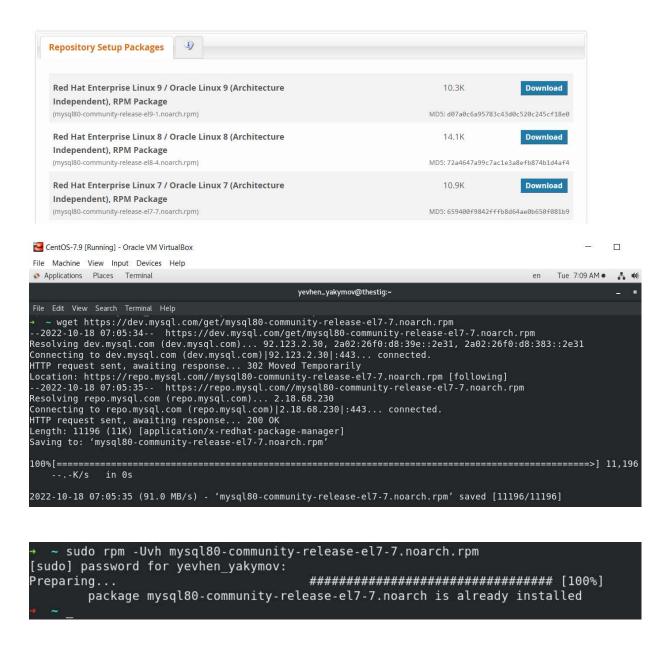
DATABASE'S

- 1. <u>PART_1.</u>
- 2. PART_2 DUMP, RDS.
- 3. PART_3 MongoDB.

PART 1

1. Download MySQL server for your OS on VM(CentOS 7.9).

MySQL Yum Repository



2. <u>Install MySQL server on VM Ubuntu 22.04 (for exapmle, because I have MYSQL installed on my main VM CentOS 7.9)</u>.

```
s sudo dpkg -i mysql-apt-config_0.8.23-1_all.deb
Selecting previously unselected package mysql-apt-config.
(Reading database ... 36134 files and directories currently installed.)
Preparing to unpack mysql-apt-config_0.8.23-1_all.deb ...
Unpacking mysql-apt-config (0.8.23-1) ...
Setting up mysql-apt-config (0.8.23-1) ...
Warning: apt-key should not be used in scripts (called from postinst maintainerscript of the package mysql-apt-config)
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
```

```
| MySQL APT Repo features MySQL Server along with a variety of MySQL components. You may select the appropriate product to choose the version that you wish to receive.

| Once you are satisfied with the configuration then select last option 'Ok' to save the configuration, then run 'apt-get update' to load package list. Advanced users can always change the configurations later, depending on their own needs.

| Which MySQL product do you wish to configure?

| MySQL Server & Cluster (Currently selected: mysql-8.0) | MySQL Tools & Connectors (Currently selected: Enabled) | MySQL Preview Packages (Currently selected: Disabled) | Ok
```

```
Get:1 http://repo.mysql.com/apt/ubuntu jammy InRelease [15.2 kB]
Get:2 http://repo.mysql.com/apt/ubuntu jammy/mysql-8.0 Sources [964 B]
Hit:3 http://archive.ubuntu.com/ubuntu jammy/InRelease
Get:4 http://repo.mysql.com/apt/ubuntu jammy/mysql-8.0 amd64 Packages [8,545 B]
Get:5 http://security.ubuntu.com/ubuntu jammy/security InRelease [110 kB]
Get:6 http://repo.mysql.com/apt/ubuntu jammy/mysql-tools amd64 Packages [7,841 B]
Get:7 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [374 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy-security/main Translation-en [84.9 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [339 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [52.2 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [52.2 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-security/restricted Translation-en [52.2 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [9,100 B]
```

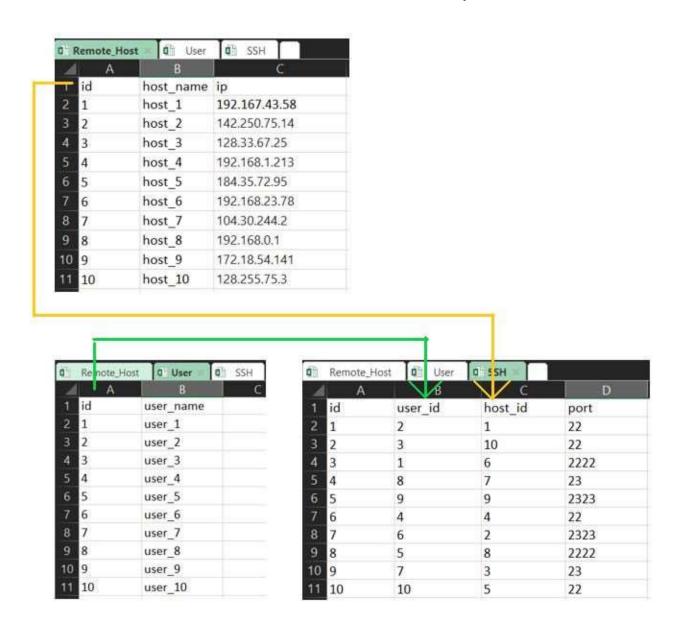
```
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
   libfreetype6
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
   libmecab2 mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client mysql-community-client mysql-community-client-core mysql-community-client-plugins mysql-community-server mysql-community-server-core
The following NEW packages will be installed:
   libmecab2 mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client mysql-community-client mysql-community-client-plugins mysql-community-client-mysql-community-client-core mysql-community-client-plugins mysql-community-server mysql-community-server-core mysql-community-client-core mysql-community-client-plugins mysql-community-server mysql-community-server-core mysql-server
0 upgraded, 12 newly installed, 0 to remove and 64 not upgraded.
Need to get 37.9 MB of archives.

After this operation, 272 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

Now that you have selected a password f password with anyone. Re-enter root password:	Configuring mysql-com For the root account,	typing it again. [Oo not share the
	<0k>		

3. Select a subject area and describe the database schema, (minimum 3 tables)

* The database schema is fictional and not tied to any real case



4. Create a database on the server through the console

```
mysql> CREATE TABLE remotehost (
    -> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
    -> host_name VARCHAR(30) NOT NULL,
    -> ip VARCHAR(20) NOT NULL
    -> );
Query OK, 0 rows affected (0.15 sec)
```

```
mysql> CREATE TABLE user (
    -> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
    -> user_name VARCHAR(30) NOT NULL
    -> );
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> CREATE TABLE ssh (
    -> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
    -> user_id INT NOT NULL,
    -> host_id INT NOT NULL,
    -> port INT NOT NULL,
    -> FOREIGN KEY (user_id) REFERENCES user(id),
    -> FOREIGN KEY (host_id) REFERENCES remotehost(id)
    -> );
Query OK, 0 rows affected (0.13 sec)
```

5. Fill in tables.

```
mysql> INSERT INTO ssh (id, user_id, host_id, port)
-> VALUES (NULL, '2', '1', '22'),
-> (NULL, '3', '10', '22'),
-> (NULL, '1', '6', '2222'),
-> (NULL, '8', '7', '23'),
-> (NULL, '9', '9', '2323'),
-> (NULL, '4', '4', '22'),
-> (NULL, '6', '2', '2323'),
-> (NULL, '5', '8', '2222'),
-> (NULL, '5', '8', '2222'),
-> (NULL, '10', '5', '22');
Query OK, 10 rows affected (0.01 sec)
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM remotehost;
 id | host_name | ip
 1 | host_1 | 192.167.43.58 |
2 | host_2 | 142.250.75.14 |
3 | host_3 | 128.33.67.25 |
                192.168.1.213
  4 | host 4
                | 184.35.72.95
| 184.35.72.95
  5 | host 5
  6 | host 6
               | 194.30.244.2
| 192.168.0.1
| 172.18.5
                | 104.30.244.2
    | host_7
  8 | host_8
                 172.18.54.141
  9 | host 9
 10 | host_10 | 128.255.75.3
10 rows in set (0.00 sec)
mysql> SELECT * FROM user;
+----+
 id | user name |
 1 | user 1
  2 | user_2
  3 | user 3
  4 | user 4
  5 | user 5
  6 | user 6
  7 | user 7
  8 | user
  9 | user 9
 10 | user 10
10 rows in set (0.00 sec)
mysql> SELECT * FROM ssh;
1 |
10 |
          2 | 3 |
                           22 |
22 |
  1 |
  2 |
  3 |
                     6 | 2222
  4
                      7 | 23 |
           8 |
  5 |
           9 |
                     9 | 2323 |
  6
           4 |
                     4 | 22 |
                    2 | 2323 |
8 | 2222 |
  8
            5 |
                           23
  9
            7
                      3 I
 10 | 10 | 5 | 22 |
10 rows in set (0.00 sec)
```

6. Construct and execute SELECT operator with WHERE, GROUP BY and ORDER BY.

```
mysql> SELECT port, COUNT(*)
-> FROM ssh
-> where id > 5
-> GROUP BY port;
+----+
| port | COUNT(*) |
+----+
| 22 | 2 |
| 2323 | 1 |
| 2222 | 1 |
| 23 | 1 |
+----+
4 rows in set (0.00 sec)
```

```
mysql> SELECT port, COUNT(*)
-> FROM ssh
-> WHERE id <= 5
-> GROUP BY port;
+----+
| port | COUNT(*) |
+----+
| 22 | 2 |
| 2222 | 1 |
| 23 | 1 |
| 2323 | 1 |
+----+
4 rows in set (0.00 sec)
```

7. Execute other different SQL queries DDL, DML, DCL.

```
      mysql> RENAME TABLE ssh T0 new_ssh;

      Query OK, 0 rows affected (0.03 sec)

      mysql> show tables;

      +-----+

      | Tables_in_sshconnectdb |

      +-----+

      | new_ssh |

      | remotehost |

      | user |

      +-----+

      3 rows in set (0.00 sec)
```

8. Create a database of new users with different privileges. Connect to the database as a new user and verify that the privileges allow or deny certain actions

user 1

user 2

9. Make a selection from the main table DB MySQL.

```
mysql> show databases;
| Database
| information schema |
 mysql
  performance_schema
  sshconnectdb
5 rows in set (0.00 sec)
mysql> use mysql;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
Database changed
mysql> show tables;
| Tables in mysql
 columns priv
  component
  db
  default_roles
  engine cost
  func
  general_log
  global_grants
  gtid_executed
  help_category
  help_keyword
  help relation
  help topic
  innodb_index_stats
  innodb_table_stats
ndb_binlog_index
  password history
  pluain
  procs_priv
  proxies_priv
  replication_asynchronous_connection_failover
replication_asynchronous_connection_failover_managed
  replication_group_configuration_version
  replication_group_member_actions
  role_edges
  server_cost
  servers
  slave_master_info
slave_relay_log_info
  slave worker info
  slow log
  tables priv
  time zone
  time_zone_leap_second
time_zone_name
  time_zone_transition
time_zone_transition_type
  user
38 rows in set (0.00 sec)
```

PART 2 - DUMP, RDS

10. Make backup of your database.

```
→ ~ mysqldump -u root -p sshconnectdb > DBbkup.sql
Enter password:
→ ~ ls
adminer.php Desktop EPAM index.html?id=513590
bkup.sql Documents file.txt Music
DBbkup.sql Downloads GoToEPAMfolder.sh my-httpd.pp
```

11. Delete the table or part of the data in the table.

12. Restore your database.

13. <u>Transfer your local database to RDS AWS.</u>

```
🖚 mysql -h databasesrds.🖸
                                       .us-east-1.rds.amazonaws.com -P 3306 -u thestig1990 -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \q.
Your MySQL connection id is 47
Server version: 8.0.30 Source distribution
Copyright (c) 2000, 2022, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or 'h' for help. Type 'c' to clear the current input statement.
mysql> show databases;
Database
information schema |
 mvsal
performance_schema
 SVS
sudo mysqldump -u root \
-databases sshconnectdb \
-single-transaction \
-compress \
-order-by-primary \
-routines=0 \
--triggers=0 \
-events=0 \
             | mysql -u thestig1990 \
- pC
-port=3306 \
                            .us-east-1.rds.amazonaws.com \
-host=databasesrds.
mysql: [Warning] Using a password on the command line interface can be insecure.
[sudo] password for yevhen_yakymov:
mysqldump: [Warning] Using a password on the command line interface can be insecure.
  mysql -h databasesrds.
                                      .us-east-1.rds.amazonaws.com -P 3306 -u thestig1990 -p
```

14. Connect to your database.

```
mysql -h databasesrds.
                                  .us-east-1.rds.amazonaws.com -P 3306 -u thestig1990 -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 53
Server version: 8.0.30 Source distribution
Copyright (c) 2000, 2022, Oracle and/or its affiliates.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> show databases;
| Database
 | information schema |
 performance schema
 sshconnectdb
 sys
```

15. Execute SELECT operator similar step 6

```
Tables_in_sshconnectdb |
| new table
  remotehost
  ssh
user
4 rows in set (0.12 sec)
mysql> select * from ssh;

    1 |
    2 |
    1 |
    22 |

    2 |
    3 |
    10 |
    22 |

    3 |
    1 |
    6 |
    2222 |

    4 |
    8 |
    7 |
    23 |

    5 |
    9 |
    9 |
    2323 |

    6 |
    4 |
    4 |
    22 |

    7 |
    6 |
    2 |
    2323 |

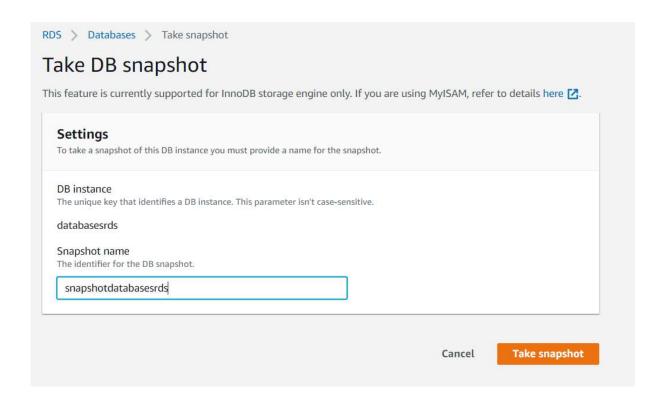
    8 |
    5 |
    8 |
    2222 |

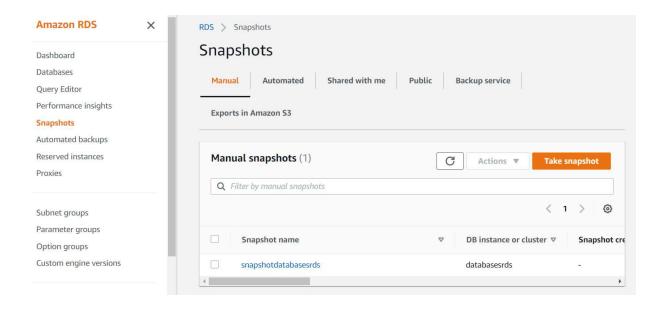
    9 |
    7 |
    3 |
    23 |

    10 |
    10 |
    5 |
    22 |

10 rows in set (0.11 sec)
mysql> select * from remothost;
ERROR 1146 (42S02): Table 'sshconnectdb.remothost' doesn't exist
mysql> select * from remotehost;
| id | host_name | ip
    1 | host 1 | 192.167.43.58
    2 | host_2 | 142.250.75.14
3 | host_3 | 128.33.67.25
4 | host_4 | 192.168.1.213
    4 | host 4
5 | host 5
6 | host 6
7 | host 7
8 | host 8
9 | host 9
                          | 184.35.72.95 |
| 184.35.72.95 |
| 104.30.244.2 |
| 192.168.0.1 |
| 172.18.54.141 |
   10 | host_10 | 128.255.75.3
10 rows in set (0.12 sec)
mysql> select * from user;
+----+------+
 | id | user_name |
   1 | user_1
     2 | user_2
    3 | user 3
    4 | user 4
    5 | user 5
     6 user 6
     7 | user 7
     8 | user 8
     9 | user_9
   10 | user_10
10 rows in set (0.11 sec)
```

16. Create the dump of your database.





PART 3 – MongoDB

17. <u>Create a database. Use the use command to connect to a new database (If it doesn't exist, Mongo will create it when you write to it).</u>

18. Create a collection. Use db.createCollection to create a collection. I'll leave the subject up to you. Run show dbs and show collections to view your database and collections.

```
Atlas atlas-fb3hru-shard-0 [primary] admin> use Cinema
switched to db Cinema
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.createCollection("movies")
{ ok: 1 }
Atlas atlas-fb3hru-shard-0 [primary] Cinema> show collections
Atlas atlas-fb3hru-shard-0 [primary] Cinema> show dbs
                     8.00 KiB
Cinema
sample airbnb
                    52.14 MiB
sample analytics
                     9.14 MiB
sample geospatial
                    1.37 MiB
                    40.00 KiB
sample guides
                    51.14 MiB
sample mflix
                    7.94 MiB
sample restaurants
                     1.12 MiB
sample supplies
                    56.77 MiB
sample training
sample weatherdata
                     2.80 MiB
                    336.00 KiB
admin
local
                     8.95 GiB
```

19. Create some documents. Insert a couple of documents into your collection. I'll leave the subject matter up to you, perhaps cars or hats.

```
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.movies.insertMany([
             title: 'Titanic',
             year: 1997,
genres: ['Drama', 'Romance'],
rated: 'PG-13',
 ...
             languages: ['English', 'French', 'German', 'Swedish', 'Italian', 'Russian'],
released: ISODate("1997-12-19T00:00:00.000Z"),
             awards: {
                 wins: 127,
                 nominations: 63,
                 text: 'Won 11 Oscars. Another 116 wins & 63 nominations.'
             cast: [ 'Leonardo DiCaprio', 'Kate Winslet', 'Billy Zane', 'Kathy Bates' ],
directors: [ 'James Cameron' ]
             title: 'The Dark Knight',
year: 2008,
genres: [ 'Action', 'Crime', 'Drama' ],
 ...
             rated: 'PG-13',
languages: [ 'English', 'Mandarin' ],
released: ISODate("2008-07-18T00:00:00.000Z"),
 ...
 •••
             awards: {
                 wins: 144,
                 nominations: 106,
                 text: 'Won 2 Oscars. Another 142 wins & 106 nominations.'
             cast: [ 'Christian Bale', 'Heath Ledger', 'Aaron Eckhart', 'Michael Caine' ],
             directors: [ 'Christopher Nolan' ]
             title: 'Spirited Away',
             year: 2001,
genres: [ 'Animation', 'Adventure', 'Family' ],
rated: 'PG',
languages: [ 'Japanese' ],
released: ISODate("2003-03-28T00:00:00.000Z"),
 ...
             awards: {
                 wins: 52,
                 nominations: 22,
                 text: 'Won 1 Oscar. Another 51 wins & 22 nominations.'
             cast: [ 'Rumi Hiiragi', 'Miyu Irino', 'Mari Natsuki', 'Takashi Naitè' ],
directors: [ 'Hayao Miyazaki' ]
 ...
 ...
             title: 'Casablanca',
              genres: [ 'Drama', 'Romance', 'War' ],
 ...
              cast: [ 'Humphrey Bogart', 'Ingrid Bergman', 'Paul Henreid', 'Claude Rains' ],
languages: [ 'English', 'French', 'German', 'Italian' ],
released: ISODate("1943-01-23T00:00:00.000Z"),
 ...
              directors: [ 'Michael Curtiz' ],
 ...
              awards: {
                  wins: 9,
                  nominations: 6,
                  text: 'Won 3 Oscars. Another 6 wins & 6 nominations.'
              lastupdated: '2015-09-04 00:22:54.600000000',
              year: 1942
 ... ])
   acknowledged: true,
   insertedIds: {
      '0': ObjectId("635d465a1a45405acf043191"),
      '1': ObjectId("635d465a1a45405acf043192"),
'2': ObjectId("635d465a1a45405acf043193"),
'3': ObjectId("635d465a1a45405acf043194")
```

20. Use find() to list documents out

```
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.movies.find ( { rated : "PG-13" } )
      id: ObjectId("635d465a1a45405acf043191"),
     Title: 'Titanic',
    year: 1997,
genres: [ 'Drama', 'Romance' ],
    rated: 'PG-13',
languages: [ 'English', 'French', 'German', 'Swedish', 'Italian', 'Russian'],
released: ISODate("1997-12-19T00:00:00.000Z"),
     awards: {
       wins: 127,
       nominations: 63,
       text: 'Won 11 Oscars. Another 116 wins & 63 nominations.'
     cast: [
       'Leonardo DiCaprio',
       'Billy Zane',
'Kathy Bates'
     directors: [ 'James Cameron' ]
      id: ObjectId("635d465a1a45405acf043192"),
     title: 'The Dark Knight',
    year: 2008,
genres: [ 'Action', 'Crime', 'Drama'],
rated: 'PG-13',
languages: [ 'English', 'Mandarin'],
     released: ISODate("2008-07-18T00:00:00.000Z"),
     awards: {
       wins: 144,
       nominations: 106,
       text: 'Won 2 Oscars. Another 142 wins & 106 nominations.'
     },
     cast: [
       'Heath Ledger',
       'Michael Caine'
     directors: [ 'Christopher Nolan' ]
```