

SWINBURNE UNIVERSITY

Assignment 2

COS20019

CONG THANH NGO - 103433609



1 VPC Subnets

The screenshot shows the AWS VPC Management Subnets page. On the left, there's a sidebar with navigation links like VPC Dashboard, EC2 Global View, Filter by VPC, and a VIRTUAL PRIVATE CLOUD section containing Your VPCs, Subnets, Route Tables, Internet Gateways, Egress Only Internet Gateways, Carrier Gateways, DHCP Options Sets, Elastic IPs, Managed Prefix Lists, Endpoints, Endpoint Services, and NAT Gateways. The main content area has a title "Subnets (4/10) Info" and a search bar. A table lists four subnets:

Name	Subnet ID	State	VPC	IPv4 CIDR	IP Range
-	subnet-045e9e0c17afffb99	Available	vpc-081c7f4a24fbef26c	172.31.48.0/20	-
-	subnet-01e0721773e421777	Available	vpc-081c7f4a24fbef26c	172.31.80.0/20	-
-	subnet-0973b55e9fde1a947	Available	vpc-081c7f4a24fbef26c	172.31.32.0/20	-
-	subnet-097713250c82d11c4	Available	vpc-081c7f4a24fbef26c	172.31.16.0/20	-
CThanh-subnet-public2-us-east-1b	subnet-052d827cdd0552ac3	Available	vpc-0a1b64847bee709b7 CT...	10.0.2.0/24	-
-	subnet-03166024ef095c026	Available	vpc-081c7f4a24fbef26c	172.31.0.0/20	-
-	subnet-0f368f36b7fb5c844	Available	vpc-081c7f4a24fbef26c	172.31.64.0/20	-
CThanh-subnet-private1-us-east-1a	subnet-06ce1ad2aa564fe69	Available	vpc-0a1b64847bee709b7 CT...	10.0.3.0/24	-
CThanh-subnet-public1-us-east-1a	subnet-099061ac1cf6165ee	Available	vpc-0a1b64847bee709b7 CT...	10.0.1.0/24	-
CThanh-subnet-private2-us-east-1b	subnet-07c2857d40b6ffa66	Available	vpc-0a1b64847bee709b7 CT...	10.0.4.0/24	-

At the bottom, it says "Subnets: subnet-07c2857d40b6ffa66, subnet-099061ac1cf6165ee, subnet-06ce1ad2aa564fe69, subnet-052d827cdd0552ac3".

1.1 VPC Route Table

This screenshot is identical to the one above, showing the AWS VPC Management Subnets page. It displays the same list of subnets and the same message at the bottom: "Subnets: subnet-07c2857d40b6ffa66, subnet-099061ac1cf6165ee, subnet-06ce1ad2aa564fe69, subnet-052d827cdd0552ac3". The interface and layout are the same, with the sidebar on the left and the main content area on the right.

2 Web Tier Security Group

The screenshot shows the AWS VPC Management Console with the URL <https://us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#securityGroups>. The left sidebar shows the navigation menu with 'EC2' selected. The main area displays the 'Security Groups (1/5) Info' table. The table has columns: Name, Security group ID, Security group name, VPC ID, Description, and Owner. Two rows are listed: 'db_tier_sg' (sg-010d8d0480a7aa473) and 'web_tier_sg' (sg-04facbfcfecc68c7). Below the table, a message says 'You can now check network connectivity with Reachability Analyzer' with a 'Run Reachability Analyzer' button.

Name	Security group ID	Security group name	VPC ID	Description	Owner
-	sg-010d8d0480a7aa473	db_tier_sg	vpc-0a1b64847bee709b7	Database tier security ...	076933040145
<input checked="" type="checkbox"/>	sg-04facbfcfecc68c7	web_tier_sg	vpc-0a1b64847bee709b7	Web tier security group	076933040145

Inbound rules (4)

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-05bd32c0b316b8...	-	HTTP	TCP	80
-	sgr-00c5d7564b91cbb3c	IPv4	SSH	TCP	22
-	sgr-0125742b2f20d75...	IPv4	HTTP	TCP	80
-	sgr-0a9ef6e82fc86486	-	SSH	TCP	22

2.1 ELB Security Group

The screenshot shows the AWS VPC Management Console with the URL <https://us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#securityGroups>. The left sidebar shows the navigation menu with 'EC2' selected. The main area displays the 'Security Groups (1/5) Info' table. The table has columns: Name, Security group ID, Security group name, VPC ID, Description, and Owner. Two rows are listed: 'web_tier_sg' (sg-04facbfcfecc68c7) and 'elb_sg' (sg-072b3fb6ffc461f35). Below the table, a message says 'You can now check network connectivity with Reachability Analyzer' with a 'Run Reachability Analyzer' button.

Name	Security group ID	Security group name	VPC ID	Description	Owner
-	sg-04facbfcfecc68c7	web_tier_sg	vpc-0a1b64847bee709b7	Web tier security group	076933040145
<input checked="" type="checkbox"/>	sg-072b3fb6ffc461f35	elb_sg	vpc-0a1b64847bee709b7	alb security group	076933040145

Inbound rules (1)

Name	Security group rule...	IP version	Type	Protocol	Port range
-	sgr-0ddfe2efd10e34b34	IPv4	HTTP	TCP	80

2.2 DB Security Group

The screenshot shows the AWS VPC Management Console with the URL <https://us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#securityGroups>. The left sidebar is collapsed, showing the EC2 service icon. The main content area displays a table titled "Security Groups (1/5) Info". The table has columns: Name, Security group ID, Security group name, VPC ID, Description, and Owner. There are three entries:

Name	Security group ID	Security group name	VPC ID	Description	Owner
-	sg-010d8d0480a7aa473	db_tier_sg	vpc-0a1b64847bee709b7	Database tier security ...	076933040145
-	sg-04facbcfccecc68c7	web_tier_sg	vpc-0a1b64847bee709b7	Web tier security group	076933040145
-	sg-077b748c64e47700b7	-	vpc-0a1b64847bee709b7	-	076933040145

Below the table, there are tabs for "Details", "Inbound rules", "Outbound rules", and "Tags". A message box says "You can now check network connectivity with Reachability Analyzer" with a "Run Reachability Analyzer" button.

3 Running EC2 Instances

The screenshot shows the AWS EC2 Management Console with the URL <https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances>. The left sidebar is collapsed, showing the EC2 service icon. The main content area displays a table titled "Instances (1/36) Info". The table has columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Private IP. There are seven entries, all in the "Running" state:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
Assignment 2 Web Server	i-09510fb9f27979b92	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b
-	i-08308f6467d41fd34	Terminated	t2.micro	-	No alarms	us-east-1b
-	i-00c630c29bde47b63	Terminated	t2.micro	-	No alarms	us-east-1b
-	i-0459f5a8bc9690c0e	Terminated	t2.micro	-	No alarms	us-east-1b
-	i-0db751f001201aa0d	Terminated	t2.micro	-	No alarms	us-east-1b
-	i-02729f01f237ace07	Terminated	t2.micro	-	No alarms	us-east-1b

Below the table, there is a detailed view for the instance "Assignment 2 Web Server" with ID "i-09510fb9f27979b92". The details include:

- Instance ID: i-09510fb9f27979b92 (Assignment 2 Web Server)
- Public IPv4 address: 44.203.185.152 | [open address](#)
- Private IPv4 addresses: 10.0.2.179
- Public IPv4 DNS: ec2-44-203-185-152.compute-1.amazonaws.com | [open address](#)
- IPv6 address: -
- Instance state: Running

3.1 Instance tags

The screenshot shows the AWS Management Console with the EC2 service selected. On the left, the navigation pane is open, showing various EC2-related options like Dashboard, Global View, Events, Tags, Limits, Instances, and Images. The main content area displays a table of instances. One instance, 'Assignment 2 Web Server' (Instance ID: i-09510fb9f27979b92), is selected and expanded. A detailed view panel on the right shows the instance's configuration, including its tags. The tags listed are:

Key	Value
StudentID	103433609
StudentName	Cong Thanh Ngo
Name	Assignment 2 Web Server

3.2 Instance Description

The screenshot shows the AWS Management Console with the EC2 service selected. The navigation pane is similar to the previous screenshot. The main content area shows the 'Instance summary for i-09510fb9f27979b92 (Assignment 2 Web Server)'. The summary includes the following details:

Attribute	Value
Instance ID	i-09510fb9f27979b92 (Assignment 2 Web Server)
IPV6 address	-
Hostname type	IP name: ip-10-0-2-179.ec2.internal
Instance type	t2.micro
AWS Compute Optimizer finding	Opt-in to AWS Compute Optimizer for recommendations.
Public IP4 address	44.203.185.152
Private IP4 address	10.0.2.179
Public IP4 DNS	ec2-44-203-185-152.compute-1.amazonaws.com
Private IP4 DNS	ip-10-0-2-179.ec2.internal
Elastic IP addresses	-
IAM Role	ec2accessss3
VPC ID	vpc-0a1b64847bee709b7 (CThanh-vpc)
Subnet ID	subnet-052d827cdd0552ac3 (CThanh-subnet-public2-us-east-1b)

4 RDS Instance Page

The screenshot shows the Amazon RDS Management Console with the URL <https://us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#databases>. The left sidebar has 'Databases' selected. The main area is titled 'Databases' with a 'Filter by databases' search bar. A table lists one database: 'cthanhrdsdb' (Instance, MySQL Community, us-east-1a, db.t2.micro, Available, 7.8). The top navigation bar includes tabs for Gmail, Maps, Swinburne Self Serv., Course groups: 202..., Harvard Reference..., Discrete Mathematics..., Functions, Blend it all together..., Python String Form..., and others. The top right shows N. Virginia and user info.

5 Lb

The screenshot shows the AWS EC2 Management Console with the URL <https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#LoadBalancers:sort=loadBalancerName>. The left sidebar has 'Load Balancing' selected with 'Load Balancers' highlighted. The main area shows a table for a load balancer named 'CThanh-LB'. The table columns include Name, DNS name, State, VPC ID, Availability Zones, Type, and Created. The 'Listeners' tab is selected in the navigation bar. The bottom navigation bar includes tabs for Feedback, English (US), Privacy, Terms, and Cookie preferences, along with system status icons.

5.1 Lb config

The screenshot shows the AWS EC2 Management Console with the 'Load Balancers' page open. The left sidebar shows navigation options like AMI Catalog, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and more. The main content area displays a table of load balancers. One entry, 'CThanh-LB', is selected. Below the table, there are tabs for Description, Listeners, Monitoring, Integrated services, and Tags. The 'Listeners' tab is currently active, showing a single listener configuration:

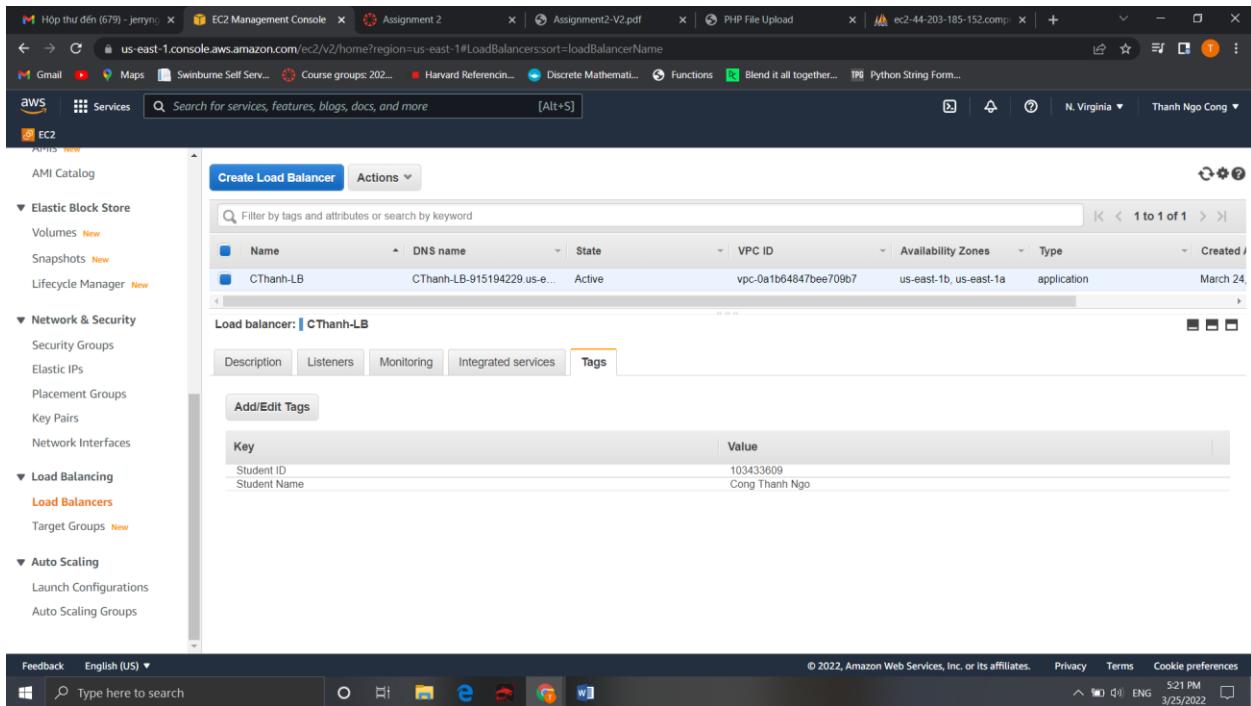
Listener ID	Protocol	Port	Protocol	Port	Action
HTTP : 80	HTTP	80	N/A	N/A	Default: forwarding to CThanh-app Viewedit rules

5.2 Lb Listener

The screenshot shows the AWS EC2 Management Console with the 'Load Balancers' page open. The left sidebar shows navigation options like AMI Catalog, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and more. The main content area displays a table of load balancers. One entry, 'CThanh-LB', is selected. Below the table, there are tabs for Description, Listeners, Monitoring, Integrated services, and Tags. The 'Listeners' tab is currently active, showing a single listener configuration:

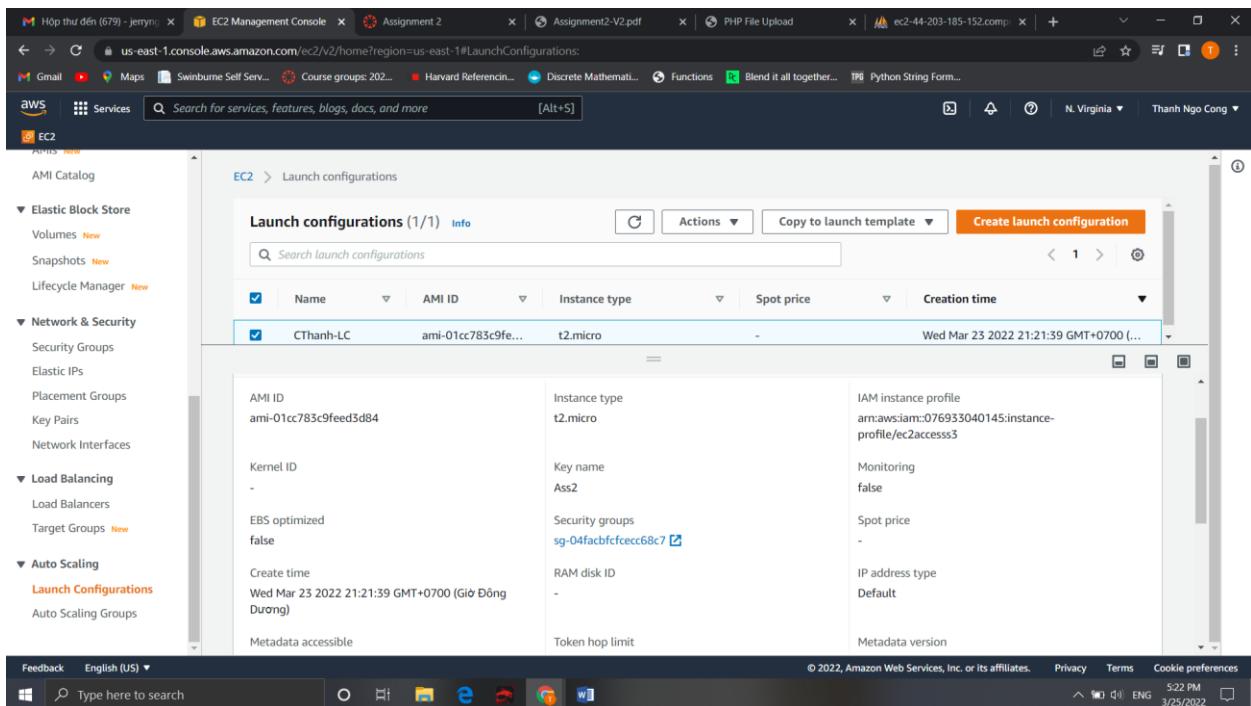
Listener ID	Protocol	Port	Protocol	Port	Action
HTTP : 80	HTTP	80	N/A	N/A	Default: forwarding to CThanh-app Viewedit rules

5.3 Lb Tags



The screenshot shows the AWS EC2 Management Console interface. On the left, there's a navigation sidebar with categories like AMI Catalog, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and Services. Under Services, the EC2 icon is highlighted. The main panel shows a table titled "Create Load Balancer" with one row: "CThanh-LB". Below the table, there are tabs for Description, Listeners, Monitoring, Integrated services, and Tags. The Tags tab is active, displaying a table with two rows: "Student ID" and "Student Name". The "Student ID" row has a value of "103433609". The "Student Name" row has a value of "Cong Thanh Ngo".

6 Launch Configuration Details



The screenshot shows the AWS EC2 Management Console interface. The left sidebar includes categories like AMI Catalog, Elastic Block Store, Network & Security, Load Balancing, Auto Scaling, and Services. The Services section has "Launch Configurations" highlighted. The main area shows a table titled "Launch configurations (1/1)" with one entry: "CThanh-LC". The table columns include Name, AMI ID, Instance type, Spot price, and Creation time. Below the table, detailed information for the "CThanh-LC" launch configuration is shown in a grid format. The details include: AMI ID (ami-01cc783c9fe...), Instance type (t2.micro), IAM instance profile (arn:aws:iam::076953040145:instance-profile/ec2accesss3), Kernel ID (~), Key name (Ass2), EBS optimized (false), Security groups (sg-04facfcfccc68c7), Create time (Wed Mar 23 2022 21:21:39 GMT+0700 (Giờ Đông Dương)), RAM disk ID (~), IP address type (Default), Metadata accessible (~), Token hop limit (~), and Metadata version (~).

7 Auto scaling group

Group details

Desired capacity	Auto Scaling group name
2	CThanh-ASG
Minimum capacity	Date created
2	Thu Mar 24 2022 16:44:06 GMT+0700 (Giờ Đông Dương)
Maximum capacity	Amazon Resource Name (ARN)
3	arn:aws:autoscaling:us-east-1:076933040145:autoScalingGroup:a0757fda-f191-435b-b260-b1d07e165c70:autoScalingGroupName/CThanh-ASG

Launch configuration

Launch configuration	AMI ID	Security groups
CThanh-LC	ami-01cc785c9feed3d84	sg-04fabcbfccecc68c7
Instance type	Key pair name	Create time
		© 2022, Amazon Web Services, Inc. or its affiliates.

7.1 Auto Scaling Tags

Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availability Zones
CThanh-ASG	CThanh-LC	5	Updating capacity	2	2	3	us-east-1a, us-east-1b

Tags (2)

Key	Value	Tag new instances
Student ID	103433609	Yes
Student Name	Cong Thanh Ngo	Yes

8 S3Album Access Policy

The screenshot shows the AWS IAM Management Console with the 'ec2accesss3' role selected. The 'Trust relationships' tab is active, displaying the JSON policy document:

```
1+ [ "Version": "2012-10-17", "Statement": [ { "Effect": "Allow", "Principal": { "Service": "ec2.amazonaws.com", "AWS": "arn:aws:iam::076933040145:role/ec2accesss3" }, "Action": "sts:AssumeRole" } ] ]
```

The sidebar on the left shows the 'Roles' section under 'Access management'. The right panel contains a detailed description of what a role is and how it differs from an IAM user.

9 Role

The screenshot shows the AWS IAM Management Console with the 'Roles' page. A blue banner at the top says: 'Introducing the new IAM roles experience. We've redesigned the IAM roles experience to make it easier to use. Let us know what you think.' The 'ec2accesss3' role is listed in the table:

Role name	Trusted entities	Last activity
AmazonElasticTranscoderRole	AWS Service: elastictranscoder	24 hours ago
AWSServiceRoleForAutoScaling	AWS Service: autoscaling (Service-Linked Role)	15 minutes ago
AWSServiceRoleForElasticLoadBalancing	AWS Service: elasticloadbalancing (Service-Linked Role)	24 hours ago
AWSServiceRoleForRDS	AWS Service: rds (Service-Linked Role)	2 days ago
AWSServiceRoleForSupport	AWS Service: support (Service-Linked Role)	-
AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service-Linked Role)	-
ec2accesss3	Account: 076933040145	24 hours ago

9.1 Role Permission

The screenshot shows the AWS IAM Management Console with the 'ec2accessss3' role selected. The left sidebar shows navigation options like Dashboard, Access management, Roles, Policies, and Access reports. The main panel displays the role's summary, including creation date (March 11, 2022), ARN (arn:aws:iam::076933040145:role/ec2accessss3), and last activity (24 hours ago). It also shows maximum session duration (1 hour) and provides links to switch roles and view instance profiles. Below the summary, there are tabs for Permissions, Trust relationships, Tags, Access Advisor, and Revoke sessions. Under the Permissions tab, it shows one managed policy: 'AmazonS3FullAccess'. The policy is described as providing full access to all buckets via AWS managed.

9.2 Role Tags

This screenshot is identical to the previous one, showing the 'ec2accessss3' role in the AWS IAM Management Console. However, it includes two new tags: 'StudentID' with value '103433609' and 'StudentName' with value 'Cong Thanh Ngo'. These tags are listed under the 'Tags' section of the role's details page.

10 S3 Bucket Policy

The screenshot shows the AWS S3 Bucket policy configuration page. On the left, there's a sidebar with 'Amazon S3' and 'Buckets'. The main area is titled 'Bucket policy' and contains a JSON code editor. The JSON code is as follows:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "Statement1",
      "Effect": "Allow",
      "Principal": "*",
      "Action": [
        "s3:GetObject",
        "s3:PutObjectAcl",
        "s3:PutObject"
      ],
      "Resource": "arn:aws:s3:::cthanhass2/upload"
    }
  ]
}
```

At the bottom, there's an 'Object Ownership' section with a 'Info' link.

11 Photo Viewer Page

The screenshot shows the 'Photo Album View' page. The URL is <https://ec2-44-203-185-152.compute-1.amazonaws.com/cos2019/photoalbum/getphotos.php?>. The page displays a form for searching photos:

Photo Title:

Date Start: **Date Finish:**

Keyword:



11.1 Photo Viewer Result

0000					
title	date	keyword	description	reference	
photo	2022-03-22	Assignment 2	random	https://cthanhass2.s3.amazonaws.com/upload/Screenshot%20%28282%29.png	
Assgn2	0000-00-00	aws2	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/Screenshot%20%28268%29.png	
photo2	2022-03-23	aws3	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/Screenshot%20%28269%29.png	
photo3	2022-03-23	aws4	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/Screenshot%20%28269%29.png	
photo5	2022-03-24	aws6	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/witcher3.jpg	
photo6	2022-03-25	aws7	test upload	https://cthanhass2.s3.amazonaws.com/upload/Screenshot%20%28291%29.png	

12 Photo Uploader Page

Student ID: 103433609

Student Name: NGO CONG THANH

Upload photo Form

Photo title

Select a photo Không có tệp nào được chọn

Description

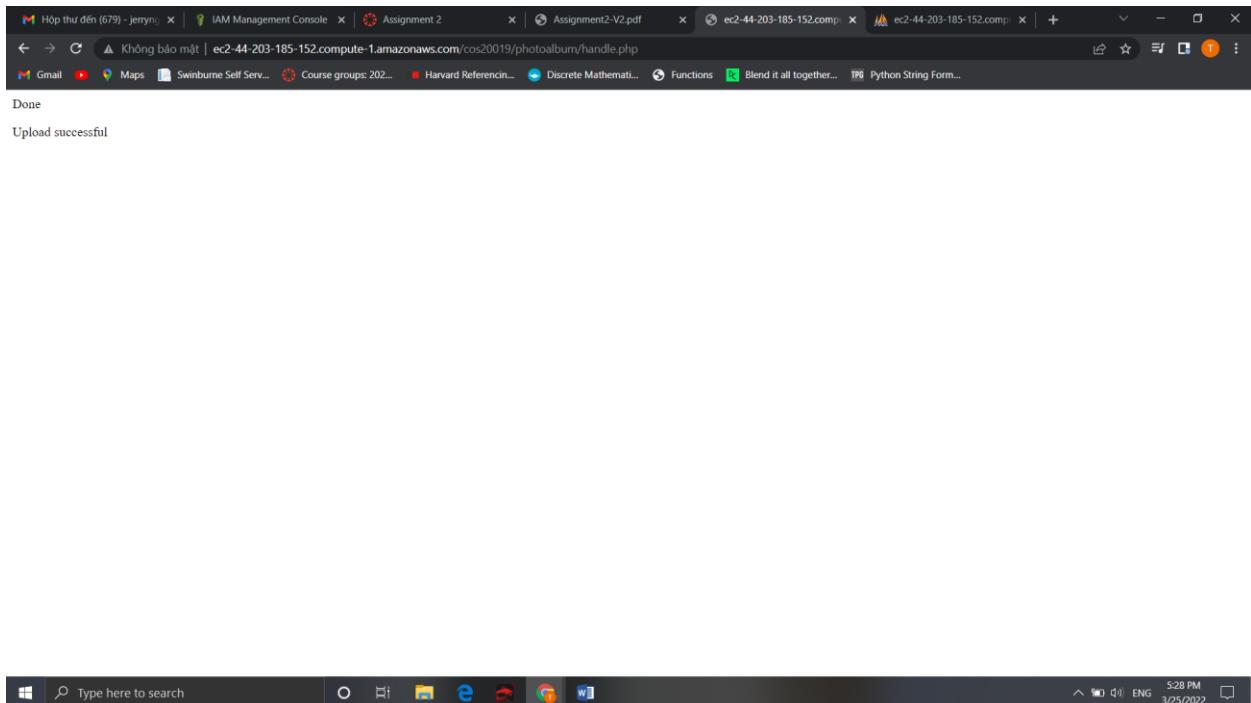
Date dd/mm/yyyy

Keywords (separated by semicolon, e.g. keyword1; keyword2; etc.)

[Go to Photo Album view](#)



12.1 Photo Upload Result (Success)



13 phpMyAdmin Database handling

A screenshot of the phpMyAdmin interface. The left sidebar shows the database structure with a table named 'Photos'. The main area displays the contents of the 'Photos' table:

title	date	keyword	description	reference
photo	2022-03-22	Assignment 2	random	https://cthanhass2.s3.amazonaws.com/upload/Screens...
Assign2	2000-00-00	aws2		Assignment 2 https://cthanhass2.s3.amazonaws.com/upload/Screens...
photo2	2022-03-23	aws3	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/Screens...
photo3	2022-03-23	aws4	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/Screens...
photo5	2022-03-24	aws6	Assignment 2	https://cthanhass2.s3.amazonaws.com/upload/witcher...
photo6	2022-03-25	aws7	test upload	https://cthanhass2.s3.amazonaws.com/upload/Screens...

14 Question

14.1 Did you face any challenges? Explain them – and how you overcame them?

During the implementation for this assignment, I have faced several obstacles. Setting up the EC2 instance is the thing that I haven't done in previous assignment, but now I built a upload website and a search function website according to reference website that provide php code. Another thing is that The load balancer is not working properly. I have tried to create a Transcoder for the LB but is still not. May be in further assignments, I will try to fix this issue. Cloud Formation is biggest issue that I cannot solve because I have already implemented all the service and to the last step that required to deploy the web server using JSON document. I don't know how to add the existing service into the JSON code.

14.2 In terms of your learning, highlight 3 key takeaway points.

Firstly, Cloud Formation should be created first in order to deploy the network and the website server. In addition, the Load Balancer need to connect to right target group. I have failed the health check because wrong target group. Finally, when accessing the RDS database, we need to establish the security configuration to verify the user that access to your RDS instance.

15 Reference

Vadadoriya, S., 2018. *Connect AWS RDS MySQL instance with phpMyAdmin ~ ServerKaKa*. [online] Serverkaka.com. Available at: <<https://www.serverkaka.com/2018/09/connect-aws-rds-mysql-instance-with-phpmyadmin.html>> [Accessed 25 March 2022].

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W3schools.com. n.d. *PHP File Upload*. [online] Available at: <https://www.w3schools.com/php/php_file_upload.asp> [Accessed 27 March 2022].