Enhancing Customer Service Excellence: A Comprehensive Incident Management Solution

Milestone: NoSQL Implementation

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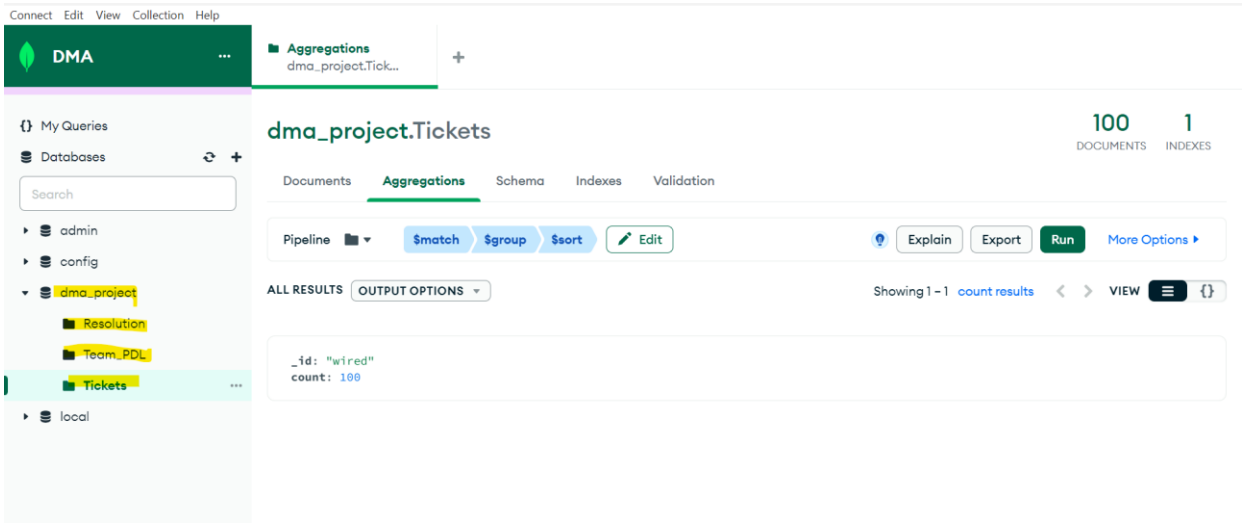
SQL database tables to CSV files:

The “dma_project” database tables were converted into csv files using the below python script.

```
import pymysql
import pandas as pd

# Database connection details
host = 'localhost'  # e.g., 'localhost'
user = 'root'
password = 'admin123'
database = 'dma_project'

# Establishing a database connection
connection = pymysql.connect(host=host, user=user, password=password,
database=database)

try:
    # Fetching the list of tables
    with connection.cursor() as cursor:
        cursor.execute("SHOW TABLES")
        tables = cursor.fetchall()

    # Export each table to a CSV file
    for table_name in tables:
        query = f"SELECT * FROM {table_name[0]}"
        df = pd.read_sql(query, connection)
        df.to_csv(f"{table_name[0]}.csv", index=False)

finally:
    # Closing the database connection
    connection.close()
```

NoSQL implementation:

- Downloaded and Installed MongoDB compass
- Created a new database dma_project with three collections namely Resolution, Team_PDL and Tickets.



- Imported data for the three collections using the csv files generated from SQL database tables using the python script.
- After importing the data, three queries were implemented using aggregation.

When working with the aggregation framework in MongoDB Compass, you can build your pipeline using the graphical user interface. Below are examples of what each of these queries would look like as stages in an aggregation pipeline.

- A Simple Query (as an Aggregation)
  To find all documents where `case_status` is "new":

  Stage 1: `$match`
  ```json
  { "case_status": "new" }
```

- A More Complex Query (as an Aggregation)
  To find all documents where `case_status` is "new" and either `issue_type` is "wired" or `resolution_code` is "reboot":

  Stage 1: `$match`
  ```json
  {
    "$and": [
      { "case_status": "new" },
      {
        "$and": [
          { "issue_type": "wired" },
          { "resolution_code": "reboot" }
        ]
      }
    ]
  }
  ```

- An Aggregate Query
  To group documents by `issue_type` and count them, only including documents where `case_status` is "new":

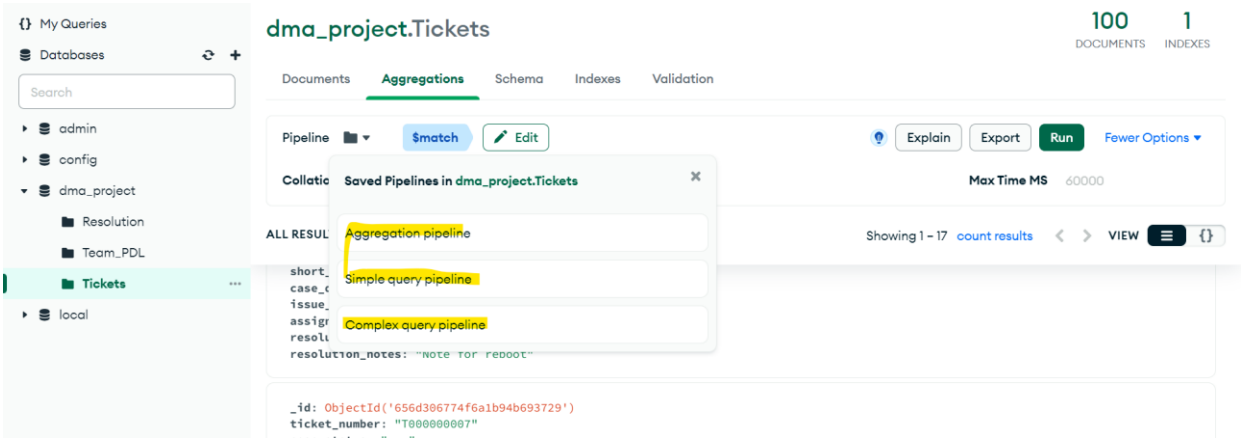
  Stage 1: `$match`

```json
{ "case_status": "new" }
```

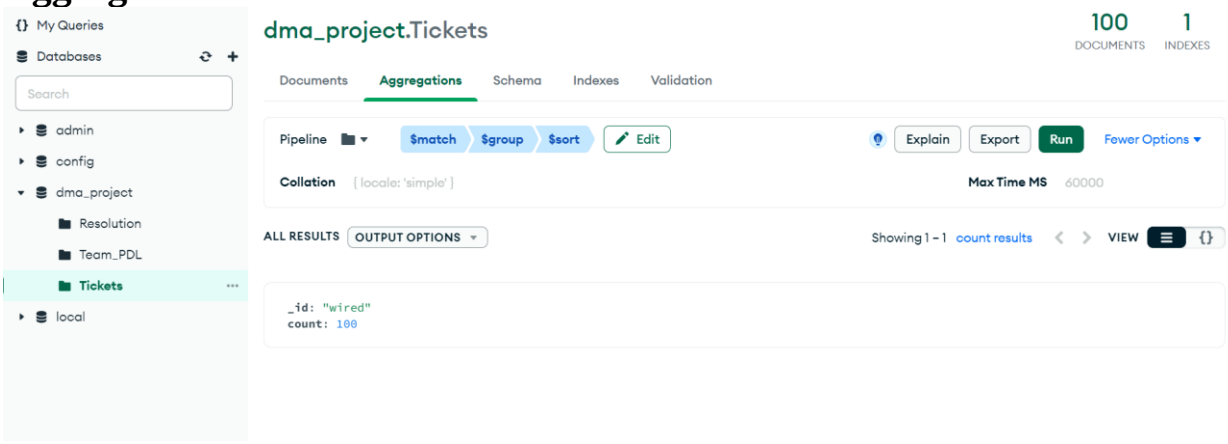
Stage 2: `$group`
```json
{
  "_id": "$issue_type",
  "count": { "$sum": 1 }
}
```

Stage 3: `$sort`
```json
{ "count": -1
```

- Saved the three pipelines as shown in the below image.



- Outputs of the queries:
  1. **Aggregation:**



  2. **Simple:**
     {
       "_id": {

```
    "$oid": "656d306774f6a1b94b693723"
   },
   "ticket_number": "T000000001",
   "case_status": "new",
   "short_desc": "Short Desc 1",
   "case_desc": "Case Desc 1",
   "issue_type": "wired",
   "assigned_to": "Assignee1",
   "resolution_code": "reboot",
   "resolution_notes": "Note for reboot"
  }

  {
   "_id": {
    "$oid": "656d306774f6a1b94b693724"
   },
   "ticket_number": "T000000002",
   "case_status": "new",
   "short_desc": "Short Desc 2",
   "case_desc": "Case Desc 2",
   "issue_type": "wired",
   "assigned_to": "Assignee2",
   "resolution_code": "replacement",
   "resolution_notes": "Note for replacement"
  }
  Etc…
```


3. **Complex:**


```
  {
   "_id": {
    "$oid": "656d306774f6a1b94b693723"
   },
   "ticket_number": "T000000001",
   "case_status": "new",
   "short_desc": "Short Desc 1",
   "case_desc": "Case Desc 1",
   "issue_type": "wired",
   "assigned_to": "Assignee1",
   "resolution_code": "reboot",
   "resolution_notes": "Note for reboot"
  }

  {
   "_id": {
```

```
    "$oid": "656d306774f6a1b94b693729"
  },
  "ticket_number": "T000000007",
  "case_status": "new",
  "short_desc": "Short Desc 7",
  "case_desc": "Case Desc 7",
  "issue_type": "wired",
  "assigned_to": "Assignee7",
  "resolution_code": "reboot",
  "resolution_notes": "Note for reboot"
}
Etc…
```