Cloud Computing Assignment
Kinan Kitet
202010113

Part 1:

Describe the following terms in one or two sentences at most:
1) AWS (Amazon Web Services): AWS is a comprehensive and widely-used cloud computing platform provided by Amazon, offering a variety of on-demand computing services such as storage, computing power, and databases, accessible over the internet, with a pay as you go model.

2) Cloud Computing: Cloud computing refers to the on-demand delivery of computing services, including servers, storage, databases, networking, software, and analytics, over the internet to offer faster innovation and flexible resources.

Part 2:

1. **Create a Linux Instance (server) using a Linux computer:**

    a. Sign in to the AWS account: Access the AWS Management Console using credentials.
    b. Go to the EC2 dashboard which is where we can create and manage virtual servers.
    c. We will be using an AMI (Amazon Machine Image) as a template for our virtual server. Click on "Launch Instance" and choose a Linux AMI
    d. Select the instance type: Choose the hardware configuration for our server, such as CPU, memory, and storage.
    e. Configure instance details: Customize settings like network, security groups (user groups), and IAM roles.
    f. Define the size and type of storage for our instance.
    g. Configure security groups specifying firewall rules to control inbound and outbound traffic.
    h. Click "Launch" and select or create a key pair to connect securely: A key pair consists of a public key that AWS stores and a private key file that we download to our computer. This private key is used to authenticate when connecting to the instance, from what I can see this is different from MFA, this is just a way we can access the instance securely.

2. Connect to our Linux Instance from Linux computer (this is all web searched, I don't even have a pc running linux).

a. Open a terminal.
b. Using SSH commands we're going to securely connect to the remote server I just set up.
c. Enter the following command into the terminal:

```
ssh -i key_pair.pem ec2-user@public_ip
```

- Replace key_pair.pem with the path to our private key file.
- Replace ec2-user with the default username for the Linux AMI we selected.
- Replace public_ip with the public IP address of our Linux instance.

3. Create a Windows Instance (server) using a Linux computer:

a. Follow similar steps as for Linux instance creation: Repeat steps a to h from the Linux instance creation process (of course choosing a windows AMI instead of a linux one, obviously).
b. Launch the instance and select or create a key pair for remote desktop access: When launching a Windows instance, we can still use a key pair for secure access. However, to access the instance, we'll need to set up remote desktop access instead of SSH, this is an inherent feature of windows being a closed source system, only if services are running can we communicate with them, and only through proper approved channels.

4. Connect to our Windows Instance from our Linux computer:

a. Download and install an RDP client such as mRemoteNG and use it to connect to our Windows instance.
b. Obtain the public IP address of our Windows instance from the AWS Management Console (the one from the slides).
c. Open the RDP client (mRemoteNG in my case) and enter the public IP address of our Windows instance.
d. When asked, we will enter the username and password set during the Windows instance creation process to establish the remote desktop connection.