**Create Dimension tables**

1. 1. Load the ‘Car Sales.xlsx’ file in Power BI.
   2. Select Transform data.
   3. In power query editor, right-click on the Stock query and select duplicate.
   4. This is will make the duplicate of the stock, rename it to ‘Dim\_Vehicle’.
   5. Select merge queries
   6. Select colors table to be merged in the Dim\_Vehicle.
   7. Select ColorId column in both the tables.
   8. Define join as inner join.
   9. Click at the expand icon of the new column, uncheck ColorID and also uncheck use original column name as prefix.
   10. Press control button and select the following columns: Make, model, vehicletype, color.
   11. Then from remove columns on home tab, select remove other columns.
   12. Select all four columns and from remove row on home tab, select remove duplicates.
   13. From add column tab, select index column and select from 1.
   14. Rename new column as ‘VehicleSK’.
2. **Create Client Dimension**
   1. Right-click on Client query and select duplicate.
   2. Rename the Client (2) to ‘Dim\_Client’.
   3. Press control button and select the following column: ClientName, ClientType, ClientSize, IsCreditWorthy, IsDealer.
   4. Then from remove columns on home tab, select remove other columns.
   5. Select all columns and from remove row on home tab, select remove duplicates.
   6. From add column tab, select index column and select from 1.
   7. Rename new column as ‘ClientSK’.
3. **Create Geography Dimension**
   1. Right-click on Client query and select duplicate.
   2. Rename the Client (2) to ‘Dim\_Geography’.
   3. Select merge queries
   4. Select country table to be merged in the Dim\_Geography.
   5. Select countryId column in both the tables.
   6. Define join as inner join.
   7. Click at the expand icon of the new column, uncheck CountryID, CountryISDCode and also uncheck use original column name as prefix.
   8. Rename CountryName column to Country.
   9. Press control button and select the following columns: Country, Region, Town.
   10. Then from remove columns on home tab, select remove other columns.
   11. Select all three columns and from remove row on home tab, select remove duplicates.
   12. From add column tab, select index column and select from 1.
   13. Rename new column as ‘GeographySK’.

**Create Fact Table**

1. **Create the Sales Fact table**
2. Right-click on InvoiceLines query and select duplicate.
3. Rename the InvoiceLines (2) to ‘Fact\_Sales’.
4. **Add surrogate key for Vehicle Dimension**
5. Select merge queries
6. Select stock table to be merged in the Fact\_sales.
7. Select stockId column in both the tables.
8. Define join as inner join.
9. Click at the expand icon of the new column, uncheck select all columns and select Make, Model, VehicleType, colorid.
10. Select merge queries.
11. Select stock table to be merged in the Fact\_sales.
12. Select stockId column in both the tables.
13. Define join as inner join.
14. Click at the expand icon of the new column, uncheck select all columns and select Make, Model, VehicleType, colorid, CostPrice, SpareParts, LaborCost.
15. Select merge queries
16. Select color table to be merged in the Fact\_sales.
17. Select stock.ColorID and ColorID respectively from both tables.
18. Define join as inner join.
19. Click at the expand icon of the new column, uncheck select all columns and unselect ColorID.
20. Select merge queries.
21. Select Dim\_Vehicle table to be merged in the Fact\_sales.
22. Select Stock.Make, Stock.Model, Stock.VehicleType and Colors.Color for first table and Make, Model, VehicleType and Colors for Dim\_Vehicle. Take care of the selection order.
23. Click at the expand icon of the new column, select uncheck all and select VehicleSK.
24. Rename columns costprice, spareparts, laborcost.
25. Press control button and select the following columns: InvoiceID, SalesPrice, CostPrice, SpareParts, LaborCost, VehicleSK.
26. Then from remove columns on home tab, select remove other columns.
27. **Add surrogate key for Client Dimension** 
    1. Select merge queries.
    2. Select Invoices table to be merged in the Fact\_sales.
    3. Select InvoiceId column in both the tables.
    4. Define join as inner join.
    5. Click at the expand icon of the new column, uncheck select all columns and select ClientID, InvoiceDate.
    6. Select merge queries.
    7. Select Clients table to be merged in the Fact\_sales.
    8. Select ClientId column in both the tables.
    9. Define join as inner join.
    10. Click at the expand icon of the new column, uncheck select all columns and select ClientName,Town, Region, CountryId, ClientType, ClientSize, IsCreditWorthy, IsDealer columns.
    11. Select merge queries.
    12. Select Dim\_Client table to be merged in the Fact\_sales.
    13. Select ClientName, ClientType, ClientSize, IsCreditWorthy, IsDealer for first table and ClientName, ClientType, ClientSize, IsCreditWorthy, IsDealer for Dim\_Client. Take care of the selection order.
    14. Click at the expand icon of the new column, select uncheck all and select ClientSK.
    15. Press control button and select the following columns: SalesPrice, CostPrice, SpareParts, LaborCost, VehicleSK, ClientSK.
    16. Then from remove columns on home tab, select remove other columns.
28. **Add surrogate key from Geography Dimension**
    1. Select merge queries.
    2. Select Country table to be merged in the Fact\_sales.
    3. Select CountryId column in both the tables.
    4. Define join as inner join.
    5. Click at the expand icon of the new column, uncheck select all columns and select CountryName columns.
    6. Select merge queries.
    7. Select Dim\_Geography table to be merged in the Fact\_sales.
    8. Select Town, Region, CountryName for first table and Town, Region, Country for Dim\_Geography. Take care of the selection order.
    9. Click at the expand icon of the new column, select uncheck all and select GeographySK.
    10. Select columns Town, Region, CountryName, CountryID and select Remove Columns.
29. **Hide surrogate keys**
    1. From any view of power bi desktop, goto fields and hide the surrogate keys from fact and dimension tables by clicking on the eye icon associated them.
30. **Add Hierarchy**
    1. In Dim\_Vehicle, right-click on Make column and select Create Hierarchy. This will made new group in Dim\_Vehicle Make Hierarchy.
    2. Right-click on Model column and select Add to Hierarchy and Select Make Hierarchy.
    3. Now hide the Make and Model column that are out of the hierarchy.
31. **Create a Date Dimension**
    1. From Modelling tab, select new table.
    2. Replace the word ‘Table’ with ‘Dim\_Date’.
    3. Enter the following DAX function: Dim\_Date = CALENDAR( "1/1/2012", "31/12/2016" ). Press Enter.
    4. In the Fields list, right-click on the Date field in the Dim\_Date table and select ‘Rename’. Rename the Date field to DateSK.
    5. From Modelling tab, select new column.
    6. Replace the word ‘Column’ with ‘FullYear’.
    7. Enter the following DAX function:FullYear = YEAR([DateSK])
    8. From Modelling tab, select new column.
    9. Replace the word ‘Column’ with ‘Quarter’.
    10. Enter the following DAX function: Quarter = “Q” & ROUNDDOWN(MONTH([DateSK])/ 4,0) + 1
    11. From Modelling tab, select new column.
    12. Replace the word ‘Column’ with ‘QuarterNumber’.
    13. Enter the following DAX function:QuarterNumber = ROUNDDOWN(MONTH([DateSK]) /4,0)+1
    14. From Modelling tab, select new column.
    15. Replace the word ‘Column’ with ‘FullMonth’.
    16. Enter the following DAX function:FullMonth = FORMAT([DateSK], “MMMM”)
    17. From Modelling tab, select new column.
    18. Replace the word ‘Column’ with ‘MonthNumber’.
    19. Enter the following DAX function:MonthNumber = MONTH([DateSK])
    20. Select Quarter column, select Sort by column and select QuarterNumber.
    21. Select FullMnth column, select Sort by column and select MonthNumber.
    22. Hide QuarterNumber and MonthNumber columns.
    23. Right-click on FullYear column and select Create Hierarchy. This will add group in Dim\_Date as FullYear Hierarchy.
    24. Right-click on Quarter column and select Add to Hierachy, FullYear Hierarchy.
    25. Do same for FullMonth column.
    26. Hide FullYear, Quarter and FullMonth columns that are out of hierarchy.
    27. Right-click on Dim\_Date and select Mark as Date Table.
32. **Create Measures**
    1. Select Fact\_Sales table.
    2. From Modelling tab, select new column.
    3. Replace the word ‘Column’ with ‘TotalCosts’.
    4. Enter the following DAX function: TotalCosts = [CostPrice] - [SpareParts] - [LaborCost]
    5. From Modelling tab, select new measure.
    6. Replace the word ‘Measure’ with ‘YearSales’.
    7. Enter the following DAX function: YearSales = TOTALYTD(SUM(Fact\_Sales[SalePrice]), Dim\_Date[DateSK])
33. **Add Relationship between Dim\_Date and Fact\_Sales** 
    1. In the Model View, Home tab, select Manage Relationship.
    2. Click New**.**
    3. Select Fact\_Sales from first drop-down list.
    4. Select InvoiceDate column
    5. Select Dim\_Date from second drop-down list.
    6. Select DateSK.
    7. Click Ok.
    8. Remove other relations.