

-- Question B1

```
use AdventureWorks2008R2;
select CustomerID, case when SalesPersonID is NULL then '' else SalesPersonID end
as [SalesPerson ID] from
(SELECT CustomerID, STRING_AGG(SalesPersonID,',') as SalesPersonID
from (select distinct CustomerID, SalesPersonID from Sales.SalesOrderHeader) a
group by CustomerID) b
order by b.CustomerID desc
```

-- Question - B2

```
use AdventureWorks2008R2;
```

```
SELECT Year ,cast(sum(OrderQuantity)*100 as float)/TotalQuantity [% of Total Sale],
STRING_AGG(ProductID,',') as Top5Products from
(select a.*, b.TotalQuantity from
(select year(soh.OrderDate) as Year ,sod.ProductID , sum(sod.OrderQty) as
OrderQuantity
, Rank () over (PARTITION by year(soh.OrderDate) order by sum(sod.OrderQty) desc )
as rank
from Sales.SalesOrderDetail sod left join Sales.SalesOrderHeader soh on
sod.SalesOrderID = soh.SalesOrderID
group by year(soh.OrderDate), sod.ProductID ) a left join
(select year(soh.OrderDate) as Year, sum(sod.OrderQty) as TotalQuantity
from Sales.SalesOrderDetail sod left join Sales.SalesOrderHeader soh on
sod.SalesOrderID = soh.SalesOrderID
group by year(soh.OrderDate)) b
on a.Year = b.Year where a.rank <=5) c
group by Year, TotalQuantity
order by Year
```

--Part C

```
use AdventureWorks2008R2;
```

```
WITH Parts(AssemblyID, ComponentID, PerAssemblyQty, EndDate, ComponentLevel) AS
(
SELECT b.ProductAssemblyID, b.ComponentID, b.PerAssemblyQty,
b.EndDate, 0 AS ComponentLevel
FROM Production.BillOfMaterials AS b
WHERE b.ProductAssemblyID = 992 AND b.EndDate IS NULL
UNION ALL
SELECT bom.ProductAssemblyID, bom.ComponentID, p.PerAssemblyQty,
bom.EndDate, ComponentLevel + 1
FROM Production.BillOfMaterials AS bom
INNER JOIN Parts AS p
ON bom.ProductAssemblyID = p.ComponentID AND bom.EndDate IS NULL
),
q as(
SELECT AssemblyID, ComponentID, Name, PerAssemblyQty, ComponentLevel, pr.listprice
```

```
FROM Parts AS p
INNER JOIN Production.Product AS pr
ON p.ComponentID = pr.ProductID)
```

```
select (select sum(listprice) as listprice from q where AssemblyID= 992 and
ComponentID= 815 ) -
(select sum(listprice) as listprice from q where AssemblyID= 815) as [Material Cost
Reduction]
```