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Class: Final Year CSE B (Batch B2)

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Subject: Cloud Computing

Assignment No. 4

Step 1: Create an Amazon AWS Account

Go to the AWS homepage: <https://aws.amazon.com/>.

Click on "Create an AWS Account."

Enter your email address, AWS account name, and verify your email.

Set a strong root user password and continue.

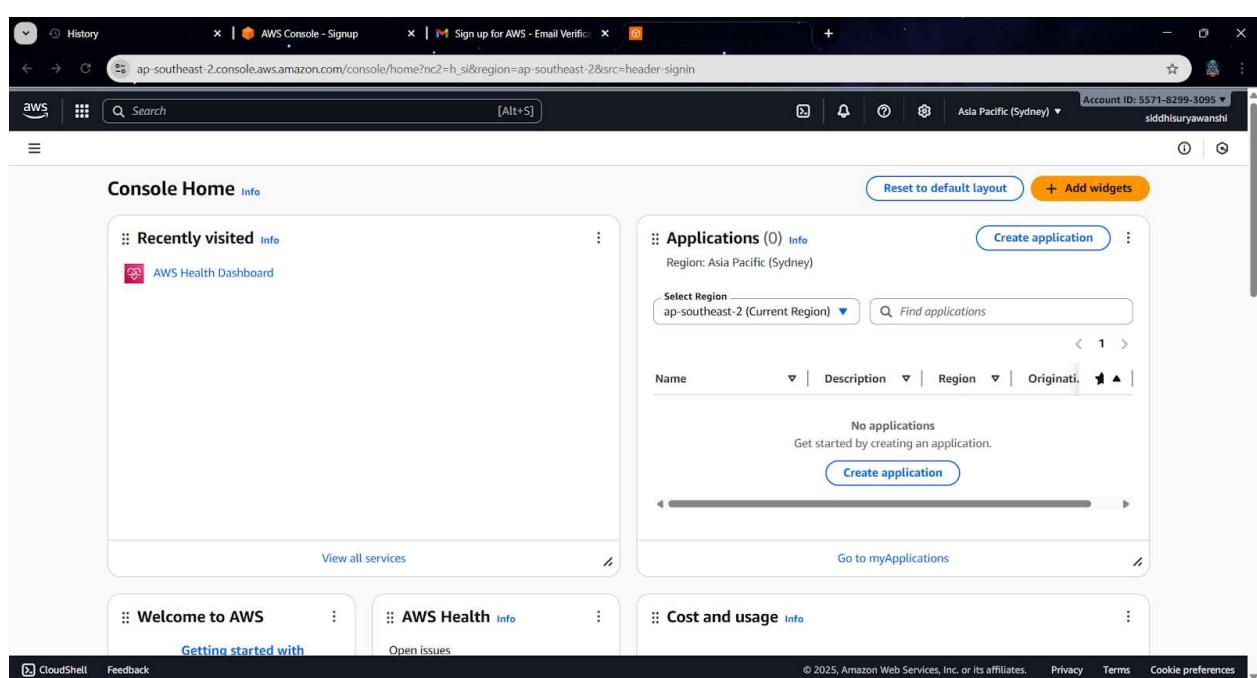
Enter your contact information (select Personal or Business).

Add your billing information (credit/debit card details).

Verify your phone number via SMS or a call.

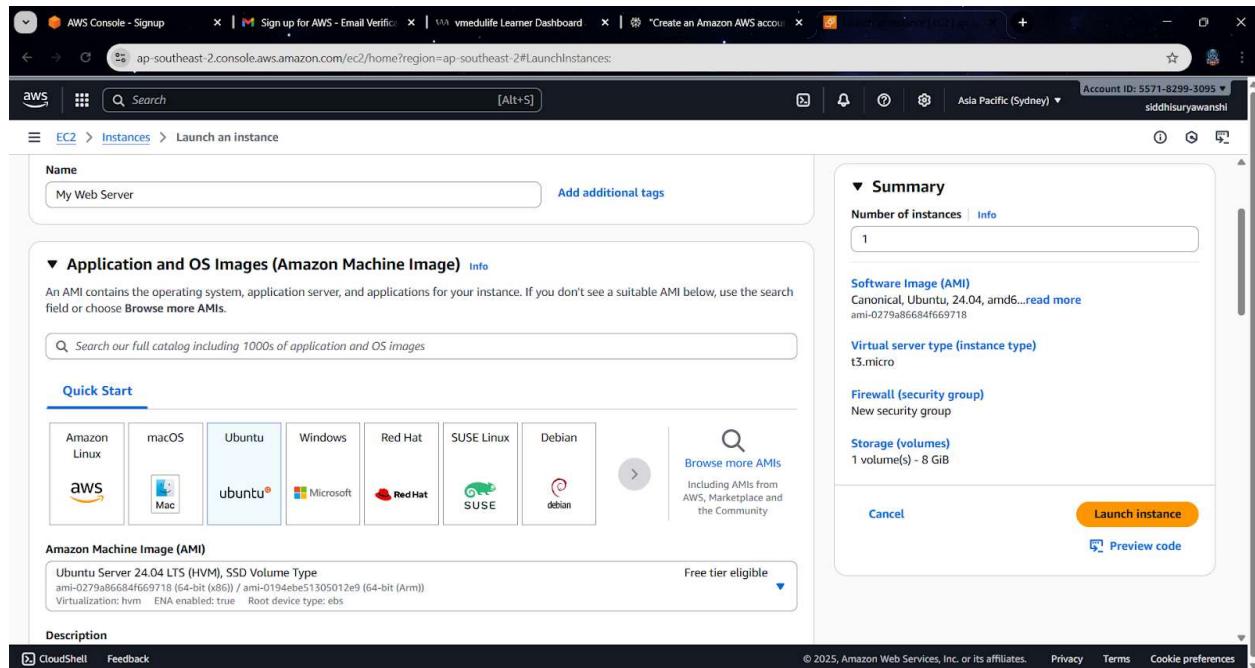
Choose the AWS Free Tier Support plan.

Complete the signup; activation may take a few minutes to 24 hours.



Step 2: Launch an EC2 Instance with Linux OS (AWS Free Tier)

1. Log in to your AWS Management Console.
2. Navigate to "Services" → "EC2" → "Instances" → Click "Launch Instances."
3. Enter a name for your instance.
4. Select the Amazon Machine Image (AMI) — choose a Free Tier eligible Linux distribution like "Amazon Linux 2 AMI" or "Ubuntu Server 20.04 LTS".
5. Choose the instance type: Select "t2.micro" which is Free Tier eligible.
6. Configure instance details as default or per requirement (ensure Auto-assign Public IP is enabled if desired).
7. Add storage using default (8 GB is free tier eligible).
8. Add tags as needed.
9. Configure Security Groups: open ports 22 (SSH), and 80 (HTTP) for web server access.
10. Review and launch the instance.
11. Create a new Key Pair, download the private key (.pem file), and launch the instance.



AWS Console - Signup | Sign up for AWS - Email Verification | vmedulife Learner Dashboard | *Create an Amazon AWS account | ap-southeast-2.console.aws.amazon.com/ec2/home?region=ap-southeast-2#LaunchInstances: Instances > Launch an instance

Description
Ubuntu Server 24.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).
Canonical, Ubuntu, 24.04, amd64 noble image

Architecture AMI ID Publish Date Username Verified provider
64-bit (x86) ami-0279a86684f669718 2025-08-21 ubuntu

Instance type Info | Get advice

Instance type
t3.micro Family: t3 2 vCPU 1 GiB Memory Current generation: true Free tier eligible
On-Demand Ubuntu Pro base pricing: 0.0167 USD per Hour
On-Demand RHEL base pricing: 0.042 USD per Hour
On-Demand Windows base pricing: 0.0224 USD per Hour
On-Demand SUSE base pricing: 0.0132 USD per Hour On-Demand Linux base pricing: 0.0132 USD per Hour

All generations Compare instance types

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.

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Summary
Number of instances 1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...read more
ami-0279a86684f669718
Virtual server type (instance type)
t3.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel Launch instance Preview code

AWS Console - Signup | Sign up for AWS - Email Verification | vmedulife Learner Dashboard | *Create an Amazon AWS account | ap-southeast-2.console.aws.amazon.com/ec2/home?region=ap-southeast-2#LaunchInstances: Instances > Launch an instance

Create key pair

Key pair name
Key pairs allow you to connect to your instance securely.
myKey The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type
 RSA RSA encrypted private and public key pair
 ED25519 ED25519 encrypted private and public key pair

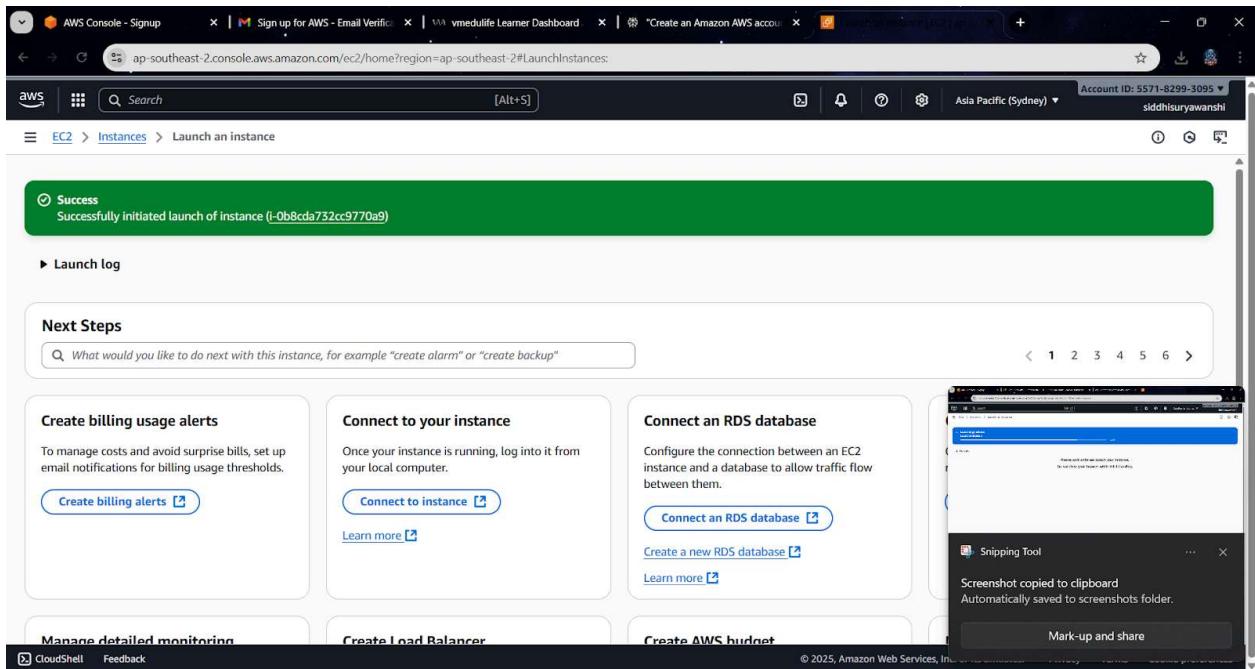
Private key file format
 .pem For use with OpenSSH
 .ppk For use with PUTTY

Warning When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. Learn more

Cancel Create key pair

Summary
Number of instances 1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd64...read more
ami-0279a86684f669718
Virtual server type (instance type)
t3.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel Launch instance Preview code

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Step 3: Connect to Your EC2 Linux Instance

1. Connect using the command:
ssh -i C:\Downloads\myKey.pem ubuntu@<public-ip>
2. (Use **ubuntu** user for Ubuntu AMI instead of **ec2-user**.)

```

PS C:\Users\siddh> ssh -i C:\Users\siddh\Downloads\myKey.pem ubuntu@3.107.231.73
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1011-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Sun Sep 21 11:46:24 UTC 2025

System load: 0.09      Temperature:          -273.1 C
Usage of /: 25.6% of 6.71GB  Processes:           118
Memory usage: 24%
Swap usage:  0%          Users logged in:       0
                           IPv4 address for ens5: 172.31.25.37

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

```

Step 4: Install a Web Server on EC2 Linux Instance

```

ubuntu@ip-172-31-25-37:~$ sudo apt update -y
Hit:1 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:5 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:7 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1415 kB]
Get:14 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [278 kB]
Get:15 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:16 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [15.3 kB]
Get:17 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1485 kB]
Get:18 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [299 kB]
Get:19 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [377 kB]
Get:20 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [31.1 kB]
Get:21 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [1901 kB]
Get:22 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [426 kB]
Get:23 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:24 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [544 B]
Get:25 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [32.0 kB]
Get:26 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [5500 B]

```

1. Update the package manager
2. Install Apache web server
3. Create a simple HTML page.

Step 5: Allocate and Associate an Elastic IP Address

```

ubuntu@ip-172-31-25-37:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
  liblua5.4-0 ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64
  liblua5.4-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 30 not upgraded.
Need to get 2086 kB of archives.
After this operation, 8090 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapr1t64 amd64 1.7.2-3.1ubuntu0.1 [108 kB]
Get:2 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1t64 amd64 1.6.3-1.1ubuntu7 [91.9 kB]
Get:3 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.3-1.1ubuntu7 [11.2 kB]
Get:4 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libaprutil1-ldap amd64 1.6.3-1.1ubuntu7 [9116 B]
Get:5 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble/main amd64 liblua5.4-0 amd64 5.4.6-3build2 [166 kB]
Get:6 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-bin amd64 2.4.58-1ubuntu8.8 [1331 kB]
Get:7 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-data all 2.4.58-1ubuntu8.8 [163 kB]
Get:8 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2-utils amd64 2.4.58-1ubuntu8.8 [97.7 kB]
Get:9 http://ap-southeast-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 apache2 amd64 2.4.58-1ubuntu8.8 [90.2 kB]

```

1. In AWS Console, go to "Services" → "EC2" → "Network & Security" → "Elastic IPs."
2. Click "Allocate Elastic IP address."
3. Confirm and allocate the IP.
4. Select the allocated Elastic IP, click "Actions" → "Associate Elastic IP address."
5. Choose the running EC2 instance from the dropdown to associate.
6. Confirm association.

The screenshot shows the AWS EC2 console with the 'Elastic IP addresses' section selected. A green success message at the top states: "Elastic IP address associated successfully. Elastic IP address 3.25.24.94 has been associated with instance i-0b8cda732cc9770a9". Below this, a table displays the assigned IP details:

| Name | Allocated IPv4 addr... | Type | Allocation ID | Reverse DNS record |
|------------|------------------------|----------------------------|---------------|--------------------|
| 3.25.24.94 | Public IP | eipalloc-0ab4f0a9657185b96 | - | |

At the bottom, there is a "Select an elastic IP address" section with a note: "View IP address usage and recommendations to release unused IPs with Public IP insights." The left sidebar shows other EC2 management options like Images, AMIs, and Network & Security.

Step 6: Access your website publicly

1. Open a web browser.
2. Enter the Elastic IP address assigned to your EC2 instance.
3. You should see the web page you created ("Welcome to My EC2 Web Server").

