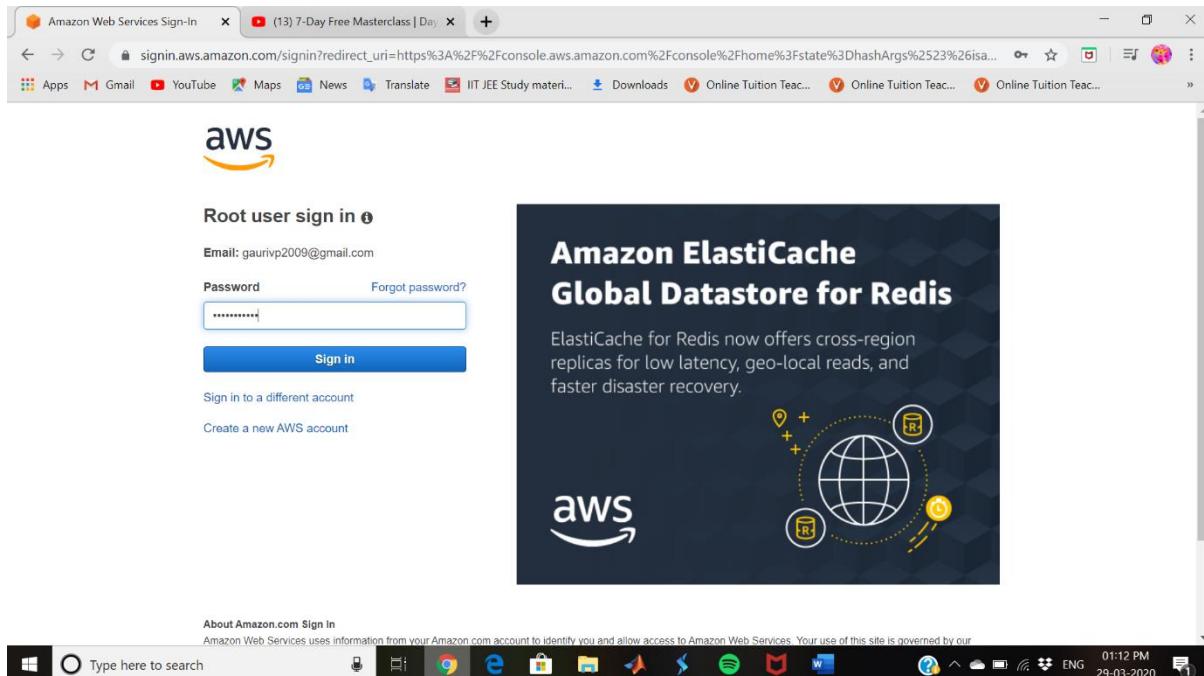


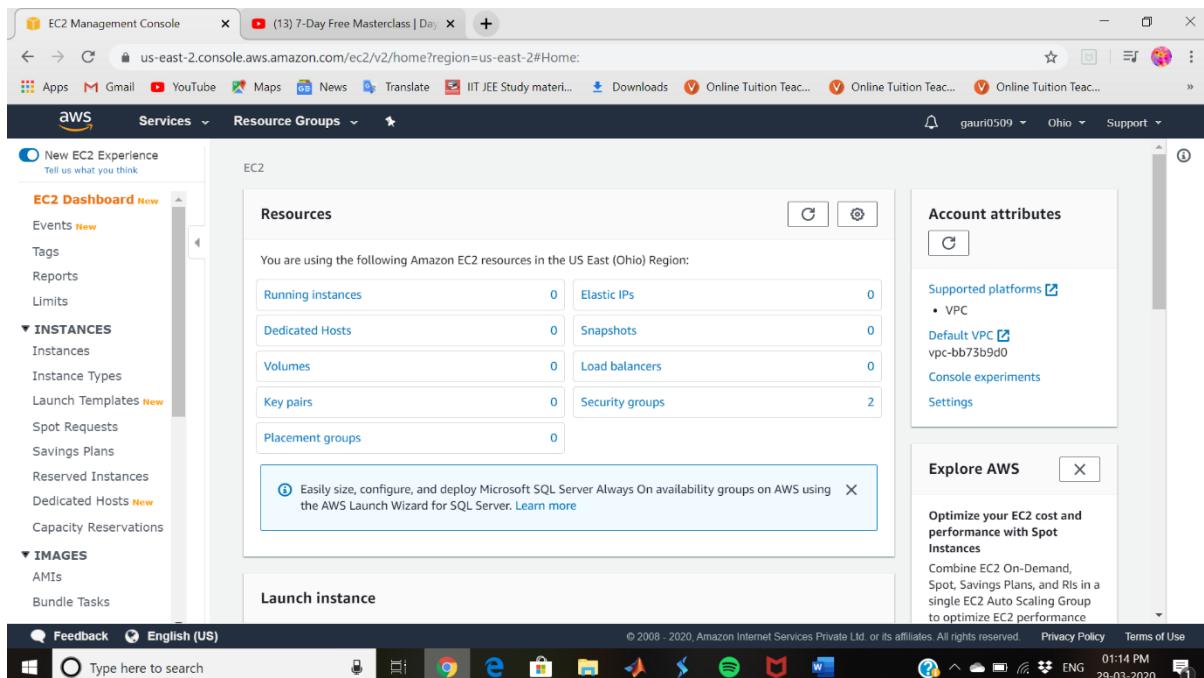
Face detection application using Amazon Web Services

1. AWS login

- AWS login screen



- EC2 dashboard



- S3 dashboard

The screenshot shows the AWS S3 Management Console. On the left, there's a sidebar with options like 'Buckets', 'Batch operations', and 'Access analyzer for S3'. The main area is titled 'Buckets (0)' and contains a search bar and a table with columns for 'Name', 'Region', 'Access', and 'Bucket created'. A message says 'No buckets' and 'You don't have any buckets.' with a 'Create bucket' button.

- Rekognition Dashboard

The screenshot shows the AWS Rekognition Console. On the left, a sidebar lists features such as 'Custom Labels', 'Demos', 'Image moderation', 'Facial analysis', 'Celebrity recognition', 'Face comparison', 'Text in image', 'Video Demos', 'Video analysis', and 'Metrics'. The main area has a dark blue background with a network graph. It features a 'Try Demo' button and 'Download SDKs'. Below this, there are three sections: 'Easily Integrate Powerful Visual Analysis into Your App', 'Continuously Learning', and 'Integrated with AWS Services'. The 'Continuously Learning' section includes a note about deep learning technology for billions of items.

2. EC2

- Choosing an AMI

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Search for an AMI by entering a search term e.g. "Windows"

Quick Start

My AMIs	Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0e01ce4ee18447327 (64-bit x86) / ami-03201f374ab66a26e (64-bit Arm)	Select
AWS Marketplace	Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.	<input checked="" type="radio"/> 64-bit (x86) <input type="radio"/> 64-bit (Arm)
Community AMIs	Root device type: ebs Virtualization type: hvm ENA Enabled: Yes	
Free tier only ⓘ	Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-01b01bbd08f24c7a8	Select
	Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.	64-bit (x86)
	Root device type: ebs Virtualization type: hvm ENA Enabled: Yes	

- Choosing an instance type

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All Instance types Current generation Show/Hide Columns

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

	Family	Type	vCPUs ⓘ	Memory (GiB) ⓘ	Instance Storage (GB) ⓘ	EBS-Optimized Available ⓘ	Network Performance ⓘ	IPv6 Support ⓘ
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

- Adding storage

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/xvda	snap-0f54692056aaa4c20	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

- Configuring security group

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group:

- Create a new security group
- Select an existing security group

Security group name: launch-wizard-2

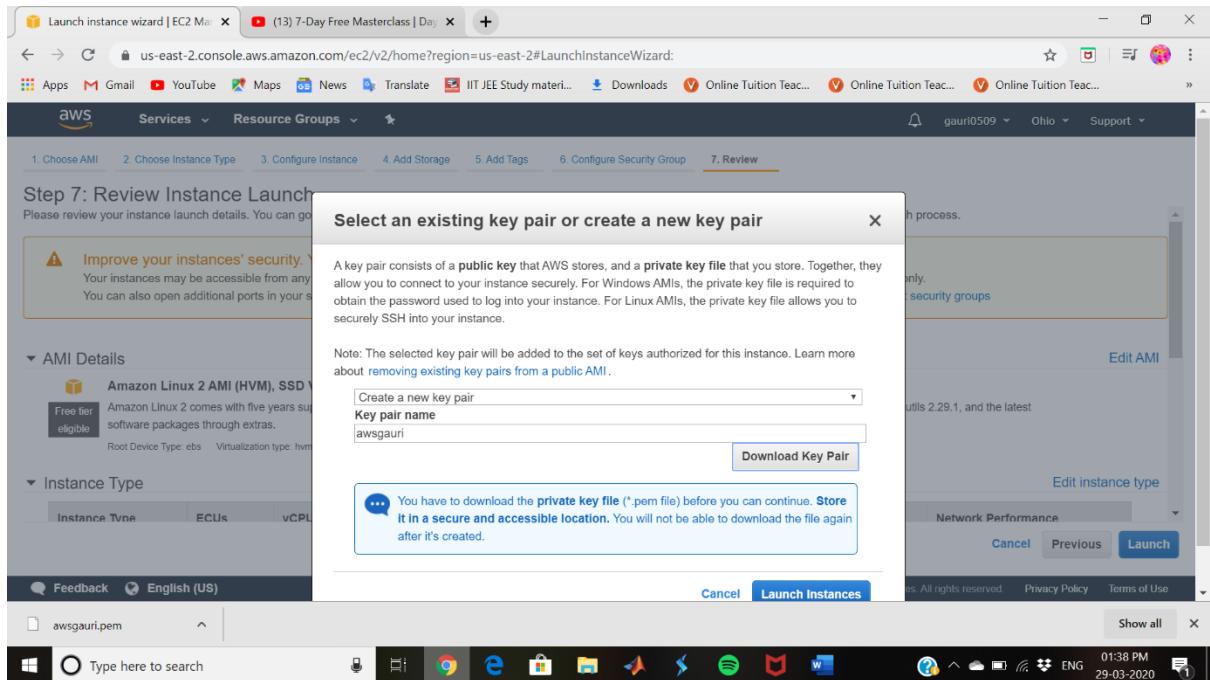
Description: launch-wizard-2 created 2020-03-29T13:36:01.193+05:30

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

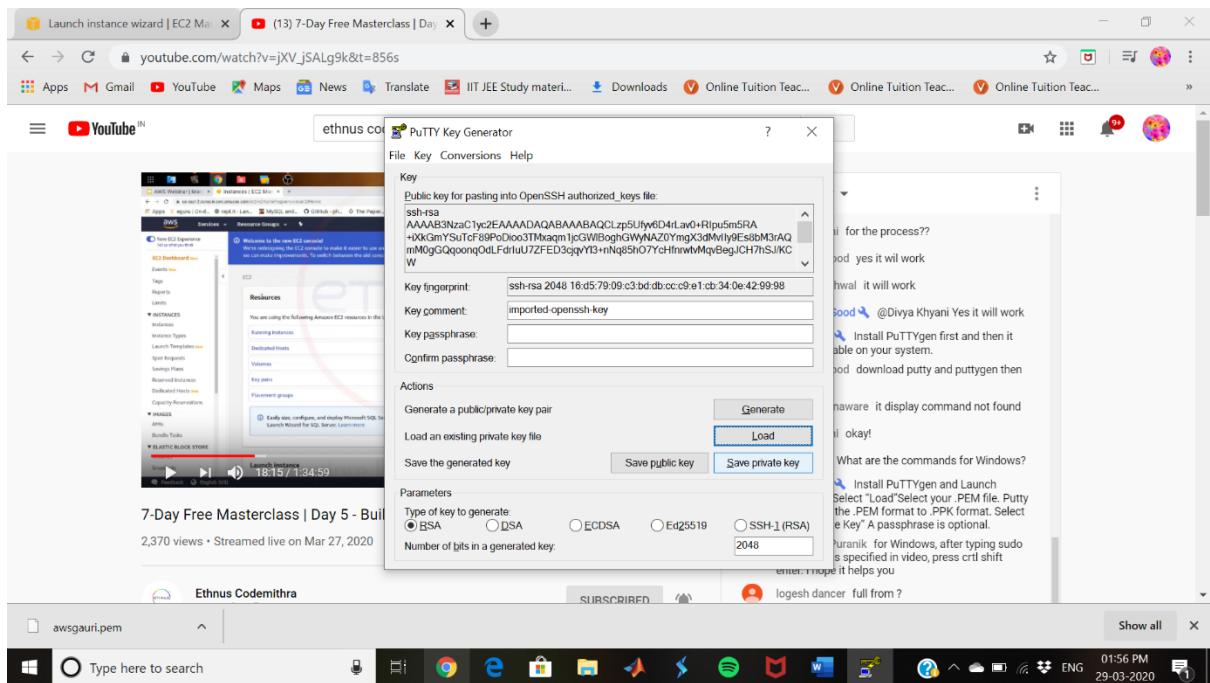
Add Rule

Warning
Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

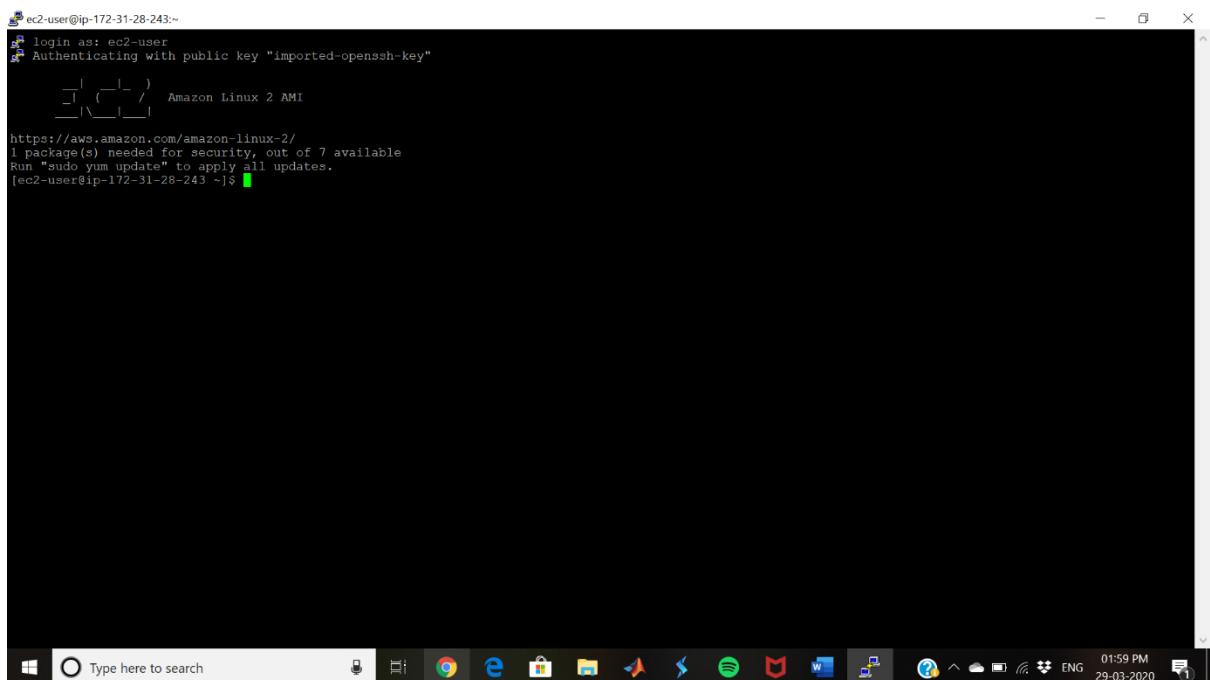
- Key pair download



- PuTTYgen conversion from .pem to .ppk



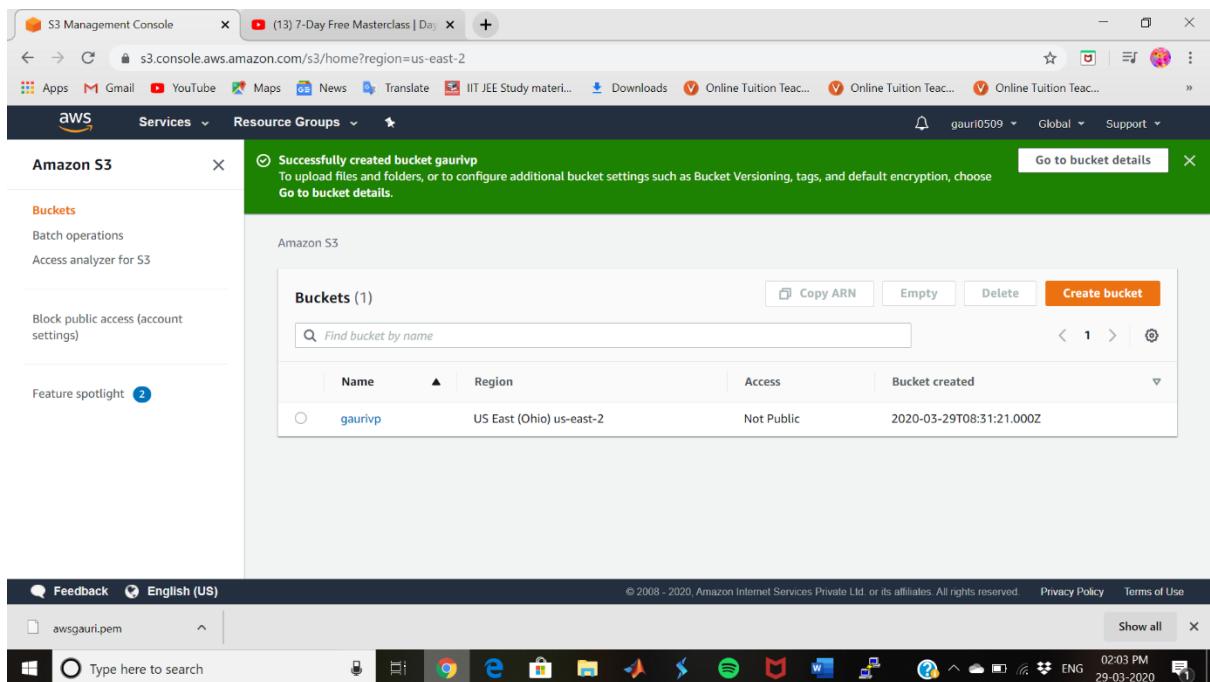
- Login in EC2 black screen



```
ec2-user@ip-172-31-28-243:~$  
Login as: ec2-user  
Authenticating with public key "imported-openssh-key"  
Amazon Linux 2 AMI  
  
https://aws.amazon.com/amazon-linux-2/  
1 package(s) needed for security, out of 7 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-28-243 ~]$
```

3. S3

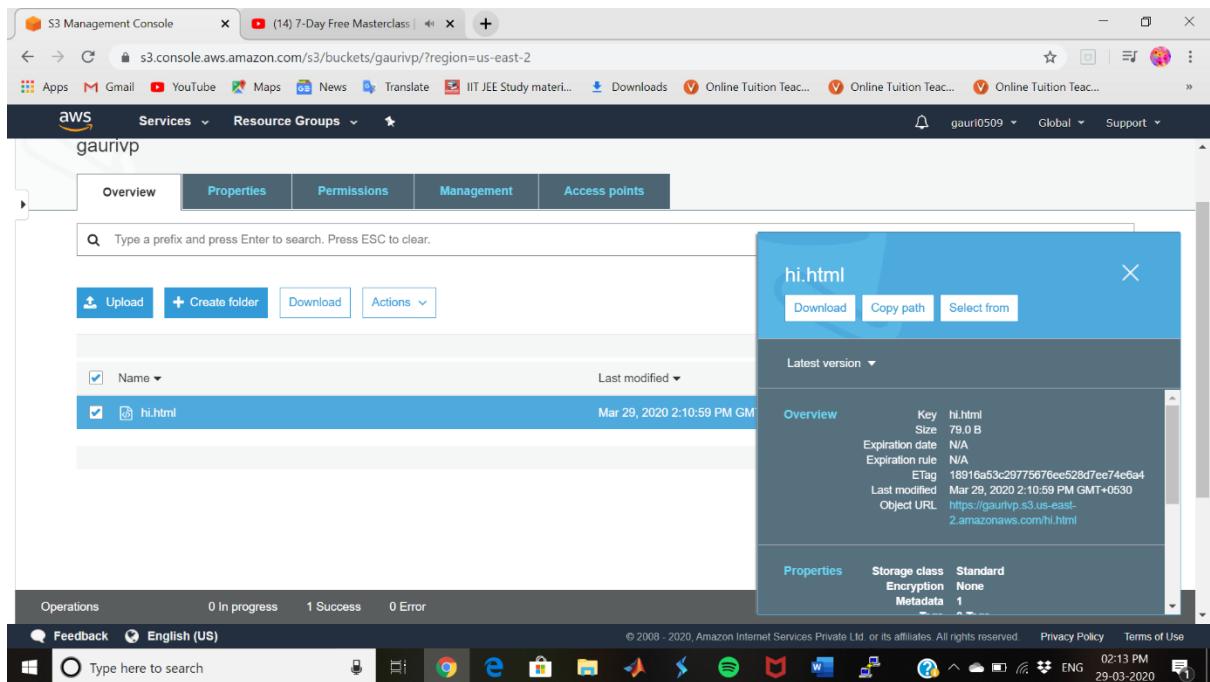
- Creating a bucket



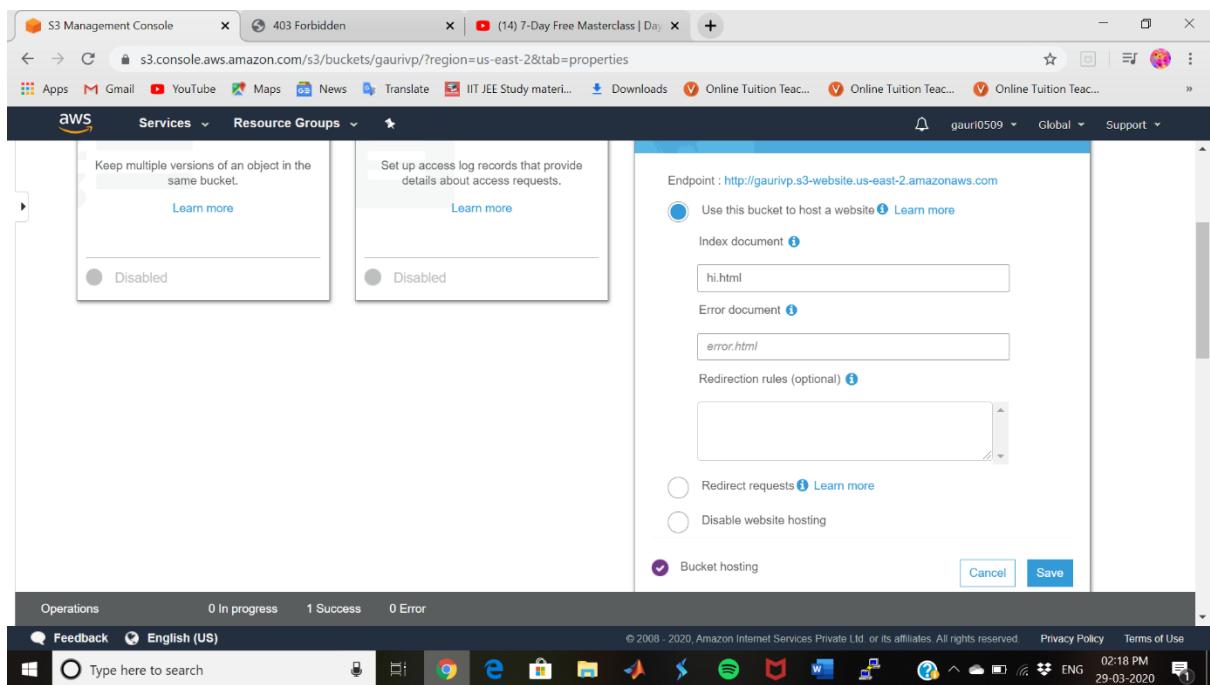
The screenshot shows the AWS S3 Management Console interface. A green success message at the top states: "Successfully created bucket gaurivp. To upload files and folders, or to configure additional bucket settings such as Bucket Versioning, tags, and default encryption, choose Go to bucket details." Below this, the "Buckets" section displays a table with one item:

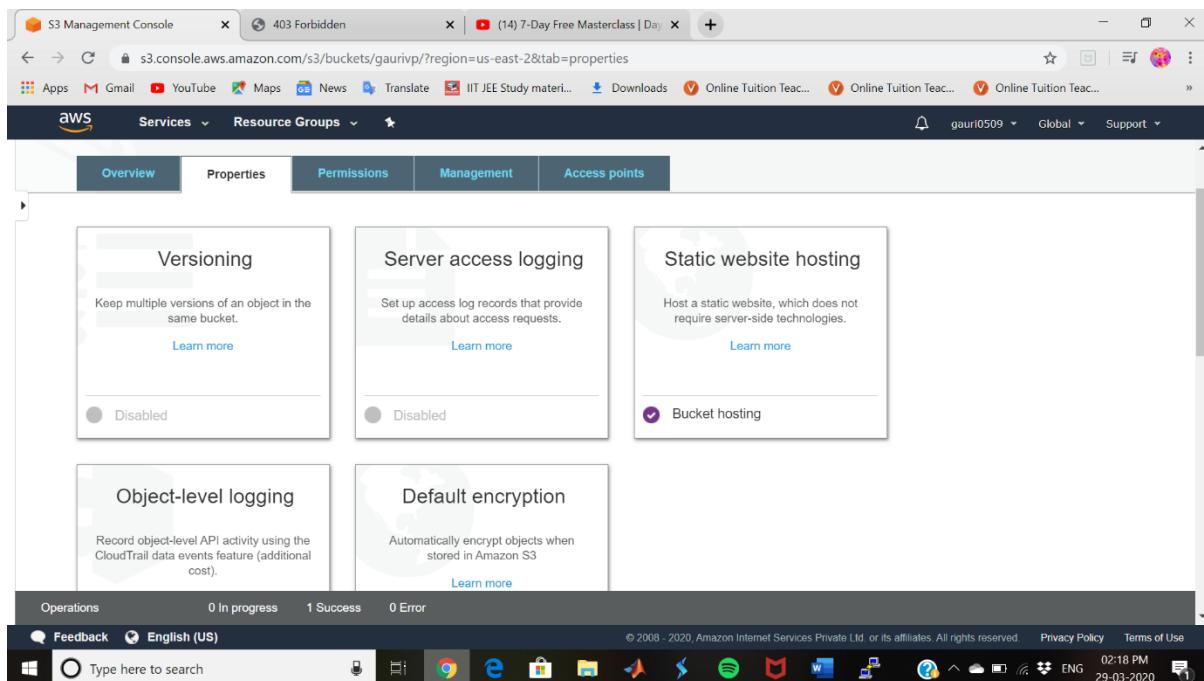
Name	Region	Access	Bucket created
gaurivp	US East (Ohio) us-east-2	Not Public	2020-03-29T08:31:21.000Z

- Uploading an object



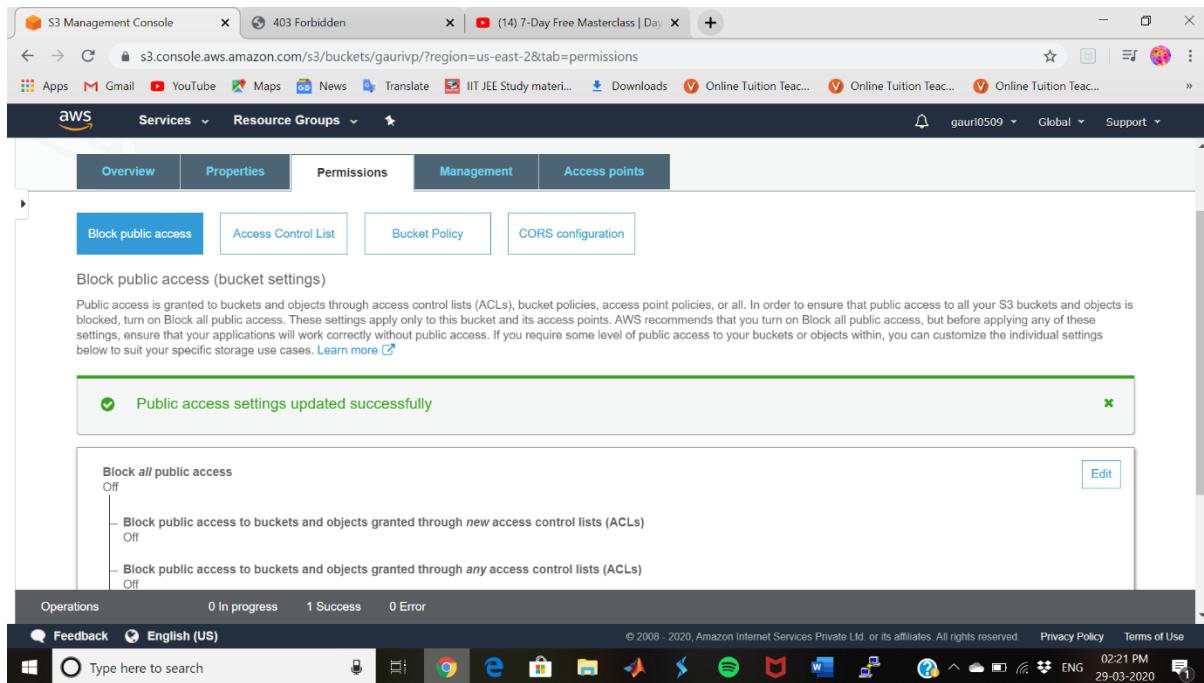
- Enabling a static website





- Making object public

To make the object public, we need to make both the bucket as well as object public.



The screenshot shows the AWS S3 Management Console interface. The top navigation bar includes links for 'AWS Services', 'Resource Groups', and user information ('gauri0509', 'Global', 'Support'). Below the navigation is a breadcrumb trail: 'Amazon S3 > gaurivp > hi.html'. The main content area displays the properties of the 'hi.html' object. The 'Properties' tab is selected, showing the following details:

- Owner:** 4a4791d4dae0ae85538077ee92f3576d5939e93251a1e6e827d325ff5b81c7aa
- Last modified:** Mar 29, 2020 2:10:59 PM GMT+0530
- Etag:** 18916a53c29775676ee528d7ee74e6a4
- Storage class:** Standard

Below these details are buttons for 'Open', 'Download', 'Download as', 'Make public', and 'Copy path'. At the bottom of the properties section, there's a summary of operations: 0 In progress, 3 Success, 0 Error. The status bar at the bottom right indicates the time as 02:22 PM and the date as 29-03-2020.

- Checking on browser

The screenshot shows a Microsoft Edge browser window with the URL 'https://gaurivp.s3.us-east-2.amazonaws.com/hi.html'. The page content is a single line of text: "Hello everyone ! I am Gauri Purandare from Datta Meghe College of Engineering." The browser's address bar, taskbar, and status bar are visible at the top and bottom respectively, showing standard Windows icons and system information.

Name: Gauri Vikram Purandare

4. Rekognition

- Face detection

The screenshot shows the AWS Rekognition console under the 'Facial analysis' section. On the left sidebar, 'Facial analysis' is selected. In the main area, a sample image of a man with a beard and sunglasses is shown with a bounding box around his face. Below the image are options to 'Choose a sample image' or 'Use your own image' and a 'Upload' button. To the right, the 'Results' section displays the following analysis:

Attribute	Score (%)
looks like a face	99.9 %
appears to be male	95.3 %
age range	36 - 52 years old
smiling	98.5 %
appears to be happy	98.1 %
wearing glasses	95.8 %

- Face compare

The screenshot shows the AWS Rekognition console under the 'Face comparison' section. On the left sidebar, 'Face comparison' is selected. In the main area, a 'Reference face' is set to a photo of a man with a beard and sunglasses. Two 'Comparison faces' are shown: one pair of men standing side-by-side and another pair of two different men. Below each comparison pair are 'Choose a sample image' buttons. To the right, the 'Results' section displays the following comparison results:

Comparison	Similarity (%)
Man with beard and sunglasses vs. Man with beard and sunglasses	97 %
Man with beard and sunglasses vs. Other man	Not applicable (marked with a ≠ symbol)

- Celebrity recognition

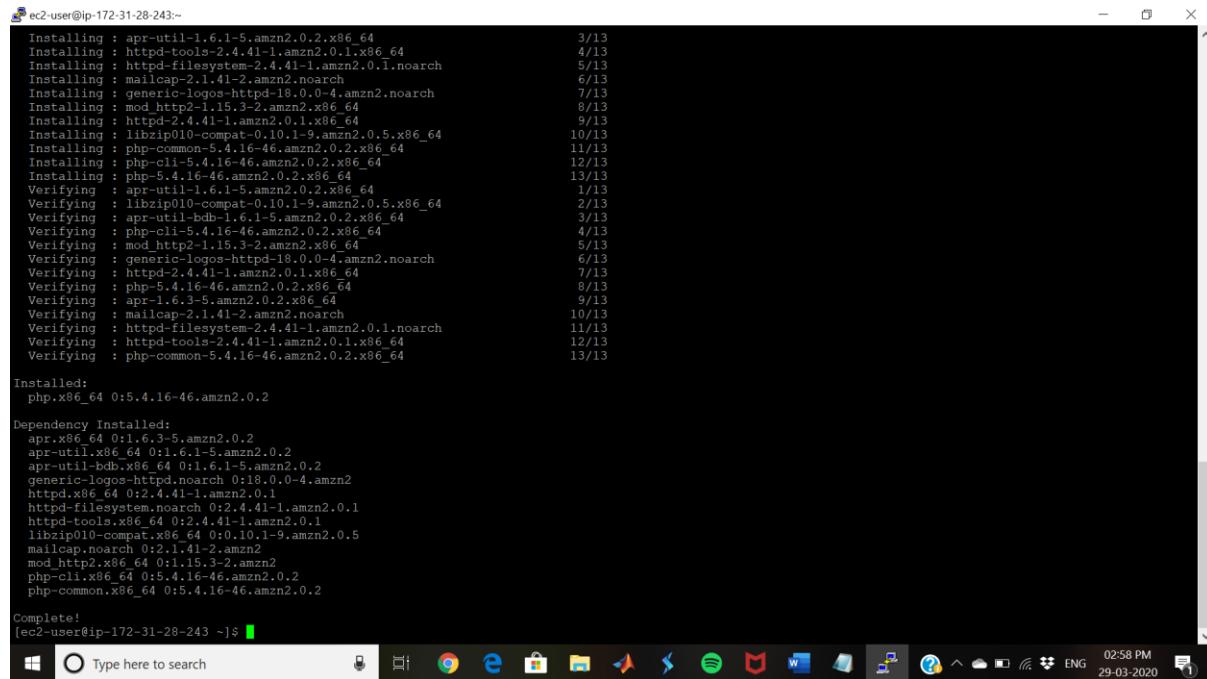
The screenshot shows the Amazon Rekognition console interface. On the left sidebar, under the 'Celebrity recognition' section, there is a thumbnail of a woman's face with a blue bounding box around her head. To the right, the results panel displays a small profile picture of the same woman, labeled 'Deepika Padukone' with a 'Learn More' link. Below this, it says 'Match confidence 100 %'. At the bottom of the results panel, there are sections for 'Request' and 'Response'.

- Text in image

The screenshot shows the Amazon Rekognition console interface. Under the 'Text in image' section, there is a thumbnail of a blue BMW SUV. To the right, the results panel shows a single line of detected text: 'HR | 26 | TC | 6986 |'. Below this, there are sections for 'Request' and 'Response'.

5. EC2 and S3

- Installing aws-sdk



```

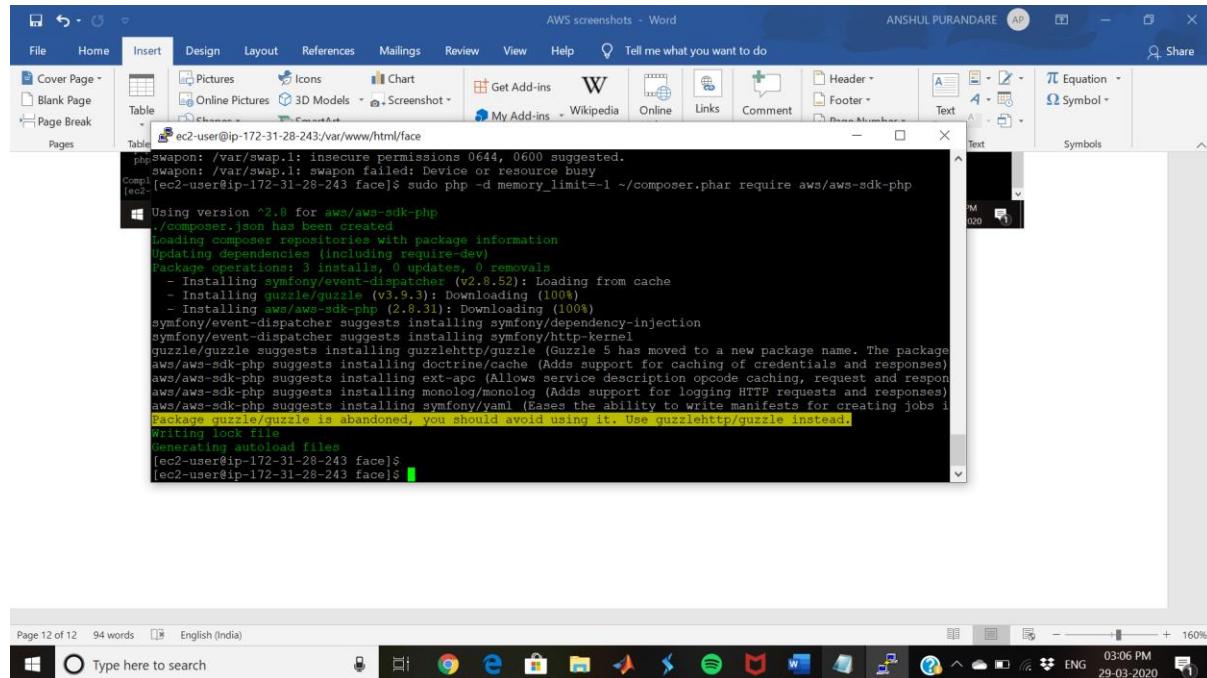
ec2-user@ip-172-31-28-243:~#
Installing : apr-util-1.6.1-5.amzn2.0.2.x86_64 3/13
Installing : httpd-tools-2.4.11-1.amzn2.0.1.x86_64 4/13
Installing : httpd-filesystem-2.4.11-1.amzn2.0.1.noarch 5/13
Installing : mailcap-2.1.41-2.amzn2.noarch 6/13
Installing : generic-logos-httdp-18.0.0-4.amzn2.noarch 7/13
Installing : mod_http2-1.15.3-2.amzn2.x86_64 8/13
Installing : httpd-2.4.11-1.amzn2.0.1.x86_64 9/13
Installing : libzip010-compat-0.10.1-9.amzn2.0.5.x86_64 10/13
Installing : php-common-5.4.16-46.amzn2.0.2.x86_64 11/13
Installing : php-cli-5.4.16-46.amzn2.0.2.x86_64 12/13
Installing : php-5.4.16-46.amzn2.0.2.x86_64 13/13
Verifying : apr-util-1.6.1-5.amzn2.0.2.x86_64 1/13
Verifying : libzip010-compat-0.10.1-9.amzn2.0.5.x86_64 2/13
Verifying : apr-util-bdb-1.6.1-5.amzn2.0.2.x86_64 3/13
Verifying : php-cli-5.4.16-46.amzn2.0.2.x86_64 4/13
Verifying : mod_http2-1.15.3-2.amzn2.x86_64 5/13
Verifying : generic-logos-httdp-18.0.0-4.amzn2.noarch 6/13
Verifying : httpd-2.4.11-1.amzn2.0.1.x86_64 7/13
Verifying : php-5.4.16-46.amzn2.0.2.x86_64 8/13
Verifying : apr-1.6.3-5.amzn2.0.2.x86_64 9/13
Verifying : mailcap-2.1.41-2.amzn2.noarch 10/13
Verifying : httpd-filesystem-2.4.11-1.amzn2.0.1.noarch 11/13
Verifying : httpd-tools-2.4.11-1.amzn2.0.1.x86_64 12/13
Verifying : php-common-5.4.16-46.amzn2.0.2.x86_64 13/13

Installed:
  php.x86_64 0:5.4.16-46.amzn2.0.2

Dependency Installed:
  apr.x86_64 0:1.6.3-5.amzn2.0.2
  apr-util.x86_64 0:1.6.1-5.amzn2.0.2
  apr-util-bdb.x86_64 0:1.6.1-5.amzn2.0.2
  generic-logos-httdp.noarch 0:18.0.0-4.amzn2
  httpd.x86_64 0:2.4.41-1.amzn2.0.1
  httpd-filesystem.noarch 0:2.4.41-1.amzn2.0.1
  httpd-tools.x86_64 0:2.4.41-1.amzn2.0.1
  libzip010-compat.x86_64 0:0.10.1-9.amzn2.0.5
  mailcap.noarch 0:2.1.41-2.amzn2
  mod_http2.x86_64 0:1.15.3-2.amzn2
  php-cli.x86_64 0:5.4.16-46.amzn2.0.2
  php-common.x86_64 0:5.4.16-46.amzn2.0.2

Complete!
[ec2-user@ip-172-31-28-243 ~]$
```

- Installing php



```

AWS screenshots - Word
File Home Insert Design Layout References Mailings Review View Help Tell me what you want to do ANSHUL PURANDARE AP Share
Cover Page Blank Page Page Break Pages
Tables & Borders Insert Pictures Icons Chart Get Add-ins W My Add-ins Wikipedia Online Links Comment Header Footer Document Number Text Symbols
Table ec2-user@ip-172-31-28-243:~#
php swapon: /var/swap.1: insecure permissions 0644, 0600 suggested.
php swapon: /var/swap.1: swapon failed: Device or resource busy
Composer [ec2-user@ip-172-31-28-243 face]$ sudo php -d memory_limit=-1 ~/composer.phar require aws/aws-sdk-php
[ec2-user@ip-172-31-28-243 face]$ Using version ^2.8 for aws/aws-sdk-php
./composer.json has been created
Loading composer repositories with package information
Updating dependencies (including require-dev)
Package operations: 3 installs, 0 updates, 0 removals
  - Installing symfony/event-dispatcher (v2.8.52): Loading from cache
    - Installing guzzle/guzzle (v5.9.3): Downloading (100%)
    - Installing aws/aws-sdk-php (2.8.31): Downloading (100%)
symfony/event-dispatcher suggests installing symfony/dependency-injection
symfony/event-dispatcher suggests installing symfony/http-kernel
guzzle/guzzle suggests installing guzzlehttp/guzzle (Guzzle 5 has moved to a new package name. The package aws/aws-sdk-php suggests installing doctrine/cache (Adds support for caching of credentials and responses)
aws/aws-sdk-php suggests installing ext-apc (Allows service description opcode caching, request and response)
aws/aws-sdk-php suggests installing monolog/monolog (Adds support for logging HTTP requests and responses)
aws/aws-sdk-php suggests installing Symfony/Yaml (Eases the ability to write manifests for creating jobs if you're using Doctrine's Yaml mapping)
GuzzleHttp/guzzle is abandoned, you should avoid using it. Use guzzlehttp/guzzle instead.
Writing lock file
Generating autoload files
[ec2-user@ip-172-31-28-243 face]$ [ec2-user@ip-172-31-28-243 face]$
```

Name: Gauri Vikram Purandare

- file code

```

ec2-user@ip-172-31-28-243:~/var/www/html/face
sudo /bin/dd if=/dev/zero of=/var/swap.1 bs=1M count=1024
sudo /sbin/mkswap /var/swap.1
sudo /sbin/swapon /var/swap.1

sudo wget https://i.pinimg.com/originals/b9/7e/a3/b97ea33b5842c7894b804923c6c05580.jpg
sudo mv b97ea33b5842c7894b804923c6c05580.jpg sample.jpg

*/
error_reporting(0);

require_once(__DIR__ . '/vendor/autoload.php');

use Aws\S3\S3Client;
use Aws\Rekognition\RekognitionClient;

$bucket = 'gaurivp';
$keyname = 'vk.jpg';

$s3 = S3Client::factory([
    'profile'     => 'default',
    'region'      => 'us-east-2',
    'version'     => '2006-03-01',
    'signature'   => 'v4'
]);

try {
    // Upload data.
    $result = $s3->putObject([
        'Bucket'       => $bucket,
        'Key'          => $keyname,
        'SourceFile'   => __DIR__ . '/' . $keyname,
        'ACL'          => 'public-read'
    ]);
}

// Print the URL to the object.
$imageUrl = $result['ObjectURL'];
if ($imageUrl) {
    echo "Image upload done... Here is the URL: " . $imageUrl;
}
} catch (Exception $e) {
    echo $e->getMessage() . PHP_EOL;
}
index.php" 55L, 1215C
55,1           Bot

```

Type here to search

- Upload success

```

ec2-user@ip-172-31-28-243:~/var/www/html/face
mkswap: error: /var/swap.1 is mounted; will not make swap space
[ec2-user@ip-172-31-28-243 face]$ sudo /sbin/swapon /var/swap.1
swapon: /var/swap.1: insecure permissions 0644, 0600 suggested.
swapon: /var/swap.1: swapon failed: Device or resource busy
[ec2-user@ip-172-31-28-243 face]$ sudo php -d memory_limit=-1 ~/composer.phar require aws/aws-sdk-php

Using version ^2.8 for aws/aws-sdk-php
./composer.json has been created
Loading composer repositories with package information
Updating dependencies (including require-dev)
Package operations: 3 installs, 0 updates, 0 removals
  Installing symfony/event-dispatcher (v2.8.52): Loading from cache
  - Installing guzzle/guzzle (v3.9.3): Downloading (100%)
  - Installing aws/aws-sdk-php (2.8.31): Downloading (100%)
symfony/event-dispatcher suggests installing symfony/dependency-injection
symfony/event-dispatcher suggests installing symfony/http-kernel
guzzle/guzzle suggests installing guzzlehttp/guzzle (Guzzle 5 has moved to a new package name. The package you have installed, Guzzle 3, is deprecated.)
aws/aws-sdk-php suggests installing doctrine/cache (Adds support for caching of credentials and responses)
aws/aws-sdk-php suggests installing ext-apc (Allows service description opcode caching, request and response caching, and credentials caching)
aws/aws-sdk-php suggests installing monolog/monolog (Adds support for logging HTTP requests and responses)
aws/aws-sdk-php suggests installing symfony/yaml (Eases the ability to write manifests for creating jobs in AWS Import/Export)
Package guzzle/guzzle is abandoned, you should avoid using it. Use guzzlehttp/guzzle instead.
Writing lock file
Generating autoload files
[ec2-user@ip-172-31-28-243 face]$
[ec2-user@ip-172-31-28-243 face]$ sudo wget https://filmfare.wwmindia.com/content/2020/mar/vickykaushal141584710836.jpg
--2020-03-29 09:37:46-- https://filmfare.wwmindia.com/content/2020/mar/vickykaushal141584710836.jpg
Resolving filmfare.wwmindia.com (filmfare.wwmindia.com)... 23.38.138.206, 2600:1408:10:1af::216f, 2600:1408:10:1a7::216f
Connecting to filmfare.wwmindia.com (filmfare.wwmindia.com)|23.38.138.206|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 34861 (34K) [image/jpeg]
Saving to: 'vickykaushal141584710836.jpg'

100%[=====] 34,861 --.-K/s in 0.008s

2020-03-29 09:37:46 (3.95 MB/s) - 'vickykaushal141584710836.jpg' saved [34861/34861]

[ec2-user@ip-172-31-28-243 face]$ sudo mv ^C
[ec2-user@ip-172-31-28-243 face]$ sudo mv vickykaushal141584710836.jpg vk.jpg
[ec2-user@ip-172-31-28-243 face]$ ls
composer.json composer.lock vendor vk.jpg
[ec2-user@ip-172-31-28-243 face]$ sudo vim index.php
[ec2-user@ip-172-31-28-243 face]$ sudo php index.php
Image upload done... Here is the URL: https://gaurivp.s3.us-east-2.amazonaws.com/vk.jpg[ec2-user@ip-172-31-28-243 face]$ 

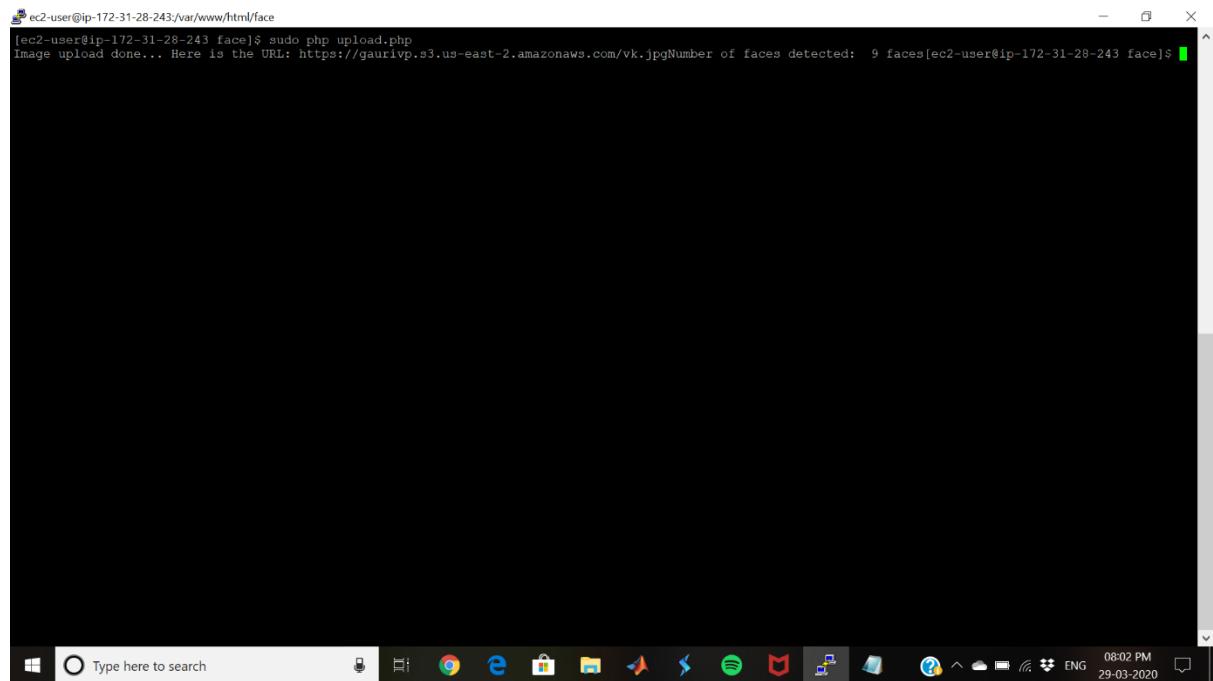
```

Type here to search

Name: Gauri Vikram Purandare

6. EC2 and recognition

- Face detect success screenshot



The screenshot shows a terminal window with the following text:

```
[ec2-user@ip-172-31-28-243:~]$ sudo php upload.php
Image upload done... Here is the URL: https://gaurivp.s3.us-east-2.amazonaws.com/vk.jpg
Number of faces detected: 9 faces[ec2-user@ip-172-31-28-243:~]$
```

The terminal window has a black background and white text. The title bar shows the command entered: [ec2-user@ip-172-31-28-243:~]\$. Below the terminal window is a Windows taskbar with various icons for applications like File Explorer, Google Chrome, and Microsoft Edge. The system tray shows the date (29-03-2020), time (08:02 PM), and language (ENG).