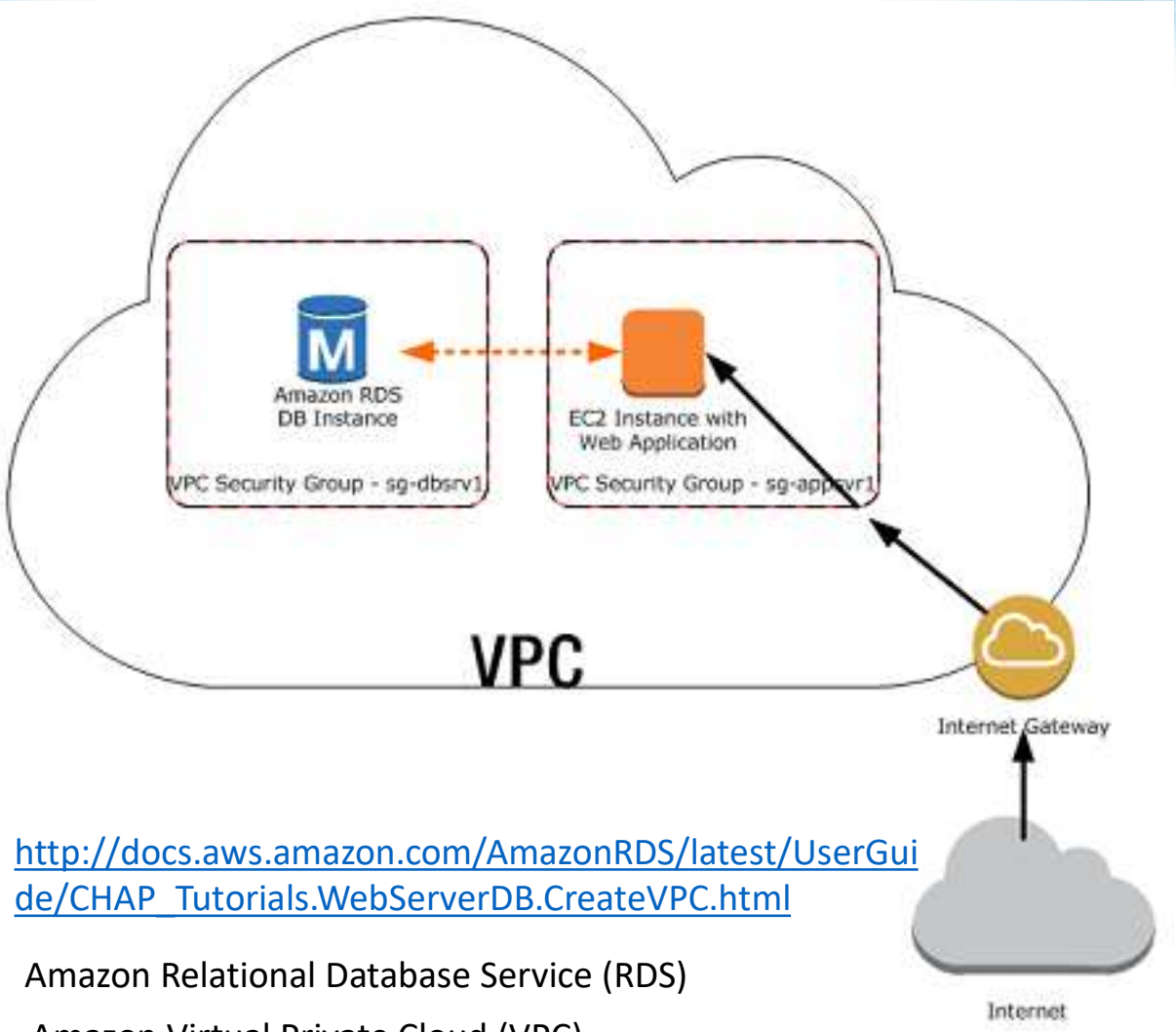
PA1 Tutorial

CS 4740 Cloud Computing

Department of Computer Science, University of Virginia, USA

Goal of this PA

- Gain hand-on experience about EC2



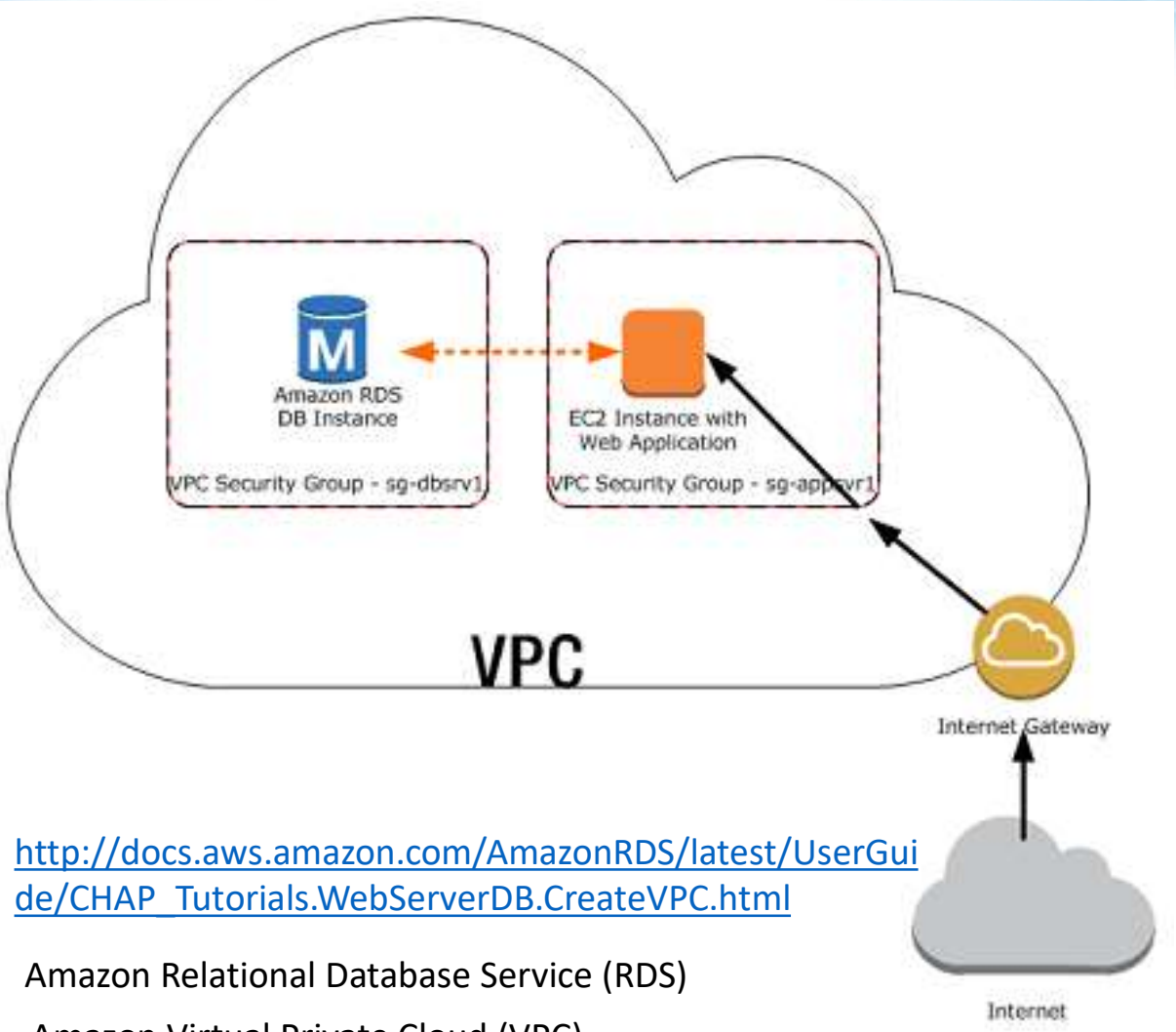
Steps:

(i) Create an AWS account.
(ii) Launch a database instance.
(iii) Create an EC2 Instance and Install a Web Server.

http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Tutorials.WebServerDB.CreateVPC.html

Amazon Relational Database Service (RDS)

Amazon Virtual Private Cloud (VPC)



- Because your Amazon RDS DB instance only needs to be available to your web server, and not to the public Internet, you create a VPC with both public and private subnets.
- The web server is hosted in the public subnet, so that it can reach the public Internet.
- The Amazon RDS DB instance is hosted in a private subnet.
- The web server is able to connect to the Amazon RDS DB instance because it is hosted within the same VPC.
- But the Amazon RDS DB instance is not available to the public Internet, providing greater security.

http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Tutorials.WebServerDB.CreateVPC.html

Amazon Relational Database Service (RDS)

Amazon Virtual Private Cloud (VPC)

Steps of PA1

- Step 1: Create an AWS account
- Step 2: Launch a database instance
  - 2.1: Create and configure a VPC
  - 2.2: Create a RDS instance
- Step 3: Create an EC2 instance and Install a Web Server

Make sure you start this assignment when you have at least 2-3 hours available!

Step 1. Create an AWS account

- Create a free account on https://aws.amazon.com/
- Apply for AWS Educate here

https://aws.amazon.com/education/awseducate/apply/

While applying you do not select the option "AWS Educate Starter Account".

Please apply ASAP!!

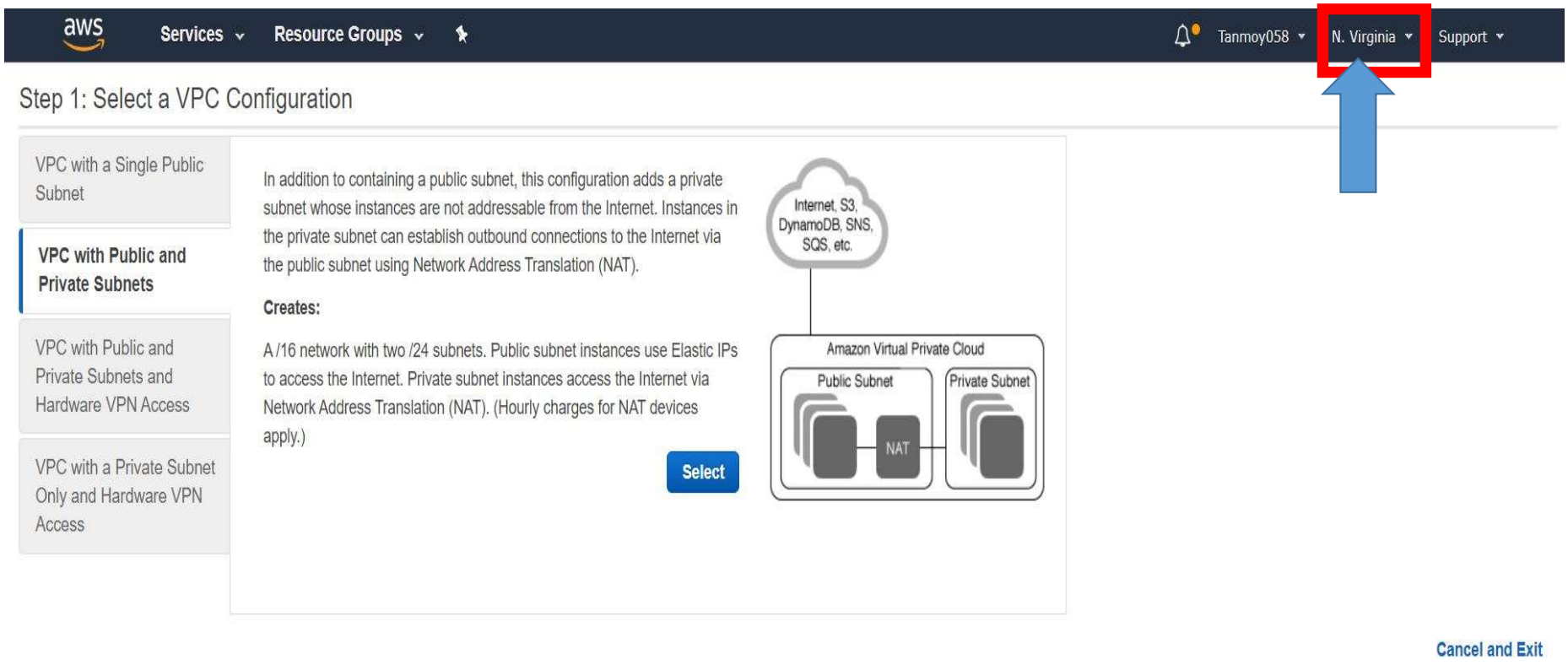
Step 2: Launch a database instance --Step 2.1: Create and configure a VPC

- Please read carefully and follow the tutorial in

https://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Tutorials.WebServerDB.CreateVPC.html

There are some changes from the tutorial, be careful about those notes.

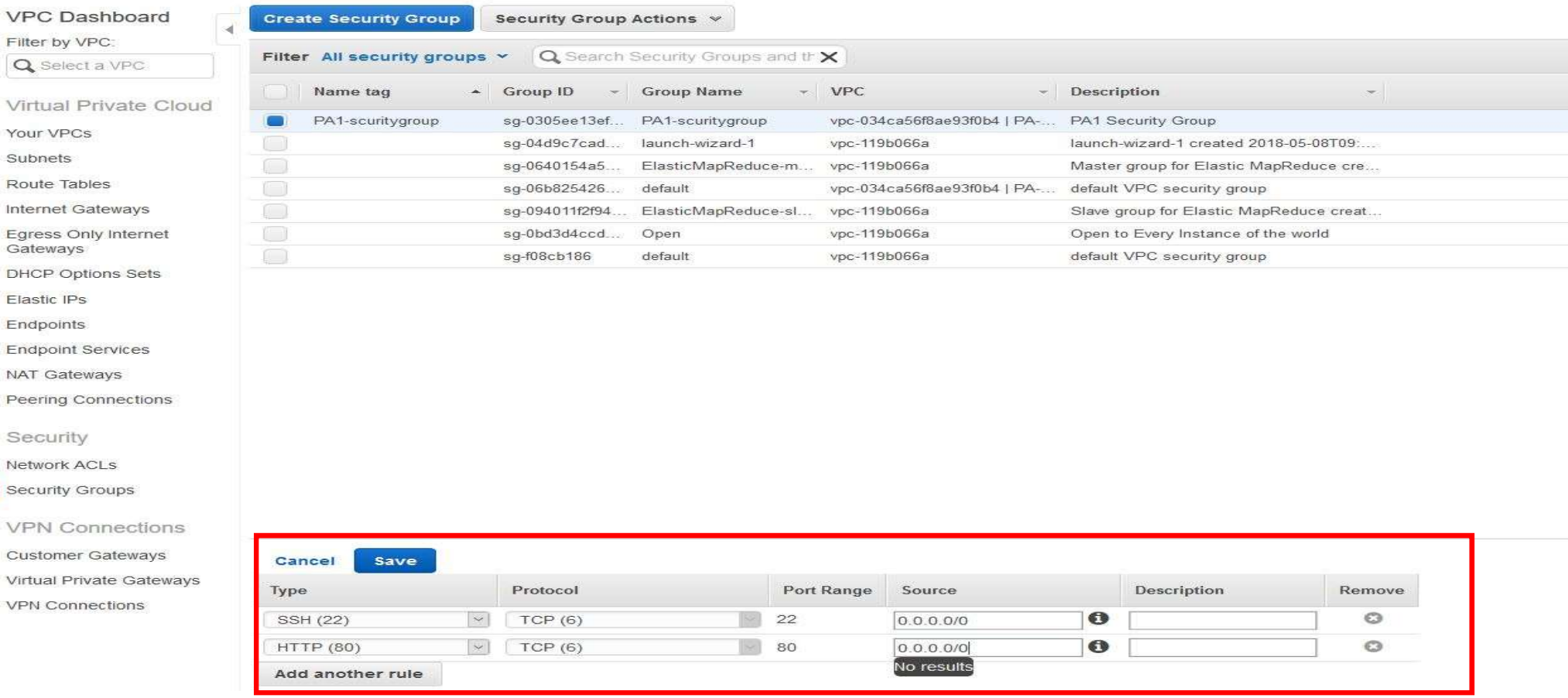
Step 2: Launch a database instance
--Step 2.1 Create and configure a VPC
Note 1: Choosing the region



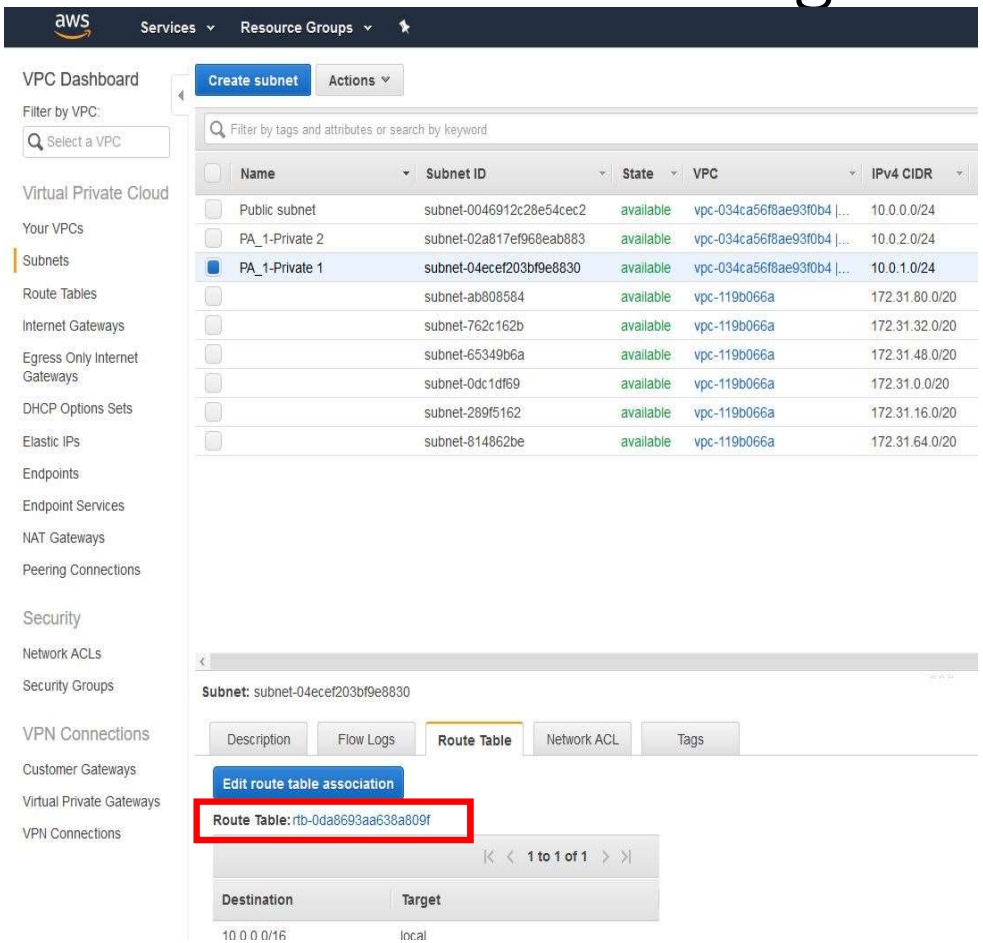
Step 2: Launch a database instance
----Step 2.1 Create and configure a VPC
Note 2: Different availability zone

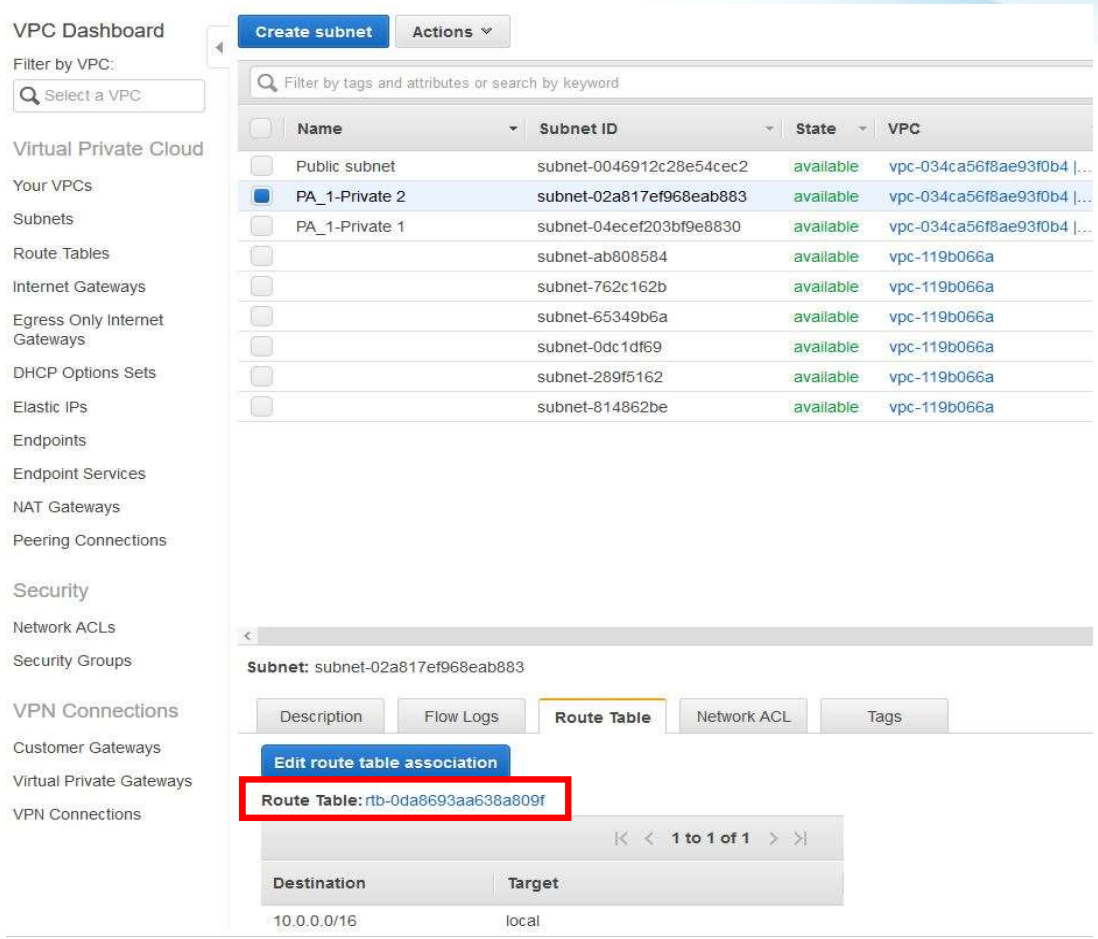
- When creating the second subnet, choose an Availability Zone different from the one that you chose for the first private subnet. For example, if you choose us-east-1a for the first subnet, then choose us-east-1b for the second subnet.

Step 2: Launch a database instance
----Step 2.1 Create and configure a VPC
Note 3: Inbound rule in security group



Step 2: Launch a database instance
----Step 2.1 Create and configure a VPC
- Note 4: Same routing table





Step 2: Launch a database instance --Step 2.2: Create a RDS instance

- Please read and follow the tutorial on:

http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Tutorials.WebServerDB.CreateDBInstance.html

Notes:

i) When creating DB instance, for the storage type: select “General purpose (SSD)”.

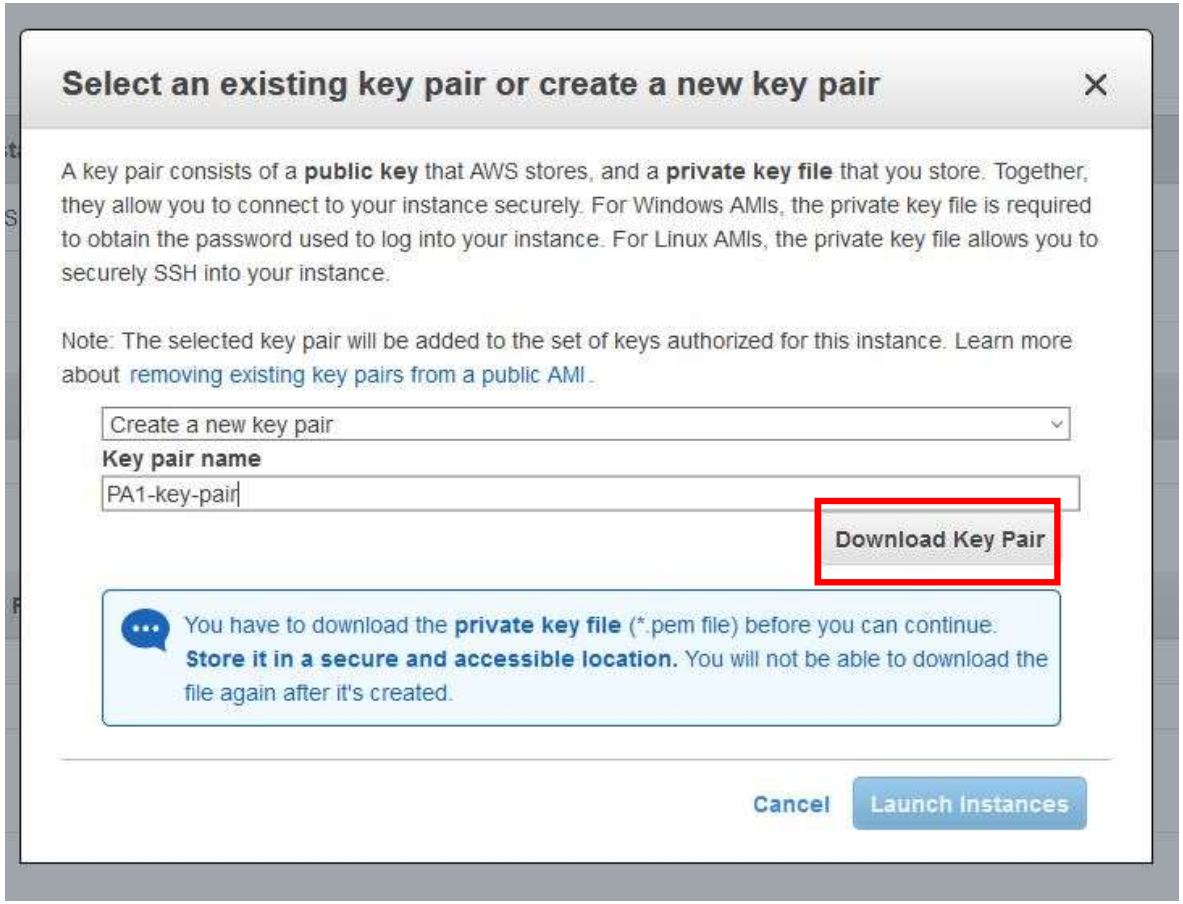
ii) Please remember the Master password

Step 3: Create an EC2 instance and Install a Web Server

- Create an EC2 Instance and Install a Web Server. Connect the web server to the RDS database. Please read and follow the tutorial on

http://docs.aws.amazon.com/AmazonRDS/latest/UserGuide/CHAP_Tutorials.WebServerDB.CreateWebServer.html

Step 3: Create an EC2 instance and Install a Web Server
Note 1: Download key-pair



Connecting to EC2 instance using putty

- To connect the instance you create from Windows, you will need to use Putty or an SSH client.
- Follow this tutorial:

https://linuxacademy.com/howtoguides/posts/show/topic/17385-use-putty-to-access-ec2-linux-instances-via-ssh-from-windows

Step 3: Create an EC2 instance and Install a Web Server --Note 2: Change in commands

- sudo yum update -y

-remove the -y option if it does not work

- sudo yum install -y httpd24 php56 php56-mysqlnd

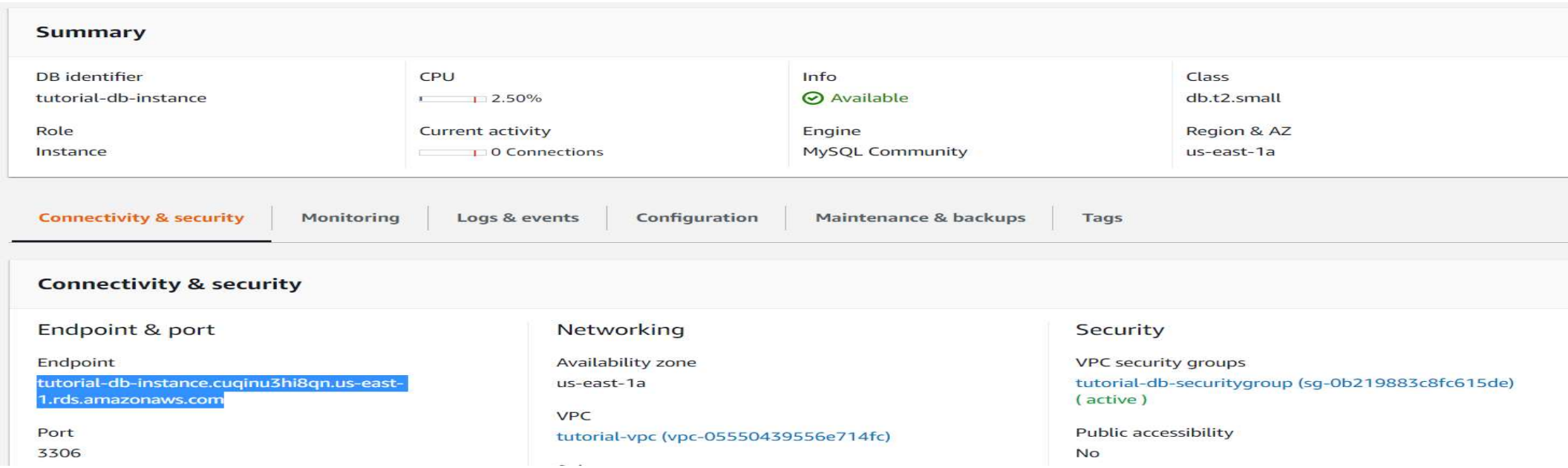
Step 3: Create an EC2 instance and Install a Web Server --Note 3: Setting the dbinfo.inc

- DB_SERVER – Endpoint of the database instance without port
- DB_USERNAME, DB_PASSWORD and DB_DATABASE values are set from RDS instance

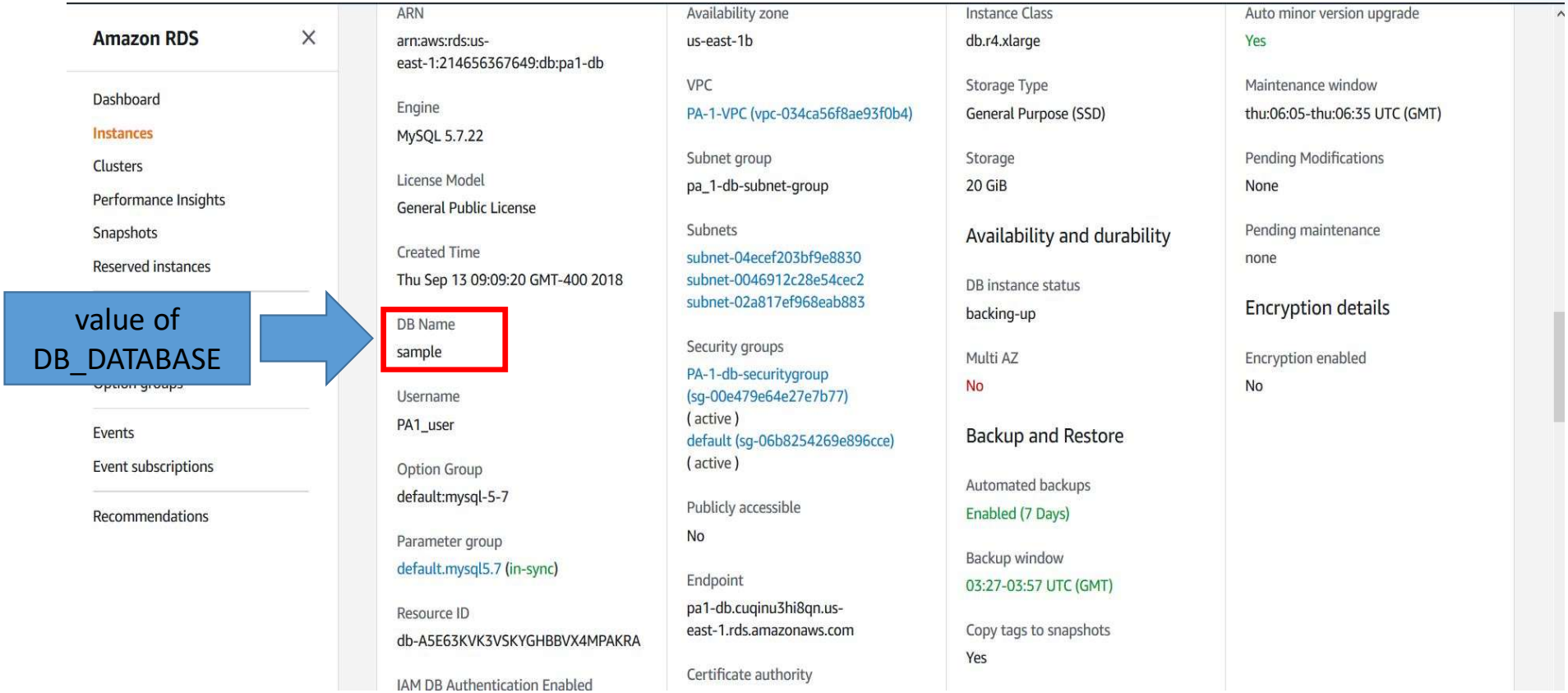
```
<?php

define('DB_SERVER', 'tutorial-db-instance.cuqinu3hi8qn.us-east-1.rds.amazonaws.com');
define('DB_USERNAME', [redacted]);
define('DB_PASSWORD', [redacted]);
define('DB_DATABASE', 'sample');

?>
```

Step 3: Create an EC2 instance and Install a Web Server –Note 4: Finding public DNS name of EC2 instance for dbinfo.inc

- You can find the endpoint values from the created RDS instance.

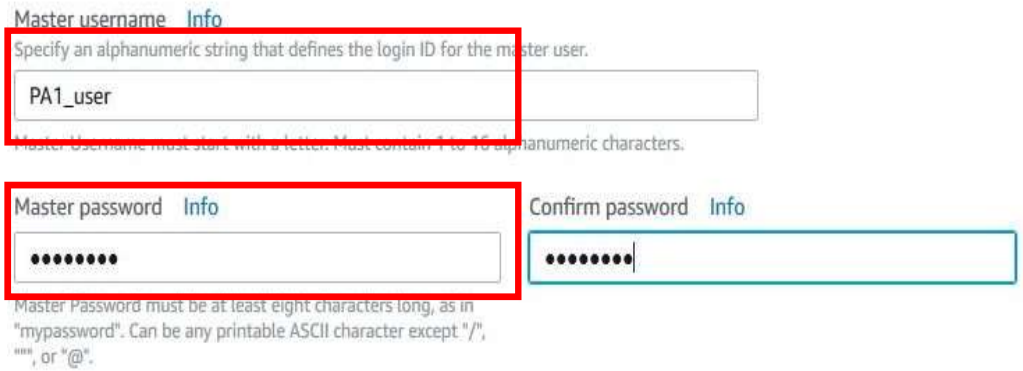


Step 3: Create an EC2 instance and Install a Web Server –Note 5: Finding the RDS username and database name for dbinfo.inc



Step 3: Create an EC2 instance and Install a Web Server –Note 6: Finding the RDS Password for dbinfo.inc

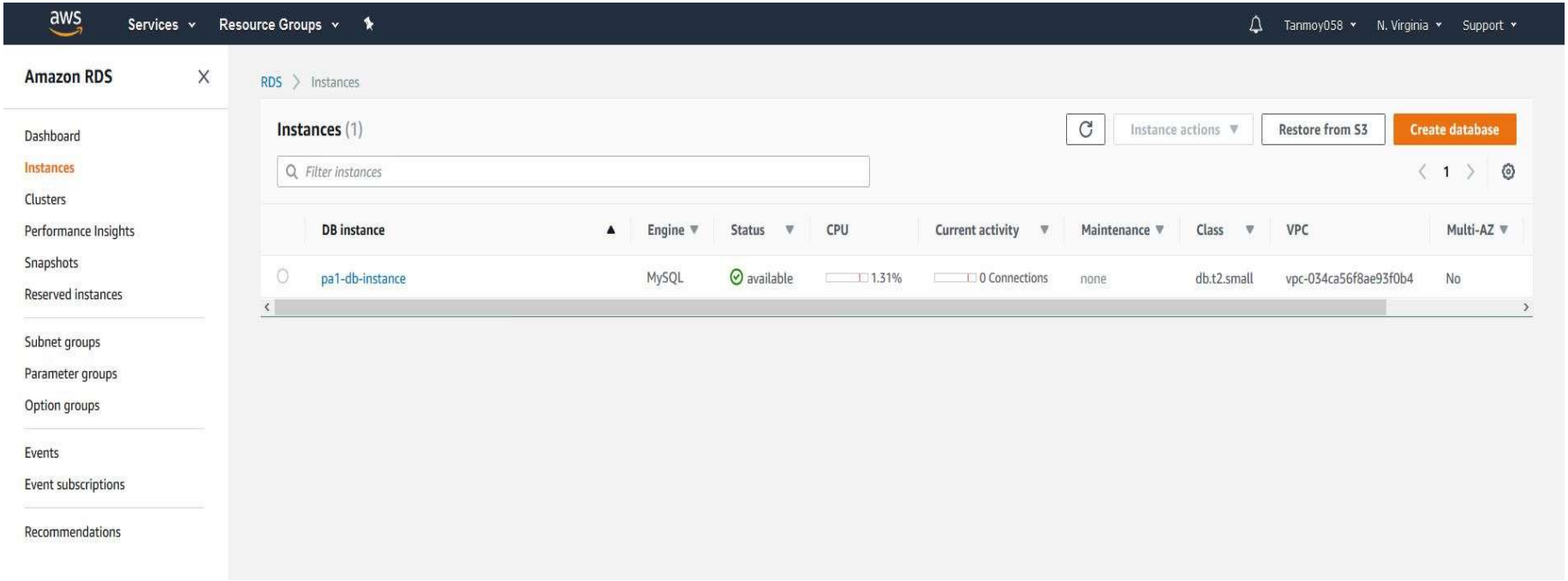
- Use the master password set for your user during creation of the RDS instance as value for DB_PASSWORD.



Step 3: Create an EC2 instance and Install a Web Server --Note 7: Change in SamplePage.php

- In the SamplePage.php file, please replace the header tag (<h1>Sample page</h1>), with a header tag with your computing ID (e.g., <h1>ts5xm</h1>).
- Please add your name and address classroom (Thronton Hall 303) to the database.

Deliverables - 1



Deliverables - 2

Deliverables - 3

Sample page

NAME ADDRESS

Add Data

ID	NAME	ADDRESS
1	ts5xm	Room 220, Rice Hall
2	test	XYZ

After Finishing the Assignment

- In https://console.aws.amazon.com/rds/ for RDS, right click on the DB instance and select 'Take snapshot", name it as "pa1-done". When the snapshot has been created, delete your RDS instance.
- In https://console.aws.amazon.com/ec2/ for EC2, right click on your VM instances and select "instance state ->stop" (NOT "terminate"!)

Questions?