**Launch an EC2 Instance in a Virtual Private Cloud (VPC)**

**Introduction**

In this lab scenario, Alfredo of Alfredo's Pizza is looking to set up a website to advertise his pizza shop. We are going to help him by getting the server primed and ready to host his website. During this lab, you'll have the opportunity to explore and understand foundational and compute services provided by AWS. We will create a virtual private cloud (VPC), subnets across multiple Availability Zones (AZs), routes and an internet gateway, and more. These services are the foundation of networking architecture inside of AWS and cover concepts such as infrastructure, design, routing, and security.

**Solution**

Log in to the live AWS environment using the credentials provided. Use an incognito or private browser window to ensure you're using the lab account rather than your own.

Make sure you're in the N. Virginia (us-east-1) region throughout the lab.

**Create a VPC**

1. Navigate to **VPC** > **Your VPCs**.
2. Click **Create VPC**, and set the following values:
   * *Select*: **VPC Only**
   * *Name tag*: **my-vpc**
   * *IPv4 CIDR block*: **10.0.0.0/16**
3. Leave the *IPv6 CIDR block* and *Tenancy* fields as their default values.
4. Click **Create VPC**.

**Create a Public Subnet**

1. Click **Subnets** in the left-hand menu.
2. Click **Create subnet**, and set the following values:
   * *VPC ID*: **my-vpc**
   * *Subnet name*: **my-public-subnet**
   * *Availability Zone*: **us-east-1a**
   * *IPv4 CIDR block*: **10.0.0.0/24**
3. Click **Create subnet**.

**Create Routes and Configure Internet Gateway**

1. With *my-public-subnet* selected, click **Actions** > **Edit subnet settings**.
2. Check the box to **Enable auto-assign public IPv4 address**.
3. Click **Save**.
4. Click **Internet Gateways** in the left-hand menu.
5. Click **Create internet gateway**.
6. Set *Name tag* as "my-internet-gateway".
7. Click **Create internet gateway**.
8. On the next screen, click **Actions** > **Attach to VPC**.
9. In the *Available VPCs* dropdown, select **my-vpc**.
10. Click **Attach internet gateway**.
11. Click **Route Tables** in the left-hand menu.
12. Click **Create route table**, and set the following values:
    * *Name*: **publicRT**
    * *VPC*: **my-vpc**
13. Click **Create route table**.
14. On the next screen, click **Edit routes**.
15. Click **Add route**, and set the following values:
    * *Destination*: **0.0.0.0/0**
    * *Target*: **Internet Gateway**, **my-internet-gateway**
16. Click **Save changes**.
17. Click the **Subnet associations** tab.
18. Click **Edit subnet associations**.
19. Select the box for **my-public-subnet**.
20. Click **Save associations**.

**Launch EC2 Instance in Subnet**

1. Navigate to **EC2** > **Instances**.
2. Click **Launch instances**.
3. EC2 Instance name **my-public-instance**.
4. On the AMI page, select the Amazon Linux AMI.
5. Ensure *t2.micro* is selected.
6. Click **Create new key pair**.
7. Give it a *Key pair name* of "my-key-pair".
8. Click **Create Key Pair**.
9. Click **Launch Instance**.
10. Click **View Instances**, and give it a few minutes to enter the *Running* state.

**Access EC2 Instance**

1. Once the instance has a *Running* state, select the box next to it.
2. Click **Connect** at the top.
3. In the *EC2 Instance Connect* section, click **Connect**.
   * This will open a new browser tab showing a command line interface.

**Conclusion**

Congratulations on successfully completing this hands-on lab!