Getting started with EC2, Apache Web Server and PHP Application

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I choose ap-southest-1 region, but for assignment, you should check is this required to choose us-east-1 region.

Task 1. Launch an EC2 and get Apache up running

Step 1. Install LAMP stack on EC2 Linux 2 AMI

- Launch free tier EC2 Linux 2 AMI
- Install LAM by following commands
- Reference here

```
sudo yum update -y
sudo amazon-linux-extras install -y lamp-mariadb10.2-php7.2 php7.2
sudo yum install -y httpd mariadb-server
```

start the Apache web server

```
sudo systemctl start httpd
```

use the systemctl to configure the Apache web server to start each system boot

```
sudo systemctl enable httpd
```

verify that the httpd is on by this command

```
sudo systemctl is-enabled httpd
```

Step 2. Configure a security group

- Port 22 for SSH
- Port 443 for HTTPS
- Port 3000 for testing

Step 3. Enalbe ec2-user write contents to the Apache document root /var/www/

Type this public IP of the instance in a web browser to see the apache web server is running, you should see the Test Page. To develop your app, you need permission to write files in /var/www/html where the Apache server files located. The following commands will give ec2-user permission to write into this directory.

Add your user (ec2-user) to apache group

```
sudo usermod -a -G apache ec2-user
```

Log out and back in again

```
exit
```

Log in SSH again

```
groups
ec2-user adm wheel apache systemd-journal
```

Change the group ownershop of /var/www and its content to the apache group

```
sudo chown -R ec2-user:apache /var/www
```

Add group write permission

```
sudo chmod 2775 /var/www && find /var/www -type d -exec sudo chmod 2775 {}
\;
```

Add group write permission recursively

```
find /var/www -type f -exec sudo chmod 0664 {} \;
```

Step 4. Develop a HelloWorld PHP application

Create a PHP file in the Apache document root

```
echo "<?php phpinfo(); ?>" > /var/www/html/phpinfo.php
```

Go to web browser enter this address to check, please replace {ec2-public-ip} with your ec2 public ip.

```
http://{ec2-public-ip}/phpinfo.php
```

You should see a page as below picture. Further optional step. Copy and paste **hello.html** into /var/www/html/, then go to web-browser to check

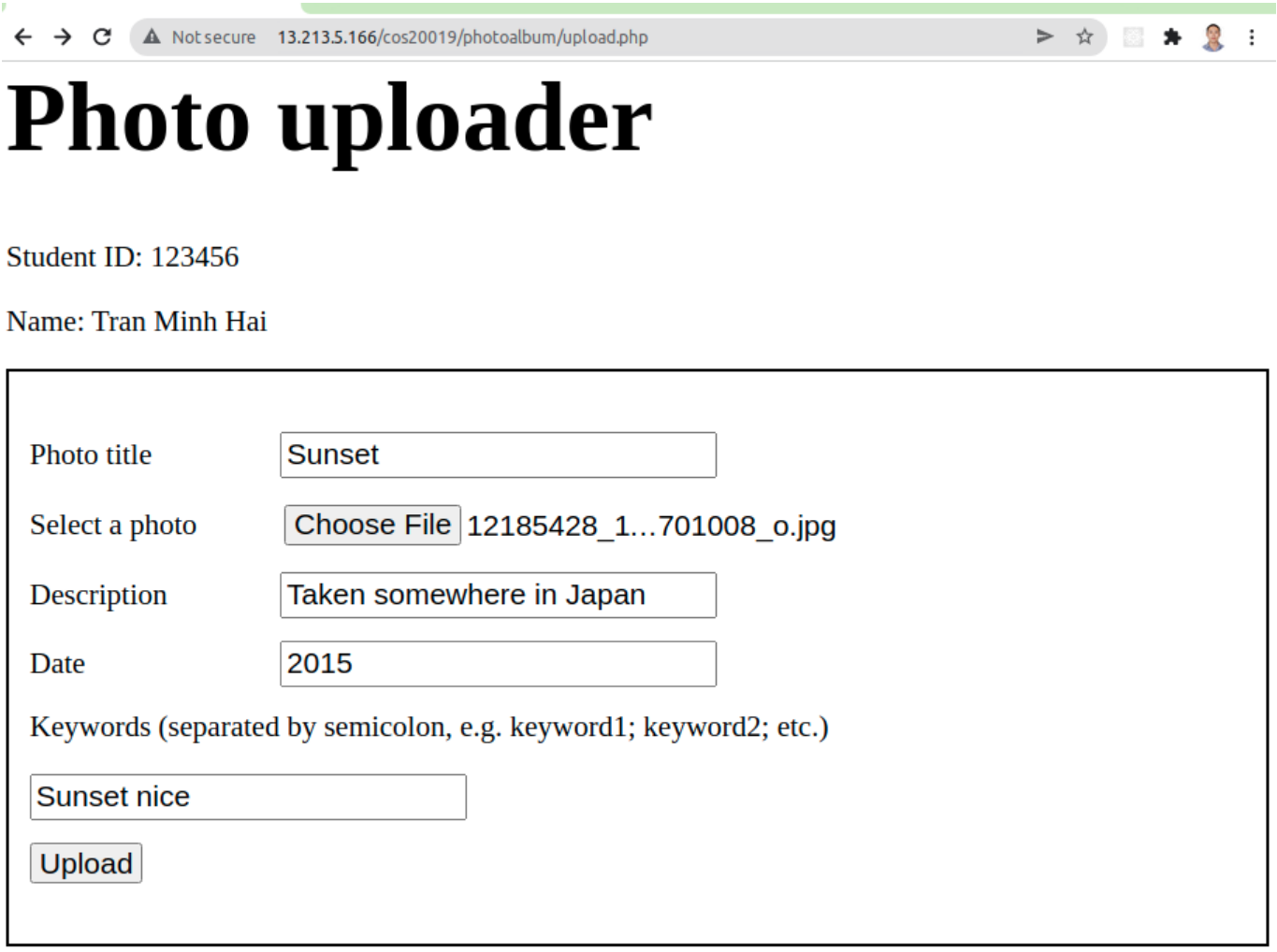
```
http://{ec2-public-ip}/index.html
```

Task 2. Create a PHP web page

Step 1. Folder structure as

```
/var/www/html/cos20019/photoalbum/upload.php
```

Step 2. Create upload.php for an upload form as requirement



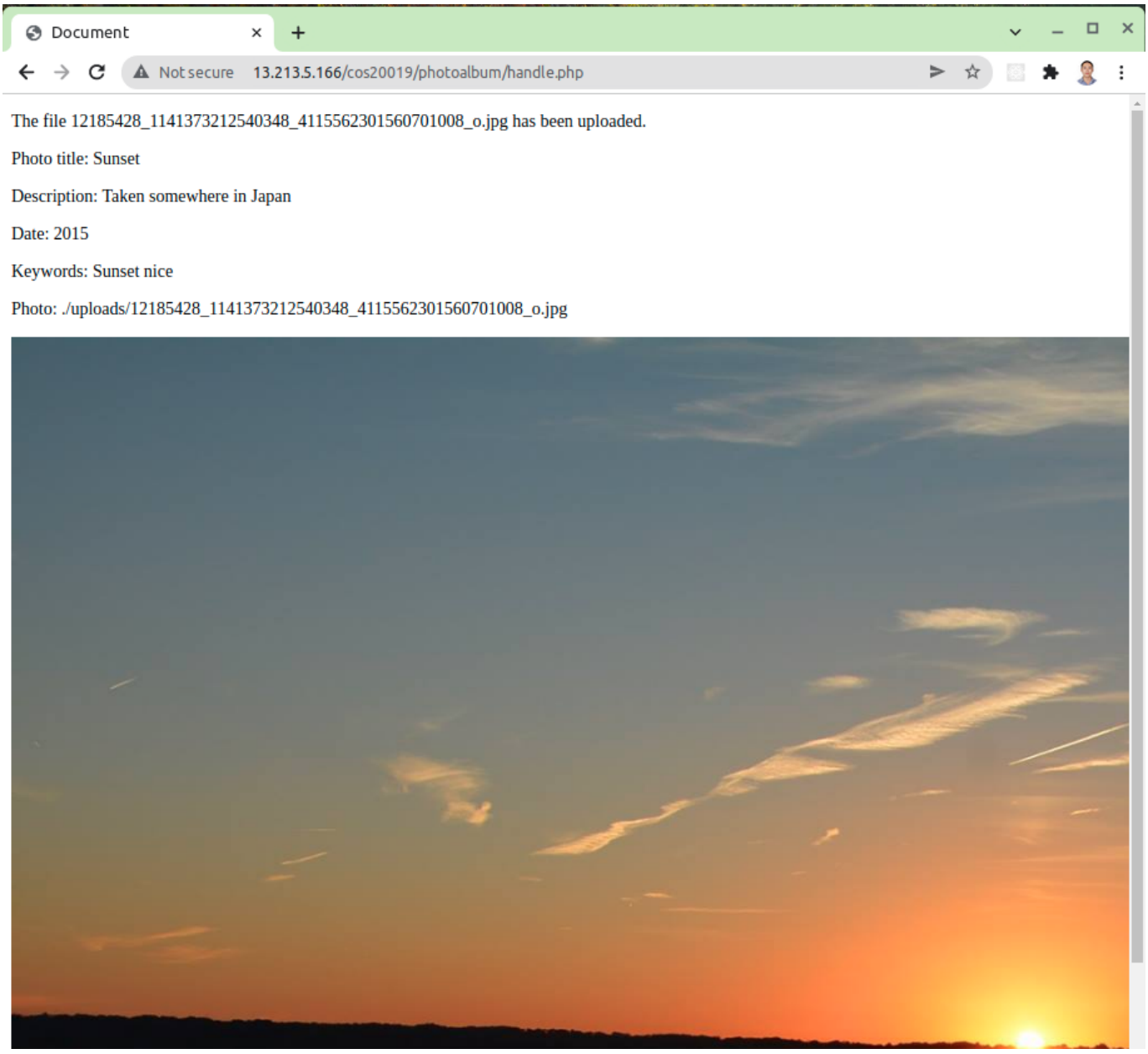
```
<form action="handle.php" method="POST" enctype="multipart/form-data">
        <label for="title">Photo title</label>
        <input type="text" id="title" name="title"> <br><br>
        <label>Select a photo</label>
        <input type="file" id="photo" name="photo"> <br><br>
        <label for="description">Description</label>
        <input type="text" id="description" name="description"> <br><br>
        <label for="date">Date</label>
        <input type="text" id="date" name="date"> <br><br>
        <p>Keywords (separated by semicolon, e.g. keyword1; keyword2; etc.)
</p>
        <input type="text" id="keywords" name="keywords"> <br><br>
        <button style="font-size: 1.5rem;" type="submit">
          Upload
        </button>
</form>
```

Step 3. Write handle.php to save the uploading file

```
 <?php
        $target_dir = "uploads/";
        $target_file = $target_dir . basename($_FILES["photo"]["name"]);
        $uploadOk = 1;
        $imageFileType =
strtolower(pathinfo($target_file,PATHINFO_EXTENSION));
        // Check if image file is a actual image or fake image
        if(isset($_POST["submit"])) {
          $check = getimagesize($_FILES["photo"]["tmp_name"]);
          if($check !== false) {
              echo "File is an image - " . $check["mime"] . ".";
              $uploadOk = 1;
          } else {
              echo "File is not an image.";
              $uploadOk = 0;
            }
        }
        // Check if $uploadOk is set to 0 by an error
        if ($uploadOk == 0) {
        echo "Sorry, your file was not uploaded.";
        // if everything is ok, try to upload file
        } else {
          if (move_uploaded_file($_FILES["photo"]["tmp_name"],
$target_file)) {
              echo "The file ". htmlspecialchars( basename(
$_FILES["photo"]["name"])). " has been uploaded.";
          } else {
              echo "Sorry, there was an error uploading your file.";
          }
       }
    ?>
```

Also display the uploaded image

```
<?php
     $target_file = "uploads/" . basename($_FILES["photo"]["name"]);
     echo '<img src="'.$target_file.'">';
   ?>
```



SCP to transfer data between EC2 and local machine

scp copy from ec2 to local with pem key

```
scp -r -i ~/aws/haitran-swin-free-ec2.pem ec2-
user@13.213.5.166:/var/www/html/cos20019/photoalbum/ .
```