-- Lab 1

/\* Review of the Data Hierarchy, Data Aggregation and Horizontal Reporting \*/

/\* Use AdventureWorks2017 database \*/

/\* The following code creates a longlist report. \*/

SELECT DISTINCT h.SalesPersonID, p.FirstName, p.LastName, d.ProductID FROM Sales.SalesOrderHeader h join Sales.SalesOrderDetail d on d.SalesOrderID=h.SalesOrderID

JOIN Person.Person p

ON h.SalesPersonID = p.BusinessEntityID

ORDER BY h.SalesPersonID, ProductID;

/\* We want to create a shortlist report containing the same data without duplicating the salesperson info. The code below tried to do it but the generated report had an issue. It still duplicated some salesperson info. \*/

select distinct 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;

/\* Please investigate the issue and find out what caused the issue. Give a detailed explanation of your findings. Writing some code to prove your explanation would be convincing. \*/

**Issue:** Due to the join of Sales.SalesOrderDetail and Sales.SalesOrderHeader, there is a duplication problem. A join should have been made between Sales.SalesOrderHeader and Person.Person.

**Correct code lines:**

STUFF((SELECT ', ' + CAST(sd.ProductID AS VARCHAR(10))

and

FROM Sales.SalesOrderHeader sh

JOIN Person.Person pp ON sh.SalesPersonID = pp.BusinessEntityID

/\* Modify the incorrect solution provided above to create the correct report. \*/

SELECT DISTINCT sh.SalesPersonID, pp.FirstName, pp.LastName,

STUFF((SELECT ', ' + CAST(sd.ProductID AS VARCHAR(10))

FROM Sales.SalesOrderDetail sd

WHERE sd.SalesOrderID IN (SELECT sh1.SalesOrderID FROM Sales.SalesOrderHeader sh1 WHERE sh1.SalesPersonID = sh.SalesPersonID)

ORDER BY sd.ProductID

FOR XML PATH('')), 1, 2, '') AS Product  
FROM Sales.SalesOrderHeader sh  
JOIN Person.Person pp ON sh.SalesPersonID = pp.BusinessEntityID

ORDER BY sh.SalesPersonID;

/\* Use STRING\_AGG to create the same report \*/

select sh.SalesPersonID, pp.FirstName, pp.LastName,

STRING\_AGG(cast(sd.ProductID as NVARCHAR(MAX)), ', ') as Products

from Sales.SalesOrderHeader sh

join Sales.SalesOrderDetail sd 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;