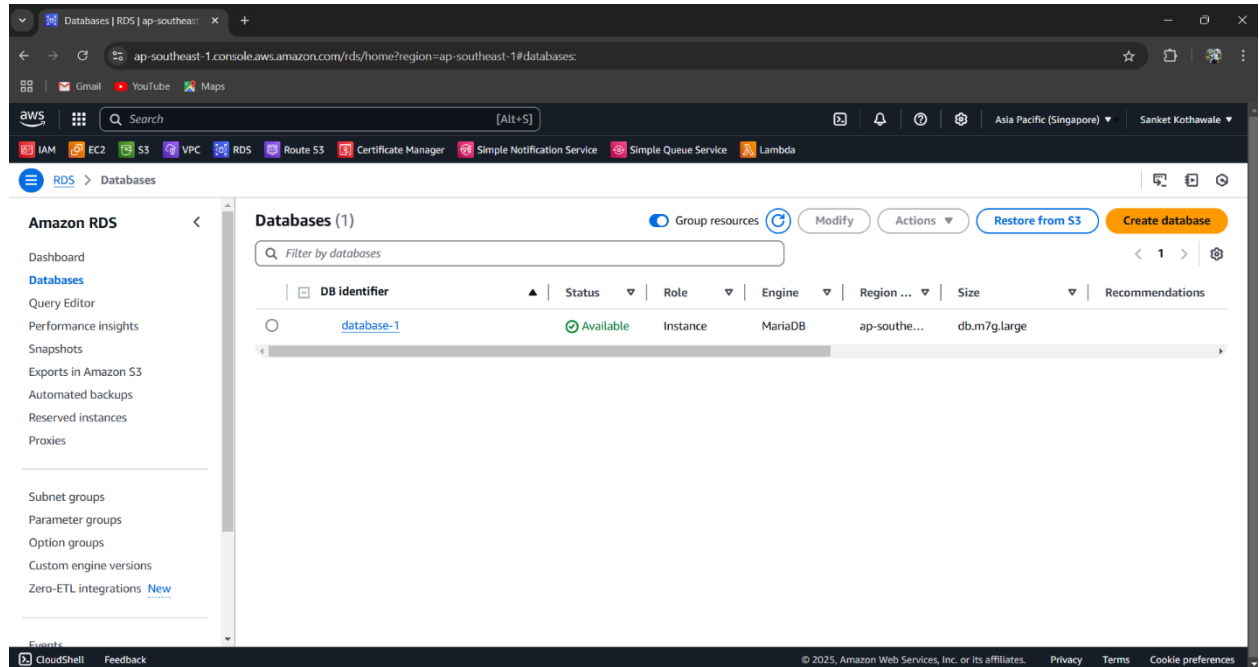


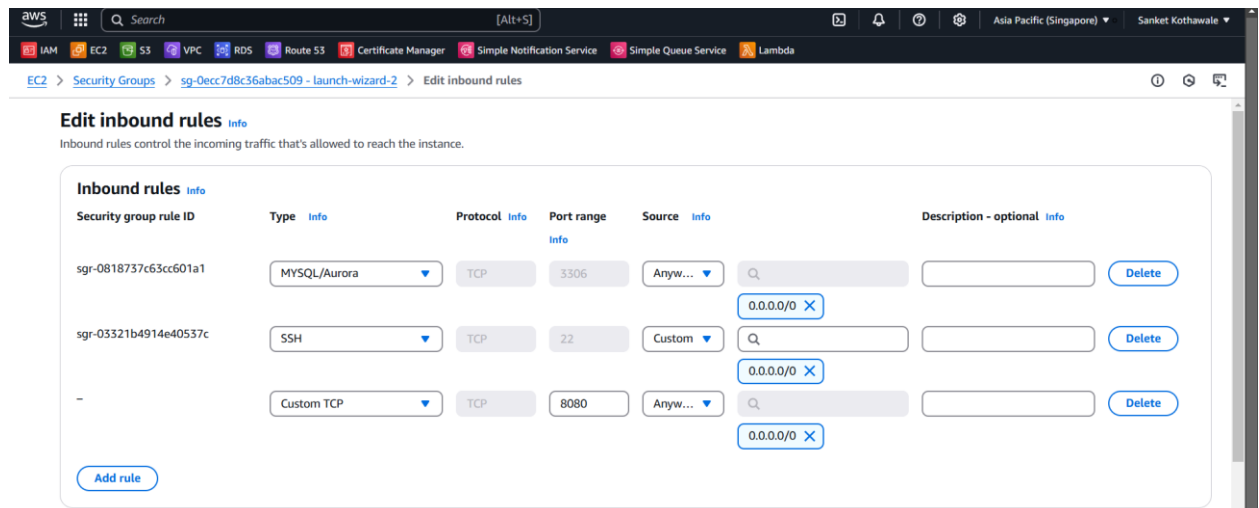
Project :- 2-Tier Architecture

Database create with RDS

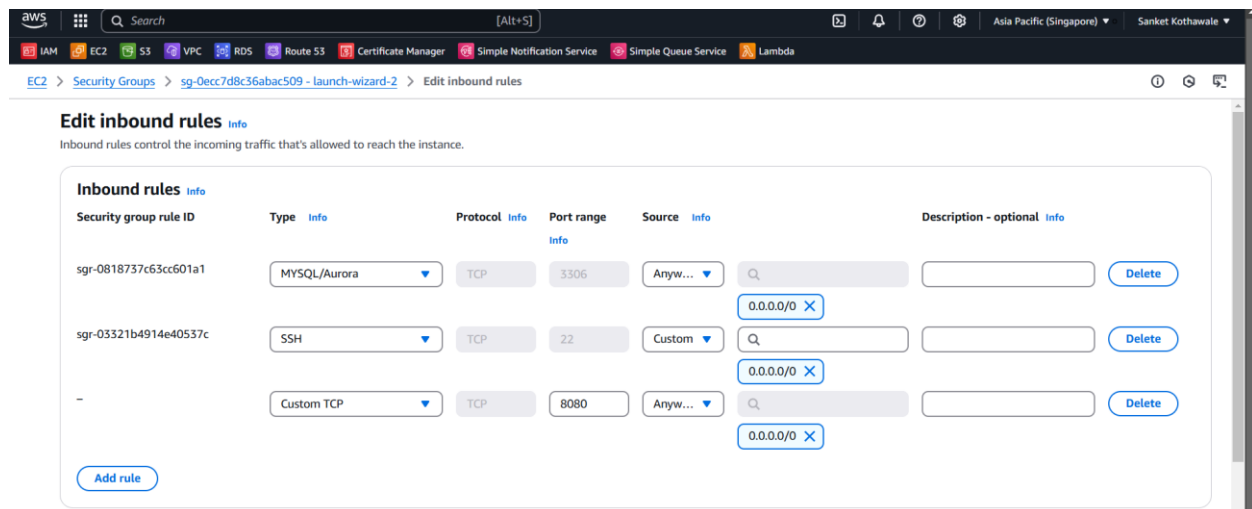
Create RDS



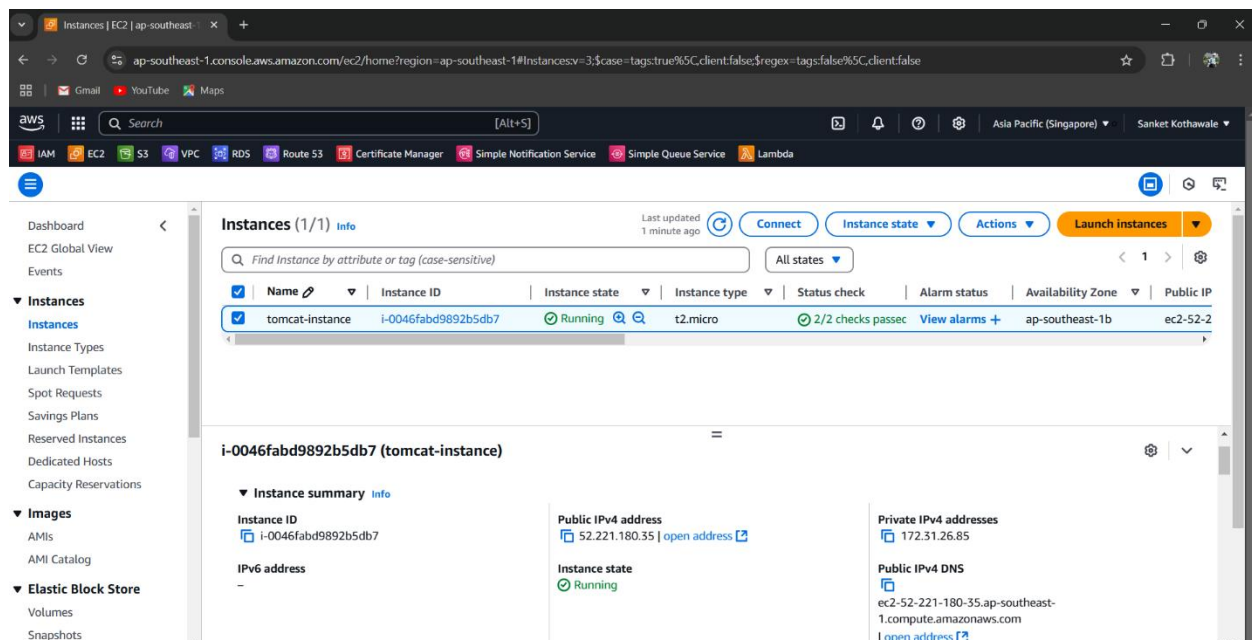
Create security group



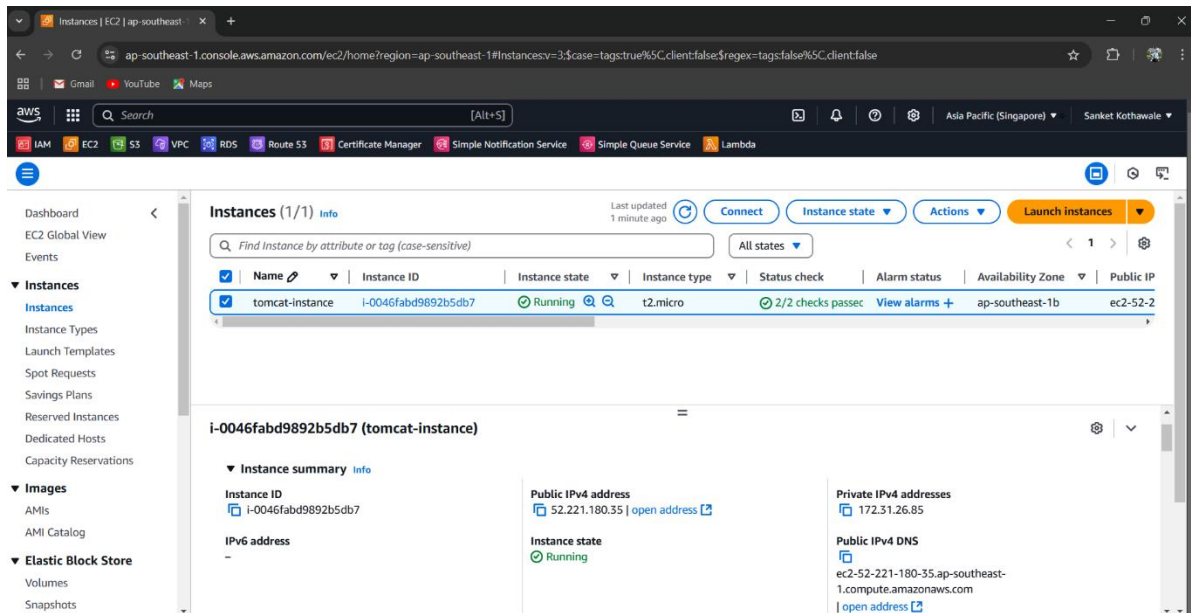
Edit inbound rule



Create instance



Instance connect to amazon linux



sudo -i yum install java -y download tomcat 9 curl -O paste link address

tar -xzf apache tomcat file name -C /opt

cd /opt/apache-tomcat-9.0.98 ls

cd /opt/apache-tomcat-9.0.98/webapps

curl -O <https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war>

ls ⑦ show file student.war rds and tomcat connection cd /opt/apache-tomcat-9.0.98/lib

curl -O <https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-connector.jar> ls

⑦ show file in lib mysql-connector.jar

```
52.221.180.35 (ec2-user)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split Multitab Tunneling Packages Settings Help

Quick connect...
User sessions
13.225.49.110 (ec2-user)
13.225.49.110 (ec2-user) (1)
3.83.207.150 (ec2-user)
3.92.52.128 (ec2-user)
3.92.52.128 (ec2-user) (1)
3.92.52.128 (ec2-user) (2)
34.238.115.35 (ec2-user)
52.221.180.35 (ec2-user)
54.87.140.159 (ec2-user)

SSH session to ec2-user@52.221.180.35
• Direct SSH : ✓
• SSH compression : ✓
• SSH-browser : ✓
• X11-forwarding : ✗ (disabled or not supported by server)
• For more info, ctrl+click on help or visit our website.

Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023/

Last login: Tue Jan 28 06:22:40 2025 from 152.58.16.129
[ec2-user@ip-172-31-26-85 ~]$ sudo -i
[root@ip-172-31-26-85 ~]# yum install java -y
Last metadata expiration check: 1:13:26 ago on Tue Jan 28 05:20:16 2025.
Package java-23-amazon-corretto-1:23.0.1+8-1.amzn2023.1.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-26-85 ~]# curl -O https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.98/src/apache-tomcat-9.0.98-src.tar.gz
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 6924k 100 6924k 0 0 9121k 0 --:--:-- --:--:-- --:--:-- 9111k
[root@ip-172-31-26-85 ~]# ls
apache-tomcat-9.0.98-src.tar.gz apache-tomcat-9.0.98.tar.gz
[root@ip-172-31-26-85 ~]# tar -xvf apache-tomcat-9.0.98.tar.gz -C /opt
apache-tomcat-9.0.98/conf/
apache-tomcat-9.0.98/conf/catalina.policy
apache-tomcat-9.0.98/conf/catalina.properties
apache-tomcat-9.0.98/conf/context.xml
apache-tomcat-9.0.98/conf/jaspic-providers.xml
apache-tomcat-9.0.98/conf/jaspic-providers.xsd
apache-tomcat-9.0.98/conf/logging.properties
apache-tomcat-9.0.98/conf/server.xml
```

```
libXtst-1.2.5-1.amzn2023.0.1.x86_64 libbrotli-1.0.9-4.amzn2023.0.2.x86_64
libjpeg-turbo-2.1.4-2.amzn2023.0.5.x86_64 libpng-2:1.6.37-10.amzn2023.0.6.x86_64
libxcb-1.17.0-1.amzn2023.0.1.x86_64 pixman-0.43.4-1.amzn2023.0.4.x86_64
xml-common-0.6.3-56.amzn2023.0.2.noarch

Complete!
[root@ip-172-31-32-240 ~]# curl -O https://dlcdn.apache.org/tomcat/tomcat-9/v9.0.98/bin/apache-tomcat-9.0.98.tar.gz
% Total % Received % Xferd Average Speed Time Time Time Current
Dload Upload Total Spent Left Speed
100 12.1M 100 12.1M 0 0 88.2M 0 --:--:-- --:--:-- --:--:-- 88.1M
[root@ip-172-31-32-240 ~]# ls
apache-tomcat-9.0.98.tar.gz
[root@ip-172-31-32-240 ~]# tar -xvf apache-tomcat-9.0.98.tar.gz -C /opt
apache-tomcat-9.0.98/conf/
apache-tomcat-9.0.98/conf/catalina.policy
apache-tomcat-9.0.98/conf/catalina.properties
apache-tomcat-9.0.98/conf/context.xml
apache-tomcat-9.0.98/conf/jaspic-providers.xml
apache-tomcat-9.0.98/conf/jaspic-providers.xsd
apache-tomcat-9.0.98/conf/logging.properties
apache-tomcat-9.0.98/conf/server.xml
apache-tomcat-9.0.98/conf/tomcat-users.xml
apache-tomcat-9.0.98/conf/tomcat-users.xsd
apache-tomcat-9.0.98/conf/web.xml
apache-tomcat-9.0.98/bin/
apache-tomcat-9.0.98/lib/
apache-tomcat-9.0.98/logs/
apache-tomcat-9.0.98/temp/
apache-tomcat-9.0.98/webapps/
apache-tomcat-9.0.98/webapps/ROOT/
apache-tomcat-9.0.98/webapps/ROOT/WEB-INF/
apache-tomcat-9.0.98/webapps/docs/
apache-tomcat-9.0.98/webapps/docs/META-INF/
```

```
catalina.policy      context.xml      jaspic-providers.xsd  server.xml      tomcat-users.xsd
catalina.properties  jaspic-providers.xml  logging.properties    tomcat-users.xml  web.xml
[root@ip-172-31-32-240 conf]# cd ..
[root@ip-172-31-32-240 apache-tomcat-9.0.98]# cd webapps
[root@ip-172-31-32-240 webapps]# ls
ROOT docs examples host-manager manager
[root@ip-172-31-32-240 webapps]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
             Dload  Upload   Total   Spent    Left   Speed
100 89423 100 89423  0     0 219k    0  --:--:-- --:--:-- --:--:-- 219k
[root@ip-172-31-32-240 webapps]# ls
ROOT docs examples host-manager manager student.war
[root@ip-172-31-32-240 webapps]# cd ..
[root@ip-172-31-32-240 apache-tomcat-9.0.98]# cd lib
[root@ip-172-31-32-240 lib]# ls
annotations-api.jar  catalina.jar      jsp-api.jar      tomcat-i18n-cs.jar  tomcat-i18n-pt-BR.jar  tomcat-util.jar
catalina-ant.jar     ecj-4.20.jar      servlet-api.jar   tomcat-i18n-de.jar  tomcat-i18n-ru.jar     tomcat-websocket.jar
catalina-ha.jar      el-api.jar        tomcat-api.jar    tomcat-i18n-es.jar  tomcat-i18n-zh-CN.jar  websocket-api.jar
catalina-ssi.jar     jasper-el.jar     tomcat-coyote-ffm.jar  tomcat-i18n-fr.jar  tomcat-jdbc.jar
catalina-storeconfig.jar  jasper.jar        tomcat-coyote.jar    tomcat-i18n-ja.jar  tomcat-jni.jar
catalina-tribes.jar   jaspic-api.jar    tomcat-dbcp.jar     tomcat-i18n-ko.jar  tomcat-util-scan.jar
[root@ip-172-31-32-240 lib]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-connector.jar
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
             Dload  Upload   Total   Spent    Left   Speed
100 983k 100 983k  0     0 1352k    0  --:--:-- --:--:-- --:--:-- 1353k
[root@ip-172-31-32-240 lib]# ls
annotations-api.jar  catalina.jar      jsp-api.jar      tomcat-dbcp.jar     tomcat-i18n-ko.jar  tomcat-util-scan.jar
catalina-ant.jar     ecj-4.20.jar      mysql-connector.jar  tomcat-i18n-cs.jar  tomcat-i18n-pt-BR.jar  tomcat-util.jar
catalina-ha.jar      el-api.jar        servlet-api.jar     tomcat-i18n-de.jar  tomcat-i18n-ru.jar     tomcat-websocket.jar
catalina-ssi.jar     jasper-el.jar     tomcat-api.jar      tomcat-i18n-es.jar  tomcat-i18n-zh-CN.jar  websocket-api.jar
catalina-storeconfig.jar  jasper.jar        tomcat-coyote-ffm.jar  tomcat-i18n-fr.jar  tomcat-jdbc.jar
catalina-tribes.jar   jaspic-api.jar    tomcat-coyote.jar    tomcat-i18n-ja.jar  tomcat-jni.jar
[root@ip-172-31-32-240 lib]#
```

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cd /opt/apache-tomcat-8.5.88/conf vim context.xml

add the following content in this file

```
<Resource name="jdbc/TestDB" auth="Container" type="javax.sql.DataSource"
maxTotal="500" maxIdle="30" maxWaitMillis="1000"
username="mydblogin" password="mydbpassword"
driverClassName="com.mysql.jdbc.Driver"

url="jdbc:mysql://RDS database endpoint:3306/mysql database
name?useUnicode=yes&characterEncoding=utf8"/>
```

```
★ catalina.policy      context.xml      jaspic-providers.xsd  server.xml      tomcat-users.xsd
catalina.properties  jaspic-providers.xml logging.properties    tomcat-users.xml web.xml
[root@ip-172-31-32-240 conf]# cd ..
[root@ip-172-31-32-240 apache-tomcat-9.0.98]# cd webapps
[root@ip-172-31-32-240 webapps]# ls
ROOT docs examples host-manager manager
[root@ip-172-31-32-240 webapps]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war
% Total    % Received % Xferd  Average Speed   Time    Time     Current
           Dload  Upload   Total   Spent    Left     Speed
100 89423 100 89423  0     0 219k    0 --:--:-- --:--:-- --:--:-- 219k
[root@ip-172-31-32-240 webapps]# ls
ROOT docs examples host-manager manager student.war
[root@ip-172-31-32-240 webapps]# cd ..
[root@ip-172-31-32-240 apache-tomcat-9.0.98]# cd lib
[root@ip-172-31-32-240 lib]# ls
annotations-api.jar  catalina.jar      jsp-api.jar      tomcat-i18n-cs.jar  tomcat-i18n-pt-BR.jar  tomcat-util.jar
catalina-ant.jar    ecj-4.20.jar      servlet-api.jar   tomcat-i18n-de.jar  tomcat-i18n-ru.jar     tomcat-websocket.jar
catalina-ha.jar     el-api.jar        tomcat-api.jar    tomcat-i18n-es.jar  tomcat-i18n-zh-CN.jar  websocket-api.jar
catalina-ssi.jar    jasper-el.jar     tomcat-coyote-ffm.jar  tomcat-i18n-fr.jar  tomcat-jdbc.jar
catalina-storeconfig.jar  jasper.jar        tomcat-coyote.jar    tomcat-i18n-ja.jar  tomcat-jni.jar
catalina-tribes.jar  jaspic-api.jar    tomcat-dbcp.jar     tomcat-i18n-ko.jar  tomcat-util-scan.jar
[root@ip-172-31-32-240 lib]# curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/mysql-connector.jar
% Total    % Received % Xferd  Average Speed   Time    Time     Current
           Dload  Upload   Total   Spent    Left     Speed
100 983k 100 983k  0     0 1352k    0 --:--:-- --:--:-- --:--:-- 1353k
[root@ip-172-31-32-240 lib]# ls
annotations-api.jar  catalina.jar      jsp-api.jar      tomcat-dbcp.jar    tomcat-i18n-ko.jar  tomcat-util-scan.jar
catalina-ant.jar    ecj-4.20.jar      mysql-connector.jar  tomcat-i18n-cs.jar  tomcat-i18n-pt-BR.jar  tomcat-util.jar
catalina-ha.jar     el-api.jar        servlet-api.jar     tomcat-i18n-de.jar  tomcat-i18n-ru.jar     tomcat-websocket.jar
catalina-ssi.jar    jasper-el.jar     tomcat-api.jar      tomcat-i18n-es.jar  tomcat-i18n-zh-CN.jar  websocket-api.jar
catalina-storeconfig.jar  jasper.jar        tomcat-coyote-ffm.jar  tomcat-i18n-fr.jar  tomcat-jdbc.jar
catalina-tribes.jar  jaspic-api.jar    tomcat-coyote.jar    tomcat-i18n-ja.jar  tomcat-jni.jar
[root@ip-172-31-32-240 lib]#
```

Rds database ⑦ Copy endpoint

The screenshot shows the AWS Management Console for an Amazon RDS instance named 'database-1' in the 'ap-southeast-1' region. The left sidebar contains navigation links for Amazon RDS, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, and Zero-ETL integrations.

The main content area displays the 'database-1' instance details. The 'Summary' section shows the DB identifier as 'database-1', Status as 'Available', Role as 'Instance', Engine as 'MariaDB', CPU usage as 2.13%, Class as 'db.m7g.large', Current activity as 3 Connections, and Region & AZ as 'ap-southeast-1b'. Below this, the 'Connectivity & security' tab is selected, showing the Endpoint as 'database-1.cxwo6wm8m0za.ap-southeast-1.rds.amazonaws.com', Port as 3306, Availability Zone as 'ap-southeast-1b', VPC as 'vpc-0697c3f08e8eb28b4', and Subnet group. The 'Security' section shows VPC security groups as 'default (sg-03ce78da4382f2dd6)', Active status, and Publicly accessible as 'No'.


```
52.221.180.35 (ec2-user)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split Multitab Tunneling Packages Settings Help
Quick connect...
User sessions
13.235.49.110 (ec2-user)
13.235.49.110 (ec2-user) (1)
3.83.207.150 (ec2-user)
3.92.52.128 (ec2-user)
3.92.52.128 (ec2-user) (1)
3.92.52.128 (ec2-user) (2)
34.238.115.35 (ec2-user)
52.221.180.35 (ec2-user)
54.87.140.139 (ec2-user)
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| studentapp |
| sys |
+-----+
6 rows in set (0.001 sec)

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]> CREATE TABLE if not exists students(student_id INT NOT NULL AUTO_INCREMENT,
-> student_name VARCHAR(100) NOT NULL,
-> student_addr VARCHAR(100) NOT NULL,
-> student_age VARCHAR(3) NOT NULL,
-> student_qual VARCHAR(20) NOT NULL,
-> student_percent VARCHAR(10) NOT NULL,
-> student_year_passed VARCHAR(10) NOT NULL,
-> PRIMARY KEY (student_id)
-> );
Query OK, 0 rows affected, 1 warning (0.000 sec)

MariaDB [studentapp]>
MariaDB [studentapp]> show tables;
+-----+
| Tables_in_studentapp |
+-----+
| students |
+-----+
1 row in set (0.001 sec)

MariaDB [studentapp]> select * from students;
Empty set (0.001 sec)
```

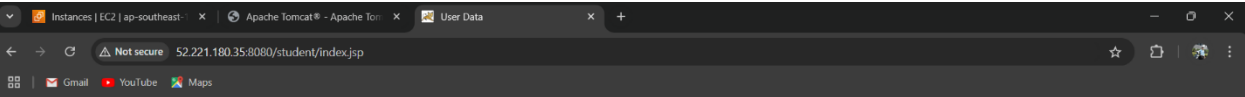
```
52.221.180.35 (ec2-user)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split Multitab Tunneling Packages Settings Help
Quick connect...
User sessions
13.235.49.110 (ec2-user)
13.235.49.110 (ec2-user) (1)
3.83.207.150 (ec2-user)
3.92.52.128 (ec2-user)
3.92.52.128 (ec2-user) (1)
3.92.52.128 (ec2-user) (2)
34.238.115.35 (ec2-user)
52.221.180.35 (ec2-user)
54.87.140.139 (ec2-user)
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| studentapp |
| sys |
+-----+
6 rows in set (0.001 sec)

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]> CREATE TABLE if not exists students(student_id INT NOT NULL AUTO_INCREMENT,
-> student_name VARCHAR(100) NOT NULL,
-> student_addr VARCHAR(100) NOT NULL,
-> student_age VARCHAR(3) NOT NULL,
-> student_qual VARCHAR(20) NOT NULL,
-> student_percent VARCHAR(10) NOT NULL,
-> student_year_passed VARCHAR(10) NOT NULL,
-> PRIMARY KEY (student_id)
-> );
Query OK, 0 rows affected, 1 warning (0.000 sec)

MariaDB [studentapp]>
MariaDB [studentapp]> show tables;
+-----+
| Tables_in_studentapp |
+-----+
| students |
+-----+
1 row in set (0.001 sec)

MariaDB [studentapp]> select * from students;
Empty set (0.001 sec)
```



Student Registration Form

Student Name

Student Address

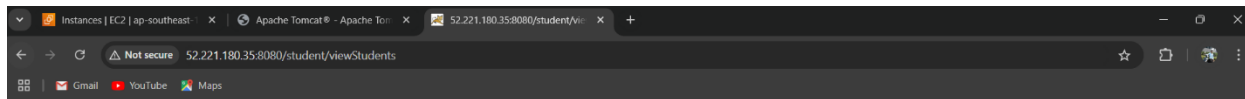
Student Age

Student Qualification

Student Percentage

Year Passed

register



[Register Student](#)

Students List

Student ID	StudentName	Student Addr	Student Age	Student Qualification	Student Percentage	Student Year Passed	Edit	Delete
1	sanket	pune	24	mse	80	2024	edit	delete
2	anil	dattawadi	25	btech	85	2024	edit	delete
3	shubham	pirangut	27	pharmacy	80	2021	edit	delete

