1. List of all purchases of a customer.

[

{

"$match": {

"customer": "Tony Stark"

}

}

]

1. List of all suppliers for a product.

[

{

"$match": {

"name": "Air Conditioner"

}

},

{

"$lookup": {

"from": "supplier",

"localField": "suppliers",

"foreignField": "name",

"as": "supplier\_details"

}

},

{

"$unwind": "$supplier\_details"

},

{

"$project": {

"supplier\_details.name": 1,

"\_id": 0

}

}

]

1. List of all the different products purchased by a customer

[

{

"$match": {

"customer": "Thomas Mills"

}

},

{

"$unwind": "$products"

},

{

"$group": {

"\_id": "$products"

}

},

{

"$project": {

"product\_name": "$\_id",

"\_id": 0

}

}

]

1. List of products sold by "Modas Paqui" whose name contains "short sleeves".

[

{

"$match": {

"suppliers": "Modas Paqui",

"name": {

"$regex": "short sleeves",

"$options": "i"

}

}

},

{

"$project": {

"name": 1,

"\_id": 0

}

}

]

My case

[

{

"$match": {

"suppliers": "Stark Industries",

"name": {

"$regex": "Iron Man",

"$options": "i"

}

}

},

{

"$project": {

"name": 1,

"\_id": 0

}

}

]

1. Calculate the total weight and volume of products purchased by a customer on  
   a given day.

[

{

"$match": {

"customer": "Thomas Mills",

"purchase\_date": "2024-05-27"

}

},

{

"$lookup": {

"from": "product",

"localField": "products",

"foreignField": "name",

"as": "product\_details"

}

},

{

"$unwind": "$product\_details"

},

{

"$group": {

"\_id": null,

"total\_weight": {

"$sum": "$product\_details.weight"

},

"total\_volume": {

"$sum": {

"$multiply": [

"$product\_details.dimensions.length",

"$product\_details.dimensions.width",

"$product\_details.dimensions.height"

]

}

}

}

},

{

"$project": {

"\_id": 0,

"total\_weight": 1,

"total\_volume": 1

}

}

]

1. Calculate the average number of shipments and stores per month.

[{

"$project": {

"month": {

"$substr": ["$purchase\_date", 0, 7]

},

"shipping\_address": 1,

"products": 1

}

},

{

"$lookup": {

"from": "product",

"localField": "products",

"foreignField": "name",

"as": "product\_details"

}

},

{

"$unwind": "$product\_details"

},

{

"$lookup": {

"from": "supplier",

"localField": "product\_details.suppliers",

"foreignField": "name",

"as": "supplier\_details"

}

},

{

"$unwind": "$supplier\_details"

},

{

"$project": {

"month": 1,

"shipping\_address": 1,

"warehouse\_address": "$supplier\_details.warehouse\_addresses"

}

},

{

"$group": {

"\_id": {

"month": "$month"

},

"unique\_shipments": {

"$addToSet": "$shipping\_address"

},

"unique\_warehouses": {

"$addToSet": "$warehouse\_address"

}

}

},

{

"$project": {

"month": "$\_id.month",

"monthly\_shipments": {

"$size": "$unique\_shipments"

},

"monthly\_warehouses": {

"$size": "$unique\_warehouses"

},

"\_id": 0

}

},

{

"$group": {

"\_id": null,

"avg\_shipments\_per\_month": {

"$avg": "$monthly\_shipments"

},

"avg\_warehouses\_per\_month": {

"$avg": "$monthly\_warehouses"

}

}

},

{

"$project": {

"\_id": 0,

"avg\_shipments\_per\_month": 1,

"avg\_warehouses\_per\_month": 1

}

}]

1. List of the three suppliers with the highest turnover volume. Show supplier and  
   billing volume.

[

{

"$lookup": {

"from": "product",

"localField": "products",

"foreignField": "name",

"as": "product\_details"

}

},

{

"$unwind": "$product\_details"

},

{

"$group": {

"\_id": "$product\_details.suppliers",

"total\_billing\_volume": {

"$sum": "$product\_details.price\_with\_vat"

}

}

},

{

"$sort": {

"total\_billing\_volume": -1

}

},

{

"$limit": 3

},

{

"$project": {

"supplier\_name": "$\_id",

"total\_billing\_volume": 1,

"\_id": 0

}

}

]

1. List of warehouses near certain coordinates (100km maximum distance)  
   ordered by distance.

[

{

"$geoNear": {

"near": {

"type": "Point",

"coordinates": [-77.03653, 38.897676]

},

"distanceField": "distance",

"maxDistance": 100000,

"spherical": true

}

},

{

"$project": {

"name": 1,

"warehouse\_addresses": 1,

"distance": 1,

"\_id": 0

}

},

{

"$sort": {

"distance": 1

}

}

]

1. List of purchases with destination within a polygon whose vertices are defined  
   by coordinates.

[

{

"$match": {

"shipping\_coordinates": {

"$geoWithin": {

"$polygon": [

[2.174428, 41.403505], # Barcelona

[-3.703790, 40.416775], # Madrid

[-0.127758, 51.507351], # London

[2.352222, 48.856613], # Paris

[2.174428, 41.403505] # Closure

]

}

}

}

},

{

"$project": {

"customer": 1,

"shipping\_address": 1,

"purchase\_date": 1,

"\_id": 0

}

}

]

1. Save in a new table the list of purchases that must be sent from a warehouse  
   on a given day

[

{

"$match": {

"purchase\_date": "2024-05-27"

}

},

{

"$lookup": {

"from": "product",

"localField": "products",

"foreignField": "name",

"as": "product\_details"

}

},

{

"$unwind": "$product\_details"

},

{

"$lookup": {

"from": "supplier",

"localField": "product\_details.suppliers",

"foreignField": "name",

"as": "supplier\_details"

}

},

{

"$unwind": "$supplier\_details"

},

{

"$project": {

"customer": 1,

"shipping\_address": 1,

"purchase\_date": 1,

"warehouse\_address": "$supplier\_details.warehouse\_addresses",

"\_id": 0

}

},

{

"$out": "warehouse\_shipments"

}

]