

COS20019 - Cloud Computing Architecture

Assignment 1 - Part A

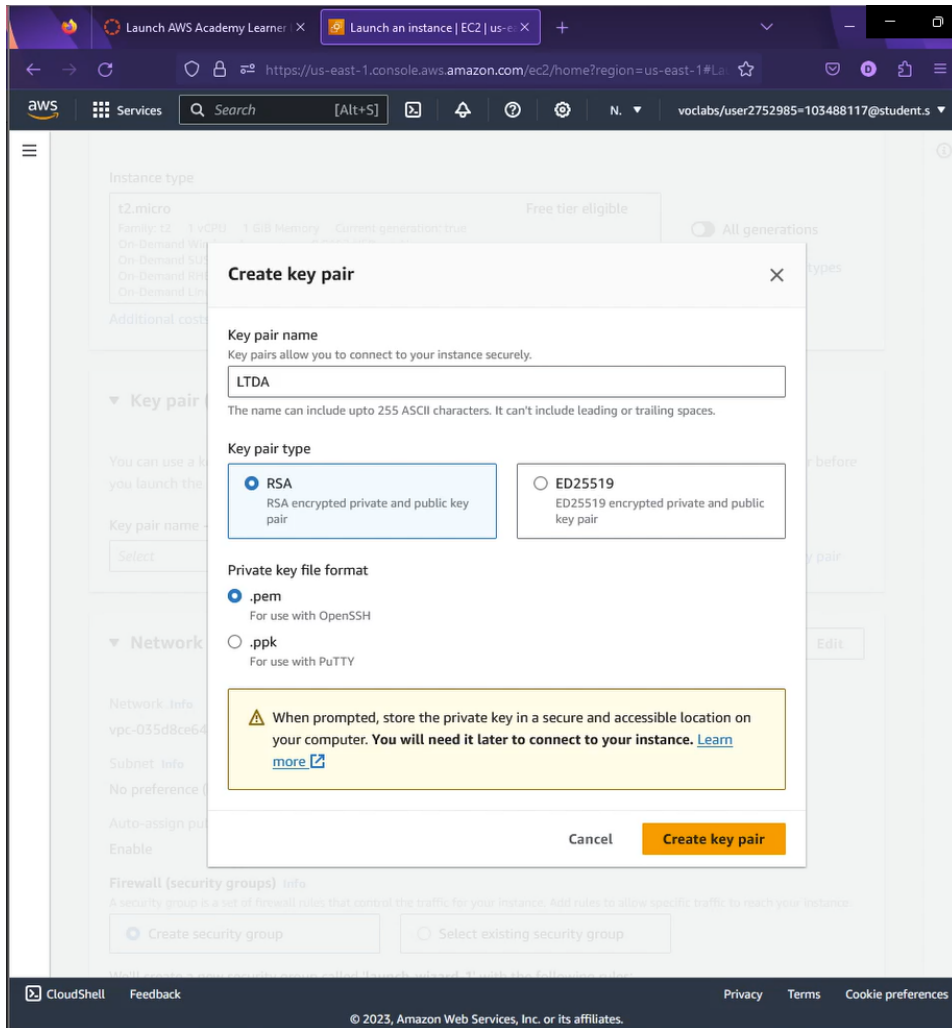
Creating and deploying a Web Page

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Due Date: 01/10/2023

TASK 1 – Launch your own Linux EC2 instance

1. Create my own key pair to access my EC2 instances.
 - a. Name: LTDA
 - b. Key pair type: RSA
 - c. File format: .pem (I can always use PuTTYgen to convert to .ppk)



Name: Trac Duc Anh Luong - ID: 103488117

2. Launch a new EC2 instance.
 - a. Name: Trac Duc Anh Luong's Web Server
 - b. AMI: Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
 - c. Architecture: 64-bit (x86)

The screenshot shows the AWS Management Console interface for launching an EC2 instance. The browser address bar indicates the URL: `https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1`. The user is logged in as `voclabs/user2752985=103488117@student.s`.

Name and tags [Info](#)

Name: [Add additional tags](#)

Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Linux

[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
ami-00c6177f250e07ec1 (64-bit (x86)) / ami-0571d1c0feed82a15 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs [Free tier eligible](#)

Description
Amazon Linux 2 Kernel 5.10 AMI 2.0.20230912.0 x86_64 HVM gp2

Architecture **AMI ID** [Verified provider](#)

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- d. Instance type: t2.micro
- e. Key pair (login): LTDA

The screenshot shows the AWS Management Console for the 'us-east-1' region. The 'Instance type' section is expanded, showing 't2.micro' as the selected instance type. It lists the family as 't2', 1 vCPU, and 1 GiB Memory. Pricing information is provided for On-Demand Windows, SUSE, RHEL, and Linux. The 'Key pair (login)' section is also expanded, showing 'LTDA' as the selected key pair. A 'Create new key pair' button is visible.

Instance type Info

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.0716 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

[Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

LTDA [Create new key pair](#)

- f. Network settings
 - i. VPC: default
 - ii. Security group name: WebServer-SG

The screenshot shows the 'Network settings' section of the AWS Management Console. The 'VPC' is set to 'vpc-035d8ce64a12dd659' (default). The 'Subnet' is set to 'No preference'. 'Auto-assign public IP' is set to 'Enable'. Under 'Firewall (security groups)', the 'Create security group' radio button is selected. The 'Security group name' is set to 'WebServer-SG'.

Network settings Info

VPC - required Info

vpc-035d8ce64a12dd659 (default) [Create new VPC](#)

Subnet Info

No preference [Create new subnet](#)

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group ☐ Select existing security group

Security group name - required

WebServer-SG

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-./()@#,%+=&[]!\$*

- iii. Description: default
- iv. Inbound Security Group Rules:
 - 1. Type: ssh, HTTPS, HTTP
 - 2. Source type: Anywhere

The screenshot shows the AWS Management Console for an EC2 instance named 'launch-wizard-1'. The 'Inbound Security Group Rules' section is expanded, showing three rules:

- Security group rule 1 (TCP, 22, 0.0.0.0/0):**
 - Type: ssh
 - Protocol: TCP
 - Port range: 22
 - Source type: Anywhere
 - Source: 0.0.0.0/0
 - Description: SSH for admin desktop
- Security group rule 2 (TCP, 443, 0.0.0.0/0):**
 - Type: HTTPS
 - Protocol: TCP
 - Port range: 443
 - Source type: Anywhere
 - Source: 0.0.0.0/0
 - Description: SSH for admin desktop
- Security group rule 3 (TCP, 80, 0.0.0.0/0):**
 - Type: HTTP
 - Protocol: TCP
 - Port range: 80
 - Source type: Anywhere
 - Source: 0.0.0.0/0
 - Description: SSH for admin desktop

3. Advanced Details - User data: Use the provided script on Canvas

Metadata transport

Select

Metadata version [Info](#)

Select

Metadata response hop limit [Info](#)

Select

Allow tags in metadata [Info](#)

Select

User data - optional [Info](#)

Upload a file with your user data or enter it in the field.

```
#!/bin/bash
yum update -y
amazon-linux-extras install -y lamp-mariadb10.2-php7.2 php7.2
service httpd start
yum install -y httpd mariadb-server php-mbstring php-xml
systemctl start httpd
systemctl enable httpd
usermod -a -G apache ec2-user
chown -R ec2-user:apache /var/www
chmod 2775 /var/www
find /var/www -type d -exec sudo chmod 2775 {} \;
find /var/www -type f -exec sudo chmod 0664 {} \;
echo "<?php echo '<h2>Welcome to COS80001. Installed PHP version: ' . phpversion()
.'</h2>'; ?>" > /var/www/html/phpinfo.php
```

☐ User data has already been base64 encoded

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g. Summary

The screenshot shows the AWS Management Console for the us-east-1 region. The 'Summary' section for launching an EC2 instance is displayed. It includes a text area with a PHP script, a checkbox for 'User data has already been base64 encoded', and a 'Number of instances' dropdown set to 1. Below this, the 'Software Image (AMI)' is 'Amazon Linux 2 Kernel 5.10 AMI', the 'Virtual server type (instance type)' is 't2.micro', the 'Firewall (security group)' is 'New security group', and the 'Storage (volumes)' is '1 volume(s) - 8 GiB'. A 'Free tier' notification box is present. At the bottom, there are 'Cancel', 'Launch instance', and 'Review commands' buttons.

echo "<?php echo '<h2>Welcome to COS80001. Installed PHP version: ' . phpversion()
' . '</h2>'; ?>"> /var/www/html/phpinfo.php

☐ User data has already been base64 encoded

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)
Amazon Linux 2 Kernel 5.10 AMI...[read more](#)
ami-00c6177f250e07ec1

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

Cancel [Launch instance](#) [Review commands](#)

3. Instance status

- Instance state: Running
- Status check: 2/2 checks passed

The screenshot shows the AWS Management Console for the us-east-1 region, displaying the 'Instances' page. The instance 'Trac Duc Anh Luong's Web Server' is shown with the ID 'i-0b6f510c5547dac75'. Its state is 'Running' and its status check is '2/2 checks passed'.

Instances (1/3) [Info](#) [Refresh](#) [Connect](#) [Instance state](#) [Actions](#) [Launch instances](#)

Name	Instance ID	Instance state	Instance type	Status check
Trac Duc Anh Luong's Web Server	i-0b6f510c5547dac75	Running	t2.micro	2/2 checks passed

Name: Trac Duc Anh Luong - ID: 103488117

4. The browser's Welcome page indicates the EC2 instance, PHP, and Apache server have been installed correctly.

Link: <http://ec2-54-234-6-128.compute-1.amazonaws.com/phpinfo.php>



TASK 2 – Create a PHP website (Photo Album)

- ## 5. Remote access to the EC2 instance with PuTTY

```

ec2-user@ip-172-31-43-190:/var/www/html
login as: ec2-user
Authenticating with public key "imported-openssh-key"

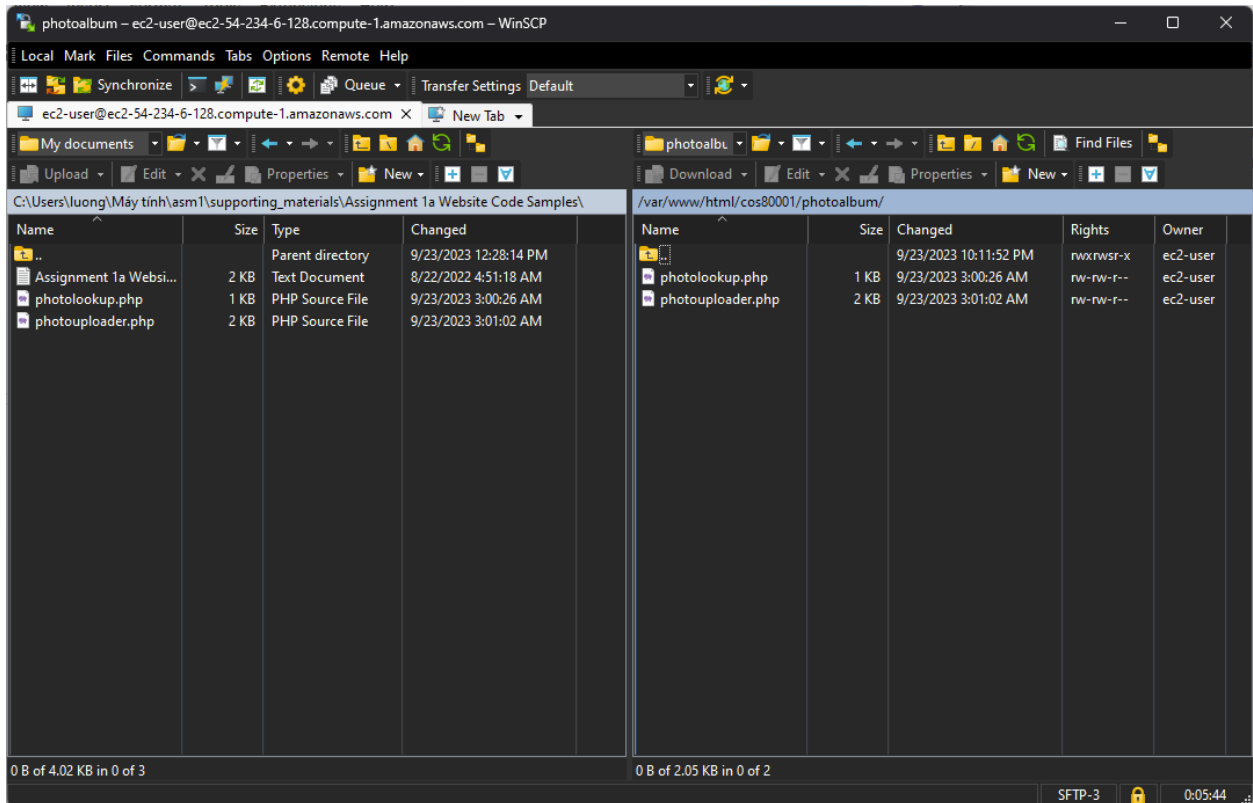
#_
~\##### Amazon Linux 2
~~\#####\
~~\####| AL2 End of Life is 2025-06-30.
~~\#/
~~V~'-'>
~~~
~~~.
~~~/_/_/_/ Amazon Linux 2023, GA and supported until 2028-03-15.
/_/_/_/ https://aws.amazon.com/linux/amazon-linux-2023/

[ec2-user@ip-172-31-43-190 ~]$ ls
[ec2-user@ip-172-31-43-190 ~]$ pwd
/home/ec2-user
[ec2-user@ip-172-31-43-190 ~]$ cd /var/
account/ db/ gopher/ local/ mail/ preserve/ tmp/
adm/ empty/ kerberos/ lock/ nis/ run/ www/
cache/ games/ lib/ log/ opt/ spool/ yp/
[ec2-user@ip-172-31-43-190 ~]$ cd /var/
account/ db/ gopher/ local/ mail/ preserve/ tmp/
adm/ empty/ kerberos/ lock/ nis/ run/ www/
cache/ games/ lib/ log/ opt/ spool/ yp/

```


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6. Exchange files with EC2 instance using WinSCP



7. Directory tree in the browser

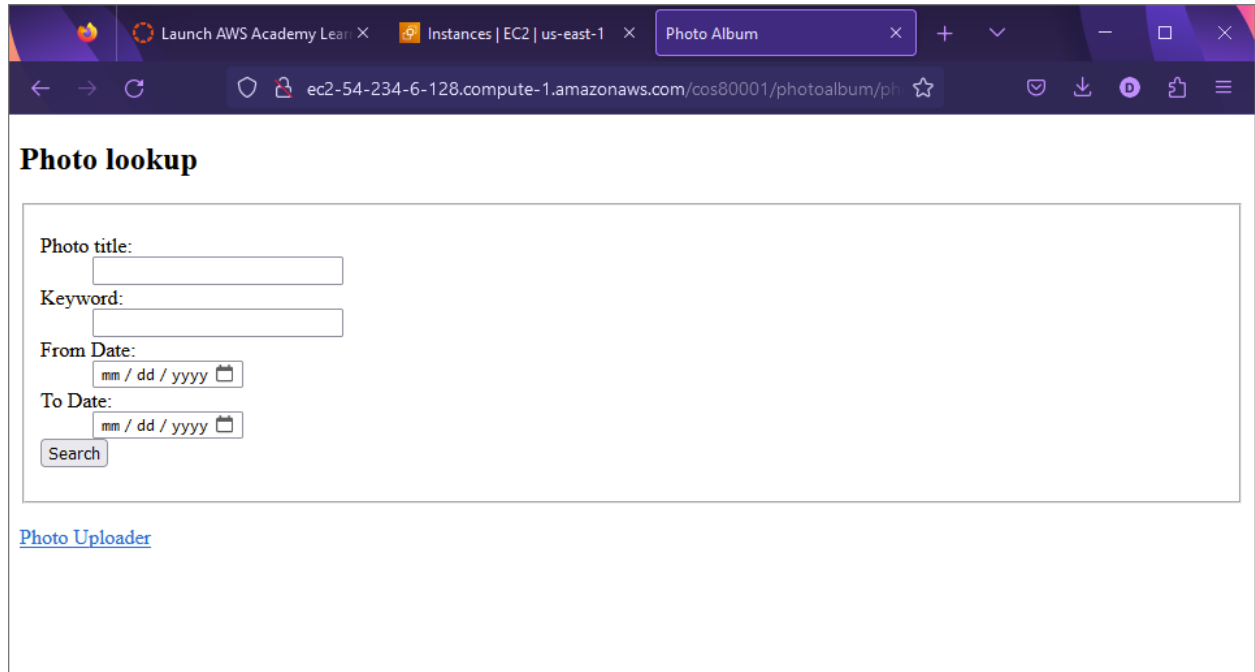
Link: <http://ec2-54-234-6-128.compute-1.amazonaws.com/cos80001/photoalbum/>





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8. Photo lookup page

Link: <http://ec2-54-234-6-128.compute-1.amazonaws.com/cos80001/photoalbum/photolookup.php>



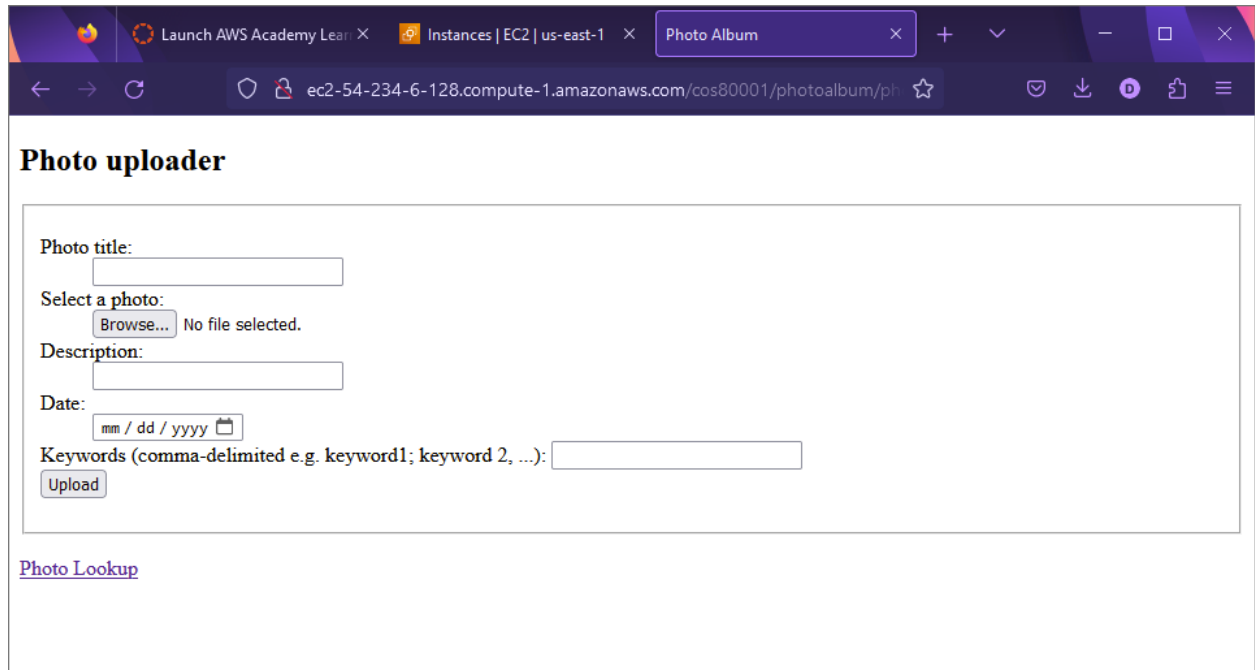
The screenshot shows a web browser window with the title "Photo Album". The address bar displays the URL ec2-54-234-6-128.compute-1.amazonaws.com/cos80001/photoalbum/photolookup.php. The page content is titled "Photo lookup" and contains a form with the following fields:

- Photo title:
- Keyword:
- From Date: 
- To Date: 
-


Below the form, there is a link [Photo Uploader](#).

9. Photo uploader page

Link: <http://ec2-54-234-6-128.compute-1.amazonaws.com/cos80001/photoalbum/photouploader.php>



The screenshot shows a web browser window with the title "Photo Album". The address bar displays the URL ec2-54-234-6-128.compute-1.amazonaws.com/cos80001/photoalbum/photouploader.php. The page content is titled "Photo uploader" and contains a form with the following fields:

- Photo title:
- Select a photo: No file selected.
- Description:
- Date: 
- Keywords (comma-delimited e.g. keyword1; keyword 2, ...):
-

Below the form, there is a link [Photo Lookup](#).