IST769 Homework Submission

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Due Date: **09/07/2021**
Task: **Cassandra and CQL**
Homework #:**9**

Exercise(s):

1. Design your own scenario for which a Cassandra table would be a good solution. Make sure to explain the scenario and the specific characteristics of the scenario which would make Cassandra a good fit. Make sure to follow a query first approach and justify how the partition and cluster keys should be setup

   Solution:

   -- Objective

   Explore Cassandra's data modeling concepts with an example.

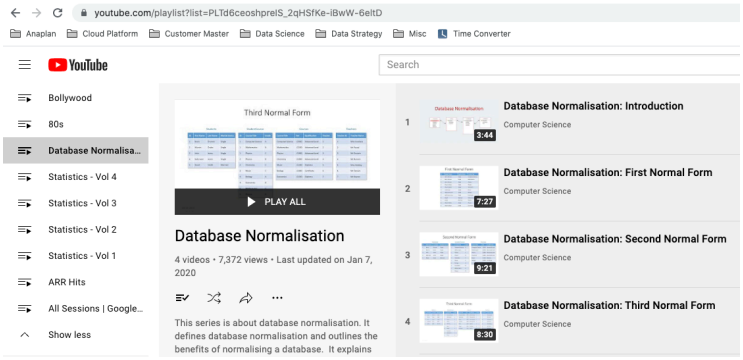
   -- Scenario: Analyzing YouTube Playlist.

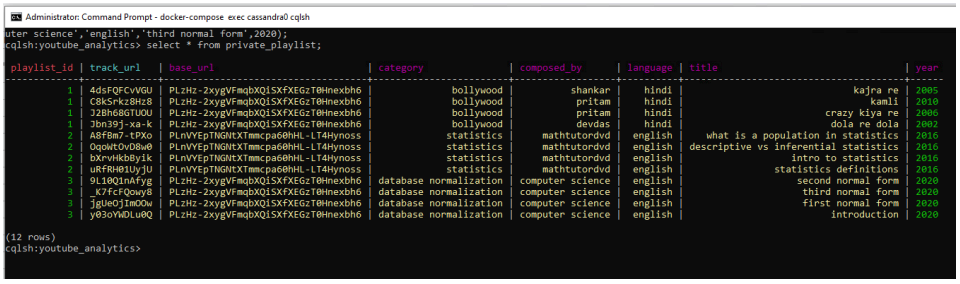
   I have 3 personal playlists created as private in YouTube. In this exercise, lets create a keyspace, table and materialized views to explore/query contents. Table to store information such as playlist id, track_url, base_url, category, language, title, year of release and composed by. So, facts like, number of videos posted by category, year released, available contents can be retrieved. In addition, several other attributes can also be added to perform additional analytics.

   Keyspace: Youtube_analytics

   Table: private_playlist

   Evidence:



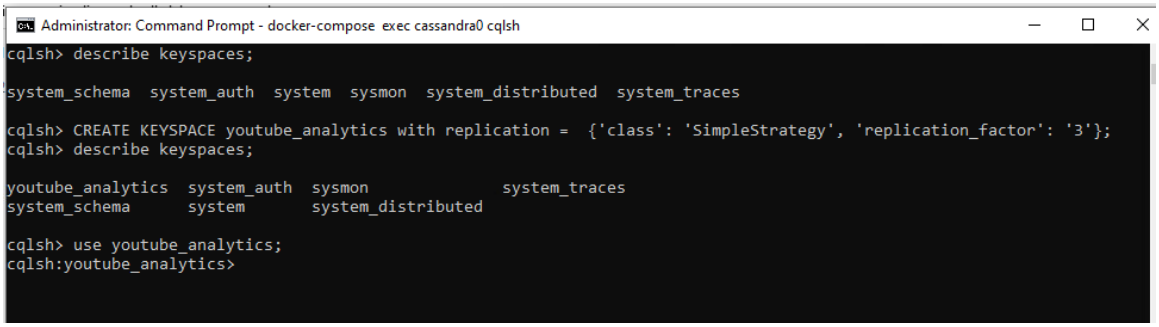


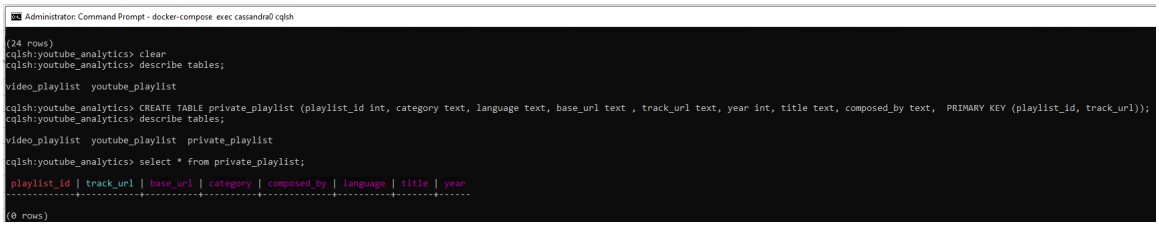
2. Create your Cassandra table in CQL based on your scenario from the previous exercise. You should define the columns and data types to suit your scenario in addition to configuring the partition and cluster keys.

Solution:

```
-- CQL to create keyspace
CREATE KEYSPACE youtube_analytics with replication = {‘class’: ’SimpleStrategy’, ‘replication_factor’:’3};
-- Choose keyspace
use youtube_analytics;
-- CQL to create table
CREATE TABLE private_playlist (playlist_id int, category text, language text, base_url text, track_url text, year int, title text, composed_by text, PRIMARY KEY (playlist_id, track_url));
-- CQL to select data from table
SELECT * FROM private_playlist
```

Evidence:





3. Write CQL statements to add data to your table. Add at least 9 records consisting of 3 different partition and cluster keys

Solution:

```
-- CQL to Insert data
INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1, ‘J2Bh68GTUOU’, ‘PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6’, ’bollywood’, ’pritam’, ’hindi’, ’crazy kiya re’, 2006);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1, ‘Jbn39j-xa-k’, ‘PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6’, ’bollywood’, ‘devdas’, ’hindi’, ‘dola re dola’, 2002);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1, ‘C8kSrkz8Hz8’, ‘PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6’, ’bollywood’, ‘pritam, ’hindi’, ‘kamli’, 2013);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1, ‘4dsFQFCvVGU’, ‘PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6’, ’bollywood’, ‘shankar’, ’hindi’, ‘kajra re’, 2005);
```

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2, ‘bXrvHkbByik’, ‘PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss’, ‘statistics’, ‘mathtutordvd’, ‘english’, ‘intro to statistics’, 2016);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2, ‘A8fBm7-tPXo’, ‘PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss’, ‘statistics’, ‘mathtutordvd’, ‘english’, ‘what is a population in statistics’, 2016);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2, ‘OqoWtOvD8w0’, ‘PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss’, ‘statistics’, ‘mathtutordvd’, ‘english’, ‘descriptive vs inferential statistics’, 2016);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2, ‘uRfRH01UyjU’, ‘PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss’, ‘statistics’, ‘mathtutordvd’, ‘english’, ‘statistics definitions’, 2016);

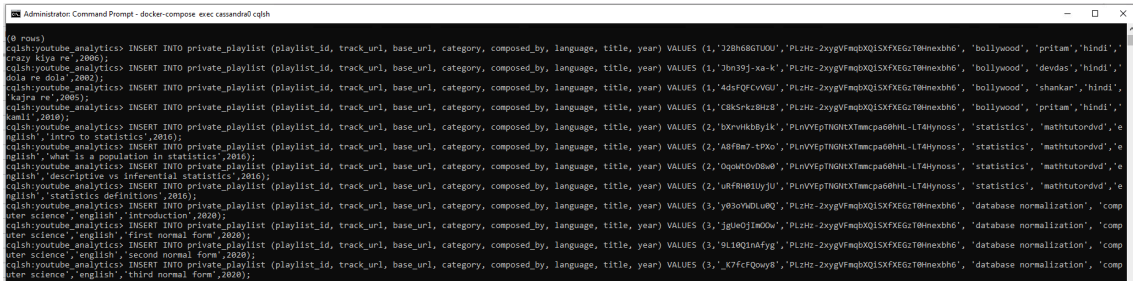
INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3, ‘y03oYWDLu0Q’, ‘PLTd6ceoshpreIS_2qHSfKe-iBwW-6eltD’, ‘database normalization’, ‘computer science’, ‘english’, ‘introduction’, 2020);

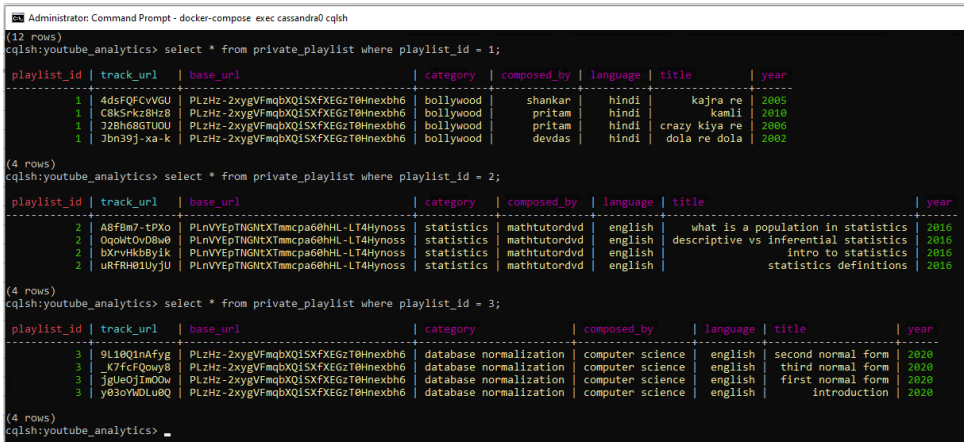
INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3, ‘jgUeOjImOOw’, ‘PLTd6ceoshpreIS_2qHSfKe-iBwW-6eltD’, ‘database normalization’, ‘computer science’, ‘english’, ‘first normal form’, 2020);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3, ‘9L10Q1nAfyg’, ‘PLTd6ceoshpreIS_2qHSfKe-iBwW-6eltD’, ‘database normalization’, ‘computer science’, ‘english’, ‘second normal form’, 2020);

INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3, ‘_K7fcFQowy8’, ‘PLTd6ceoshpreIS_2qHSfKe-iBwW-6eltD’, ‘database normalization’, ‘computer science’, ‘english’, ‘third normal form’, 2020);

Evidence:



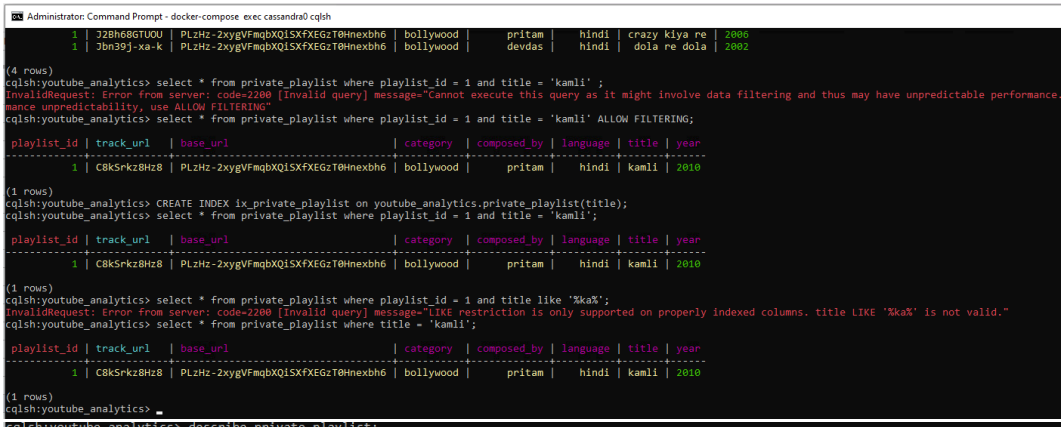


4. Write a CQL statement to create an index or materialized view on your table so that you can set a different partition key to prevent ALLOW FILTERING. Then write a CQL SELECT statement to demonstrate it works as designed.

Solution:

```
-- create an index on title and verify ALLOW FILTERING behavior
CREATE INDEX ix_private_playlist on youtube_analytics.private_playlist(title);

-- retrieve data from table
select * from private_playlist where playlist_id = 1 and title =’kamli’ ALLOW FILTERING’;

select * from private_playlist where playlist_id = 1 and title =’kamli’;

select * from private_playlist where title =’kamli’;
```

Evidence:



```
Administrator: Command Prompt - docker-compose  exec cassandra0 cqlsh
          1 | J2Bh68GTUOU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | crazy kiya re | 2006
          1 | Jbn39j-xa-k | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      devdas |    hindi |  dola re dola | 2002

(4 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli' ;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Cannot execute this query as it might involve data filtering and thus may have unpredictable performance.
mance unpredictability, use ALLOW FILTERING"
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli' ALLOW FILTERING;

 playlist_id | track_url   | base_url                          | category  | composed_by | language | title | year
-------------+-------------+-----------------------------------+-----------+-------------+----------+-------+------
           1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | kamli | 2010

(1 rows)
cqlsh:youtube_analytics> CREATE INDEX ix_private_playlist on youtube_analytics.private_playlist(title);
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli';

 playlist_id | track_url   | base_url                          | category  | composed_by | language | title | year
-------------+-------------+-----------------------------------+-----------+-------------+----------+-------+------
           1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | kamli | 2010

(1 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title like '%ka%';
InvalidRequest: Error from server: code=2200 [Invalid query] message="LIKE restriction is only supported on properly indexed columns. title LIKE '%ka%' is not valid."
cqlsh:youtube_analytics> select * from private_playlist where title = 'kamli';

 playlist_id | track_url   | base_url                          | category  | composed_by | language | title | year
-------------+-------------+-----------------------------------+-----------+-------------+----------+-------+------
           1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | kamli | 2010

(1 rows)
cqlsh:youtube_analytics>
```

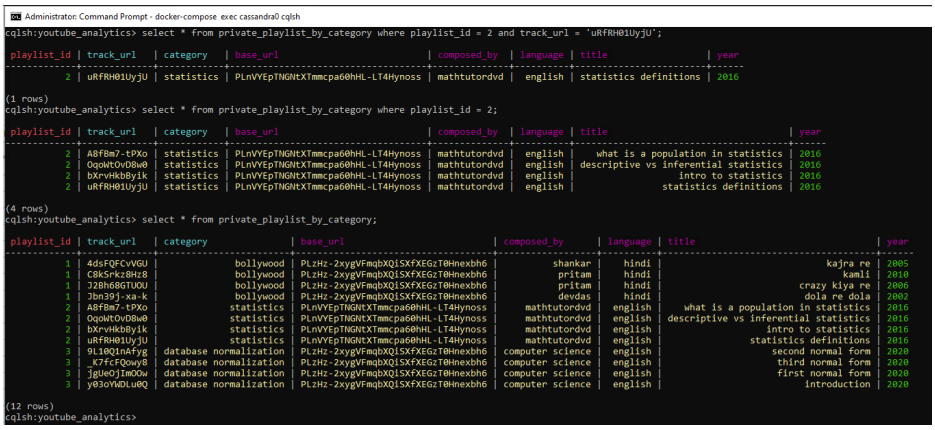
```
cqlsh:youtube_analytics> describe private_playlist;

CREATE TABLE youtube_analytics.private_playlist (
    playlist_id int,
    track_url text,
    base_url text,
    category text,
    composed_by text,
    language text,
    title text,
    year int,
    PRIMARY KEY (playlist_id, track_url)
) WITH CLUSTERING ORDER BY (track_url ASC)
    AND bloom_filter_fp_chance = 0.01
    AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
    AND comment = ''
    AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
    AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
    AND crc_check_chance = 1.0
    AND dclocal_read_repair_chance = 0.1
    AND default_time_to_live = 0
    AND gc_grace_seconds = 864000
    AND max_index_interval = 2048
    AND memtable_flush_period_in_ms = 0
    AND min_index_interval = 128
    AND read_repair_chance = 0.0
    AND speculative_retry = '99PERCENTILE';
CREATE INDEX ix_private_playlist ON youtube_analytics.private_playlist (title);
```

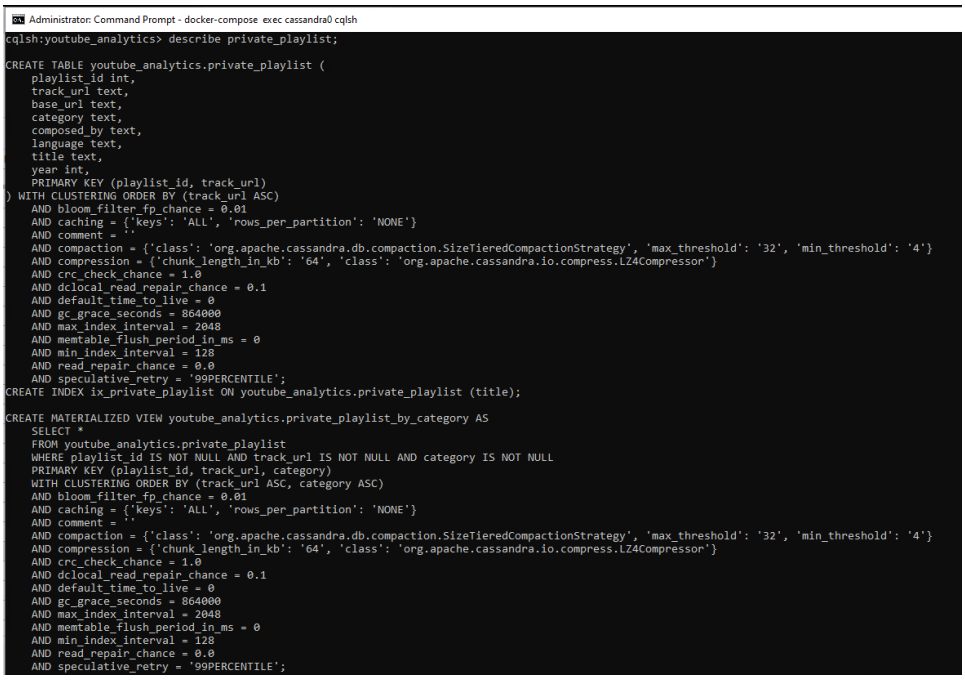
5. Write a CQL statement to create an index or materialized view on your table so that you can set a different cluster key to prevent ALLOW FILTERING. Then write a CQL SELECT statement to demonstrate it works as designed.

Solution:

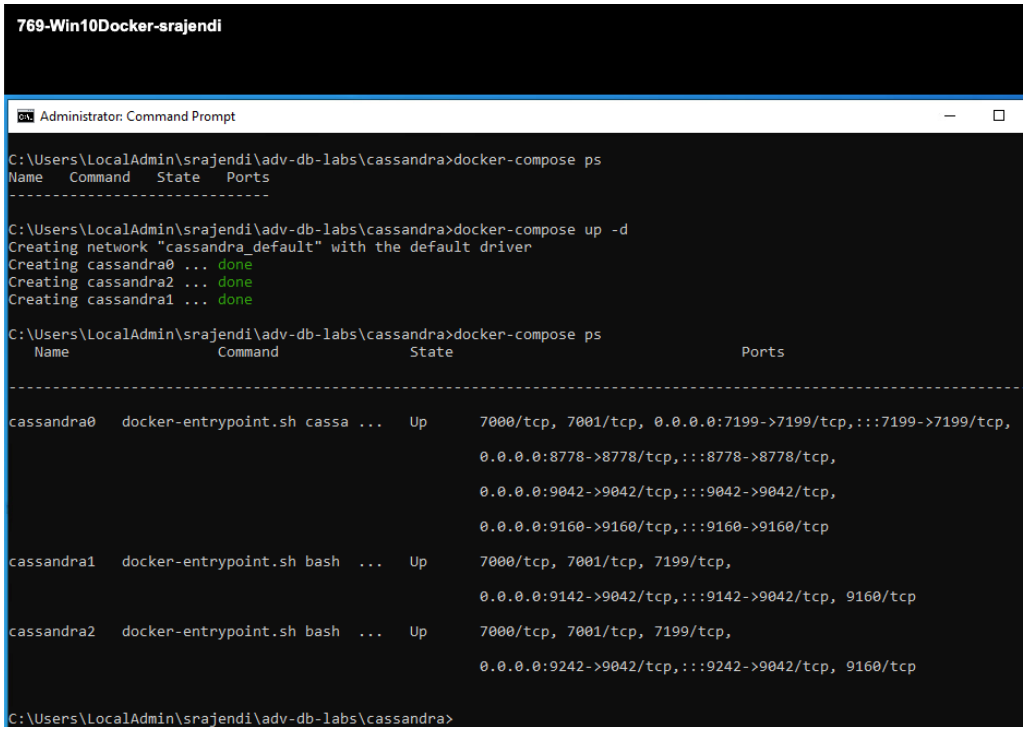
```
-- create a materialized view and verify ALLOW FILTERING behavior
DROP MATERIALIZED VIEW IF EXISTS private_playlist_by_category;

CREATE MATERIALIZED VIEW private_playlist_by_category as SELECT * FROM private_playlist
WHERE playlist_id IS NOT NULL and track_url IS NOT NULL and category IS NOT NULL PRIMARY
KEY (playlist_id, track_url, category);
-- retrieve values
select * from private_playlist_by_category;
select * from private_playlist_by_category where playlist_id =2;
select * from private_playlist_by_category where playlist_id =2 and track_url = 'uRfRH01UyjU';
```

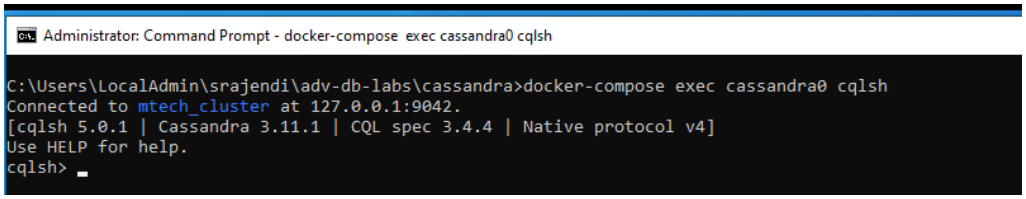
Evidence:

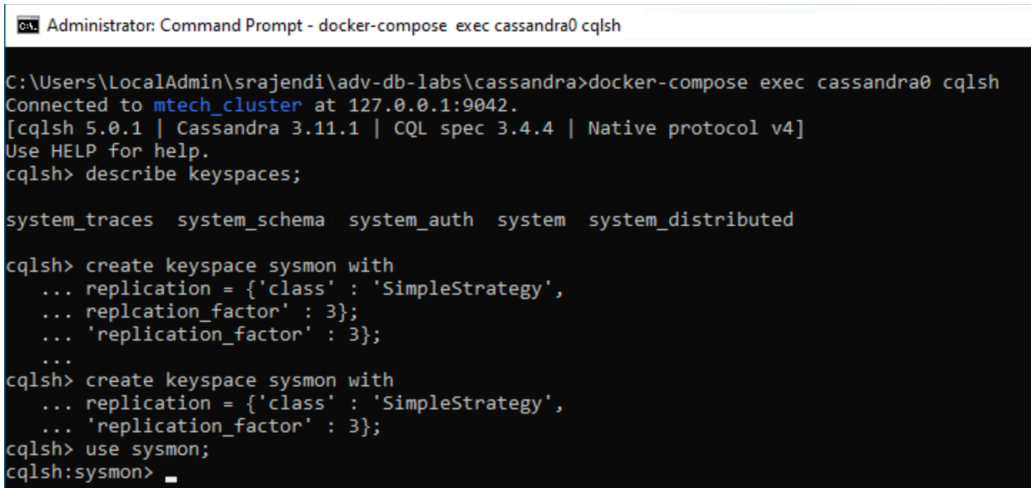




Appendix

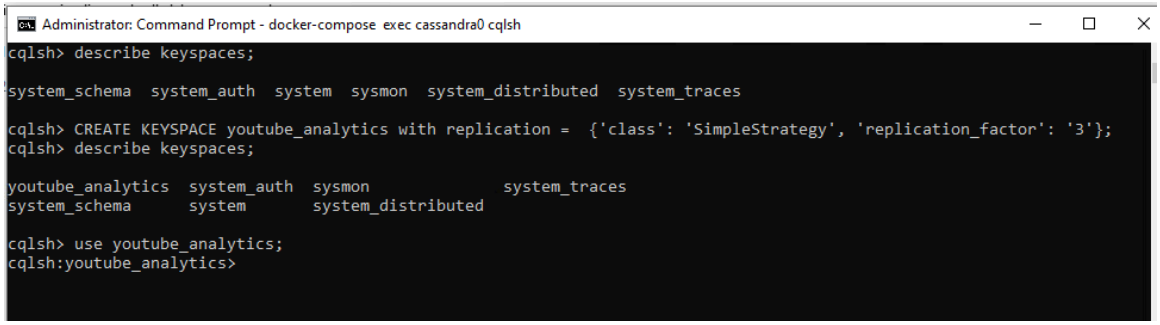

769-Win10Docker-srajendi
Administrator: Command Prompt
C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose ps
Name Command State Ports
C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose up -d
Creating network "cassandra_default" with the default driver
Creating cassandra0 ... done
Creating cassandra2 ... done
Creating cassandra1 ... done
C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose ps
Name Command State Ports
cassandra0 docker-entrypoint.sh cassa ... Up 7000/tcp, 7001/tcp, 0.0.0.0:7199->7199/tcp,:::7199->7199/tcp,
0.0.0.0:8778->8778/tcp,:::8778->8778/tcp,
0.0.0.0:9042->9042/tcp,:::9042->9042/tcp,
0.0.0.0:9160->9160/tcp,:::9160->9160/tcp
cassandra1 docker-entrypoint.sh bash ... Up 7000/tcp, 7001/tcp, 7199/tcp,
0.0.0.0:9142->9042/tcp,:::9142->9042/tcp, 9160/tcp
cassandra2 docker-entrypoint.sh bash ... Up 7000/tcp, 7001/tcp, 7199/tcp,
0.0.0.0:9242->9042/tcp,:::9242->9042/tcp, 9160/tcp
C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>

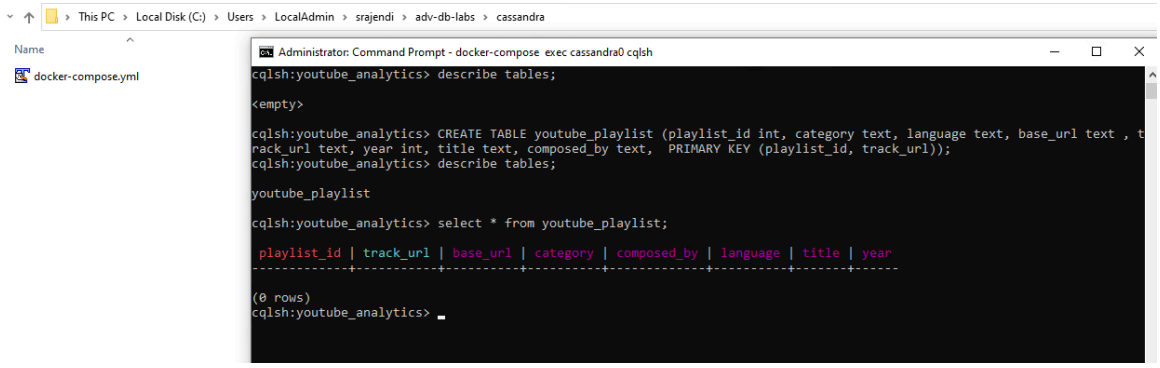

Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose exec cassandra0 cqlsh
Connected to mtech_cluster at 127.0.0.1:9042.
[cqlsh 5.0.1 | Cassandra 3.11.1 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
cqlsh>

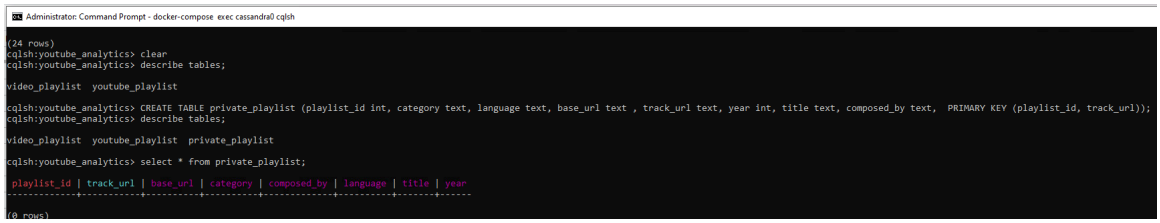

Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose exec cassandra0 cqlsh
Connected to mtech_cluster at 127.0.0.1:9042.
[cqlsh 5.0.1 | Cassandra 3.11.1 | CQL spec 3.4.4 | Native protocol v4]
Use HELP for help.
cqlsh> describe keyspaces;
system_traces system_schema system_auth system system_distributed
cqlsh> create keyspace sysmon with
... replication = {'class' : 'SimpleStrategy',
... replcation_factor' : 3};
... 'replication_factor' : 3};
...
cqlsh> create keyspace sysmon with
... replication = {'class' : 'SimpleStrategy',
... 'replication_factor' : 3};
cqlsh> use sysmon;
cqlsh:sysmon>

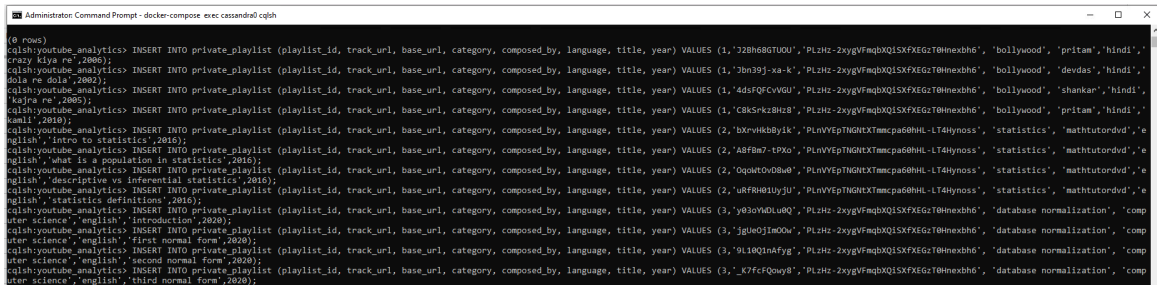
```
cqlsh:sysmon> create table users ( name text, age tinyint, primary key (name));
cqlsh:sysmon> describe table users;

CREATE TABLE sysmon.users (
    name text PRIMARY KEY,
    age tinyint
) WITH bloom_filter_fp_chance = 0.01
    AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
    AND comment = ''
    AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32',
 'min_threshold': '4'}
    AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
    AND crc_check_chance = 1.0
    AND dclocal_read_repair_chance = 0.1
    AND default_time_to_live = 0
    AND gc_grace_seconds = 864000
    AND max_index_interval = 2048
    AND memtable_flush_period_in_ms = 0
    AND min_index_interval = 128
    AND read_repair_chance = 0.0
    AND speculative_retry = '99PERCENTILE';

cqlsh:sysmon>
```

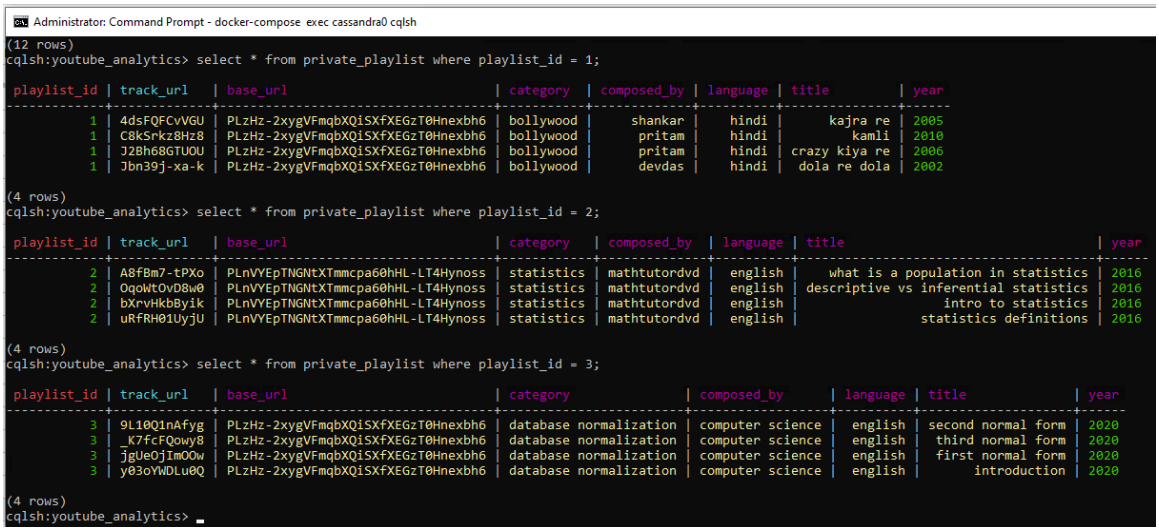
```
cqlsh:sysmon> insert into users(name,age) values('mike',47);
cqlsh:sysmon> select * from users;

 name | age
------+-----
 mike |  47

(1 rows)
cqlsh:sysmon> insert into users(name,age) values('mike',47);
cqlsh:sysmon> insert into users(name,age) values('mike',47);
cqlsh:sysmon> select * from users;

 name | age
------+-----
 mike |  47

(1 rows)
cqlsh:sysmon> insert into users(name,age) values('mike',48);
cqlsh:sysmon> select * from users;

 name | age
------+-----
 mike |  48

(1 rows)
cqlsh:sysmon>
```

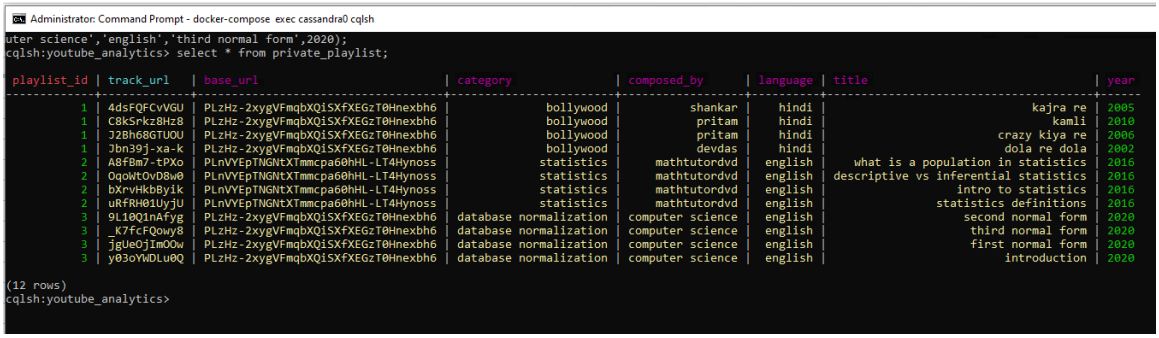

Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
cqlsh> describe keyspaces;
system_schema system_auth system sysmon system_distributed system_traces
cqlsh> CREATE KEYSPACE youtube_analytics with replication = {'class': 'SimpleStrategy', 'replication_factor': '3'};
cqlsh> describe keyspaces;
youtube_analytics system_auth sysmon system_traces
system_schema system system_distributed
cqlsh> use youtube_analytics;
cqlsh:youtube_analytics>

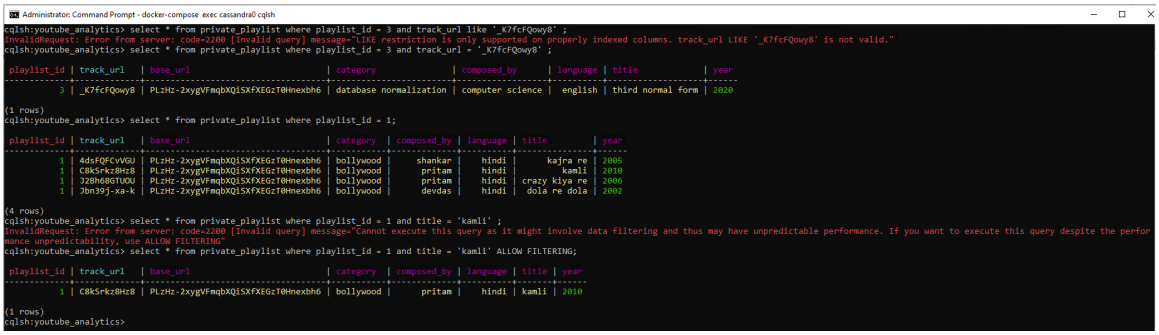

This PC › Local Disk (C:) › Users › LocalAdmin › srajendi › adv-db-labs › cassandra
Name
docker-compose.yml
Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
cqlsh:youtube_analytics> describe tables;
<empty>
cqlsh:youtube_analytics> CREATE TABLE youtube_playlist (playlist_id int, category text, language text, base_url text , track_url text, year int, title text, composed_by text, PRIMARY KEY (playlist_id, track_url));
cqlsh:youtube_analytics> describe tables;
youtube_playlist
cqlsh:youtube_analytics> select * from youtube_playlist;
playlist_id | track_url | base_url | category | composed_by | language | title | year
(0 rows)
cqlsh:youtube_analytics>


Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
(24 rows)
cqlsh:youtube_analytics> clear
cqlsh:youtube_analytics> describe tables;
video_playlist youtube_playlist
cqlsh:youtube_analytics> CREATE TABLE private_playlist (playlist_id int, category text, language text, base_url text , track_url text, year int, title text, composed_by text, PRIMARY KEY (playlist_id, track_url));
cqlsh:youtube_analytics> describe tables;
video_playlist youtube_playlist private_playlist
cqlsh:youtube_analytics> select * from private_playlist;
playlist_id | track_url | base_url | category | composed_by | language | title | year
(0 rows)


Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
(0 rows)
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1,'J2Bh6BGTUOU','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'bollywood', 'pritam','hindi','crazy kiya re',2006);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1,'Jbn39j-xa-k','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'bollywood', 'devdas','hindi','dola re dola',2002);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1,'4dsFQFCvVGU','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'bollywood', 'shankar','hindi','kajra re',2005);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (1,'C8kSrkz8Hz8','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'bollywood', 'pritam','hindi','kamli',2010);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2,'bXrvHkbByik','PLnVVEpTNGNtXTmmcpa60hHL-LT4Hynoss', 'statistics', 'mathtutordvd','english','intro to statistics',2016);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2,'A8fBm7-tPXo','PLnVVEpTNGNtXTmmcpa60hHL-LT4Hynoss', 'statistics', 'mathtutordvd','english','what is a population in statistics',2016);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2,'OqoWtOvD8w0','PLnVVEpTNGNtXTmmcpa60hHL-LT4Hynoss', 'statistics', 'mathtutordvd','english','descriptive vs inferential statistics',2016);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (2,'uRfRH01UyjU','PLnVVEpTNGNtXTmmcpa60hHL-LT4Hynoss', 'statistics', 'mathtutordvd','english','statistics definitions',2016);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3,'y03oYWDLu0Q','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'database normalization', 'computer science','english','introduction',2020);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3,'jgUeOjImOOw','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'database normalization', 'computer science','english','first normal form',2020);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3,'9L10Q1nAfyg','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'database normalization', 'computer science','english','second normal form',2020);
cqlsh:youtube_analytics> INSERT INTO private_playlist (playlist_id, track_url, base_url, category, composed_by, language, title, year) VALUES (3,'_K7fcFQowy8','PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6', 'database normalization', 'computer science','english','third normal form',2020);


Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
(12 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1;
playlist_id | track_url | base_url | category | composed_by | language | title | year
1 | 4dsFQFCvVGU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | shankar | hindi | kajra re | 2005
1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | kamli | 2010
1 | J2Bh68GTUOU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | crazy kiya re | 2006
1 | Jbn39j-xa-k | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | devdas | hindi | dola re dola | 2002
(4 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 2;
playlist_id | track_url | base_url | category | composed_by | language | title | year
2 | A8fBm7-tPXo | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | what is a population in statistics | 2016
2 | OqoWtOvD8w0 | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | descriptive vs inferential statistics | 2016
2 | bXrvHkbByik | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | intro to statistics | 2016
2 | uRfRH01UyjU | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | statistics definitions | 2016
(4 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 3;
playlist_id | track_url | base_url | category | composed_by | language | title | year
3 | 9L10Q1nAfyg | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | second normal form | 2020
3 | _K7fcFQowy8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | third normal form | 2020
3 | jgUeOjImOOw | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | first normal form | 2020
3 | y03oYWDLu0Q | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | introduction | 2020
(4 rows)
cqlsh:youtube_analytics>


Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
uter science','english','third normal form',2020);
cqlsh:youtube_analytics> select * from private_playlist;
playlist_id | track_url | base_url | category | composed_by | language | title | year
1 | 4dsFQFCvVGU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | shankar | hindi | kajra re | 2005
1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | kamli | 2010
1 | J2Bh68GTUOU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | crazy kiya re | 2006
1 | Jbn39j-xa-k | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | devdas | hindi | dola re dola | 2002
2 | A8fBm7-tPXo | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | what is a population in statistics | 2016
2 | OqoWtOvD8w0 | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | descriptive vs inferential statistics | 2016
2 | bXrvHkbByik | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | intro to statistics | 2016
2 | uRfRH01UyjU | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | statistics | mathtutordvd | english | statistics definitions | 2016
3 | 9L10Q1nAfyg | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | second normal form | 2020
3 | _K7fcFQowy8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | third normal form | 2020
3 | jgUeOjImOOw | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | first normal form | 2020
3 | y03oYWDLu0Q | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | introduction | 2020
(12 rows)
cqlsh:youtube_analytics>


Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 3 and track_url like '_K7fcFQowy8' ;
InvalidRequest: Error from server: code=2200 [Invalid query] message="LIKE restriction is only supported on properly indexed columns. track_url LIKE '_K7fcFQowy8' is not valid."
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 3 and track_url = '_K7fcFQowy8' ;
playlist_id | track_url | base_url | category | composed_by | language | title | year
3 | _K7fcFQowy8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science | english | third normal form | 2020
(1 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1;
playlist_id | track_url | base_url | category | composed_by | language | title | year
1 | 4dsFQFCvVGU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | shankar | hindi | kajra re | 2005
1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | kamli | 2010
1 | J2Bh68GTUOU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | crazy kiya re | 2006
1 | Jbn39j-xa-k | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | devdas | hindi | dola re dola | 2002
(4 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli' ;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Cannot execute this query as it might involve data filtering and thus may have unpredictable performance. If you want to execute this query despite the performance unpredictability, use ALLOW FILTERING"
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli' ALLOW FILTERING;
playlist_id | track_url | base_url | category | composed_by | language | title | year
1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood | pritam | hindi | kamli | 2010
(1 rows)
cqlsh:youtube_analytics>

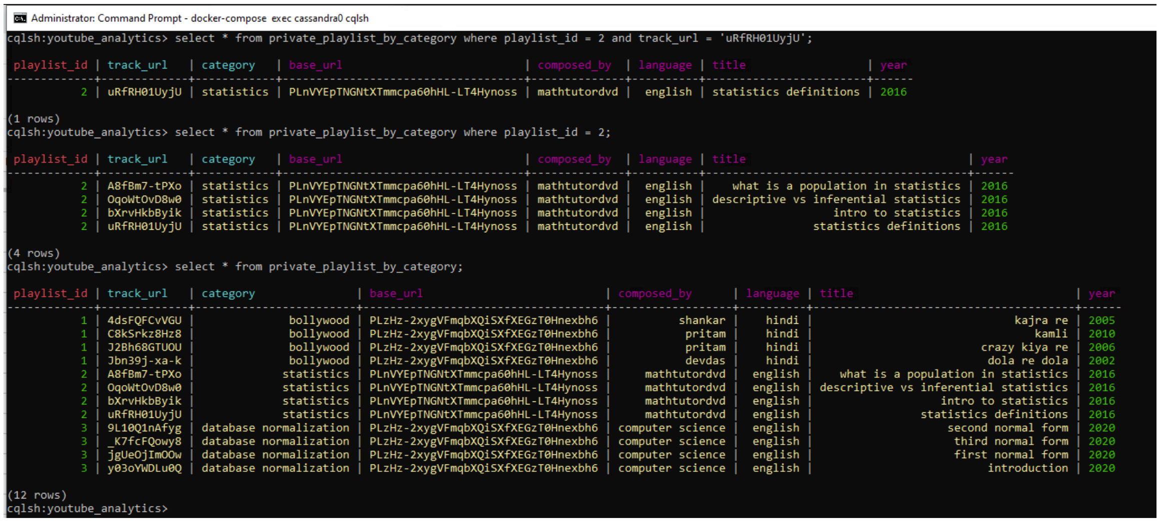
```
Administrator: Command Prompt - docker-compose  exec cassandra0 cqlsh

          1 | J2Bh68GTUOU | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | crazy kiya re | 2006
          1 | Jbn39j-xa-k | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      devdas |    hindi |  dola re dola | 2002

(4 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli' ;
InvalidRequest: Error from server: code=2200 [Invalid query] message="Cannot execute this query as it might involve data filtering and thus may have unpredictable performance.
mance unpredictability, use ALLOW FILTERING"
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli' ALLOW FILTERING;

 playlist_id | track_url   | base_url                           | category  | composed_by | language | title | year
-------------+-------------+------------------------------------+-----------+-------------+----------+-------+------
           1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | kamli | 2010

(1 rows)
cqlsh:youtube_analytics> CREATE INDEX ix_private_playlist on youtube_analytics.private_playlist(title);
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title = 'kamli';

 playlist_id | track_url   | base_url                           | category  | composed_by | language | title | year
-------------+-------------+------------------------------------+-----------+-------------+----------+-------+------
           1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | kamli | 2010

(1 rows)
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 and title like '%ka%';
InvalidRequest: Error from server: code=2200 [Invalid query] message="LIKE restriction is only supported on properly indexed columns. title LIKE '%ka%' is not valid."
cqlsh:youtube_analytics> select * from private_playlist where title = 'kamli';

 playlist_id | track_url   | base_url                           | category  | composed_by | language | title | year
-------------+-------------+------------------------------------+-----------+-------------+----------+-------+------
           1 | C8kSrkz8Hz8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | bollywood |      pritam |    hindi | kamli | 2010

(1 rows)
cqlsh:youtube_analytics>
```

```
cqlsh:youtube_analytics> clear
cqlsh:youtube_analytics> describe private_playlist;

CREATE TABLE youtube_analytics.private_playlist (
    playlist_id int,
    track_url text,
    base_url text,
    category text,
    composed_by text,
    language text,
    title text,
    year int,
    PRIMARY KEY (playlist_id, track_url)
) WITH CLUSTERING ORDER BY (track_url ASC)
    AND bloom_filter_fp_chance = 0.01
    AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
    AND comment = ''
    AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
    AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
    AND crc_check_chance = 1.0
    AND dclocal_read_repair_chance = 0.1
    AND default_time_to_live = 0
    AND gc_grace_seconds = 864000
    AND max_index_interval = 2048
    AND memtable_flush_period_in_ms = 0
    AND min_index_interval = 128
    AND read_repair_chance = 0.0
    AND speculative_retry = '99PERCENTILE';
CREATE INDEX ix_private_playlist ON youtube_analytics.private_playlist (title);
```

```
Administrator: Command Prompt - docker-compose  exec cassandra0 cqlsh

cqlsh:youtube_analytics> DROP MATERIALIZED VIEW IF EXISTS private_playlist_by_category;
cqlsh:youtube_analytics> CREATE MATERIALIZED VIEW private_playlist_by_category as SELECT * FROM private_playlist
                     ... WHERE playlist_id IS NOT NULL AND track_url IS NOT NULL AND category IS NOT NULL
                     ... PRIMARY KEY (playlist_id, track_url, category);
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 1 AND category ='bollywood';
InvalidRequest: Error from server: code=2200 [Invalid query] message="Cannot execute this query as it might involve data filtering and thus may have unpredictable performance.
mance unpredictability, use ALLOW FILTERING"
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 1 AND category ='bollywood';
InvalidRequest: Error from server: code=2200 [Invalid query] message="PRIMARY KEY column "category" cannot be restricted as preceding column "track_url" is not restricted"
cqlsh:youtube_analytics> select * from private_playlist where playlist_id = 3 and track_url = '_K7fcFQowy8' ;

 playlist_id | track_url   | base_url                           | category               | composed_by      | language | title             | year
-------------+-------------+------------------------------------+------------------------+------------------+----------+-------------------+------
           3 | _K7fcFQowy8 | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | database normalization | computer science |  english | third normal form | 2020

(1 rows)
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 3 and track_url = '_K7fcFQowy8' ;

 playlist_id | track_url   | category               | base_url                           | composed_by      | language | title             | year
-------------+-------------+------------------------+------------------------------------+------------------+----------+-------------------+------
           3 | _K7fcFQowy8 | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english | third normal form | 2020

(1 rows)
cqlsh:youtube_analytics>
```

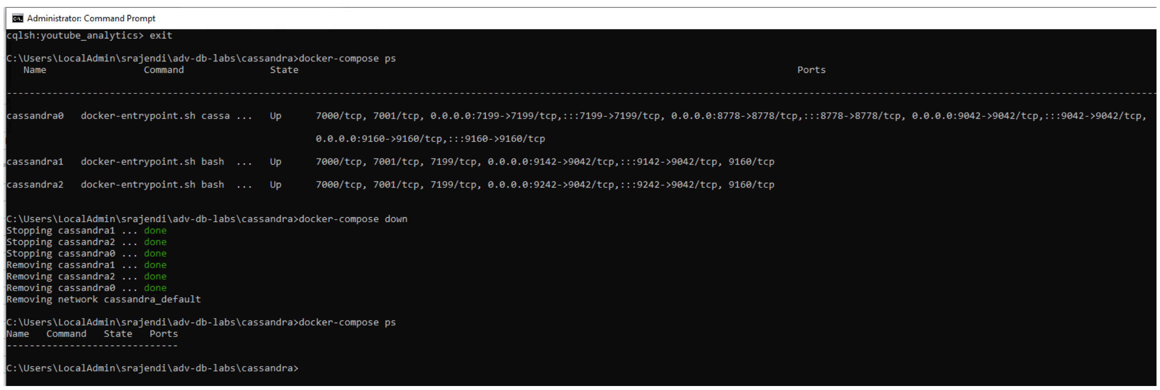
```
Administrator: Command Prompt - docker-compose  exec cassandra0 cqlsh
cqlsh:youtube_analytics> describe private_playlist;

CREATE TABLE youtube_analytics.private_playlist (
    playlist_id int,
    track_url text,
    base_url text,
    category text,
    composed_by text,
    language text,
    title text,
    year int,
    PRIMARY KEY (playlist_id, track_url)
) WITH CLUSTERING ORDER BY (track_url ASC)
    AND bloom_filter_fp_chance = 0.01
    AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
    AND comment = ''
    AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
    AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
    AND crc_check_chance = 1.0
    AND dclocal_read_repair_chance = 0.1
    AND default_time_to_live = 0
    AND gc_grace_seconds = 864000
    AND max_index_interval = 2048
    AND memtable_flush_period_in_ms = 0
    AND min_index_interval = 128
    AND read_repair_chance = 0.0
    AND speculative_retry = '99PERCENTILE';
CREATE INDEX ix_private_playlist ON youtube_analytics.private_playlist (title);

CREATE MATERIALIZED VIEW youtube_analytics.private_playlist_by_category AS
    SELECT *
    FROM youtube_analytics.private_playlist
    WHERE playlist_id IS NOT NULL AND track_url IS NOT NULL AND category IS NOT NULL
    PRIMARY KEY (playlist_id, track_url, category)
    WITH CLUSTERING ORDER BY (track_url ASC, category ASC)
    AND bloom_filter_fp_chance = 0.01
    AND caching = {'keys': 'ALL', 'rows_per_partition': 'NONE'}
    AND comment = ''
    AND compaction = {'class': 'org.apache.cassandra.db.compaction.SizeTieredCompactionStrategy', 'max_threshold': '32', 'min_threshold': '4'}
    AND compression = {'chunk_length_in_kb': '64', 'class': 'org.apache.cassandra.io.compress.LZ4Compressor'}
    AND crc_check_chance = 1.0
    AND dclocal_read_repair_chance = 0.1
    AND default_time_to_live = 0
    AND gc_grace_seconds = 864000
    AND max_index_interval = 2048
    AND memtable_flush_period_in_ms = 0
    AND min_index_interval = 128
    AND read_repair_chance = 0.0
    AND speculative_retry = '99PERCENTILE';
```

```
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 1 ;

 playlist_id | track_url   | category  | base_url                          | composed_by | language | title         | year
-------------+-------------+-----------+-----------------------------------+-------------+----------+---------------+------
           1 | 4dsFQFCvVGU | bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |      shankar |    hindi |      kajra re | 2005
           1 | C8kSrkz8Hz8 | bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |       pritam |    hindi |         kamli | 2010
           1 | J2Bh68GTUOU | bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |       pritam |    hindi | crazy kiya re | 2006
           1 | Jbn39j-xa-k | bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |      devdas |    hindi |  dola re dola | 2002

(4 rows)
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 2;

 playlist_id | track_url   | category   | base_url                          | composed_by  | language | title                                | year
-------------+-------------+------------+-----------------------------------+--------------+----------+--------------------------------------+------
           2 | A8fBm7-tPXo | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english |    what is a population in statistics | 2016
           2 | OqoWtOvD8w0 | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english | descriptive vs inferential statistics | 2016
           2 | bXrvHkbByik | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english |                intro to statistics | 2016
           2 | uRfRH01UyjU | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english |              statistics definitions | 2016

(4 rows)
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 3;

 playlist_id | track_url   | category               | base_url                          | composed_by      | language | title              | year
-------------+-------------+------------------------+-----------------------------------+------------------+----------+--------------------+------
           3 | 9L10Q1nAfyg | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english | second normal form | 2020
           3 | _K7fcFQowy8 | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |  third normal form | 2020
           3 | jgUeOjImOOw | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |  first normal form | 2020
           3 | y03oYWDLu0Q | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |       introduction | 2020

(4 rows)
cqlsh:youtube_analytics>
```



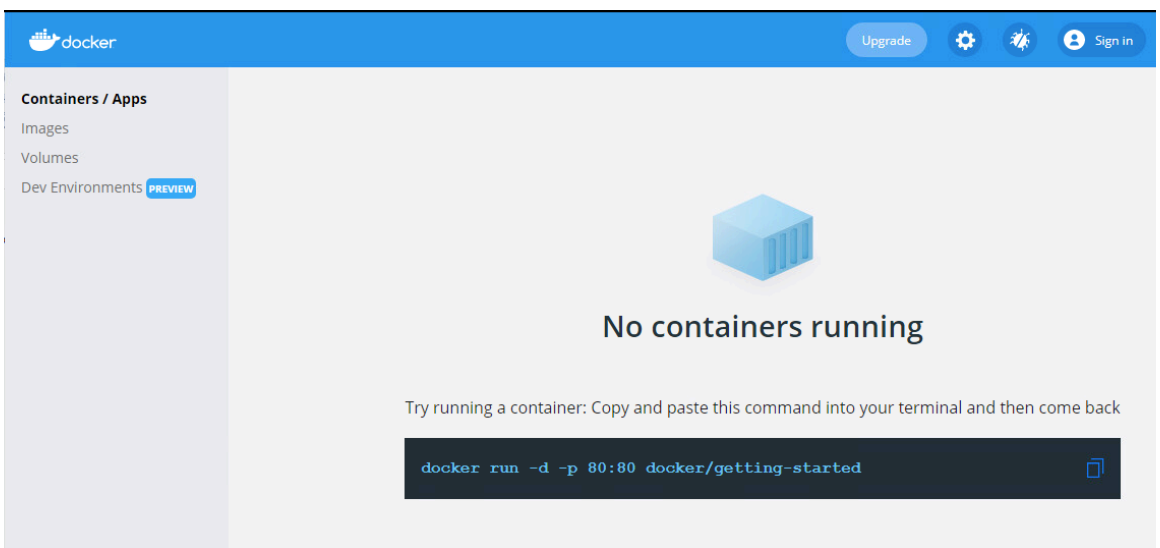
Administrator: Command Prompt - docker-compose exec cassandra0 cqlsh

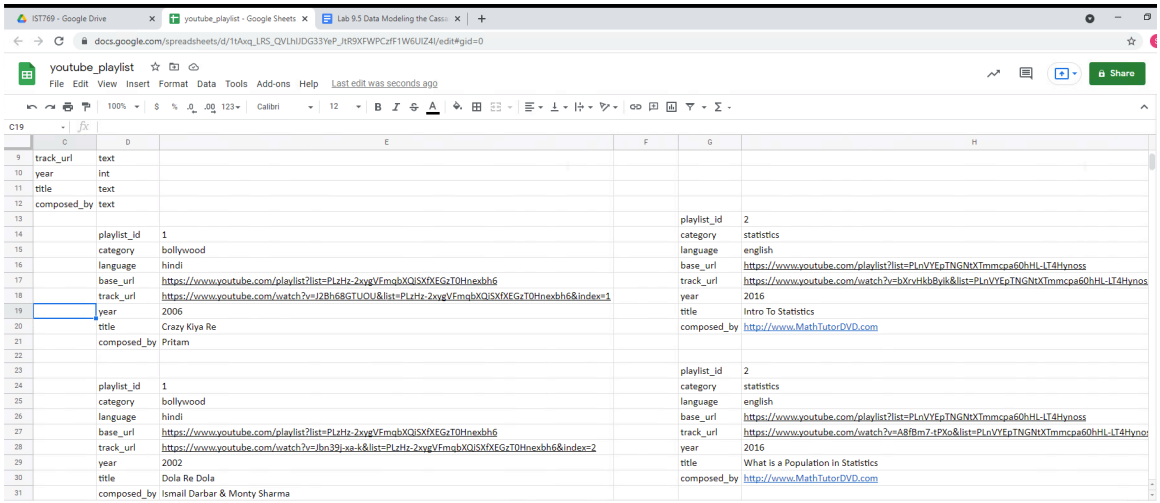
```
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 2 and track_url = 'uRfRH01UyjU';

 playlist_id | track_url   | category   | base_url                           | composed_by  | language | title                  | year
-------------+-------------+------------+------------------------------------+--------------+----------+------------------------+------
           2 | uRfRH01UyjU | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english | statistics definitions | 2016

(1 rows)
cqlsh:youtube_analytics> select * from private_playlist_by_category where playlist_id = 2;

 playlist_id | track_url   | category   | base_url                           | composed_by  | language | title                                   | year
-------------+-------------+------------+------------------------------------+--------------+----------+-----------------------------------------+------
           2 | A8fBm7-tPXo | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english |    what is a population in statistics | 2016
           2 | OqoWtOvD8w0 | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english | descriptive vs inferential statistics | 2016
           2 | bXrvHkbByik | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english |                 intro to statistics | 2016
           2 | uRfRH01UyjU | statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss | mathtutordvd |  english |              statistics definitions | 2016

(4 rows)
cqlsh:youtube_analytics> select * from private_playlist_by_category;

 playlist_id | track_url   | category               | base_url                           | composed_by      | language | title                                 | year
-------------+-------------+------------------------+------------------------------------+------------------+----------+---------------------------------------+------
           1 | 4dsFQFCvVGU |              bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |          shankar |    hindi |                              kajra re | 2005
           1 | C8kSrkz8Hz8 |              bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |           pritam |    hindi |                                 kamli | 2010
           1 | J2Bh68GTUOU |              bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |           pritam |    hindi |                         crazy kiya re | 2006
           1 | Jbn39j-xa-k |              bollywood | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 |           devdas |    hindi |                          dola re dola | 2002
           2 | A8fBm7-tPXo |             statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss |     mathtutordvd |  english |    what is a population in statistics | 2016
           2 | OqoWtOvD8w0 |             statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss |     mathtutordvd |  english | descriptive vs inferential statistics | 2016
           2 | bXrvHkbByik |             statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss |     mathtutordvd |  english |                   intro to statistics | 2016
           2 | uRfRH01UyjU |             statistics | PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss |     mathtutordvd |  english |                statistics definitions | 2016
           3 | 9L10Q1nAfyg | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |                      second normal form | 2020
           3 | _K7fcFQowy8 | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |                       third normal form | 2020
           3 | jgUeOjImOOw | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |                       first normal form | 2020
           3 | y03oYWDLu0Q | database normalization | PLzHz-2xygVFmqbXQiSXfXEGzT0Hnexbh6 | computer science |  english |                            introduction | 2020

(12 rows)
cqlsh:youtube_analytics>
```



Administrator: Command Prompt

```
cqlsh:youtube_analytics> exit

C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose ps
   Name                  Command               State                                                  Ports
------------------------------------------------------------------------------------------------------------------------------------------------------------------

cassandra0   docker-entrypoint.sh cassa ...   Up      7000/tcp, 7001/tcp, 0.0.0.0:7199->7199/tcp,:::7199->7199/tcp, 0.0.0.0:8778->8778/tcp,:::8778->8778/tcp, 0.0.0.0:9042->9042/tcp,:::9042->9042/tcp,

                                                      0.0.0.0:9160->9160/tcp,:::9160->9160/tcp

cassandra1   docker-entrypoint.sh bash  ...   Up      7000/tcp, 7001/tcp, 7199/tcp, 0.0.0.0:9142->9042/tcp,:::9142->9042/tcp, 9160/tcp

cassandra2   docker-entrypoint.sh bash  ...   Up      7000/tcp, 7001/tcp, 7199/tcp, 0.0.0.0:9242->9042/tcp,:::9242->9042/tcp, 9160/tcp

C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose down
Stopping cassandra1 ... done
Stopping cassandra2 ... done
Stopping cassandra0 ... done
Removing cassandra1 ... done
Removing cassandra2 ... done
Removing cassandra0 ... done
Removing network cassandra_default

C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>docker-compose ps
Name   Command   State   Ports
------------------------------

C:\Users\LocalAdmin\srajendi\adv-db-labs\cassandra>
```




IST769 - Google Drive
youtube_playlist - Google Sheets
Lab 9.5 Data Modeling the Cassa
docs.google.com/spreadsheets/d/1tAxq_LRS_QVLhIJDG33YeP_JtR9XFWPCzfF1W6UIZ4I/edit#gid=0
youtube_playlist
File Edit View Insert Format Data Tools Add-ons Help Last edit was seconds ago
Share
C19
track_url text
year int
title text
composed_by text
playlist_id 1
category bollywood
language hindi
base_url https://www.youtube.com/playlist?list=PLzHz-2xygVFmqbXQlSXfXEGzT0Hnexbh6
track_url https://www.youtube.com/watch?v=J2Bh6BGTUOU&list=PLzHz-2xygVFmqbXQlSXfXEGzT0Hnexbh6&index=1
year 2006
title Crazy Kiya Re
composed_by Pritam
playlist_id 1
category bollywood
language hindi
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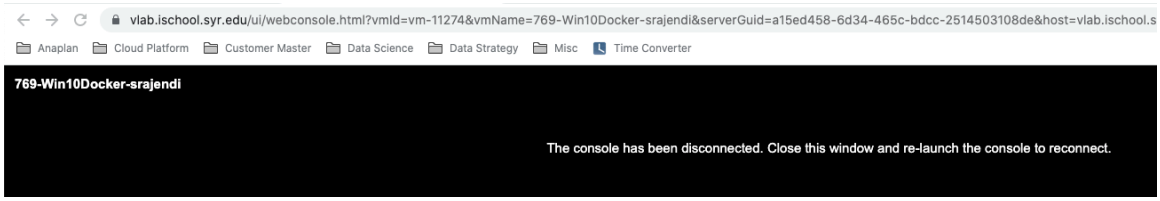
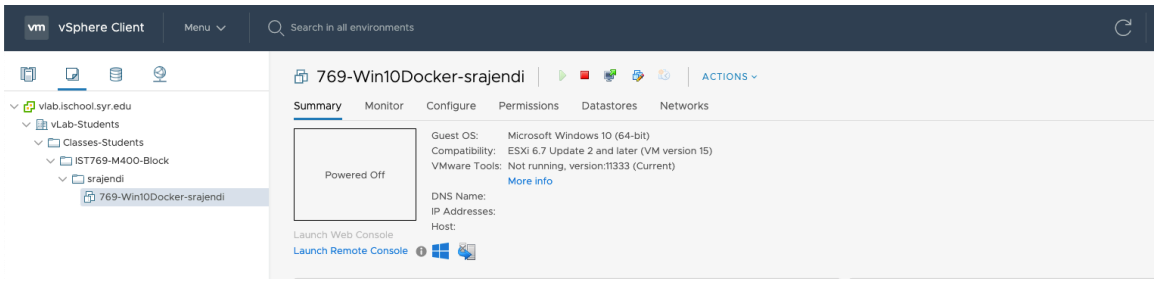
track_url https://www.youtube.com/watch?v=Jbn39j-xa-k&list=PLzHz-2xygVFmqbXQlSXfXEGzT0Hnexbh6&index=2
year 2002
title Dola Re Dola
composed_by Ismail Darbar & Monty Sharma
playlist_id 2
category statistics
language english
base_url https://www.youtube.com/playlist?list=PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss
track_url https://www.youtube.com/watch?v=bXrvHkbBylk&list=PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynos
year 2016
title Intro To Statistics
composed_by http://www.MathTutorDVD.com
playlist_id 2
category statistics
language english
base_url https://www.youtube.com/playlist?list=PLnVYEpTNGNtXTmmcpa60hHL-LT4Hynoss
track_url https://www.youtube.com/watch?v=A8fBm7-tPXo&list=PLnVYEpTNGNtXTmmcpa60hHL-LT4Hyno
year 2016
title What is a Population in Statistics
composed_by http://www.MathTutorDVD.com


769-Win10Docker-srajendi
Shutting down


vlab.ischool.syr.edu/ui/webconsole.html?vmId=vm-11274&vmName=769-Win10Docker-srajendi&serverGuid=a15ed458-6d34-465c-bdcc-2514503108de&host=vlab.ischool.s
Anaplan
Cloud Platform
Customer Master
Data Science
Data Strategy
Misc
Time Converter
769-Win10Docker-srajendi
The console has been disconnected. Close this window and re-launch the console to reconnect.


vSphere Client
Menu
Search in all environments
vlab.ischool.syr.edu
vLab-Students
Classes-Students
IST769-M400-Block
srajendi
769-Win10Docker-srajendi
ACTIONS
Summary
Monitor
Configure
Permissions
Datastores
Networks
Powered Off
Guest OS: Microsoft Windows 10 (64-bit)
Compatibility: ESXi 6.7 Update 2 and later (VM version 15)
VMware Tools: Not running, version:11333 (Current)
More info
DNS Name:
IP Addresses:
Host:
Launch Web Console
Launch Remote Console