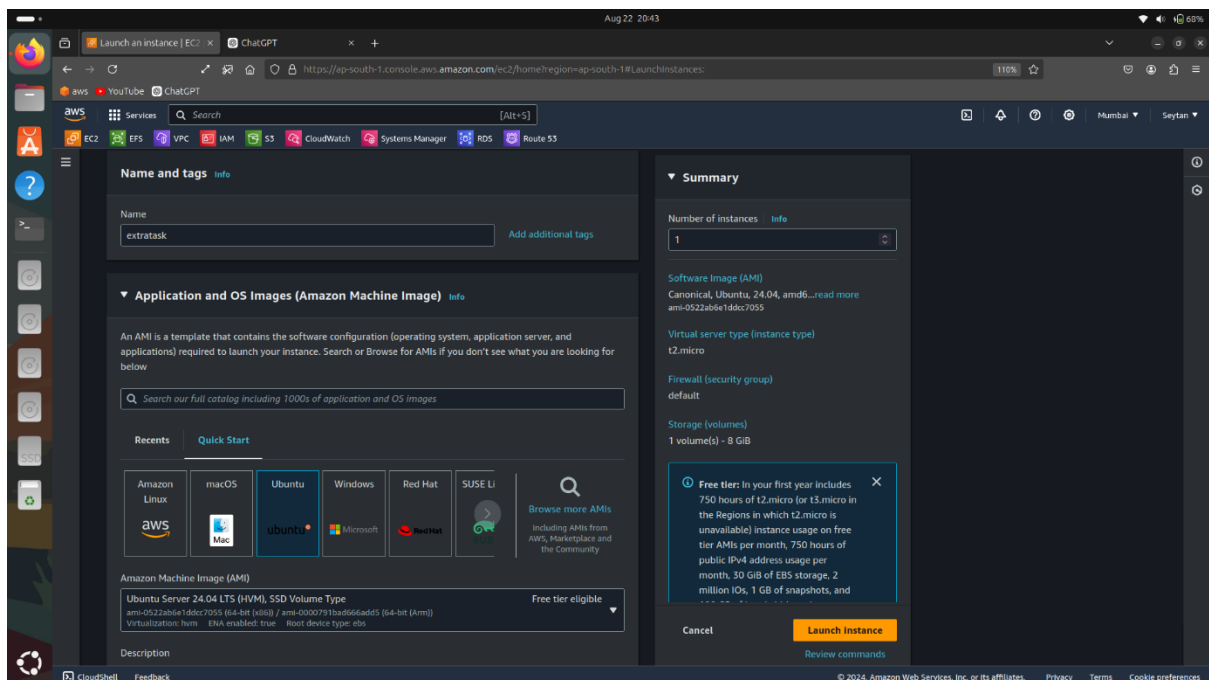


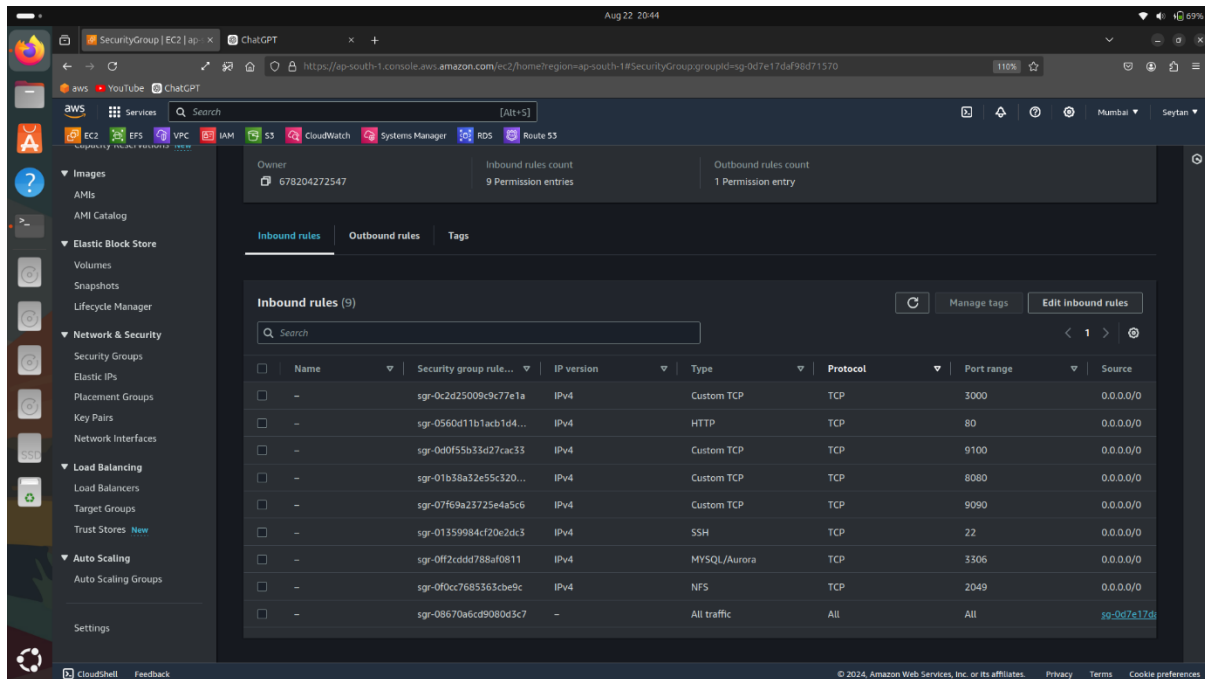
Task -> A) RDS Service and

B) taking backup of database on ec2 instance in 3 ways
(1. Both Data and Schema 2. Schema only 3. Data only)

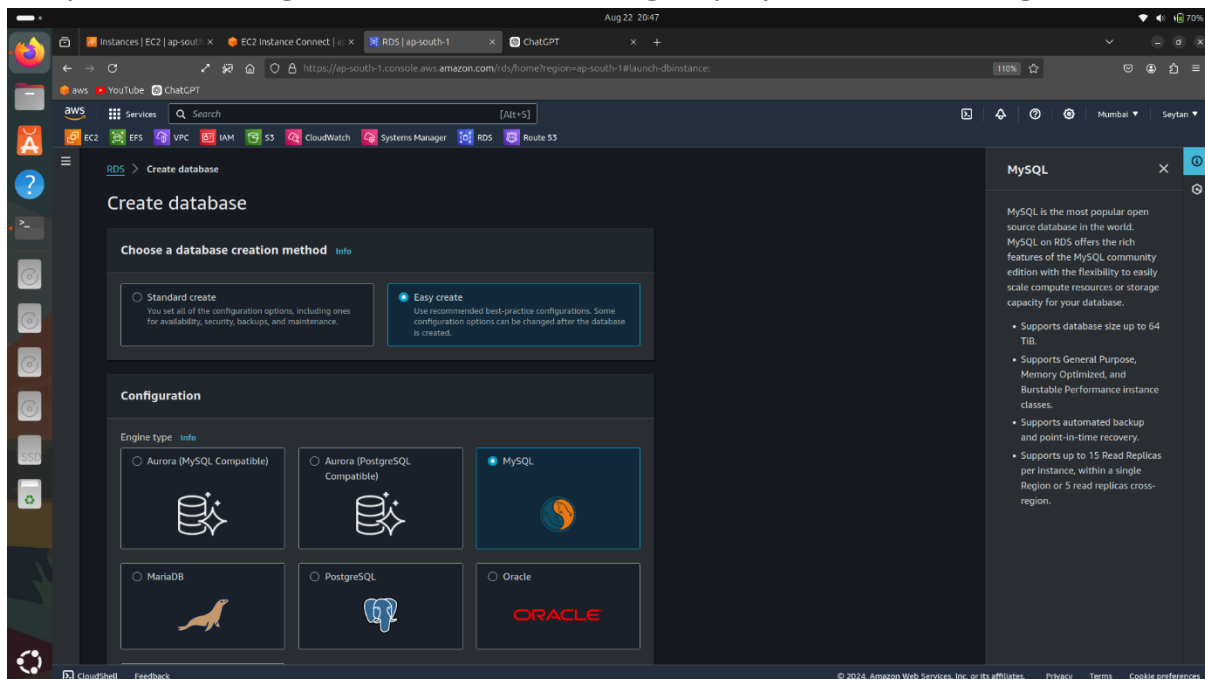
Step 1 : Creating an ec2 instance

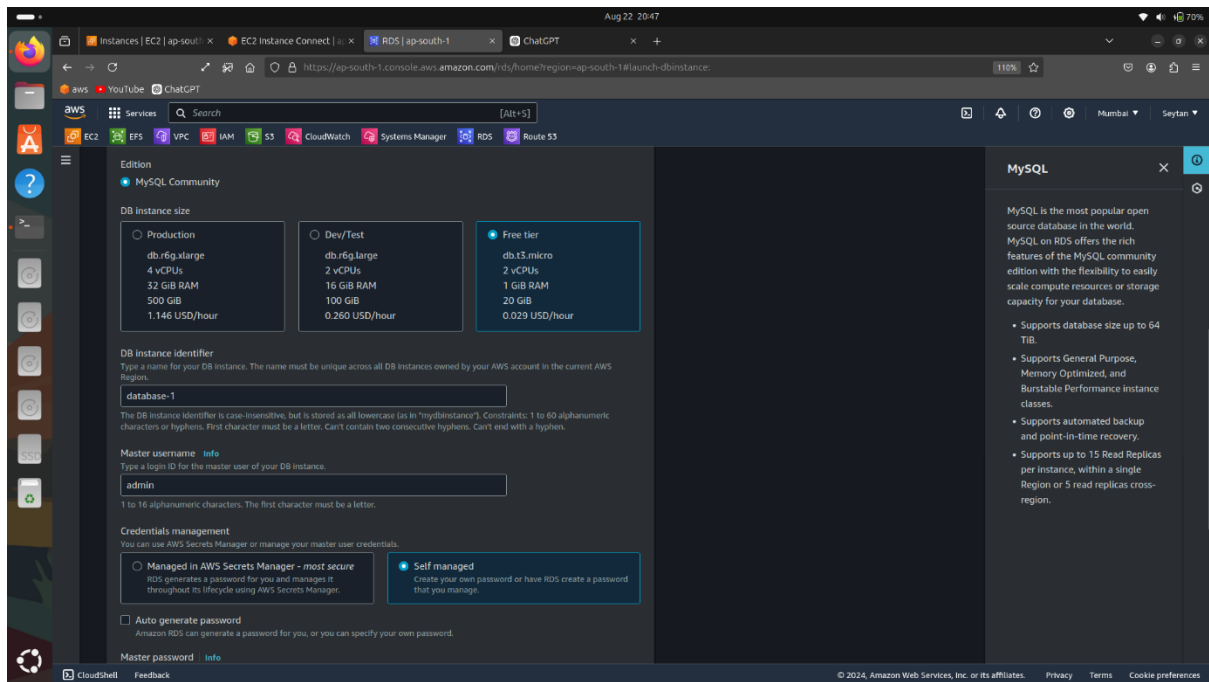


Step 2: Adding port 3306 for mysql and 8080 for apache tomcat in security group.

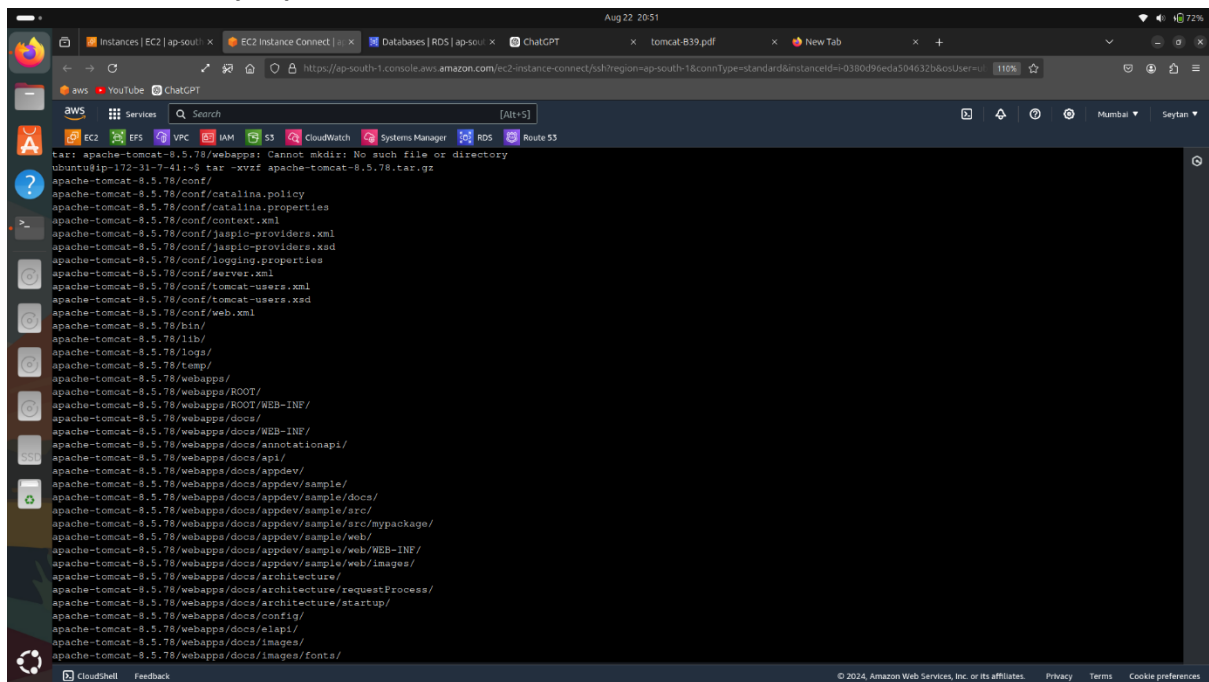


Step 3: Creating Rds Database using mysql database engine.

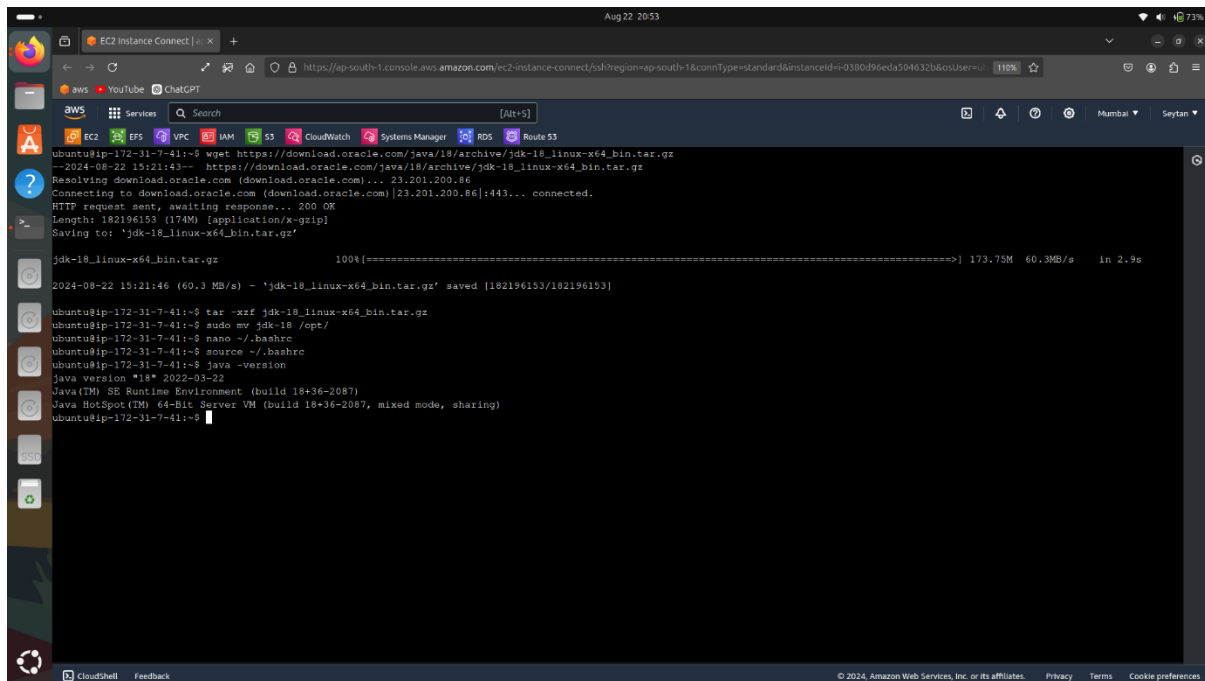




Step 4: Installing Apache tomcat 8.5 and jdk 18 and extrctating them and mysql-client-8.0 on ec2 instance



sudo apt install mysql-client-8.0



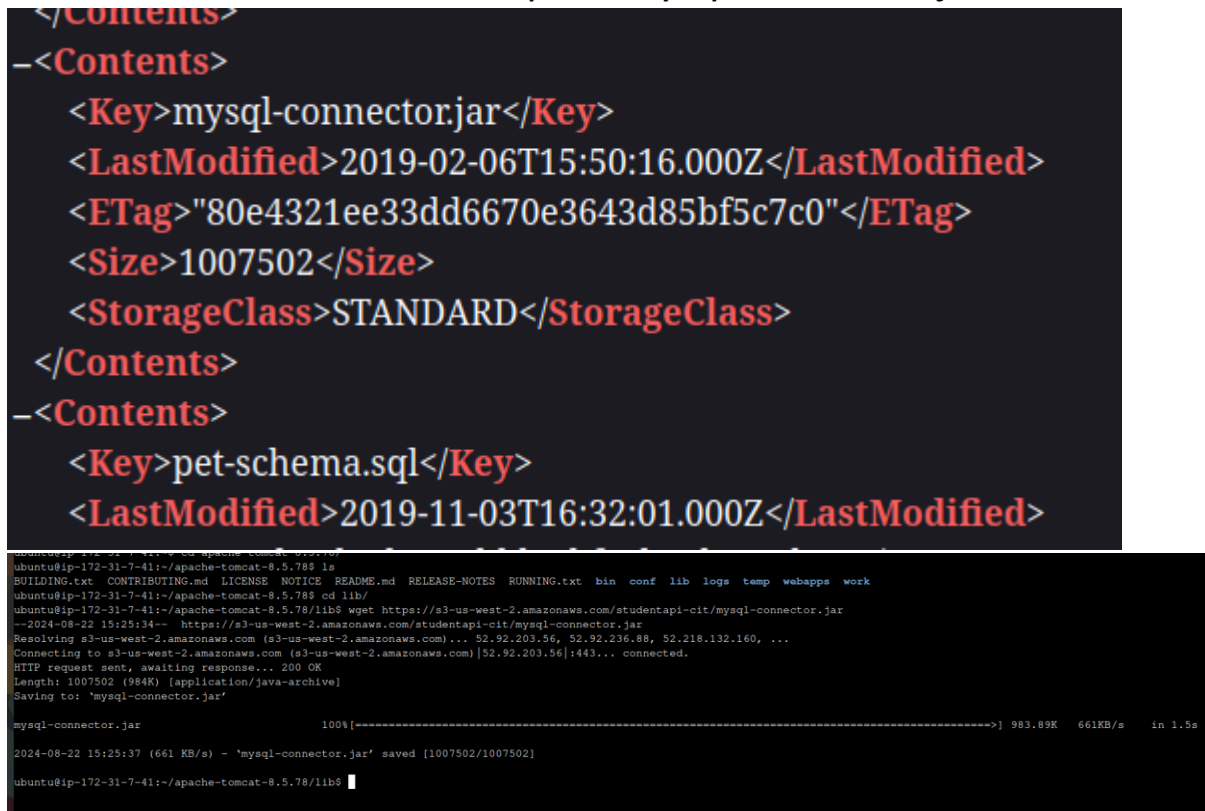
```
ubuntu@ip-172-31-7-41:~$ wget https://download.oracle.com/java/18/archive/jdk-18_linux-x64_bin.tar.gz
--2024-08-22 15:21:43-- https://download.oracle.com/java/18/archive/jdk-18_linux-x64_bin.tar.gz
Resolving download.oracle.com (download.oracle.com)... 23.201.200.86
Connecting to download.oracle.com (download.oracle.com)|23.201.200.86|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 182196153 (174M) [application/x-gzip]
Saving to: 'jdk-18_linux-x64_bin.tar.gz'

jdk-18_linux-x64_bin.tar.gz      100%[=====>] 173.75M  60.3MB/s  in 2.9s

2024-08-22 15:21:46 (60.3 MB/s) - 'jdk-18_linux-x64_bin.tar.gz' saved [182196153/182196153]

ubuntu@ip-172-31-7-41:~$ tar -xzf jdk-18_linux-x64_bin.tar.gz
ubuntu@ip-172-31-7-41:~$ sudo mv jdk-18 /opt/
ubuntu@ip-172-31-7-41:~$ nano ~/.bashrc
ubuntu@ip-172-31-7-41:~$ source ~/.bashrc
ubuntu@ip-172-31-7-41:~$ java -version
java version "18" 2022-03-22
Java(TM) SE Runtime Environment (build 18+36-2087)
Java HotSpot(TM) 64-Bit Server VM (build 18+36-2087, mixed mode, sharing)
ubuntu@ip-172-31-7-41:~$
```

Step 5: Installing mysql connector j inside lib directory of apache tomcat -> wget https://s3-us-west-2.amazonaws.com/studentapicit/mysql-connector.jar



```
</Contents>
- <Contents>
  <Key>mysql-connector.jar</Key>
  <LastModified>2019-02-06T15:50:16.000Z</LastModified>
  <ETag>"80e4321ee33dd6670e3643d85bf5c7c0"</ETag>
  <Size>1007502</Size>
  <StorageClass>STANDARD</StorageClass>
</Contents>
- <Contents>
  <Key>pet-schema.sql</Key>
  <LastModified>2019-11-03T16:32:01.000Z</LastModified>

ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78$ ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf lib logs temp webapps work
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78$ cd lib/
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78/lib$ wget https://s3-us-west-2.amazonaws.com/studentapicit/mysql-connector.jar
--2024-08-22 15:25:34-- https://s3-us-west-2.amazonaws.com/studentapicit/mysql-connector.jar
Resolving s3-us-west-2.amazonaws.com (s3-us-west-2.amazonaws.com)... 52.92.203.56, 52.92.236.88, 52.218.132.160, ...
Connecting to s3-us-west-2.amazonaws.com (s3-us-west-2.amazonaws.com)|52.92.203.56|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1007502 (984K) [application/java-archive]
Saving to: 'mysql-connector.jar'

mysql-connector.jar      100%[=====>] 983.89K  661KB/s  in 1.5s

2024-08-22 15:25:37 (661 KB/s) - 'mysql-connector.jar' saved [1007502/1007502]

ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78/lib$
```

```
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78/lib$ cd ..
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78$ cd bin/
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78/bin$ ls
bootstrap.jar      catalina.sh      commons-daemon-native.tar.gz  configtest.sh  digest.sh      shutdown.bat  startup.sh      tool-wrapper.bat  version.sh
catalina-tasks.xml  cipher.sh      commons-daemon.jar          daemon.sh      setclasspath.bat  shutdown.sh  tomcat-juli.jar  tool-wrapper.sh  version.bat
catalina.bat      cipher.sh      configtest.bat          digest.bat      setclasspath.sh  startup.bat  tomcat-native.tar.gz  version.bat
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78/bin$ chmod 777 catalina.sh
ubuntu@ip-172-31-7-41:~/apache-tomcat-8.5.78/bin$
```

Step 6: Now Exporting Database Query (M.sql) and .war(ticketbooking2.war) file of our application to ec2 instance by using sftp and copying the war file into webapps directory of apache tomcat

```
seytan@seytan-Inspiron-3501:~$ ls
clayudwatch.zip  Downloads  monitoring-setup-main  Music  Public  s3_mount_upload.txt  seytan_linux.pem  Templates  Videos
Desktop          M.sql     Pictures              rds.txt  seytan_cloud.pem  snap
seytan@seytan-Inspiron-3501:~$ sftp -i seytan_cloud.pem ubuntu@3.110.117.109
The authenticity of host '3.110.117.109 (3.110.117.109)' can't be established.
ED25519 key fingerprint is SHA256:YKunEs+DgVL8LnBVMthnJ+4pWCa/P/w0QbeAf40P+HI.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '3.110.117.109' (ED25519) to the list of known hosts.
Connected to 3.110.117.109.
sftp> put /home/seytan/M.sql /home/ubuntu/ap
apache-tomcat-8.5.78.tar.gz  apache-tomcat-8.5.78/
sftp> put /home/seytan/M.sql /home/ubuntu/M.sql
Uploading /home/seytan/M.sql to /home/ubuntu/M.sql
M.sql                                                                100% 6561   206.8KB/s   00:00
sftp> put /home/seytan/ticketbooking2.war /home/ubuntu/ap
apache-tomcat-8.5.78.tar.gz  apache-tomcat-8.5.78/
sftp> put /home/seytan/ticketbooking2.war /home/ubuntu/apache-tomcat-8.5.78/webapps/ticketbooking2.war
Uploading /home/seytan/ticketbooking2.war to /home/ubuntu/apache-tomcat-8.5.78/webapps/ticketbooking2.war
ticketbooking2.war                                                  100% 4791KB  4.9MB/s    00:00
sftp> _
```

Step 7: Now connecting to our Rds by -> mysql -h rds_endpoint -u admin -p

Then creating database M.

```
ubuntu@ip-172-31-7-41:~$ ls
M.sql  apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  jdk-18_linux-x64_bin.tar.gz
ubuntu@ip-172-31-7-41:~$ mysql -h database-1.c7kq18k6m89.ap-south-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 30
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2024, Oracle and/or its affiliates.

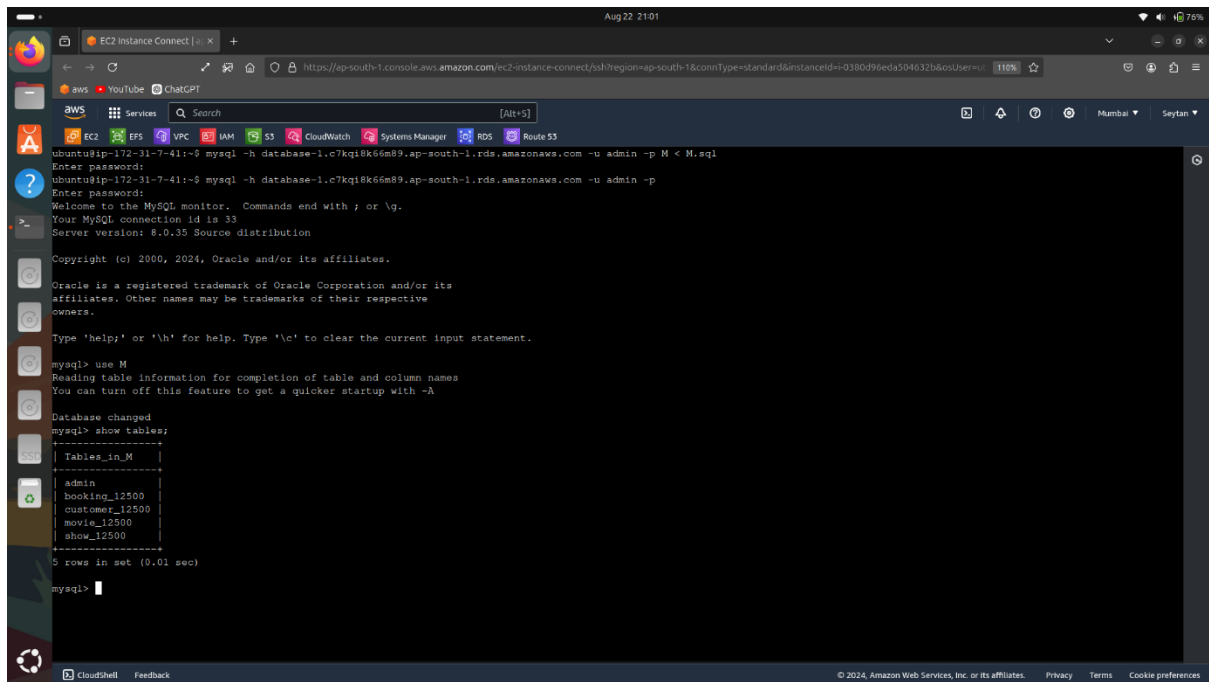
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database M;
Query OK, 1 row affected (0.01 sec)

mysql> exit
Bye
ubuntu@ip-172-31-7-41:~$
```

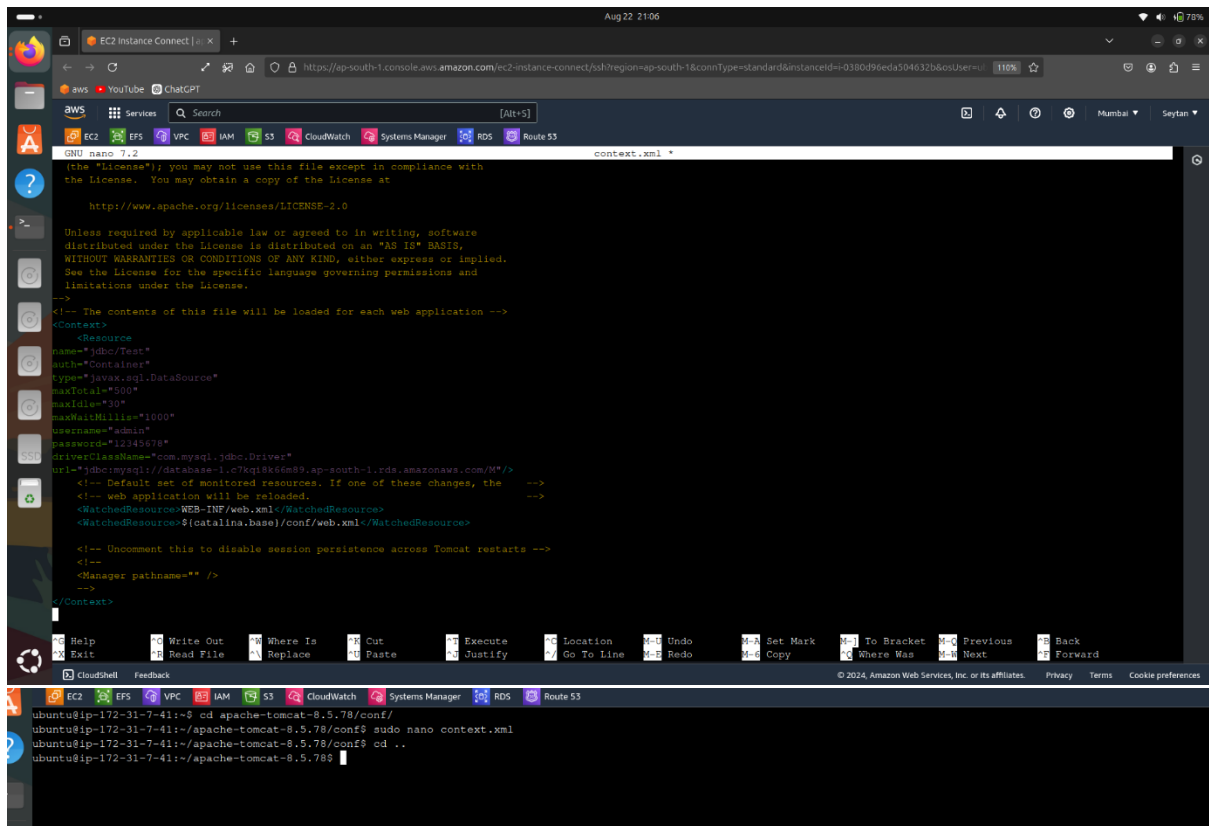
Step 8: now exporting our Database query M.sql to rds by -> mysql -h rds_endpoint -u admin -p dbname < M.sql



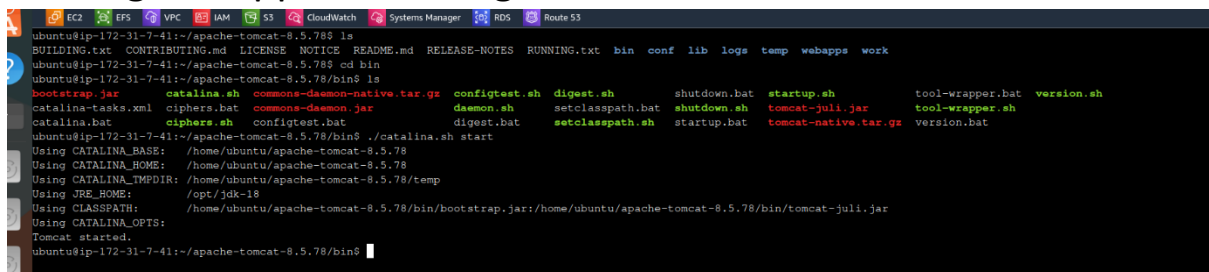
Step 9: Now editing the main config file of apache tomcat in conf directory context.xml

Adding this lines

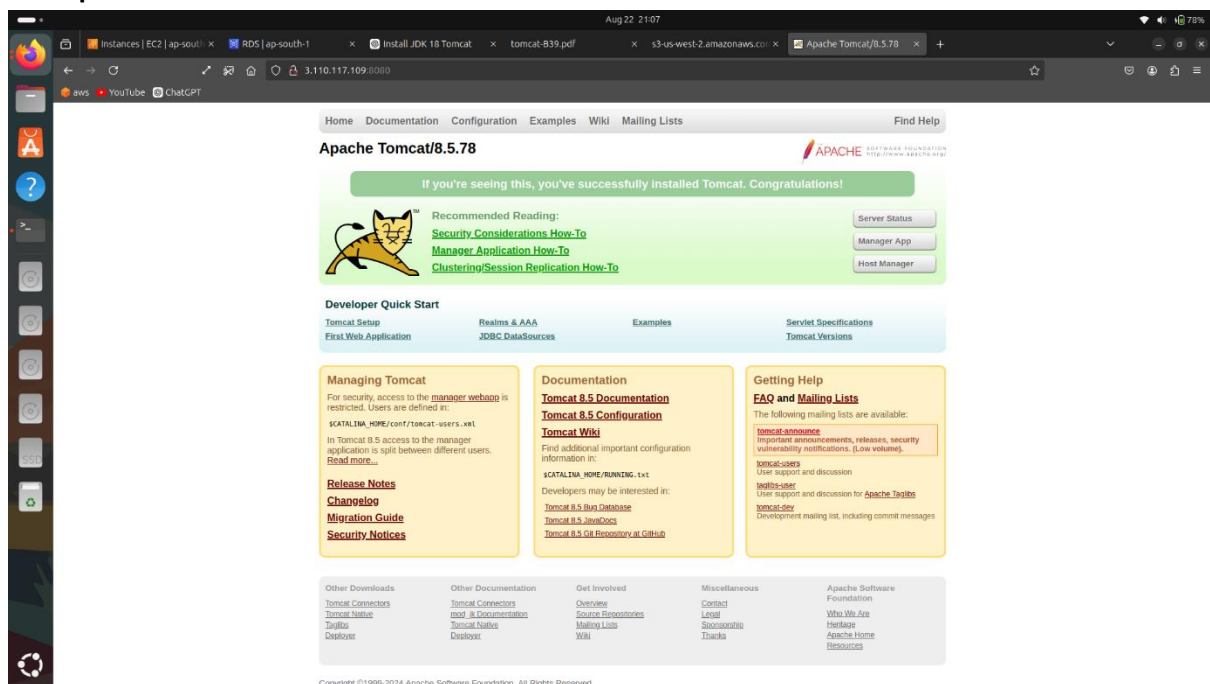
```
<Resource name="jdbc/Test" auth="Container"
type="javax.sql.DataSource" maxTotal="500" maxIdle="30"
maxWaitMillis="1000" username="admin"
password="12345678"
driverClassName="com.mysql.jdbc.Driver"
url="jdbc:mysql://database-1.ctq2s4eqkzog.ap-
south1.rds.amazonaws.com:3306/M"/>
```



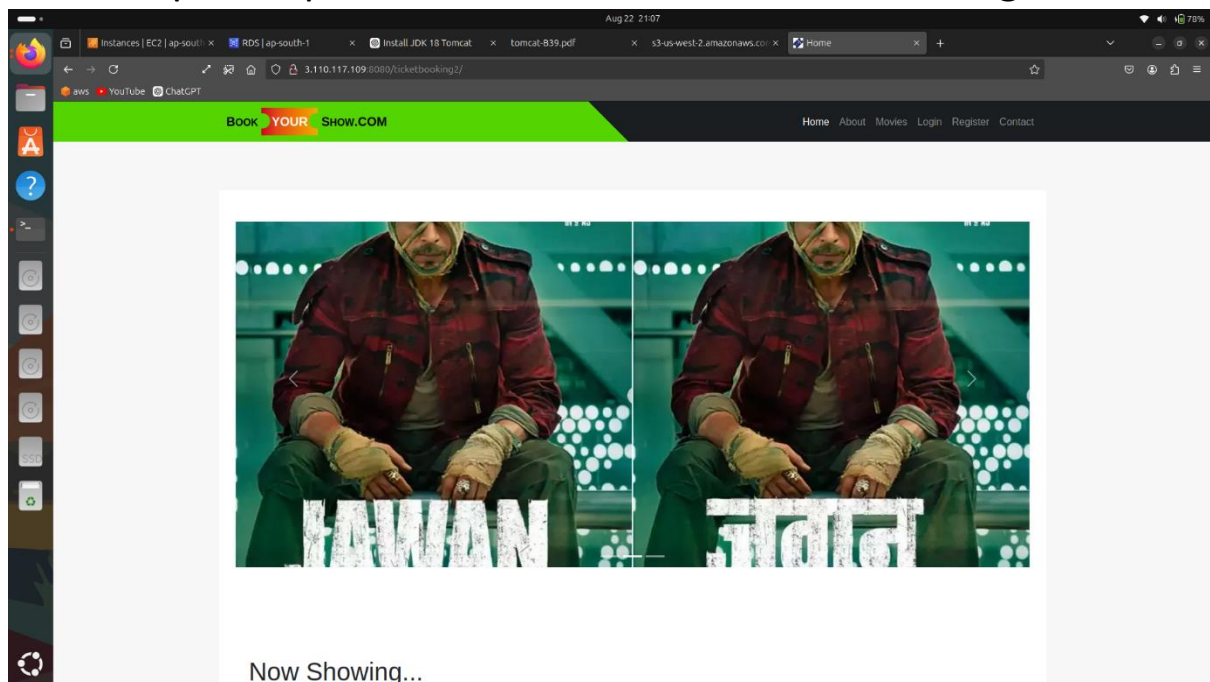
Step 10: Now running the Catalina.sh file -> ./Catalina.sh start for starting our application to go live.



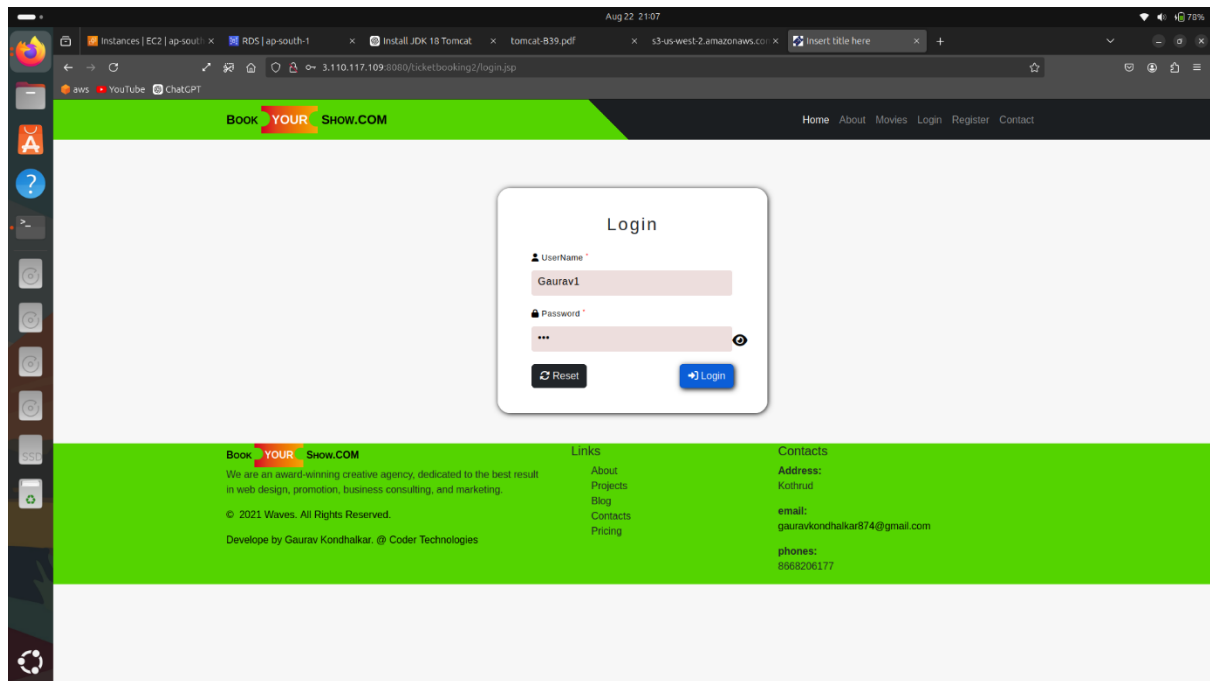
Output :



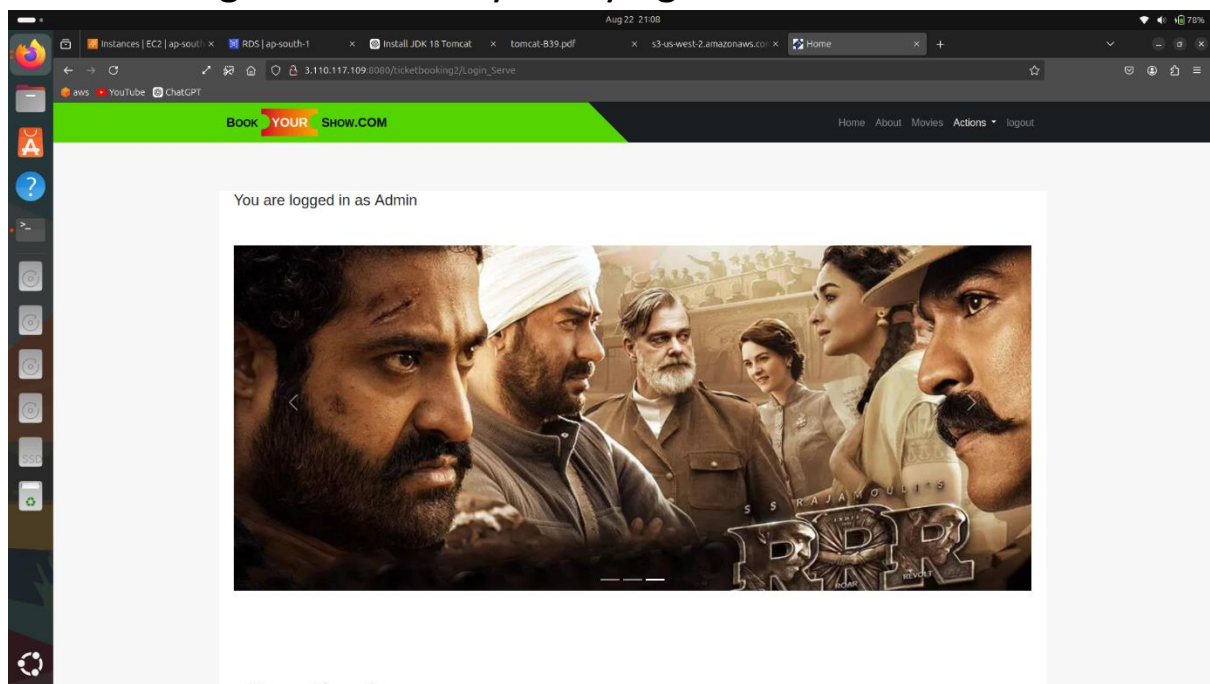
Output : This our application running on apache tomcat on ec2 instance public ip -> 3.110.117.109:8080/ticketbooking2



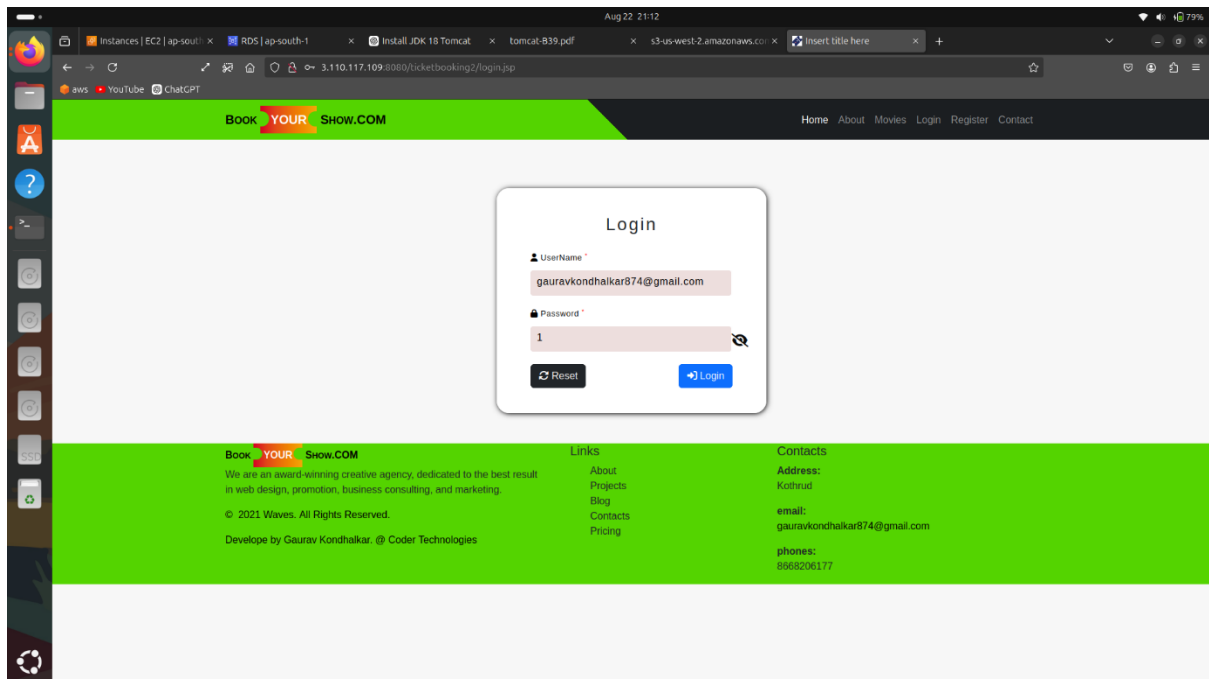
Login Page :



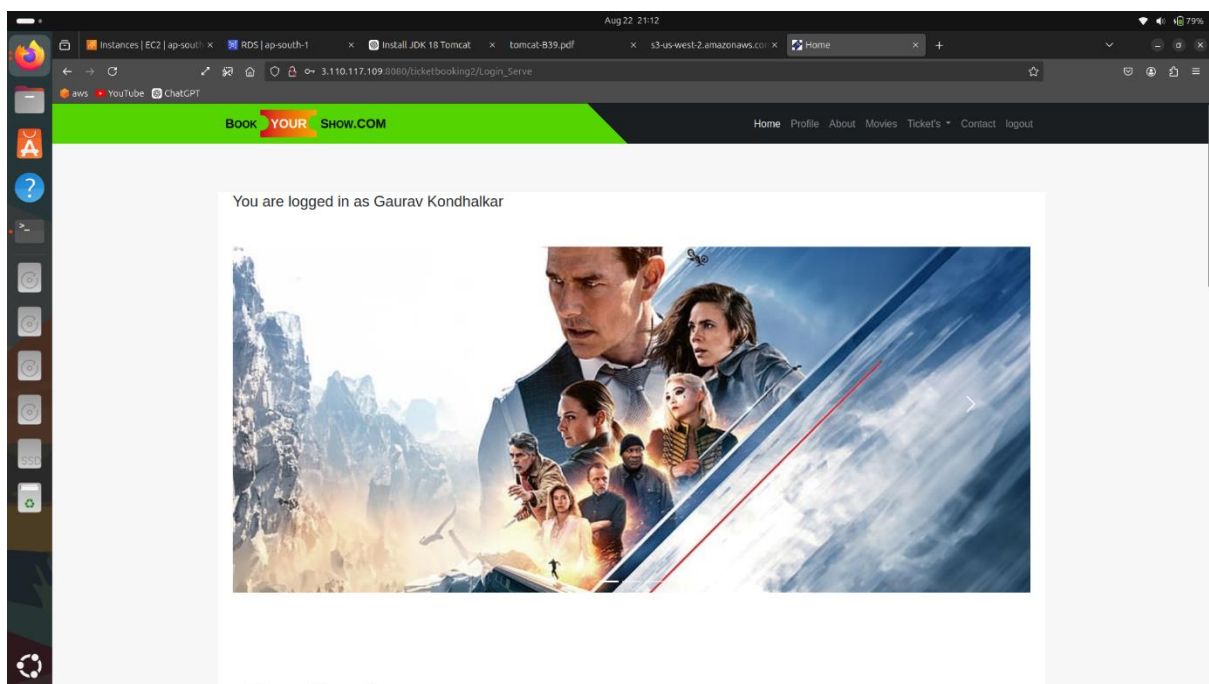
Succesful login as Admin by verifying credential in our RDS.



Now using customer credential for login :



Getting logged in Successfully after verifying data from RDS Database.

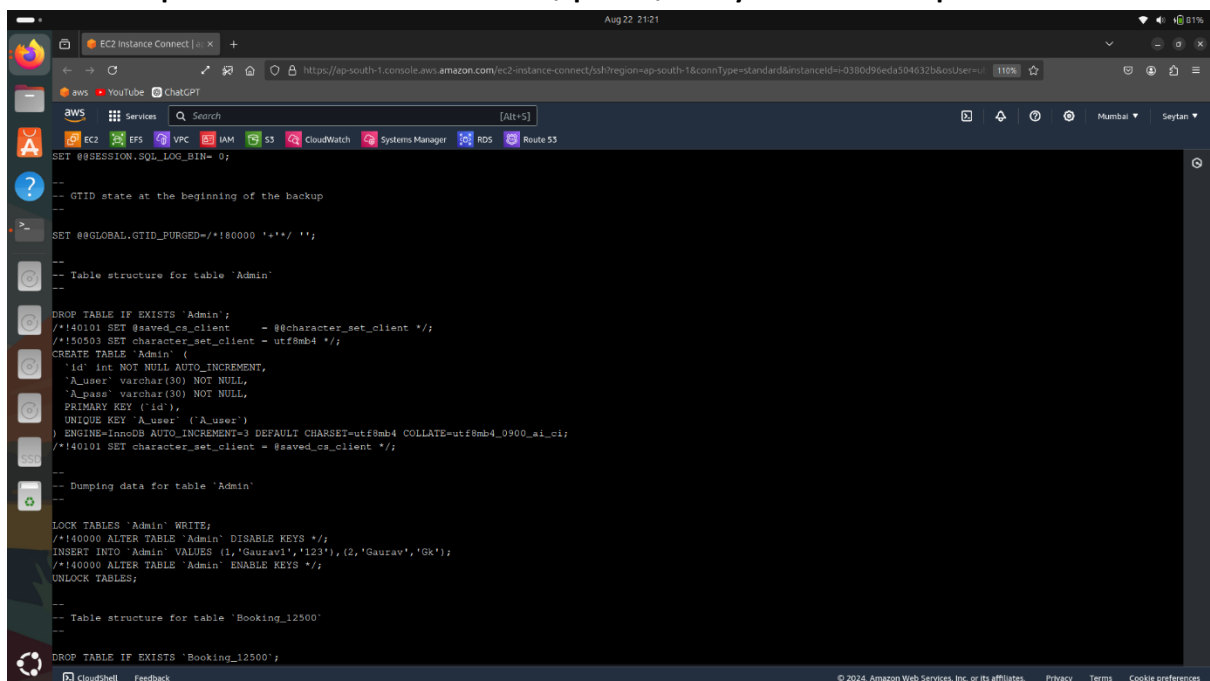


Task B:

Step 1: create a backup directory and then use this command
`mysql -h rds_endpoint -u uname -p dbname > /path/backup.sql`

```
Thu Aug 22 15:38:02 UTC 2024 WARN: Establishing SSL connection without server's identity verification is not recommended. According to MySQL 5.5.45+, 5.6.26+ and 5.7.6+ requirements,
SSL connection must be established by default if explicit option isn't set. For compliance with existing applications not using SSL the verifyServerCertificate property is set to
0. You need either to explicitly disable SSL by setting useSSL=false, or set useSSL=true and provide truststore for server certificate verification.
ubuntu@ip-172-31-7-41:~$ mkdir database_backup
ubuntu@ip-172-31-7-41:~$ ls
Mysql  apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  database_backup jdk-18_linux-x64_bin.tar.gz
ubuntu@ip-172-31-7-41:~$ sudo mysqldump -h database-1.c7kq18k66m89.ap-south-1.rds.amazonaws.com -u admin -p M > /home/ubuntu/database_backup/backup.sql
Enter password:
Warning: A partial dump from a server that has GTIDs will by default include the GTIDs of all transactions, even those that changed suppressed parts of the database. If you don't
t to restore GTIDs, pass --set-gtid-purged=OFF. To make a complete dump, pass --all-databases --triggers --routines --events.
Warning: A dump from a server that has GTIDs enabled will by default include the GTIDs of all transactions, even those that were executed during its extraction and might not be r
esented in the dumped data. This might result in an inconsistent data dump.
In order to ensure a consistent backup of the database, pass --single-transaction or --lock-all-tables or --master-data.
ubuntu@ip-172-31-7-41:~$ cd database_backup/
ubuntu@ip-172-31-7-41:~/database_backup$ ls
backup.sql
ubuntu@ip-172-31-7-41:~/database_backup$ cat backup.sql
```

Step 2: for backuping only schema : use `mysql -h rds_endpoint -u uname -p --no-data dbname > /path/onlyschema.sql`



```
Aug 22 21:21
aws
EC2 Instance Connect
https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0380f96eda504632b&osUser=ubuntu
AWS
Services
EC2 EFS VPC IAM S3 CloudWatch Systems Manager RDS Route 53
SET @@SESSION.SQL_LOG_BIN= 0;
--
-- GTID state at the beginning of the backup
--
SET @@GLOBAL.GTID_PURGED=/*!80000 '*/';
--
-- Table structure for table 'Admin'
--
DROP TABLE IF EXISTS `Admin`;
/*!40101 SET @saved_cs_client = @@character_set_client */;
/*!150503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Admin` (
  `id` int NOT NULL AUTO_INCREMENT,
  `A_user` varchar(30) NOT NULL,
  `A_pass` varchar(30) NOT NULL,
  PRIMARY KEY (`id`),
  UNIQUE KEY `A_user` (`A_user`)
) ENGINE=InnoDB AUTO_INCREMENT=3 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Dumping data for table 'Admin'
--
LOCK TABLES `Admin` WRITE;
/*!400000 ALTER TABLE `Admin` DISABLE KEYS */;
INSERT INTO `Admin` VALUES (1,'Gauravi','123'),(2,'Gaurav','GK');
/*!400000 ALTER TABLE `Admin` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Table structure for table 'Booking_12500'
--
DROP TABLE IF EXISTS `Booking_12500`;
```

```
Aug 22 21:36
https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0380d9eda504632b6&osUser=ul...
AWS
EC2 EFS VPC IAM S3 CloudWatch Systems Manager RDS Route 53
SET @@GLOBAL.GTID_PURGED=/*!80000 '*/; */;
--
-- Table structure for table 'Admin'
--
DROP TABLE IF EXISTS `Admin`;
/*!40101 SET @saved_cs_client = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Admin` (
  `id` int NOT NULL AUTO_INCREMENT,
  `A_user` varchar(50) NOT NULL,
  `A_pass` varchar(50) NOT NULL,
  PRIMARY KEY (`id`),
  UNIQUE KEY `A_user` (`A_user`)
) ENGINE=InnoDB AUTO_INCREMENT=3 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Table structure for table 'Booking_12500'
--
DROP TABLE IF EXISTS `Booking_12500`;
/*!40101 SET @saved_cs_client = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Booking_12500` (
  `bookingId` int NOT NULL AUTO_INCREMENT,
  `bookingShowId` int NOT NULL,
  `custEmailId` varchar(200) NOT NULL,
  `bookingDate` datetime NOT NULL,
  `bookingSeats` varchar(255) NOT NULL,
  `totalBill` decimal(10,0) NOT NULL,
  PRIMARY KEY (`bookingId`)
) ENGINE=InnoDB AUTO_INCREMENT=11 DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;
--
-- Table structure for table 'Customer_12500'
--
```

Step 3: for only data use ->> mysql -h rds_endpoint -u uname -p --no-create-info dbname > /path/onlydata.sql

```
ubuntu@ip-172-31-7-41:~/database_backup$ sudo mysqldump -h database-1.c7kq18k6m89.ap-south-1.rds.amazonaws.com -u admin -p --no-create-info M > /home/ubuntu/database_backup/backu
only_data.sql
Enter password:
Warning: A partial dump from a server that has GTIDs will by default include the GTIDs of all transactions, even those that changed suppressed parts of the database. If you don't
t to restore GTIDs, pass --set-gtid-purged=OFF. To make a complete dump, pass --all-databases --triggers --routines --events.
Warning: A dump from a server that has GTIDs enabled will by default include the GTIDs of all transactions, even those that were executed during its extraction and might not be re
sented in the dumped data. This might result in an inconsistent data dump.
In order to ensure a consistent backup of the database, pass --single-transaction or --lock-all-tables or --master-data.
ubuntu@ip-172-31-7-41:~/database_backup$ ls
backup.sql  backup_only_data.sql  backup_only_schema.sql
ubuntu@ip-172-31-7-41:~/database_backup$
```

```
Aug 22 21:38
https://ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0380d9eda504632b6&osUser=ul...
AWS
EC2 EFS VPC IAM S3 CloudWatch Systems Manager RDS Route 53
--
-- Dumping data for table 'Admin'
--
LOCK TABLES `Admin` WRITE;
/*!40000 ALTER TABLE `Admin` DISABLE KEYS */;
INSERT INTO `Admin` VALUES (1,'Gaurav','123'),(2,'Gaurav','Gk');
/*!40000 ALTER TABLE `Admin` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Dumping data for table 'Booking_12500'
--
LOCK TABLES `Booking_12500` WRITE;
/*!40000 ALTER TABLE `Booking_12500` DISABLE KEYS */;
INSERT INTO `Booking_12500` VALUES (1,17,'Bhakti187@gmail.com','2023-08-13 12:32:17','A1',190),(2,17,'gauravkondhalkar874@gmail.com','2023-08-13 12:43:04','A3',190),(3,18,'gauravkondh
alkar874@gmail.com','2023-08-14 12:16:42','A2,A3',460),(4,17,'gauravkondhalkar874@gmail.com','2023-08-14 14:00:55','A7',190),(5,17,'gauravkondhalkar874@gmail.com','2023-08-14 14:24:4
1','B3,B4',380),(6,17,'gauravkondhalkar874@gmail.com','2023-08-14 14:26:05','A9',190),(7,17,'Bhakti187@gmail.com','2023-08-14 14:47:36','17',190),(8,20,'Bhakti187@gmail.com','2023-08-1
4 14:49:10','F8',310),(9,22,'gauravkondhalkar874@gmail.com','2023-08-14 14:51:39','E5',260),(10,2,'gauravkondhalkar874@gmail.com','2023-10-04 12:01:29','A10',200);
/*!40000 ALTER TABLE `Booking_12500` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Dumping data for table 'Customer_12500'
--
LOCK TABLES `Customer_12500` WRITE;
/*!40000 ALTER TABLE `Customer_12500` DISABLE KEYS */;
INSERT INTO `Customer_12500` VALUES (1,'Gaurav','gauravkondhalkar874@gmail.com','8668206177','Pune,Kothrud 411038','1'),(2,'Bhakti','Dahikbate','Bhakti187@gmail.com','866
8206177','Pune,Kothrud 411038','123');
/*!40000 ALTER TABLE `Customer_12500` ENABLE KEYS */;
UNLOCK TABLES;
--
-- Dumping data for table 'Movie_12500'
--
LOCK TABLES `Movie_12500` WRITE;
```