VPC – Virtual Private Cloud Assignment

On this assignment you will have to provision and define VPC with some servers.

Use the Canvas sandbox environment to do so.

You should take screenshots of every resource, and relevant definition steps. Order them in doc or slide deck, in a coherent manner, with needed explanations, in order to present your project.

1. Create VPC (**without wizards** – **VPC only**)
2. Add 4 subnets into it, in 2 different availability zones (2 in each AZ)
    a. 2 private
    b. 2 public
    c. 2 routing tables, 1 public and 1 private, and assign to respective subnets.
    d. Create an internet gateway and attach it to a public subnet.
    e. create NAT gateway attach it to private subnet.
3. On top of this infrastructure, you need to add two servers (pay attention to which subnet each one should be provisioned):
    a. EC2 (Amazon Linux 2) with only SSH public access
        • SQL **client** should be installed in addition to other relevant services
    b. EC2 (Amazon Linux 2) with MySQL server not accessible publicly (check what are the relevant requirements for running MySQL with minimal data)
4. Create relevant Security groups
5. Verify that after connecting to ec2 using ssh, and operating the SQL client, we can "talk" with the MySQL server. (connect and see connection succeeded message)

Steps in problem decomposition

1. Review how to create the infrastructure
    a. VPC
    b. Subnets
    c. Route table
    d. Internet Gateway
    e. NAT
    f. EC2
    g. Security groups
2. Review how to install MySQL on
3. Learn how to configure security issues in MySQL server (users, passwords, local access, remote access)
4. Learn how to install SQL client (currently CLI one)
5. Learn how a client "talks" with the server locally (both on the same machine)
6. Learn how a client "talks" with the server remotely (pay attention to network, subnet, ports and other issues)

Bonus steps 1

1. Insert data to your database using the sample data script.
   a. Download the data from here
      https://www.mysqltutorial.org/mysql-sample-database.aspx
   b. Verify that you can query the data using the client.

Bonus steps 2

1. Automate the service installation on each ec2
2. Automate the data insertion to the database (hint - check the download link from the page given in the previous bonus)
3. Without any installations, verify that after connecting to ec2 using ssh, and operating the SQL client, we can query the data on MySQL server.