**ST1501 CA2 Indiviudal Task**

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

**Group No**: Team Bryan

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**Individual Task**

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| **Item** | **SQL statement for JSON format** |
| Products | SELECT \* FROM Products FOR JSON PATH, INCLUDE\_NULL\_VALUES; |
| ProductSold | SELECT p.Product\_ID, p.Product\_Name, w.Warehouse\_ID, w.Warehouse\_Name, l.Location\_ID, l.Address, c.Country\_Name, r.Region\_Name, i.Quantity  FROM Inventories i, Products p, Warehouses w, Locations l, Countries c, Regions r  WHERE  p.Product\_ID = i.Product\_ID AND w.Warehouse\_ID = i.Warehouse\_ID AND l.Location\_ID = w.Location\_ID  AND l.Country\_ID = c.Country\_ID AND r.Region\_ID = c.Region\_ID  FOR JSON PATH, INCLUDE\_NULL\_VALUES; |
| ProductStock | SELECT p.Product\_ID, SUM(ISNULL(oi.Quantity,0)) as total\_qty\_sold  FROM Products p  LEFT JOIN Order\_Items oi  ON p.Product\_ID = oi.Product\_ID  GROUP BY p.Product\_ID  FOR JSON PATH, INCLUDE\_NULL\_VALUES; |

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| **Item** | **MongoDB command** | **Results** |
| Count of Products Collection | db.Products.find({}).count() | 288 |
| Count of ProductSold Collection | db.ProductSold.find({}).count() | 288 |
| Count of ProductStock  Collection | db.ProductStock.find({}).count() | 1000 |
| Query 1 | db.ProductSold.distinct("Product\_ID", {total\_qty\_sold:0}) |  |
| Query 2 | db.ProductSold.aggregate([  {$lookup: { from: "ProductStock", localField: "Product\_ID", foreignField: "Product\_ID", as:"ProductStock"}},  {$unwind:{path: "$ProductStock",preserveNullAndEmptyArrays: true}},  {$group: {\_id: "$Product\_ID",  Product\_ID: {$first: "$Product\_ID"},  total\_qty\_sold: {$sum: "$total\_qty\_sold"},  totalStock: { $sum: "$ProductStock.Quantity" }  }},  {$match:{total\_qty\_sold:0}},  {$sort:{totalStock:-1}},  {$project:{\_id:0, Product\_ID:'$Product\_ID', total\_qty\_sold: '$total\_qty\_sold', totalStock: '$totalStock'}}  ])   Insight: For the first 22 products, since these products have total quantity sold of 0 but have total stock of more than 0, it means that there is an inventory surplus for each of these product which means that there is a lower demand for these products and the company made a loss in profit. For the last 10 products, there is a product stock of 0 which means that the products are currently out of inventory, stockout leads to missed sales opportunities and hence total quantity sold is 0. |  |
| Query 3 | db.ProductStock.aggregate([  {$group: { \_id: {country\_name: "$Country\_Name", warehouse\_name: "$Warehouse\_Name"}}}  ]) |  |
| Query 4 | db.ProductStock.aggregate([  {$group: {\_id: "$Warehouse\_ID", Warehouse\_Name:{$first:"$Warehouse\_Name"}, total\_Products:{$addToSet:"$Product\_ID"}}},  {$project: {\_id: 0, Warehouse\_Name: 1, NumberofProducts:{$size: "$total\_Products"}}}]); |  |