Cloud Computing– Assignment 2

**Title:** Launch EC2 instance and deploy a website page on it.

**Objective:** To understand and implement EC2 service provided by AWS.

**Problem statement:** Write a program for web feed using PHP and HTML on Amazon EC2 instance.

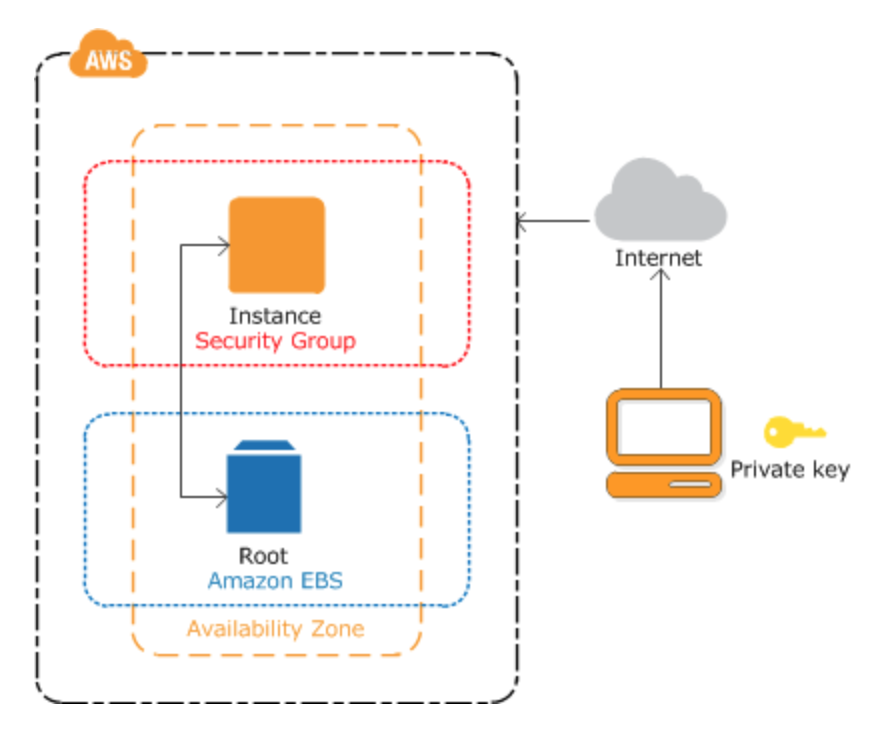
**Software Requirements:** AWS account, Cygwin, MySQL, PHP, SSH.

**Hardware Requirements:** Laptop/Desktop.

**Theory:**

EC2 is short for Elastic Compute Cloud. It is a service which provides us with a virtual server called an instance. With an Amazon EC2, you can set up and configure the OS and install applications on this instance.

The architecture of launching an Amazon EC2 instance looks something like this:



The Instance is an Amazon EBS-backed instance, i.e., root is an EBS volume. Amazon EBS (Elastic Block Storage) provides persistent block storage volumes for use to the instance. Amazon EBS provides the following:

* protects your instance from component failure
* offers high availability and durability
* offers consistent and low-latency performance
* scale your usage up or down within minutes

You can either specify the Availability Zone for your instance (where it should run), or AWS does that automatically for you.

To launch your instance, you need to secure it by specify a key pair and a security group.

A key pair consists of a private key and a public key. The public key will be uploaded to the AWS and inserted into the virtual server. You are suppose to keep the private key; it acts like a password but is much more secure. When you want to connect to an instance, you need to verify your identity. This is done by authentication using the private key.

Security groups are a fundamental service of AWS to control network traffic like a firewall. When an instance is launched, one or more security groups is associated with it.

**Program Code:**

Example of the key used:

-----BEGIN RSA PRIVATE KEY-----

MIIEpAIBAAKCAQEAurvu3lXWMWwTpmM0EeOqMUUQBp2Yd6PtvgOaFsmcQrFwUxuJqhGNmAS50pKH

7r2u1SpD7FMb5p9Gp5L2cdB/W7/6DrbwVbxhGIrRWhAIf0k92V45iiyRd7niKqppLsoVL9pw41d/

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Z0E8RKqR7bAplqHEBtVVYRlmvBlTkN3KCIwuD5SpqptVQvTQBzl2FG5M8r3UDT/lht8gpysSAyxa

PgNc1crwu7QKhSx/p/g9znzEstoGw5JIk10dPX6xWKrN90hiGTw4VQIDAQABAoIBADO0CYWiOrZg

eGhfm3FAmkUeHDvYsvideRxdnvKkTBHjU3iPbWSbi5sF4/W8AMtH1frLwxbSRC1s+IE5necRldHv

q+sbGByFFlVXSnQncFLeErP29POfN3/xBgBOQuVjqs4fK5anCYL8RSmQgW4/5gdhN6ceK2z1vmFf

9P5vz+T9e2HgulVpRC4U3P3lP5MM1aIf1eTVXTT1Am5d+utmLl2xDUQyMidcGTo4NT7OONOgsrbF

2lovsKQRPzpfm8GGxEEqyGC3WMsgEVWFg6Vm/UkE/1gUz52MmFDO8DsdINIYbog6KJfxEOYsBuOM

MCv422XXT8hRRPGDc9hFNS3DNcECgYEA6nvRYEiAZ9ClCisDvNqIItxIMO/7i90hqYVc2H6IqPvd

4Hqk4yqPM6X6egj37cKnHi307Vs6YaKiqUH3eiLw57PVYCeTOzdl8CyiuxhAR1cKZ0SeaVLKYenm

0RApJAgPFZa7vdNkYvuSXERMUUquHA+CTq59ppGpKqZqnfGl+A0CgYEAy95yDWgSOI/piIUxMIgh

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iJkz8F691nLWx11bCDGUMhgivR7NZMQ3q0BP9YUZW+vCsZKZDjU+eP9ml5mR8Iac45+EN719p2kC

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ncAqiFAcMqQyCvjH1XUS1pUCgYBDzUNZOhd1QEeG4+UsItopMgMPajHcPEUqMnNl7R2teQrniONP

gJ6FvDrBjWNImrjewZnz3L41w4f2FnrpIjHevVCZSZNpnbcDJxCjDJ9ORvsvatjvrK2Ay44iH7Bn

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ZFvOnDLJOGzlpHFgkbgPl+UjPgTt61HVOSu5hcbWxXc4HAbuxziSlNuMC/ESwhOuWi9dHtt82ziW

17CbHc+yPwM2fEa1lg247hqd8exfC6DKDgdR1mWDPwOGFhOlPWpfLqxrKtEJoUwgd80z5Q==

-----END RSA PRIVATE KEY-----

The HTML code used for webpage:

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<title>Demo Login Page</title>

<!-- Latest compiled and minified CSS -->

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap.min.css" integrity="sha384-BVYiiSIFeK1dGmJRAkycuHAHRg32OmUcww7on3RYdg4Va+PmSTsz/K68vbdEjh4u" crossorigin="anonymous">

<!-- Optional theme -->

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/css/bootstrap-theme.min.css" integrity="sha384-rHyoN1iRsVXV4nD0JutlnGaslCJuC7uwjduW9SVrLvRYooPp2bWYgmgJQIXwl/Sp" crossorigin="anonymous">

<!-- Latest compiled and minified JavaScript -->

<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js" integrity="sha384-Tc5IQib027qvyjSMfHjOMaLkfuWVxZxUPnCJA7l2mCWNIpG9mGCD8wGNIcPD7Txa" crossorigin="anonymous"></script>

</head>

<body>

<div class="container" style="margin-top: 50px; width: 850px;">

<div class="col-md-6 col-md-offset-3">

<div class="panel panel-primary">

<div class="panel-heading">

<h3>Login</h3>

</div>

<div style="padding: 10px;">

<form action="logging.php" method="post" autocomplete="off">

<label for="email">Email Address</label><br>

<input type="text" name="email" placeholder="you@hereandthere.com" class="form-control">

<br>

<br>

<label for="password">Password</label><br>

<input type="password" name="password" class="form-control">

<br><br>

<input type="submit" value="Login" class="btn btn-danger btn-block">

</form>

</div>

</div>

</div>

</div>

</body>

</html>

PHP code to establish connection:

<?php

if ($\_SERVER["REQUEST\_METHOD"] == "POST")

{

$servername = "localhost";

$username = "admin";

$password = "admin4321";

$dbname = "exercise";

$conn = mysqli\_connect($servername,$username,$password,$dbname);

if($conn)

{

echo "connection is established.";

}

else

{

die("Connection Failed ".mysqli\_connect\_error());

}

}

?>

PHP code to insert data:

<?php

include("connection.php");

$email = $\_POST['email'];

$password = $\_POST['password'];

$query = "INSERT INTO users VALUES ('$email','$password')";

$data = mysqli\_query($conn, $query);

if($data)

{

echo "Data is inserted..";

}

else

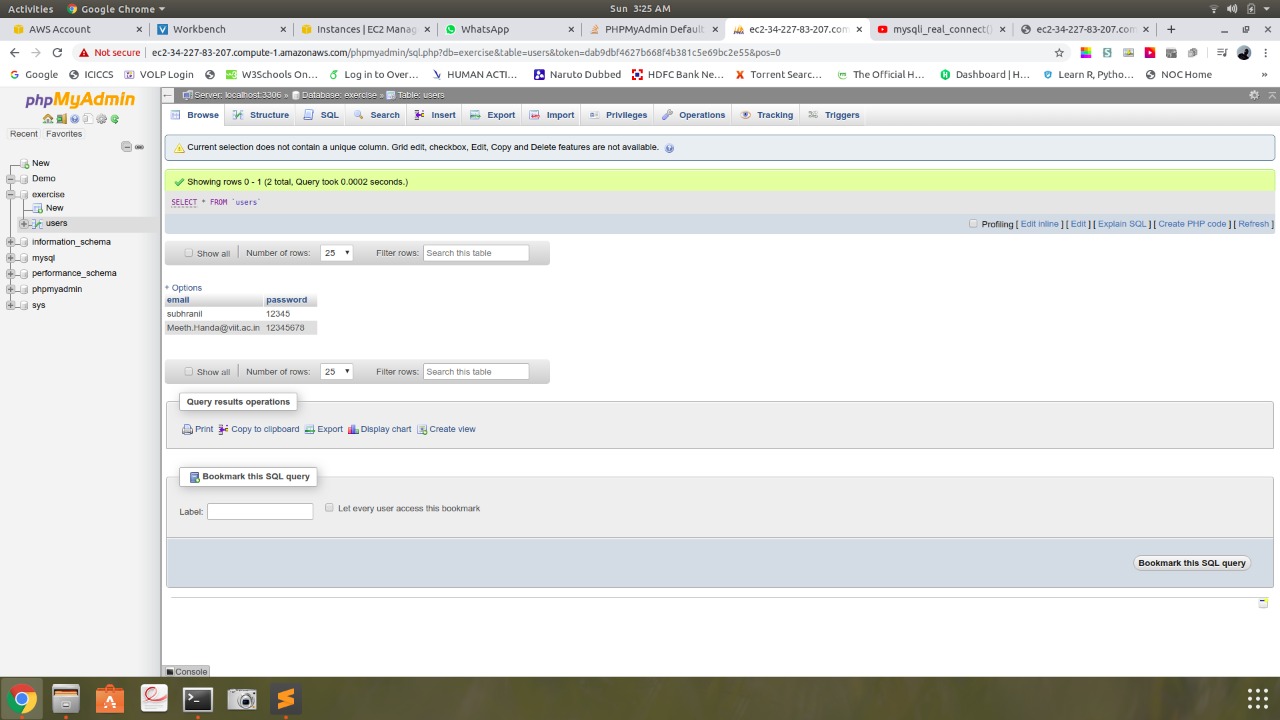
{

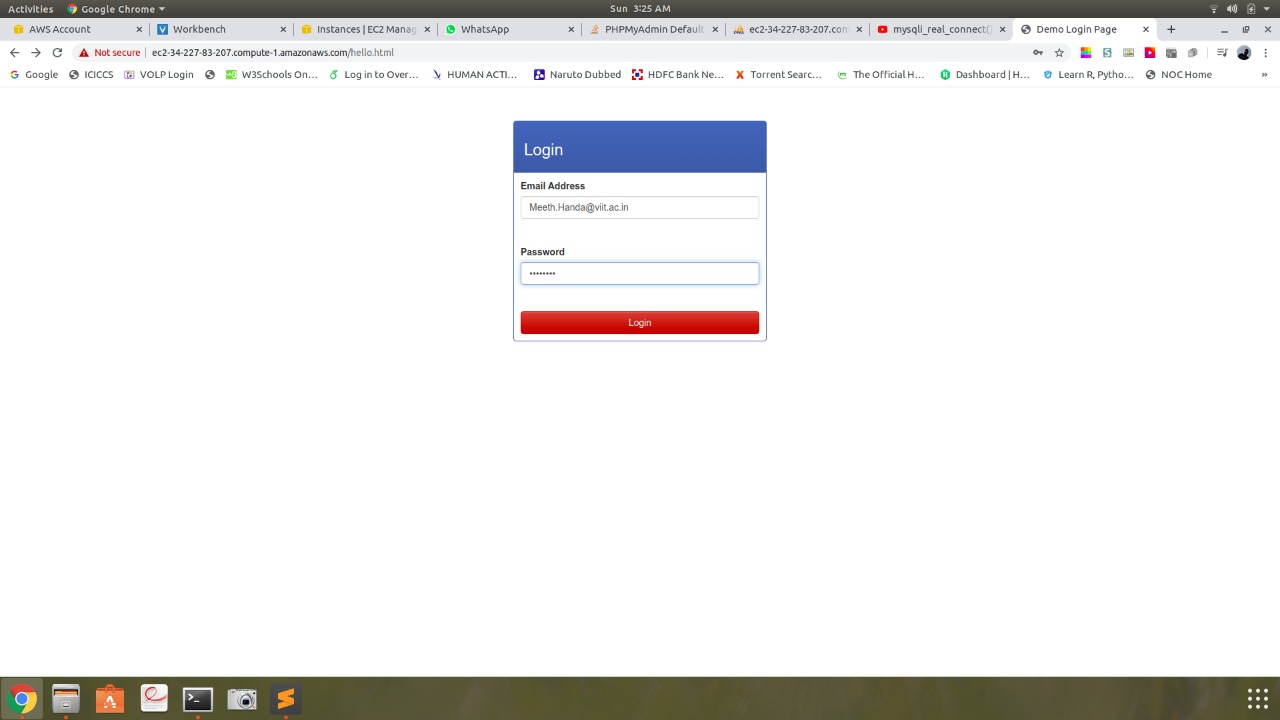
echo "Problem!!!!";

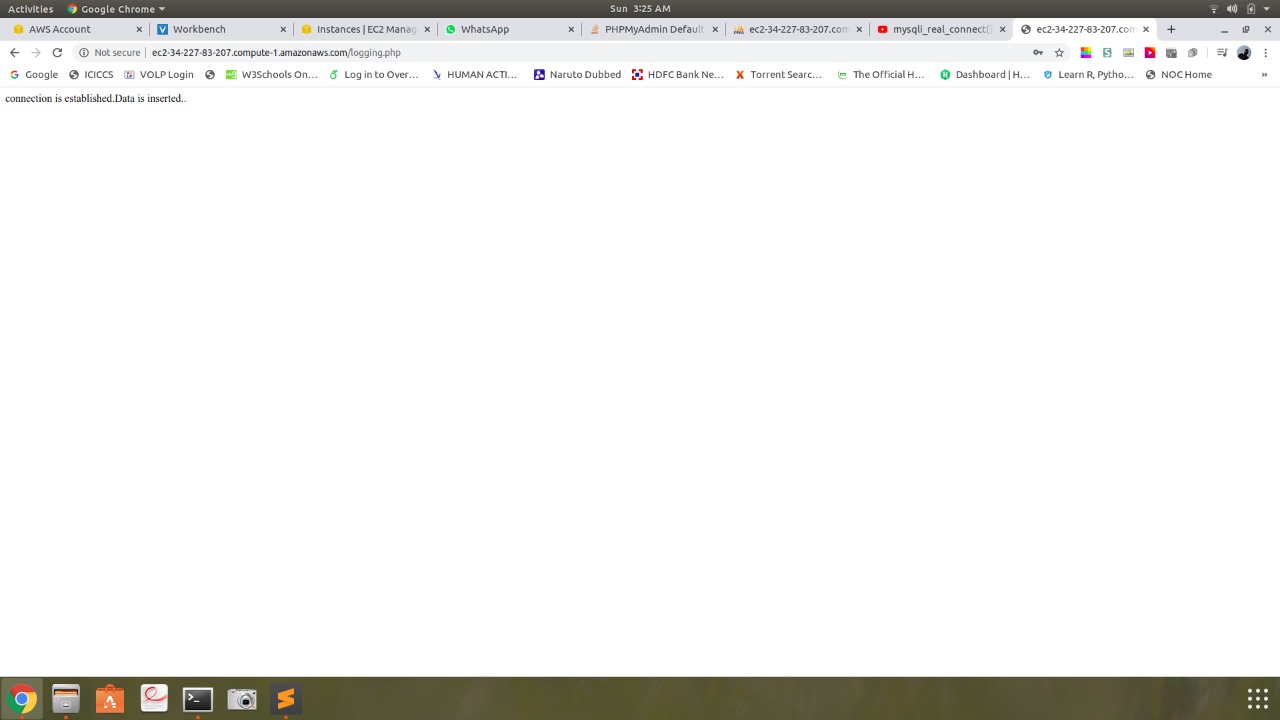
}

?>

**Output Screenshots:**







**Conclusion:**

The EC2 instance is launched successfully using AWS platform.

PHP connection is established and SSH and HTTP are added to the security group of the instance.

Webpage containing a login form is successfully deployed on the virtual server created.