

E-COMMERCE CLOTHES SHOPPING SYSTEM



Group 7
Mr. Varun Palkuru
Mr. Todsavad Tangtortan
Ms. Kyi Khaing Nyein
Ms. Aiman Lameesa
Ms. Sandhya Lamichhane

Contents

1

BACKGROUND

Goal and Why E-commerce?



2

DIAGRAM

Conceptual Diagram
ERDiagram



3

LIMITATION

Performance



4

OPERATIONS & QUERIES

CRUD Operation



5

Question & Answer





1

BACKGROUND

Project Ideation

Goal : To create an ecommerce clothing platform (B2C) or system where customers and vendors are able to play their role. Such as vendors can put a new products and add stock. Additionally, a customer can find products and purchase them.



Why E-commerce?

- E-commerce refers to companies (suppliers) and individuals (customers) that buy and sell goods and services over the Internet.
- It means it contains name product, quantity of product, cart, transaction.
- Convenient for customers and they are not limited by what is available
- More ways to expand their business for stores.
- Not necessary for stores to have physical location.
- Therefore, it is a beneficial case study for us to look inside what components (features) must have.

BUSINESS RULES

- Customers and Vendors need to register in the system to use it.
- **Phone number, email and address** should be valid.
- **Address** must be provided at registration
- Must have registered business for vendors to use it.
- Clothes cannot be **returned 7 days** after they have been delivered to the customers.
- Payment can be **cash on delivery** or **online**.

BUSINESS RULES

- Delivery status will be either **new, processed, shipped, delivered, cancelled or returned**
- Product Size contain clothes : **XS,S,M,L,XL** and shoe : **5-12 US**
- A product can have many reviews which contains **comment and rating**
- Category Name provide :
 - men-tshirt/shirt, men-pants/leggins, men-jackets/overall, men-shoe, men-accesories
 - women-tshirt/shirt, women-pants/leggins, women-skirt, women-dresses, women-jackets/overall, women-shoe, women-accesories

BUSINESS PROVIDE:

- Payment can be **cash on delivery** or **online**.
- Delivery status will be either **new, processed, shipped, delivered, cancelled or returned**
- Product Size contain clothes : **XS,S,M,L,XL** and shoe : **5-12 US**
- A product can have many reviews which contain **comment and rate**
- Category Name provide :
 - men-tshirt/shirt, men-pants/leggins, men-jackets/overall, men-shoe, men-accesories
 - women-tshirt/shirt, women-pants/leggins, women-skirt, women-dresses, women-jackets/overall, women-shoe, women-accesories

CONSTRAINTS

- customer id, username, email and phone number should be **unique**
- First name, last name, username, email, address and phone number cannot be NULL
- Password should be at least 11 characters with uppercase, lowercase, numbers and special characters
- Mobile number can be of only 10 digits
- Customer id will be the PRIMARY KEY for user table and FOREIGN KEY for the other tables
- Product id will be the PRIMARY KEY for product table and FOREIGN KEY for the other tables

DATA TO BE MAINTAINED

- Customer - customer id, username, address, password, email, phone number, name, point
- Vendor Information: vendor id, name, address, password, email, phone number, store name
- Product information - product id, product name, product types, price, Product Reviews
- Order information: order id, ordered date, product id, delivery date, payment mode
- Product reviews: review id, product id, review, star rating
- Product categories: category id, category name
- Delivery information: delivery id, order id, payment method, delivery status

OPERATIONS

INSERT OPERATIONS

- Customer
- Vendor
- Products
- Order
- Product reviews

UPDATE OPERATIONS

- Customer information (Address)
- Order Information (cancelled, delivered, returned, etc.)
- Product Information (quantity, price)
- Product Review

DELETE OPERATIONS

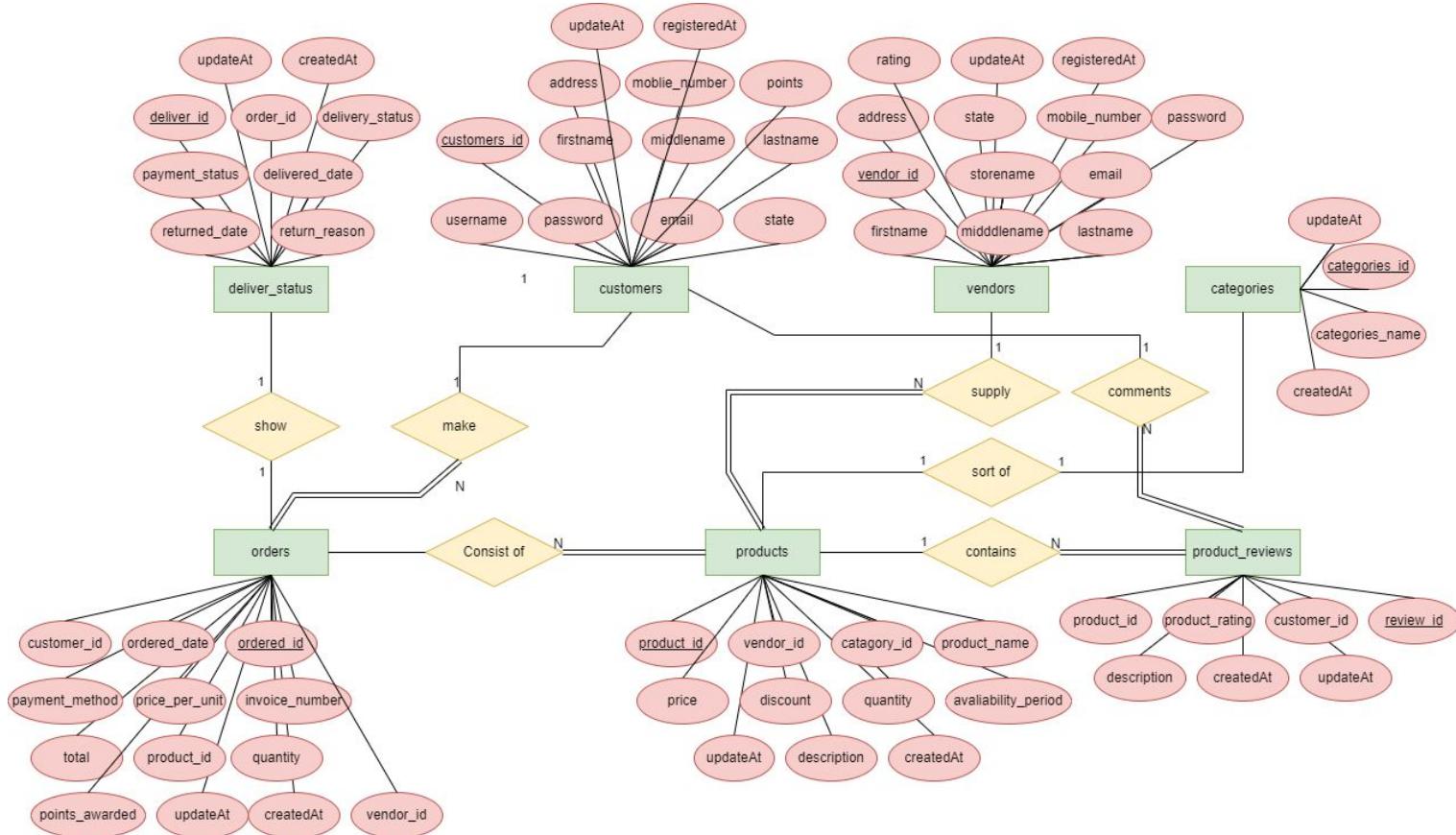
- Product reviews



2

DIAGRAM

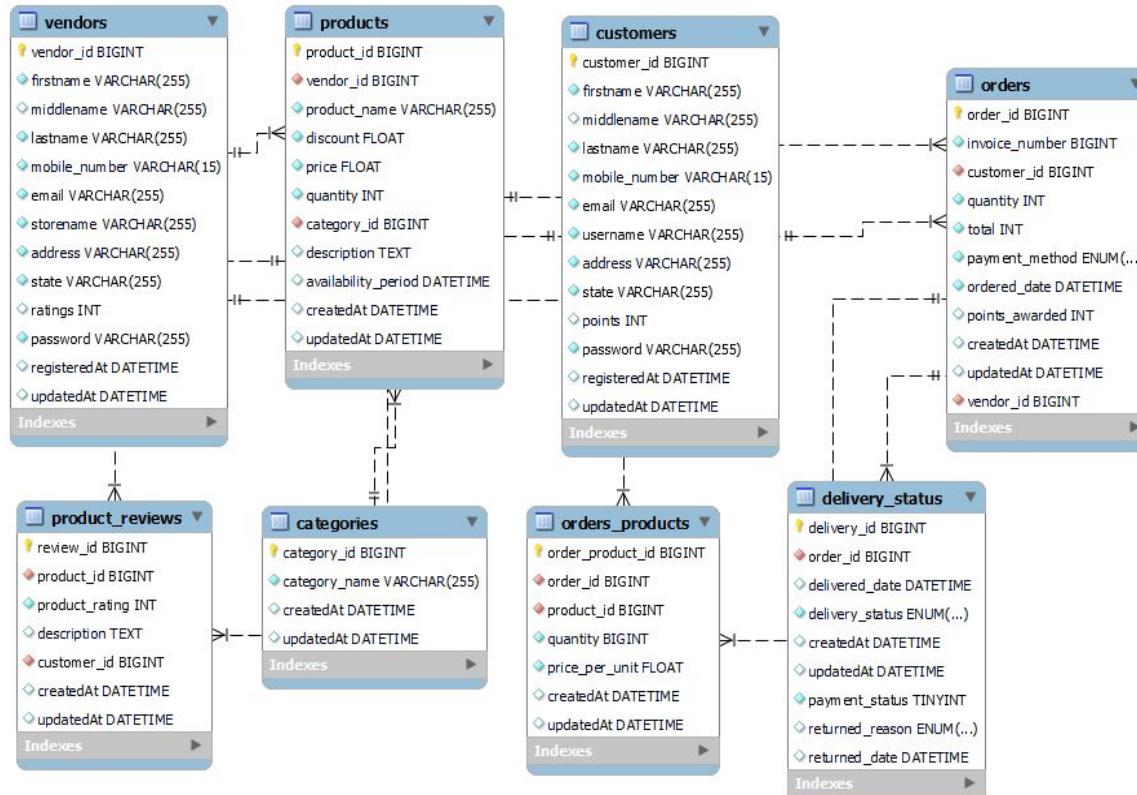
CONCEPTUAL DIAGRAM



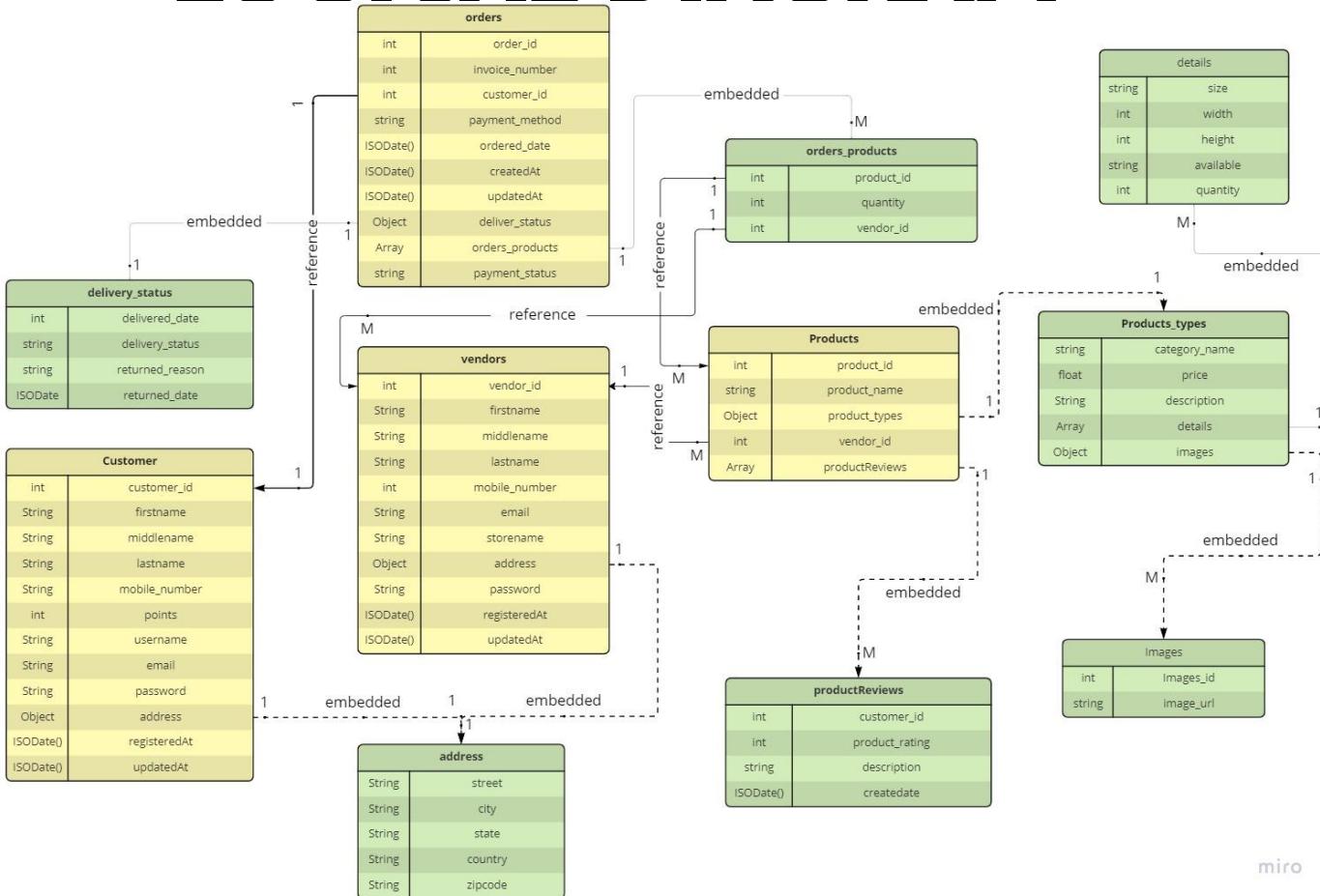
LOGICAL DIAGRAM

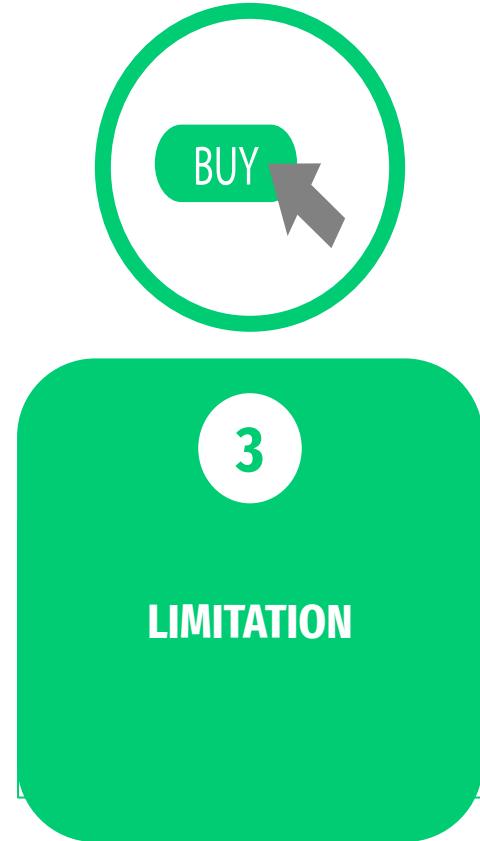


ENTITY RELATIONSHIP DIAGRAM



LOGICAL DIAGRAM



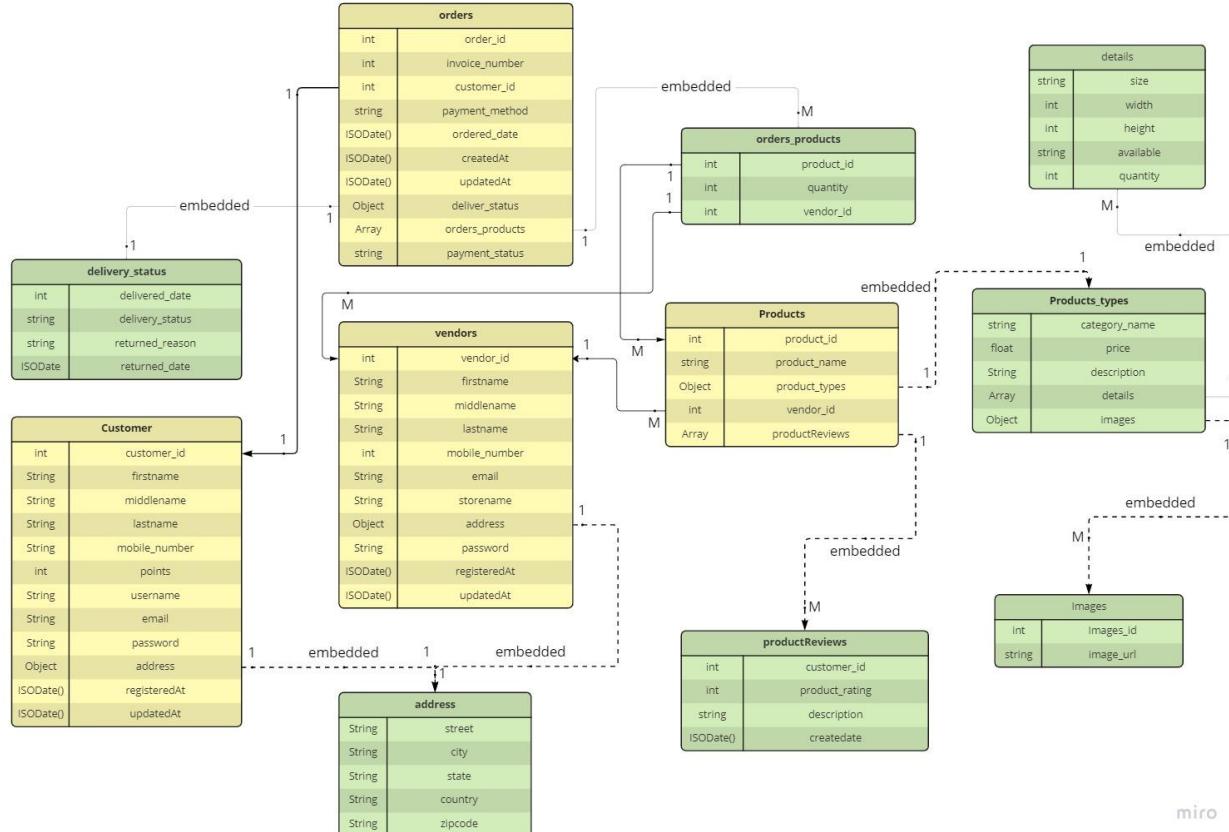


Customer Collection and Vendor Collection

```
{  
  "customer_id": 1,  
  "firstname": "Foster",  
  "middlename": null,  
  "lastname": "Bentke",  
  "mobile_number": "213-893-4886",  
  "points": 93,  
  "username": "fbentke0",  
  "email": "fbentke0@dion.ne.jp",  
  "password": "5KfgcnJY",  
  "address": [  
    {  
      "street": "5383 Bultman Center",  
      "city": "Mendoza",  
      "state": null,  
      "country": "Peru",  
      "zipcode": null  
    }  
  ],  
  "registeredAt": "2022-06-07",  
  "createdAt": "2021-11-24"  
},
```

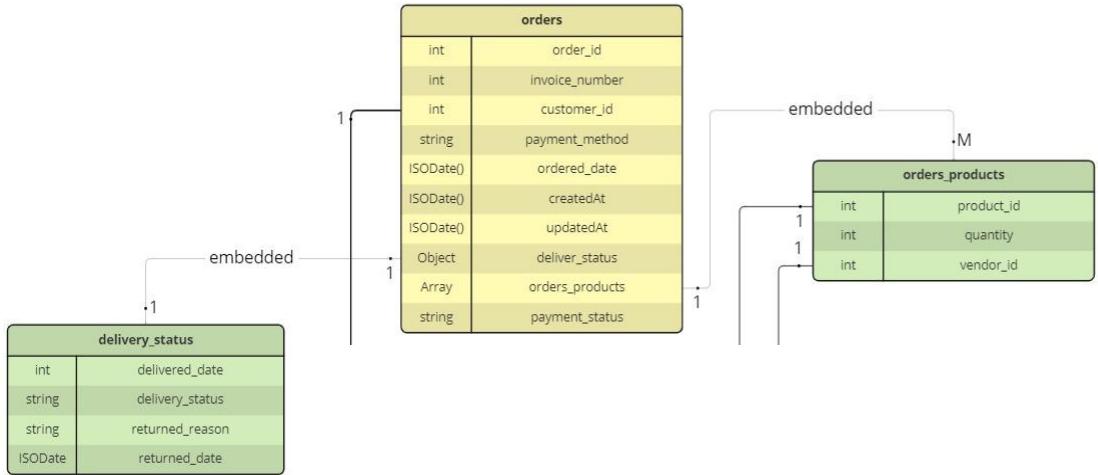
```
{  
  "vendor_id": 1,  
  "storename": "Tillman-Cronin",  
  "firstname": "Davina",  
  "middlename": null,  
  "lastname": "Jirzik",  
  "mobile_number": "204-888-6848",  
  "email": "djirzik0@slashdot.org",  
  "address": [  
    {  
      "street": "4 Transport Street",  
      "city": "Dobroměřice",  
      "state": null,  
      "country": "Czech Republic",  
      "zipcode": "440 01"  
    }  
  ],  
  "password": "878bf3d2811fc05f1fa73d82ad14478df1bf9c7d21138ea",  
  "registeredAt": "2021/10/06",  
  "updatedAt": "2022/05/07"  
},
```

WHICH TABLES EMBEDDED TO PRODUCT AND ORDER TABLE



Order Collection

```
  "order_id": 1,  
  "invoice_number": 1,  
  "customer_id": 19,  
  "payment_method": "online",  
  "ordered_date": "2022/10/11",  
  "createdAt": "2022/10/11",  
  "updatedAt": "2022/09/18",  
  "deliver_status": {  
    "delivery_date": null,  
    "delivery_status": "new",  
    "returned_reason": null,  
    "returned_date": null  
  },  
  "order_products": [  
    {  
      "product_id": 60,  
      "quantity": 2,  
      "vendor_id": 96  
    },  
    {  
      "product_id": 29,  
      "quantity": 1,  
      "vendor_id": 49  
    }  
  ],  
  "payment_status": true  
},
```

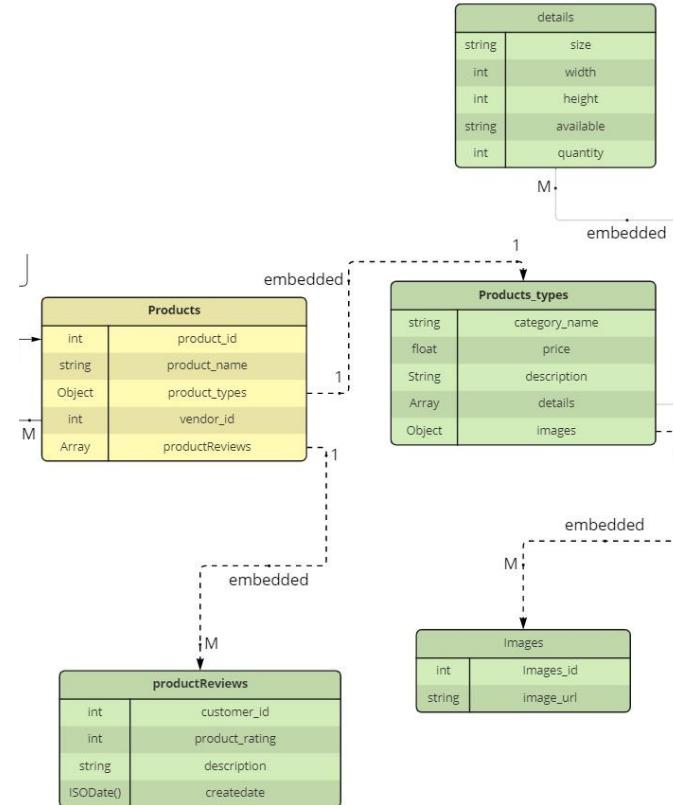


```

{
  "product_id": 2,
  "vendor_id": 27,
  "product_name": "sweatshirt",
  "product_types": [
    {
      "category_name": "men-jackets/overall",
      "price": 5353,
      "description": "Cum sociis natoque pena",
      "details": [
        {
          "width": 3.76,
          "height": 6.81,
          "quantity": 46,
          "avaliblty": "true",
          "size": "xs"
        },
        {
          "width": 2.87,
          "height": 8.83,
          "quantity": 34,
          "avaliblty": "true",
          "size": "s"
        },
        {
          "width": 2.27,
          "height": 7.02,
          "quantity": 79,
          "avaliblty": "true",
          "size": "m"
        },
        {
          "width": 2.48,
          "height": 8.08,
          "quantity": 0,
          "avaliblty": "false"
        }
      ],
      "images": [
        {
          "image_id": 1,
          "image_url": "http://dummyimage.com/203x100.jpg&text=Image+1"
        }
      ],
      "productreview": [
        {
          "customer_id": 58,
          "product_rating": 1,
          "description": "I ordered a size smaller",
          "createdate": "2022-04-08"
        },
        {
          "customer_id": 22,
          "product_rating": 3,
          "description": "I love this shirt",
          "createdate": "2020-12-07"
        },
        {
          "customer_id": 81,
          "product_rating": 4,
          "description": "I love this shirt",
          "createdate": "2022-04-18"
        },
        {
          "customer_id": 6,
          "product_rating": 5,
          "description": "I'm a size 38 and I ordered a size 36. It's too small.",
          "createdate": "2022-08-02"
        }
      ]
    }
  ]
}

```

Product Collection



Relation or Document ?

ADVANTAGE of document

- Fast access
 - New order
 - New customer
 - Transaction

DISADVANTAGE of document

- Inflexible
 - order_status
 - quantity each size



4

OPERATIONS & QUERIES

OPERATIONS

1. Insert a new customer (Todsavad)
2. Update product price (Todsavad)
3. Insert a new product item (Varun)
4. Update the points of the customer (Varun)
5. Insert a new order (Kyi)
6. Update quantity product that available (Kyi)
7. Insert a new vendor (Lameesa)
8. Update orders when product is canceled (Lameesa)
9. Update the product review rating (Sandhya)
10. Delete an existing product review (Sandhya)

QUERIES

Todsavad:

- Show product price which is more than 5000
- Show product size is not available to sell
- Show the number of item with each vendors
- Which payment method that customer prefer

Lameesa :

- List the customers who registered this year (2022) in a descending order
- List the orders that were placed in 2022
- Find out the most loyal customers (more than 10 orders and 50 points)
- List the top 5 cities of customers with the highest amount of online orders

Kyi:

- List the expensive product from each vendor
- Which state has most order
- Show what is the product name and category name for a specific customer

QUERIES

Sandhya:

- List Emails of customers who have selected cash on delivery option and have pending payments
- Get the list of products average product rating more than 3
- Find out total orders grouped by delivery status
- Average delivery time taken from it has been ordered to delivered

Varun :

- Find out the average rating of a particular product and which category it belongs to?
- Show the price , storename,city that have or sell women shoes
- List out the top 5 loyal customers who order online
- Show the customername and product name that he ordered including the price

QUERIES OLD SLIDE

1. Find out who is the most loyal customers (more than 10 orders and 50 point) (Lameesa)
2. Show product price which is more than 5000 (Gun)
3. Show product size is not available to sell (Gun)
4. Show the number of item with each vendors (Gun)
5. Which payment method that customer prefer (Gun)
6. Total revenue generated by each vendor
7. List the expensive product from each vendor(Kyi)
8. Analysis of First quarter of 2021
9. Analysis of Second quarter of 2021
10. Analysis of Third quarter of 2021
11. Which vendor HAS THE Most amount orders 1st quarter of 2022
12. Which product categories has the most sale
13. List the top 5 states of customers with the highest amount of online orders (Lameesa)
14. top 5 least popular vendor according to the state
13. Match the customer and store and state
14. Which state has the most returned product
15. The customer with most amount of canceled orders
16. List the names of the customers who are spending more than 50,000 in 2021
17. Which state has most order
18. What is the common returned reason
19. Top 5 states with most unreliable stores
20. Orders count sorted by ordered time
21. Which are the most popular categories?
22. What size was sold from the most popular categories?
23. top 5 popular vendor according to the state

Insert a new customer

```
> db.customer.insertOne(  
  {  
    "customer_id": 101,  
    "firstname": "Todsavad",  
    "middlename": null,  
    "lastname": "Tangtortan",  
    "mobile_number": "213-893-4886",  
    "points": 0,  
    "username": "todsavad123",  
    "email": "todsavad123@gmail.com.",  
    "password": "e57hjrSGv",  
    "address": [  
      {  
        "street": "589 Bangna Center",  
        "city": "Bangna",  
        "state": null,  
        "country": "Thailand",  
        "zipcode": 10270  
      }  
    ],  
    "registeredAt": Date(),  
    "createdAt": Date()  
  }  
)  
< { acknowledged: true,  
  insertedId: ObjectId("63509b6bf47c1083ce0d82fe") }
```

Update product price

```
> db.product.updateOne(  
  { "product_id" : 2, "product_types.price": 5353 },  
  { $set: { "product_types.$.price": 1012 } }  
)  
< { acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0 }
```

Todsavad

Show product price which is more than 5000

```
> db.product.find({'product_types.price' : {$gt: 5000}}, {product_id:1, 'product_types.price':1}).sort({'product_types.price': 1})  
< [ { _id: ObjectId("63514034db84552a8e35cc8d"),  
      product_id: 32,  
      product_types: [ { price: 5027 } ] }  
    , { _id: ObjectId("63514034db84552a8e35cccf"),  
      product_id: 98,  
      product_types: [ { price: 5100 } ] }  
    , { _id: ObjectId("63514034db84552a8e35cc87"),  
      product_id: 26,  
      product_types: [ { price: 5320 } ] }  
    , { _id: ObjectId("63514034db84552a8e35cc6f"),  
      product_id: 2,  
      product_types: [ { price: 5353 } ] }  
    , { _id: ObjectId("63514034db84552a8e35ccac"),  
      product_id: 63,  
      product_types: [ { price: 5510 } ] }  
    , { _id: ObjectId("63514034db84552a8e35ccab"),  
      product_id: 62,  
      product_types: [ { price: 5622 } ] }  
    , { _id: ObjectId("63514034db84552a8e35cc7b"),  
      product_id: 14,
```

Show product is not available to sell

```
> db.product.find(
    {'product_types.details.avalibilty' : "false"},
    {product_id:1,product_name:1,'product_types.details.avalibilty':1,'product_types.details.size':1}
)
< { _id: ObjectId("63514034db84552a8e35cc6f"),
  product_id: 2,
  product_types:
  [ { details:
      [ { avalibilty: 'true', size: 'xs' },
        { avalibilty: 'true', size: 's' },
        { avalibilty: 'true', size: 'm' },
        { avalibilty: 'false', size: 'l' },
        { avalibilty: 'true', size: 'xl' } ] } ]
{ _id: ObjectId("63514034db84552a8e35cc77"),
  product_id: 10,
  product_types:
  [ { details:
      [ { avalibilty: 'true', size: 'xs' },
        { avalibilty: 'true', size: 's' },
        { avalibilty: 'true', size: 'm' },
        { avalibilty: 'false', size: 'l' } ] } ] }
```

Show the number of item with each vendors

```
> db.product.aggregate([
    { $unwind: '$product_types' },
    { $unwind: '$product_types.details' },
    {
        $group: {
            _id: '$vendor_id',
            Total: { $sum: '$product_types.details.quantity' },
        },
    }
]).sort({Total:-1})
< { _id: 87, Total: 1053 }
{ _id: 50, Total: 968 }
{ _id: 58, Total: 772 }
{ _id: 53, Total: 768 }
{ _id: 96, Total: 757 }
{ _id: 49, Total: 708 }
{ _id: 51, Total: 651 }
{ _id: 71, Total: 641 }
{ _id: 52, Total: 623 }
{ _id: 98, Total: 598 }
{ _id: 15, Total: 590 }
```

Which payment method that customer prefer

```
> db.order.aggregate([{
    $lookup: {
        from: 'customer',
        localField: 'customer_id',
        foreignField: 'customer_id',
        as: 'CustomerInfo'
    }
}, {
    $group: {
        _id: '$payment_method',
        count: {
            $sum: 1
        }
    }
}])
< { _id: 'online', count: 344 }
{ _id: 'cash on delivery', count: 359 }
Atlas atlas-hzuggk-shard-0 [primary] ECommerce >
```

Insert a new order

```
> db.order.insertOne({
  "order_id": 2813,
  "vendor_id": 14,
  "invoice_number": 657,
  "customer_id": 18,
  "quantity": 20,
  "total": 2400,
  "payment_method": 1,
  "ordered_date": { "$date": "2022-12-10T07:54:03.000Z" },
  "points_awarded": 30,
  "createdAt": { "$date": "2022-12-10T07:54:03.000Z" },
  "updatedAt": { "$date": "2022-12-11T07:54:03.000Z" },
  "deliver_status": [
    {
      "delivery_date": "22/12/2022",
      "delivery_status": "delivered",
      "returned_reason": "",
      "returned_date": ""
    }
  ],
  "order_products": [
    { "product_id": 35, "quantity": 8, "price_per_unit": 650 },
    { "product_id": 70, "quantity": 12, "price_per_unit": 1750 }
  ]
})
< { acknowledged: true,
  insertedId: ObjectId("635216f0fcbb109252f1dc03d") }
```

Update quantity product that available

```
> db.product.updateOne(
  {"product_id":67, "product_types.0.details.3.availiblty":"true"},
  {$set:{"product_types.0.details.3.quantity":73}}
)
< { acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0 }
```

Kyi

Show what is the product name and category for a specific customer

```
> db.products.find({"product_name": "heels", "product_types.category_name": "women-shoes", "product_types.details.quantity": {$eq: 50}, "productreview.customer_id": {$eq: 61}})  
< { _id: ObjectId("6351336cd8d7981c8021e3b4"),  
  product_id: 1,  
  vendor_id: 82,  
  'product_name': 'heels',  
  product_types:  
    [ { category_name: 'women-shoes',  
      price: 1085,  
      description: 'In quis justo. Maecenas rhoncus aliquam lacus. Morbi quis tortor id nulla ultrices aliquet.\n\nMaecenas leo odio, condimentum id, luctus nec, molestie sed, justo. Pell',  
      details:  
        [ { width: 3.61,  
          height: 6.87,  
          quantity: 50,  
          availiblty: 'true',  
          size: 'xs' },  
          { width: 4.47,  
            height: 6.43,  
            quantity: 3,  
            availiblty: 'true',  
            size: 's' },  
          { width: 2.98,  
            height: 7.43,  
            quantity: 78,  
            availiblty: 'true',  
            size: 'm' } ] } ] }
```

Which state has most order

```
> db.customer.aggregate([
    {
        $lookup: {
            from: 'order',
            localField: 'customer_id',
            foreignField: 'customer_id',
            as: 'target_customer',
        }
    },
    {
        $group: {
            _id: '$address.city',
            orderCount: {
                $sum: 1,
            }
        }
    }
])
```

```
< [
    { _id: [ 'Lianzhu' ], orderCount: 1 },
    { _id: [ 'Ağdaş' ], orderCount: 1 },
    { _id: [ 'Yanhу' ], orderCount: 1 },
    { _id: [ 'Tampakan' ], orderCount: 1 },
    { _id: [ 'Kalianda' ], orderCount: 1 },
    { _id: [ 'Khursā' ], orderCount: 1 },
    { _id: [ 'Yajиwa' ], orderCount: 1 },
    { _id: [ 'Samut Prakan' ], orderCount: 1 },
    { _id: [ 'Laju Kidul' ], orderCount: 1 },
    { _id: [ 'Bronx' ], orderCount: 1 },
    { _id: [ 'Jongiyeh' ], orderCount: 1 },
    { _id: [ 'Shamboyacu' ], orderCount: 1 },
    { _id: [ 'Labuhansumbawa' ], orderCount: 1 },
    { _id: [ 'Zhutian' ], orderCount: 1 },
    { _id: [ 'Yanping' ], orderCount: 1 },
    { _id: [ 'Maasin' ], orderCount: 1 },
    { _id: [ 'Xukou' ], orderCount: 1 },
    { _id: [ 'Domampot' ], orderCount: 1 },
    { _id: [ 'Donglai' ], orderCount: 1 },
    { _id: [ 'Qukuhu' ], orderCount: 1 }
]
```

List the expensive product from each vendor

```
> db.product.aggregate(  
  {  
    $lookup:{  
      from: 'vendor',  
      localField: 'vendor_id',  
      foreignField: 'vendor_id',  
      as: 'vendor'  
    },  
    {  
      $group:{  
        _id:"$vendor_id",  
        maxPrice:{$max:"$product_types.price"}  
      }  
    }  
  })
```

```
< { _id: 96, maxPrice: [ 7222 ] }  
{ _id: 11, maxPrice: [ 8843 ] }  
{ _id: 54, maxPrice: [ 6067 ] }  
{ _id: 99, maxPrice: [ 2537 ] }  
{ _id: 8, maxPrice: [ 7697 ] }  
{ _id: 17, maxPrice: [ 2851 ] }  
{ _id: 7, maxPrice: [ 1682 ] }  
{ _id: 13, maxPrice: [ 3241 ] }  
{ _id: 23, maxPrice: [ 1359 ] }  
{ _id: 5, maxPrice: [ 9879 ] }  
{ _id: 83, maxPrice: [ 7369 ] }  
{ _id: 86, maxPrice: [ 9276 ] }  
{ _id: 50, maxPrice: [ 7430 ] }  
{ _id: 3, maxPrice: [ 5622 ] }  
{ _id: 58, maxPrice: [ 9170 ] }  
{ _id: 65, maxPrice: [ 8781 ] }  
{ _id: 49, maxPrice: [ 9115 ] }  
{ _id: 12, maxPrice: [ 4329 ] }  
{ _id: 51, maxPrice: [ 6367 ] }  
{ _id: 67, maxPrice: [ 8901 ] }
```

Insert a new vendor

Update delivery status from delayed to delivered

Aiman

```
> db.vendor.insertOne({
  "vendor_id": 101,
  "storename": "VT-Garment",
  "firstname": "Sujani",
  "middlename": null,
  "lastname": "Perara",
  "moblie_number": "204-652-6843",
  "email": "vt_garment.org",
  "address": [
    {
      "street": "94 Phahonyothin Road",
      "city": "Pathum Thani",
      "state": null,
      "country": "Thailand",
      "zipcode": "120 12"
    }
  ],
  "password": "878bf3d2811fc05loyaa73d82ad14478df1bf9c7d21138ea6734feab433e20649",
  "registeredAt": "2021/11/08",
  "updatedAt": "2022/03/07"
})
< { acknowledged: true,
  insertedId: ObjectId("6350b0b5cf18f412013f109a") }
```

```
> db.order.updateOne(
  {
    "order_id": 12, "deliver_status.delivery_status": "delayed"
  },
  {
    $set : { "deliver_status.delivery_status" : "delivered" }
  }
);
< { acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0 }
```

1. List the customers who registered this year (2022) in a descending order

Aiman

```
> db.customer.find( { registeredAt: { $gte: ('2022-01-01') } }, {customer_id: 1, firstname: 1 , lastname: 1 , registeredAt: 1} ).sort({registeredAt: -1})  
< { _id: ObjectId("63514538531cd9b2a7d3141a"),  
  customer_id: 71,  
  firstname: 'Micky',  
  lastname: 'Sells',  
  registeredAt: '2022-10-10' }  
{ _id: ObjectId("63514538531cd9b2a7d3141b"),  
  customer_id: 72,  
  firstname: 'Debbie',  
  lastname: 'Lebel',  
  registeredAt: '2022-10-06' }  
{ _id: ObjectId("63514538531cd9b2a7d31431"),  
  customer_id: 94,  
  firstname: 'Tammie',  
  lastname: 'Hayton',  
  registeredAt: '2022-09-29' }  
{ _id: ObjectId("63514538531cd9b2a7d31424"),  
  customer_id: 81,  
  firstname: 'Toni',  
  lastname: 'Orgen',  
  registeredAt: '2022-09-18' }
```

2. List the orders that were placed in 2022

Aiman

```
> db.order.find( { ordered_date: { $gte: ('2022-01-01') } }, {ordered_date: 1} ).sort({ordered_date: 1})  
< [ { _id: ObjectId("635153ed531cd9b2a7d314ed"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d31551"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d315b5"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d31619"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d31680"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d316e4"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d31748"),  
    ordered_date: '2022/01/03' },  
  { _id: ObjectId("635153ed531cd9b2a7d314c7"),  
    ordered_date: '2022/01/04' },  
  { _id: ObjectId("635153ed531cd9b2a7d3152b"),  
    ordered_date: '2022/01/04' } ]
```

3. Find out the most loyal customers (more than 10 orders and 50 points)

Aiman

```
> db.customer.aggregate(  
  [{}  
   {$lookup: {  
     from: 'order',  
     localField: 'customer_id',  
     foreignField: 'customer_id',  
     as: 'target_customer'  
   }},  
   {  
     $match: {  
       'target_customer.quantity': {  
         $gt: 10  
       }  
     }  
   },  
   {  
     $match: {  
       points: {  
         $gt: 50  
       }  
     }  
   }]  
)
```

```
< { _id: ObjectId("63514538531cd9b2a7d313de"),  
  customer_id: 11,  
  firstname: 'Ailene',  
  middlename: null,  
  lastname: 'Fickling',  
  mobile_number: '511-216-0567',  
  points: 81,  
  username: 'aficklinga',  
  email: 'aficklinga@booking.com',  
  password: 'pmhAuAColo',  
  address:  
    [ { street: '3 Fairfield Hill',  
      city: 'Khursā',  
      state: null,  
      country: 'Palestinian Territory',  
      zipcode: null } ],  
  registeredAt: '2021-11-28',  
  createdAt: '2021-11-07',  
  updatedAt: '2021-11-28' }
```

4. List the top 5 cities of customers with the highest amount of online orders

Aiman

```
> db.customer.aggregate(  
  [{}  
   $lookup: {  
     from: 'order',  
     localField: 'customer_id',  
     foreignField: 'customer_id',  
     as: 'target_customer'  
   }  
  ], {  
    $match: {  
      'target_customer.payment_method': 'online'  
    }  
  }, {  
    $group: {  
      _id: '$address.city',  
      orderCount: {  
        $sum: 1  
      }  
    }  
  }, {  
    $group: {  
      _id: '$address.city',  
      orderCount: {  
        $sum: 1  
      }  
    }  
  }, {  
    $group:  
      {  
        _id: '$address.city',  
        orderCount: {  
          $sum: 1  
        }  
      }  
    }, {  
      $sort: {  
        orderCount: -1  
      }  
    }, {  
      $limit: 5  
    }]  
)  
< { _id: [ 'Ronneby' ], orderCount: 2 }  
{ _id: [ 'Calmar' ], orderCount: 2 }  
{ _id: [ 'Camino Real' ], orderCount: 1 }  
{ _id: [ 'Kalianda' ], orderCount: 1 }  
{ _id: [ 'Petrovskoye' ], orderCount: 1 }
```

Update the product review rating

```
db.product.updateOne(  
  {_id:ObjectId('63521708d7ff0db52022867b'), "productreview.customer_id":28},  
  {$set:{"productreview.$.product_rating":4}}  
)
```

```
{ acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0 }  
  
[ { customer_id: 28,  
    product_rating: 4,  
    description: 'It\\'s airy and the material feels great',  
    createdate: '2021-02-06' },  
  { _id: ObjectId('63521708d7ff0db52022867b'),  
    productreview: [ { customer_id: 28, product_rating: 4 } ] } ]
```

Delete an existing product review

```
db.product.updateOne(  
  { "product_id" : 6 },  
  { $pull:{ "productreview": {"customer_id":28} } }  
)
```

```
< { acknowledged: true,  
    insertedId: null,  
    matchedCount: 1,  
    modifiedCount: 1,  
    upsertedCount: 0 }
```

```
_id: ObjectId('63521e88d7ff0db520228725')  
product_id: 6  
vendor_id: 71  
product_name : "dresses"  
product_types: Array  
productreview: Array  
  0: Object  
    customer_id: 26  
    product_rating: 5  
    description: "It's airy and the material feels great"  
    createdate: "2022-08-20"  
  1: Object  
    customer_id: 13  
    product_rating: 2  
    description: ""  
    createdate: "2021-05-23"  
  2: Object  
    customer_id: 68  
    product_rating: 4  
    description: "It's airy and the material feels great"  
    createdate: "2022-07-01"  
  3: Object  
    customer_id: 84  
    product_rating: 5  
    description: "I love this shirt"  
    createdate: "2021-11-23"
```

List Emails of customers who have selected cash on delivery option and have pending payments

```
db.order.aggregate([
  {
    $lookup: {
      from: 'customer',
      localField: 'customer_id',
      foreignField: 'customer_id',
      as: 'customers',
    },
  },
  {
    $match: {
      $and: [{ payment_method: 'cash on delivery' }, { payment_status: false }],
    },
  },
  {
    $project: [
      'customers.email': 1,
    ],
  },
])
])
```

```
< { _id: ObjectId("635216fcd7ff0db520227b7a"),
  customers: [ { email: 'tlegueyed@qq.com' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b7c"),
  customers: [ { email: 'glermit11@studiospress.com' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b80"),
  customers: [ { email: 'acaseris@cpanel.net' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b82"),
  customers: [ { email: 'iwillcockt@umich.edu' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b86"),
  customers: [ { email: 'amudd8@dyndns.org' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b87"),
  customers: [ { email: 'dmccarry2q@npr.org' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b89"),
  customers: [ { email: 'acaseris@cpanel.net' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b8a"),
  customers: [ { email: 'jjaggs1r@sciencedaily.com' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b8b"),
  customers: [ { email: 'dapps2o@businesswire.com' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b8c"),
  customers: [ { email: 'gbroyd1m@fastcompany.com' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b8e"),
  customers: [ { email: 'dgreatexf@addthis.com' } ] }
{ _id: ObjectId("635216fcd7ff0db520227b92"),
  customers: [ { email: 'slarner19@merriam-webster.com' } ] }
```

Get the list of products average product rating more than 3

```
db.product.aggregate([
  { $unwind: '$productreview' },
  {
    $group: {
      _id: '$product_id',
      averageRating: {
        $avg: '$productreview.product_rating',
      },
    },
  },
  {
    $match: {
      averageRating: { $gt: 3 },
    },
  },
])
```

```
{ _id: 47, averageRating: 4.2 }
{ _id: 38, averageRating: 3.4 }
{ _id: 50, averageRating: 3.4 }
{ _id: 58, averageRating: 3.4 }
{ _id: 22, averageRating: 3.4 }
{ _id: 31, averageRating: 3.8 }
{ _id: 10, averageRating: 4 }
{ _id: 42, averageRating: 4.2 }
{ _id: 52, averageRating: 3.6 }
{ _id: 4, averageRating: 3.2 }
{ _id: 37, averageRating: 3.6 }
{ _id: 32, averageRating: 3.6 }
{ _id: 27, averageRating: 4 }
{ _id: 6, averageRating: 3.8 }
{ _id: 12, averageRating: 3.8 }
{ _id: 30, averageRating: 3.2 }
{ _id: 40, averageRating: 3.4 }
{ _id: 20, averageRating: 3.6 }
{ _id: 19, averageRating: 3.2 }
{ _id: 2, averageRating: 3.6 }
```

Find out total orders grouped by delivery status

```
> db.order.aggregate([
    {
        $group: {
            _id: '$deliver_status.delivery_status',
            count: {
                $sum: 1,
            },
        },
    },
])
```

```
{ _id: 'new', count: 424 }

{ _id: 'cancelled', count: 392 }

{ _id: 'returned', count: 308 }

{ _id: 'delayed', count: 392 }

{ _id: 'delivered', count: 308 }

{ _id: 'shipped', count: 480 }

{ _id: 'processed', count: 508 }
```

Average delivery time of the products

```
db.order.aggregate([
  {
    $match: {
      'deliver_status.delivery_status': 'delivered',
    },
  },
  {
    $project: {
      ordered_date: {
        $dateFromString: {
          dateString: '$createdAt',
          format: '%Y/%m/%d',
        },
      },
      delivered_date: {
        $dateFromString: {
          dateString: '$deliver_status.delivery_date',
          format: '%Y/%m/%d',
        },
      },
    },
  },
  {
    $group: {
      _id: null,
      averageDeliveryTime: {
        $avg: {
          $dateDiff: {
            startDate: '$ordered_date',
            endDate: '$delivered_date',
            unit: 'day',
          },
        },
      },
    },
  },
])
])
```

Sandhya

```
< { _id: null, averageDeliveryTime: 3.824675324675325 }
```

Update the loyalty points of the customer

```
> db.customer.updateOne({customer_id : 3},{$set : {points: 99}})  
< { acknowledged: true,  
    insertedId: null,  
    matchedCount: 1,  
    modifiedCount: 1,  
    upsertedCount: 0 }  
  
> db.customer.find({customer_id : 3})  
< { _id: ObjectId("635132f1d8d7981c8021e029"),  
    customer_id: 3,  
    firstname: 'Tish',  
    middlename: null,  
    lastname: 'Curro',  
    mobile_number: '379-283-3887',  
    points: 99,  
    username: 'tcurro2',  
    email: 'tcurro2@pinterest.com',  
    password: 'JQAh2IpUdg',  
    address:  
      [ { street: '4 Thackeray Hill',  
          city: 'Kula',  
          state: null,  
          country: 'Bulgaria',  
          zipcode: '3818' } ],  
    registeredAt: '2021-04-01',  
    createdAt: '2022-09-05' }
```

Insert a new product

```
> db.products.insert([{
  "product_id": 101,
  "vendor_id": 18,
  "product_name": "gown",
  "product_types": [
    {
      "category_name": "Suit",
      "price": 7548,
      "description": "Praesent blandit. Nam nulla. Integer pede justo,
      "details": [
        {
          "width": 1.23,
          "height": 6.71,
          "quantity": 63,
          "availabilty": "true",
          "size": "l"
        },
        {
          "width": 4.39,
          "height": 7.61,
          "quantity": 97,
          "availabilty": "true",
          "size": "xxl"
        },
        {
          "width": 1.23,
          "height": 6.71,
          "quantity": 63,
          "availabilty": "true",
          "size": "l"
        }
      ]
    }
  ]
}])
```

```
< 'DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.'
< { acknowledged: true,
  insertedIds: { '0': ObjectId("63522e9b625ff85e6d40e12b") } }
Atlas atlas-o1gz4n-shard-0 [primary] online_e-commerce>
```

Find out the average rating of a particular product and which category it belongs to?

```
Atlas atlas-0lgz4n-shard-0 [primary] online_e-commerce> db.products.aggregate([{
    $addFields: {
        'average rating': {
            $add: [
                {
                    $avg: '$productreview.product_rating'
                }
            ]
        }
    }
}, {
    $project: {
        'product_name': 1,
        'average rating': 1,
        'product_types.category_name': 1
    }
}])
```

```
{ _id: ObjectId("6351336cd8d7981c8021e3b4"),
  'product_name': 'heels',
  product_types: [ { category_name: 'women-shoes' } ],
  'average rating': 2 }
{ _id: ObjectId("6351336cd8d7981c8021e3b5"),
  'product_name': 'sweatshirt',
  product_types: [ { category_name: 'men-jackets/overall' } ],
  'average rating': 3.6 }
{ _id: ObjectId("6351336cd8d7981c8021e3b6"),
  'product_name': 'leggins',
  product_types: [ { category_name: 'women-pants/leggins' } ],
  'average rating': 2.8 }
{ _id: ObjectId("6351336cd8d7981c8021e3b7"),
  'product_name': 'sleeveless shirt',
  product_types: [ { category_name: 'men-tshirt/shirt' } ],
  'average rating': 3.2 }
{ _id: ObjectId("6351336cd8d7981c8021e3b8"),
  'product_name': 'sandals',
  product_types: [ { category_name: 'men-shoes' } ],
  'average rating': 3.4 }
{ _id: ObjectId("6351336cd8d7981c8021e3b9"),
  'product_name': 'dresses',
  product_types: [ { category_name: 'women-dresses' } ],
  'average rating': 3.8 }
{ _id: ObjectId("6351336cd8d7981c8021e3ba"),
```

Show the price , storename,city that have or sell women shoes

varun

```
db.products.aggregate([{
  $lookup: {
    from: 'vendor',
    localField: 'vendor_id',
    foreignField: 'vendor_id',
    as: 'result'
  },
  {
    $match: {
      'product_types.category_name': 'women-shoes'
    }
  },
  {
    $project: {
      'result.storename': 1,
      'result.address.city': 1,
      'product_name': 1,
      'product_types.price': 1
    }
  }
}])
```

```
{
  _id: ObjectId("6351336cd8d7981c8021e3fa"),
  'product_name': 'heels',
  product_types: [ { price: 2339 } ],
  result: [ { storename: 'Conn-Hermiston', address: [ { city: 'Pentre' } ] } ]
},
{
  _id: ObjectId("6351336cd8d7981c8021e3fb"),
  'product_name': 'sandals',
  product_types: [ { price: 6062 } ],
  result: [ { storename: 'Bruen-Bernier', address: [ { city: 'Kotes' } ] } ]
},
{
  _id: ObjectId("6351336cd8d7981c8021e3d2"),
  'product_name': 'loafer',
  product_types: [ { price: 8781 } ],
  result: [ { storename: 'Kling Group', address: [ { city: 'Ribeiro' } ] } ]
},
{
  _id: ObjectId("6351336cd8d7981c8021e3d6"),
  'product_name': 'sneakers',
  product_types: [ { price: 2719 } ],
  result:
  [
    { storename: 'Hartmann, Schumm and Ullrich',
      address: [ { city: 'Myasnikyan' } ] }
  ]
}
```

List out the top 5 loyal customers who order online

varun

```
db.customer.aggregate([
  {
    $lookup: {
      from: 'order',
      localField: 'customer_id',
      foreignField: 'customer_id',
      as: 'result'
    }
  },
  {
    $match: {
      $and: [
        {
          'result.payment_method': 'online'
        },
        {
          points: {
            $gt: 50
          }
        }
      ]
    }
  },
  {
    $project: {
      firstname: 1,
      lastname: 1,
      'address.city': 1,
      'result.payment method': 1,
    }
  }
])
```

```
  points: 1
  }
},
{
  $sort: {
    points: -1
  }
},
{
  $limit: 5
}
])
```

results

```
{ _id: ObjectId("635132f1d8d7981c8021e030"),
  firstname: 'Sena',
  lastname: 'Manoelli',
  points: 100,
  address: [ { city: 'Domampot' } ],
  result:
    [ { payment_method: 'online' },
      { payment_method: 'online' } ] }

{ _id: ObjectId("635132f1d8d7981c8021e04d"),
  firstname: 'Corine',
  lastname: 'Knibley',
  points: 97,
  address: [ { city: 'Calmar' } ],
  result:
    [ { payment_method: 'online' },
      { payment_method: 'online' } ] }
```

```
{ _id: ObjectId("635132f1d8d7981c8021e07d"),
  firstname: 'Roddy',
  lastname: 'Hadingham',
  points: 96,
  address: [ { city: 'Camino Real' } ],
  result:
    [ { payment_method: 'online' },
      { payment_method: 'online' } ] }

{ _id: ObjectId("635132f1d8d7981c8021e07a"),
  firstname: 'Romonda',
  lastname: 'Walch',
  points: 95,
  address: [ { city: 'Mazańcowice' } ],
  result:
    [ { payment_method: 'online' },
      { payment_method: 'online' } ] }
```

```
{ _id: ObjectId("635132f1d8d7981c8021e037"),
  firstname: 'Jacobo',
  lastname: 'Kenelin',
  points: 95,
  address: [ { city: 'Laju Kidul' } ],
  result:
    [ { payment_method: 'online' },
```

Show the name of the customer and product name that he ordered including the price

```
> db.customer.aggregate([
    {
        $lookup: {
            from: 'order',
            localField: 'customer_id',
            foreignField: 'customer_id',
            as: 'z'
        }
    },
    {
        $lookup: {
            from: 'products',
            localField: 'z.order_products.product_id',
            foreignField: 'product_id',
            as: 'p'
        }
    },
    {
        $project: {
            firstname: 1,
            'p.product_name': 1,
            'p.product_types.price': 1
        }
    }
])
```

```
: { _id: ObjectId("635132f1d8d7981c8021e027"),
  firstname: 'Foster',
  p:
  [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
    { 'product_name': 'sweatshirt',
      product_types: [ { price: 5353 } ] } ]
}, { _id: ObjectId("635132f1d8d7981c8021e028"),
  firstname: 'Delilah',
  p: [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] } ]
}, { _id: ObjectId("635132f1d8d7981c8021e029"),
  firstname: 'Tish',
  p: []
}, { _id: ObjectId("635132f1d8d7981c8021e02a"),
  firstname: 'Fianna',
  p:
  [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
    { 'product_name': 'sweatshirt',
      product_types: [ { price: 5353 } ] },
    { 'product_name': 'leggins',
      product_types: [ { price: 4837 } ] } ]
}, { _id: ObjectId("635132f1d8d7981c8021e02b"),
  firstname: 'Essa',
  p:
  [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
    { 'product_name': 'sweatshirt',
```

Results

```
product_types: [ { price: 5353 } ] },
{ 'product_name': 'leggins',
  product_types: [ { price: 4837 } ] },
{ 'product_name': 'sleeveless shirt',
  product_types: [ { price: 7825 } ] } ]
{ _id: ObjectId("635132f1d8d7981c8021e02c"),
  firstname: 'Marielle',
  p: [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] } ] }
{ _id: ObjectId("635132f1d8d7981c8021e02d"),
  firstname: 'Alfred',
  p:
    [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
      { 'product_name': 'sweatshirt',
        product_types: [ { price: 5353 } ] },
      { 'product_name': 'leggins',
        product_types: [ { price: 4837 } ] },
      { 'product_name': 'sleeveless shirt',
        product_types: [ { price: 7825 } ] },
      { 'product_name': 'sandals',
        product_types: [ { price: 1682 } ] } ] }
{ _id: ObjectId("635132f1d8d7981c8021e02e"),
  firstname: 'Dicky',
  p:
    [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
      { 'product_name': 'sweatshirt',
```

```
product_types: [ { price: 5353 } ] },
{ 'product_name': 'leggins',
  product_types: [ { price: 4837 } ] },
{ 'product_name': 'sleeveless shirt',
  product_types: [ { price: 7825 } ] } ]
{ _id: ObjectId("635132f1d8d7981c8021e02f"),
  firstname: 'Ailis',
  p: [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] } ] }
{ _id: ObjectId("635132f1d8d7981c8021e030"),
  firstname: 'Sena',
  p:
    [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
      { 'product_name': 'sweatshirt',
        product_types: [ { price: 5353 } ] } ] }
{ _id: ObjectId("635132f1d8d7981c8021e031"),
  firstname: 'Ailene',
  p:
    [ { 'product_name': 'heels', product_types: [ { price: 1085 } ] },
      { 'product_name': 'sweatshirt',
        product_types: [ { price: 5353 } ] },
      { 'product_name': 'leggins',
        product_types: [ { price: 4837 } ] },
      { 'product_name': 'sleeveless shirt',
        product_types: [ { price: 7825 } ] },
      { 'product_name': 'sandals',
```



5

Question & Answer

Do you have any Questions ?