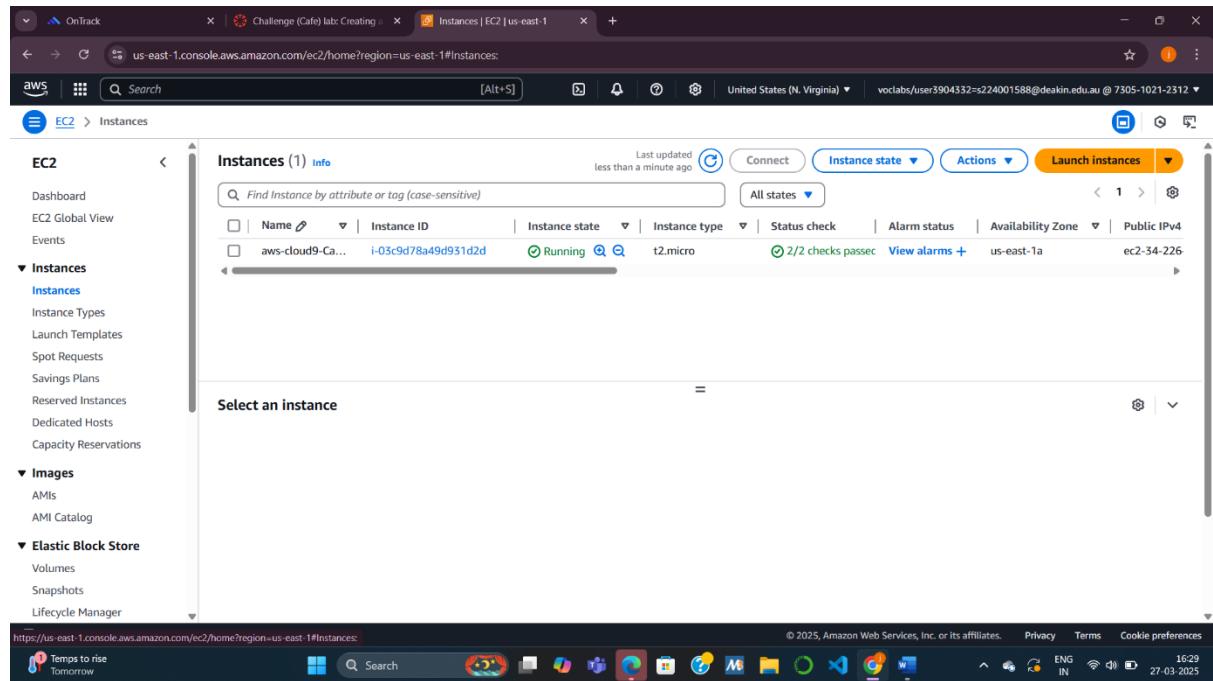


Task 3.2C

CLOUD COMPUTING

Creating a Dynamic Website for the Café

Task 1: Analyzing the existing EC2 instance



Task 1.1: Answering questions about the instance

OnTrack Challenge (Cafe) lab: Creating a static website in CloudFront and S3

Challenge (Cafe) lab: Creating a static website in CloudFront and S3

c144539a373690597305971w

Instance details | EC2 | us-east-1

Not secure c144539a373690597305971w730510212312.htmlbucket-ekeyhd2arq7as3-website.us-east-1.amazonaws.com

Question 1: Is the instance in a public subnet?

Yes
 No

Submit

Question 2: Does the EC2 instance have an IPv4 Public IP address assigned to it?

Yes
 No

Submit

Question 3: What inbound TCP port numbers are open for this instance?

TCP port 80 only, open to the internet
 TCP port 22 only, open to the internet
 TCP port 80 only, open to a specific range of IP addresses
 TCP port 22 only, open to a specific range of IP addresses

Submit

Question 4: Does the EC2 instance have an AWS Identity and Access Management (IAM) role associated with it?

Yes
 No

Tempo to drop Saturday

Search

ENG IN 27-03-2025

Task 2: Connecting to the IDE on the EC2 instance

us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#

File Edit Find View Go Run Tools Window Support Preview Run

Welcome Developer Tools

AWS Cloud9

Welcome to your development environment

AWS Cloud9 allows you to write, run, and debug your code with just a browser. You can tour the IDE, write code for AWS Lambda and Amazon API Gateway, share your IDE with others in real time, and much more.

Toolkit for AWS Cloud9

The AWS Toolkit for Cloud9 is an IDE extension that simplifies accessing and interacting with resources from services such as AWS Lambda, AWS CloudFormation, and AWS API Gateway. With the toolkit, developers can also develop, debug, and deploy applications using the AWS Serverless Application Model (SAM). Learn more.

Getting started

Create File
Upload Files...
Clone from GitHub

Terminal Immediate

Sports headline Argentina secur...

Search

ENG IN 27-03-2025

Task 3: Analyzing the LAMP stack environment and confirming that the web server is accessible

OnTrack | c144539a373690597305971tw | Instance details | EC2 | us-east | CafeWebServer - AWS Cloud9 | +

← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#

```
php -i
```

```
veclabs:~/environment $ cat /proc/version
Linux version 6.1.129-138.220.amzn2023.x86_64 (mockbuild@ip-10-0-55-76) (gcc (GCC) 11.4.1 20230605 (Red Hat 11.4.1-2), GNU ld version 2.39-6.amzn2023.0.11) #1 SMP PREEMPT_DYNAMIC Tue Feb 25 22:18:43 UTC 2025
veclabs:~/environment $ sudo httpd -v
Server version: 2.4.27 (Ubuntu)
Server built: Jul 23 2024 00:00:00
veclabs:~/environment $ service httpd status
Redirecting to /bin/systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
     Drop-In: /usr/lib/systemd/system/httpd.service.d
       └─php-fpm.conf
     Active: inactive (dead)
       Docs: man:systemd-service(8)
veclabs:~/environment $ php -version
PHP 8.2.27 (cli) (built: Dec 17 2024 11:39:23) (NTS gcc x86_64)
Copyright (c) The PHP Group
Zend Engine v4.2.27, Copyright (c) Zend Technologies
    with Zend OPcache v8.2.27, Copyright (c), by Zend Technologies
    with Xdebug v3.2.2, Copyright (c) 2002-2023, by Derick Rethans
veclabs:~/environment $
```


24°C Sunny | Search | ☰ | Instance details | EC2 | us-east | CafeWebServer - AWS Cloud9 | + | ENG IN | 16:35 | 27-03-2025

← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#

```
sudo -i
```

```
veclabs:~/environment $ service httpd status
Redirecting to /bin/systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
     Drop-In: /usr/lib/systemd/system/httpd.service.d
       └─php-fpm.conf
     Active: inactive (dead)
       Docs: man:htpd.service(8)
veclabs:~/environment $ php -version
PHP 8.2.27 (cli) (built: Dec 17 2024 11:39:23) (NTS gcc x86_64)
Copyright (c) The PHP Group
Zend Engine v4.2.27, Copyright (c) Zend Technologies
    with Zend OPcache v8.2.27, Copyright (c), by Zend Technologies
    with Xdebug v3.2.2, Copyright (c) 2002-2023, by Derick Rethans
veclabs:~/environment $ systemctl start httpd.service
Note: Forwarding request to systemctl simple httpd.service.
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
veclabs:~/environment $ sudo service httpd status
Redirecting to /bin/systemctl start httpd.service
veclabs:~/environment $ sudo service httpd status
Redirecting to /bin/systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
     Drop-In: /usr/lib/systemd/system/httpd.service.d
       └─php-fpm.conf
     Active: active (running) since Thu 2025-03-27 05:36:06 UTC; 12s ago
       Docs: man:htpd.service(8)
     Main PID: 3540 (httpd)
     Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
     Tasks: 177 (limit: 1111)
     Memory: 16.7M
     CPU: 71ms
    CGroup: /system.slice/httpd.service
            └─3540 /usr/sbin/httpd -DFOREGROUND
              ├─3555 /usr/sbin/httpd -DFOREGROUND
              ├─3560 /usr/sbin/httpd -DFOREGROUND
              ├─3561 /usr/sbin/httpd -DFOREGROUND
              └─3562 /usr/sbin/httpd -DFOREGROUND

Mar 27 05:36:04 ip-10-0-0-71.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Mar 27 05:36:06 ip-10-0-0-71.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Mar 27 05:36:06 ip-10-0-0-71.ec2.internal httpd[3540]: Server configured, listening on: port 80
veclabs:~/environment $
```

OnTrack | c144539a373690597305971w | Instance details | EC2 | us-east-1 | CafeWebServer - AWS Cloud9

← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e300b9b629868b?region=us-east-1#

bash - "ip-10-0-0-71.ec2.internal" x Immediate

```
Mar 27 05:36:04 ip-10-0-0-71.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Mar 27 05:36:06 ip-10-0-0-71.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Mar 27 05:36:06 ip-10-0-0-71.ec2.internal httpd[3548]: Server configured, listening on: port 80
veclabs:~environment $ sudo mariadb --version
mariadb Ver 15.1 Distrib 10.5.25-MariaDB, for Linux (x86_64) using Editline wrapper
veclabs:~environment $ sudo chkconfig mariadb --version
Created symlink /etc/systemd/system/multi-user.target.wants/mariadb.service.
Created symlink /etc/systemd/system/multi-user.target.wants/mariadb.service → /usr/lib/systemd/system/mariadb.service.
veclabs:~environment $ sudo chkconfig mariadb on
Note: Forwarding request to 'systemctl enable mariadb.service'.
veclabs:~environment $ sudo service mariadb start
Redirecting to /bin/systemctl start mariadb.service
veclabs:~environment $ sudo service mariadb status
Redirecting to /bin/systemctl status mariadb.service
● mariadb.service - MariaDB 10.5 database server
   Loaded: loaded (/usr/lib/systemd/system/mariadb.service; enabled; preset: disabled)
     Docs: man:mariadb(8)
           https://mariadb.com/kb/en/library/systemd/
   Process: 4036 ExecStartPre=/usr/libexec/mariadb-check-socket (code=exited, status=0/SUCCESS)
   Process: 4058 ExecStartPre=/usr/libexec/mariadb-prepare-db-dir mariadb.service (code=exited, status=0/SUCCESS)
   Process: 4151 ExecStartPost=/usr/libexec/mariadb-check-upgrade (code=exited, status=0/SUCCESS)
Main PID: 4140 (mariadb)
   Status: "Starting your MySQL requests now..."
      Tasks: 10 (limit: 1111)
        Memory: 88.2M
          CPU: 41ms
         CGroup: /system.slice/mariadb.service
             └─4140 /usr/libexec/mariadb --basedir=/usr

Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: The second is mysqllocalhost, it has no password either, but
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: you need to be the system 'mysql' user to connect.
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: After connecting you can set the password if you would need to be
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: root. The connection of these users will be secured without sudo
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: See the MariaDB Knowledgebase at https://mariadb.com/kb
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: Please report any problems at https://mariadb.org/jira
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: The latest information about MariaDB is available at https://mariadb.org/.
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: Consider joining MariaDB's strong and vibrant community!
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal mariadb-prepare-db-dir[4097]: https://mariadb.org/get-involved/
Mar 27 05:38:10 ip-10-0-0-71.ec2.internal systemd[1]: Started mariadb.service - MariaDB 10.5 database server.
veclabs:~environment $
```

24°C Sunny Search ENG IN 10:38 27-03-2025

The screenshot shows the AWS EC2 Security Groups page. The left sidebar lists navigation options: Dashboard, EC2 Global View, Events, Instances (with sub-options: Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (with sub-options: AMIs, AMI Catalog), and Elastic Block Store (with sub-options: Volumes, Snapshots, Lifecycle Manager). The main content area displays the details of a security group named "sg-0a8e1fd4b310ebbf - aws-cloud9-CafeWebServer-13b21334e86d4f8da3e309b9b629868b-InstanceSecurityGroup-bTlrZSx6JS0P". The "Details" section includes fields for Security group name, Security group ID, Description, Owner, Inbound rules count, and Outbound rules count. Below this, tabs for Inbound rules, Outbound rules, Sharing, VPC associations, and Tags are visible. The "Inbound rules" tab is selected, showing two entries. A search bar and filter options for Name, Security group rule ID, IP version, Type, Protocol, and Port range are present. The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

Edit inbound rules <small>Info</small>						
Inbound rules control the incoming traffic that's allowed to reach the instance.						
Inbound rules <small>Info</small>		Type <small>Info</small>	Protocol <small>Info</small>	Port range <small>Info</small>	Source <small>Info</small>	Description - optional <small>Info</small>
sgr-0f60edf25f000c7e2	SSH	TCP	22	Custom	<input type="text"/> 35.172.155.192/27	<button>Delete</button>
sgr-08295a99d8814974b	SSH	TCP	22	Custom	<input type="text"/> 35.172.155.96/27	<button>Delete</button>



Screenshot of the AWS Cloud9 interface showing the modification of inbound security group rules for the instance sg-0a8e1fd4b310ebbf.

Edit inbound rules

Inbound rules control the incoming traffic that's allowed to reach the instance.

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0f60edf25f000c7e2	SSH	TCP	22	Custom	35.172.155.192/27
sgr-08295a99d8814974b	SSH	TCP	22	Custom	35.172.155.96/27
-	HTTP	TCP	80	Anyw...	0.0.0.0/0

Add rule

Preview changes | **Save rules**

CloudShell Feedback

EC2

- Instances
- Images
- Elastic Block Store

Details

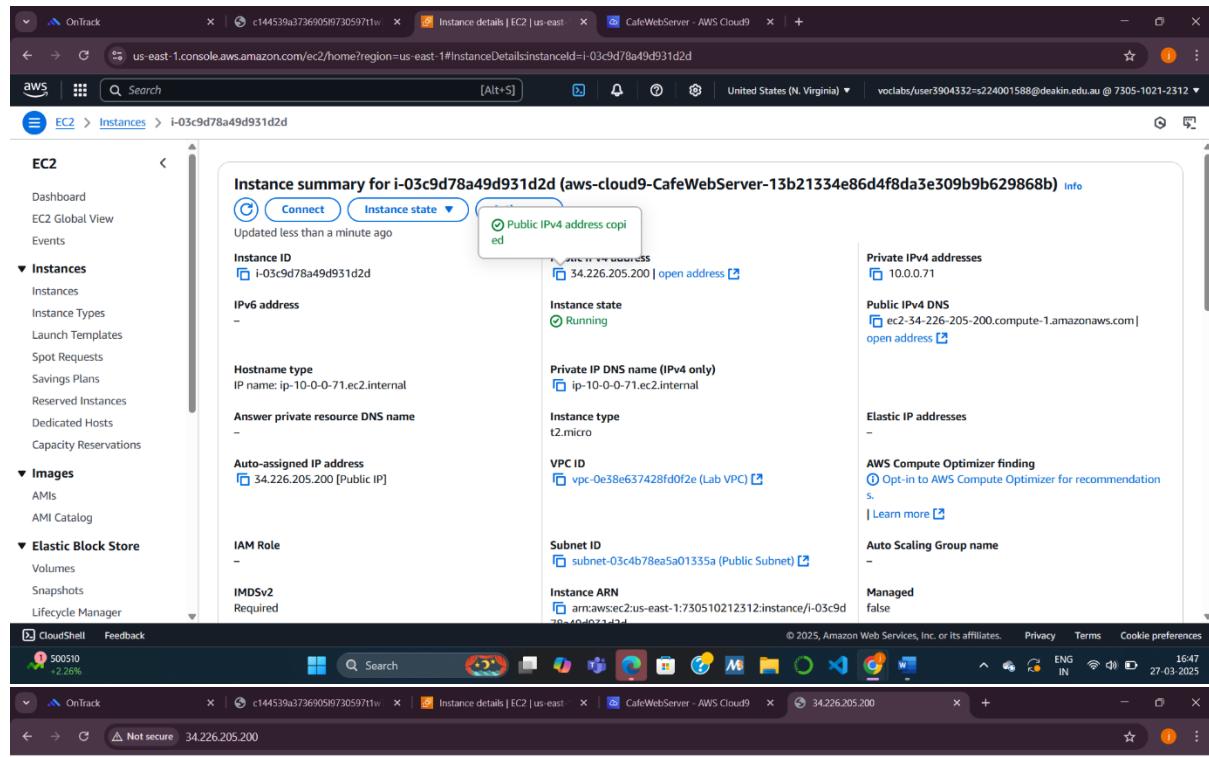
Inbound security group rules successfully modified on security group (sg-0a8e1fd4b310ebbf) | aws-cloud9-CafeWebServer-13b21334e86d4f8da3e309b9b629868b-InstanceSecurityGroup-bTlrZSx6JSOP

Actions

Details

Security group name aws-cloud9-CafeWebServer-13b21334e86d4f8da3e309b9b629868b-InstanceSecurityGroup-bTlrZSx6JSOP	Security group ID sg-0a8e1fd4b310ebbf	Description Security group for AWS Cloud9 environment aws-cloud9-CafeWebServer-13b21334e86d4f8da3e309b9b629868b	VPC ID vpc-0e38e637428fd0f2e
Owner 730510212312	Inbound rules count 3 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules | **Outbound rules** | **Sharing - new** | **VPC associations - new** | **Tags**



Hello from the café web server!



Task 4: Installing the café application

OnTrack | c144539a373690597305971tw | Instance details | EC2 | us-east-1 | CafeWebServer - AWS Cloud9 | 34.226.205.200 | + | - | X

← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#

```
bash - *ip-10-0-0-71.ec2.i.x Immediate +
```

```
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/UriNormalizer.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/UriComparator.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/UriHeader.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/Uri.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/MessageTrait.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/Rfc7230.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/LazyOpenStream.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/Query.php
infloating: /var/www/html/cafe/GuzzleHttp/Psr7/MultipartStream.php
Creating /var/www/html/cafe/GuzzleHttp/Promise/Create.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/AggregateException.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/RejectedPromise.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/RejectionException.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/TaskQueue.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/TaskQueueInterface.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/Each.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/Utils.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/Promise.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/FulfilledPromise.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/Coroutine.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/CancellationException.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/PromisorInterface.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/EachPromise.php
infloating: /var/www/html/cafe/GuzzleHttp/Promise/PromiseInterface.php
infloating: /var/www/html/cafe/Psr/
creating: /var/www/html/cafe/Psr/Http/
Creating /var/www/html/cafe/Psr/Http/Message/
infloating: /var/www/html/cafe/Psr/Http/Message/StreamInterface.php
infloating: /var/www/html/cafe/Psr/Http/Message/WriterInterface.php
infloating: /var/www/html/cafe/Psr/Http/Message/MessageInterface.php
infloating: /var/www/html/cafe/Psr/Http/Message/ResponseInterface.php
infloating: /var/www/html/cafe/Psr/Http/Message/ServerRequestInterface.php
infloating: /var/www/html/cafe/Psr/Http/Message/RequestInterface.php
infloating: /var/www/html/cafe/Psr/Http/Message/UploadedFileInterface.php
Creating: /var/www/html/cafe/Psr/Http/Client/
infloating: /var/www/html/cafe/Psr/Http/Client/ClientExceptionInterface.php
infloating: /var/www/html/cafe/Psr/Http/Client/NetworkExceptionInterface.php
infloating: /var/www/html/cafe/Psr/Http/Client/ClientInterface.php
infloating: /var/www/html/cafe/Psr/Http/Client/RequestExceptionInterface.php
infloating: /var/www/html/cafe/mw-autoloader.php
veclabs:/var/www/html/cafe$ chmod -R +r /var/www/html/cafe/
```

NIFTY +0.47% 16:50 27-03-2025

OnTrack | c144539a373690597305971tw | Instance details | EC2 | us-east-1 | CafeWebServer - AWS Cloud9 | 34.226.205.200 | + | - | X

← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#

```
bash - *ip-10-0-0-71.ec2.i.x Immediate +
```

```
~ ec2-34-226-205-200.compute.1.amazonaws.com
* Closing connection
Public DNS = ec2-34-226-205-200.compute.1.amazonaws.com
Setting the application parameter values in the Secrets Manager...
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/showServerInfo-VsG09q",
    "Name": "/cafe/showServerInfo",
    "VersionId": "be8ab262-f907-48ea-aaa5-f0454946b7a5"
},
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/timeZone-lhrmUZ",
    "Name": "/cafe/timeZone",
    "VersionId": "f3a0f6c0-0509-4b0a-98e2-1e52874398d"
},
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/currency-AeBvot",
    "Name": "/cafe/currency",
    "VersionId": "eacadaad-df4e-422c-8d87-bada96528697"
},
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/dbUrl-7mKtDX",
    "Name": "/cafe/dbUrl",
    "VersionId": "1ec21175-2e9c-42ce-a942-5984cb0ec841"
},
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/dbName-fmIisA",
    "Name": "/cafe/dbName",
    "VersionId": "97eb0d61-83d9-45ab-a921-ea694e14d23d"
},
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/dbUser-GXba2p",
    "Name": "/cafe/dbUser",
    "VersionId": "f1529f94-ee79-4a8e-b610-864ccfaada6b"
},
{
    "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/dbPassword-hcM0ek",
    "Name": "/cafe/dbPassword",
    "VersionId": "813d99c0-9834-440c-9dff-cb94a8043bd"
}

Application Secrets Setup script completed.
veclabs:/environment/setup $
```

Humid Now 16:51 27-03-2025

The screenshot shows the AWS Secrets Manager console with a list of secrets. The secrets listed are:

Secret name	Description	Last retrieved (UTC)
/cafe/dbPassword	-	-
/cafe/dbUser	-	-
/cafe/dbName	-	-
/cafe/dbUrl	-	-
/cafe/currency	-	-
/cafe/timeZone	-	-
/cafe/showServerInfo	-	-

The screenshot shows the details for the secret named "/cafe/dbPassword". The secret value is displayed in plaintext as "Lab123#".

The screenshot shows the Resource permissions section, which is optional. It allows adding or editing a resource policy to access secrets across AWS accounts. There is a "Edit permissions" button.

The screenshot shows the Sample code section, which contains sample code for integrating with AWS Lambda. It includes a CloudShell link and a feedback link.

```

OnTrack                               c144539a3736905973059711w | /cafe/dbPassword | Secrets Ma... | CafeWebServer - AWS Cloud9 | 34.226.205.200
                                     ← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#
mysql -p 10.0.0.71:oc2 | Immediate
{
  "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/dbUser-0x6a/p",
  "Name": "/cafe/dbUser",
  "VersionId": "1f529f94-ec79-4a8e-b610-864ccfacda0b"
}
{
  "ARN": "arn:aws:secretsmanager:us-east-1:730510212312:secret:/cafe/dbPassword-hcWQmk",
  "Name": "/cafe/dbPassword",
  "VersionId": "813d99c0-9834-440c-9dff-cb094a8043bd"
}

Application Secrets Setup script completed.

veclabs:~/environment/setup $ cd .. /db/
veclabs:~/environment/db $ ./set-root-password.sh

Set admin Password script completed.
Please check the set-root-password.log file to verify successful execution.

veclabs:~/environment/db $ ./create-db.sh

Create Database script completed.
Please check the create-db.log file to verify successful execution.

veclabs:~/environment/db $ mysql -u admin -p
Enter password:
ERROR 1045 (28000): Access denied for user 'admin'@'localhost' (using password: YES)
veclabs:~/environment/db $ mysql -u admin -p
Enter password:
ERROR 1045 (28000): Access denied for user 'admin'@'localhost' (using password: YES)
veclabs:~/environment/db $ mysql -u admin -p
Enter password:
ERROR 1045 (28000): Access denied for user 'admin'@'localhost' (using password: YES)
veclabs:~/environment/db $ mysql -u admin -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 8
Server version: 10.5.25-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> 24°C Sunny Search ENG IN 16:59 27-03-2025

OnTrack                               c144539a3736905973059711w | /cafe/dbPassword | Secrets Ma... | CafeWebServer - AWS Cloud9 | 34.226.205.200
                                     ← → ⌂ us-east-1.console.aws.amazon.com/cloud9/ide/13b21334e86d4f8da3e309b9b629868b?region=us-east-1#
mysql -p 10.0.0.71:oc2 | Immediate
+-----+
| Database |
+-----+
| cafe_db |
| information_schema |
| mysql |
| performance_schema |
+-----+
4 rows in set (0.002 sec)

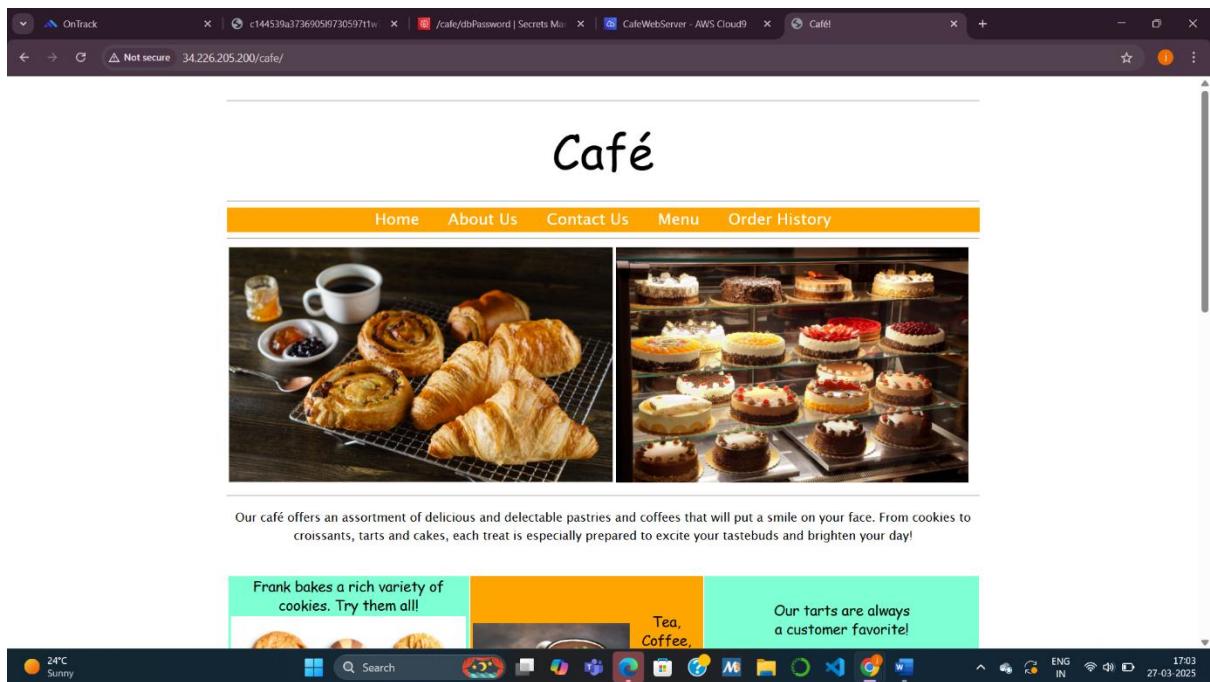
MariaDB [(none)]> use cafe_db;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [cafe_db]> show tables;
+-----+
| Tables_in_cafe_db |
+-----+
| order |
| order_item |
| product |
| product_group |
+-----+
4 rows in set (0.000 sec)

MariaDB [cafe_db]> select * from product;
+----+----+----+----+----+
| id | product_name | description | price | product_group | image_url |
+----+----+----+----+----+
| 1 | Croissant | Fresh, buttery and fluffy... Simply delicious! | 1.50 | 1 | images/Croissants.jpg
| 2 | Donut | We have more than half-a-dozen flavors! | 1.00 | 1 | images/Donuts.jpg
| 3 | Chocolate Chip Cookie | Made with dark chocolate with a touch of Madagascar vanilla | 2.50 | 1 | images/Chocolate-Chip-Cookies.jpg
| 4 | Macaroon | Light and airy, chocolate macaroon | 3.00 | 1 | images/Macaroon.jpg
| 5 | Strawberry Blueberry Tart | Bursting with the taste and aroma of fresh fruit | 3.50 | 1 | images/Strawberry-Blueberry-Tarts.jpg
| 6 | Strawberry Tart | Made with fresh ripe strawberries and a delicious whipped cream | 3.50 | 1 | images/Strawberry-Tarts.jpg
| 7 | Coffee | Freshly ground black or blended Colombian coffee | 3.00 | 2 | images/Coffee.jpg
| 8 | Hot Chocolate | Rich and creamy, and made with real chocolate | 3.00 | 2 | images/Cup-of-Hot-Chocolate.jpg
| 9 | Latte | Offered hot or cold and in various delicious flavors | 3.50 | 2 | images/Latte.jpg
+----+----+----+----+----+
9 rows in set (0.000 sec)

MariaDB [cafe_db]> exit; 24°C Sunny Search ENG IN 17:01 27-03-2025

```



Task 5: Testing the web application

Screenshot of the AWS Cloud9 Instances page showing a single running t2.micro instance named "aws-cloud9-Cafe".

The instance details are as follows:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
aws-cloud9-Ca...	i-03c9d78a49d931d2d	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	ec2-34-2...

A success message at the top indicates that the "CafeRole" was successfully attached to the instance.

The instance summary shows the following details:

- Instance ID: i-03c9d78a49d931d2d
- Public IPv4 address: 34.226.205.200
- Private IPv4 address: 10.0.0.71
- Public IPv4 DNS: ec2-34-226-205-200.compute-1.amazonaws.com
- Instance state: Running

The AWS Cloud9 interface is visible at the bottom of the browser window.

OnTrack | c144539a373690597305971tw | Instances | EC2 | us-east-1 | CaféWebServer - AWS Cloud9 | Café Menu

Not secure 34.226.205.200/cafe/menu.php

Home Menu Order History

Pastries

Croissant
\$1.50
Fresh, buttery and fluffy... Simply delicious!
Quantity:

Donut
\$1.00
We have more than half-a-dozen flavors!
Quantity:

Chocolate Chip Cookie
\$2.50
Made with Swiss chocolate with a touch of Madagascar vanilla
Quantity:

Muffin

Banana bread, blueberry, cranberry or apple
Quantity:

Strawberry Blueberry Tart

Bursting with the taste and aroma of fresh fruit
Quantity:

Strawberry Tart

Made with fresh ripe strawberries and a delicious whipped cream
Quantity:

Drinks

Coffee
\$3.00
Freshly-ground black or blended Columbian coffee
Quantity:

Hot Chocolate
\$3.00
Rich and creamy, and made with real chocolate
Quantity:

Latte
\$3.50
Offered hot or cold and in various delicious flavors
Quantity:

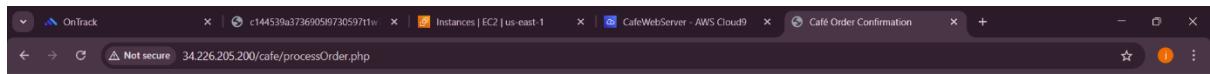
Order Total: \$6.50

Submit Order

Reset Order

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24°C Sunny | Search | ENG IN | 17:10 | 27-03-2025



Café

Home Menu Order History

Order Confirmation

Thank for your order! It will be available for pickup within 15 minutes. Your order number and details are shown below.

Order Number: 1 Date: 2025-03-27 Time: 06:11:00 Total Amount: \$6.50

Item	Price	Quantity	Amount
Hot Chocolate	\$3.00	1	\$3.00
Latte	\$3.50	1	\$3.50

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Task 6: Creating an AMI and launching another EC2 instance

OnTrack | c144539a373690597305971tw | Instances | EC2 | us-east-1 | CaféWebServer - AWS Cloud9 | Café Order Confirmation | +

```
ssh-keygen -t rsa -b 1024 -f /root/.ssh/id_rsa
MariaDB [cafe_db]> select * from product;
+----+-----+-----+-----+-----+
| id | product_name | description | price | product_group | image_url |
+----+-----+-----+-----+-----+
| 1 | Croissant | Fresh, buttery and fluffy... Simply delicious! | 1.50 | 1 | images/Croissants.jpg |
| 2 | Donut | We have more than half-a-dozen flavors! | 1.00 | 1 | images/Donuts.jpg |
| 3 | Chocolate Chip Cookie | Made with Swiss chocolate with a touch of Madagascar vanilla | 2.50 | 1 | images/Chocolate-Chip-Cookies.jpg |
| 4 | Muffin | Banana bread, blueberry, cranberry or apple | 3.00 | 1 | images/Muffins.jpg |
| 5 | Strawberry Tart | Bursting with the taste and aroma of fresh fruit | 3.50 | 1 | images/Strawberry-Blueberry-Tarts.jpg |
| 6 | Coffee | Freshly-ground black or blended Colombian coffee | 3.00 | 2 | images/Coffee.jpg |
| 7 | Latte | Freshly-ground black or blended Colombian coffee | 3.00 | 2 | images/Cup-of-Hot-Chocolate.jpg |
| 8 | Hot Chocolate | Rich and creamy, and made with real chocolate | 3.00 | 2 | images/Latte.jpg |
| 9 | Latte | Offered hot or cold and in various delicious flavors | 3.50 | 2 | images/Latte.jpg |
+----+-----+-----+-----+-----+
9 rows in set (0.000 sec)

MariaDB [cafe_db]> exit;
Bye
veclabs:/environment/db $ sudo sed -i "2i date.timezone = \"America/New_York\" " /etc/php.ini
sudo service httpd restart
veclabs:/environment/db $ sudo service httpd restart
Redirecting to /bin/systemctl restart httpd.service
veclabs:/environment/db $ sudo hostname cafedevserver
veclabs:/environment/db $ ssh-keygen -t rsa -f ~/.ssh/id_rsa
Generating public/private rsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ec2-user/.ssh/id_rsa
Your public key has been saved in /home/ec2-user/.ssh/id_rsa.pub
The key's randomart image is:
+---[RSA 3072]---+
| .+ |
| .+ |
| .. E+o+o+ |
| .. oo=o+o+e |
| ....S.o+*... |
| ..o ooo+..o+ |
| ..o .+ .o+ |
| ..o ooo+o+o+ |
| ..o ooo+o+o+ |
+---[SHA256]---+
veclabs:/environment/db $ [REDACTED]
aws | Search | [Alt+S] | United States (N. Virginia) | veclabs/user3904332=s224001588@deakin.edu.au @ 7305-1021-2312 | 1743 | ENG IN | 27-03-2025


OnTrack | c144539a373690597305971tw | Create Image | EC2 | us-east-1 | #CreateImage|instanceld=i-03c9d78a49d931d2d | Café Order Confirmation | +



Create image Info



An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.



Instance ID  
i-03c9d78a49d931d2d (aws-cloud9-CaféWebServer-13b21334e86d4f8da3e309b9b629868b)



Image name  
  
Maximum 127 characters. Can't be modified after creation.



Image description - optional  
  
Maximum 255 characters



Reboot instance  
When selected, Amazon EC2 reboots the instance so that data is at rest when snapshots of the attached volumes are taken. This ensures data consistency.



Instance volumes



ⓘ During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.



Tags - optional  
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.



CloudShell | Feedback | © 2025, Amazon Web Services, Inc. or its affiliates. | Privacy | Terms | Cookie preferences | 17:15 | ENG IN | 27-03-2025


```

Question 5: When you create an AMI from an instance, will the instance be rebooted?

Yes, always
 No, never
 You have the option *not* to reboot, but by default it will be rebooted
 You have the option to reboot, but by default it will *not* be rebooted

Submit

Question 6: In what ways can you modify the root volume properties when you create an AMI from an instance?

You cannot change the root volume details.
 You can edit the size, but nothing else.
 You can edit the size and 'delete on termination' setting, but not the volume type.
 You can edit the size and volume type, but not the 'delete on termination' setting.

Submit

Question 7: Can you add more volumes to an AMI that you create from an instance that only has one volume?

Yes
 No

Submit

The screenshot shows the 'Create image' configuration page in the AWS CloudShell. The 'Instance ID' field contains 'i-05c9d78a49d931d2d'. The 'Image name' field is set to 'CafeServer'. The 'Image description - optional' field is empty. The 'Reboot instance' checkbox is checked. Under 'Instance volumes', there is a table with columns: Storage type, Device, Snapshot, Size, Volume type, IOPS, Throughput, Delete on termination, and Encrypted. A single EBS volume is listed with a size of 10 GiB, volume type 'EBS General Purpose SS...', IOPS of 3000, and both 'Delete on termination' and 'Encrypted' checkboxes checked. An 'Add volume' button is visible.

Screenshot of the AWS Cloud9 interface showing the creation of a new AMI from an EC2 instance.

Instances (1/1) Info

Instance ID: i-03c9d78a49d931d2d | Status: Running | Instance type: t2.micro | Public IP: 34.226.205.200 | Private IP: 10.0.0.71 | DNS: ec2-34-226-205-200.compute-1.amazonaws.com

Amazon Machine Images (AMIs) (1) Info

ID	Visibility	Status	Creation date	Platform	Root device type	Block device mapping
i-0212312	Private	Pending	2025/03/27 17:17 GMT+11	Linux/UNIX	ebs	/dev/xvda

Copy AMI Info

Create a copy of an Amazon Machine Image in a Region.

Copy Amazon Machine Image (AMI)

Original AMI ID
 ami-02950a72501d1f0a1

AMI copy name
 CafeServer

AMI copy description
 [Copied ami-02950a72501d1f0a1 from us-east-1] CafeServer

Destination Region
 A copy of the original AMI will be created in the destination Region.
 United States (Oregon)

Copy tags
 Includes your user-defined AMI tags when copying the AMI.

Time-based copy - new Info
 Specify a completion duration for the snapshot copy operations of the associated snapshots. The completion duration applies to each associated snapshot individually. Additional costs apply. [Learn more](#)
 Enable time-based copy

AMI copy operation for ami-02950a72501d1f0a1 initiated
 It can take a few minutes for the AMI to be copied. You can check the progress of the operation in the AMI table in [us-west-2](#). The AMI ID of the new AMI is ami-09f8e2285c9716498.

Amazon Machine Images (AMIs) (1/1) Info

Owned by me	Find AMI by attribute or tag	Actions	Launch instance from AMI
<input checked="" type="checkbox"/>	Name	AMI ID	Source
<input checked="" type="checkbox"/>	CafeServer	ami-02950a72501d1f0a1	730510212312/CafeServer

AMI ID: ami-02950a72501d1f0a1

Details **Permissions** **Storage** **Tags**

AMI ID ami-02950a72501d1f0a1	Image type machine	Platform details Linux/UNIX	Root device type EBS
AMI name CafeServer	Owner account ID 730510212312	Architecture x86_64	Usage operation RunInstances
Root device name /dev/xvda	Status Available	Source 730510212312/CafeServer	Virtualization type hvm

Screenshot of the AWS Cloud Console showing the EC2 AMIs page.

The URL in the address bar is `us-west-2.console.aws.amazon.com/ec2/home?region=us-west-2#Imagesvisibility=owned-by-me;imageId=ami-09f8e2285c9716498`.

The sidebar navigation shows:

- EC2
- Dashboard
- EC2 Global View
- Events
- Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- Images
 - AMIs
 - AMI Catalog
- Elastic Block Store
 - Volumes
 - Snapshots
 - Lifecycle Manager

The main content area displays the "Amazon Machine Images (AMIs) (1)" section. A search bar at the top allows filtering by AMI name or tag. A table lists the single AMI entry:

Name	AMI ID	Source	Owner	Visibility
CafeServer	ami-09f8e2285c9716498	730510212312/CafeServer	730510212312	Private

Below the table is a "Select an AMI" dropdown menu.

The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray.

Screenshot of the AWS Management Console showing the EC2 Instances page and the Launch an instance wizard.

EC2 Instances Page:

- The top navigation bar shows tabs for OnTrack, c144539a37369051973059, Images | EC2 | us-east-1, Instances | EC2 | us-west-2, CafeWebServer - AWS CloudWatch Metrics, and Cafe Order Confirmation.
- The URL is us-west-2.console.aws.amazon.com/ec2/home?region=us-west-2#instances.
- The sidebar menu includes EC2, Instances (selected), Images, and Elastic Block Store.
- The main content area displays the "Instances Info" section with a search bar, filters (Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, Public IP), and a message stating "No instances" and "You do not have any instances in this region".
- A prominent blue "Launch instances" button is located at the bottom of the main content area.

Launch an instance Wizard:

- The title is "Launch an instance" with a "Info" link.
- The sub-section "Name and tags" contains a "Name" input field with "e.g. My Web Server" placeholder and an "Add additional tags" button.
- The sub-section "Application and OS Images (Amazon Machine Image)" contains a "Search our full catalog including 1000s of application and OS images" input field and a grid of AMI icons for Amazon Linux, macOS, Ubuntu, Windows, Red Hat, SUSE Linux, and Debian.
- The "Summary" section on the right lists the number of instances (1), Software Image (AMI) (selected), Virtual server type (instance type) (selected), Firewall (security group) (selected), and Storage (volumes) (selected).
- A tooltip for the Free tier states: "Free tier: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t2.micro isn't available) when used with free tier."
- Buttons at the bottom include "Cancel", "Launch instance" (highlighted in orange), and "Preview code".

Screenshot of the AWS EC2 Instances Launch wizard, Step 3: Configure Instance Details.

Summary

- Number of instances:** 1
- Software Image (AMI):** [Copied ami-02950a72501d1f0a1 ...read more]
- Virtual server type (instance type):** t2.small
- Firewall (security group):** New security group
- Storage (volumes):** 1 volume(s) - 10 GiB

Free tier information: In your first year of opening an AWS account, you get 750 hours per month of t2.micro instance usage (or t3.micro where t3.micro isn't available) when used with Free Tier.

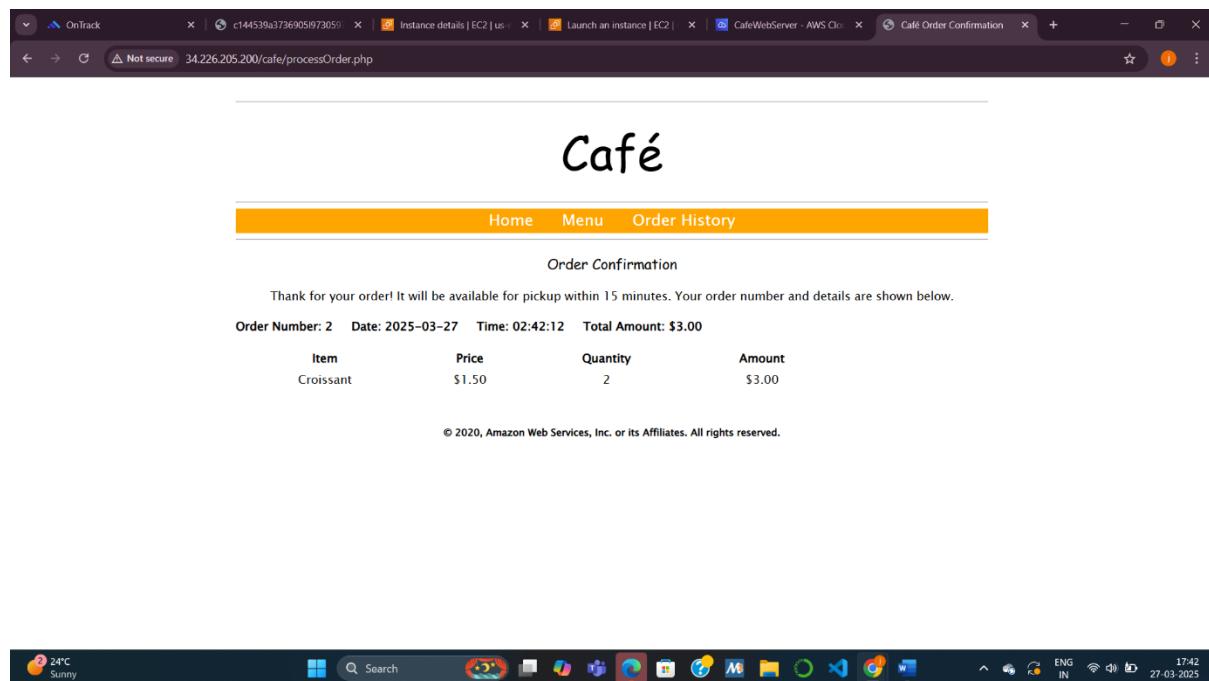
Launch instance button.

Success: Successfully initiated launch of instance (i-04e224a0c6f544de0)

Next Steps:

- Create billing and free tier usage alerts:** To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. [Create billing alerts](#)
- Connect to your instance:** Once your instance is running, log into it from your local computer. [Connect to instance](#)
- Connect an RDS database:** Configure the connection between an EC2 instance and a database to allow traffic flow between them. [Connect an RDS database](#)
- Create EBS snapshot policy:** Create a policy that automates the creation, retention, and deletion of EBS snapshots. [Create EBS snapshot policy](#)
- Manage detailed monitoring:**
- Create Load Balancer:**
- Create AWS budget:**
- Manage CloudWatch alarms:**

Task 7: Verifying the new café instance



The screenshot shows a challenge lab titled "Challenge (Café) lab: Creating a Dynamic Website for the Café". The left sidebar includes links for Home, Modules, Discussions, Grades, and Lucid (Whiteboard). The main content area displays a scenario where Sofia has created a dynamic website for a café. It includes a terminal command for troubleshooting and a list of tasks with their status:

Task	Status
[Answer 06]	1/1
[Answer 07]	1/1
[Task 6B] Instance role	3/3
[Task 6C] Instance type	2/2
[Task 6D] From custom AMI	3/3
[Task 7] Menu page loads	0/3

At the bottom, there are "Previous" and "Next" navigation buttons.

The screenshot shows the submission details for the challenge lab. The grade is 27 / 30. The submission was made by s224001588@deakin.edu.au on March 27 at 6:42am. The scenario describes creating a dynamic website for a café. The submission content is a file named "EN_US" containing the text:

Challenge Lab: Creating a Dynamic Website for the Café

Scenario

After the café launched the first version of its website, customers told the café staff how nice the website looks. However, in addition to the providing praise, customers often asked whether they could place online orders.

At the bottom, there is a comment section with a "Save" button.

Questions about the instance:

- . Is the instance in a public subnet?

Answer: Yes, if we can visit the café's website from your phone, it's in a public subnet—like a shop with a street-facing door.

Example: Think of a café on Main Street; anyone can walk in because it's "public."

. Does the EC2 instance have an IPv4 public IP address assigned to it?

Answer: Yes, it has a public IP—like a phone number strangers can call.

Example: our home Wi-Fi has a public IP so you can browse the internet.

. What inbound TCP port numbers are open for this instance?

Answer: Likely 80 (web), 443 (secure web), and 22 (remote access)—these are like open doors for customers and staff.

Example: Port 80 is like the café’s front door for orders; 22 is the back door for the manager.

. Does the EC2 instance have an AWS Identity and Access Management (IAM) role

Answer: Yes, it probably has an IAM role to fetch secret info—like a staff ID card.

Example: A cashier needs a key to open the register; the IAM role is that key for the app.

Questions about AMIs

1. When you create an AMI from an instance, will the instance be rebooted?

AWS does not reboot the instance unless you explicitly choose the “No reboot” option and it’s not supported for the instance type. However, in most cases, AWS performs a reboot to ensure a consistent state of the instance’s file system during the AMI creation process. In the lab, unless specified otherwise, assume the instance is rebooted. You can check this in the “Create Image” settings in the EC2 Console – the default is “Reboot.”

2. In what ways can you modify the root volume properties when you create an AMI from an instance?

When creating an AMI, we can modify the root volume properties in the following ways:

- Volume Type: Change the storage type (e.g., from General Purpose SSD gp2/gp3 to Provisioned IOPS SSD io1/io2).

- Size: Increase the size of the root volume (you cannot decrease it below the original size).
- Delete on Termination: Specify whether the volume is deleted when an instance launched from the AMI is terminated (default is typically “Yes”).
- Encryption: Enable or modify encryption settings (e.g., use a specific KMS key).

These options are available in the “Create Image” dialog under “Block Device Mappings” in the EC2 Console.

3. Can you add more volumes to an AMI that you create from an instance that only has one volume?

Yes, you can add more volumes to an AMI during its creation. In the “Create Image” process, under “Block Device Mappings,” you can add additional EBS volumes beyond the root volume. For example, you could add a second volume for data storage. These additional volumes will be included in the AMI and attached to any new instances launched from it. However, the original instance itself isn’t modified – the additional volumes are part of the AMI configuration.