suppliers | | |
| Attributes | supplier\_id, supplier\_details | | |
| Primary keys | supplier\_id | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Supplier" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| supplier\_id | primary key of supplier dimension | integer | Yes | No |
| Supplier\_details | Details of supplier | varchar(20) | No | No |

#### Parts Manufacturer Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Parts Manufacturer | Model name | Supplier DM |
| Description | This table will keep information about parts manufacturers. | | |
| Attributes | pManufacturer\_code, Manufacturer\_Name, other\_details | | |
| Primary keys | pManufacturer\_code | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Parts Manufacturer" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| pManufacturer\_code | primary key of parts manufacturer dimension | integer | Yes | No |
| Manufacturer\_Name | parts manufacturer Name | varchar(20) | No | No |
| other\_details | Other Details of manufacturer | varchar(20) | No | No |

Car Dimension Table:

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Car | Model name | Supplier DM |
| Description | This table will keep the information of cars. | | |
| Attributes | car\_id, car\_year\_of\_manufacture, other\_car\_details | | |
| Primary keys | car\_id | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Car" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| car\_id | primary key of car dimension | integer | Yes | No |
| car\_year\_of\_manufacture | Year the car was manufactured | char(4) | No | No |
| other\_car\_details | Other Details of car | varchar(20) | No | No |

#### Car Model Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Car Model | Model name | Supplier DM |
| Description | This table will keep information about models of cars. | | |
| Attributes | model\_code, model\_name | | |
| Primary keys | model\_code | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Car Model" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| model\_code | primary key of car model dimension | integer | Yes | No |
| model\_name | car model Name | varchar(20) | No | No |

#### Car Manufacturer Dimension Table

|  |  |  |  |
| --- | --- | --- | --- |
| Dimension name | Car Manufacturer | Model name | Supplier DM |
| Description | This table will keep information about car manufacturers. | | |
| Attributes | cManufacturer\_code, Manufacturer\_Name, other\_details | | |
| Primary keys | cManufacturer\_code | | |
| Foreign keys |  | | |
| Associated Fact Tables | Base Fact Table, Week Agg Fact, Month Agg Fact, Quarter Agg Fact, Year Agg Fact | | |

| **Attribute(s) of "Car Manufacturer" Dimension** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| cManufacturer\_code | primary key of car manufacturer dimension | integer | Yes | No |
| Manufacturer\_Name | car manufacturer Name | varchar(20) | No | No |
| other\_details | Other Details of manufacturer | varchar(20) | No | No |

#### **Fact Table**

#### Base Fact Table

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Base Fact Table | Model name | Supplier DM |
| Description | It calculates general low granularity facts related to parts supplying for example quantity supplied, cost, and profit gain. | | |
| Attributes | day\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code, quantity, cost, profit | | |
| Primary key | day\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Foreign keys | day\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Facts / Measures | quantity, cost, profit | | |
| Associated  Dimensions | Parts, Supplier, Parts Manufacturer, Car, Car Model, Car Manufacturer, Day | | |

| **Attribute(s) of "Base Fact Table"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| day\_id | foreign key to day dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| supplier\_id | foreign key to supplier dimension | integer | Yes | Yes |
| pManufacturer\_code | foreign key to Part Manufacturer dimension | integer | Yes | Yes |
| car\_id | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| cManufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| quantity | Total Parts quantity supplied | integer | No | No |
| cost | Total cost of supplied parts | integer | No | No |
| profit | Total profit out of supplied parts | integer | No | No |

### Week Agg Fact:

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Week Agg Fact | Model name | Supplier DM |
| Description | It calculates general facts related to parts supplying for example quantity supplied, cost, and profit gain. | | |
| Attributes | week\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code, quantity, cost, profit | | |
| Primary key | week\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Foreign keys | week\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Facts / Measures | quantity, cost, profit | | |
| Associated  Dimensions | Parts, Supplier, Parts Manufacturer, Car, Car Model, Car Manufacturer, Week | | |

| **Attribute(s) of "Week Agg Fact"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| week\_id | foreign key to week dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| supplier\_id | foreign key to supplier dimension | integer | Yes | Yes |
| pManufacturer\_code | foreign key to Part Manufacturer dimension | integer | Yes | Yes |
| car\_id | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| cManufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| quantity | Total Parts quantity supplied | integer | No | No |
| cost | Total cost of supplied parts | integer | No | No |
| profit | Total profit out of supplied parts | integer | No | No |

### Month Agg Fact

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Month Agg Fact | Model name | Supplier DM |
| Description | It calculates general facts related to parts supplying for example quantity supplied, cost, and profit gain. | | |
| Attributes | month\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code, quantity, cost, profit | | |
| Primary key | month\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Foreign keys | month\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Facts / Measures | quantity, cost, profit | | |
| Associated  Dimensions | Parts, Supplier, Parts Manufacturer, Car, Car Model, Car Manufacturer, Month | | |

| **Attribute(s) of "Month Agg Fact"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| month\_id | foreign key to month dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| supplier\_id | foreign key to supplier dimension | integer | Yes | Yes |
| pManufacturer\_code | foreign key to Part Manufacturer dimension | integer | Yes | Yes |
| car\_id | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| cManufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| quantity | Total Parts quantity supplied | integer | No | No |
| cost | Total cost of supplied parts | integer | No | No |
| profit | Total profit out of supplied parts | integer | No | No |

### Quarter Agg Fact:

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Quarter Agg Fact | Model name | Supplier DM |
| Description | It calculates general facts related to parts supplying for example quantity supplied, cost, and profit gain. | | |
| Attributes | quarter\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code, quantity, cost, profit | | |
| Primary key | quarter\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Foreign keys | quarter\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Facts / Measures | quantity, cost, profit | | |
| Associated  Dimensions | Parts, Supplier, Parts Manufacturer, Car, Car Model, Car Manufacturer, Quarter | | |

| **Attribute(s) of "Quarter Agg Fact"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| quarter\_id | foreign key to quarter dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| supplier\_id | foreign key to supplier dimension | integer | Yes | Yes |
| pManufacturer\_code | foreign key to Part Manufacturer dimension | integer | Yes | Yes |
| car\_id | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| cManufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| quantity | Total Parts quantity supplied | integer | No | No |
| cost | Total cost of supplied parts | integer | No | No |
| profit | Total profit out of supplied parts | integer | No | No |

### Year Agg Fact:

|  |  |  |  |
| --- | --- | --- | --- |
| Fact Table name | Year Agg Fact | Model name | Supplier DM |
| Description | It calculates general facts related to parts supplying for example quantity supplied, cost, and profit gain. | | |
| Attributes | year\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code, quantity, cost, profit | | |
| Primary key | year\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Foreign keys | year\_id , part\_id, supplier\_id, pManufacturer\_code, car\_id, model\_code, cManufacturer\_code | | |
| Facts / Measures | quantity, cost, profit | | |
| Associated  Dimensions | Parts, Supplier, Parts Manufacturer, Car, Car Model, Car Manufacturer, Year | | |

| **Attribute(s) of "Year Agg Fact"** | | | | |
| --- | --- | --- | --- | --- |
| ***Name*** | **Description** | ***Data Type*** | **(Domain Constraints )Is PK** | **Is FK** |
| year\_id | foreign key to year dimension | integer | Yes | Yes |
| part\_id | foreign key to part dimension | integer | Yes | Yes |
| supplier\_id | foreign key to supplier dimension | integer | Yes | Yes |
| pManufacturer\_code | foreign key to Part Manufacturer dimension | integer | Yes | Yes |
| car\_id | foreign key to car dimension | integer | Yes | Yes |
| model\_code | foreign key to car model dimension | integer | Yes | Yes |
| cManufacturer\_code | foreign key to car manufacturer dimension | integer | Yes | Yes |
| quantity | Total Parts quantity supplied | integer | No | No |
| cost | Total cost of supplied parts | integer | No | No |
| profit | Total profit out of supplied parts | integer | No | No |