On premises to AWS MySQL Migration

Objective:

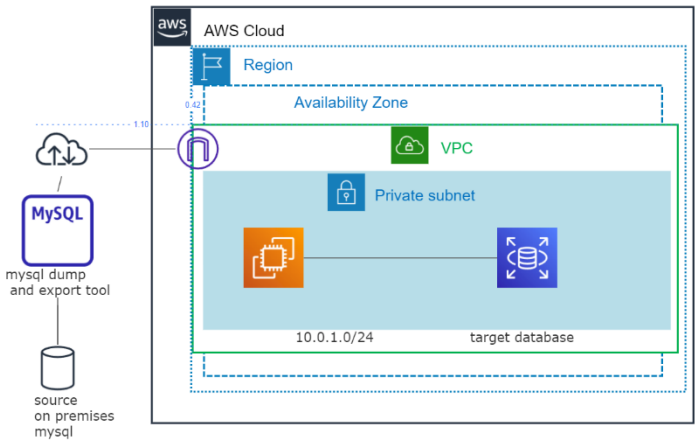
The objective of this project is to migrate an existing on premises My SQL to Amazon RDS (My SQL) in order to improve scalability, manageability, and cost-effectiveness.

Migrating on premises database to AWS MySQL using migration tool called SQL dump and import.

Theory:

AWS Database Migration Service is used to migrate your data to and from the most widely used commercial and open-source databases. Examples include databases such as on premises databases, Oracle, PostgreSQL, MySQL, and Amazon Aurora.

The below diagram displays the architecture diagram of our migration process.

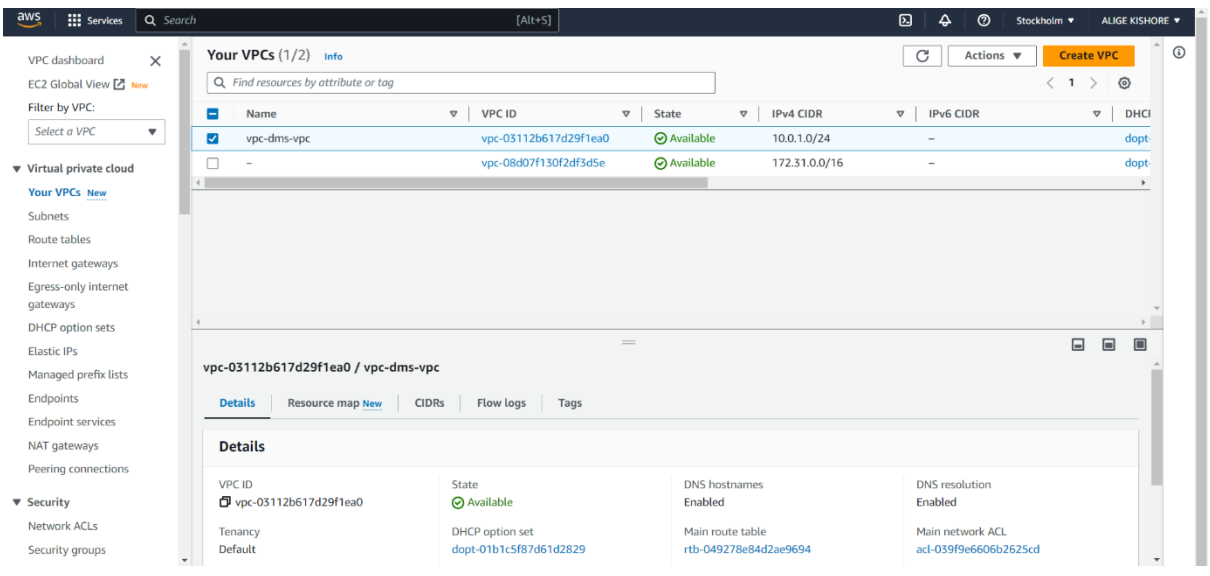


Methodology:

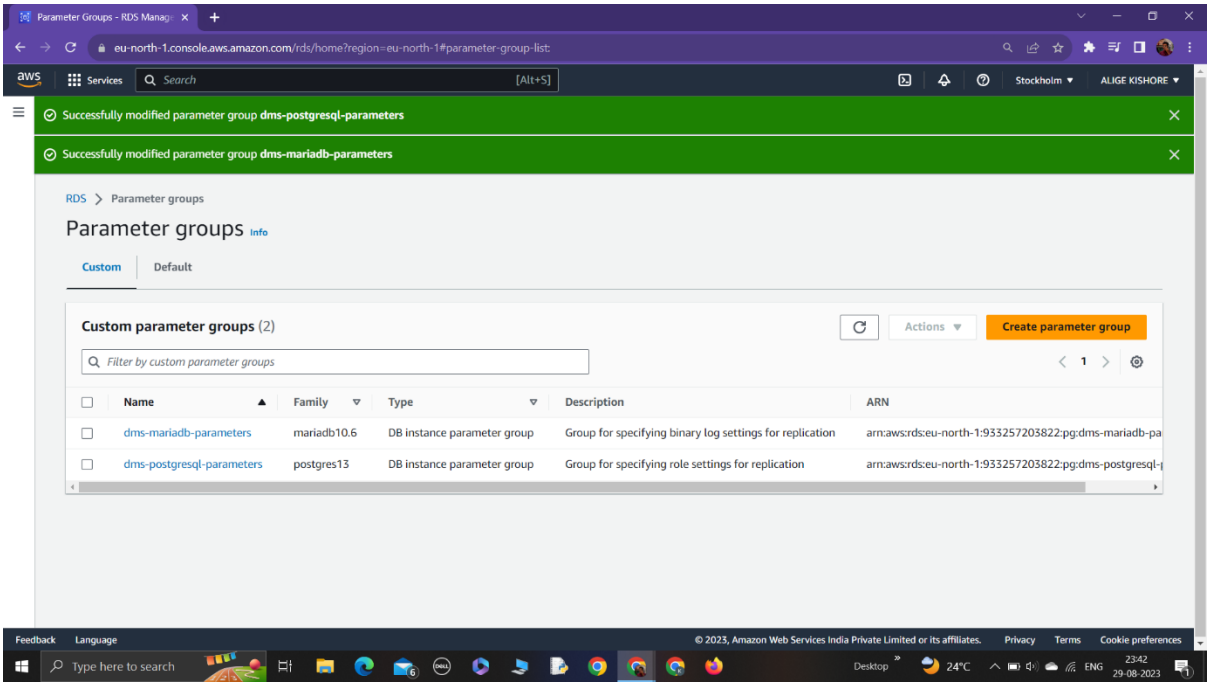
The process involved in doing the migration

1. **Create a VPC**

   I have created a VPC with the name **vpc-dms** with IPv4 bock: **10.0.1.0/24**

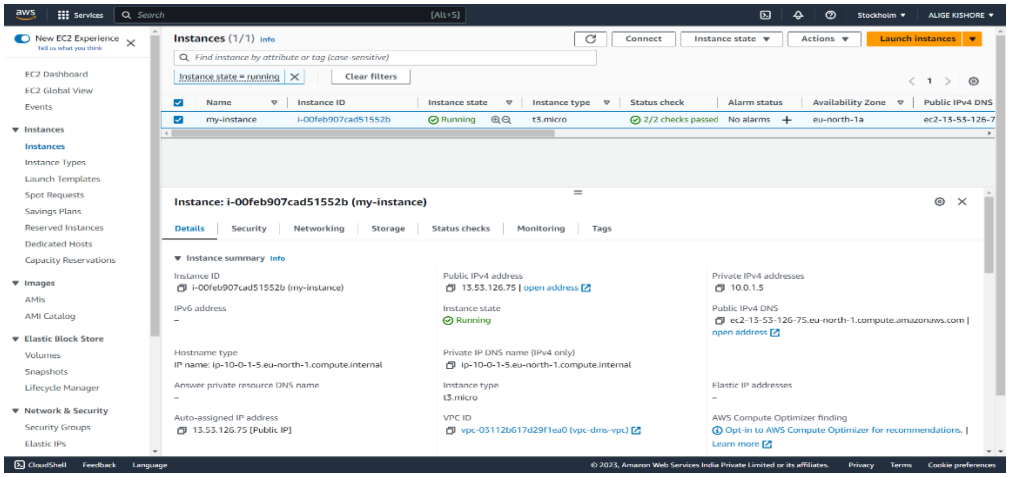


2. **Add inbound rules for the security groups associated with our vpc**
   - Add rule of type **MySQL/Aurora** and choose **Anywhere-IPv4** for **Source**.
   - Again, add rule of type SHH and select my ip for **Source** to connect to EC2 instance to follow best security process.
3. **Create amazon RDS parameters groups**
   - Open RDS and in the create parameters group by specifying group name, description, and setting binlog_checksum: **NONE** and binlog_format:**ROW**



   -This above picture shows dms-mariadb-parameters group
4. **Creating an EC2 instance:**
   -I have launched ec2 instance named **my-instance** under vpc(vpc-dms) with configuration settings of amazon Linux as a machine image and auto enabled assigning public Ip address.

   The below image displays instance details

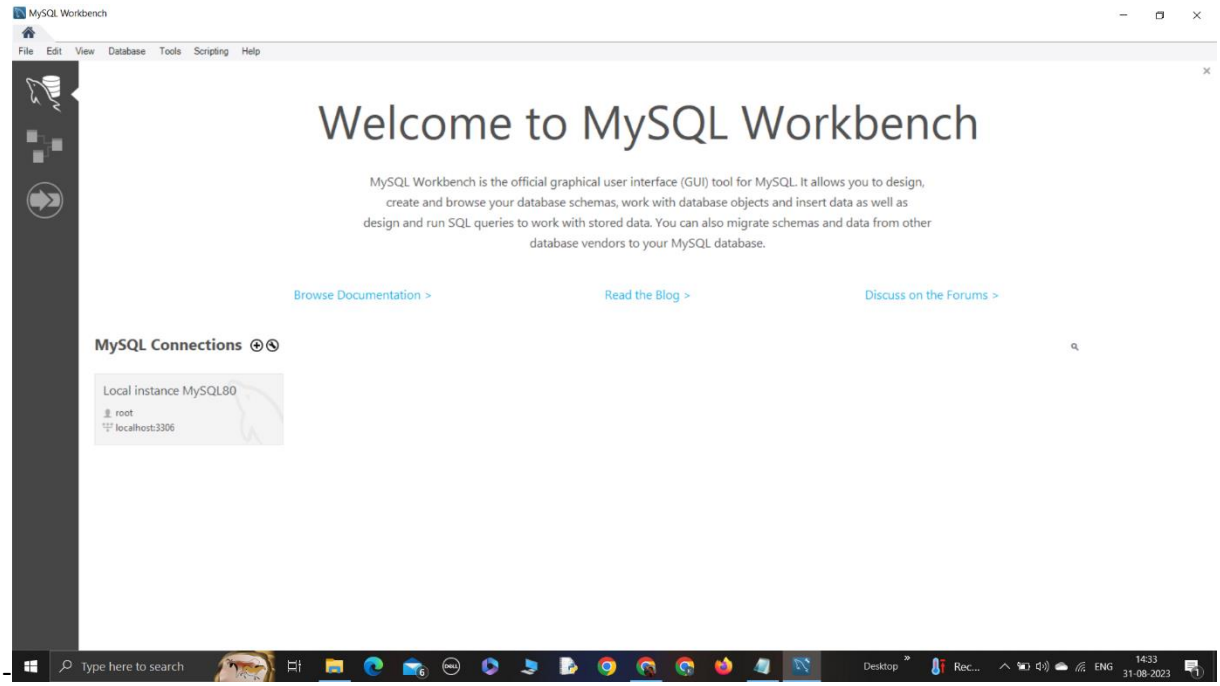


- Created a key pair named **my_key.pem** file to connect my target database to on prem database

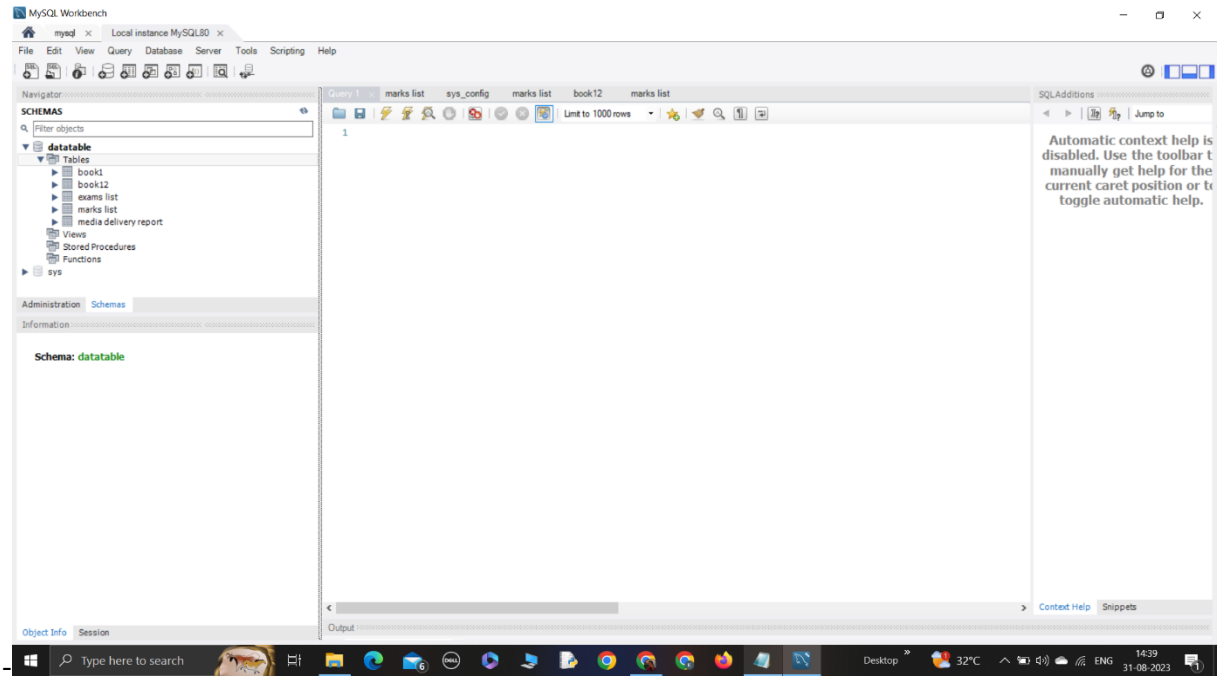
5. **Creating source database:**

In this our source is the on premises my SQL database and target database is AWS My SQL

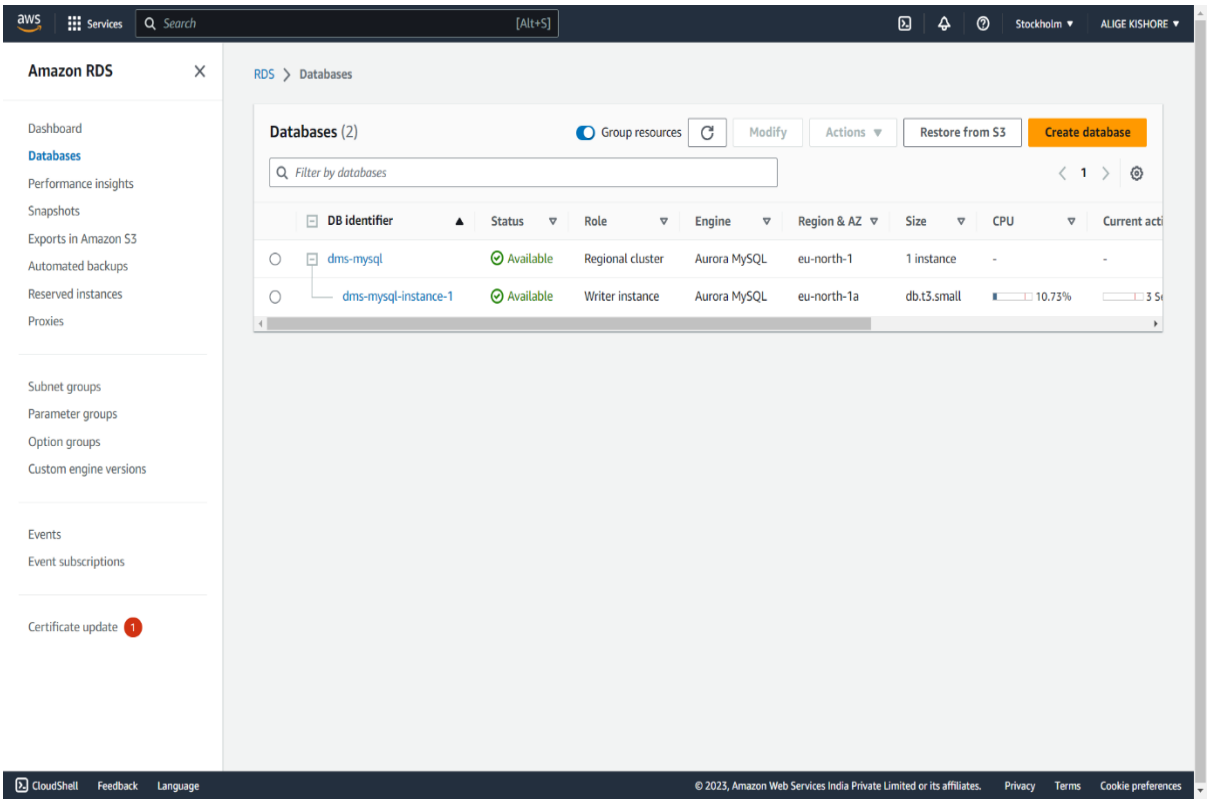
-I have downloaded and installed my SQL on my pc and set up a local source host with **username: root**



-Under my local host I have set up a new schema called **datatable** and created five tables that are to be migrated.

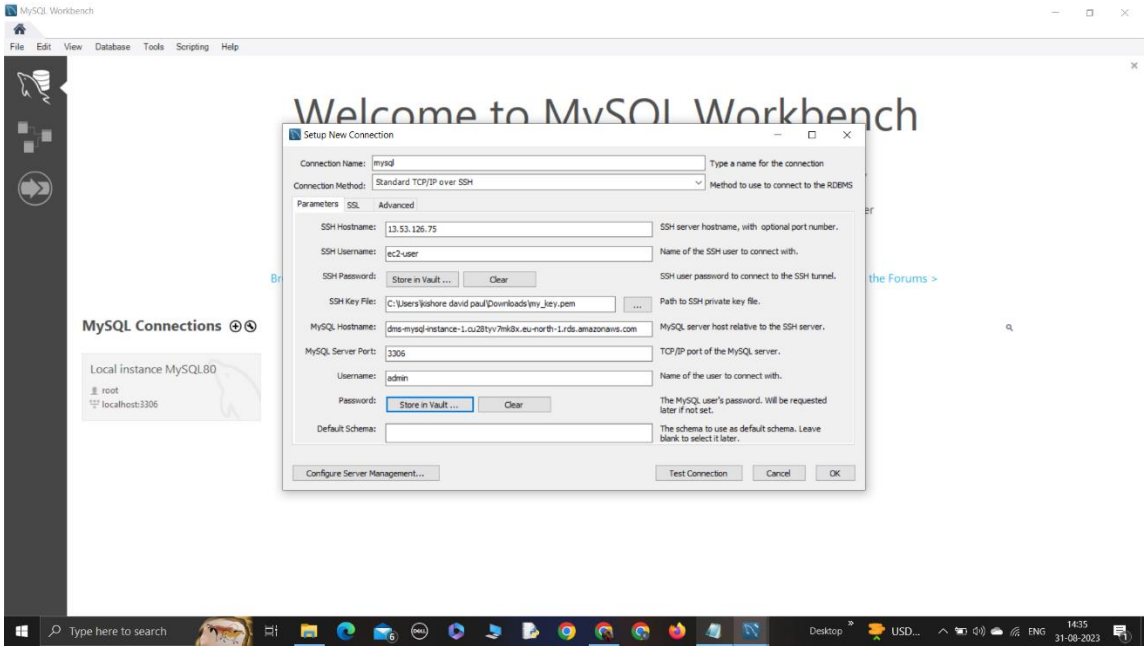


6. **Creating AWS MY SQL database using relational databases services through AWS management console.**



- I created a database name **dms-mysql** database with the following configuration mentioned in AWS documentation https://docs.aws.amazon.com/dms/latest/userguide/CHAP_GettingStarted.Prerequisites.html. I have referred this documentation for configuring the AWS rds for MySQL database and created the database
- Making the database public such that It supports migration
- Enabled enhanced monitoring to get to know about the performance of the database
- To connect to on premises MySQL work bench the things that are to be noted down

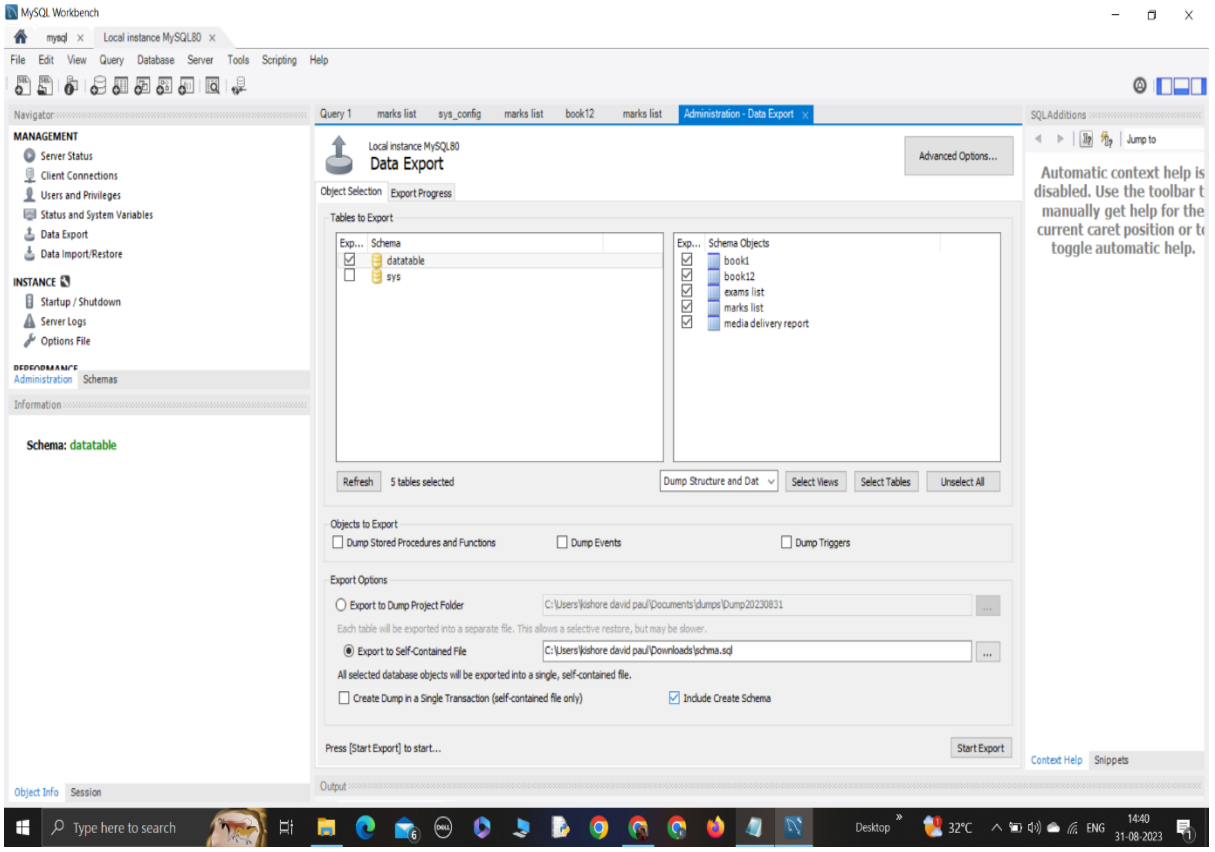
7. **Connecting AWS MySQL to on premises my SQL workbench**
   - Noted the end points, username and password of the AWS database and noted the public Ip address of my ec2 instance.
   - Set up a new connection by selecting plus symbol on the AWS workbench home page and enter the details as required



- Browse the location of the downloaded .pem file in the ssh key file value
- after entering the details a AWS MySQL database has been connected over on premises.

8. Exporting the data that has to be migrated.

- Export the data by going to the administration and then click on export
- A window popup displaying the things to be exported
- Click on the database need to be exported



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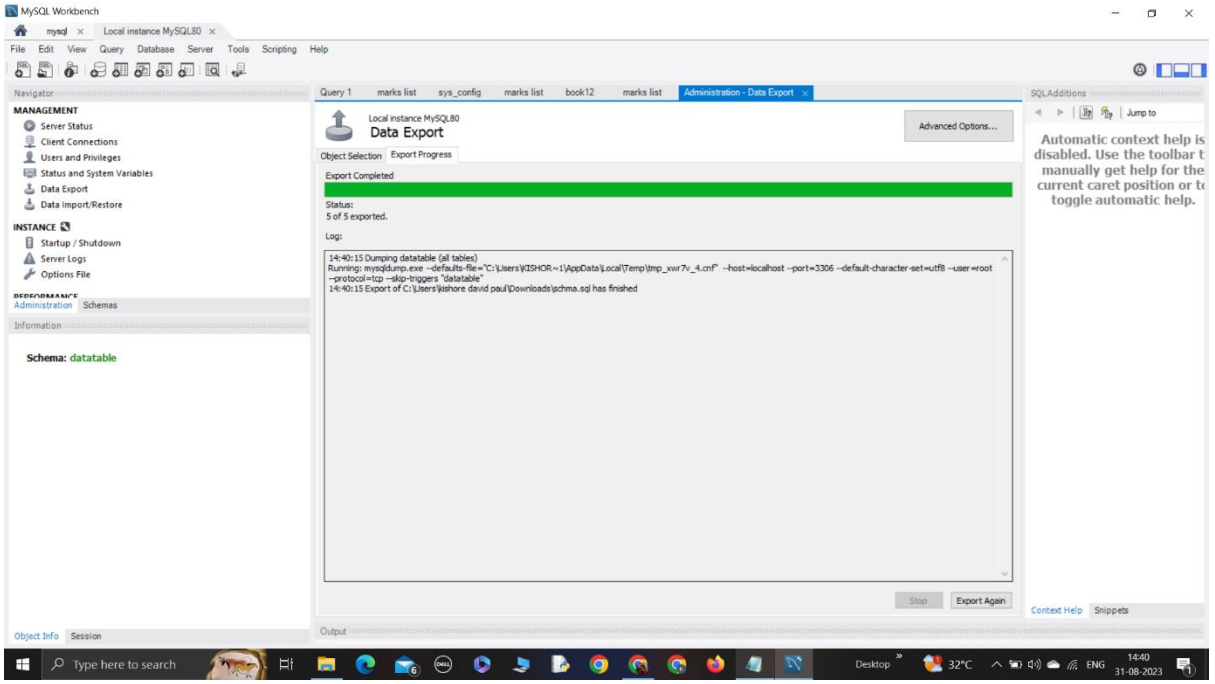

- Above image displays the status of data being exported.

9. Importing the data to AWS MySQL.

- Open the AWS RDS connection and click on administration and the choose data import
- Select the file that has been exported and then click on import.
- Based on data size MySQL workbench takes time to do the import.
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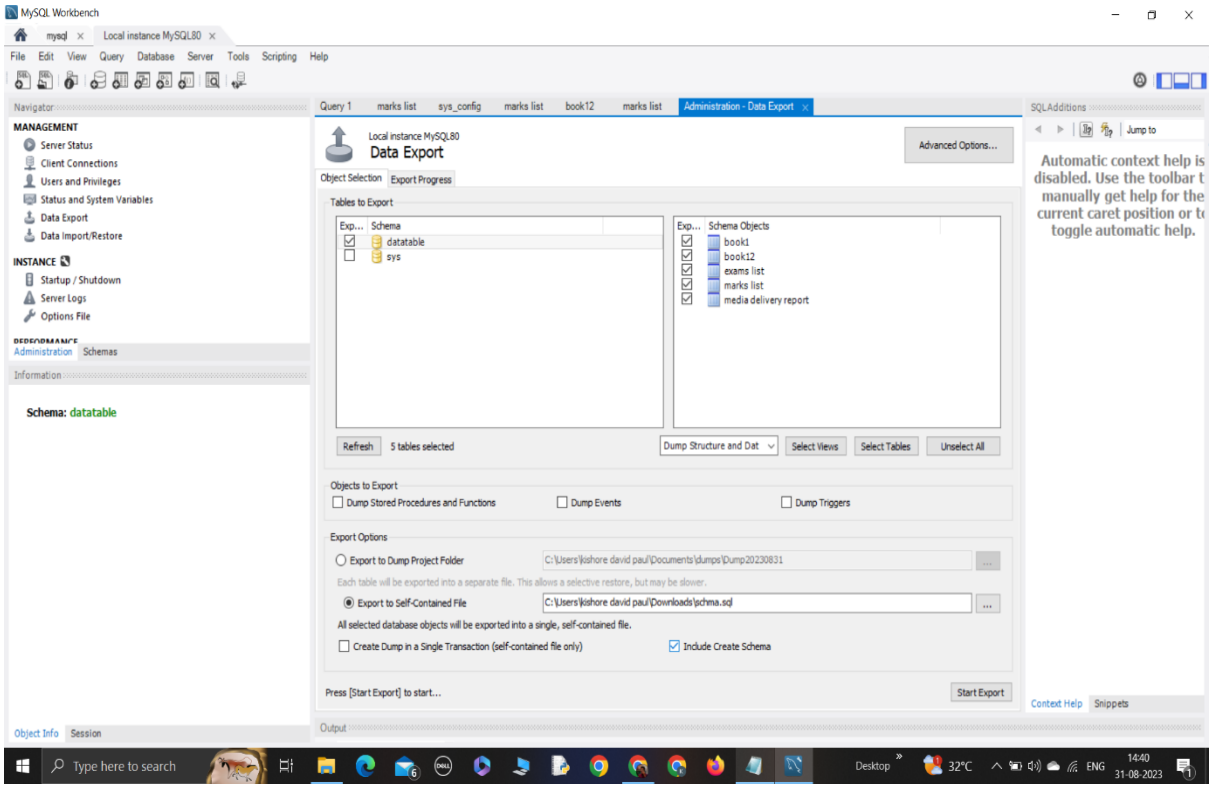

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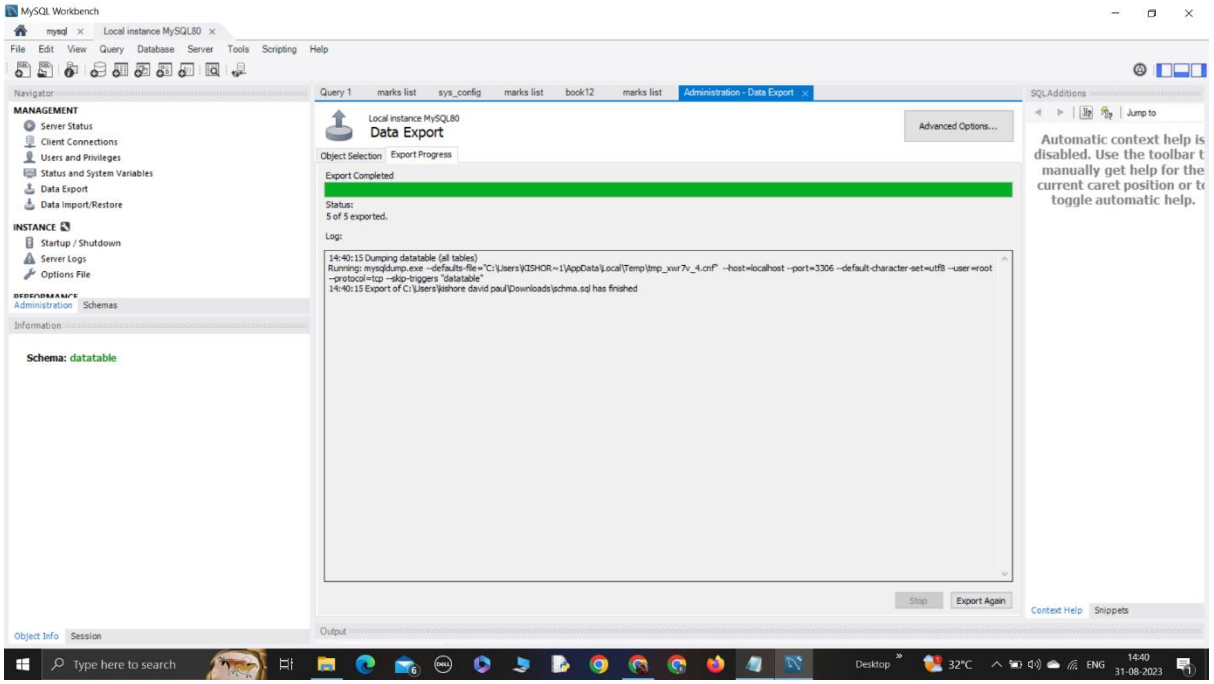
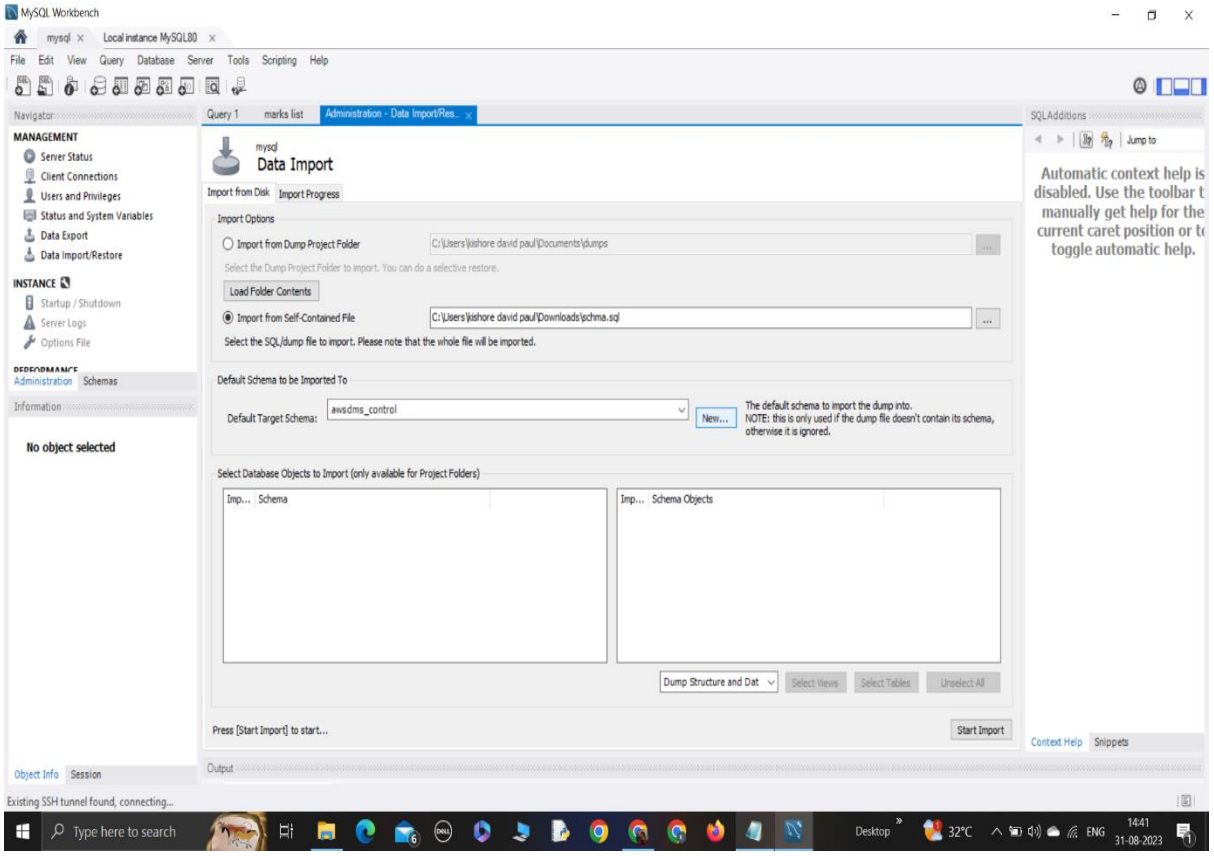
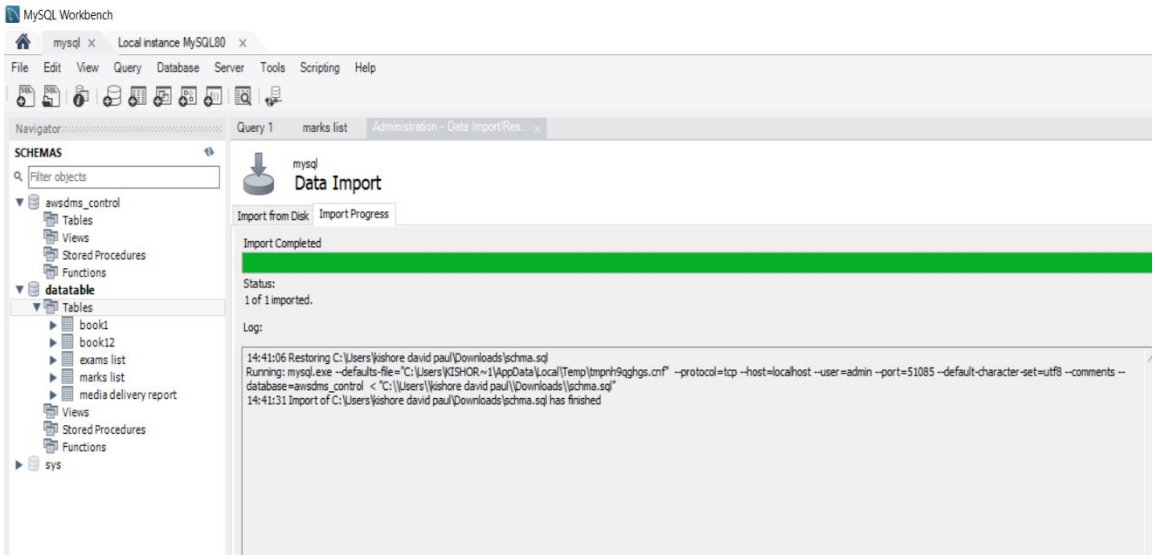
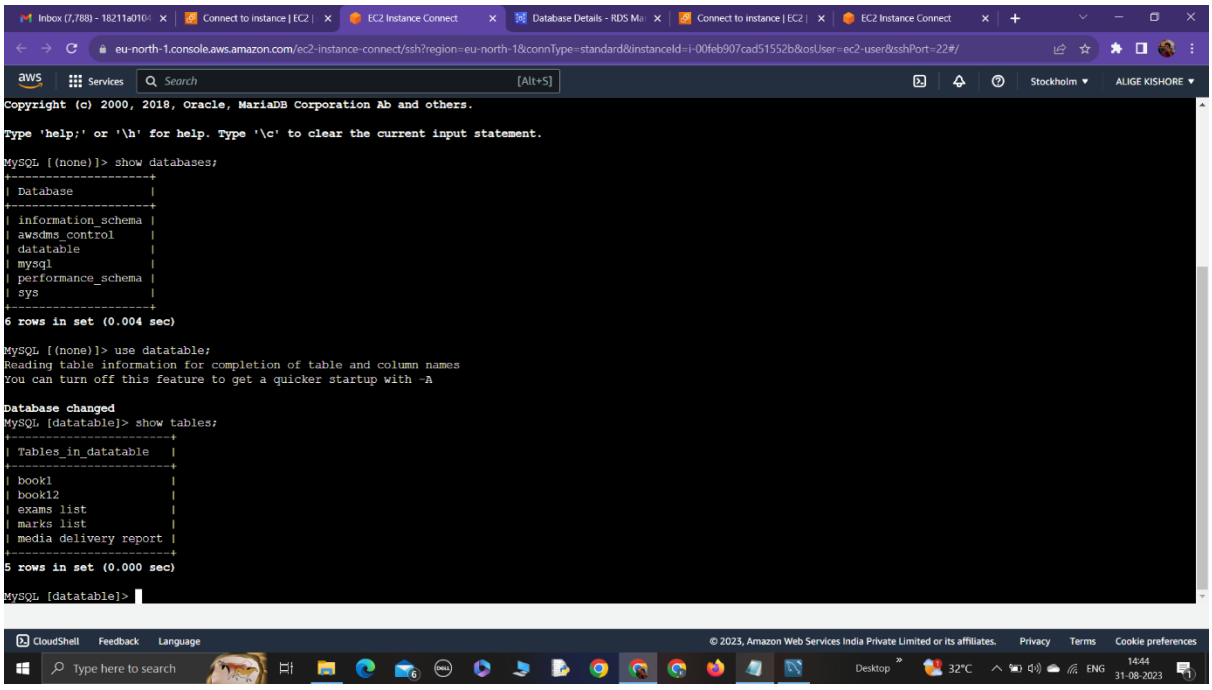


- Above image displays the status of data import.
- After refreshing the AWS MySQL database we can see that the database name datatable has been migrated successfully.



- 

- On the left side the database and the tables are migrated successfully to the AWS MySQL database.
- To crosscheck if the database has been migrated or not connect the my-instance and connect to using ec2 connect.
- Connect to AWS MySQL database and entering the end point of database mysql -h dms-mysql-instance-1.cu28tyv7mk8x.eu-north-1.rds.amazonaws.com -P 3306 -u admin -p
- Enter the SQL commands view the migrated databases ny entering
    1. Show databases;
    2. Use datatable;
    3. Show tables;
- 

- In the above you can see that the database named datatable has been successfully migrated.

Challenges face during project:

- I had theoretical know regarding AWS services but had no practical experience so had to work on it by referring multiple AWS Documentations and sort of knowledge sharing from multiple resources
- I am new to MySQL and databases so had to work on creating tables viewing them, inserting, deleting and so on.
- So finally got to know about databases and working
- Through this migration process I got to know about types of migration such as homogeneous , heterogeneous etc.
- This internship is more like a open book exam they don't teach but provide the material. So, had work on my own studying referring google pages docs etc…
- Thanks to infotrixs for giving me this project and making me to work on practical thing more that theoretical.