Theme of the database;

The purpose of our database revolves around Toyota's vehicle inventory, sales performance, and customer satisfaction. Its primary goal is to enable Toyota to efficiently manage its resources by understanding customer preferences and sales trends. The database captures crucial information such as popular car models, sales locations, and customer feedback to inform production and distribution decisions.

Changes Made throughout the process;

* Increased prodDesc and partDesc sizes to 1000 varchar for longer descriptions.
* Removed prodID from the inventory table to address referential integrity issues, as inventoryID in the products table already serves the purpose.
* Converted all primary keys and foreign keys from int to number data type because int does not allow specifying limits such as empID(6,0).
* Improved readability by renaming column names, such as changing "WARRstart" to "warrantyStartDate" and others, for clearer understanding and easier navigation of the database.

Data Dictionary;

TABLE DEPARTMENTS:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| deptCode | Number | 6 |  | PK | YES | 1-99999 | 234534 |
| deptName | Varchar | 50 |  |  | YES |  | Sales |
| location | Varchar | 50 | NULL |  | YES |  | North York |

TABLE LOCATIONS:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| locationID | Number | 5 |  | PK | Yes | 1-99999 | 15442 |
| locationName | Varchar | 50 |  |  | Yes |  |  |
| locationAddress | varchar | 50 |  |  | Yes |  |  |
| postalcode | Varchar | 50 |  |  | Yes |  |  |
| country | Varchar | 50 |  |  | Yes |  |  |
| city | Varchar | 50 |  |  | Yes |  |  |
| phone | Number | 10 | NULL |  | Yes |  |  |

TABLE EMPLOYEES:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| empID | Number | 4 |  | PK | Yes | 1-99999 | 1233 |
| empFirstName | Varchar | 50 |  |  | No |  | Bob |
| empLastName | Varchar | 50 |  |  | No |  | Builder |
| dateHired | Date |  |  |  | No |  | 01/02/1999 |
| deptCode | Number | 6 |  | FK | YES | 1-99999 | 234534 |
| locationID | Number | 5 |  | FK | YES | 1-99999 |  |

TABLE CUSTOMERS:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| custID | Number | 6 |  | PK | Yes | 1-9999 | 123123 |
| custFirstName | Varchar | 50 |  |  | Yes |  | James |
| custLastName | Varchar | 50 |  |  | Yes |  | Oaskish |
| custPurchase | Varchar | 50 |  |  | Yes |  | Toyota Highlander |
| custPurchaseDate | date |  |  |  | Yes |  | 01/03/2020 |
| empID | Number | 4 |  | FK | Yes |  | 2475 |

TABLE INVENTORY

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| inventoryID | Number | 8 |  | PK | Yes | 1-99999 | 9768999 |
| prodDesc | varchar | 1000 |  |  |  |  | The doors open and close |
| quanAvailable | int | 1-9999 |  |  |  | 1-99999 | 1000 |

TABLE PRODUCTS:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| productID | Number | 10 |  | PK | YES | 1-99999 | 1234567890 |
| productNAme | Varchar | 50 |  |  | YES |  | Toyota Tundra |
| madeDate | Date |  | NULL |  | NO |  | 12/05/2023 |
| price | Decimal | 9,2 |  |  | YES |  | 70000.00 |
| InventoryId | Number | 4 |  | FK | YES |  | 3458 |

TABLE SALES:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| saleID | Number | 4 |  | PK | Yes | 1-99999 | 5462 |
| productID | Number | 10 |  | Fk | Yes | 1-99999 | 7465823957 |
| empID | Number | 4 |  | Fk | Yes | 1-99999 | 2345 |
| saleDate | Date |  |  |  | Yes |  | 02/03/202018 |
| quantitySold | int | 1-99999 | NULL |  | Yes | 1-99999 | 1 |

TABLE WARRANTY:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| warrantyID | Int | 6 |  | PK | Yes | 1-99999 | 112233 |
| warrantyType | Varchar | 50 | NULL |  | No |  | Full Protection |
| warrantyAmount | Decimal | 1-99999,2 |  |  | Yes | 1-99999 | $2000 |
| warrantyStartDate | Date |  |  |  | Yes |  | 01/02/2021 |
| warrantyExpiaryDate | Date |  |  |  | Yes |  | 01/02/2023 |
| salesID | Number | 4 |  | FK | Yes | 1-99999 | 5462 |

TABLE PARTS:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| partNumber | Number | 5 |  | PK |  |  | 12334 |
| partName | Varchar | 50 |  |  | yes |  | Engine |
| partDesc | VArchar | 100 |  |  | yes |  | Toyota V8 engine |
| warrantyID | Number | 5 |  | FK |  |  | 12343 |

TABLE REVIEWS:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| COLUMN | DATA TYPE | SIZE,  PRECISION | DEFAULT | PK/FK | REQUIRED | RANGE | SAMPLE DATA |
| reviewID | Number | 6 |  | PK | Yes | 1-99999 | 127658 |
| reviewDesc | Varchar | 2000 |  |  |  |  | Great Guy Bob and cars |
| reviewNumber | int | 5 |  |  |  | 1-99999 | 231 |
| reviewDate | date |  |  |  |  |  | 01/01/2024 |
| reviewRating | decimal | 1-5 | NULL |  |  | 1-99999,2 | 4.7 |
| prodID | Number | 10 |  | FK | YES | 1-99999 | 1234567890 |
| custID | Number | 6 |  | FK | Yes | 1-99999 | 123123 |

Requirements;

|  |  |  |
| --- | --- | --- |
| Tables From | To | Relations |
| DEPARTMENTS | EMPLOYEES | 1:M |
| EMPLOYEES | DEPARTMENTS | M:1 |
|  |  |  |
| LOCATIONS | EMPLOYEES | 1:M |
| EMPLOYEES | LOCATIONS | M:1 |
|  |  |  |
| EMPLOYEES | CUSTOMERS | 1:M |
| CUSTOMERS | EMPLOYEES | M:1 |
|  |  |  |
| EMPLOYEES | SALES | 1:M |
| SALES | EMPLOYEES | M:1 |
|  |  |  |
| PRODUCTS | INVENTORY | 1:M |
| INVENTORY | PRODUCTS | M:1 |
|  |  |  |
| PRODUCTS | SALES | 1:M |
| SALES | PRODUCTS | M:1 |
|  |  |  |
| PRODUCTS | REVIEWS | 1:M |
| REVIEWS | PRODUCTS | M:1 |
|  |  |  |
| CUSTOMERS | REVIEWS | 1:M |
| REVIEWS | CUSTOMERS | M:1 |
|  |  |  |
| SALES | WARRANTY | 1:M |
| WARRANTY | SALES | M:1 |
|  |  |  |
| WARRANTY | PARTS | 1:M |
| PARTS | WARRANTY | M:1 |

DEPARTMENTS to EMPLOYEES: A one-to-many relationship. One department can have many employees, but each employee belongs to only one department.

LOCATIONS to EMPLOYEES: A one-to-many relationship. One location can have many employees, but each employee is associated with only one location.

EMPLOYEES to CUSTOMERS: A one-to-many relationship. One employee can serve many customers, but each customer purchase is handled by one employee.

EMPLOYEES to SALES: A one-to-many relationship. One employee can handle many sales, but each sale is handled by one employee.

PRODUCTS to INVENTORY: A one-to-many relationship. One product can have many inventory records, but each inventory record is for one product.

PRODUCTS to SALES: A one-to-many relationship. One product can be sold in many sales, but each sale record is for one product.

PRODUCTS to REVIEWS: A one-to-many relationship. One product can have many reviews, but each review is about one product.

CUSTOMERS to REVIEWS: A one-to-many relationship. One customer can write many reviews, but each review is written by one customer.

SALES to WARRANTY: A one-to-many relationship. One sale can have many warranties, but each warranty is tied to one sale.

WARRANTY to PARTS: A one-to-many relationship. One warranty can cover many parts, but each part is covered by one warranty.

ERD Diagram;



