TP2 – NOSQL CASSANDRA RESTAURANT INSPECTIONS

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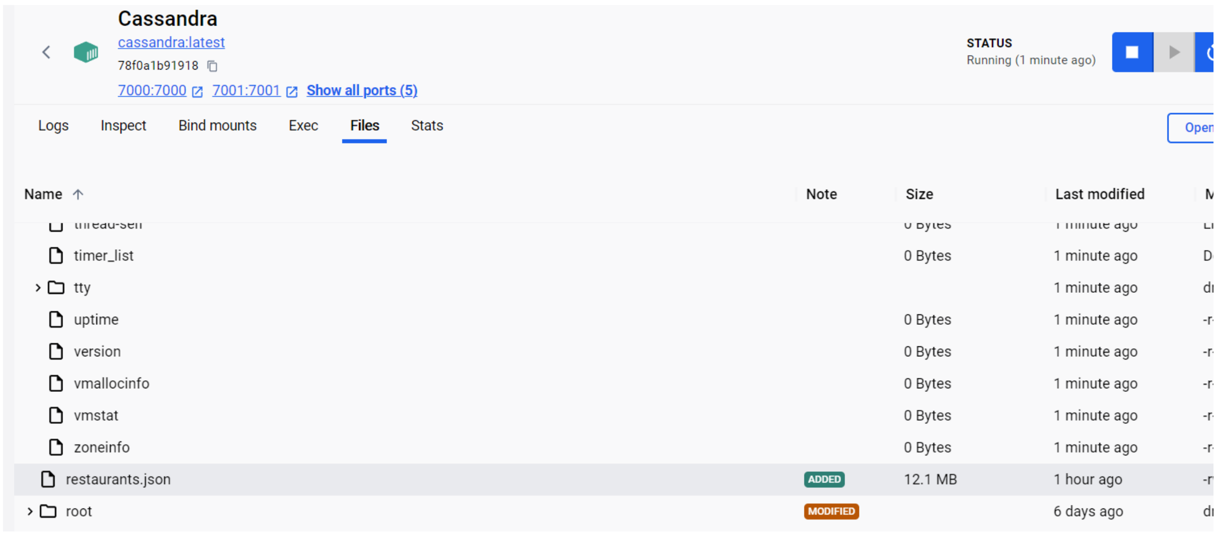
Create the database

Files transfer

We drag and drop the restaurants.json into the files of our Cassandra container.



Cassandra
cassandra:latest
78f0a1b91918
7000:7000 7001:7001 Show all ports (5)
STATUS
Running (1 minute ago)

Name	Note	Size	Last modified	M
thread-self		0 Bytes	1 minute ago	L
timer_list		0 Bytes	1 minute ago	D
tty			1 minute ago	d
uptime		0 Bytes	1 minute ago	-r
version		0 Bytes	1 minute ago	-r
vmallocinfo		0 Bytes	1 minute ago	-r
vmstat		0 Bytes	1 minute ago	-r
zoneinfo		0 Bytes	1 minute ago	-r
restaurants.json	ADDED	12.1 MB	1 hour ago	-r
root	MODIFIED		6 days ago	d

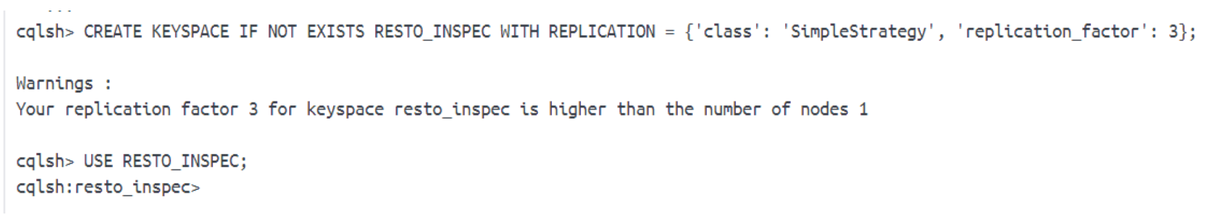
Create the keyspace

In the CLI, use the command :

```
CREATE KEYSPACE IF NOT EXISTS RESTO_INSPEC
WITH REPLICATION =
{ 'class': 'SimpleStrategy', 'replication_factor': 3 };
```

And then,

```
USE RESTO_INSPEC;
```



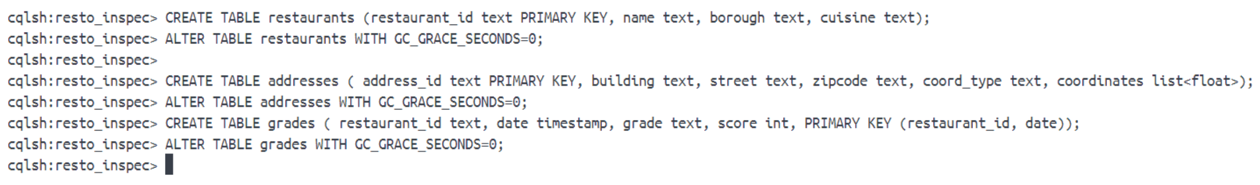
```
  ...
cqlsh> CREATE KEYSPACE IF NOT EXISTS RESTO_INSPEC WITH REPLICATION = {'class': 'SimpleStrategy', 'replication_factor': 3};

Warnings :
Your replication factor 3 for keyspace resto_inspec is higher than the number of nodes 1

cqlsh> USE RESTO_INSPEC;
cqlsh:resto_inspec>
```

Create Tables

Let's generate the schema that mirrors the JSON structure provided.

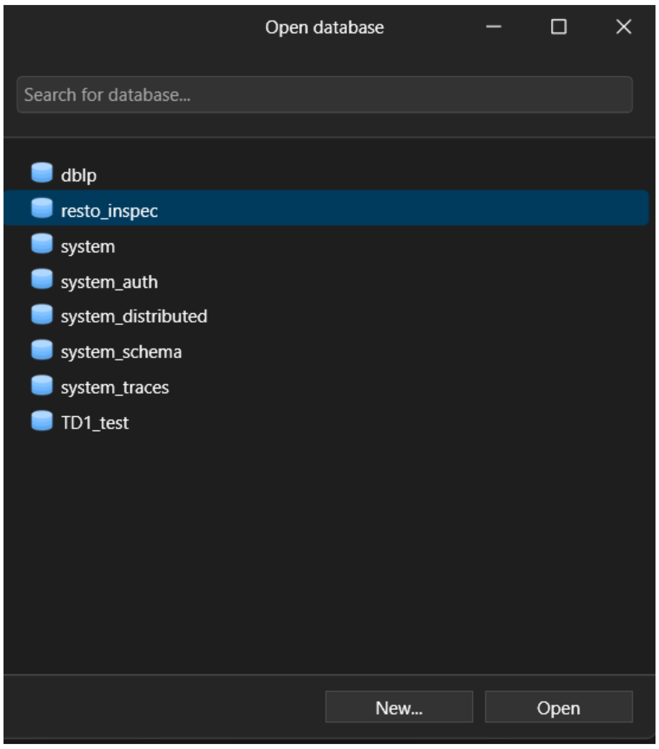
Create the tables in file CreaTable.sql :

```
CREATE TABLE restaurants (
      restaurant_id text PRIMARY KEY,
      name text,
      borough text,
      cuisine text
);
ALTER TABLE restaurants WITH GC_GRACE_SECONDS=0;


CREATE TABLE addresses (
    address_id text PRIMARY KEY,
    building text,
    street text,
    zipcode text,
    coord_type text,
    coord_X float,
    coord_Y float
);
ALTER TABLE addresses WITH GC_GRACE_SECONDS=0;

CREATE TABLE grades (
    restaurant_id text,
    date timestamp,
    grade text,
    score int,
    PRIMARY KEY (restaurant_id, date)
);
ALTER TABLE grades WITH GC_GRACE_SECONDS=0;
```



```
cqlsh:resto_inspec> CREATE TABLE restaurants (restaurant_id text PRIMARY KEY, name text, borough text, cuisine text);
cqlsh:resto_inspec> ALTER TABLE restaurants WITH GC_GRACE_SECONDS=0;
cqlsh:resto_inspec>
cqlsh:resto_inspec> CREATE TABLE addresses ( address_id text PRIMARY KEY, building text, street text, zipcode text, coord_type text, coordinates list<float>);
cqlsh:resto_inspec> ALTER TABLE addresses WITH GC_GRACE_SECONDS=0;
cqlsh:resto_inspec> CREATE TABLE grades ( restaurant_id text, date timestamp, grade text, score int, PRIMARY KEY (restaurant_id, date));
cqlsh:resto_inspec> ALTER TABLE grades WITH GC_GRACE_SECONDS=0;
cqlsh:resto_inspec> █
```

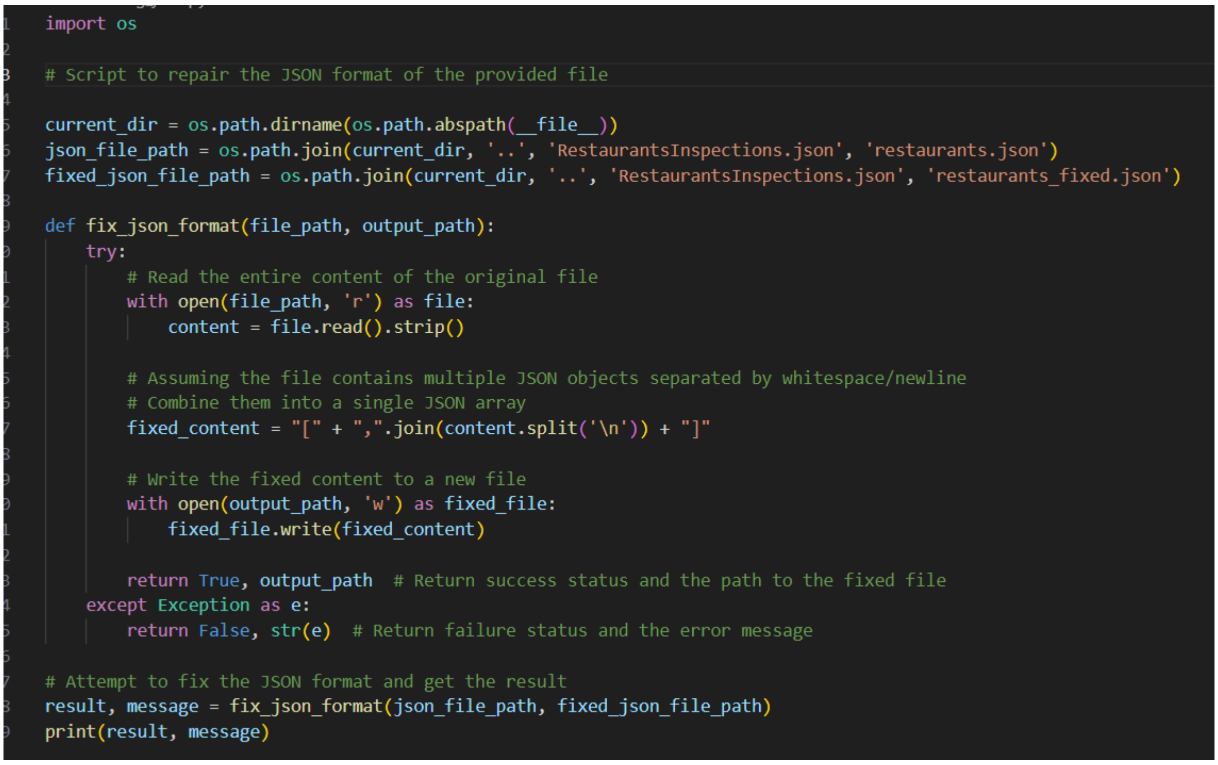
Now, we open TablePlus, and select the database we created.



Fixing Json file

We found out that the format of the Json is not correct, so we needed to do a script to correct the file.

We did the fixing_json.py :



```python
import os

# Script to repair the JSON format of the provided file

current_dir = os.path.dirname(os.path.abspath(__file__))
json_file_path = os.path.join(current_dir, '..', 'RestaurantsInspections.json', 'restaurants.json')
fixed_json_file_path = os.path.join(current_dir, '..', 'RestaurantsInspections.json', 'restaurants_fixed.json')

def fix_json_format(file_path, output_path):
    try:
        # Read the entire content of the original file
        with open(file_path, 'r') as file:
            content = file.read().strip()

        # Assuming the file contains multiple JSON objects separated by whitespace/newline
        # Combine them into a single JSON array
        fixed_content = "[" + ",".join(content.split('\n')) + "]"

        # Write the fixed content to a new file
        with open(output_path, 'w') as fixed_file:
            fixed_file.write(fixed_content)

        return True, output_path  # Return success status and the path to the fixed file
    except Exception as e:
        return False, str(e)  # Return failure status and the error message

# Attempt to fix the JSON format and get the result
result, message = fix_json_format(json_file_path, fixed_json_file_path)
print(result, message)
```

This script will create a new Json file, in order to not modify the original one.

Import the data

Then, we import the data_importation.py file in the Cassandra container.

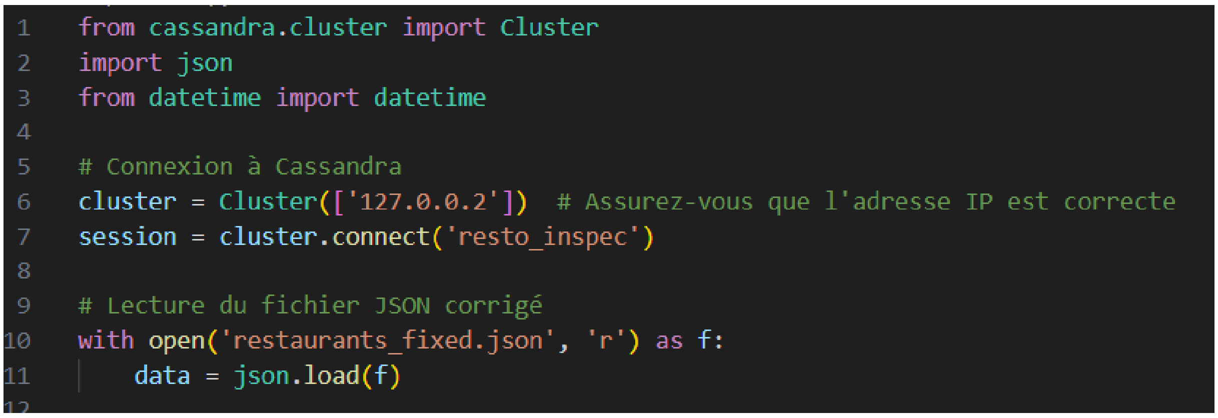
Before executing it, we will need to download python3 on the container, to have the good modules.

To do that :

```
docker exec -it Cassandra bash

apt-get update

apt-get install -y python3 python3-pip

pip3 install cassandra-driver
```

Now, we can execute the data_importation.py file in the Cassandra container.

In this code below, we setup the connection to the database :



```python
from cassandra.cluster import Cluster
import json
from datetime import datetime

# Connexion à Cassandra
cluster = Cluster(['127.0.0.2'])  # Assurez-vous que l'adresse IP est correcte
session = cluster.connect('resto_inspec')

# Lecture du fichier JSON corrigé
with open('restaurants_fixed.json', 'r') as f:
    data = json.load(f)
```

And then, we add the data with a query, for each table. (See in the data_importation.py file)

Here is the command :

docker exec -it Cassandra python3 data_importation.py