```sql
/*Database creation*/
create database Sports;

/*Switching to newly created database*/
use Sports;

/*Retrieving the data from the tables*/
select * from Sales;

select * from Product;

select * from Territories;

select * from Customer;

/*Data Cleaning*/
--Customer table
update Customer
set MaritalStatus='Married'
where MaritalStatus='M';

update Customer
set MaritalStatus='Single'
where MaritalStatus='S';

update Customer
set Gender='Male'
where Gender='M';

update Customer
set Gender='Female'
where Gender='F';

alter table Customer
drop column FullName, HouseOwnerFlag, NumberCarsOwned, CommuteDistance,
  NumberChildrenAtHome;

alter table Customer
add FullName varchar(55);

update Customer
set FullName=CONCAT(FirstName,' ',LastName);

alter table Customer
add Age int;

alter table Customer
add Age_Group varchar(70);

```

```sql
update Customer
set Age=DATEDIFF(YEAR,BirthDate,GETDATE());

update Customer
set Age_Group = CASE
    WHEN [Age] >= 3 AND [Age] < 6 THEN 'Preschoolers'
    WHEN [Age] >= 6 AND [Age] < 13 THEN 'Children'
    WHEN [Age] >= 13 AND [Age] < 20 THEN 'Teenagers'
    WHEN [Age] >= 20 AND [Age] < 36 THEN 'Young Adults'
    WHEN [Age] >= 36 AND [Age] < 56 THEN 'Adults'
    WHEN [Age] >= 56 AND [Age] < 66 THEN 'Middle-aged Adults'
    WHEN [Age] >= 66 AND [Age] < 80 THEN 'Older Adults/Seniors'
    ELSE 'Elderly'
END;

select * from Customer;

--Product table
alter table Product
drop column DaysToManufacture, ProductDescription;

select * from Product;

--Territories table
alter table Territories
drop column Region_info;

select * from Territories;

/*KPI's*/
--Total Sales
select SUM(SalesAmount) AS [Total Sales] from Sales;

--YTD Total Sales
select
    SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN SalesAmount ELSE 0 END) AS [YTD
      Total Sales 2014],
    SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN SalesAmount ELSE 0 END) AS [YTD
      Total Sales 2015],
    SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN SalesAmount ELSE 0 END) AS [YTD
      Total Sales 2016],
    SUM(CASE WHEN YEAR(OrderDate) = 2017 THEN SalesAmount ELSE 0 END) AS [YTD
      Total Sales 2017]
from
    Sales;

--PYTD Total Sales
select
    SUM(CASE WHEN YEAR(OrderDate) = 2013 THEN SalesAmount ELSE 0 END) AS [PYTD
```

```
          Total Sales 2014],
 94       SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN SalesAmount ELSE 0 END) AS [PYTD
          Total Sales 2015],
 95       SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN SalesAmount ELSE 0 END) AS [PYTD
          Total Sales 2016],
 96       SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN SalesAmount ELSE 0 END) AS [PYTD
          Total Sales 2017]
 97   from Sales
 98   where YEAR(OrderDate) IN (2013, 2014, 2015, 2016);
 99
100   --Total Quantity sold
101   select SUM(OrderQuantity) AS [Total Quantity Sold] from Sales;
102
103   --YTD Total Quantity sold
104   select
105       SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN OrderQuantity ELSE 0 END) AS [YTD
            Total Quantity sold 2014],
106       SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN OrderQuantity ELSE 0 END) AS [YTD
            Total Quantity sold 2015],
107       SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN OrderQuantity ELSE 0 END) AS [YTD
            Total Quantity sold 2016],
108       SUM(CASE WHEN YEAR(OrderDate) = 2017 THEN OrderQuantity ELSE 0 END) AS [YTD
            Total Quantity sold 2017]
109   from
110       Sales;
111
112   --PYTD Total Quantity sold
113   select
114       SUM(CASE WHEN YEAR(OrderDate) = 2013 THEN OrderQuantity ELSE 0 END) AS
          [PYTD Total Quantity sold 2014],
115       SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN OrderQuantity ELSE 0 END) AS
          [PYTD Total Quantity sold 2015],
116       SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN OrderQuantity ELSE 0 END) AS
          [PYTD Total Quantity sold 2016],
117       SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN OrderQuantity ELSE 0 END) AS
          [PYTD Total Quantity sold 2017]
118   from Sales
119   where YEAR(OrderDate) IN (2013, 2014, 2015, 2016);
120
121   --Total Profit
122   select (SUM(SalesAmount)-SUM(TotalProductCost)) AS Profit from Sales;
123
124   --YTD Total Profit
125   select
126       SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN (SalesAmount-TotalProductCost)
          ELSE 0 END) AS [YTD Total Profit 2014],
127       SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN (SalesAmount-TotalProductCost)
          ELSE 0 END) AS [YTD Total Profit 2015],
128       SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN (SalesAmount-TotalProductCost)
```

```
        ELSE 0 END) AS [YTD Total Profit 2016],
129     SUM(CASE WHEN YEAR(OrderDate) = 2017 THEN (SalesAmount-TotalProductCost)
        ELSE 0 END) AS [YTD Total Profit 2017]
130 from
131     Sales;
132
133 --PYTD Total Profit
134 select
135     SUM(CASE WHEN YEAR(OrderDate) = 2013 THEN (SalesAmount-TotalProductCost)
        ELSE 0 END) AS [PYTD Total Profit 2014],
136     SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN (SalesAmount-TotalProductCost)
        ELSE 0 END) AS [PYTD Total Profit 2015],
137     SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN (SalesAmount-TotalProductCost)
        ELSE 0 END) AS [PYTD Total Profit 2016],
138     SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN (SalesAmount-TotalProductCost)
        ELSE 0 END) AS [PYTD Total Profit 2017]
139 from Sales
140 where YEAR(OrderDate) IN (2013, 2014, 2015, 2016);
141
142 --Profit Margin
143 select (SUM(SalesAmount)-SUM(TotalProductCost))/SUM(SalesAmount)*100 AS [Profit
    Margin] from Sales;
144
145 --YTD Profit Margin
146 with ProfitAndSales AS
147 (
148 select
149     SUM(CASE WHEN YEAR(OrderDate)=2014 THEN SalesAmount-TotalProductCost ELSE 0
        END) AS TotalProfit2014,
150     SUM(CASE WHEN YEAR(OrderDate)=2015 THEN SalesAmount-TotalProductCost ELSE 0
        END) AS TotalProfit2015,
151     SUM(CASE WHEN YEAR(OrderDate)=2016 THEN SalesAmount-TotalProductCost ELSE 0
        END) AS TotalProfit2016,
152     SUM(CASE WHEN YEAR(OrderDate)=2017 THEN SalesAmount-TotalProductCost ELSE 0
        END) AS TotalProfit2017,
153
154     SUM(CASE WHEN YEAR(OrderDate)=2014 THEN SalesAmount ELSE 0 END) AS
        TotalSales2014,
155     SUM(CASE WHEN YEAR(OrderDate)=2015 THEN SalesAmount ELSE 0 END) AS
        TotalSales2015,
156     SUM(CASE WHEN YEAR(OrderDate)=2016 THEN SalesAmount ELSE 0 END) AS
        TotalSales2016,
157     SUM(CASE WHEN YEAR(OrderDate)=2017 THEN SalesAmount ELSE 0 END) AS
        TotalSales2017
158 from Sales
159 )
160 select (TotalProfit2014/NULLIF(TotalSales2014,0))*100 AS [YTD Profit Margin],
161        (TotalProfit2015/NULLIF(TotalSales2015,0))*100 AS [YTD Profit Margin],
162        (TotalProfit2016/NULLIF(TotalSales2016,0))*100 AS [YTD Profit Margin],
```

```sql
       (TotalProfit2017/NULLIF(TotalSales2017,0))*100 AS [YTD Profit Margin]
from ProfitAndSales;

--PYTD Profit Margin
with Profit_And_Sales AS
(
select
    SUM(CASE WHEN YEAR(OrderDate)=2013 THEN SalesAmount-TotalProductCost ELSE 0 END) AS TotalProfit2014,
    SUM(CASE WHEN YEAR(OrderDate)=2014 THEN SalesAmount-TotalProductCost ELSE 0 END) AS TotalProfit2015,
    SUM(CASE WHEN YEAR(OrderDate)=2015 THEN SalesAmount-TotalProductCost ELSE 0 END) AS TotalProfit2016,
    SUM(CASE WHEN YEAR(OrderDate)=2016 THEN SalesAmount-TotalProductCost ELSE 0 END) AS TotalProfit2017,

    SUM(CASE WHEN YEAR(OrderDate)=2013 THEN SalesAmount ELSE 0 END) AS TotalSales2014,
    SUM(CASE WHEN YEAR(OrderDate)=2014 THEN SalesAmount ELSE 0 END) AS TotalSales2015,
    SUM(CASE WHEN YEAR(OrderDate)=2015 THEN SalesAmount ELSE 0 END) AS TotalSales2016,
    SUM(CASE WHEN YEAR(OrderDate)=2016 THEN SalesAmount ELSE 0 END) AS TotalSales2017
from Sales
)
select (TotalProfit2014/NULLIF(TotalSales2014,0))*100 AS [PYTD Profit Margin],
       (TotalProfit2015/NULLIF(TotalSales2015,0))*100 AS [PYTD Profit Margin],
       (TotalProfit2016/NULLIF(TotalSales2016,0))*100 AS [PYTD Profit Margin],
       (TotalProfit2017/NULLIF(TotalSales2017,0))*100 AS [PYTD Profit Margin]
from Profit_And_Sales;

--Gross Sales
select SUM(SalesAmount)+SUM(TaxAmt) AS [Gross Sales] from Sales;

--YTD Gross Sales
select
    SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN (SalesAmount+TaxAmt) ELSE 0 END) AS [YTD Gross Sales 2014],
    SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN (SalesAmount+TaxAmt) ELSE 0 END) AS [YTD Gross Sales 2015],
    SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN (SalesAmount+TaxAmt) ELSE 0 END) AS [YTD Gross Sales 2016],
    SUM(CASE WHEN YEAR(OrderDate) = 2017 THEN (SalesAmount+TaxAmt) ELSE 0 END) AS [YTD Gross Sales 2017]
from
    Sales;

--PYTD Gross Sales
```

```sql
select
    SUM(CASE WHEN YEAR(OrderDate) = 2013 THEN (SalesAmount+TaxAmt) ELSE 0 END)
      AS [PYTD Gross Sales 2014],
    SUM(CASE WHEN YEAR(OrderDate) = 2014 THEN (SalesAmount+TaxAmt) ELSE 0 END)
      AS [PYTD Gross Sales 2015],
    SUM(CASE WHEN YEAR(OrderDate) = 2015 THEN (SalesAmount+TaxAmt) ELSE 0 END)
      AS [PYTD Gross Sales 2016],
    SUM(CASE WHEN YEAR(OrderDate) = 2016 THEN (SalesAmount+TaxAmt) ELSE 0 END)
      AS [PYTD Gross Sales 2017]
from Sales
where YEAR(OrderDate) IN (2013, 2014, 2015, 2016);

--Total Orders
select COUNT(DISTINCT(SalesOrderNumber)) AS [Total Orders] from Sales;

--YTD Total Orders
select
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2014 THEN SalesOrderNumber END)
      AS [YTD Total Orders 2014],
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2015 THEN SalesOrderNumber END)
      AS [YTD Total Orders 2015],
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2016 THEN SalesOrderNumber END)
      AS [YTD Total Orders 2016],
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2017 THEN SalesOrderNumber END)
      AS [YTD Total Orders 2017]
from
    Sales;

--PYTD Total Orders
select
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2013 THEN SalesOrderNumber END)
      AS [PYTD Total Orders 2014],
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2014 THEN SalesOrderNumber END)
      AS [PYTD Total Orders 2015],
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2015 THEN SalesOrderNumber END)
      AS [PYTD Total Orders 2016],
    COUNT(DISTINCT CASE WHEN YEAR(OrderDate) = 2016 THEN SalesOrderNumber END)
      AS [PYTD Total Orders 2017]
from Sales
where YEAR(OrderDate) IN (2013, 2014, 2015, 2016);

/*OVERVIEW*/
--Grouping Region and Country
select (SUM(s.SalesAmount)-SUM(s.TotalProductCost)) AS Profit,
(SUM(s.SalesAmount)-SUM(s.TotalProductCost))/(SUM(s.SalesAmount))*100 AS
  [Profit Margin],
SUM(s.SalesAmount)+SUM(s.TaxAmt) AS [Gross Sales],
SUM(s.SalesAmount) AS [Total Sales],
COUNT(DISTINCT(s.SalesOrderNumber)) AS [Total Orders],
```

```sql
t.Region, t.Country, SUM((SUM(s.SalesAmount)-SUM(s.TotalProductCost))) OVER() AS [Sum of Profit],
SUM((SUM(s.SalesAmount)-SUM(s.TotalProductCost))/(SUM(s.SalesAmount))*100) OVER() AS [Sum of Profit Margin],
SUM(SUM(s.SalesAmount)+SUM(s.TaxAmt)) OVER() AS [Sum of Gross Profit],
SUM(SUM(s.SalesAmount)) AS [Sum of Total Sales],
SUM(COUNT(DISTINCT(s.SalesOrderNumber))) OVER() from Sales s
INNER JOIN Territories t
ON s.SalesTerritoryKey=t.SalesTerritoryKey
group by t.Region, t.Country
order by [Total Sales] DESC;

--Total Sales and Profit by Month Name
select SUM(SalesAmount) AS [Total Sales],
(SUM(SalesAmount)-SUM(TotalProductCost)) AS Profit, DATENAME(MONTH, OrderDate) AS [Month Name], MONTH(OrderDate) AS [Month Number] from Sales s
group by DATENAME(MONTH, OrderDate), MONTH(OrderDate)
order by [Month Number];

--Total Sales and Profit by Quarter
select SUM(SalesAmount) AS [Total Sales],
(SUM(SalesAmount)-SUM(TotalProductCost)) AS Profit,
'Q'+DATENAME(QUARTER, OrderDate) AS Quarter from Sales s
group by DATENAME(QUARTER, OrderDate)
order by Quarter;

--Total Sales and Profit by Day
select SUM(SalesAmount) AS [Total Sales],
(SUM(SalesAmount)-SUM(TotalProductCost)) AS Profit, DATENAME(WEEKDAY, OrderDate) AS [Day Name], DATEPART(WEEKDAY, OrderDate) AS [Day Number] from Sales
group by DATENAME(WEEKDAY, OrderDate), DATEPART(WEEKDAY, OrderDate)
order by [Day Number];

/*Customer Analysis*/
--Grouping by Martial Status
select c.MaritalStatus AS [Marital Status], COUNT(DISTINCT s.SalesOrderNumber) AS [Total Orders],
SUM(s.SalesAmount) AS [Total Sales], SUM(COUNT(DISTINCT s.SalesOrderNumber)) OVER() AS [Sum of Total Orders],
SUM(SUM(s.SalesAmount)) OVER() AS [Sum of Total Sales] from Sales s
INNER JOIN Customer c
ON c.CustomerKey=s.CustomerKey
group by c.MaritalStatus;

--Total Sales by Country
select SUM(s.SalesAmount) AS [Total Sales], c.CustomerCountry AS [Customer Country] from Sales s
INNER JOIN Customer c
```

```
277 ON c.CustomerKey=s.CustomerKey
278 group by c.CustomerCountry
279 order by [Total Sales] DESC;
280
281 --Total Sales by State
282 select SUM(s.SalesAmount) AS [Total Sales], c.CustomerState AS [Customer State] ↵
       from Sales s
283 INNER JOIN Customer c
284 ON c.CustomerKey=s.CustomerKey
285 group by c.CustomerState
286 order by [Total Sales] DESC;
287
288 --Total Sales by City
289 select SUM(s.SalesAmount) AS [Total Sales], c.CustomerCity AS [Customer City]  ↵
      from Sales s
290 INNER JOIN Customer c
291 ON c.CustomerKey=s.CustomerKey
292 group by c.CustomerCity
293 order by [Total Sales] DESC;
294
295 --Total Sales by Age Group and Gender
296 select SUM(s.SalesAmount) AS [Total Sales], c.Age_Group AS [Age Group],       ↵
      c.Gender AS Gender from Sales s
297 INNER JOIN Customer c
298 ON c.CustomerKey=s.CustomerKey
299 group by c.Gender, c.Age_Group
300 order by [Total Sales] DESC;
301
302 --Total Sales by Occupation and Gender
303 select SUM(s.SalesAmount) AS [Total Sales], c.Occupation AS Occupation,       ↵
      c.Gender AS Gender from Sales s
304 INNER JOIN Customer c
305 ON c.CustomerKey=s.CustomerKey
306 group by c.Gender, c.Occupation
307 order by [Total Sales] DESC;
308
309 /*Product Analysis*/
310 --Category by Profit
311 select p.Category AS Category, (SUM(SalesAmount)-SUM(TotalProductCost)) AS     ↵
      Profit from Sales s
312 INNER JOIN Product p
313 ON p.ProductKey=s.ProductKey
314 group by p.Category
315 order by Profit DESC;
316
317 --Top 10 Products by Profit
318 select TOP 10 WITH TIES p.ProductName AS Products, (SUM(SalesAmount)-SUM      ↵
      (TotalProductCost)) AS Profit  from Sales s
319 INNER JOIN Product p
```

```
320 ON p.ProductKey=s.ProductKey
321 group by p.ProductName
322 order by Profit DESC; --Used DESC to get top products
323
324 --Top 10 Products by Total Sales
325 select TOP 10 WITH TIES p.ProductName AS Products, SUM(SalesAmount) AS [Total
      Sales]  from Sales s
326 INNER JOIN Product p
327 ON p.ProductKey=s.ProductKey
328 group by p.ProductName
329 order by [Total Sales] DESC; --Used DESC to get top products
330
331 --Bottom 10 Products by Total Sales
332 select TOP 10 WITH TIES p.ProductName AS Products, SUM(SalesAmount) AS [Total
      Sales] from Sales s
333 FULL JOIN Product p
334 ON p.ProductKey=s.ProductKey
335 group by p.ProductName
336 order by [Total Sales] ASC; --Used ASC to get bottom products
337
338 --Top 10 Model Names by Total Sales
339 select TOP 10 WITH TIES p.ModelName AS [Model Name], SUM(SalesAmount) AS [Total
      Sales]  from Sales s
340 INNER JOIN Product p
341 ON p.ProductKey=s.ProductKey
342 group by p.ModelName
343 order by [Total Sales] DESC; --Used DESC to get top Model Names
344
345 /*Territory Analysis*/
346 --Total Sales by Quarter and Group
347 select SUM(s.SalesAmount) AS [Total Sales], 'Q'+DATENAME(QUARTER, OrderDate) AS
      Quarter, t.[Group] AS [Group] from Sales s
348 INNER JOIN Territories t
349 ON t.SalesTerritoryKey=s.SalesTerritoryKey
350 group by DATENAME(QUARTER, OrderDate),[Group]
351 order by [Total Sales];
352
353 --Total Orders by Country and Group
354 select COUNT(DISTINCT s.SalesOrderNumber) AS [Total Orders], t.Country AS
      Country, t.[Group] AS [Group] from Sales s
355 INNER JOIN Territories t
356 ON s.SalesTerritoryKey=t.SalesTerritoryKey
357 group by t.Country, t.[Group]
358 order by [Total Orders];
359
360 --YTD Total Sales by Country and Year
361 -- Calculate Year-To-Date (YTD) Total Sales by Country and Year
362 select DISTINCT
363     t.Country AS Country,
```

```
364     DATENAME(YEAR, s.OrderDate) AS Year,
365     SUM(s.SalesAmount) OVER (PARTITION BY t.Country, YEAR(s.OrderDate)) AS [YTD
           Total Sales]
366 from
367     Sales s
368 INNER JOIN
369     Territories t
370     ON t.SalesTerritoryKey = s.SalesTerritoryKey
371 where
372     YEAR(s.OrderDate) BETWEEN 2014 AND 2017
373 order by
374     Year, Country;
375
376 --Total Quantity sold by Country and ProductLine
377 select SUM(s.OrderQuantity) AS [Total Quantity Sold], t.Country AS Country,
      p.ProductLine AS [Product Line] from Sales s
378 INNER JOIN Territories t
379 ON t.SalesTerritoryKey=s.SalesTerritoryKey
380 INNER JOIN Product p
381 ON p.ProductKey=s.ProductKey
382 group by t.Country, p.ProductLine
383 order by [Total Quantity Sold] DESC;
384
385 --Top 5 Regions by Profit
386 select TOP 5 WITH TIES t.Region AS Region, (SUM(SalesAmount)-SUM
      (TotalProductCost)) AS Profit from Sales s
387 INNER JOIN Territories t
388 ON s.SalesTerritoryKey=t.SalesTerritoryKey
389 group by t.Region
390 order by Profit DESC;
391
392
393
```