

Lab 2 – Configuring a Dynamic Web Application on AWS (Due by: 11-10-2023)

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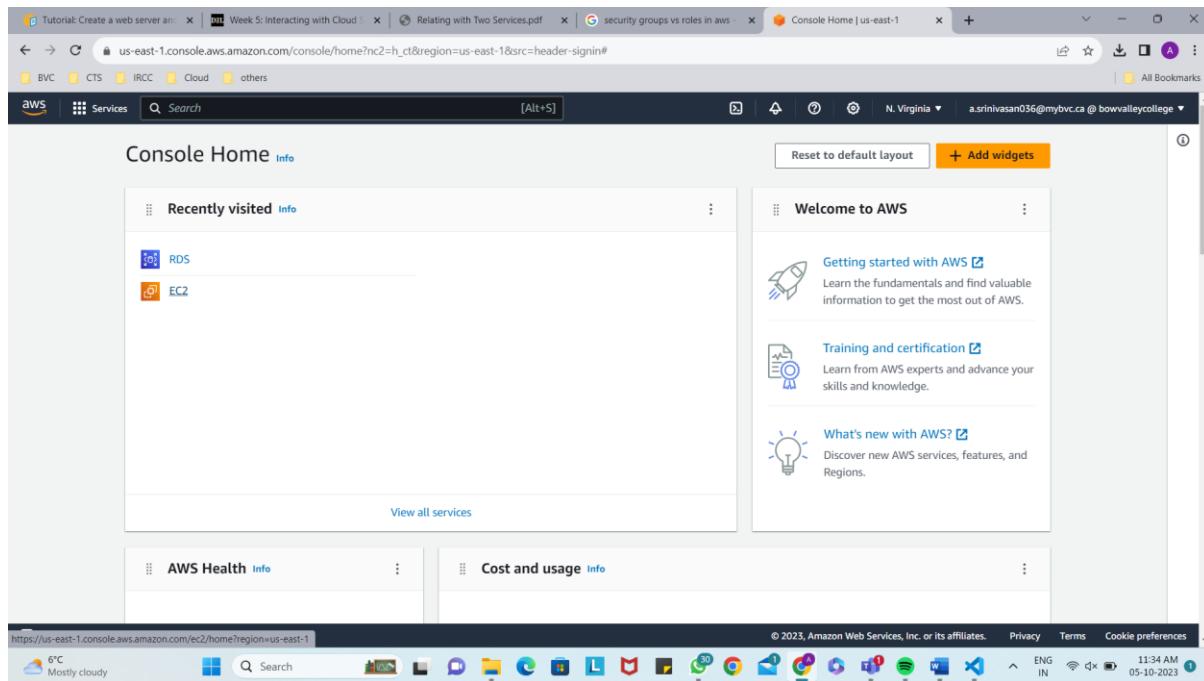
CLCM3404: Implementing Cloud Application

Preparation :

I have created a EC2 instance and RDS and used apache as a server. Configured both the services to achieve dynamic application. Used PHP code as a server-side scripting language. Learned few basic PHP concepts. Also gone through the aws official documentation for configuring a dynamic web application on AWS.

Screenshots:

Open the aws management console and search the EC2 instance



Click on the launch instance to create EC2 instance

The screenshot shows the AWS EC2 Dashboard. On the left sidebar, there are sections for EC2 Dashboard, Instances, Images, and Elastic Block Store. The main area displays 'Resources' for the US East (N. Virginia) Region, showing 0 instances running, 5 elastic IPs, 0 load balancers, 0 snapshots, 0 auto scaling groups, 3 instances, 0 placement groups, 3 key pairs, 48 security groups, and 0 dedicated hosts. Below this is a 'Launch instance' section with a 'Launch instance' button and a note about launching in the US East (N. Virginia) Region. To the right, there's a 'Service health' section with the AWS Health Dashboard, showing the region as US East (N. Virginia). A 'Zones' table lists Zone name and Zone ID. On the right side, there are 'Account attributes' like Default VPC (vpc-551dcc28), Settings (Data protection and security, Zones, EC2 Serial Console, Default credit specification, Console experiments), and an 'Explore AWS' section with a message about Graviton2 instances.

Name your instance as per naming conventions and the OS.

The screenshot shows the 'Launch an instance' wizard. In the 'Name and tags' step, the name 'ubuntuec2akila' is entered. In the 'Application and OS Images (Amazon Machine Image)' step, the Canonical, Ubuntu, 22.04 LTS AMI is selected. The 'Quick Start' section shows various OS options: Amazon Linux, macOS, Ubuntu, Windows, Red Hat, and SUSE Linux Enterprise Server. A 'Browse more AMIs' link is available. The 'Summary' step shows 1 instance, the selected AMI, t2.micro instance type, New security group, and 1 volume(s) - 8 GiB storage. A 'Free tier' message indicates 750 hours of t2.micro usage included. The 'Launch instance' button is prominent at the bottom.

Select the instance type as per requirement. And create a new key pair

Additional costs apply for AMIs with pre-installed software

Key pair name - required

Select Create new key pair

Network settings

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which you launch instances.

Number of instances

Software Image (AMI)

Virtual server type (instance type)

Firewall (security group)

Storage (volumes)

Launch instance

Select the .ppk file format for the windows. And select create key pair which download .ppk file in your local.

Create key pair

Key pair name

ubundukeyAkila

Key pair type

RSA RSA encrypted private and public key pair

ED25519 ED25519 encrypted private and public key pair

Private key file format

.pem For use with OpenSSH

.ppk For use with PuTTY

When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. Learn more

Create key pair

Select the default vpc and enable the public IP.

The screenshot shows the AWS Cloud Console interface for launching an EC2 instance. The instance type selected is t2.micro. The instance is launching into a specific VPC and subnet. A security group is being created for SSH access. A launch wizard step is shown, indicating a free tier offer.

Add the security groups as HTTP and MySQL/Aurora and launch the instances.

The screenshot shows the AWS Cloud Console interface for adding security group rules to the previously launched EC2 instance. Rules are being added for SSH (TCP port 22) and MySQL/Aurora (TCP port 3306). A warning message is displayed, stating that rules with source of 0.0.0.0/0 allow all IP addresses to access your instance, and it is recommended to set security group rules to allow access from known IP addresses only.

The screenshot shows the AWS EC2 Launch Instance wizard at Step 3: Configure storage. The configuration is set for a 1x 8 GiB gp2 root volume (Not encrypted). A tooltip for the Free tier is displayed, stating: "Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which you launch)".

The screenshot shows the AWS EC2 Launch Instance wizard at Step 4: Launch instance. A green success message box displays: "Successfully initiated launch of instance (i-039e2fd819b1decf6)". Below this, a "Launch log" section lists the status of several steps:

Step	Status
Initializing requests	Succeeded
Creating security groups	Succeeded
Creating security group rules	Succeeded
Launch initiation	Succeeded

Now copy the public IPv4 DNS address and open the putty and paste it to the host name in putty.

The screenshot shows the AWS CloudShell interface with the following details:

- Instance ID:** i-039e2fd819bcdecf6 (ubuntuec2akila)
- Public IPv4 address:** 3.90.63.238
- Instance state:** Running
- Private IPv4 address:** 172.31.97.210
- Public IPv4 DNS:** ec2-3-90-63-238.compute-1.amazonaws.com
- Hostname type:** IP name: ip-172-31-97-210.ec2.internal
- Answer private resource DNS name:** -
- Instance type:** t2.micro
- VPC ID:** vpc-551dcc28
- Subnet ID:** subnet-001eeab4c6c8550f9 (RDS-Pvt-subnet-4)

A note on the right indicates that the user is not authorized to perform certain actions due to IAM policy restrictions.

Enter the login as “ubuntu”.

The screenshot shows a terminal session for the instance i-0bc3713e1af858123. The terminal window displays the command "login as:" followed by a redacted password. The AWS CloudShell interface shows the following details:

- EC2 Dashboard**
- EC2 Global View**
- Events**
- Instances**:
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- Images**:
 - AMIs
 - AMI Catalog
- Elastic Block Store**:
 - Volumes
 - CloudWatch Metrics
- CloudShell**
- Feedback**

The terminal window also shows the copied public IPv4 DNS address: ec2-54-196-13-243.compute-1.amazonaws.com.

“Run sudo apt update” command to get the latest update

```
ubuntu@ip-172-31-42-250: ~
[?] login as: ubuntu
Authenticating with public key "ubuntukeyAkila"
Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.19.0-1025-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

System information as of Thu Oct 5 17:58:45 UTC 2023

System load: 0.1796875 Processes: 99
Usage of /: 20.6% of 7.57GB Users logged in: 0
Memory usage: 24% IPv4 address for eth0: 172.31.42.250
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

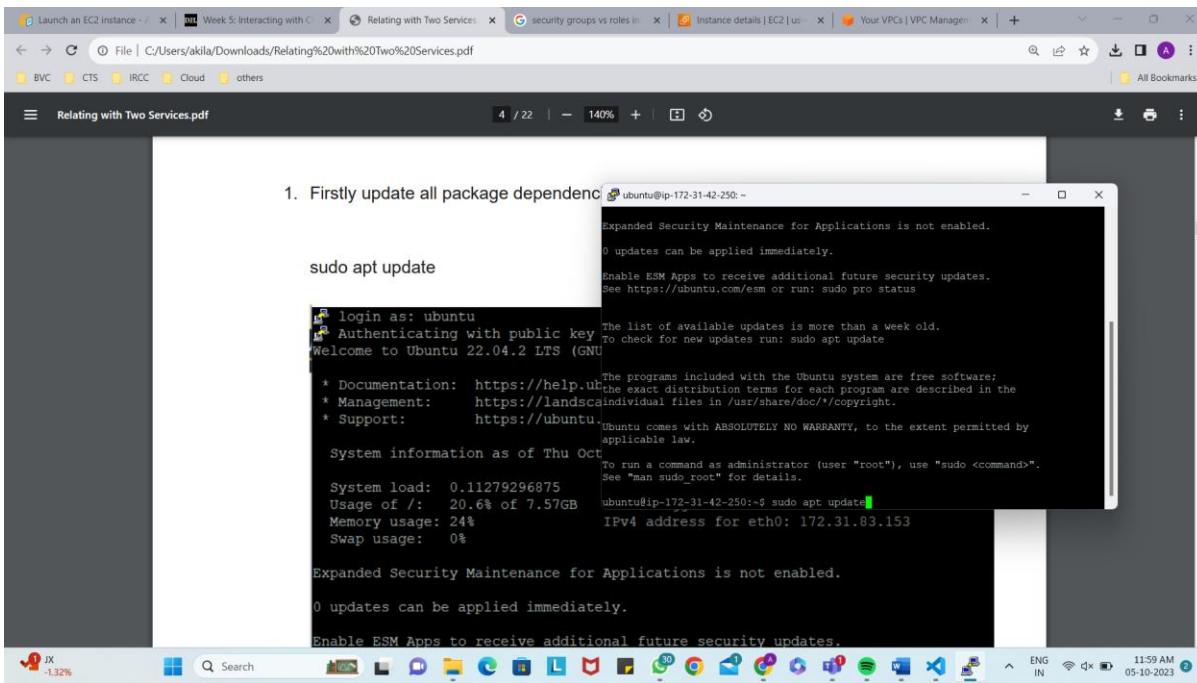
The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-42-250:~$
```



```
ubuntu@ip-172-31-42-250: ~
Preparing to unpack .../l2-ssl-cert_1.1.2_all.deb ...
Unpacking ssl-cert (1.1.2) ...
Setting up libapr1:amd64 (1.7.0-Subuntu0.22.04.1) ...
Setting up bzip2 (1.0.8-5build1) ...
Setting up ssl-cert (1.1.2) ...
Setting up liblzo2-3-0:amd64 (5.3.6-1build1) ...
Setting up apache2-dba (2.4.52-1ubuntu4.6) ...
Setting up libexpat1:amd64 (1.9.0-1build1) ...
Setting up libaprutil1:amd64 (1.6.1-5ubuntu4.2) ...
Setting up mime-support (3.66) ...
Setting up libaprutil1-ldap:amd64 (1.6.1-5ubuntu4.22.04.2) ...
Setting up libaprutil1-dbd-sqlite3:amd64 (1.6.1-5ubuntu4.22.04.2) ...
Setting up apache2-utils (2.4.52-1ubuntu4.6) ...
Setting up apache2-bin (2.4.52-1ubuntu4.6) ...
Setting up apache2 (2.4.52-1ubuntu4.6) ...
Enabling module mpm_event.
Enabling module authn_core.
Enabling module authz_core.
Enabling module authn_core.
Enabling module authz_core.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-hosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36.1-4build1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.

7C
Partly sunny
Search
12:01 PM
05-10-2023
```

Once kernel updated then give the following command “`sudo apt install php8.1-mbstring php8.1-xml php8.1 curl`” and wait for the apache server to start.

```
ubuntu@ip-172-31-42-250: ~
Enabling module authn_host.
Enabling module authn_core.
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-hosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36.1-4build1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
Scanning processes...
Scanning linux images...
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.
ubuntu@ip-172-31-42-250:~$ ^[[200sudo apt install php8.1-mysql php8.1-mbstring php8.1-xml php8.1 curl
sudo: command not found
ubuntu@ip-172-31-42-250:~$ ~sudo apt install php8.1-mysql php8.1-mbstring php8.1-xml php8.1 curl
Command 'sudo' not found, did you mean:
  command 'sudo' from deb sudo (1:9.9-1ubuntu2.4)
  command 'sudo' from deb sudo-1ap (1:9.9-1ubuntu2.4)
Try: sudo apt install <deb name>
ubuntu@ip-172-31-42-250:~$ sudo apt install php8.1-mysql php8.1-mbstring php8.1-xml php8.1 curl
12:02 PM
05-10-2023
```

```
ubuntu@ip-172-31-42-250: ~
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2023-10-05 18:03:25 UTC; 1min 24s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 12107 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
 Main PID: 12111 (apache2)
   Tasks: 11 (limit: 1141)
    Memory: 11.6M
      CPU: 54ms
 CGroup: /system.slice/apache2.service
         └─12111 /usr/sbin/apache2 -k start
             ├─12113 /usr/sbin/apache2 -k start
             ├─12114 /usr/sbin/apache2 -k start
             ├─12115 /usr/sbin/apache2 -k start
             ├─12116 /usr/sbin/apache2 -k start
             └─12117 /usr/sbin/apache2 -k start

Oct 05 18:03:25 ip-172-31-42-250 systemd[1]: Starting The Apache HTTP Server...
Oct 05 18:03:25 ip-172-31-42-250 systemd[1]: Started The Apache HTTP Server.

lines 1-19/19 (END)

7°C Partly sunny Search 12:05 PM 05-10-2023
```

```
ubuntu@ip-172-31-42-250: ~
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2023-10-05 18:03:25 UTC; 1min 24s ago
     Docs: https://httpd.apache.org/docs/2.4/
   Process: 12107 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
 Main PID: 12111 (apache2)
   Tasks: 11 (limit: 1141)
    Memory: 11.6M
      CPU: 54ms
 CGroup: /system.slice/apache2.service
         └─12111 /usr/sbin/apache2 -k start
             ├─12113 /usr/sbin/apache2 -k start
             ├─12114 /usr/sbin/apache2 -k start
             ├─12115 /usr/sbin/apache2 -k start
             ├─12116 /usr/sbin/apache2 -k start
             └─12117 /usr/sbin/apache2 -k start

Oct 05 18:03:25 ip-172-31-42-250 systemd[1]: Starting The Apache HTTP Server...
Oct 05 18:03:25 ip-172-31-42-250 systemd[1]: Started The Apache HTTP Server.

lines 1-19/19 (END)

7°C Partly sunny Search 12:13 PM 05-10-2023
```

Once apache server is started then go to aws management console and create AWS RDS.

The screenshot shows the AWS Console Home page. On the left, there's a sidebar with 'Recently visited' services (EC2, RDS) and links to 'AWS Health', 'Cost and usage', and 'View all services'. On the right, there are three main sections: 'Welcome to AWS' (with links to 'Getting started with AWS', 'Training and certification', and 'What's new with AWS'), 'AWS Health' (status: Partly sunny), and 'Cost and usage' (info). The bottom navigation bar includes CloudShell, Feedback, and various system icons.

The screenshot shows the Amazon RDS home page. A blue banner at the top introduces 'Aurora I/O-Optimized'. Below it, there's a callout for 'Create database' or 'Restore Multi-AZ DB Cluster from Snapshot'. The main area shows 'Resources' (DB Instances: 3/40, Allocated storage: 0.06 TB/100 TB, Increase DB instances limit), 'Parameter groups' (6), 'Option groups' (5), and 'Schemas' (12). On the right, there's a 'Recommended for you' section with links to 'Migrate SSRS to RDS for SQL Server', 'Build RDS Operational Tasks', and 'Time-Series Tables in PostgreSQL'. The bottom navigation bar includes CloudShell, Feedback, and various system icons.

Now name the database and select mysql as engine type this applies for our requirement. We can choose the engine option as requirement.

Launch an EC2 Instance - Amazon | Week 5: Interacting with Cloud | Relating with Two Services.pdf | RDS | us-east-1 | Your VPCs | VPC Management | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance;isHermesCreate=true

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

RDS > Create database

Create database

Choose a database creation method [Info](#)

Standard create You set all of the configuration options, including ones for availability, security, backups, and maintenance.

Easy create Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

Aurora (MySQL Compatible) 

Aurora (PostgreSQL Compatible) 

MySQL 

MariaDB 

PostgreSQL 

Oracle 

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

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Launch an EC2 Instance - Amazon | Week 5: Interacting with Cloud | Relating with Two Services.pdf | RDS | us-east-1 | Your VPCs | VPC Management | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#launch-dbinstance;isHermesCreate=true

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

Hide filters

Show versions that support the Multi-AZ DB cluster [Info](#)
Create a Multi-AZ DB cluster with one primary DB instance and two readable standby DB instances. Multi-AZ DB clusters provide up to 2x faster transaction commit latency and automatic failover in typically under 35 seconds.

Show versions that support the Amazon RDS Optimized Writes [Info](#)
Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.

Engine Version

MySQL 8.0.33

MySQL

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- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

Templates

Choose a sample template to meet your use case.

Production Use defaults for high availability and fast, consistent performance.

Dev/Test This instance is intended for development use outside of a production environment.

Free tier Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS. [Info](#)

Availability and durability

Deployment options [Info](#)
The deployment options below are limited to those supported by the engine you selected above.

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The screenshot shows the AWS RDS MySQL creation wizard. On the left, under the 'Settings' tab, there's a 'DB instance identifier' field containing 'database-akila'. Below it, the 'Master username' field contains 'admin'. A note states: 'If you manage the master user credentials in Secrets Manager, some RDS features aren't supported.' On the right, a sidebar titled 'MySQL' provides a brief overview of the database.

Give the master username and master password

The screenshot shows the 'Master password' step of the RDS MySQL creation wizard. It includes fields for 'Master password' and 'Confirm master password', both set to '*****'. The sidebar on the right continues to provide information about MySQL.

Akilavasan

Then give "yes" to the public access so that it can be accessible

Screenshot of the AWS RDS console showing the creation of a MySQL database instance.

The left sidebar shows services: BVC, CTS, IRCC, Cloud, others. The main search bar has [Alt+S].

DB subnet group (Info): Only VPCs with a corresponding DB subnet group are listed. A note says "After a database is created, you can't change its VPC." The selected subnet group is "default" (6 Subnets, 6 Availability Zones).

Public access (Info): The "Yes" option is selected, indicating RDS assigns a public IP address to the database. A note states: "RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database."

VPC security group (firewall) (Info): The "Choose existing" option is selected, with "Choose existing VPC security groups" highlighted. An alternative "Create new" option is available.

Existing VPC security groups: A dropdown menu shows "Choose one or more options".

MySQL (Info): A summary of MySQL features, including support for up to 64 TiB, General Purpose, Memory Optimized, and Burstable Performance instance classes, automated backup, point-in-time recovery, up to 15 Read Replicas per instance, and cross-region replication.

Bottom navigation includes CloudShell, Feedback, Search, and various icons. The status bar shows: © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences, ENG IN, 12:19 PM, 05-10-2023.

The screenshot shows the AWS RDS MySQL configuration page. Under 'Database options', the 'Initial database name' is set to 'akila'. In the 'Backup' section, the 'Enable automated backups' checkbox is checked. A note states: 'Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#)'.

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

The screenshot shows the AWS RDS MySQL configuration page. Under 'Backup', the 'Backup retention period' is set to 0 days. The 'Backup window' section has 'No preference' selected. A note states: 'Please note that automated backups are currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#)'.

MySQL

MySQL is the most popular open source database in the world. MySQL on RDS offers the rich features of the MySQL community edition with the flexibility to easily scale compute resources or storage capacity for your database.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read replicas cross-region.

The screenshot shows the AWS RDS MySQL configuration page. On the left, under 'Backup replication', there is an option to 'Enable replication in another AWS Region' with a note that it creates backups in the selected Region for disaster recovery. Below this is the 'Encryption' section, which includes an 'Enable encryption' checkbox and a note about choosing log types to publish to CloudWatch Logs. The 'Log exports' section lists 'Audit log', 'Error log', 'General log', and 'Slow query log' checkboxes. The 'IAM role' section notes that a service-linked role is used for publishing logs to CloudWatch Logs. The 'Maintenance' section includes an 'Auto minor version upgrade' checkbox and a note about automatic upgrades occurring during maintenance windows. The right side of the screen displays a 'MySQL' information card with details about MySQL's popularity, features like support for up to 64 TiB databases, and various instance classes.

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This screenshot shows the continuation of the MySQL configuration page. It includes sections for 'Maintenance' (auto minor version upgrade) and 'Deletion protection' (enable protection from accidental deletion). The 'Estimated monthly costs' section provides details about the Amazon RDS Free Tier, mentioning 750 hrs of Amazon RDS in a Single-AZ db.t2.micro, db.t3.micro or db.t4g.micro instance, 20 GB of General Purpose Storage (SSD), and 20 GB for automated backup storage. It also links to the AWS Free Tier documentation. A note at the bottom states that users are responsible for ensuring necessary rights for third-party products or services. The right side of the screen shows the same MySQL information card as the previous screenshot.

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Launch an EC2 Instance - Amazon RDS | Week 5: Interacting with Cloud | Relating with Two Services.pdf | Databases | RDS | us-east-1 | Your VPCs | VPC Management | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#databases:

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

N. Virginia a.srinivasan036@mybvc.ca @ bowvalleycollege

Amazon RDS

Creating database database-akila
Your database might take a few minutes to launch.
You can use settings from database-akila to simplify configuration of suggested database add-ons while we finish creating your DB for you.

Introducing Aurora I/O-Optimized
Aurora's I/O-Optimized is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

RDS > Databases

Consider creating a Blue/Green Deployment to minimize downtime during upgrades
You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Databases (20)

DB identifier	Status	Role	Engine	Region & AZ	Size	Actions	CPU
ash7database	Available	Instance	MySQL Community	us-east-1b	db.t3.micro	3 Actions	2.96%
clcm3404-lab2-rd-452090	Available	Instance	MySQL Community	us-east-1b	db.t3.micro	3 Actions	2.99%

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Launch an EC2 Instance - Amazon RDS | Week 5: Interacting with Cloud | Relating with Two Services.pdf | Databases | RDS | us-east-1 | Your VPCs | VPC Management | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#databases:

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

N. Virginia a.srinivasan036@mybvc.ca @ bowvalleycollege

Amazon RDS

Successfully created database database-akila
You can use settings from database-akila to simplify configuration of suggested database add-ons while we finish creating your DB for you.

Introducing Aurora I/O-Optimized
Aurora's I/O-Optimized is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

RDS > Databases

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You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Databases (20)

DB identifier	Status	Role	Engine	Region & AZ	Size	Actions	CPU
ash7database	Available	Instance	MySQL Community	us-east-1b	db.t3.micro	3 Actions	2.96%
clcm3404-lab2-rd-452090	Available	Instance	MySQL Community	us-east-1b	db.t3.micro	3 Actions	2.99%
clcm3404lab2shulin	Available	Instance	MySQL Community	us-east-1a	db.t3.micro	2 Actions	2.98%

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Once the database created setup the EC2 connection

The screenshot shows the AWS RDS console for a database named 'database-akila'. On the left, a sidebar lists various RDS features like Dashboard, Databases, and Subnet groups. The main panel displays network details: subnets (subnet-93c80082, subnet-31e96a10, subnet-2bd0af25, subnet-5736bb08, subnet-6f5aaef9, subnet-e91246a4), a certificate authority date (August 22, 2024, 11:08 (UTC-06:00)), and a DB instance certificate expiration date (August 22, 2024, 11:08 (UTC-06:00)). Below this, the 'Connected compute resources' section shows no results. At the bottom, there are 'Set up EC2 connection' and 'Set up Lambda connection' buttons.

Now give the EC2 instance name which you have created

The screenshot shows the 'Set up EC2 connection' step of the wizard. It's Step 1: Set up EC2 connection. The 'Select EC2 instance' section shows a single option: 'Database database-akila'. A dropdown menu says 'Choose an EC2 instance' and a button says 'Create EC2 instance'. At the bottom are 'Cancel' and 'Continue' buttons. A green banner at the top says 'Successfully created database database-akila'.

Launch an EC2 Instance - Amazon RDS | Week 5: Interacting with Cloud | Relating with Two Services.pdf | RDS | us-east-1 | Your VPCs | VPC Management | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#setup-ec2-connectionid=database-akila

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

N. Virginia a.srinivasan036@mybvc.ca @ bowvalleycollege

View connection details

Successfully created database database-akila

You can use settings from database-akila to simplify configuration of suggested database add-ons while we finish creating your DB for you.

RDS > Databases > Set up EC2 connection

Step 1
Set up EC2 connection

Step 2
Review and confirm

Set up EC2 connection Info

Select EC2 instance

Database

database-akila

EC2 instance

Choose the EC2 instance to connect to this database. Only EC2 instances in the same VPC as the database are shown. If no EC2 instances in the same VPC are available, you can create a new EC2 instance.

i-0bc3713e1af858123
newubuntuec2Akila us-east-1b



Create EC2 instance

Cancel

Continue

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GBP/CAD +0.34%

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Launch an EC2 Instance - Amazon RDS | Week 5: Interacting with Cloud | Relating with Two Services.pdf | RDS | us-east-1 | Your VPCs | VPC Management | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#setup-ec2-connectionid=database-akila

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

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Security group: rds-ec2-24 (connection rule)

RDS

database-akila Port: 3306

EC2

i-0bc3713e1af858123

Bold indicates an addition being made to set up a connection.

Changes to RDS database: database-akila

Attribute	Current value	New value
Security group	launch-wizard-akila	launch-wizard-akila, rds-ec2-24

Changes to EC2 instance: i-0bc3713e1af858123

Attribute	Current value	New value
Security group	launch-wizard-akila	launch-wizard-akila, ec2-rds-24

Cancel Previous Set up

CloudShell Feedback

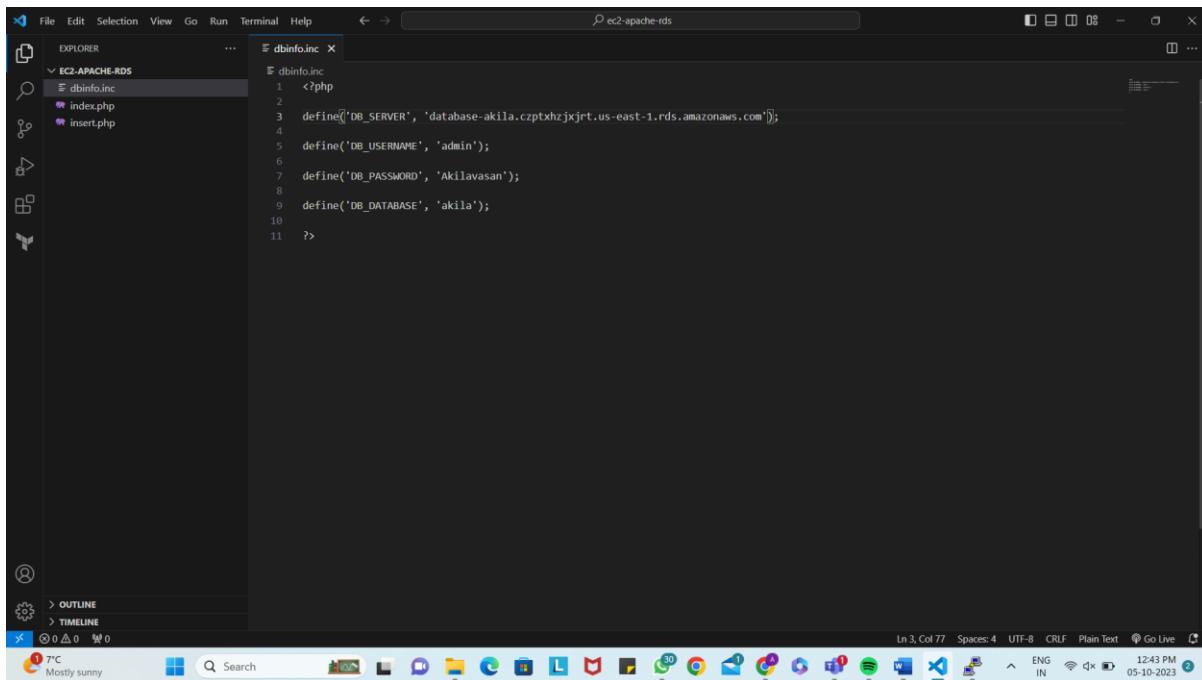
7°C Mostly sunny

Search

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ENG IN 12:38 PM 05-10-2023

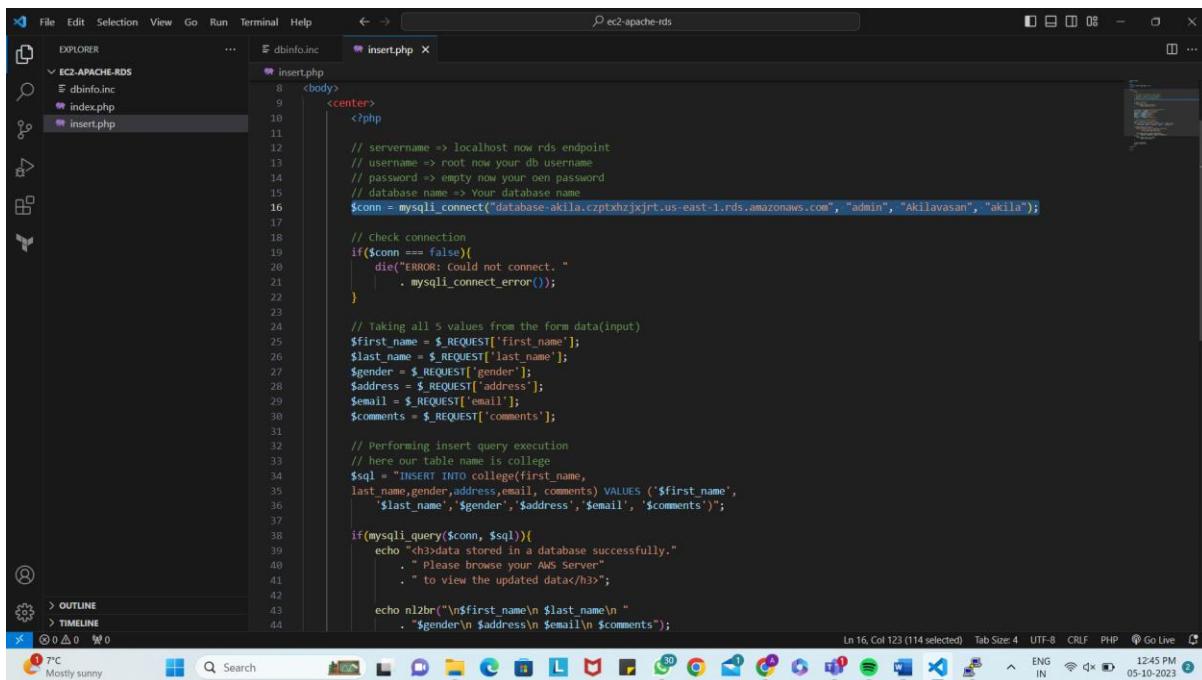
Now open the dbinfo.inc file and fill the db_server name, username, password, and database which you have given while creating the RDS



```
File Edit Selection View Go Run Terminal Help < - > dbinfo.inc ec2-apache-rds
EXPLORER EC2-APACHE-RDS dbinfo.inc index.php insert.php
dbinfo.inc
1 <?php
2
3 define('DB_SERVER', 'database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com');
4
5 define('DB_USERNAME', 'admin');
6
7 define('DB_PASSWORD', 'Akilavasan');
8
9 define('DB_DATABASE', 'akila');
10
11 ?>
```

The screenshot shows the Visual Studio Code interface with the dbinfo.inc file open. The code defines a database connection with the server 'database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com', user 'admin', password 'Akilavasan', and database 'akila'. The interface includes a sidebar with an Explorer view showing files like dbinfo.inc, index.php, and insert.php, and a bottom status bar with various icons and system information.

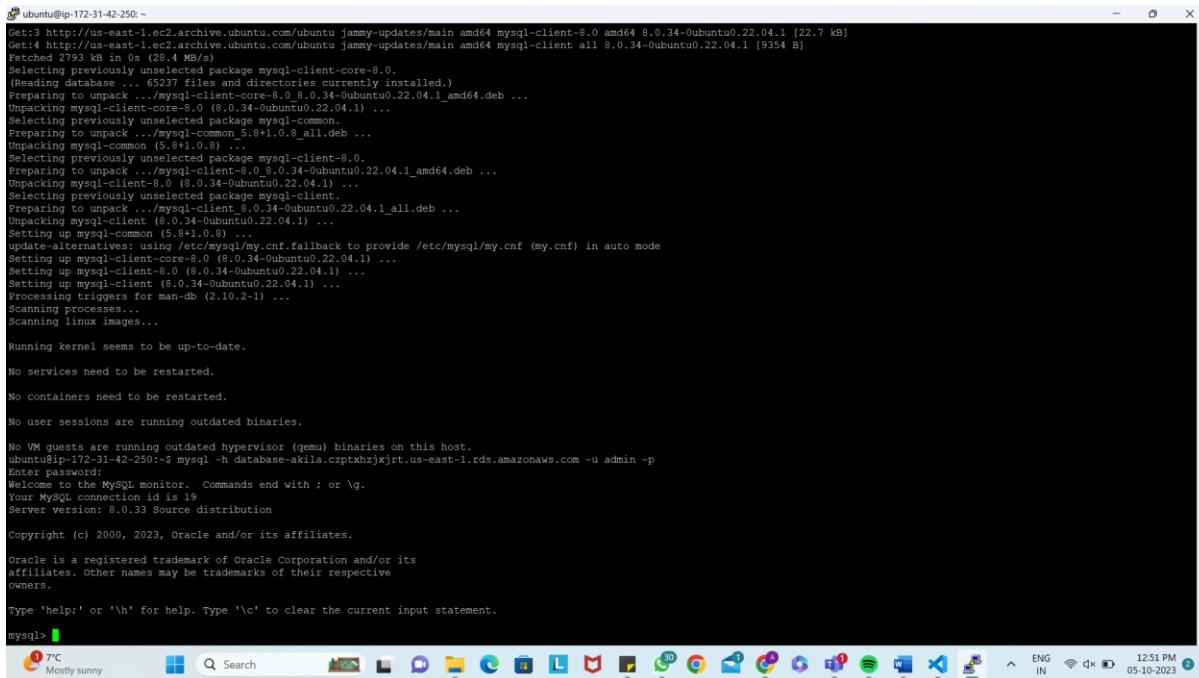
And update the same in the php file also. For connecting the mysql.



```
File Edit Selection View Go Run Terminal Help < - > insert.php ec2-apache-rds
EXPLORER EC2-APACHE-RDS insert.php index.php dbinfo.inc
insert.php
8 <body>
9   <center>
10    </?php
11
12    // servername => localhost now rds endpoint
13    // username => root now your db username
14    // password => empty now your own password
15    // database name => Your database name
16    $conn = mysqli_connect("database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com", "admin", "Akilavasan", "akila");
17
18    // Check connection
19    if($conn === false){
20      die("ERROR: Could not connect. "
21           . mysqli_connect_error());
22    }
23
24    // Taking all 5 values from the form data(input)
25    $first_name = $_REQUEST['first_name'];
26    $last_name = $_REQUEST['last_name'];
27    $gender = $_REQUEST['gender'];
28    $address = $_REQUEST['address'];
29    $email = $_REQUEST['email'];
30    $comments = $_REQUEST['comments'];
31
32    // Performing insert query execution
33    // here our table name is college
34    $sql = "INSERT INTO college(first_name,
35                                last_name, gender, address, email, comments) VALUES ('$first_name',
36                                '$last_name', '$gender', '$address', '$email', '$comments')";
37
38    if(mysqli_query($conn, $sql)){
39      echo "<h3>Data stored in the database successfully."
40           . " Please browse your AWS Server"
41           . " to view the updated data!</h3>";
42
43      echo nl2br("\n$first_name\n$last_name\n"
44           . "$gender\n$address\n$email\n$comments");
    
```

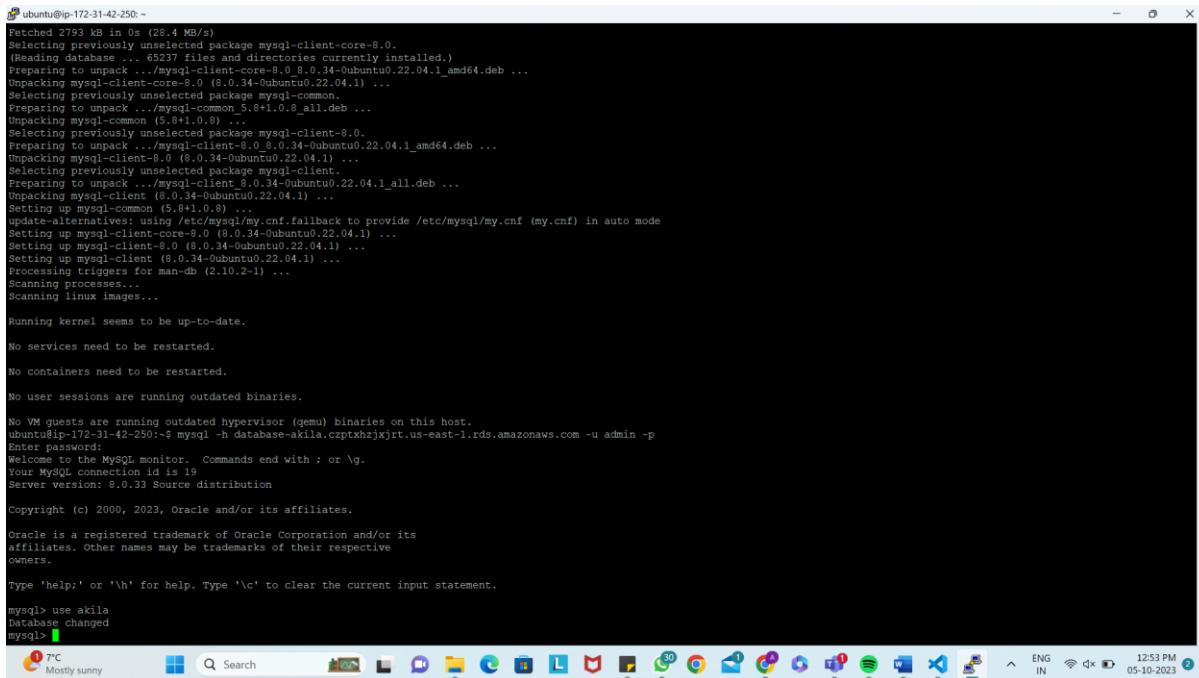
The screenshot shows the Visual Studio Code interface with the insert.php file open. The code connects to the MySQL database using the credentials defined in dbinfo.inc. It then performs an INSERT query into a table named 'college' with columns first_name, last_name, gender, address, email, and comments. The interface includes a sidebar with an Explorer view showing files like dbinfo.inc, index.php, and insert.php, and a bottom status bar with various icons and system information.

Now change the directory to mysql by clicking ctrl and D.



```
ubuntu@ip-172-31-42-250:~  
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-8.0 amd64 8.0.34-0ubuntu0.22.04.1 [22.7 kB]  
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client all 8.0.34-0ubuntu0.22.04.1 [9354 B]  
Fetched 2793 kB in 0s (28.4 MB/s)  
Selecting previously unselected package mysql-client-core-8.0.  
(Reading database ... 65237 files and directories currently installed.)  
Preparing to unpack .../mysql-client-core-8.0_8.0.34-0ubuntu0.22.04.1_amd64.deb ...  
Unpacking mysql-client-core-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Selecting previously unselected package mysql-common.  
Preparing to unpack .../mysql-common_5.8+1.0.8_all.deb ...  
Unpacking mysql-common (5.8+1.0.8) ...  
Selecting previously unselected package mysql-client-8.0.  
Preparing to unpack .../mysql-client-8.0_8.0.34-0ubuntu0.22.04.1_amd64.deb ...  
Unpacking mysql-client-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Selecting previously unselected package mysql-client.  
Preparing to unpack .../mysql-client_8.0.34-0ubuntu0.22.04.1_all.deb ...  
Unpacking mysql-client (8.0.34-0ubuntu0.22.04.1) ...  
Setting up mysql-common (5.8+1.0.8) ...  
update-alternatives: using /etc/mysql/my.cnf.fallback to provide /etc/mysql/my.cnf (my.cnf) in auto mode  
Setting up mysql-client-core-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Setting up mysql-client-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Setting up mysql-client (8.0.34-0ubuntu0.22.04.1) ...  
Processing triggers for man-db (2.10.2-1) ...  
Scanning processes...  
Scanning linux images...  
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.  
ubuntu@ip-172-31-42-250:~$ mysql -h database-akila.czptkh2jxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 19  
Server version: 8.0.33 Source distribution  
Copyright (c) 2000, 2023, Oracle and/or its affiliates.  
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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> [cursor]
```

And give the command “use akila” where akila is a database name.



```
ubuntu@ip-172-31-42-250:~  
Fetched 2793 kB in 0s (28.4 MB/s)  
Selecting previously unselected package mysql-client-core-8.0.  
(Reading database ... 65237 files and directories currently installed.)  
Preparing to unpack .../mysql-client-core-8.0_8.0.34-0ubuntu0.22.04.1_amd64.deb ...  
Unpacking mysql-client-core-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Selecting previously unselected package mysql-common.  
Preparing to unpack .../mysql-common_5.8+1.0.8_all.deb ...  
Unpacking mysql-common (5.8+1.0.8) ...  
Selecting previously unselected package mysql-client-8.0.  
Preparing to unpack .../mysql-client-8.0_8.0.34-0ubuntu0.22.04.1_amd64.deb ...  
Unpacking mysql-client-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Selecting previously unselected package mysql-client.  
Preparing to unpack .../mysql-client_8.0.34-0ubuntu0.22.04.1_all.deb ...  
Unpacking mysql-client (8.0.34-0ubuntu0.22.04.1) ...  
Setting up mysql-client-core-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Setting up mysql-client-8.0 (8.0.34-0ubuntu0.22.04.1) ...  
Setting up mysql-client (8.0.34-0ubuntu0.22.04.1) ...  
Processing triggers for man-db (2.10.2-1) ...  
Scanning processes...  
Scanning linux images...  
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.  
ubuntu@ip-172-31-42-250:~$ mysql -h database-akila.czptkh2jxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 19  
Server version: 8.0.33 Source distribution  
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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> use akila  
Database changed  
mysql> [cursor]
```

Now create the table inside the database by using the command “create table tableName(column name1 type, column name2 type.....)”

```
ubuntu@ip-172-31-42-250:~  
Scanning processes..  
Scanning linux images..  
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.  
ubuntu@ip-172-31-42-250:~$ mysql -h database-akila.czptkhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 19  
Server version: 8.0.33 Source distribution  
Copyright (c) 2000, 2023, Oracle and/or its affiliates.  
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owners.  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
mysql> use akila  
Database changed  
mysql> CREATE TABLE `personalDetails`(  
    >     id INT primary key auto_increment,  
    >     first_name varchar(255),  
    >     last_name varchar(255),  
    >     email varchar(255),  
    >     gender varchar(255),  
    >     address varchar(255),  
    >     comments varchar(255)  
    > );  
mysql> CREATE TABLE `personalDetails`(  
    >     id INT primary key auto_increment,  
    >     first_name varchar(255),  
    >     last_name varchar(255),  
    >     email varchar(255),  
    >     gender varchar(255),  
    >     address varchar(255),  
    >     comments varchar(255)  
    > );  
Query OK, 0 rows affected (0.05 sec)  
mysql>
```

```
ubuntu@ip-172-31-42-250:~  
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.  
ubuntu@ip-172-31-42-250:~$ mysql -h database-akila.czptkhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 19  
Server version: 8.0.33 Source distribution  
Copyright (c) 2000, 2023, Oracle and/or its affiliates.  
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owners.  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
mysql> use akila  
Database changed  
mysql> CREATE TABLE `personalDetails`(  
    >     id INT primary key auto increment,  
    >     first_name varchar(255),  
    >     last_name varchar(255),  
    >     email varchar(255),  
    >     gender varchar(255),  
    >     address varchar(255),  
    >     comments varchar(255)  
    > );  
mysql> CREATE TABLE `personalDetails`(  
    >     id INT primary key auto increment,  
    >     first_name varchar(255),  
    >     last_name varchar(255),  
    >     email varchar(255),  
    >     gender varchar(255),  
    >     address varchar(255),  
    >     comments varchar(255)  
    > );  
Query OK, 0 rows affected (0.05 sec)  
mysql> select * from personalDetails;  
Empty set (0.00 sec)  
mysql>
```

Now change the directory “/var/www”. And create a new file dbinfo.inc and paste the code which we have already

```
ubuntu@ip-172-31-42-250:~$ cd /var/www
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.
ubuntu@ip-172-31-42-250:~$ mysql -h database-akila.czptkh2jxjxt.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 19
Server version: 8.0.33 Source distribution

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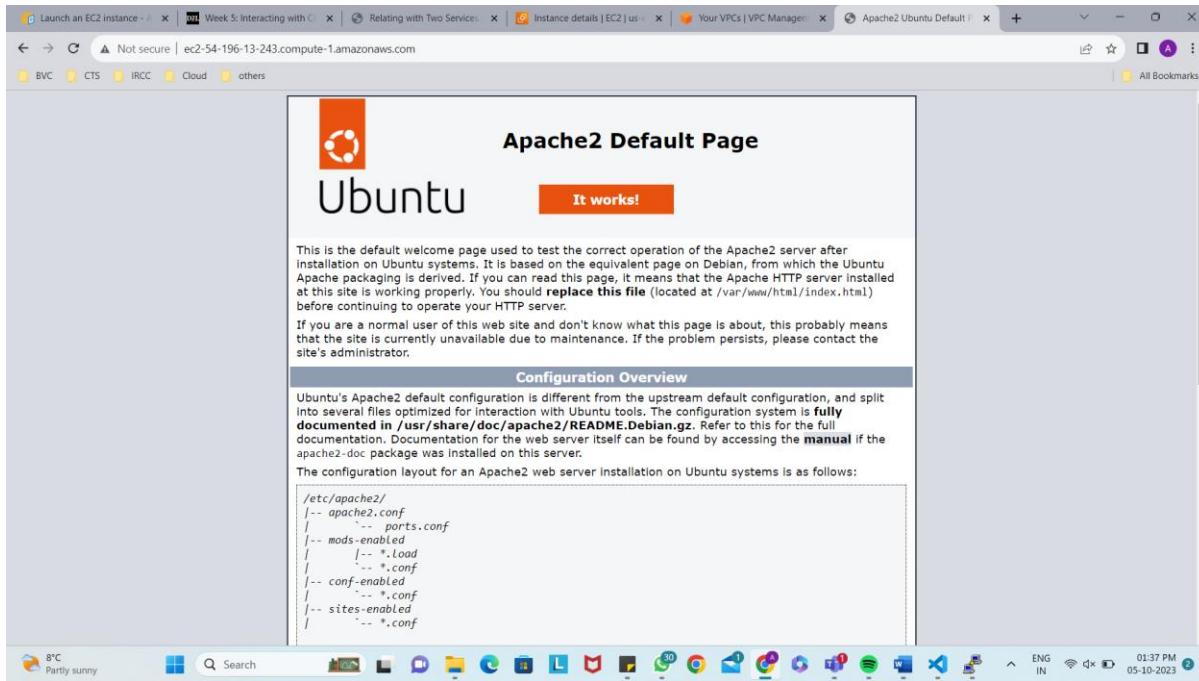
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use akila
Database changed
mysql> CREATE TABLE `personalDetails`(
    >> id INT primary key auto_increment,
    >> first_name varchar(255),
    >> last_name varchar(255),
    >> email varchar(255),
    >> gender varchar(255),
    >> address varchar(255),
    >> comments varchar(255)
    >> );
Query OK, 0 rows affected (0.05 sec)

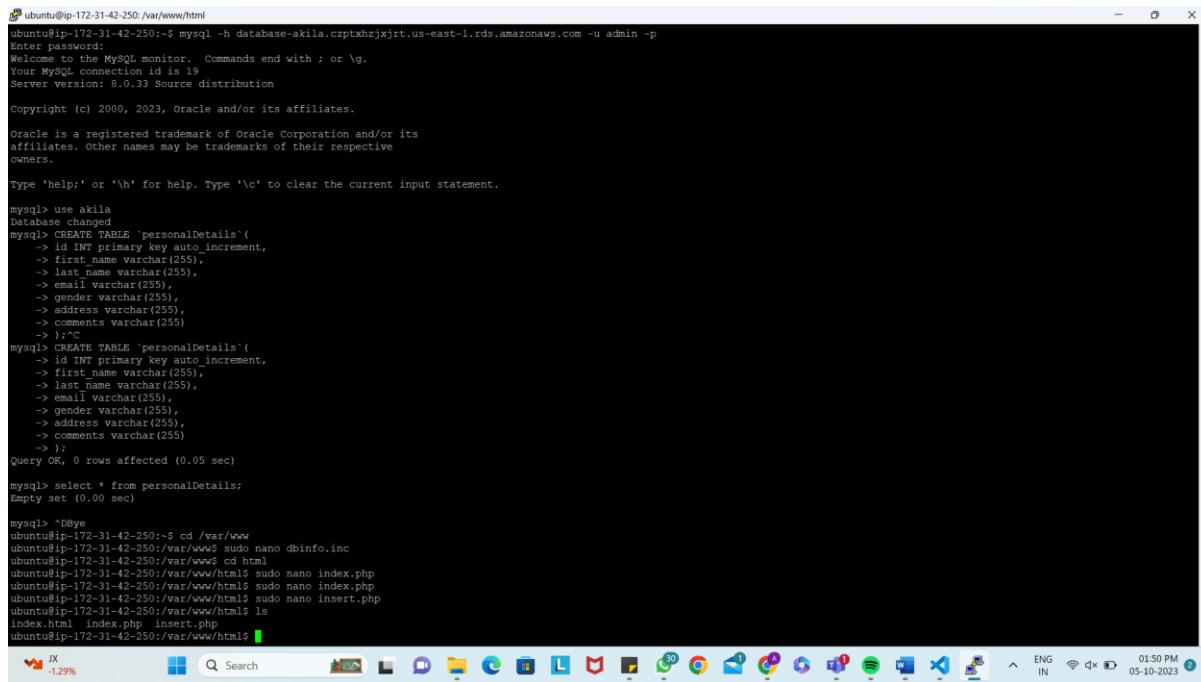
mysql> select * from personalDetails;
Empty set (0.00 sec)

mysql> ^D
ubuntu@ip-172-31-42-250:~$ cd /var/www
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc
ubuntu@ip-172-31-42-250:/var/www$
```

ec2-54-196-13-243.compute-1.amazonaws.com



Now do the same for the insert.php and index.php file. Create the file on the path and paste the code and save it



```
ubuntu@ip-172-31-42-250:~$ mysql -h database-akila.czptikhzxjrt.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \q.
Your MySQL connection id is 19
Server version: 8.0.33 Source distribution

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owners.

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

mysql> use akila
Database changed
mysql> CREATE TABLE `personalDetails`(
    >     id int primary key auto_increment,
    >     first_name varchar(255),
    >     last_name varchar(255),
    >     email varchar(255),
    >     gender varchar(255),
    >     address varchar(255),
    >     comments varchar(255)
    > );
Query OK, 0 rows affected (0.05 sec)

mysql> CREATE TABLE `personalDetails`(
    >     id int primary key auto_increment,
    >     first_name varchar(255),
    >     last_name varchar(255),
    >     email varchar(255),
    >     gender varchar(255),
    >     address varchar(255),
    >     comments varchar(255)
    > );
Query OK, 0 rows affected (0.05 sec)

mysql> select * from personalDetails;
Empty set (0.00 sec)

mysql> `DBye
ubuntu@ip-172-31-42-250:~$ cd /var/www
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc
ubuntu@ip-172-31-42-250:/var/www$ cd html
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano insert.php
ubuntu@ip-172-31-42-250:/var/www/html$ ls
index.html index.php insert.php
ubuntu@ip-172-31-42-250:/var/www/html$ 
```

Once you have save you can see the output in the browser.



Now change the url to index.php and fill the form



Storing Form data in Database

First Name:

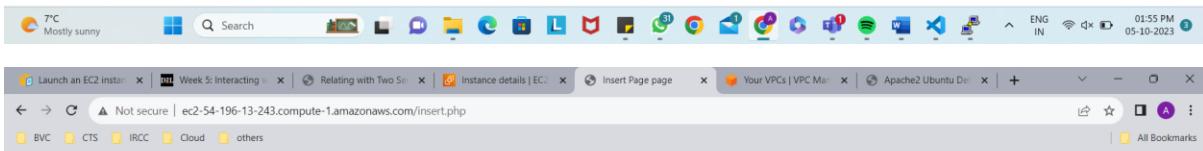
Last Name:

Gender:

Address:

Comments:

Email Address:



akila
vasan
f
fgb
dmcb@gmail.com
ahgev ajslbx



```
ubuntu@ip-172-31-42-250:/  
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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> use akila  
Database changed  
mysql> CREATE TABLE `personalDetails`(  
    >> id INT primary key auto increment,  
    >> first_name varchar(255),  
    >> last_name varchar(255),  
    >> email varchar(255),  
    >> gender varchar(255),  
    >> address varchar(255),  
    >> comments varchar(255)  
    >> );  
mysql> CREATE TABLE `personalDetails`(  
    >> id INT primary key auto increment,  
    >> first_name varchar(255),  
    >> last_name varchar(255),  
    >> email varchar(255),  
    >> gender varchar(255),  
    >> address varchar(255),  
    >> comments varchar(255)  
    >> );  
Query OK, 0 rows affected (0.05 sec)  
mysql> select * from personalDetails;  
Empty set (0.00 sec)  
mysql> ^DBye  
ubuntu@ip-172-31-42-250:~$ cd /var/www  
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc  
ubuntu@ip-172-31-42-250:~$  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ ls  
index.htm index.php insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ cd ..  
ubuntu@ip-172-31-42-250:/var$ cd ..  
ubuntu@ip-172-31-42-250:/  
ubuntu@ip-172-31-42-250:/# mysql -h database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p  
7C  
Mostly sunny 02:07 PM 05-10-2023
```

And paste the url which you copied in the RDS in the ubundu directory

```
ubuntu@ip-172-31-42-250:/  
-> email varchar(255),  
-> gender varchar(255),  
-> address varchar(255),  
-> comments varchar(255)  
-> );^C  
mysql> CREATE TABLE `personalDetails`(  
    >> id INT primary key auto increment,  
    >> first_name varchar(255),  
    >> last_name varchar(255),  
    >> email varchar(255),  
    >> gender varchar(255),  
    >> address varchar(255),  
    >> comments varchar(255)  
    >> );  
Query OK, 0 rows affected (0.05 sec)  
mysql> select * from personalDetails;  
Empty set (0.00 sec)  
mysql> ^DBye  
ubuntu@ip-172-31-42-250:~$ cd /var/www  
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ ls  
index.htm index.php insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ cd ..  
ubuntu@ip-172-31-42-250:/var/www$ cd ..  
ubuntu@ip-172-31-42-250:/var$ cd ..  
ubuntu@ip-172-31-42-250:/  
ubuntu@ip-172-31-42-250:/# mysql -h database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 37  
Server version: 8.0.33 Source distribution  
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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>   
7C  
Mostly sunny 02:07 PM 05-10-2023
```

```
ubuntu@ip-172-31-42-250:/  
mysql> CREATE TABLE `personalDetails`  
-> id INT primary key auto increment,  
-> first_name varchar(255),  
-> last_name varchar(255),  
-> email varchar(255),  
-> gender varchar(255),  
-> address varchar(255),  
-> comments varchar(255)  
-> ;  
Query OK, 0 rows affected (0.05 sec)  
  
mysql> select * from personalDetails;  
Empty set (0.00 sec)  
  
mysql> ^DBye  
ubuntu@ip-172-31-42-250:~$ cd /var/www  
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc  
ubuntu@ip-172-31-42-250:/var/www/html$ ls  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ ls  
index.htm index.php insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ cd ..  
cd... command not found  
ubuntu@ip-172-31-42-250:/var/www$ cd ..  
ubuntu@ip-172-31-42-250:/var/www$ cd ..  
ubuntu@ip-172-31-42-250:/  
ubuntu@ip-172-31-42-250:/s mysql -h database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 37  
Server version: 8.0.33 Source distribution  
  
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owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
mysql> use akila  
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  
mysql> ^C  
7°C Mostly sunny 02:08 PM 05-10-2023
```

After added the data in the form ; we can see the table data in the cmd by giving the command “select * from tableName”

```
ubuntu@ip-172-31-42-250:/  
Query OK, 0 rows affected (0.05 sec)  
  
mysql> select * from personalDetails;  
Empty set (0.00 sec)  
  
mysql> ^DBye  
ubuntu@ip-172-31-42-250:~$ cd /var/www  
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc  
ubuntu@ip-172-31-42-250:/var/www/html$ ls  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php  
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ ls  
index.htm index.php insert.php  
ubuntu@ip-172-31-42-250:/var/www/html$ cd ..  
cd... command not found  
ubuntu@ip-172-31-42-250:/var/www$ cd ..  
ubuntu@ip-172-31-42-250:/var/www$ cd ..  
ubuntu@ip-172-31-42-250:/  
ubuntu@ip-172-31-42-250:/s mysql -h database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 37  
Server version: 8.0.33 Source distribution  
  
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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> use akila  
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  
mysql> select * from personalDetails;  
+----+-----+-----+-----+-----+  
| id | first_name | last_name | email | gender | address | comments |  
+----+-----+-----+-----+-----+  
| 1 | akila | vasan | dmcb@gmail.com | f | fgb | ahgcv ajsbhx |  
+----+-----+-----+-----+-----+  
2 rows in set (0.00 sec)  
  
mysql> ^C  
7°C Mostly sunny 02:09 PM 05-10-2023
```

```

ubuntu@ip-172-31-42-250: /var/www/html
ubuntu@ip-172-31-42-250:~$ cd /var/www
ubuntu@ip-172-31-42-250:/var/www$ sudo nano dbinfo.inc
ubuntu@ip-172-31-42-250:/var/www$ cd html
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano insert.php
ubuntu@ip-172-31-42-250:/var/www/html$ ls
index.html insert.php
ubuntu@ip-172-31-42-250:/var/www/html$ cd ..
ubuntu@ip-172-31-42-250:/var/www$ cd ..
ubuntu@ip-172-31-42-250:/var$ cd ..
ubuntu@ip-172-31-42-250:/var$ mysql -h database-akila.czptxhzjxrt.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 37
Server version: 8.0.33 Source distribution

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owners.

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

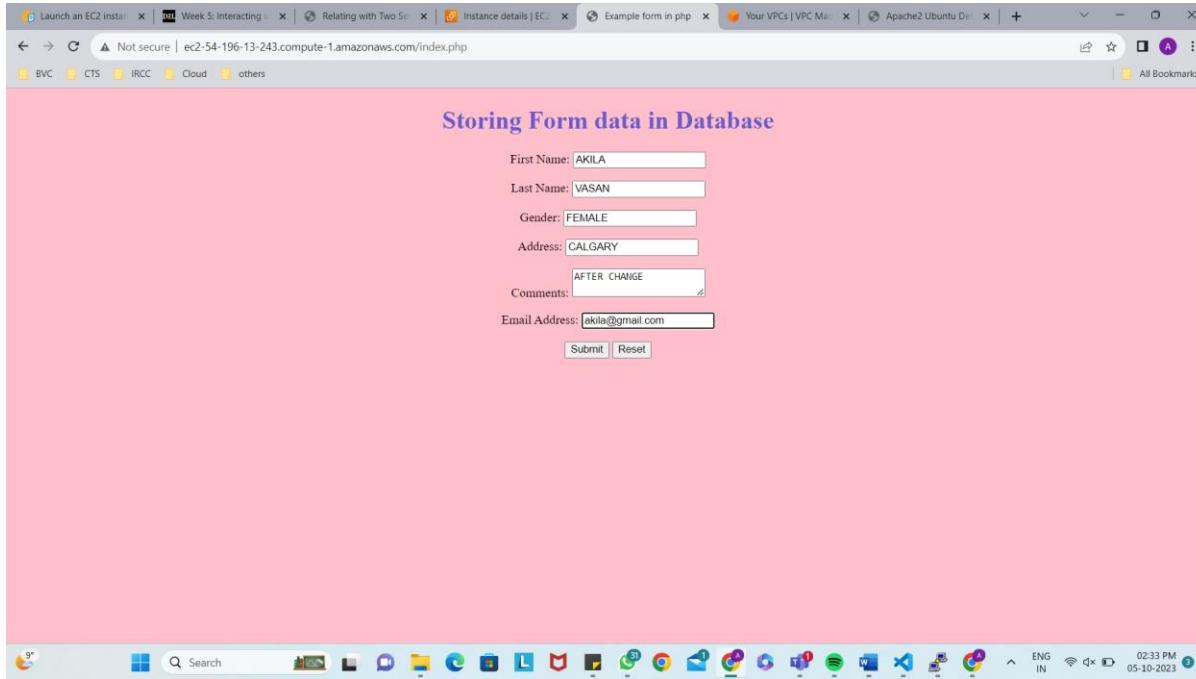
mysql> use akila
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from personalDetails;
+----+-----+-----+-----+-----+-----+
| id | first_name | last_name | email | gender | address | comments |
+----+-----+-----+-----+-----+-----+
| 1  | akila     | vasan    | dmcb@gmail.com | f   | fgb    | ahpcv ajsbxh |
| 2  | akila     | vasan    | dmcb@gmail.com | m   | fgb    | ahpcv ajsbxh |
+----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> ^D
Bye
ubuntu@ip-172-31-42-250:~$ cd /var/www
ubuntu@ip-172-31-42-250:/var/www$ ls
dbinfo.inc.html
ubuntu@ip-172-31-42-250:/var/www/html$ sudo nano index.php
ubuntu@ip-172-31-42-250:/var/www/html$ 

```

Now do few changes like adding background color and reset button in the index.php and save it and run again and see the changes.





```

ubuntu@ip-172-31-42-250:/
Database changed
mysql> select * from personalDetails;
+----+-----+-----+-----+-----+
| id | first_name | last_name | email | gender | address | comments |
+----+-----+-----+-----+-----+
| 1 | akila      | vasan     | dmcb@gmail.com | f       | fgb      | ahgcv ajsbhx |
| 2 | akila      | vasan     | dmcb@gmail.com | f       | fgb      | ahgcv ajsbhx |
+----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> ^D
ubuntu@ip-172-31-42-250:~$ cd /var/www
ubuntu@ip-172-31-42-250:~/var/www$ ls
dbinfo.inc  html
ubuntu@ip-172-31-42-250:~/var/www$ cd html
ubuntu@ip-172-31-42-250:~/var/www/html$ sudo nano index.php
ubuntu@ip-172-31-42-250:~/var/www/html$ cd ..
ubuntu@ip-172-31-42-250:~/var/www$ cd ..
ubuntu@ip-172-31-42-250:~/var/www$ cd ..
ubuntu@ip-172-31-42-250:~/var/www$ mysql -h database-akila.czptxhzjxjrt.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 45
Server version: 8.0.33 Source distribution

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owners.

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

mysql> use akila
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
mysql> select * from personalDetails;
+----+-----+-----+-----+-----+
| id | first_name | last_name | email | gender | address | comments |
+----+-----+-----+-----+-----+
| 1 | akila      | vasan     | dmcb@gmail.com | f       | fgb      | ahgcv ajsbhx |
| 2 | akila      | vasan     | dmcb@gmail.com | f       | fgb      | ahgcv ajsbhx |
| 3 | AKILA      | VASAN     | akila@gmail.com | FEMALE | CALGARY | AFTER CHANGE |
+----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
mysql> 
```

7. Describe how AWS resources (EC2 and RDS) can be scaled to handle increased traffic and data. Mention any AWS services or features that can help with scalability.

- To scale AWS resources like EC2 instances and RDS databases for increased traffic and data, AWS offers various tools and services. For EC2 instances, Auto Scaling Groups and Elastic Load Balancers enable automatic scaling and distribution of traffic. Choosing the right instance types and utilizing features like Spot Instances and container services like Elastic Beanstalk and ECS further enhance scalability. For RDS, Read Replicas, Multi-AZ deployments, vertical scaling, and services like Amazon Aurora facilitate efficient handling of growing workloads. AWS also provides services like Lambda, API Gateway, and Amazon CloudFront for application and content scaling. Monitoring with CloudWatch and following AWS best practices ensures your resources are always ready to handle fluctuations in demand.

8. Explain your strategy for regular backups of the database on RDS. Describe how you would handle data recovery in case of accidental data loss.

- Maintaining regular backups for an Amazon RDS database involves enabling daily automated backups, extending retention periods, and creating manual snapshots after major updates. Multi-AZ setups can

enhance availability. In case of unintended data loss, you can rely on automated backups, manual snapshots, point-in-time recovery, or the promotion of a standby instance in Multi-AZ configurations. Custom backup scripts and vigilant monitoring offer added flexibility for data recovery and early issue identification.

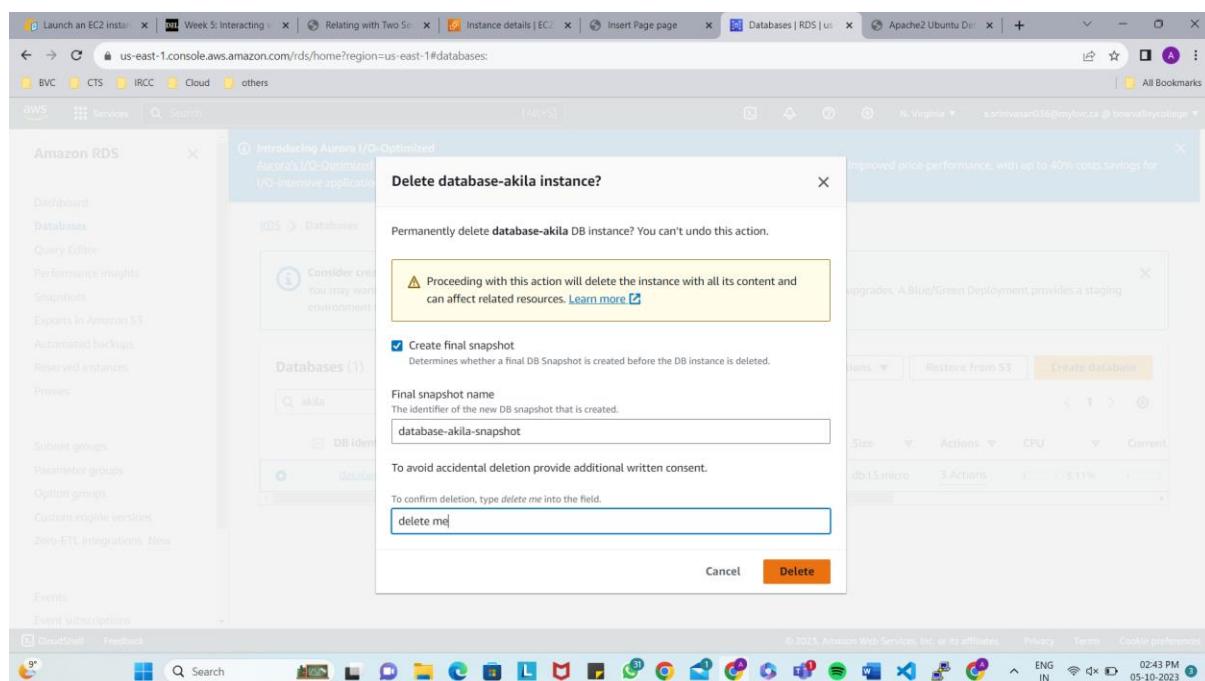
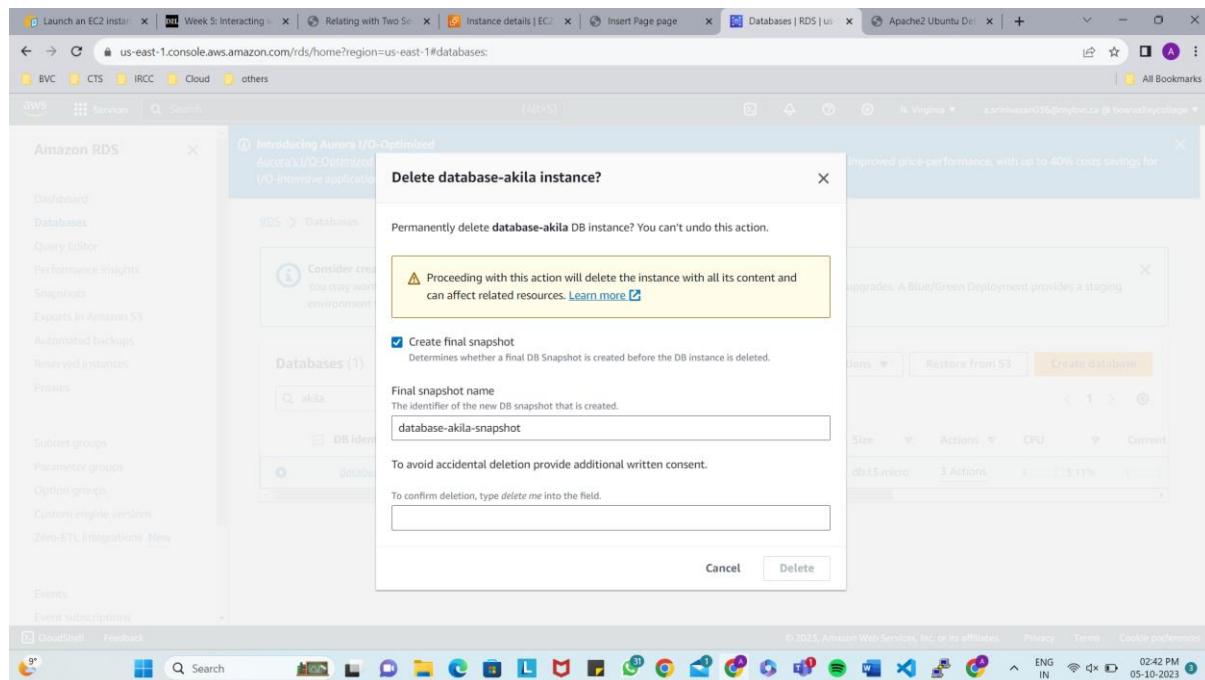
9. Detail how you would monitor the health and performance of your AWS resources. Outline your approach to ongoing maintenance, including software updates and security patches.

- For effective AWS resource monitoring, create a robust plan for ongoing oversight. Utilize tools like AWS CloudWatch to routinely check metrics, logs, and alarms. In terms of maintenance, systematically apply software updates and security patches at scheduled intervals to uphold system security and performance.

10. Resource Deletion:

Terminating the instances and database:

Delete the database by clicking the delete database .



Launch an EC2 instance | Week 5: Interacting with Two Services | Relating with Two Services | Instance details | EC2 | Insert Page page | Databases | RDS | Apache2 Ubuntu Default | +

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#databases:

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

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Amazon RDS

Dashboard Databases Query Editor Performance insights Snapshots Exports in Amazon S3 Automated backups Reserved instances Proxies Subnet groups Parameter groups Option groups Custom engine versions Zero-ETL integrations New

RDS > Databases

Deleting DB instance database-akila

Introducing Aurora I/O-Optimized

Aurora's I/O-Optimized is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

Consider creating a Blue/Green Deployment to minimize downtime during upgrades

You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Databases (1)

DB identifier	Status	Role	Engine	Region & AZ	Size	Actions	CPU	Current activity
database-akila	Deleting	Instance	MySQL Community	us-east-1b	db.t3.micro	3 Actions	3.11%	

Group resources C Modify Actions Restore from S3 Create database

Events Event subscriptions

CloudShell Feedback

10°C Mostly sunny

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ENG IN 02:43 PM 05-10-2023

Detailed description: This screenshot shows the AWS RDS console under the 'Databases' section. A modal window titled 'Deleting DB instance database-akila' is open, indicating the action is in progress. Below it, another modal provides information about Aurora I/O-Optimized and suggests a Blue/Green deployment. The main table lists one database entry: 'database-akila' with a status of 'Deleting', running on a MySQL Community engine in the us-east-1b region, and assigned to a db.t3.micro instance. The interface includes standard AWS navigation and search tools at the top and bottom.

Launch an EC2 instance | Week 5: Interacting with Two Services | Relating with Two Services | Instances | EC2 | us-east-1#instances:

us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#databases:

BVC CTS IRCC Cloud others

aws Services Search [Alt+S]

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Amazon RDS

Dashboard Databases Query Editor Performance insights Snapshots Exports in Amazon S3 Automated backups Reserved instances Proxies Subnet groups Parameter groups Option groups Custom engine versions Zero-ETL integrations New

RDS > Databases

Successfully deleted DB instance database-akila

Introducing Aurora I/O-Optimized

Aurora's I/O-Optimized is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

Consider creating a Blue/Green Deployment to minimize downtime during upgrades

You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

Databases (0)

DB identifier	Status	Role	Engine	Region & AZ	Size	Actions	CPU	Current activity	Maintenance
No instances found									

Group resources C Modify Actions Restore from S3 Create database

Events Event subscriptions

CloudShell Feedback

AB-8 E Construction

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ENG IN 02:51 PM 05-10-2023

Detailed description: This screenshot shows the AWS RDS console after the database 'database-akila' has been successfully deleted. A green success message 'Successfully deleted DB instance database-akila' is displayed. The main table now shows 'No instances found'. The rest of the interface remains consistent with the previous screenshot, including the sidebar and system status bar.

Terminate the ec2 instance also.

The screenshot shows the AWS Management Console interface for the EC2 service. The user is in the 'Instances' section, viewing a list of running instances. One instance, named 'newubuntuec2Akila' with ID 'i-0bc3713e1af858123', is selected. In the 'Actions' dropdown menu, the 'Terminate instance' option is highlighted. A modal dialog box titled 'Terminate instance?' is displayed, containing a warning message about EBS-backed instances and a confirmation step. The dialog includes fields for 'Instance ID' (set to 'i-0bc3713e1af858123 (newubuntuec2Akila)') and 'Termination protection' (set to 'Disabled'). At the bottom of the dialog are 'Cancel' and 'Terminate' buttons, with 'Terminate' being the active button.

The screenshot shows the AWS EC2 Instances page. At the top, a green banner says "Successfully terminated i-0bc3713e1af858123". Below it, a table lists one instance:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
newubuntuec2Akila	i-0bc3713e1af858123	Shutting-down	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-54-196-

The left sidebar shows navigation options like EC2 Dashboard, EC2 Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, AMIs, AMI Catalog, and Elastic Block Store.

Reference:

www.google.com , AWS official documentation.