Assignment 1 Solutions

Question 1

use AdventureWorks2017;

WITH CTE AS (SELECT   YEAR(OrderDate) AS OrderYear, DATEPART(quarter, OrderDate) AS OrderQuarter, SUM(TotalDue) AS Sales

 FROM Sales.SalesOrderHeader

 WHERE (YEAR(OrderDate) = 2011 OR

YEAR(OrderDate) = 2012 OR

YEAR(OrderDate) = 2013 OR

YEAR(OrderDate) = 2014)

 GROUP BY YEAR(OrderDate), DATEPART(quarter, OrderDate)

),

CTE_1 AS (

    SELECT OrderYear, SUM(Sales) AS AnnualSales

    FROM CTE

    GROUP BY OrderYear

)

SELECT

    CTE.OrderYear,

    RIGHT(ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 1 THEN CTE.Sales ELSE NULL END), 'N0'), ' '), 10) AS "1st Quarter",

(SUM(CASE WHEN CTE.OrderQuarter = 1 THEN CTE.Sales ELSE 0 END) / CTE_1.AnnualSales) * 100 AS "Annual %",

    ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 1 THEN CTE.Sales ELSE NULL END) - ISNULL(LAG(SUM(CASE WHEN CTE.OrderQuarter = 4 THEN CTE.Sales ELSE NULL END)) OVER (ORDER BY CTE.OrderYear),0), 'N0'), ' ') AS "4 to 1Change",

    RIGHT(ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 2 THEN CTE.Sales ELSE NULL END), 'N0'), ' '),10) AS "2nd Quarter",

```
    (SUM(CASE WHEN CTE.OrderQuarter = 2 THEN CTE.Sales ELSE 0 END) / CTE_1.AnnualSales) *
100 AS "Annual %",

ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 2 THEN CTE.Sales ELSE NULL END) -
SUM(CASE WHEN CTE.OrderQuarter = 1 THEN CTE.Sales ELSE NULL END), 'N0'), ' ') AS "1 to
2Change",

ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 3 THEN CTE.Sales ELSE NULL END),
'N0'), ' ') AS "3rd Quarter",

    ISNULL((SUM(CASE WHEN CTE.OrderQuarter = 3 THEN CTE.Sales ELSE NULL END) /
CTE_1.AnnualSales) * 100,' ') AS "Annual %",

ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 3 THEN CTE.Sales ELSE NULL END) -
SUM(CASE WHEN CTE.OrderQuarter = 2 THEN CTE.Sales ELSE NULL END), 'N0'), ' ') AS "2 to
3Change",

ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 4 THEN CTE.Sales ELSE NULL END),
'N0'), ' ') AS "4th Quarter",

    (SUM(CASE WHEN CTE.OrderQuarter = 4 THEN CTE.Sales ELSE 0 END) / CTE_1.AnnualSales) *
100 AS "Annual %",

ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 4 THEN CTE.Sales ELSE NULL END) -
SUM(CASE WHEN CTE.OrderQuarter = 3 THEN CTE.Sales ELSE NULL END), 'N0'), ' ') AS "3 to
4Change",

ISNULL(FORMAT(SUM(CASE WHEN CTE.OrderQuarter = 1 THEN CTE.Sales ELSE 0 END) +
SUM(CASE WHEN CTE.OrderQuarter = 2 THEN CTE.Sales ELSE 0 END) + SUM(CASE WHEN
CTE.OrderQuarter = 3 THEN CTE.Sales ELSE 0 END) + SUM(CASE WHEN CTE.OrderQuarter = 4
THEN CTE.Sales ELSE 0 END), 'N0'), ' ') as "Annual Sales"

FROM CTE

JOIN CTE_1 ON CTE.OrderYear = CTE_1.OrderYear

GROUP BY CTE.OrderYear,CTE_1.AnnualSales

ORDER BY CTE.OrderYear
```

2.
 The code still results in duplicate values because it is categorizing according to the
SalesOrderID.

If we try printing SalesOrderID, we'll find that each row has different SalesOrderID, because of which there are duplicate values for each Salesperson.

```
select distinct sh.SalesOrderID,sh.SalesPersonID, pp.FirstName,pp.LastName, stuff((select ', ',
rtrim (cast(ProductID as char))
 from Sales.SalesOrderDetail
 where SalesOrderID= sh.SalesOrderID

order by sd.ProductID
 for xml path('')), 1,2,'' ) as Product
 from Sales.SalesOrderHeader sh
 join
 Sales.SalesOrderDetail sd
 on sd.SalesOrderID=sh.SalesOrderID
 join Person.Person pp
 on pp.BusinessEntityID = sh.SalesPersonID order by sh.SalesPersonID;
```

CORRECT QUERY:

```
select distinct sh.SalesPersonID, pp.FirstName,pp.LastName, stuff((select ', ', rtrim
(cast(ProductID as char))
 from Sales.SalesOrderDetail
 group by ProductID


order by ProductID
 for xml path('')), 1,2,'' ) as Product from Sales.SalesOrderHeader sh join


Sales.SalesOrderDetail sd
 on sd.SalesOrderID=sh.SalesOrderID
 join Person.Person pp
 on pp.BusinessEntityID = sh.SalesPersonID order by sh.SalesPersonID;
```

Using STRING_AGG:

```sql
select distinct sh.SalesPersonID, pp.FirstName,pp.LastName,
 (STRING_AGG(cast(sd.ProductID as nvarchar(max)),', ') WITHIN GROUP ( ORDER BY
sd.ProductID ) ) AS Product FROM


Sales.SalesOrderDetail sd

join


Sales.SalesOrderHeader sh
 on sd.SalesOrderID=sh.SalesOrderID
 join Person.Person pp
 on pp.BusinessEntityID = sh.SalesPersonID
 group by sh.SalesPersonID, pp.FirstName,pp.LastName order by sh.SalesPersonID;
```