Hello i am Shubham Shinde

Today, we are going to learn how to host a web application using a Tomcat server.

We need to create an RDS database in AWS.

- Database Setup:

- Verify Ports:
- Ensure that port 3306 (used by MariaDB) is open.
- Ensure that port 8080 (used for web applications) is open.
- Select Database Type:
- Choose mariadb-server as your database engine.
- Determine Usage:

- Specify whether the database is for testing or production purposes.
- Note Credentials:
- Write down the database ID and password for future reference.

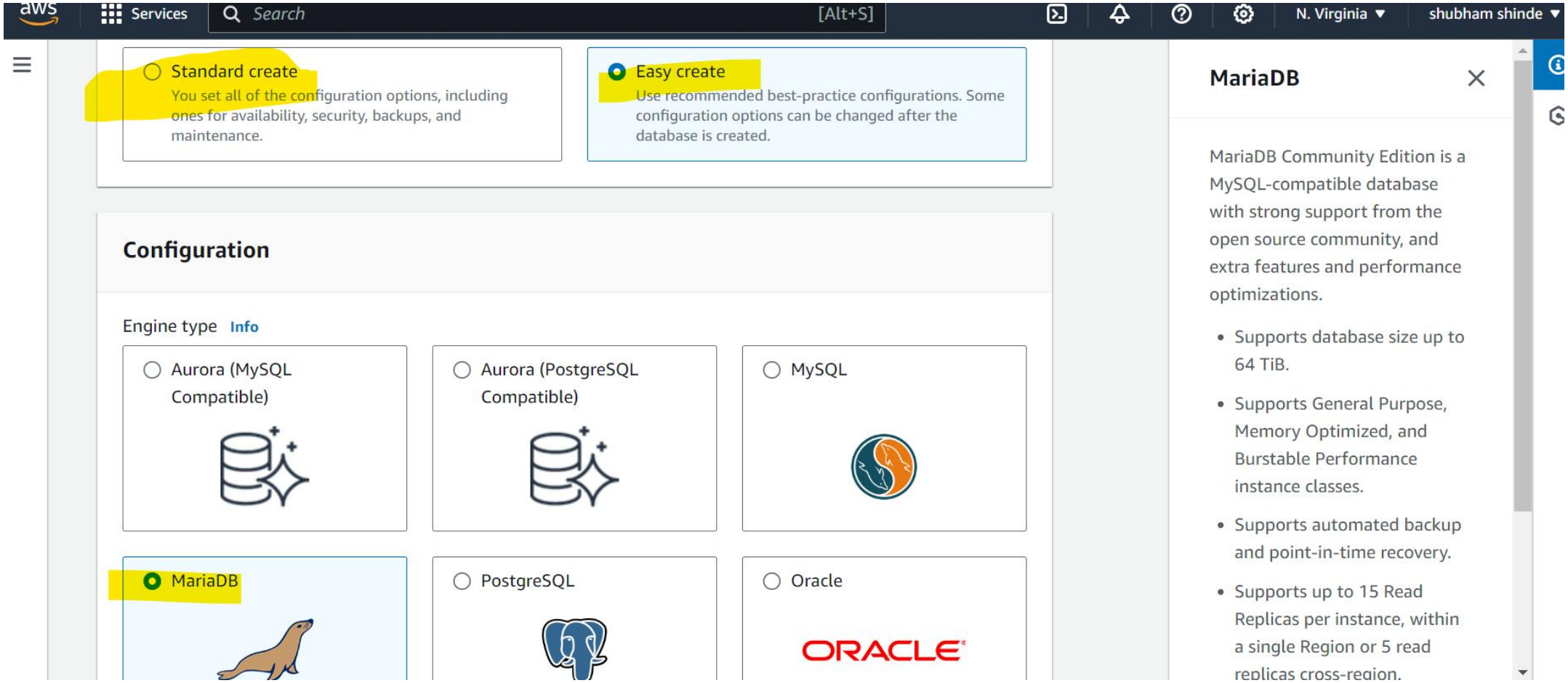
Start an EC2 instance using CentOS 7 as the operating system.

- Ensure that the security group associated with your EC2 instance allows the following port
- 8080` (for web applications)
- 22 (for SSH access)
- 3306 (for MariaDB or MySQL)
- than we have to download the java*
- and after that we have to install the tomcate and cheack its
- http://<EC2_IP>:8080 in your web browser.
- than we have to download
- Place the JAR file in the lib directory of the Tomcat installation.
- Place the WAR file in the webapps directory of the Tomcat installation.
- Edit the `context.xml` file located in the `conf` directory of your Tomcat installation.
- Add the RDS database username and password to the `context.xml` file for database connectivity.

Then, we need to edit the context.xml file located in the conf directory using vim. Add the RDS database username and password to the file

- <Resource name="jdbc/TestDB" 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.cych2fakapj7.useast-2.rds.amazonaws.com:3306/studentapp"/>

we have to create database i done on maria db and i was use that easy mode in that we have to add user name and passwd.

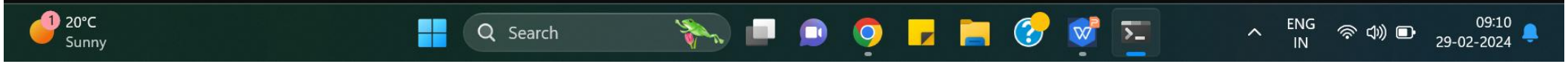


we have to install all java versoin of java java*

```
[ec2-user@ip-172-31-93-71 ~]$ sudo -i
[root@ip-172-31-93-71 ~]# yum update
Last metadata expiration check: 0:00:51 ago on Thu Feb 29 03:31:26 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-93-71 ~]# upgrade
-bash: upgrade: command not found
[root@ip-172-31-93-71 ~]# upgrad
-bash: upgrad: command not found
[root@ip-172-31-93-71 ~]#
[root@ip-172-31-93-71 ~]# sodu -i
-bash: sodu: command not found
[root@ip-172-31-93-71 ~]#
[root@ip-172-31-93-71 ~]# yum install java* -y
Last metadata expiration check: 0:01:46 ago on Thu Feb 29 03:31:26 2024.
Dependencies resolved.
================================================================================================================================
 Package                                    Architecture Version                                  Repository          Size
================================================================================================================================
Installing:
 java-1.8.0-amazon-corretto                 x86_64       1:1.8.0_402.b08-1.amzn2023               amazonlinux         38 M
 java-1.8.0-amazon-corretto-devel           x86_64       1:1.8.0_402.b08-1.amzn2023               amazonlinux         63 M
 java-11-amazon-corretto                    x86_64       1:11.0.22+7-1.amzn2023                   amazonlinux        198 k
 java-11-amazon-corretto-devel              x86_64       1:11.0.22+7-1.amzn2023                   amazonlinux        211 k
 java-11-amazon-corretto-javadoc            x86_64       1:11.0.22+7-1.amzn2023                   amazonlinux         13 M
 java-11-amazon-corretto-jmods              x86_64       1:11.0.22+7-1.amzn2023                   amazonlinux         71 M
 java-17-amazon-corretto                    x86_64       1:17.0.10+8-1.amzn2023.1                 amazonlinux        187 k
 java-17-amazon-corretto-javadoc            x86_64       1:17.0.10+8-1.amzn2023.1                 amazonlinux         12 M
```

we have to download tomcat version 8.5. from that tomcate website and untar this

```
Complete!
[root@ip-172-31-93-71 ~]# curl -O https://dlcdn.apache.org/tomcat/tomcat-8/v8.5.99/bin/apache-tomcat-8.5.99.tar.gz
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 10.3M  100 10.3M    0     0  8655k      0  0:00:01  0:00:01 --:--:-- 8656k
[root@ip-172-31-93-71 ~]# ls
apache-tomcat-8.5.99.tar.gz
[root@ip-172-31-93-71 ~]# mv apache-tomcat-8.5.99.tar.gz /opt
[root@ip-172-31-93-71 ~]# cd /opt
[root@ip-172-31-93-71 opt]# ls
apache-tomcat-8.5.99.tar.gz  aws
[root@ip-172-31-93-71 opt]# tar -vxzf apache-tomcat-8.5.99.tar.gz
apache-tomcat-8.5.99/conf/
apache-tomcat-8.5.99/conf/catalina.policy
apache-tomcat-8.5.99/conf/catalina.properties
apache-tomcat-8.5.99/conf/context.xml
apache-tomcat-8.5.99/conf/jaspic-providers.xml
apache-tomcat-8.5.99/conf/jaspic-providers.xsd
apache-tomcat-8.5.99/conf/logging.properties
apache-tomcat-8.5.99/conf/server.xml
apache-tomcat-8.5.99/conf/tomcat-users.xml
apache-tomcat-8.5.99/conf/tomcat-users.xsd
apache-tomcat-8.5.99/conf/web.xml
apache-tomcat-8.5.99/bin/
apache-tomcat-8.5.99/lib/
```



we have to install full mariadb *

```
[root@ip-172-31-93-71 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   206k      0 --:--:-- --:--:-- --:--:--  206k
[root@ip-172-31-93-71 webapps]# ls
ROOT  docs  examples  host-manager  manager  student.war
[root@ip-172-31-93-71 webapps]# yum install mariadb*
Last metadata expiration check: 0:20:51 ago on Thu Feb 29 03:31:26 2024.
Dependencies resolved.
================================================================================
 Package                 Architecture     Version                 Repository  Size
================================================================================
Installing:
 mariadb-connector-c     x86_64           3.1.13-1.amzn2023.0.3   amazonlinux 196 k
 mariadb-connector-c-config noarch        3.1.13-1.amzn2023.0.3   amazonlinux 9.2 k
 mariadb-connector-c-devel x86_64         3.1.13-1.amzn2023.0.3   amazonlinux  53 k
 mariadb-connector-c-test x86_64          3.1.13-1.amzn2023.0.3   amazonlinux 904 k
```

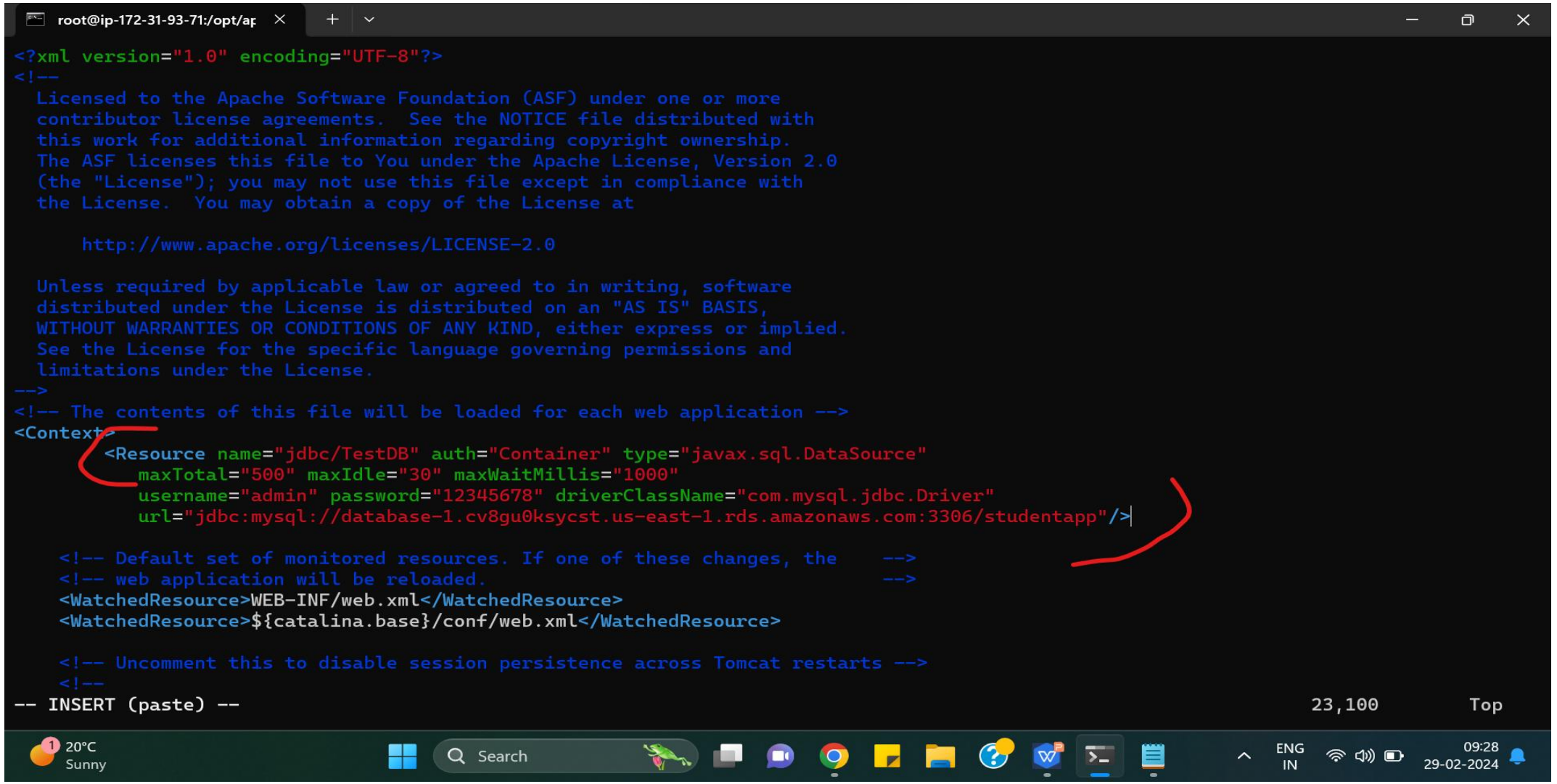
we have to cheack that status and than do active this

```
Bye
[root@ip-172-31-93-71 ~]# sudo systemctl status mariadb
○ mariadb.service - MariaDB 10.5 database server
     Loaded: loaded (/usr/lib/systemd/system/mariadb.service; disabled; preset: disabled)
     Active: inactive (dead)
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
[root@ip-172-31-93-71 ~]# systemctl start mariadb
[root@ip-172-31-93-71 ~]# sudo systemctl status mariadb
● mariadb.service - MariaDB 10.5 database server
     Loaded: loaded (/usr/lib/systemd/system/mariadb.service; disabled; preset: disabled)
     Active: active (running) since Thu 2024-02-29 04:13:39 UTC; 3s ago
       Docs: man:mariadbd(8)
             https://mariadb.com/kb/en/library/systemd/
    Process: 31571 ExecStartPre=/usr/libexec/mariadb-check-socket (code=exited, status=0/SUCCESS)
    Process: 31608 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir mariadb.service (code=exited, status=0/SUCCESS)
    Process: 31793 ExecStartPost=/usr/libexec/mariadb-check-upgrade (code=exited, status=0/SUCCESS)
   Main PID: 31742 (mariadbd)
     Status: "Taking your SQL requests now..."
      Tasks: 20 (limit: 1114)
```

we have to(download jar file in lib) and we have to (download war file in webapps) lib and webapp file present in tomcate dorectory

```
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# cd lib
[root@ip-172-31-93-71 lib]#  curl -O https://s3-us-west-2.amazonaws.com/studentapi-cit/student.war/mysql-connector.jar
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   302    0   302    0     0   1357      0 --:--:-- --:--:-- --:--:--  1360
[root@ip-172-31-93-71 lib]# cd we
-bash: cd: we: No such file or directory
[root@ip-172-31-93-71 lib]# cd ..
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-93-71 apache-tomcat-8.5.99]# cd webapps/
[root@ip-172-31-93-71 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   206k      0 --:--:-- --:--:-- --:--:--  206k
[root@ip-172-31-93-71 webapps]#
```

we have to add that all data in vim /conf/contex.sh



we have add that student data in mariadb for that command is mysql -h dadabase link -u username -p passwd

```
[root@ip-172-31-29-165 ~]# mysql -h data-shub.cv8gu0ksycst.us-east-1.rds.amazonaws.com -u admin -p123456789
ERROR 1045 (28000): Access denied for user 'admin'@'172.31.29.165' (using password: YES)
[root@ip-172-31-29-165 ~]# mysql -h data-shub.cv8gu0ksycst.us-east-1.rds.amazonaws.com -u admin -p12345678
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 169
Server version: 10.11.6-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)]> show database
    -> );
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the ri
ght syntax to use near 'database
)' at line 1
MariaDB [(none)]> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| innodb             |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)

MariaDB [(none)]> create database studentapp;
Query OK, 1 row affected (0.00 sec)
```

Create a Database

- use 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)
-);

than we have to creat a new data base for that commond is create database name of file which you want to create and ; for running any command we have to add ;

```
+--------------------+
5 rows in set (0.00 sec)

MariaDB [(none)]> create database studentapp;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> use studentapp;
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 (0.01 sec)

MariaDB [studentapp]> show tables;
+----------------------+
| Tables_in_studentapp |
+----------------------+
| students             |
+----------------------+
1 row in set (0.00 sec)

MariaDB [studentapp]> exit
Bye
[root@ip-172-31-29-165 ~]# cd /opt/apache-tomcat-8.5.99
[root@ip-172-31-29-165 apache-tomcat-8.5.99]# ls
bin  BUILDING.txt  conf  CONTRIBUTING.md  lib  LICENSE  logs  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  temp  webapps  work
```

we have to search this on google (ip/stundent/)