**ST1501 CA2 Group Task**

**Class: DAAA/FT/2A/01**

**Group No: 5**

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**Group Task**

**OLTP database Diagram**

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**Data Warehouse Schema**

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**Queries explanation**

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| Query | Explanation | SQL script |
| 1 | This query shows the top 5 employees based on their profits made from sales. It also includes their total sales and number of products sold.  **Insight:** This helps identify the best performing employees. Freya is the best performing and has nearly two times the sales of the next employee. | SELECT TOP(5) e.EMPLOYEE\_ID, e.FIRST\_NAME, SUM(s.quantity \* s.unit\_price) AS TOTAL\_SALES,SUM(s.UNIT\_PRICE - s.STANDARD\_COST) AS PROFITS, SUM(s.QUANTITY) AS 'Products Sold'  FROM EmployeeDIM e  JOIN SalesFacts s ON e.EMPLOYEE\_ID = s.EMPLOYEE\_ID  GROUP BY e.EMPLOYEE\_ID, e.FIRST\_NAME  ORDER BY 4 DESC; |
| Result | |
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| 2 | This query shows the total units sold and profits generated quarterly. It also shows the change in profits from the previous quarter.  **Insight:** 2017 Q1 had the greatest profit.  The greatest increase in profit was from 2013 Q2 to 2015 Q2 | SELECT T.YEAR 'Year', t.QUARTER 'Quarter',SUM(s.QUANTITY) 'Total Units Sold', SUM(s.UNIT\_PRICE - s.STANDARD\_COST) 'Profits Generated',SUM(s.UNIT\_PRICE - s.STANDARD\_COST)- LAG(SUM(s.UNIT\_PRICE-s.STANDARD\_COST), 1,0) OVER (ORDER BY T.YEAR, t.Quarter) AS 'Difference From Previous Record'  FROM TimeDIM T, SalesFacts S  WHERE T.TIME\_ID = S.TIME\_ID  GROUP BY T.QUARTER, T.YEAR; |
| Result | |
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| 3 | This query shows the products with no stock but appear in orders with a “pending” status sorted by the cost to fulfill the order. It also shows the order IDs that they appear with and their outstanding quantity.  **Insight:** Product 206 has the greatest outstanding cost to fulfil order. | SELECT p.PRODUCT\_ID, p.PRODUCT\_NAME, STRING\_AGG(o.ORDER\_ID, ', ') AS 'ORDER\_IDs', SUM(s.QUANTITY) 'Outstanding Quantity',SUM(s.QUANTITY \* s.STANDARD\_COST) 'Cost of Fulfilling Order'  FROM ProductDIM p, OrderDIM o, SalesFacts s  WHERE s.PRODUCT\_ID = p.PRODUCT\_ID  AND o.ORDER\_ID = s.ORDER\_ID  AND o.STATUS = 'Pending'  AND p.QUANTITY is Null  GROUP BY p.PRODUCT\_ID, p.PRODUCT\_NAME  ORDER BY 5 DESC |
| Result | |
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| 4 | This query shows the top 5 employees based on profit made for the company and the number of orders they made.  **Insight:** General Mills is by far the largest customer that spent the most, ahead by nearly 100000 dollars. | SELECT TOP(5) c.NAME, SUM(s.QUANTITY \* (s.UNIT\_PRICE - s.STANDARD\_COST)) 'Total Profit Made from Customer', COUNT(s.ORDER\_ID) 'Orders Made'  FROM CustomerDIM c, SalesFacts s  WHERE  c.CUSTOMER\_ID IN (  SELECT CUSTOMER\_ID  FROM SalesFacts  GROUP BY CUSTOMER\_ID  HAVING SUM(QUANTITY \* (UNIT\_PRICE - STANDARD\_COST)) > AVG(QUANTITY \* (UNIT\_PRICE - STANDARD\_COST)))  AND c.CUSTOMER\_ID = s.CUSTOMER\_ID  GROUP BY c.NAME  ORDER BY 2 DESC |
| Result | |
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| 5 | This query shows the bottom 5 products based on units sold and their corresponding stock remaining, and profit margin.  **Insight:** Products such as Intel Xeon E5-2680 V2 which has a low number of products sold but a high amount of stock remaining should be discounted to incentivise customers to buy them. Its profit margin of 23.63% shows that the price can still be lowered while still making the company a profit. | SELECT TOP(5) p.product\_name 'Top-Selling Products', ISNULL(p.QUANTITY, 0) 'Stock Remaining', SUM(s.QUANTITY) 'Units Sold', CONCAT(CONVERT(DECIMAL(12,2),MAX((s.UNIT\_PRICE-s.STANDARD\_COST)/s.STANDARD\_COST\*100)),'%') 'Profit Margin'  from ProductDIM p, SalesFacts s  where s.PRODUCT\_ID = p.PRODUCT\_ID AND  p.QUANTITY is not NULL  GROUP BY p.PRODUCT\_ID, p.product\_name, p.QUANTITY  ORDER BY 3 ASC |
| Result | |
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