**Techplement - Week 1 Tasks**

I have attached the screenshots related to my works at the end of the document.

**Overview**

This document provides a detailed description of the steps I followed to deploy WordPress and MySQL on AWS using EC2 instances in both monolithic and microservices architectures. Additionally, it includes instructions on setting up a welcome page in WordPress.

**Prerequisites**

Before starting, I ensured the following prerequisites were met:

1. Created a free-tier AWS account.
2. Installed AWS CLI on my local machine and configured it with my AWS credentials.
3. Generated an SSH key pair for secure access to the EC2 instances.

**Task Breakdown**

**Monolithic Architecture**

**Step 1: Launch an EC2 Instance**

1. **Open the AWS Management Console** and navigated to the EC2 dashboard.
2. **Launch Instance**:
   * **AMI**: Selected an Ubuntu AMI (ubuntu/images/hvm-ssd/ubuntu-focal-20.04-amd64-server-2023).
   * **Instance Type**: Chose t2.micro.
   * **Key Pair**: Selected my previously created key pair.
   * **Security Group**: Created a new security group with the following rules:
     + Allowed SSH (port 22) from my IP.
     + Allowed HTTP (port 80) from anywhere.
3. Launched the instance.
4. Created Elastic IP and associated with the instance to ensure the IP doesn’t change after every reboot.

**Step 2: Install WordPress and MySQL**

1. Connected to the EC2 instance via SSH:
2. ssh -i /key-pair.pem ubuntu@ 3.209.28.142
3. Updated the package list:
4. sudo apt update
5. Installed Apache, MySQL, PHP, and related packages:
6. sudo apt install apache2 mysql-server php libapache2-mod-php php-mysql -y
7. Secured MySQL installation:
8. sudo mysql\_secure\_installation
9. Created a MySQL database and user for WordPress:
10. sudo mysql -u root -p
11. CREATE DATABASE wordpress;
12. GRANT ALL PRIVILEGES ON wordpress.\* TO 'wordpressuser'@'localhost' IDENTIFIED BY 'password';
13. FLUSH PRIVILEGES;
14. EXIT;
15. Installed WordPress:
16. cd /tmp
17. wget https://wordpress.org/latest.tar.gz
18. tar -xzvf latest.tar.gz
19. sudo mv wordpress /var/www/html/
20. sudo chown -R www-data:www-data /var/www/html/wordpress
21. sudo chmod -R 755 /var/www/html/wordpress
22. Configured Apache:
23. sudo nano /etc/apache2/sites-available/wordpress.conf

Added the following content:

<VirtualHost \*:80>

DocumentRoot /var/www/html/wordpress

</VirtualHost>

Enabled the configuration and rewrite module:

sudo a2ensite wordpress.conf

sudo a2enmod rewrite

sudo systemctl restart apache2

1. Completed the WordPress installation by navigating to http:// 3.209.28.142 in my web browser and following the setup instructions.

**Microservices Architecture**

**Step 1: Launch EC2 Instances**

Repeated the instance launch process for two instances, one for WordPress and one for MySQL, with the same configurations but different names to identify them.

Created Elastic IP and associated with the instances to ensure the IP doesn’t change after every reboot.

**Step 2: Configure Security Groups**

1. **MySQL Instance Security Group**:
   * Allowed SSH (port 22) from my IP.
   * Allowed MySQL (port 3306) from the WordPress instance's private IP address.
2. **WordPress Instance Security Group**:
   * Allowed SSH (port 22) from my IP.
   * Allowed HTTP (port 80) from anywhere.

**Step 3: Install MySQL on MySQL Instance**

1. Connected to the MySQL EC2 instance via SSH:
2. ssh -i /path/to/your-key-pair.pem ubuntu@ 54.197.61.78
3. Updated the package list and installed MySQL:
4. sudo apt update
5. sudo apt install mysql-server -y
6. Secured MySQL installation:
7. sudo mysql\_secure\_installation
8. Created a MySQL database and user for WordPress:
9. sudo mysql -u root -p
10. CREATE DATABASE wordpress;
11. GRANT ALL PRIVILEGES ON wordpress.\* TO 'wordpressuser'@'wordpress-ec2-private-ip' IDENTIFIED BY 'password'; **\***
12. FLUSH PRIVILEGES;
13. EXIT;
14. Updated MySQL configuration to allow remote access:
15. sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf

Changed bind-address to 0.0.0.0:

bind-address = 0.0.0.0

Restarted MySQL:

sudo systemctl restart mysql

**Step 4: Install WordPress on WordPress Instance**

1. Connected to the WordPress EC2 instance via SSH:
2. ssh -i /key-pair.pem ubuntu@ 54.156.198.64
3. Updated the package list:
4. sudo apt update
5. Installed Apache, PHP, and related packages:
6. sudo apt install apache2 php libapache2-mod-php php-mysql -y
7. Installed WordPress:
8. cd /tmp
9. wget https://wordpress.org/latest.tar.gz
10. tar -xzvf latest.tar.gz
11. sudo mv wordpress /var/www/html/
12. sudo chown -R www-data:www-data /var/www/html/wordpress
13. sudo chmod -R 755 /var/www/html/wordpress
14. Configured Apache:
15. sudo nano /etc/apache2/sites-available/wordpress.conf

Added the following content:

<VirtualHost \*:80>

DocumentRoot /var/www/html/wordpress

</VirtualHost>

Enabled the configuration and rewrite module:

sudo a2ensite wordpress.conf

sudo a2enmod rewrite

sudo systemctl restart apache2

1. Configured WordPress to connect to MySQL:
2. sudo nano /var/www/html/wordpress/wp-config.php

Updated the database settings:

define('DB\_NAME', 'wordpress');

define('DB\_USER', 'wordpressuser');

define('DB\_PASSWORD', 'password');

define('DB\_HOST', 'mysql-ec2-private-ip');

1. Completed the WordPress installation by navigating to http:// 54.156.198.64 in my web browser and following the setup instructions.

**Create a Welcome Page in WordPress**

1. Logged into the WordPress admin dashboard.
2. Created a new page named "Welcome".
3. Set the "Welcome" page as the homepage:
   * Went to Settings > Reading.
   * Selected A static page and chose "Welcome" from the dropdown menu.

**Screenshots:**

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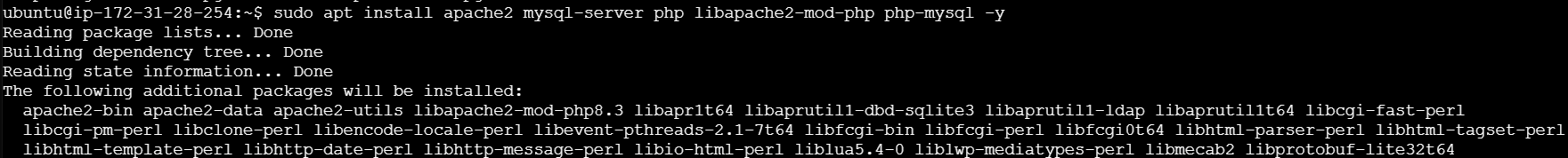
A screenshot of a computer

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A screen shot of a computer

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A screen shot of a computer

Description automatically generated

A screenshot of a computer program

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A screenshot of a computer error

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A screenshot of a computer screen

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A bird flying in the sky

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**\*Note:** I have concealed the private information like my private ip address and have placed placeholders instead.