Haptik Devops Interview Answers -- Sagar

Question/Assignment 1

1. Kill all processes/zombie processes of service called “gunicorn” in a single command
Answer : pkill -9 gunicorn

2. MySQL shell command to show the unique IPs from where MySQL connections are being made to the Database.

Answer : mysql -e "SELECT DISTINCT host FROM information_schema.processlist;"

3. Bash command to get value of version number of 3 decimal points (first occurrence) from a file containing the JSON:

{

"name": "abc",

"version": "1.0",

"version": "1.0.57",

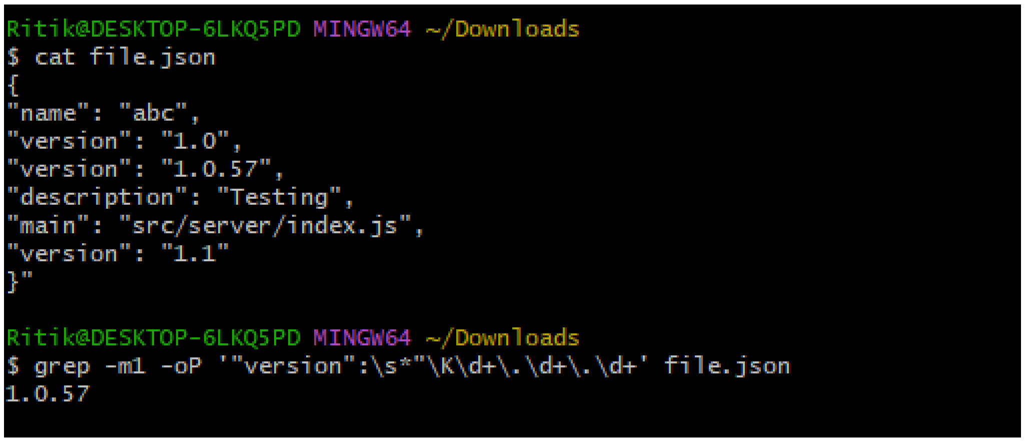
"description": "Testing",

"main": "src/server/index.js",

"version": "1.1"

}

Answer: grep -m1 -oP '"version":\s*"\K\d+\.\d+\.\d+' file.json



```
Ritik@DESKTOP-6LKQ5PD MINGW64 ~/Downloads
$ cat file.json
{
"name": "abc",
"version": "1.0",
"version": "1.0.57",
"description": "Testing",
"main": "src/server/index.js",
"version": "1.1"
}"

Ritik@DESKTOP-6LKQ5PD MINGW64 ~/Downloads
$ grep -m1 -oP '"version":\s*"\K\d+\.\d+\.\d+' file.json
1.0.57
```

4. Bash command to add these numbers from a file and find average upto 2 decimal points:

0.0238063905753

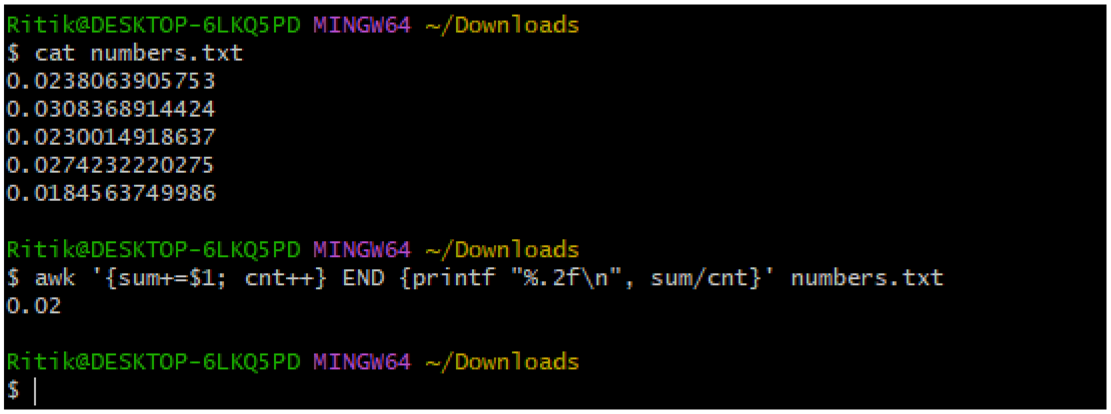
0.0308368914424

0.0230014918637

0.0274232220275

0.0184563749986

Answer : awk '{sum+=$1; cnt++} END {printf "%.2f\n", sum/cnt}' numbers.txt

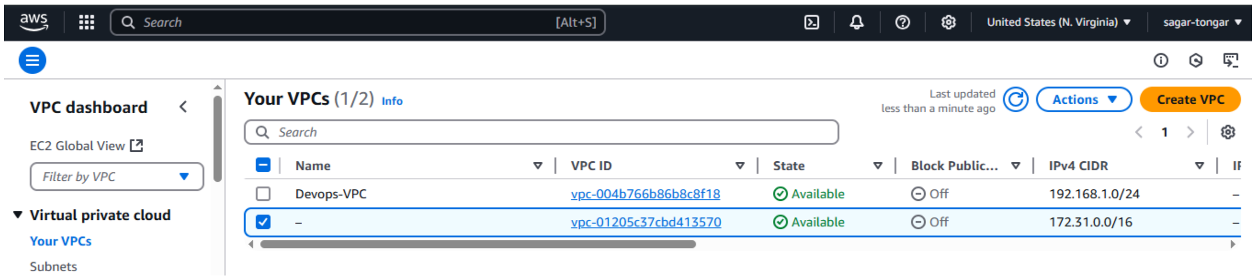


```
Ritik@DESKTOP-6LKQ5PD MINGW64 ~/Downloads
$ cat numbers.txt
0.0238063905753
0.0308368914424
0.0230014918637
0.0274232220275
0.0184563749986

Ritik@DESKTOP-6LKQ5PD MINGW64 ~/Downloads
$ awk '{sum+=$1; cnt++} END {printf "%.2f\n", sum/cnt}' numbers.txt
0.02

Ritik@DESKTOP-6LKQ5PD MINGW64 ~/Downloads
$ |
```

Question/Assignment 2

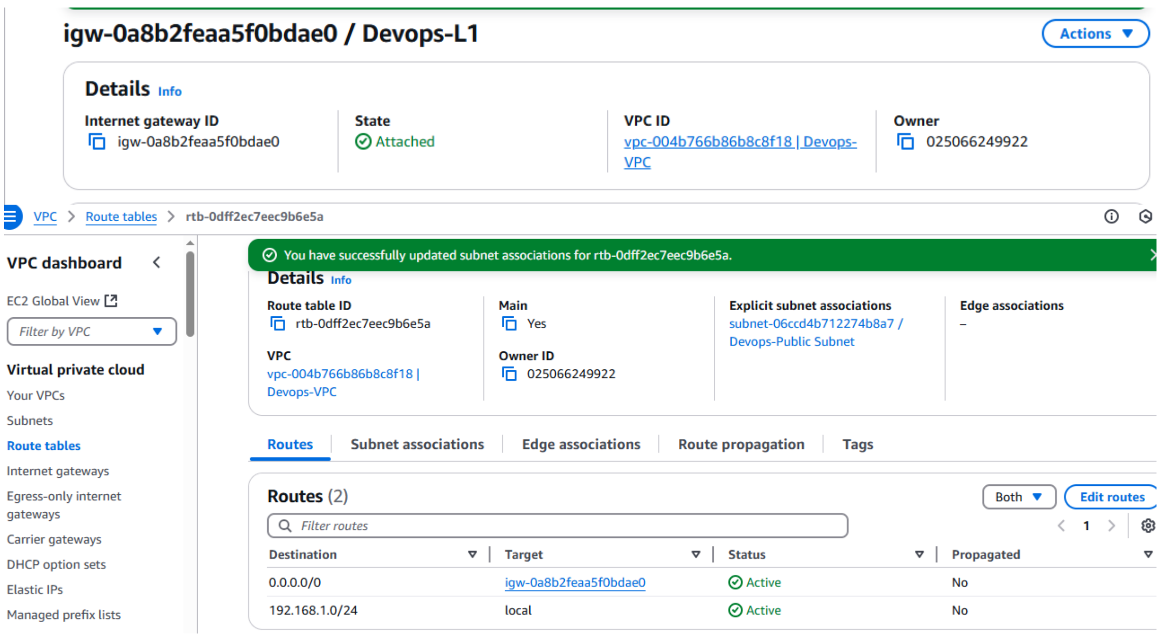
Answer 2: Step 1: Create a VPC and Subnets

1. Created a VPC:



Your VPCs (1/2)

Name	VPC ID	State	Block Public...	IPv4 CIDR	IF
Devops-VPC	vpc-004b766b86b8c8f18	Available	Off	192.168.1.0/24	–
–	vpc-01205c37cbd413570	Available	Off	172.31.0.0/16	–



igw-0a8b2feaa5f0bdae0 / Devops-L1

Actions

Details Info

Internet gateway ID	State	VPC ID	Owner
igw-0a8b2feaa5f0bdae0	Attached	vpc-004b766b86b8c8f18 | Devops-VPC	025066249922

VPC > Route tables > rtb-0dff2ec7eec9b6e5a

VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

Carrier gateways

DHCP option sets

Elastic IPs

Managed prefix lists

You have successfully updated subnet associations for rtb-0dff2ec7eec9b6e5a.

Details Info

Route table ID	Main	Explicit subnet associations	Edge associations
rtb-0dff2ec7eec9b6e5a	Yes	subnet-06ccd4b712274b8a7 / Devops-Public Subnet	–

VPC	Owner ID
vpc-004b766b86b8c8f18 | Devops-VPC	025066249922

Routes | Subnet associations | Edge associations | Route propagation | Tags

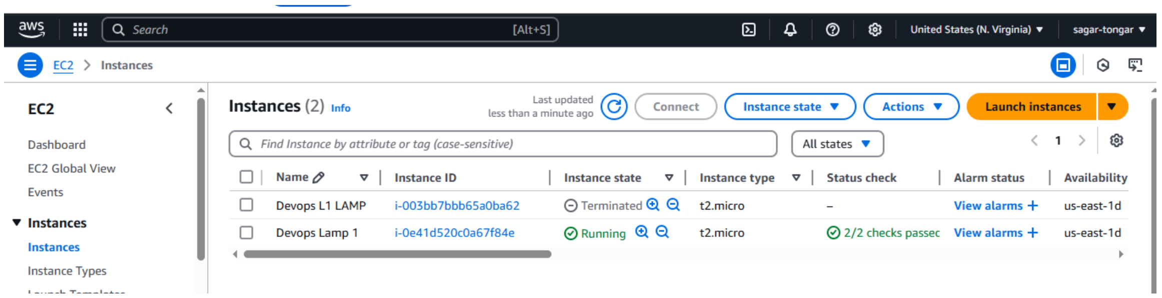
Routes (2)

Both | Edit routes

Filter routes

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0a8b2feaa5f0bdae0	Active	No
192.168.1.0/24	local	Active	No

- IPv4 CIDR: `192.168.1.0/24` (this covers the `eth0` range) and attached internet gateway and created a public subnet for etho and assigned igw for network connection.Also created a new security group allowport 22 for ssh. Now finally created Azure Linux VM.



Search [Alt+S] United States (N. Virginia) sagar-tongar

EC2 > Instances

EC2

Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Instances (2) Info

Last updated less than a minute ago

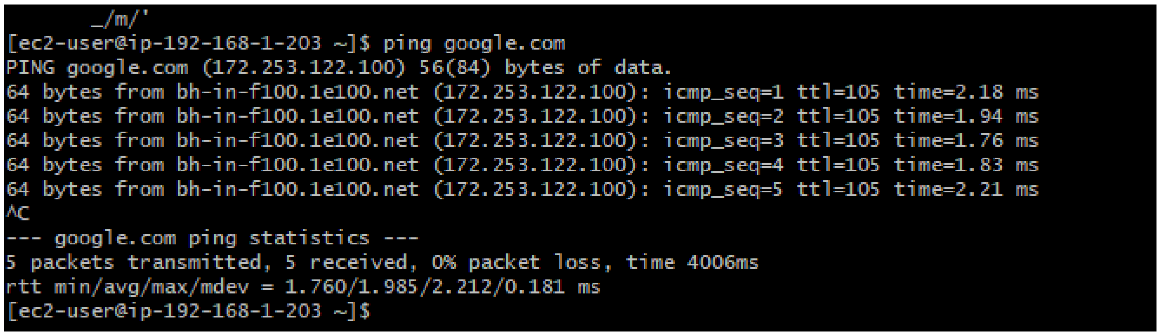
Connect | Instance state | Actions | Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

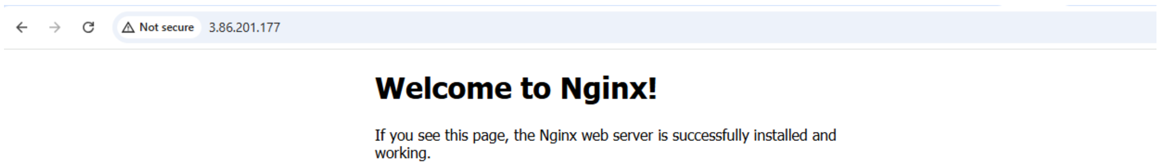
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
Devops L1 LAMP	i-003bb7bbb65a0ba62	Terminated	t2.micro	–	View alarms +	us-east-1d
Devops Lamp 1	i-0e41d520c0a67f84e	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1d

Able toPing Google.com



```
        _/m/'
[ec2-user@ip-192-168-1-203 ~]$ ping google.com
PING google.com (172.253.122.100) 56(84) bytes of data.
64 bytes from bh-in-f100.1e100.net (172.253.122.100): icmp_seq=1 ttl=105 time=2.18 ms
64 bytes from bh-in-f100.1e100.net (172.253.122.100): icmp_seq=2 ttl=105 time=1.94 ms
64 bytes from bh-in-f100.1e100.net (172.253.122.100): icmp_seq=3 ttl=105 time=1.76 ms
64 bytes from bh-in-f100.1e100.net (172.253.122.100): icmp_seq=4 ttl=105 time=1.83 ms
64 bytes from bh-in-f100.1e100.net (172.253.122.100): icmp_seq=5 ttl=105 time=2.21 ms
^C
--- google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4006ms
rtt min/avg/max/mdev = 1.760/1.985/2.212/0.181 ms
[ec2-user@ip-192-168-1-203 ~]$
```

Setting up Ngnix server:


Not secure 3.86.201.177

Welcome to Nginx!

If you see this page, the Nginx web server is successfully installed and working.

Question/Assignment 3

Write an executable bash script to set up a whole LAMP stack, PHP app can be Wordpress and DB can be MySQL.

The script should meet the below requirements

● This script should install all components needed for a Wordpress website.

● We should be able to run this script on a local machine or server and after the execution of the script, it should have Wordpress Running via Nginx/Apache.

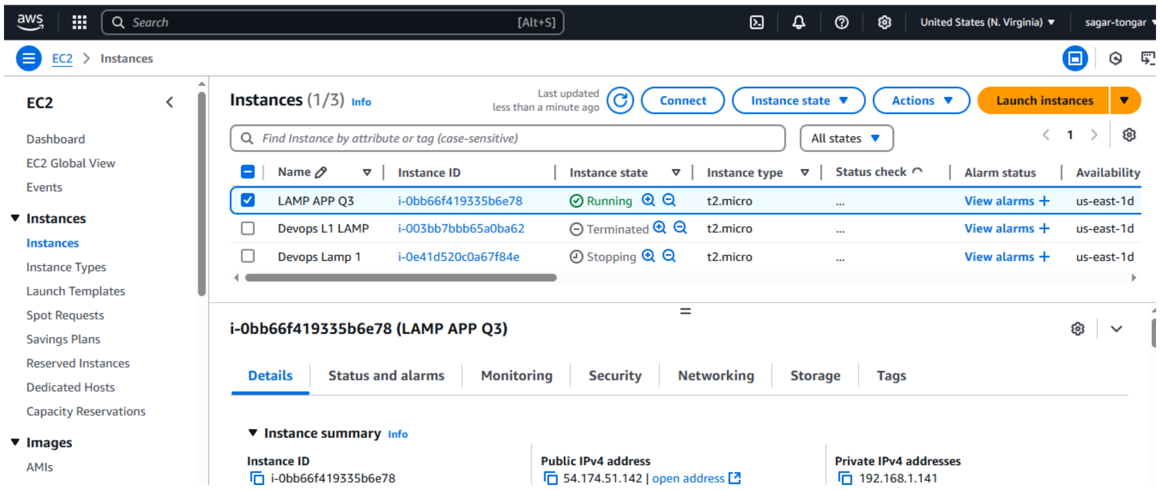
● A database user for Wordpress should also be made automatically from within the script and the same should be set in Wordpress conf file. The script should output the database user details at the end of a successful installation as a MySQL connection string.

Answer : I created one EC2 naming LAMP App Q3 having OS Ubuntu on AWS and installed Please find below shell script and screenshots for wordpress app.

```
#!/bin/bash

#Script for Installing LAMP-Stack.

#Variable Declaration for Database

WEB_DIR="/var/www/html"

DB_NAME="test_tb"

DB_USER="Haptik"

DB_PASS="Haptik@2025"

# Installing dependencies and updating Linux Packages

echo "Updating system and installing required packages..."

sudo apt-get update

sudo apt install -y apache2 php libapache2-mod-php php-mysql php-curl php-gd php-mbstring php-xml
php-xmlrpc php-soap php-intl php-zip wget unzip mysql-server

#Enable and start Apache

echo "Starting and enabling Apache..."

sudo systemctl enable --now apache2

#Secure MySQL installation (Non-interactive)

echo "Securing MySQL..."

sudo mysql -e "ALTER USER 'root'@'localhost' IDENTIFIED BY '$DB_PASS'; FLUSH PRIVILEGES;"

#Create MySQL database and user

echo "Creating MySQL database and user for WordPress..."

sudo mysql -u root -e "

CREATE DATABASE $DB_NAME;

CREATE USER '$DB_USER'@'localhost' IDENTIFIED WITH caching_sha2_password BY '$DB_PASS';

GRANT ALL PRIVILEGES ON $DB_NAME.* TO '$DB_USER'@'localhost';

FLUSH PRIVILEGES;"

#Downloading the wordpress from internet
```

```
echo "Downloading WordPress..."

cd $WEB_DIR

sudo wget -q https://wordpress.org/latest.tar.gz

sudo tar -xzf latest.tar.gz

sudo rm -rf latest.tar.gz

sudo chown -R www-data:www-data $WEB_DIR/wordpress

sudo chmod -R 755 $WEB_DIR/wordpress

#Configure wp-config.php

echo "Configuring WordPress..."

sudo cp $WEB_DIR/wordpress/wp-config-sample.php $WEB_DIR/wordpress/wp-config.php

sudo sed -i "s/database_name_here/$DB_NAME/" $WEB_DIR/wordpress/wp-config.php

sudo sed -i "s/username_here/$DB_USER/" $WEB_DIR/wordpress/wp-config.php

sudo sed -i "s/password_here/$DB_PASS/" $WEB_DIR/wordpress/wp-config.php


# Restart Apache

echo "Restarting Apache..."

sudo systemctl restart apache2


echo "MySQL Database Name: ${DB_NAME}"

echo "Wordpress App Has been Installed Successfully !"
```

Screenshots :



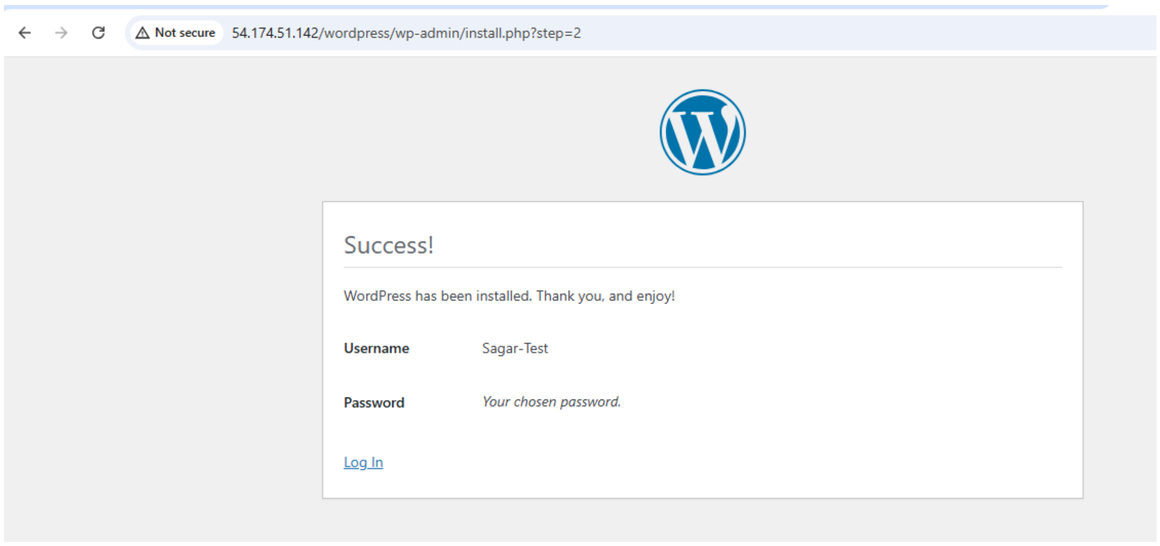
Instances (1/3) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability
LAMP APP Q3	i-0bb66f419335b6e78	Running	t2.micro	...	View alarms +	us-east-1d
Devops L1 LAMP	i-003bb7bbb65a0ba62	Terminated	t2.micro	...	View alarms +	us-east-1d
Devops Lamp 1	i-0e41d520c0a67f84e	Stopping	t2.micro	...	View alarms +	us-east-1d

i-0bb66f419335b6e78 (LAMP APP Q3)

Instance summary Info

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0bb66f419335b6e78	54.174.51.142 | open address	192.168.1.141

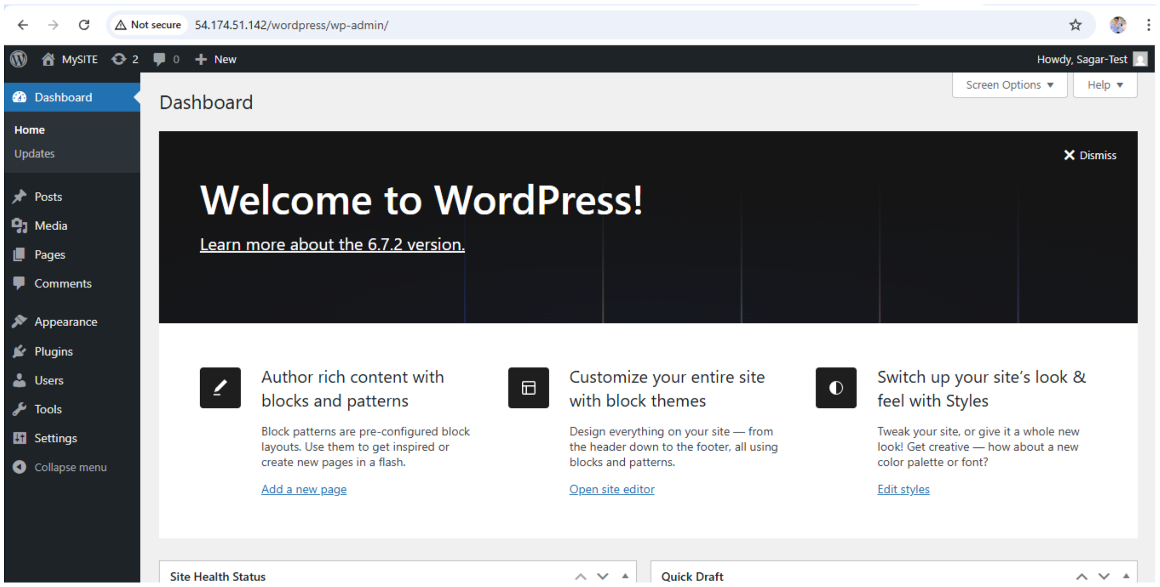

Not secure 54.174.51.142/wordpress/wp-admin/install.php?step=2

Success!

WordPress has been installed. Thank you, and enjoy!

Username	Sagar-Test
Password	*Your chosen password.*

Log In



Dashboard

Welcome to WordPress!

Learn more about the 6.7.2 version.

Author rich content with blocks and patterns

Block patterns are pre-configured block layouts. Use them to get inspired or create new pages in a flash.

Add a new page

Customize your entire site with block themes

Design everything on your site — from the header down to the footer, all using blocks and patterns.

Open site editor

Switch up your site's look & feel with Styles

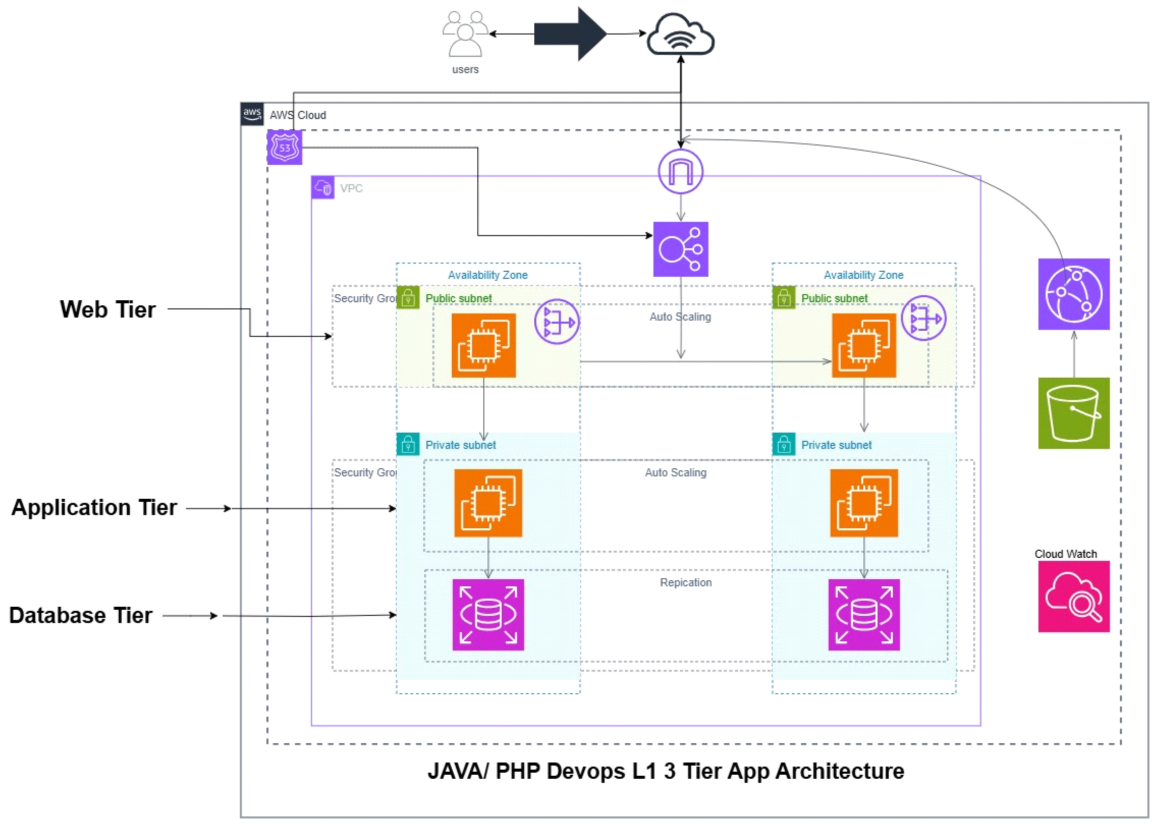
Tweak your site, or give it a whole new look! Get creative — how about a new color palette or font?

Edit styles

Question/Assignment 4

Let's say you are working on an application which is hosted on AWS or Azure. Draw an architecture diagram for a PHP/JAVA/Python-based application to be hosted on AWS with all mentions like VPC, AWS/any other cloud platform services, well-defined network segregation. Any more details that you think are necessary please do include them.

Answer :



Explanation: Flow 1st => User -> Route53 -> Lodbalancer ->EC2 Web -> EC2 App -> RDS Database.

We setp S3 for allowing user to store Large Files , RDS Backup and other data which is required by users. Also setup cloudfront for reducing the data transfer delaytimings if serving static assessts globally.

For high Availability Multiple Az's and RDS Databases enabled with Multiple Az replication for failovers support.

Internet Gatway is used to provide access to public subnet and Nat gateway is used for outbond internet accessfor private subnets.

ALB is used for loadbalalncing and routing traffic.

Cloudwatch is used for monitoring the whole AWS Infrastructure and Costs.

BONUS QUESTIONS

1. Write a script which will based on "Number of requests" metric of the ALB/ELB scale up web-app EC2 instances under the Load Balancer, increase AWS Elasticsearch Nodes count, and change the instance size of a MongoDB EC2 instance from m4.large to m4.xlarge. (without using ASG) (Can be done for any cloud platform)

Answer :

```
#!/bin/bash

REQUESTS=$(aws cloudwatch get-metric-statistics ... --output text)

if [ $REQUESTS -gt 1000 ]; then

    aws ec2 run-instances ... --count 2

   aws es update-elasticsearch-domain --domain-name my-es --elasticsearch-cluster-config
"InstanceType=m4.xlarge"

   aws ec2 modify-instance-attribute --instance-id mongo-id --instance-type m4.xlarge

fi
```

2. Write a Terraform/Cloud Formation template for the LAMP stack in Question 2.

Answer :

```
# Terraform template for LAMP stack (AWS)

provider "aws" {

  region = "us-east-1"

}


resource "aws_security_group" "lamp_sg" {

  name        = "lamp-stack-sg"

  description = "Allow HTTP/SSH and MySQL access"


  ingress {

    from_port   = 80

    to_port     = 80

    protocol    = "tcp"

    cidr_blocks = ["0.0.0.0/0"]

  }


  ingress {

    from_port   = 22

    to_port     = 22

    protocol    = "tcp"

    cidr_blocks = ["0.0.0.0/0"]

  }


  egress {

    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }
}

resource "aws_instance" "lamp_server" {
  ami                    = "ami-0c55b159cbfafe1f0" # Amazon Linux 2
  instance_type          = "t2.micro"
  vpc_security_group_ids = [aws_security_group.lamp_sg.id]
  key_name               = "ssh-key-name" # Replace with your key

  user_data = file("lamp-setup.sh") # Script from Q3
  tags = {
    Name = "LAMP-Stack-Server"
  }
}

output "wordpress_url" {
  value = "http://${aws_instance.lamp_server.public_ip}"
}

output "mysql_connection" {
  value = "mysql://wpuser:wppass123@${aws_instance.lamp_server.private_ip}/wpdb"
}
```