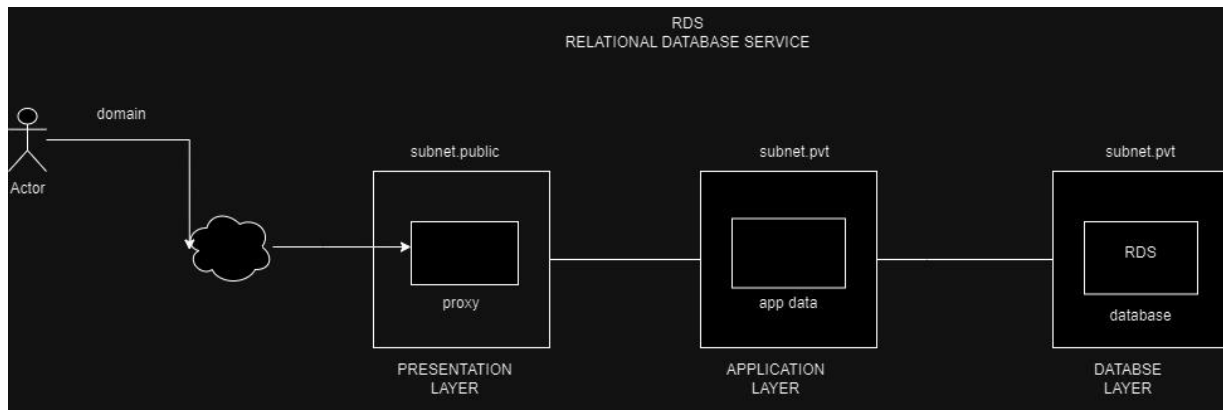
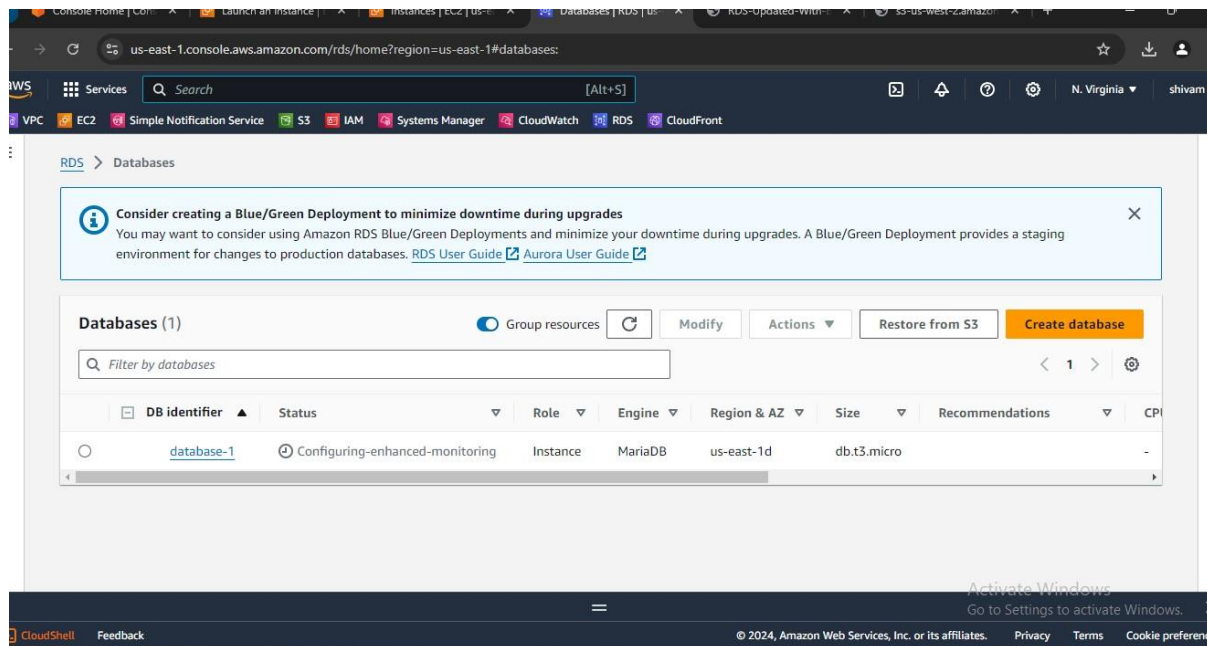


RDS

Amazon RDS (Relational Database Service) is a managed service that simplifies setting up, operating, and scaling relational databases in the cloud

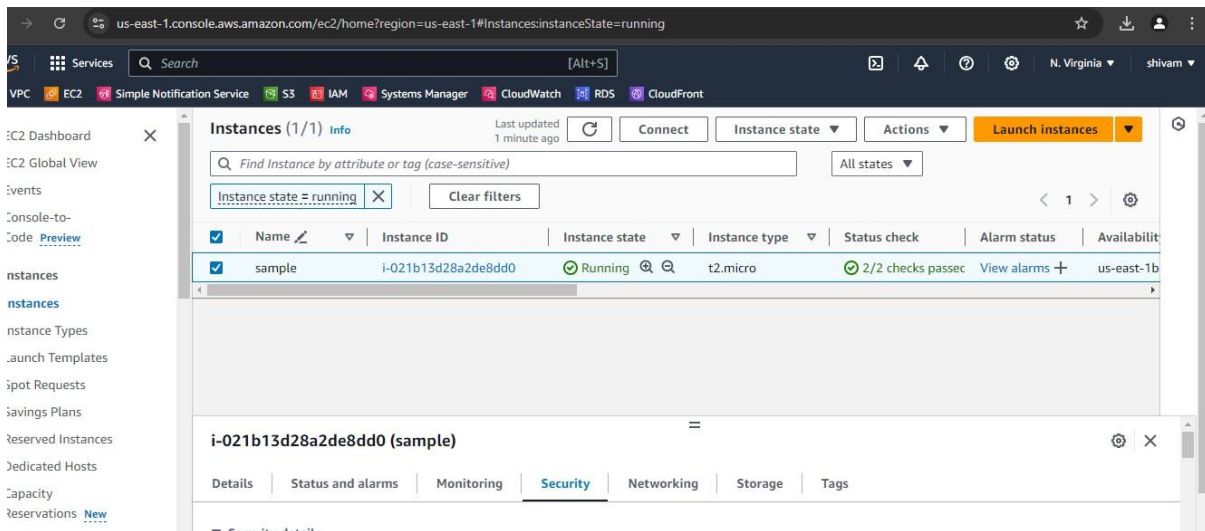


❖ Creating A RDS Database Using Aws .

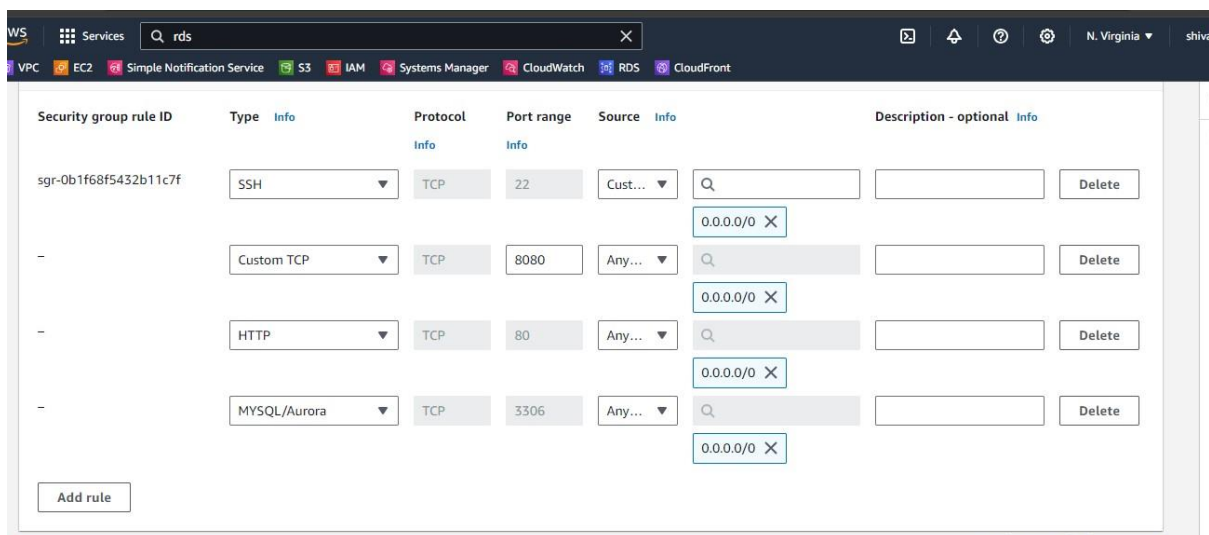


❖ Creating A Instance In EC2

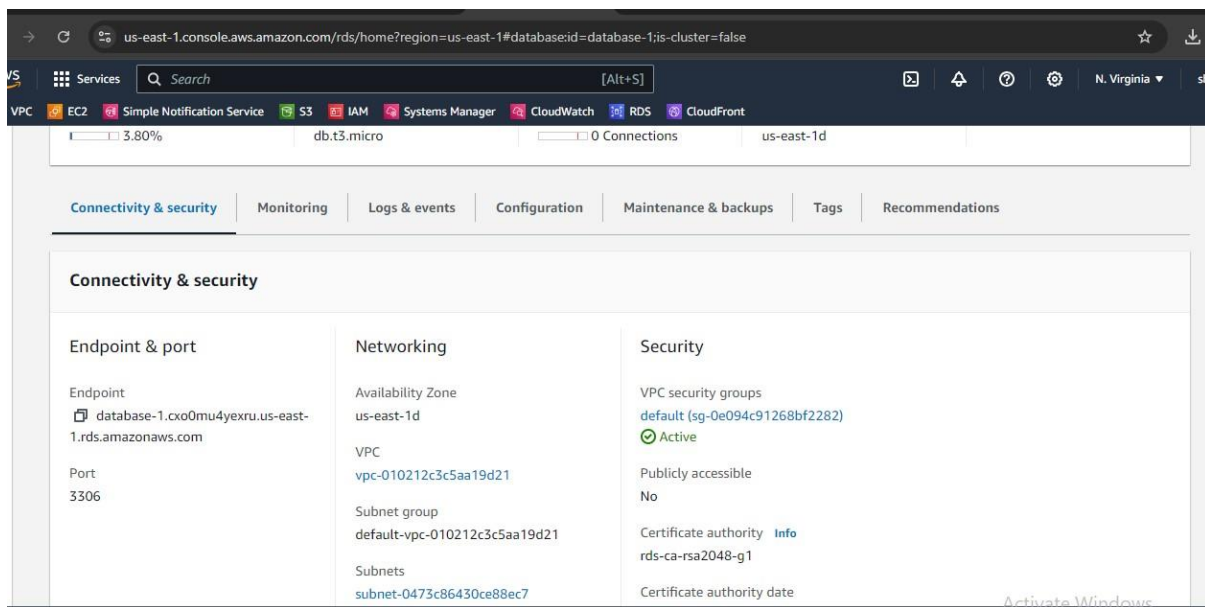
- ❖ INSTANCE - An instance is a specific implementation of a software or hardware environment, often used to refer to a virtual server or database environment running on a cloud platform.



❖ Whitelist -Port > SSH - 22 , HTTP , 8080 ,3306 in security group.



❖ Taking the endpoint of RDS.



- ❖ Using the command (`mysql -h endpoint -u admin -p`).
- ❖ After that enter the password .
- ❖ Install mariadb with the commands
- ❖ Sudo apt update
- ❖ Sudo apt install mariadb*
- ❖ Sudo systemctl start mariadb
- ❖ Sudo systemctl status mariadb
- ❖ Your system is connected to the mariadb database.

```

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-021b13d28a2de8dd0&osUser=ubu
AWS
Services Search [Alt+S]
VPC EC2 Simple Notification Service S3 IAM Systems Manager CloudWatch RDS CloudFront
3.80% db.t3.micro 0 Connections us-east-1d

Connectivity & security Monitoring Logs & events Configuration Maintenance & backups Tags Recommendations

Endpoint & port
Endpoint
database-1.cxo0mu4yexru.us-east-1.rds.amazonaws.com
Port
3306

Networking
Availability Zone
us-east-1d
VPC
vpc-010212c3c5aa19d21
Subnet group
default-vpc-010212c3c5aa19d21
Subnets
subnet-0473c86430ce88ec7

Security
VPC security groups
default (sg-0e094c91268bf2282)
Active
Publicly accessible
No
Certificate authority
rds-ca-rsa2048-g1
Certificate authority date

Activate Windows

```

- ❖ Downloading the apache tomcat file from the url <https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.78/bin/apache-tomcat-8.5.78.tar.gz>
- Install it with wget command in cli. ○
- Check it with ls command.

```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-021b13d28a2de8dc
aws Services Search [Alt+S]
VPC EC2 Simple Notification Service S3 IAM Systems Manager CloudWatch RDS CloudFront
Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-94-182:~# wget https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.78/bin/apache-tomcat-8.5.78
--2024-08-25 10:46:11-- https://archive.apache.org/dist/tomcat/tomcat-8/v8.5.78/bin/apache-tomcat-8.5.78.tar.g
Resolving archive.apache.org (archive.apache.org)... 65.108.204.189, 2a01:4f9:1a:a084::2
Connecting to archive.apache.org (archive.apache.org)|65.108.204.189|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10577344 (10M) [application/x-gzip]
Saving to: 'apache-tomcat-8.5.78.tar.gz'

apache-tomcat-8.5.78.tar.gz      100%[=====>]
2024-08-25 10:46:13 (7.99 MB/s) - 'apache-tomcat-8.5.78.tar.gz' saved [10577344/10577344]

root@ip-172-31-94-182:~# ls
apache-tomcat-8.5.78.tar.gz  snap
root@ip-172-31-94-182:~#
```

- ✚ Unzipping the tomcat file tar file.
- ✚ Tar -xvzf filename .

Changes in the directories

- ✚ Open the file and change the directory to webapps .
- ✚ In webapps (cd webapps)
 1. Download the student.war file given in the documention.
 2. Use this link - <https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war>

```
▼<Contents>
  <Key>student.war</Key>
  <LastModified>2019-02-07T02:53:06.000Z</LastModified>
  <ETag>"59ad1ce0f50cb1a6265941f3498a69eb"</ETag>
  <Size>89423</Size>
  <StorageClass>STANDARD</StorageClass>
```

3. Install in it with wget command.
4. Wget <https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war>

```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=
aws Services Search [Alt+S]
VPC EC2 Simple Notification Service S3 IAM Systems Manager CloudWatch RDS CloudFront
pache-tomcat-8.5.78/bin/version.sh
oot@ip-172-31-94-182:~# ls
pache-tomcat-8.5.78 apache-tomcat-8.5.78.tar.gz snap
oot@ip-172-31-94-182:~# cd apache-tomcat-8.5.78/
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78# ls
BUILDING.txt CONTRIBUTING.md LICENSE NOTICE README.md RELEASE-NOTES RUNNING.txt bin conf
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78# cd webapps
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/webapps# ls
OOT docs examples host-manager manager
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/webapps# wget https://s3-us-west-2.amazonaws.com/st
-2024-08-25 10:49:27-- https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war
esolving s3-us-west-2.amazonaws.com (s3-us-west-2.amazonaws.com)... 52.92.197.96, 52.218.176.15
connecting to s3-us-west-2.amazonaws.com (s3-us-west-2.amazonaws.com)|52.92.197.96|:443... conne
HTTP request sent, awaiting response... 200 OK
length: 89423 (87K) [binary/octet-stream]
saving to: 'student.war'

student.war 100%[=====]
2024-08-25 10:49:28 (474 KB/s) - 'student.war' saved [89423/89423]

oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/webapps# ls
OOT docs examples host-manager manager student.war
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/webapps#
```

✚ In apache file change directory to lib /

✚

1. Add mysql-connector.jar file to lib/ (cd lib/)
2. Using the link given in the documentation - <https://s3-us-west-2.amazonaws.com/studentapi-cit/mysqlconnector.jar>
3. Download it with wget command .
4. Wget <https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-connector.jar>

```
<Contents>
  <Key>mysql-connector.jar</Key>
  <LastModified>2019-02-06T15:50:16.000Z</LastModified>
  <ETag>"80e4321ee33dd6670e3643d85bf5c7c0"</ETag>
  <Size>1007502</Size>
  <StorageClass>STANDARD</StorageClass>
</Contents>
```



```

atalina-storeconfig.jar  jasper-el.jar  tomcat-api.jar  tomcat-i18n-fr.jar  tomca
atalina-tribes.jar      jasper.jar  tomcat-coyote.jar  tomcat-i18n-ja.jar  tomca
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/lib# wget https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-conn
-2024-08-25 10:51:19-- https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-conn
esolving s3-us-west-2.amazonaws.com (s3-us-west-2.amazonaws.com)... 52.218.236.168,
connecting to s3-us-west-2.amazonaws.com (s3-us-west-2.amazonaws.com) |52.218.236.168|
HTTP request sent, awaiting response... 200 OK
Length: 1007502 (984K) [application/java-archive]
Saving to: 'mysql-connector.jar'

mysql-connector.jar      100%[=====]
2024-08-25 10:51:20 (1.53 MB/s) - 'mysql-connector.jar' saved [1007502/1007502]

oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/lib# ls
annotations-api.jar      catalina.jar  jaspic-api.jar  tomcat-coyote.jar  tom
atalina-ant.jar          ecj-4.6.3.jar  jsp-api.jar     tomcat-dbcp.jar    tom
atalina-ha.jar           el-api.jar    mysql-connector.jar  tomcat-i18n-de.jar  tom
atalina-storeconfig.jar  jasper-el.jar  servlet-api.jar  tomcat-i18n-es.jar  tom
atalina-tribes.jar       jasper.jar    tomcat-api.jar    tomcat-i18n-fr.jar  tom
oot@ip-172-31-94-182:~/apache-tomcat-8.5.78/lib# cd ..

```

✚ Adding the file in conf/ (cd conf/)

✚ Edit context.xml file (vim context.xml)

```

<Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource" maxTotal="500" maxIdle="30"
maxWaitMillis="1000" username="admin" password="shivam123" driverClassName="com.mysql.jdbc.Driver"
url="jdbc:mysql://database-1.cz064ko8o31x.ap-south-1.rds.amazonaws.com:3306/studentapp"/>

```

```

VPC EC2 Simple Notification Service S3 IAM Systems Manager CloudWatch RDS CloudFront
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http://www.apache.org/licenses/LICENSE-2.0

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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.
-->
<!-- The contents of this file will be loaded for each web application -->
<Context>
  <Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource" maxTotal="500"
    maxIdle="30" maxWaitMillis="1000" username="admin" password="shivam123"
    driverClassName="com.mysql.jdbc.Driver"
    url="jdbc:mysql://database-1.cxo0mu4yexru.us-east-1.rds.amazonaws.com:3306/studentapp"/>
  <!-- Default set of monitored resources. If one of these changes, the -->
  <!-- web application will be reloaded. -->
  <WatchedResource>WEB-INF/web.xml</WatchedResource>
  <WatchedResource>${catalina.base}/conf/web.xml</WatchedResource>
-- INSERT --

```

✚ Go to bin directory cd bin/

✚ Give the permission to Catalina.sh (execution permission to user).

```

aws | Services | Search [Alt+S]
VPC EC2 Simple Notification Service S3 IAM Systems Manager CloudWatch RDS CloudFront

-rwxr-x--- 1 root root 1904 Mar 31 2022 startup.sh*
-rw-r----- 1 root root 51379 Mar 31 2022 tomcat-juli.jar
-rw-r----- 1 root root 429747 Mar 31 2022 tomcat-native.tar.gz
-rw-r----- 1 root root 4574 Mar 31 2022 tool-wrapper.bat
-rwxr-x--- 1 root root 5540 Mar 31 2022 tool-wrapper.sh*
-rw-r----- 1 root root 2026 Mar 31 2022 version.bat
-rwxr-x--- 1 root root 1908 Mar 31 2022 version.sh*
root@ip-172-31-94-182:~/apache-tomcat-8.5.78/bin# sudo chmod o+x catalina.sh
root@ip-172-31-94-182:~/apache-tomcat-8.5.78/bin# ll
total 888
drwxr-x--- 2 root root 4096 Aug 25 10:48 ./
drwxr-xr-x 9 root root 4096 Aug 25 10:48 ../
-rw-r----- 1 root root 36192 Mar 31 2022 bootstrap.jar
-rw-r----- 1 root root 1664 Mar 31 2022 catalina-tasks.xml
-rw-r----- 1 root root 16840 Mar 31 2022 catalina.bat
-rwxr-x--- 1 root root 25294 Mar 31 2022 catalina.sh*
-rw-r----- 1 root root 2123 Mar 31 2022 ciphers.bat
-rwxr-x--- 1 root root 1997 Mar 31 2022 ciphers.sh*
-rw-r----- 1 root root 210038 Mar 31 2022 commons-daemon-native.tar.gz
-rw-r----- 1 root root 25308 Mar 31 2022 commons-daemon.jar
-rw-r----- 1 root root 2040 Mar 31 2022 configtest.bat
-rwxr-x--- 1 root root 1922 Mar 31 2022 configtest.sh*
-rwxr-x--- 1 root root 9100 Mar 31 2022 daemon.sh*

```

✚ Start the Catalina.sh (./Catalina.sh start)

```

aws | Services | Search [Alt+S]
VPC EC2 Simple Notification Service S3 IAM Systems Manager CloudWatch RDS CloudFront

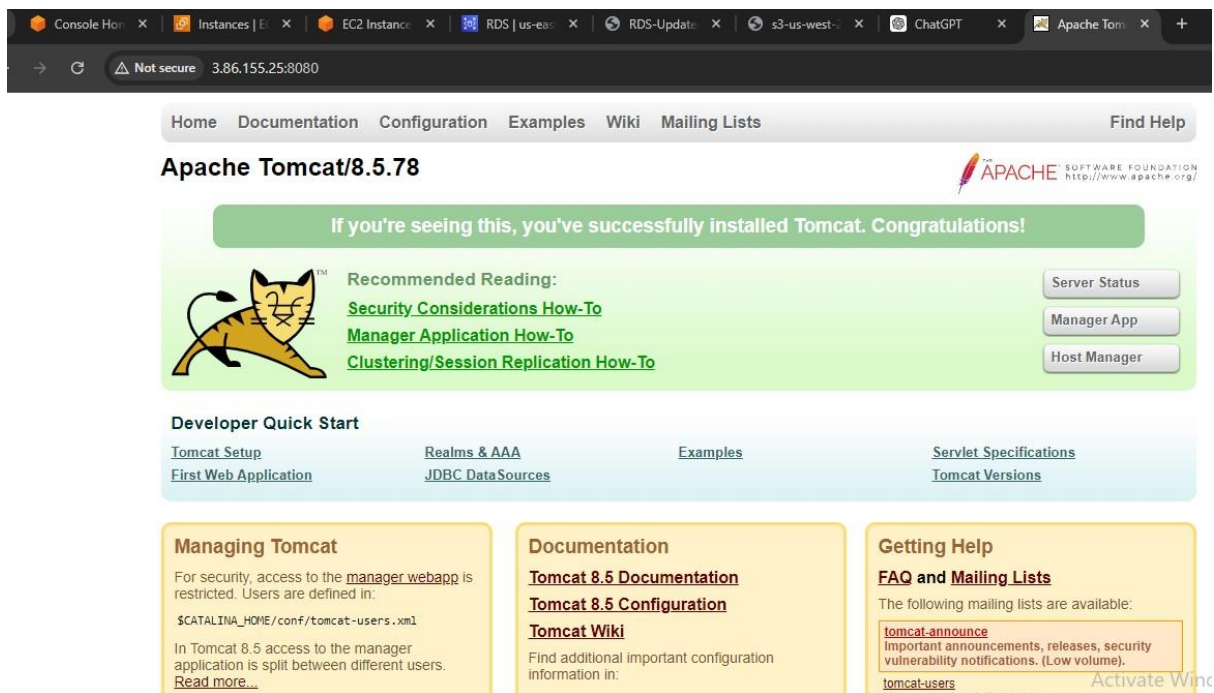
commands:
debug          Start Catalina in a debugger
debug -security Debug Catalina with a security manager
jpda start     Start Catalina under JPDA debugger
run            Start Catalina in the current window
run -security  Start in the current window with security manager
start         Start Catalina in a separate window
start -security Start in a separate window with security manager
stop          Stop Catalina, waiting up to 5 seconds for the process to end
stop n        Stop Catalina, waiting up to n seconds for the process to end
stop -force   Stop Catalina, wait up to 5 seconds and then use kill -KILL if still running
stop n -force Stop Catalina, wait up to n seconds and then use kill -KILL if still running
configtest    Run a basic syntax check on server.xml - check exit code for result
version       What version of tomcat are you running?

Note: Waiting for the process to end and use of the -force option require that $CATALINA_PID is defined
root@ip-172-31-94-182:~/apache-tomcat-8.5.78/bin# ./catalina.sh start
Using CATALINA_BASE:   /root/apache-tomcat-8.5.78
Using CATALINA_HOME:   /root/apache-tomcat-8.5.78
Using CATALINA_TMPDIR: /root/apache-tomcat-8.5.78/temp
Using JRE_HOME:        /usr
Using CLASSPATH:        /root/apache-tomcat-8.5.78/bin/bootstrap.jar:/root/apache-tomcat-8.5.78/bin/tomcat-juli.jar
Tomcat started.

```

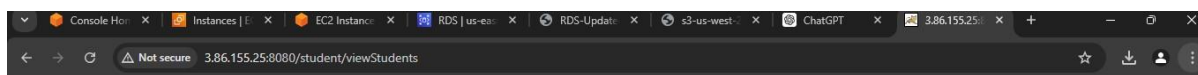
✚ Check the service using the ip address adding 8080/ at the last of ip .

✚ To check running webpage → USE 8080 after Public IP Address <http://3.86.155.25:8080/>



✚ The students registration form has been shown successfully .

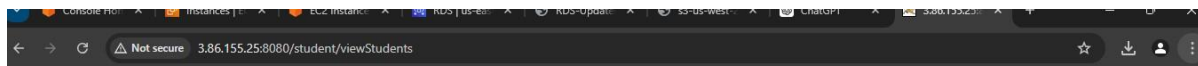
✚ Data is added successfully (Its working).



[Register Student](#)

Students List

Student ID	StudentName	Student Addr	Student Age	Student Qualification	Student Percentage	Student Year Passed	Edit	Delete
1	shivam	godambewadi	21	ty .bsc.cs	60	2025	edit	delete



[Register Student](#)

Students List

Student ID	StudentName	Student Addr	Student Age	Student Qualification	Student Percentage	Student Year Passed	Edit	Delete
1	shivam	godambewadi	21	ty .bsc.cs	60	2025	edit	delete
2	gaurav	kothrud	21	ty .bsc.cs	45	2025	edit	delete
3	ayush	kothrud	21	ty .bsc.cs	20	2025	edit	delete

- ✚ Check the database again .
- ✚ Using command – (`mysql -h endpoint -u admin -p`).
- ✚ Check
 1. Use studentapp;
 2. Select * from students;

```
us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=us-east-1&connType=standard&instanceId=i-021b13d28a2de8dd0&osUser=u

Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 107
Server version: 10.11.8-MariaDB-log managed by https://aws.amazon.com/rds/

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

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

MariaDB [(none)]> use studentapp;
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
MariaDB [studentapp]> select * from students;
+-----+-----+-----+-----+-----+-----+-----+
| student_id | student_name | student_addr | student_age | student_qual | student_percent | student_year_passed |
+-----+-----+-----+-----+-----+-----+-----+
| 1 | shivam | godambewadi | 21 | ty .bsc.cs | 60 | 2025 |
| 2 | gaurav | kothrud | 21 | ty .bsc.cs | 45 | 2025 |
| 3 | ayush | kothrud | 21 | ty .bsc.cs | 20 | 2025 |
+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.002 sec)

MariaDB [studentapp]>
```

i-021b13d28a2de8dd0 (sample)

PublicIPs: 3.86.155.25 PrivateIPs: 172.31.94.182

✚ Taking backup of data and schema.

✚ Using the command in cli `mysqldump -h [RDS-Endpoint] -u admin -p [DB_Name] > [Give_Dir_Name]`

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

MariaDB [(none)]> use studentapp;
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
MariaDB [studentapp]> select * from students;
+-----+-----+-----+-----+-----+-----+-----+
| student_id | student_name | student_addr | student_age | student_qual | student_percent | student_year_passed |
+-----+-----+-----+-----+-----+-----+-----+
| 1 | shivam | godambewadi | 21 | ty .bsc.cs | 60 | 2025 |
| 2 | gaurav | kothrud | 21 | ty .bsc.cs | 45 | 2025 |
| 3 | ayush | kothrud | 21 | ty .bsc.cs | 20 | 2025 |
+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.002 sec)

MariaDB [studentapp]> exit
Bye
root@ip-172-31-94-182:~# sudo mysqldump -h database-1.cxo0mu4yexru.us-east-1.rds.amazonaws.com -u admin -p studentapp > backuppppp
Enter password:
root@ip-172-31-94-182:~# ls
apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  backuppppp  snap
root@ip-172-31-94-182:~#
```

✚ `sudo mysqldump -h database-1.cz064ko8o31x.ap-south-1.rds.amazonaws.com -u admin -p studentapp > backuppppp`

✚ `cat backuppppp`

✚ data and schema is shown in the file or directory.

✚ Only taking the backup of schema

✚ Using the command

`sudo mysqldump -h database-1.cz064ko8o31x.ap-south-1.rds.amazonaws.com -u admin -p --no-data studentapp > my backup for Data.sql`

```
*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;

-- Dump completed on 2024-08-25 11:16:04
root@ip-172-31-94-182:~# sudo mysqldump -h database-1.cxo0mu4yexru.us-east-1.rds.amazonaws.com -u admin -p --no-data studentapp > schema_backup
Enter password:
root@ip-172-31-94-182:~# ls
apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  backuppppp  data_backup  schema_backup  snap
root@ip-172-31-94-182:~# cat schema_backup
*!999999\~ enable the sandbox mode */
-- MariaDB dump 10.19 Distrib 10.11.8-MariaDB, for debian-linux-gnu (x86_64)
--
-- Host: database-1.cxo0mu4yexru.us-east-1.rds.amazonaws.com    Database: studentapp
--
-- Server version          10.11.8-MariaDB-log
```

✚ Only taking the backup of data

✚ Using the command

`sudo mysqldump -h database-1.cz064ko8o31x.ap-south-1.rds.amazonaws.com -u admin -p --no-create-info studentapp > data backup`

```
*, BYPASS, ROCHES, 21, 0, 123456, 20, 2023, /;
*!40000 ALTER TABLE 'students' ENABLE KEYS */;
UNLOCK TABLES;
*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;

*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;

-- Dump completed on 2024-08-25 11:13:57
root@ip-172-31-94-182:~# sudo mysqldump -h database-1.cxo0mu4yexru.us-east-1.rds.amazonaws.com -u admin -p --no-create-info studentapp > data_backup
Enter password:
root@ip-172-31-94-182:~# ls
apache-tomcat-8.5.78  apache-tomcat-8.5.78.tar.gz  backupppp  data_backup  snap
root@ip-172-31-94-182:~# cat data_backup
```

BYE.....