Name: Nguyen Dinh Hoang Son
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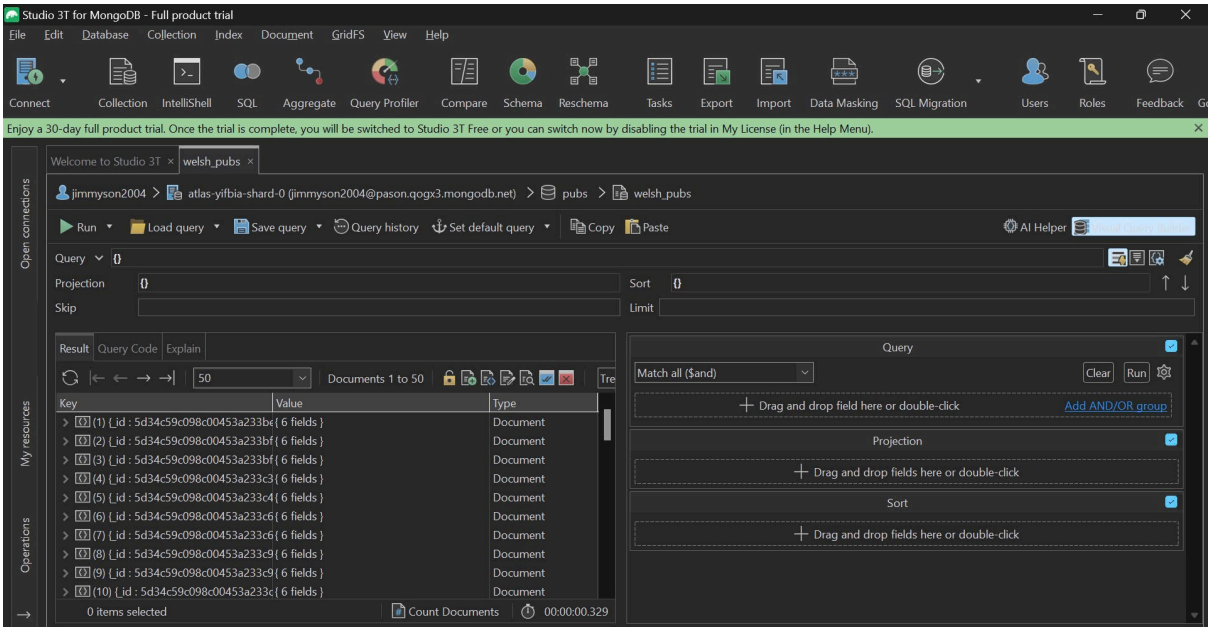
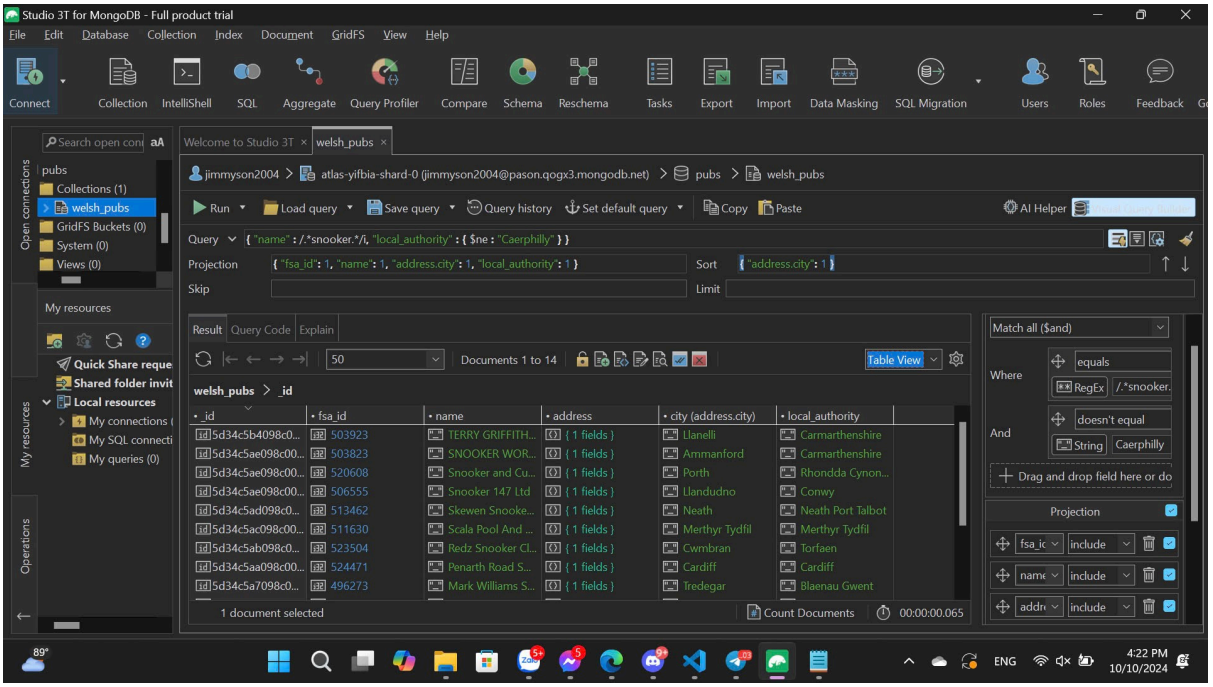
Class: COS1104

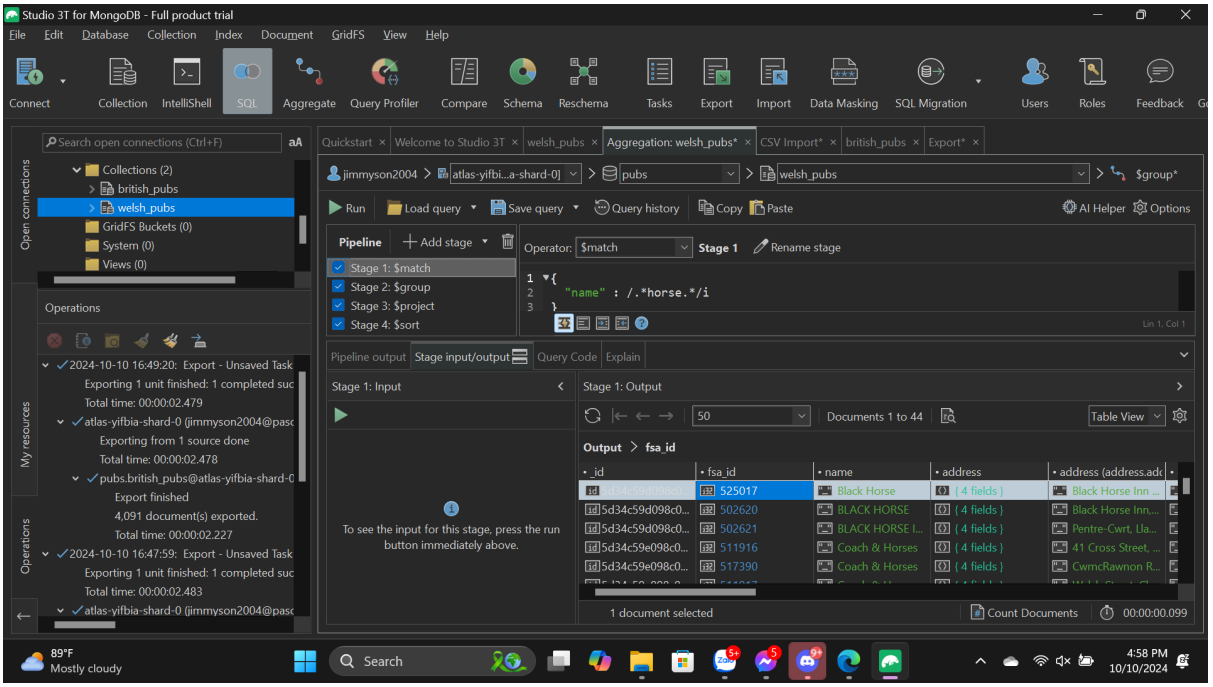
lesson 4 exercise 1

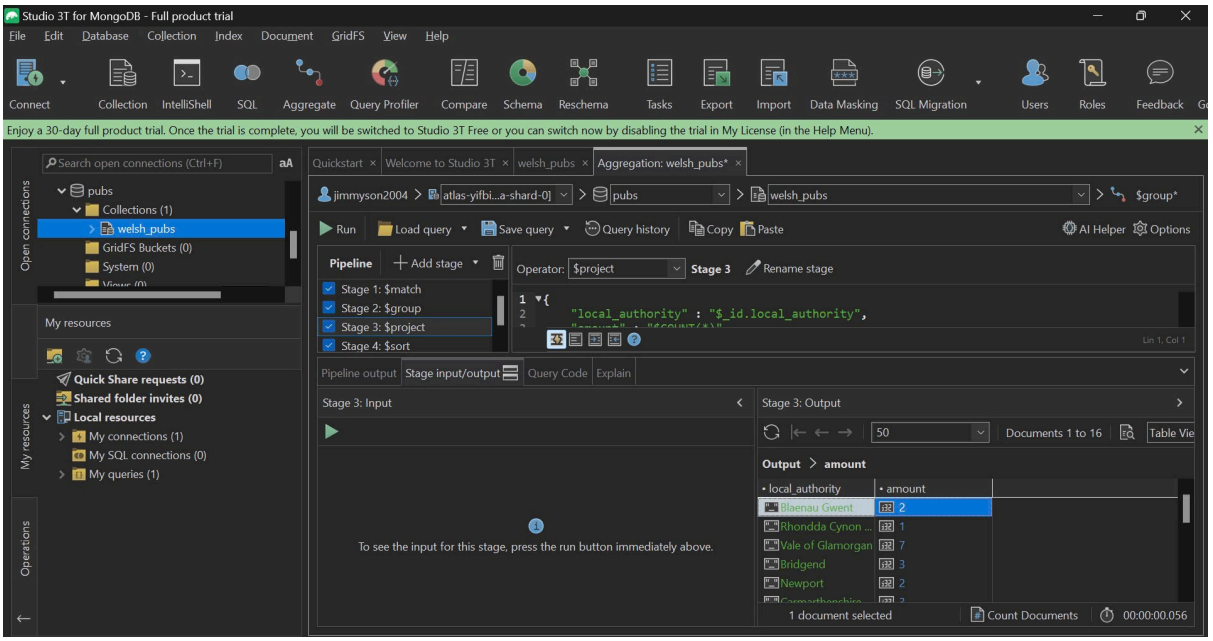


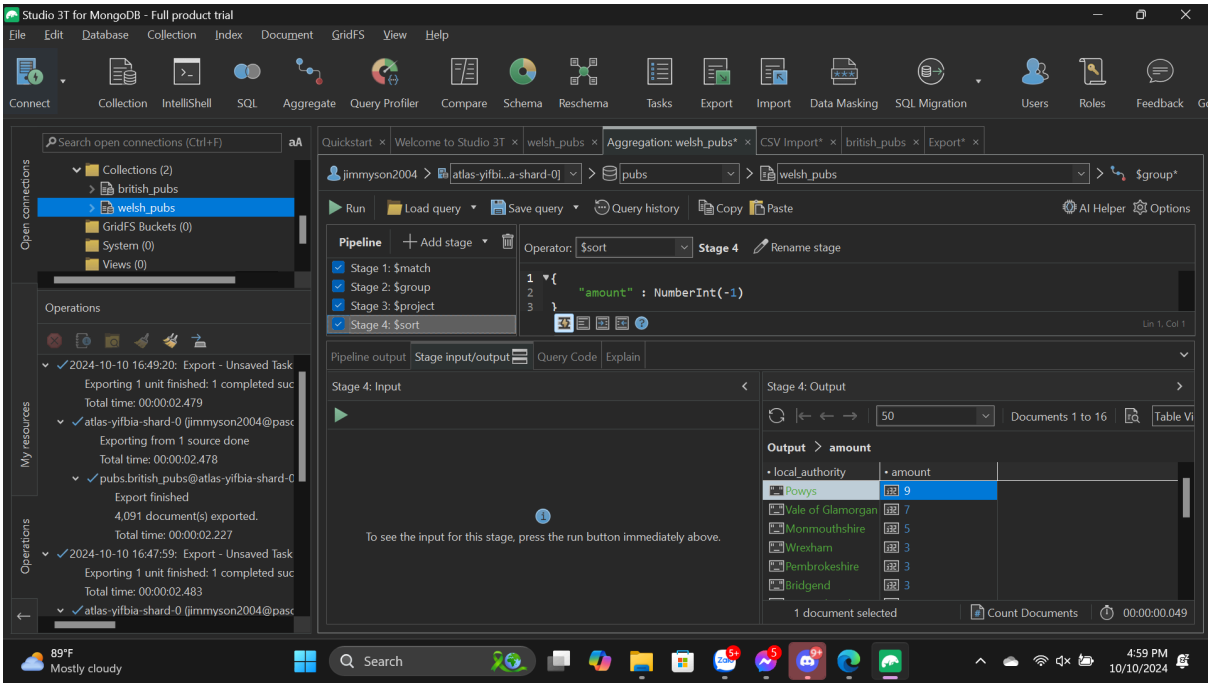
lesson 4 exercise 3



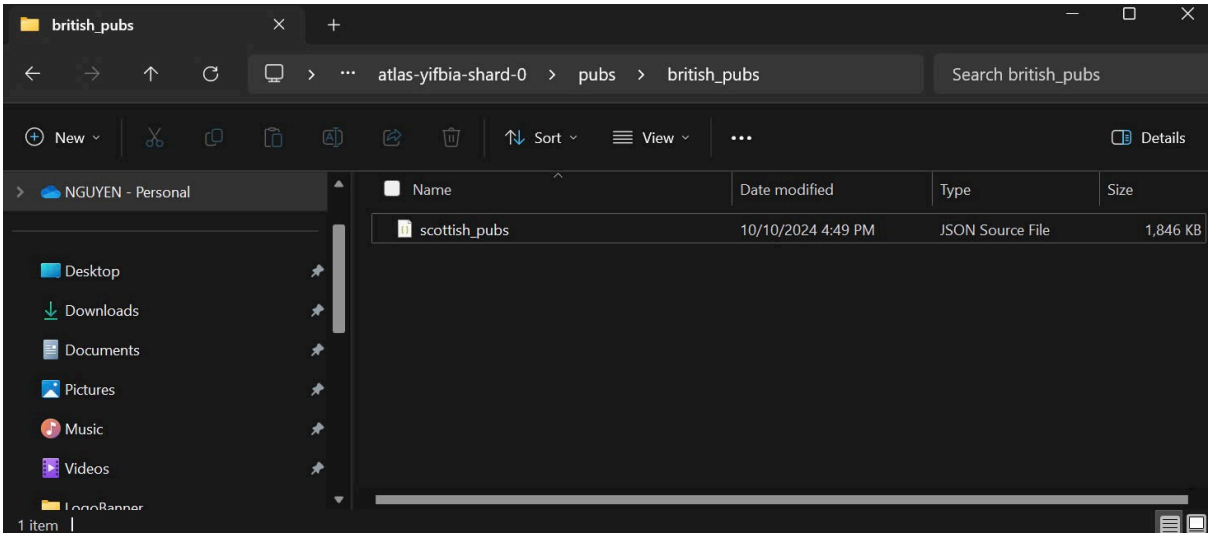
lesson 5 exercise 3






Studio 3T for MongoDB - Full product trial
File Edit Database Collection Index Document GridFS View Help
Connect Collection IntelliShell SQL Aggregate Query Profiler Compare Schema Reschema Tasks Export Import Data Masking SQL Migration Users Roles Feedback
Search open connections (Ctrl+F)
Collections (2)
british_pubs
welsh_pubs
GridFS Buckets (0)
System (0)
Views (0)
Operations
2024-10-10 16:49:20: Export - Unsaved Task
Exporting 1 unit finished: 1 completed suc
Total time: 00:00:02.479
atlas-yifbia-shard-0 (jimmyson2004@pasc
Exporting from 1 source done
Total time: 00:00:02.478
pubs.british_pubs@atlas-yifbia-shard-0
Export finished
4,091 document(s) exported.
Total time: 00:00:02.227
2024-10-10 16:47:59: Export - Unsaved Task
Exporting 1 unit finished: 1 completed suc
Total time: 00:00:02.483
atlas-yifbia-shard-0 (jimmyson2004@pasc
Quickstart Welcome to Studio 3T welsh_pubs Aggregation: welsh_pubs* CSV Import* british_pubs Export*
jimmyson2004 atlas-yifbi...a-shard-0] pubs welsh_pubs $group*
Run Load query Save query Query history Copy Paste AI Helper Options
Pipeline Add stage
Stage 1: $match
Stage 2: $group
Stage 3: $project
Stage 4: $sort
Operator: $sort Stage 4 Rename stage
1 {
2 "amount" : NumberInt(-1)
3 }
Pipeline output Stage input/output Query Code Explain
Stage 4: Input
To see the input for this stage, press the run button immediately above.
Stage 4: Output
50 Documents 1 to 16
Output > amount
local_authority amount
Powys 9
Vale of Glamorgan 7
Monmouthshire 5
Wrexham 3
Pembrokeshire 3
Bridgend 3
1 document selected
Count Documents 00:00:00.049
89°F
Mostly cloudy
Search
4:59 PM
10/10/2024

lesson 6 exercise 2



Conclusion

NoSQL databases are designed to handle large volumes of data that might be unstructured or semi-structured, unlike traditional relational databases which require a predefined schema. NoSQL databases offer flexibility and scalability, making them suitable for modern applications that need to handle large, changing datasets. There are several types of NoSQL databases, including document-based, key-value, column-family, and graph databases.

MongoDB, the most popular NoSQL database, is a **document-oriented** database that stores data in **JSON-like documents** (BSON format). MongoDB is schema-flexible, meaning each document in a collection doesn't need to have the same structure, which allows for storing complex data types and relationships in a more fluid manner. Collections are analogous to tables in relational databases, and documents are similar to rows but without strict schema enforcement.

MongoDB's key advantage is its **scalability** and the ability to handle large datasets across distributed systems. MongoDB allows for **horizontal scaling** through sharding, making it a suitable choice for applications with large amounts of unstructured data.

The screenshots show how Studio 3T helps visualize MongoDB data through features like **Visual Query Builder** and **Aggregation Pipelines**. The Visual Query Builder simplifies the querying process by allowing you to drag and drop fields, filter data, and project results. Aggregation pipelines provide an efficient way to process data by using multiple stages like `$match`, `$group`, and `$sort`, making it easier to query and analyze complex datasets.

Overall, MongoDB is a versatile, flexible, and scalable NoSQL database ideal for applications requiring high flexibility and dynamic data handling.