

Assignment 1B

Cloud computing architecture

Cos20019

Semester 2, 2023

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Tutorial class: Saturday 13:00 PM

Website link:

<http://ec2-52-71-221-121.compute-1.amazonaws.com/cos80001/photoalbum/album.php>

1.1 Create an VPC

The screenshot shows the AWS VPC Management Console with the following details for the VPC:

Details	Info
VPC ID	vpc-0aef9484b33a09b07
Tenancy	Default
Default VPC	No
IPv4 CIDR	10.0.0.0/16
Network Address Usage metrics	Disabled
DNS hostnames	Enabled
Main route table	rtb-0128a9a731a4bd473
IPv6 pool	-
Owner ID	522472051361
DNS resolution	Enabled
Main network ACL	ad-01df54928dd67d79b
IPv6 CIDR (Network border group)	-

The Resource map section shows the VPC structure with four subnets (us-east-1a, us-east-1b, us-east-1c, us-east-1d), four route tables (AtranVPC-rtb-public, AtranVPC-rtb-private1-us-east-1a, AtranVPC-rtb-private2-us-east-1b, AtranVPC-rtb-private1-us-east-1c), and two network connections (AtranVPC-igw, AtranVPC-vpc-s3).

1.2 Create Test instance Security group

Assignment 1b | VPC Management Console | Learner Lab | Assignment 1b - Google Tài liệu | +

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#SecurityGroup:groupId=sg-032cd2eb8c60f0c74

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AWS Services Search [Alt+S]

Security group (sg-032cd2eb8c60f0c74 | TestInstanceSG) was created successfully

Details

VPC Management Console > Security Groups > sg-032cd2eb8c60f0c74 - TestInstanceSG

sg-032cd2eb8c60f0c74 - TestInstanceSG

Details

Security group name TestInstanceSG	Security group ID sg-032cd2eb8c60f0c74	Description TestInstanceSG	VPC ID vpc-0ae9484b53a09b07
Owner 322472051361	Inbound rules count 1 Permission entry	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Inbound rules (1/1)

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
-	sgr-0537068c6b6b7290f	IPv4	All traffic	All	All	0.0.0.0/0	-

Manage tags | Edit inbound rules

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Assignment 1b | VPC Management Console | Learner Lab | Assignment 1b - Google Tài liệu | +

us-east-1.console.aws.amazon.com/vpc/home?region=us-east-1#SecurityGroup:groupId=sg-0bd8be9bf5efa5803

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AWS Services Search [Alt+S]

Security group (sg-0bd8be9bf5efa5803 | WebServerSG) was created successfully

Details

VPC Management Console > Security Groups > sg-0bd8be9bf5efa5803 - WebServerSG

sg-0bd8be9bf5efa5803 - WebServerSG

Details

Security group name WebServerSG	Security group ID sg-0bd8be9bf5efa5803	Description WebServerSG	VPC ID vpc-0ae9484b53a09b07
Owner 322472051361	Inbound rules count 2 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules | Outbound rules | Tags

You can now check network connectivity with Reachability Analyzer

Run Reachability Analyzer

Inbound rules (2)

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
-	sgr-0d75e5873b957fd4f	IPv4	SSH	TCP	22	0.0.0.0/0	-
-	sgr-037957213397b1...	IPv4	HTTP	TCP	80	0.0.0.0/0	-

Manage tags | Edit inbound rules

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Screenshot of the AWS VPC Management Console showing the creation of a new security group named "DBServerSG".

Details:

Security group name	DBServerSG	Security group ID	sg-00ee9e94574091134	Description	DBServerSG	VPC ID	vpc-0ae9f9484b53a09b07
Owner	322472051361	Inbound rules count	1 Permission entry	Outbound rules count	1 Permission entry		

Inbound rules:

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
Loading security group rules							

EC2 Management Console:

Security Groups (1/11) - sg-00ee9e94574091134 - DBServerSG:

Name	Security group ID	Security group name	VPC ID	Description	Owner	Inbound rules count	Outbound rules count
-	sg-0bd8be9bf5efa5803	WebServerSG	vpc-0ae9f9484b53a09b07	WebServerSG	322472051361	3 Permission entries	1 Permission entry
-	sg-0e8eaa19ab72b56d7	WebServer-SG	vpc-0918d4dfbc1a526ec	launch-wizard-1 create...	322472051361	3 Permission entries	1 Permission entry
-	sg-00f903eb64f2b136	ec2-rds-1	vpc-0ae9f9484b53a09b07	Security group attach...	322472051361	0 Permission entries	1 Permission entry
-	sg-012ce58016180912c	launch-wizard-2	vpc-0918d4dfbc1a526ec	launch-wizard-2 create...	322472051361	1 Permission entry	1 Permission entry
-	sg-00c2b891b58525b68	rds-ec2-1	vpc-0ae9f9484b53a09b07	Security group attach...	322472051361	1 Permission entry	0 Permission entries
-	sg-039ad1a120399e8fe	launch-wizard-1	vpc-0918d4dfbc1a526ec	launch-wizard-1 create...	322472051361	3 Permission entries	1 Permission entry
<input checked="" type="checkbox"/>	sg-00ee9e94574091134	DBServerSG	vpc-0ae9f9484b53a09b07	DBServerSG	322472051361	1 Permission entry	1 Permission entry
-	sg-0e5ef3e0e436f0b0	launch-wizard-3	vpc-0918d4dfbc1a526ec	launch-wizard-3 create...	322472051361	1 Permission entry	1 Permission entry
-	sg-032cd2e8b60f0c74	TestInstanceSG	vpc-0ae9f9484b53a09b07	TestInstanceSG	322472051361	1 Permission entry	1 Permission entry
-	sg-02fa8fce40b2bde06	default	vpc-0918d4dfbc1a526ec	default VPC security gr...	322472051361	1 Permission entry	1 Permission entry
-	sg-03207e6b23cc23d90	default	vpc-0ae9f9484b53a09b07	default VPC security gr...	322472051361	1 Permission entry	1 Permission entry

Inbound rules:

Name	Security group rule...	IP version	Type	Protocol	Port range	Source	Description
sgr-08248a61b5710ef53	-	MySQL/Aurora	TCP	3306	sg-0bd8be9bf5efa580...	-	

1.3 Ec2 virtual machine created

The screenshot shows two separate instances of the AWS EC2 Launch Instance wizard side-by-side.

Left Instance Configuration:

- Network settings:** VPC selected (vpc-0ae9484b35aa09b07). Subnet selected (subnet-0e5412b6d8484e53). Auto-assign public IP is set to "Disable". Firewall security group is set to "Select existing security group" (TestInstanceSG).
- Configure storage:** 1x 8 GiB gp2 volume selected as the root volume (Not encrypted).

Right Instance Configuration:

- Summary:** Number of instances is 1. Software Image (AMI) is Amazon Linux 2 Kernel 5.10 AMI. Virtual server type is t2.micro. Firewall (security group) is TestInstanceSG. Storage (volumes) is 1 volume(s) - 8 GiB.
- Free tier information:** A tooltip indicates the free tier includes 750 hours of t2.micro (or t3.micro in the Regions where t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOPS, 1 GB of snapshots, and 100 GiB of bandwidth to the internet.
- Buttons:** Cancel, Launch instance (highlighted in orange), and Review commands.

Bottom Navigation: CloudShell, Feedback, Language. Status bar: 27°C, Nhiệt mì, 2319, 14/06/2023.

Second Instance Configuration (Below First):

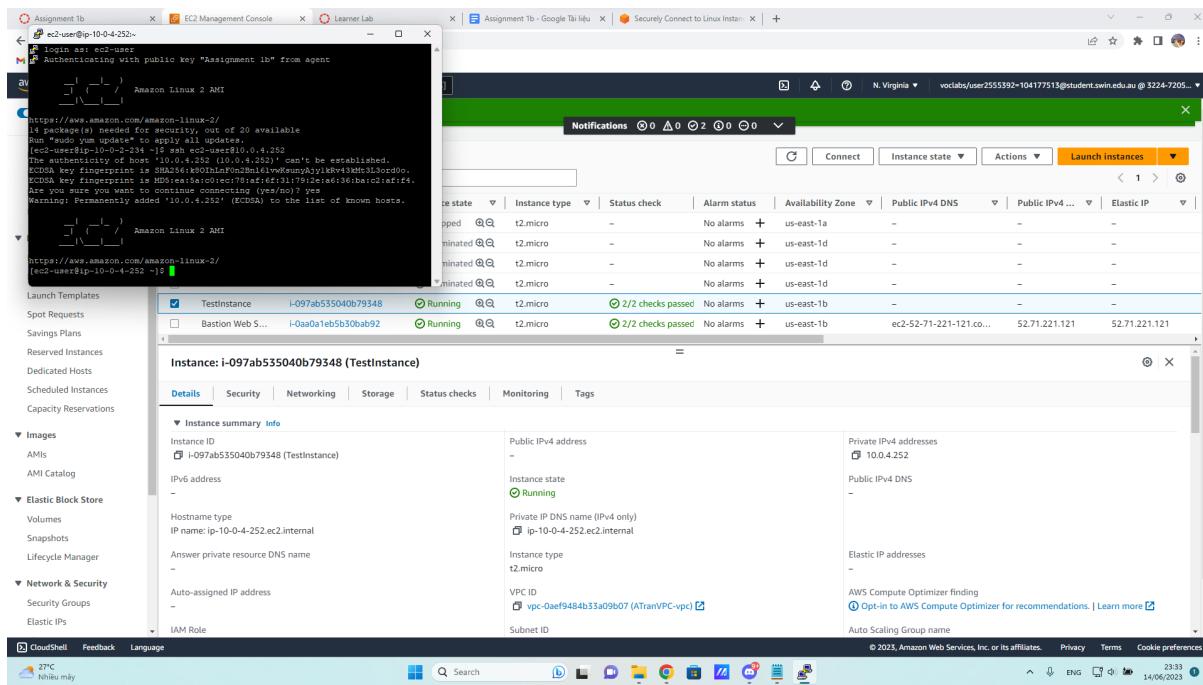
- Metadata accessible:** Metadata transport is "Select". Metadata version is "Select". Metadata response hop limit is "Select". Allow tags in metadata is "Select". User data is provided in a code editor field:

```
#!/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 phpxml
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 6664 {} \;
echo "<?php echo <?>Welcome to COS80001. Installed PHP version: " . <?> > /var/www/html/phpinfo.php
```

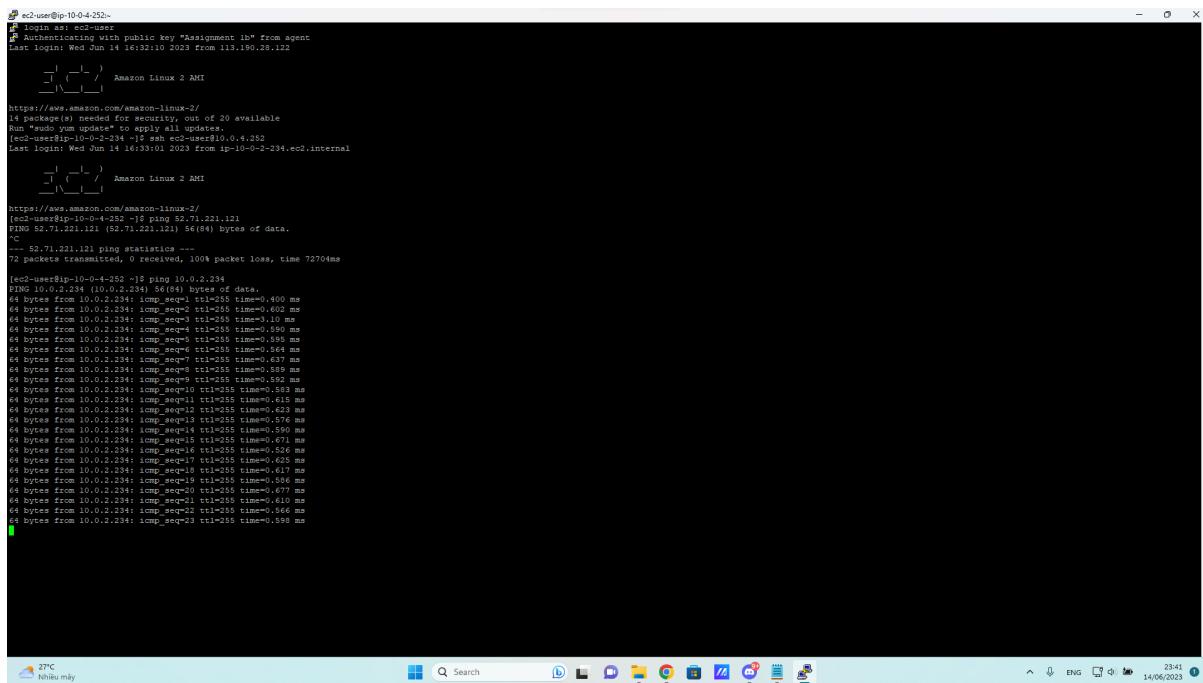
- Summary:** Number of instances is 1. Software Image (AMI) is Amazon Linux 2 Kernel 5.10 AMI. Virtual server type is t2.micro. Firewall (security group) is TestInstanceSG. Storage (volumes) is 1 volume(s) - 8 GiB.
- Free tier information:** A tooltip indicates the free tier includes 750 hours of t2.micro (or t3.micro in the Regions where t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOPS, 1 GB of snapshots, and 100 GiB of bandwidth to the internet.
- Buttons:** Cancel, Launch instance (highlighted in orange), and Review commands.

Bottom Navigation: CloudShell, Feedback, Language. Status bar: 27°C, Nhiệt mì, 2319, 14/06/2023.

SSH into an instance through Bastion



Pinging successfully



password:admin123

1.4 Create RDS database

Create a subnet group

Assignment 1b - RDS Management Console - us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#create-db-subnet-group: Assignment 1b - Google Tài liệu - Learner Lab

Amazon RDS

Name
You won't be able to modify the name after your subnet group has been created.

Description

VPC
Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created.

Add subnets

Availability Zones
Choose the Availability Zones that include the subnets you want to add.

Subnets
Choose the subnets that you want to add. The list includes the subnets in the selected Availability Zones.

For Multi-AZ DB clusters, you must select 3 subnets in 3 different Availability Zones.



Created subnet group successfully

Assignment 1b - Subnet Groups - RDS Management Console - us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#db-subnet-groups-list: Assignment 1b - Google Tài liệu - Learner Lab

Amazon RDS

Successfully created dbsubnet. View subnet group

RDS > Subnet groups

Subnet groups (1)

<input type="checkbox"/>	Name	Description	Status	VPC
<input type="checkbox"/>	dbsubnet	dbsubnet	Complete	vpc-0ae9484b53a09b07



Create RDS database based on the private subnet

The screenshot shows the AWS RDS MySQL setup page. It includes sections for 'Compute resource' (with 'Connect to an EC2 compute resource' selected), 'EC2 instance info' (listing 'i-0a00a1e5b30bab92 Bastion Web Server'), 'Network type' (IPv4 selected), and 'Virtual private cloud (VPC) Info' (listing 'ATranVPC.vpc (vpc-0aef9484b33a09b07) 4 Subnets, 2 Availability Zones'). A sidebar on the right provides details about MySQL support.

Created database successfully

The screenshot shows the AWS RDS confirmation page for creating a database. It displays a success message ('Successfully created dbatandatabase. View subnet group') and a summary of the database creation ('Creating database atrandatabase'). It also features an 'Introducing Aurora I/O-Optimized' callout and a 'Consider creating a Blue/Green Deployment to minimize downtime during upgrades' note. The main table lists the database details: DB identifier: atrandatabase, Status: Creating, Role: Instance, Engine: MySQL Community, Region & AZ: us-east-1b, Size: db.t3.micro, Actions: -, CPU: -, Current activity: none, Maintenance: none, VPC: vpc-0aef9484b33a09b07.

Create database through MySQL

A screenshot of a web browser displaying a file upload form. The form has fields for 'Tên tệp' (File name) and 'Mô tả' (Description), both currently empty. Below the form is a text area with the placeholder 'Các tiêu đề mà bạn thêm vào tài liệu sẽ xuất hiện ở đây.' (Titles will appear here). On the right side of the browser, there is a WinSCP session window titled 'phpMyAdmin - 52.71.221.121 - WinSCP'. The session shows a local directory 'C:\Users\lachin\Documents' and a remote directory '/var/www/html/phpmyadmin'. A file named 'config.inc.php' is selected in the local pane. The code editor shows the configuration for a MySQL database connection, including the host as 'stradb.database.c6wi817att9r.us-east-1.rds.amazonaws.com'. The WinSCP interface includes tabs for Local, Mark, Files, Commands, Tabs, Options, Remote, and Help.

The screenshot shows the phpMyAdmin interface for a MySQL database named 'photos'. The left sidebar lists databases: 'Assignment 1b', 'Assignment 1b', 'Databases - RDS Management', 'Instances | EC2 Management Co...', 'Assignment 1b - Google Tài liệu', and 'Learner Lab'. The 'Assignment 1b' database is selected. The 'phpMyAdmin' logo is at the top left. The main area shows the 'photos' table structure with columns: #, Name, Type, Collation, Attributes, Null, Default, Comments, Extra, and Action. The table has 5 rows. Below the table are buttons for Print, Propose table structure, Move column, Normalize, Add, and Fulltext. The 'Indexes' section shows 'No index defined!' and a 'Create an index on 1 columns' button. The 'Information' section provides detailed statistics: Space usage (Data: 16 KB, Index: 8 B, Overhead: 0, Effective: 16 KB, Total: 16 KB), Row statistics (Format: dynamic, Collation: utf8mb4_0900_ai_ci, Next auto index: 0, Creation: Jun 14, 2023 at 05:27 PM, Last update: Jun 14, 2023 at 05:27 PM, Last check: Jun 14, 2023 at 05:27 PM). The bottom status bar shows '27°C' and 'Nhịp múa'.

1.5 Network ACL

Create network ACL

Assignment 1b | Create network ACL | VPC Manager | Assignment 1b | Assignment 1b - Google Tài liệu | Learner Lab | ec2-52-71-221-121.compute-1...

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AWS Services Search [Alt+S]

VPC > Network ACLs > Create network ACL

Create network ACL Info

A network ACL is an optional layer of security that acts as a firewall for controlling traffic in and out of a subnet.

Network ACL settings

Name - optional
Creates a tag with a key of 'Name' and a value that you specify.

VPC
VPC to use for this network ACL

Tags
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional
<input type="text" value="Name"/>	<input type="text" value="PublicSubnet2NACL"/>

Add tag
You can add 49 more tags

Cancel **Create network ACL**

cloudShell Feedback Language 27°C Nhiều mây 00:32 15/06/2023

Assignment 1b Tran Hoang Hai | Learner Lab | VPC Management Console | +

Gmail YouTube Maps N. Virginia vclabs/user2555392+104177513@student.swin.edu.au @ 3224-7205...

AWS Services Search [Alt+S]

VPC dashboard EC2 Global View New Filter by VPC: Select a VPC

VPC > Network ACLs > acl-0bf8312c458a48f97 / PublicSubnet2NACL Actions

Details Info

Network ACL ID: <input type="text" value="acl-0bf8312c458a48f97"/>	Associated with: <input type="text" value="subnet-0e5412b6bde484e53 / ATranVPC-subnet-public2-us-east-1b"/>	Default No	VPC ID: <input type="text" value="vpc-0ae9484b33a09b07 / ATranVPC-vpc"/>
---	--	------------	---

Owner:

Inbound rules Outbound rules Subnet associations Tags

You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer

Inbound rules (6)

Rule number	Type	Protocol	Port range	Source	Allow/Deny
1	SSH (22)	TCP (6)	22	0.0.0.0/0	Allow
2	All ICMP - IPv4	ICMP (1)	All	10.0.4.0/24	Allow
3	HTTP (80)	TCP (6)	80	0.0.0.0/0	Allow
4	HTTPS (443)	TCP (6)	443	0.0.0.0/0	Allow
5	All TCP	TCP (6)	All	0.0.0.0/0	Allow
*	All traffic	All	All	0.0.0.0/0	Deny

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The screenshot shows the AWS VPC Network ACLs management interface. The left sidebar includes links for 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, Endpoints, Endpoint services, NAT gateways, Peering connections), and Security. The main content area displays a table titled "Network ACLs (1/3) Info" with columns: Name, Network ACL ID, Associated with, Default, VPC ID, and In. It lists three entries: "acl-04eb90bcc80701843" (Associated with 6 Subnets, Default Yes, VPC ID vpc-0918d4dfbc1a526ec, In 2), "acl-01df54928dd67d79b" (Associated with 3 Subnets, Default Yes, VPC ID vpc-0aef9484b33a09b07 / ATranVPC-vpc, In 2), and "PublicSubnet2NAACL" (Associated with subnet-0e5412b6bde484e53 / ATranVPC-subn..., Default No, VPC ID vpc-0aef9484b33a09b07 / ATranVPC-vpc, In 6). Below the table, a message says "You can now check network connectivity with Reachability Analyzer" with a "Run Reachability Analyzer" button. The bottom of the screen shows the Windows taskbar with various pinned icons.

2.1 Photo storage

Create a bucket to store media

The screenshot shows the AWS S3 Create bucket interface. The left sidebar shows "Amazon S3 > Buckets > Create bucket". The main content area has sections for "General configuration" (Bucket name: atranbucket, AWS Region: US East (N. Virginia) us-east-1), "Object Ownership info" (Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects. Options: ACLs disabled (recommended) vs ACLs enabled), and "Block Public Access settings for this bucket". The bottom of the screen shows the Windows taskbar with various pinned icons.

Edit the block public access

Edit Block public access (bucket settings)

Block public access (bucket settings)

Multi-access grants public access to your S3 buckets and objects. To ensure that your S3 buckets and objects are not publicly accessible, turn on Block all public access. These settings apply only to this bucket and its access points. AWS recommends that you turn on Block all public access, but before applying any of these settings, ensure that your applications will work correctly without public access. If you require some level of public access to your buckets or objects within, you can customize the individual settings below to suit your specific storage use cases. [Learn more](#)

Block all public access
Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.

Block public access to buckets and objects granted through new access control lists (ACLs)
S3 will block public access permissions applied to newly added buckets or objects, and prevent the creation of new public access ACLs for existing buckets and objects. This setting doesn't change any existing permissions that allow public access to S3 resources using ACLs.

Block public access to buckets and objects granted through any access control lists (ACLs)
S3 will ignore all ACLs that grant public access to buckets and objects.

Block public access to buckets and objects granted through new public bucket or access point policies
S3 will block new bucket and access point policies that grant public access to buckets and objects. This setting doesn't change any existing policies that allow public access to S3 resources.

Block public and cross-account access to buckets and objects through any public bucket or access point policies
S3 will ignore public and cross-account access for buckets or access points with policies that grant public access to buckets and objects.

[Cancel](#) [Save changes](#)

Successfully edited bucket policy.

Block all public access
Off

Individual Block Public Access settings for this bucket

Bucket policy

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

```
{ "Version": "2012-10-17", "Statement": [ { "Sid": "PublicRead", "Effect": "Allow", "Principal": "*", "Action": "s3:GetObject", "Resource": "arn:aws:s3:::atranbucket/*" } ] }
```

[Edit](#) [Delete](#) [Copy](#)

Object Ownership [Info](#)

Control ownership of objects written to this bucket from other AWS accounts and the use of access control lists (ACLs). Object ownership determines who can specify access to objects.

[Edit](#)

Uploaded 2 photos

The screenshot shows the AWS S3 Management Console interface. At the top, there are several tabs including 'Assignment 1b', 'Assignments: 2023-HX05-COS20...', 'ec2-52-71-221-121.compute-1...', 'Learner Lab', 'S3 Management Console', and 'Assignment 1b - Google Tài liệu'. Below the tabs, the AWS logo and 'Services' button are visible. A search bar contains the text 'Search [Alt+S]'. A green banner at the top says 'Upload succeeded' with a link 'View details below.' Below the banner, the heading 'Upload: status' is displayed. A note states: 'The information below will no longer be available after you navigate away from this page.' Under the 'Summary' section, it shows the destination 's3://atranbucket' with 'Succeeded' (2 files, 1.4 MB (100.00%)) and 'Failed' (0 files, 0 B (0%)). The 'Files and folders' tab is selected, showing a table with two items: 'bike.jpg' and 'car.png'. Both files are listed as 'image/jpeg' and 'image/png' respectively, with sizes 1.2 MB and 272.1 KB, both marked as 'Succeeded'.

The screenshot shows the phpMyAdmin interface. The top navigation bar includes 'cloudShell', 'Feedback', 'Language', and links for '30°C Nhiều mây'. On the right, it shows '© 2023, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'. The date '10/06/2023' is also present. Below the navigation, the main interface shows the 'Server: atranbucket' and 'Database: photos' sections. The 'Table: photos' tab is selected, showing a table with two rows:

	Photo title	Description	Creation date	Keywords	Reference to the photo object in S3
<input type="checkbox"/>	Bike	Bike picture	2023-06-15	CB150R	https://atranbucket.s3.amazonaws.com/bike.jpg
<input type="checkbox"/>	Car	Car picture	2023-06-15	Civic	https://atranbucket.s3.amazonaws.com/car.png

At the bottom, there are buttons for 'Query results operations' including 'Print', 'Copy to clipboard', 'Export', 'Display chart', and 'Create view'.

Modified the php codes to suit my work

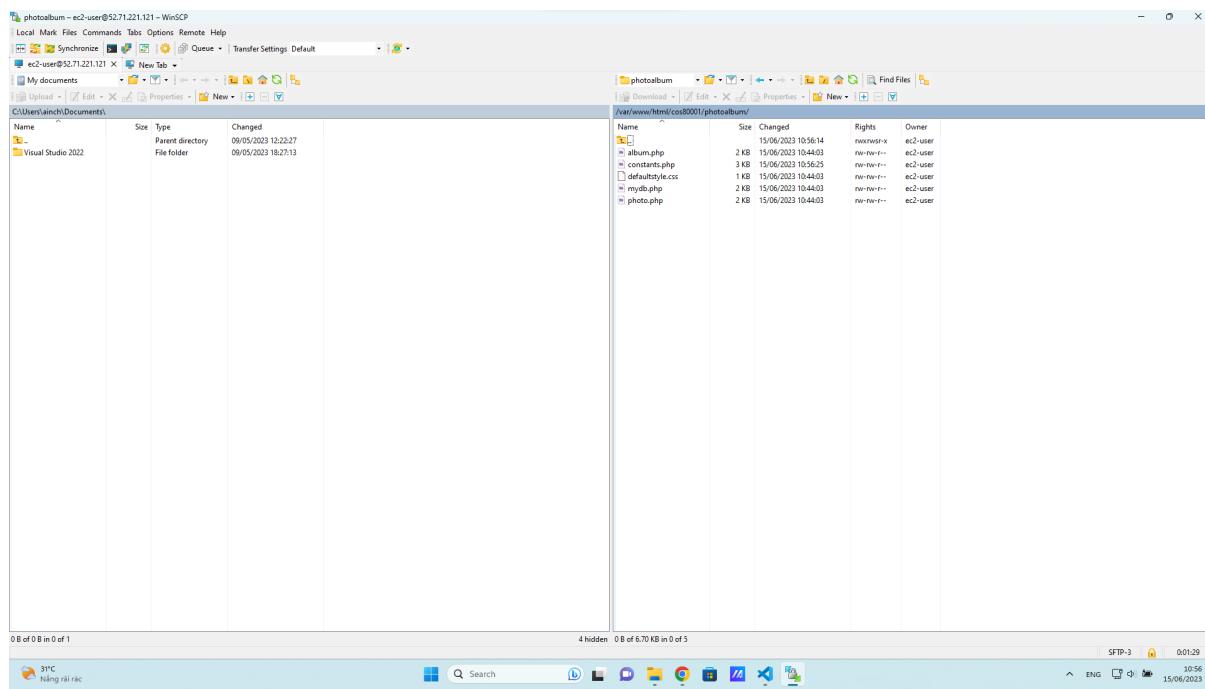
```
constants.php
constants.php x
File Edit Selection View Go Run Terminal Help
constants.php - Visual Studio Code

C:\Users\arch\Downloads> photobook_v3.0 > photobook_v3.0 > constants.php ...  
2/ * You need to replace the values of those constant variables with values specific to your setup.  
28 *  
29 *  
30 * ----- READ THE ABOVE !!! -----  
31 * ----- READ THE ABOVE !!! -----  
32 * ----- READ THE ABOVE !!! -----  
33 */  
34  
35 // [ACTION REQUIRED] your full name  
36 define('STUDENT_NAME', 'Tran Dang Hai Anh');  
37 // [ACTION REQUIRED] your student ID  
38 define('STUDENT_ID', '104177513');  
39 // [ACTION REQUIRED] your tutorial session  
40 define('TUTORIAL_SESSION', 'Saturday 13:00PM');  
41  
42 // [ACTION REQUIRED] name of the S3 bucket that stores images  
43 define('BUCKET_NAME', 'strawbuckete');  
44 // [ACTION REQUIRED] endpoint of the above bucket  
45 define('REGION', 'us-east-1');  
46 // no need to update this const!  
47 define('S3_BASE_URL', 'https://.s3.amazonaws.com/');  
48  
49 // [ACTION REQUIRED] name of the database that stores photo meta-data (note that this is not the DB identifier of the RDS instance)  
50 define('DB_NAME', 'photos');  
51 // [ACTION REQUIRED] endpoint of RDS instance  
52 define('DB_ENDPOINT', 'strandatabase.c6w8l7attm.us-east-1.rds.amazonaws.com');  
53 // [ACTION REQUIRED] username of your RDS instance  
54 define('DB_USERNAME', 'admin');  
55 // [ACTION REQUIRED] password of your RDS instance  
56 define('DB_PWD', 'admin123');  
57  
58 // [ACTION REQUIRED] name of the DB table that stores photo's meta-data  
59 define('DB_PHOTO_TABLE_NAME', 'photos');  
60 // The table above has 5 columns:  
61 // [ACTION REQUIRED] name of the column in the above table that stores photo's titles  
62 define('DB_PHOTO_TITLE_COL_NAME', 'title');  
63 // [ACTION REQUIRED] name of the column in the above table that stores photo's descriptions  
64 define('DB_PHOTO_DESCRIPTION_COL_NAME', 'description');  
65 // [ACTION REQUIRED] name of the column in the above table that stores photo's creation dates  
66 define('DB_PHOTO_CREATEDATE_COL_NAME', 'creationdate');  
67 // [ACTION REQUIRED] name of the column in the above table that stores photo's keywords  
68 define('DB_PHOTO_KEYWORDS_COL_NAME', 'keywords');  
69 // [ACTION REQUIRED] name of the column in the above table that stores photo's links in S3  
70 define('DB_PHOTO_S3REFERENCE_COL_NAME', 'reference');  
71 >
```

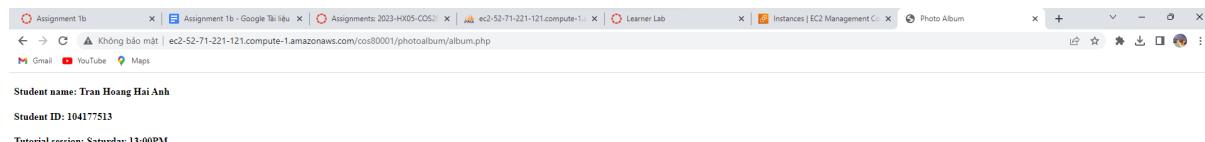
Remove spaces from MySql

The screenshot shows the MySQL phpMyAdmin interface. The left sidebar lists databases: information_schema, mysql, performance_schema, photos, sys, and others. The 'photos' database is selected. The main area shows the 'photos' table structure. A message at the top says: "Table photos has been altered successfully. Privileges have been adjusted." Below it is the SQL query: `ALTER TABLE `photos` CHANGE `reference` to the photo object in S3 `reference` VARCHAR(255) CHARACTER SET utf8mb4 COLLATE utf8mb4_english_ci NOT NULL;`. The table structure table has columns: title, description, creationdate, keyword, and reference. The 'reference' column is highlighted. At the bottom, there are tabs for Indexes, Information, and Console.

Upload php files to correct directory required from the assignment



Here is my website



Student name: Tran Hoang Hai Anh

Student ID: 104177513

Tutorial session: Saturday 13:00PM

Uploaded photos:

Photo	Name	Description	Creation date	Keywords
	Bike	Bike picture	2023-06-15	CB150R
	Car	Car picture	2023-06-15	Civic

