

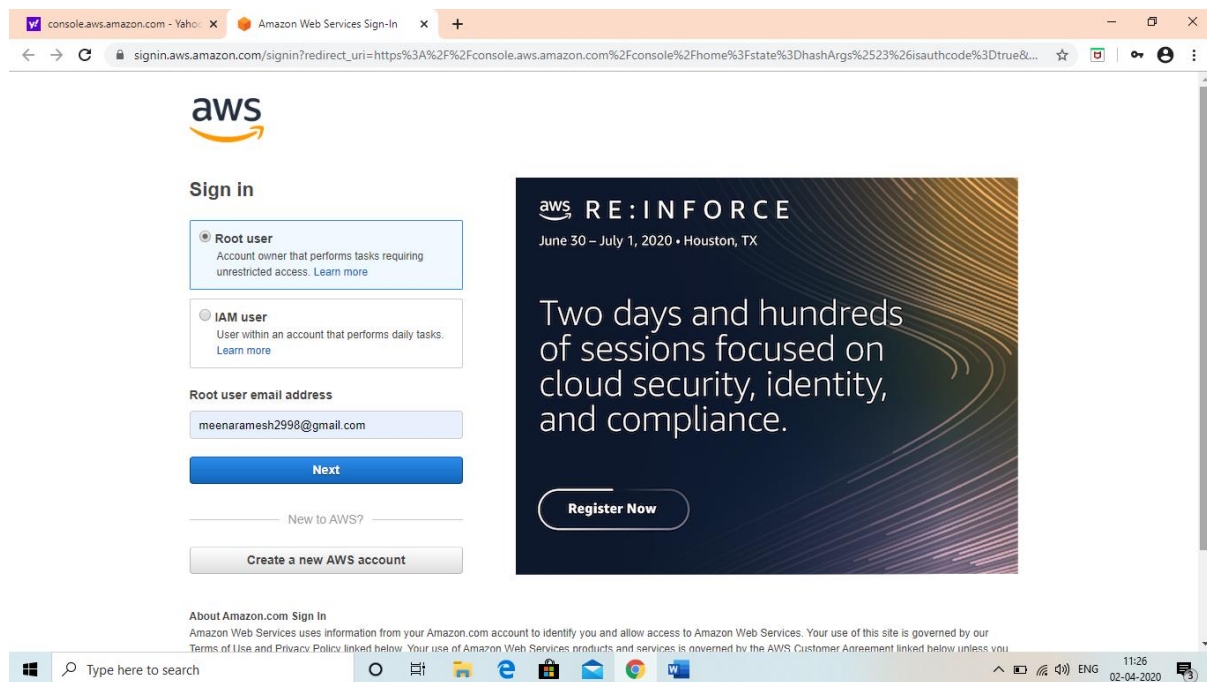
# BUILDING A FACE DETECTION APP USING AWS

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## Screenshots for Dashboards

### Login to AWS



## EC2 Dashboard:

The screenshot shows the AWS EC2 Management Console. The left sidebar contains navigation links for 'New EC2 Experience', 'Events', 'Tags', 'Reports', 'Limits', 'INSTANCES' (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, and Capacity Reservations), and 'IMAGES' (with a link for AMIs). The main content area is titled 'EC2' and features a 'Resources' section showing counts for various EC2 resources in the US East (N. Virginia) Region: Running instances (0), Elastic IPs (0), Dedicated Hosts (0), Snapshots (0), Volumes (0), Load balancers (0), Key pairs (0), Security groups (1), and Placement groups (0). Below this is a 'Launch instance' button and a notification box about Microsoft SQL Server. On the right, there are sections for 'Account attributes' (including VPC and Default VPC) and 'Additional information' (including Getting started guide, Documentation, All EC2 resources, and a link to the Forum). The bottom of the console shows a footer with 'Feedback', 'English (US)', and copyright information. The Windows taskbar at the bottom indicates the time is 15:33 on 02-04-2020.

## S3 Dashboard:

The screenshot shows the AWS S3 Management Console. The left sidebar contains navigation links for 'Amazon S3' (with sub-links for Buckets, Batch operations, and Access analyzer for S3), 'Block public access (account settings)', and 'Feature spotlight'. The main content area is titled 'Amazon S3' and features a 'Buckets (1)' section. This section includes a search bar, a table of buckets, and buttons for 'Copy ARN', 'Empty', 'Delete', and 'Create bucket'. The table has columns for Name, Region, Access, and Bucket created. The first row shows a bucket named 'my-webinar' in the US East (Ohio) us-east-2 region, with public access and a creation time of 2020-04-03T07:02:36.000Z. A blue banner at the top of the main content area informs users about updates to the S3 console design. The bottom of the console shows a footer with 'Feedback', 'English (US)', and copyright information. The Windows taskbar at the bottom indicates the time is 15:42 on 03-04-2020.

## Amazon Rekognition:

The screenshot shows the Amazon Rekognition console interface. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and user information (Meena ramesh, Ohio, Support). The left sidebar lists various features: Custom Labels (New), Use Custom Labels, Demos (Object and scene detection, Image moderation, Facial analysis, Celebrity recognition, Face comparison, Text in image), Video Demos (Video analysis), and Metrics. The main content area features a large header with the text 'Amazon Rekognition' and 'Deep learning-based visual analysis service'. Below this, there are three columns of information: 'Easily Integrate Powerful Visual Analysis into Your App', 'Continuously Learning', and 'Integrated with AWS Services'. The bottom of the page includes a footer with 'Feedback', 'English (US)', and copyright information.

## Screenshot for EC2

### Choosing AMI:

The screenshot displays the 'Step 1: Choose an Amazon Machine Image (AMI)' screen in the AWS Management Console. The top navigation bar is consistent with the previous screenshot. The left sidebar shows the 'Launch Instance Wizard' progress: 1. Choose AMI (selected), 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, 7. Review. The main content area provides instructions on selecting an AMI and lists two recommended AMIs: 'Amazon Linux 2 AMI (HVM, SSD Volume Type)' and 'Amazon Linux AMI 2018.03.0 (HVM, SSD Volume Type)'. Each AMI entry includes a 'Select' button and details about its architecture (64-bit x86 or 64-bit Arm) and features. The bottom of the page includes a footer with 'Feedback', 'English (US)', and copyright information.

## Choosing an Instance type:

The screenshot shows the AWS Launch Instance Wizard at Step 2: Choose an Instance Type. The breadcrumb trail includes: 1. Choose AMI, 2. Choose Instance Type (active), 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. The page title is "Step 2: Choose an Instance Type". Below the title, a paragraph explains that Amazon EC2 provides a wide selection of instance types optimized for different use cases, with varying combinations of CPU, memory, storage, and networking capacity. It also includes a link to "Learn more about instance types and how they can meet your computing needs."

Filter by: All instance types (dropdown), Current generation (dropdown), Show/Hide Columns (button).

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 <small>Free tier eligible</small>	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

Buttons: Cancel, Previous, Review and Launch, Next: Configure Instance Details

Footer: Feedback, English (US), © 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy, Terms of Use. Taskbar shows Windows search, task icons, and system tray with date 02-04-2020 and time 17:44.

## Adding Storage :

The screenshot shows the AWS Launch Instance Wizard at Step 4: Add Storage. The breadcrumb trail includes: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage (active), 5. Add Tags, 6. Configure Security Group, and 7. Review. The page title is "Step 4: Add Storage". Below the title, a paragraph explains that the instance will be launched with the following storage device settings, and that additional EBS volumes and instance store volumes can be attached after launching. It also includes a link to "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

Buttons: Add New Volume, Cancel, Previous, Review and Launch, Next: Add Tags

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.

Footer: Feedback, English (US), © 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy, Terms of Use. Taskbar shows Windows search, task icons, and system tray with date 02-04-2020 and time 17:45.

## Configuring Security Group :

The screenshot shows the AWS Launch Instance Wizard at Step 6: Configure Security Group. The breadcrumb trail at the top indicates the steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. The main heading is "Step 6: Configure Security Group". Below it, a paragraph explains that a security group is a set of firewall rules that control traffic to and from your instance. It provides an example of setting up a web server and allows users to either create a new security group or select an existing one. The "Assign a security group" section has two radio buttons: "Create a new security group" (selected) and "Select an existing security group". Below this, the "Security group name" is "launch-wizard-2" and the "Description" is "launch-wizard-2 created 2020-04-02T17:46:21.807+05:30". A table lists the configured rules:

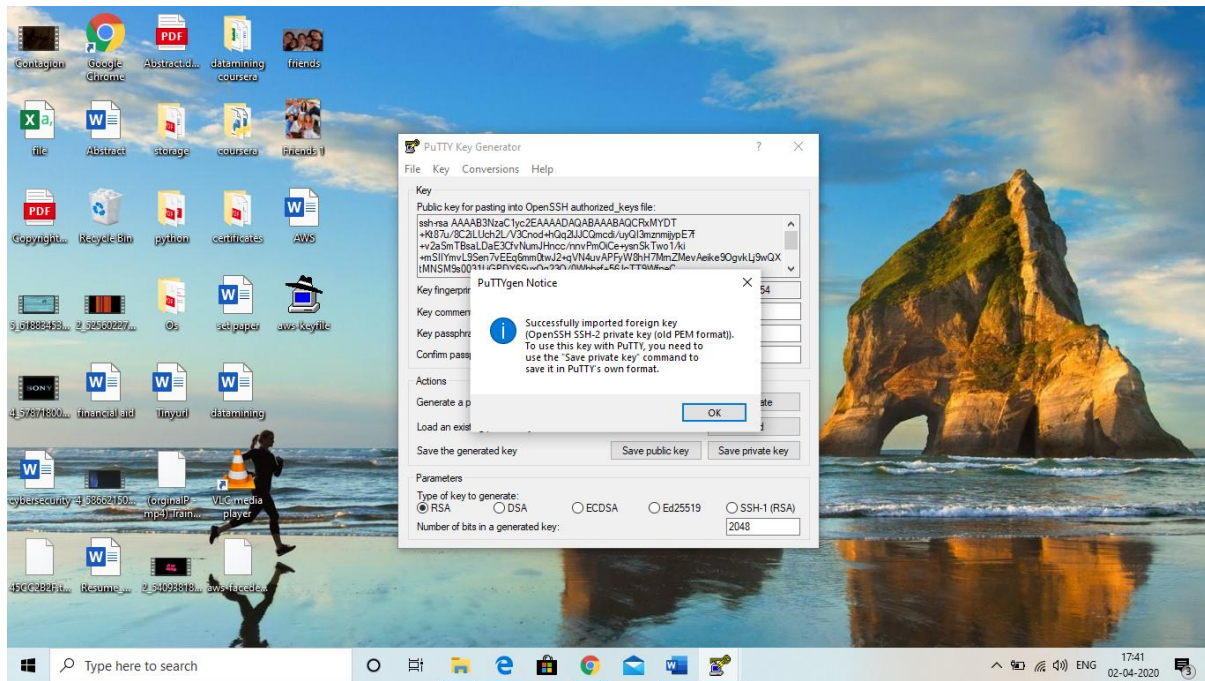
Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

Below the table is an "Add Rule" button. A yellow warning box states: "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." At the bottom right, there are "Cancel", "Previous", and "Review and Launch" buttons.

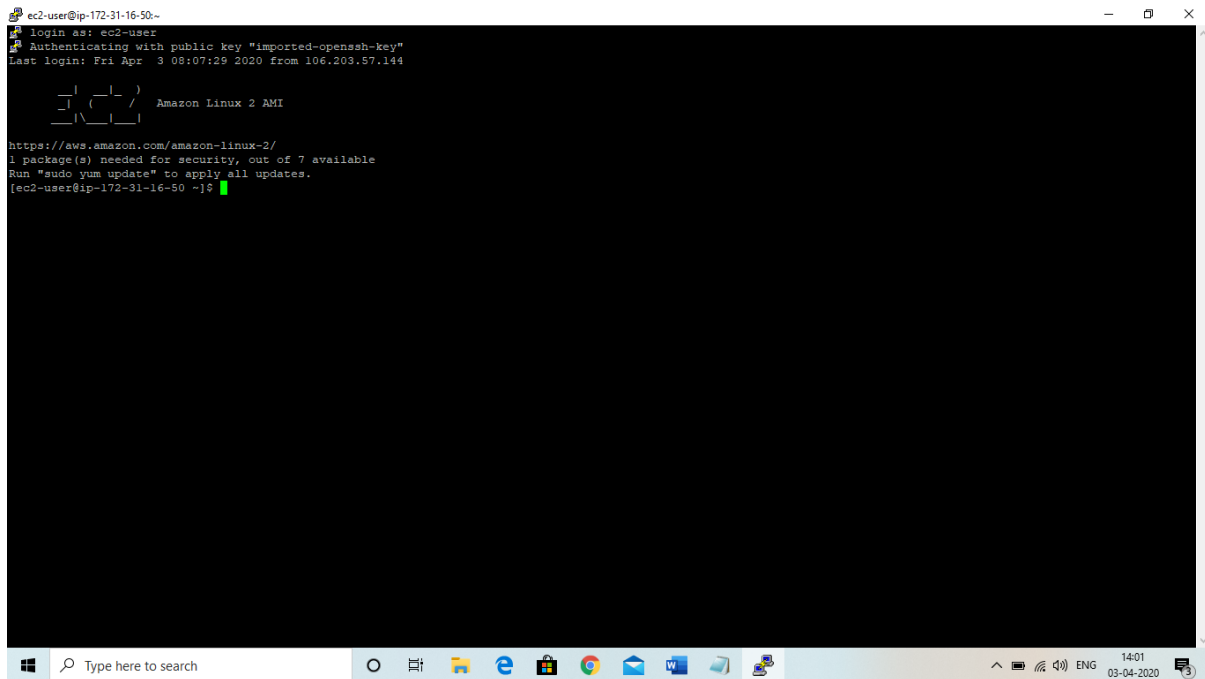
## Downloading Keypair:

The screenshot shows the AWS Launch Instance Wizard at Step 7: Review Instance Launch. A modal dialog titled "Select an existing key pair or create a new key pair" is open in the center. The modal explains that a key pair consists of a public key stored by AWS and a private key file stored by the user. It provides a note that the selected key pair will be added to the set of keys authorized for this instance. The modal has a "Create a new key pair" dropdown menu, a "Key pair name" input field with the value "aws-facedetection-key", and a "Download Key Pair" button. A blue information box at the bottom of the modal states: "You have to download the private key file (\*.pem file) before you can continue. Store it in a secure and accessible location. You will not be able to download the file again after it's created." The background shows the "Review Instance Launch" step with various details like AMI, Instance Type, and Security Groups. At the bottom right of the wizard, there are "Cancel", "Previous", and "Launch" buttons.

## Converting PEM to PPK using Puttygen:



## Login to Putty:

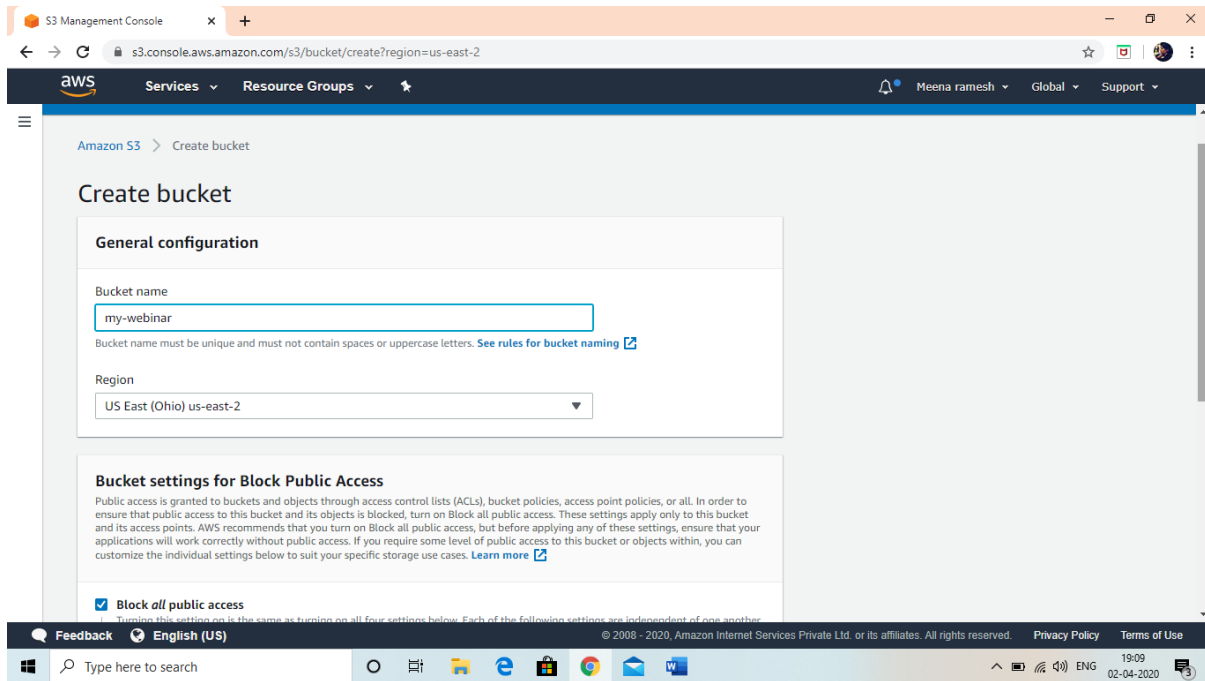




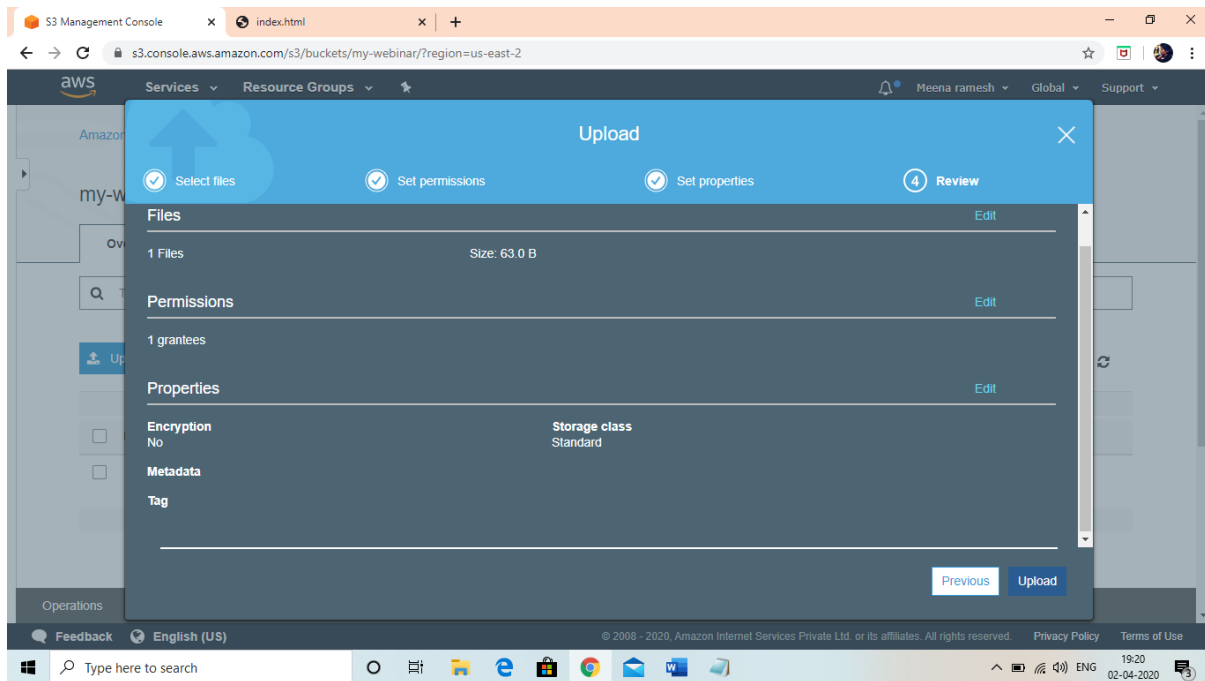
## Screenshots for S3

### A . Creating S3 Bucket:

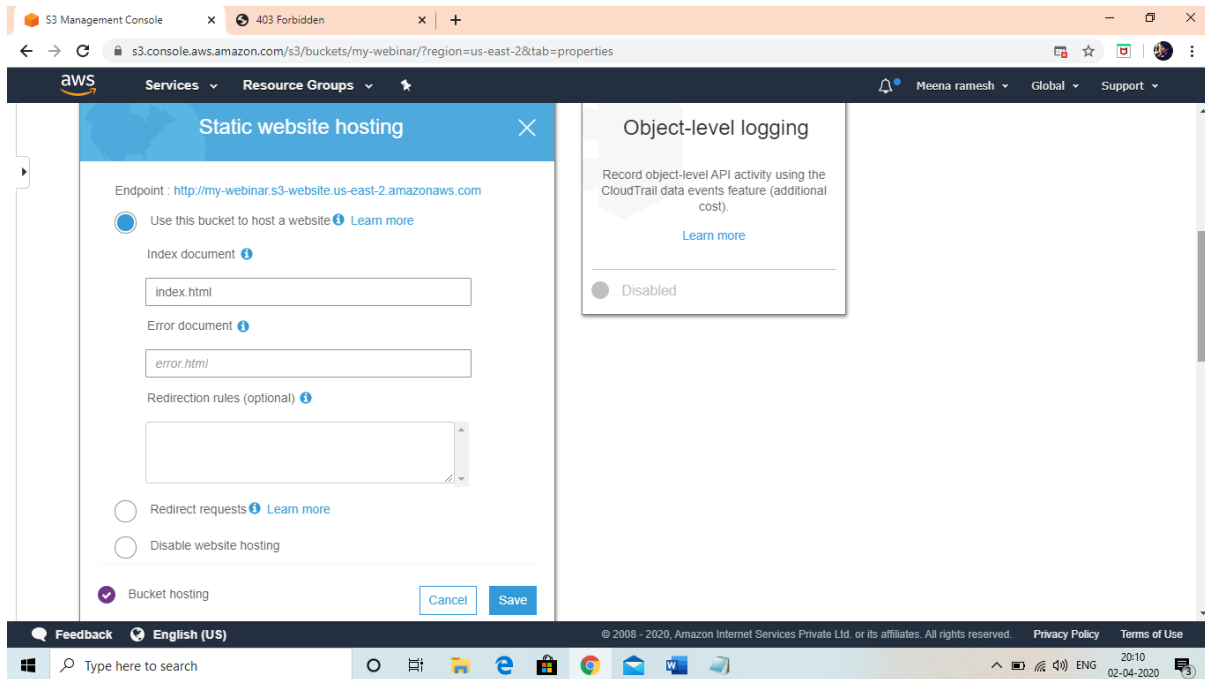
**BUCKET NAME: my-webinar**



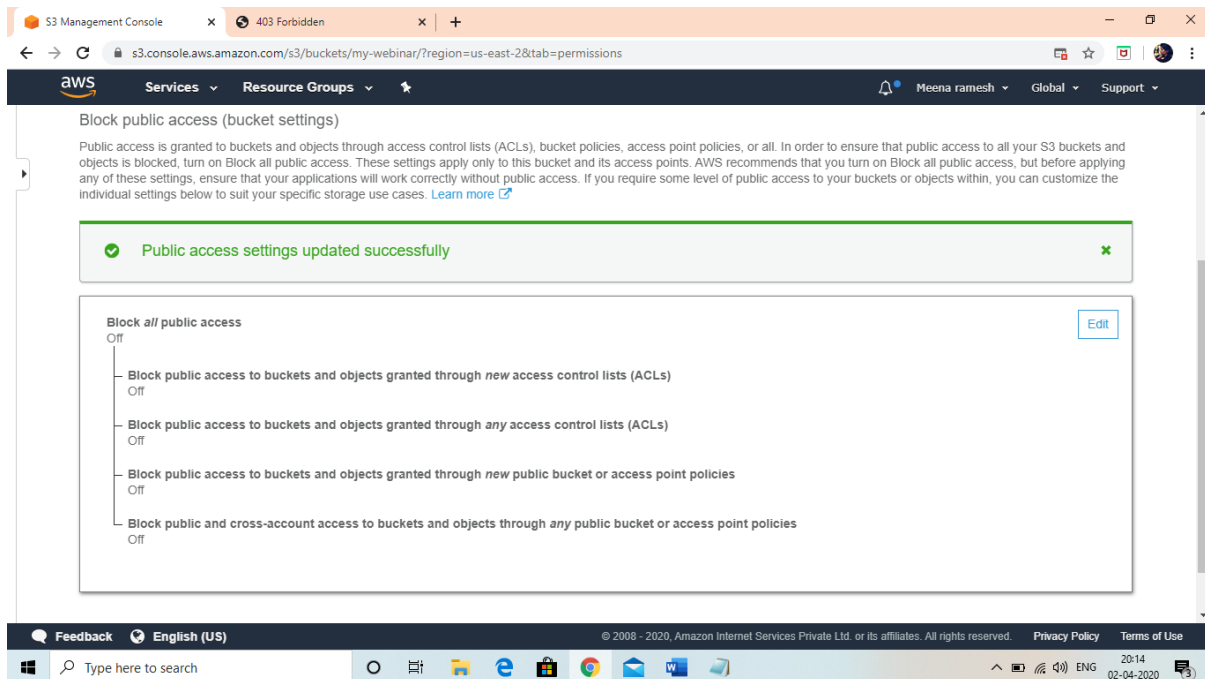
### B. Uploading an object:



## C. Enabling static website hosting:

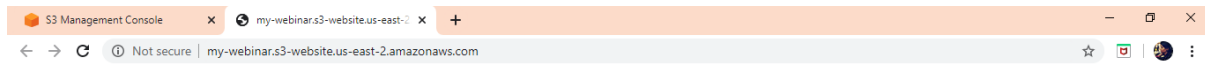


## D. Making the object as public:



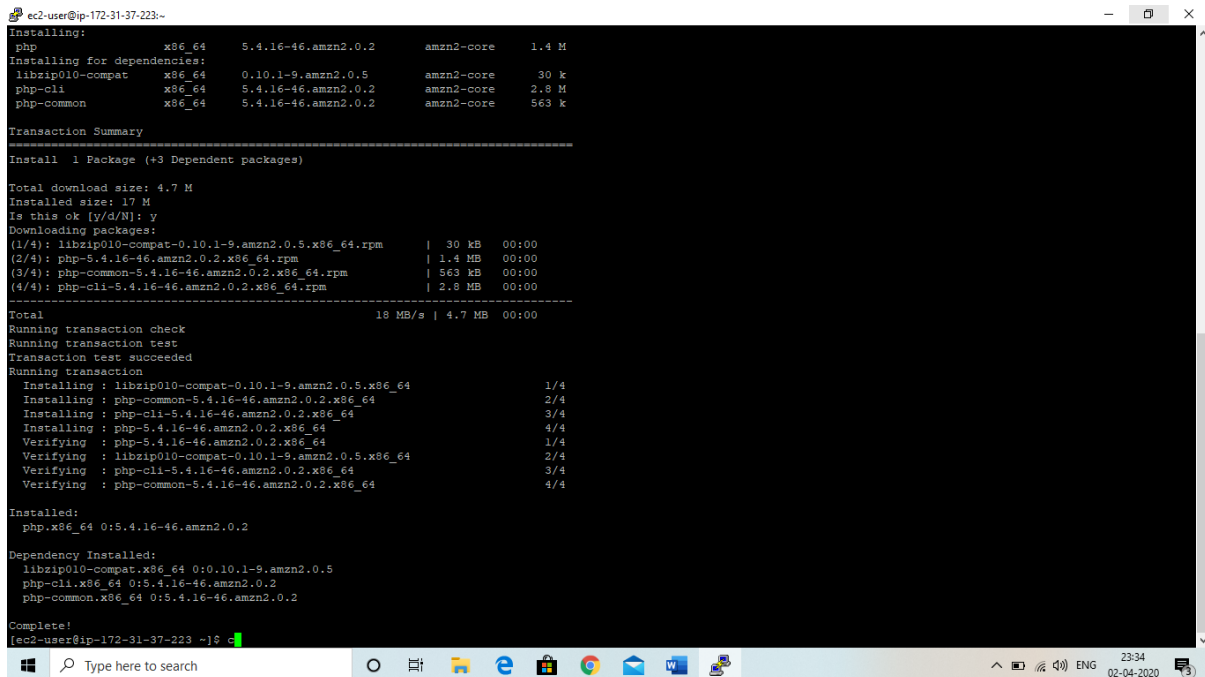


## E. Checking s3 link on the browser:



## Screenshots for EC2 and s3

### Installing Php:



## Installig AWS-sdk:

```
ec2-user@ip-172-31-16-50:/var/www/html/face
mkswap: /var/swap.1: insecure permissions 0644, 0600 suggested.
Setting up swap space version 1, size = 1024 MiB (107373728 bytes)
no label, UUID=645e265b-e430-40d6-9eb9-b05893974108
[ec2-user@ip-172-31-16-50 face]$ sudo /sbin/swapoff /var/swap.1
swapoff: /var/swap.1: insecure permissions 0644, 0600 suggested.
[ec2-user@ip-172-31-16-50 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-172-31-16-50 face]$ sudo wget https://i.pinimg.com/originals/b9/7e/a3/b97ea33b5842c7894b804923c6c05580.jpg
--2020-04-03 06:23:52-- https://i.pinimg.com/originals/b9/7e/a3/b97ea33b5842c7894b804923c6c05580.jpg
Resolving i.pinimg.com (i.pinimg.com)... 23.210.196.238, 2600:1408:20:a97::1931, 2600:1408:20:ab8::1931, ...
Connecting to i.pinimg.com (i.pinimg.com)|23.210.196.238|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 215551 (210K) [image/jpeg]
Saving to: 'b97ea33b5842c7894b804923c6c05580.jpg'

100%[=====] 215,551 --.-K/s in 0.04s

2020-04-03 06:23:52 (5.59 MB/s) - 'b97ea33b5842c7894b804923c6c05580.jpg' saved [215551/215551]

[ec2-user@ip-172-31-16-50 face]$ ls
b97ea33b5842c7894b804923c6c05580.jpg  composer.json  composer.lock  vendor
[ec2-user@ip-172-31-16-50 face]$ ^C
[ec2-user@ip-172-31-16-50 face]$ sudo mv b97ea33b5842c7894b804923c6c05580.jpg imagel.jpg
[ec2-user@ip-172-31-16-50 face]$ ls
composer.json  composer.lock  imagel.jpg  vendor
[ec2-user@ip-172-31-16-50 face]$ sudo vim index.php
[ec2-user@ip-172-31-16-50 face]$
```

## Index.php file code:

```
ec2-user@ip-172-31-16-50:/var/www/html/face
sudo /bin/cd /etc/dev/zero_cfw/var/swap.1 bs=1M count=1024
sudo /sbin/mkswap /var/swap.1
sudo /sbin/swapoff /var/swap.1

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

<?php
error_reporting(0);

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

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

$bucket = 'my-webinar';
$keyname = 'sample.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;
}

?>
```

```

ec2-user@ip-172-31-16-50:/var/www/html/face
login as: ec2-user
Authenticating with public key "imported-openssh-key"
Last login: Fri Apr 3 08:31:29 2020 from 106.203.57.144

 _ _  ( _ _ )
 _ _  \ _ _ /   Amazon Linux 2 AMI

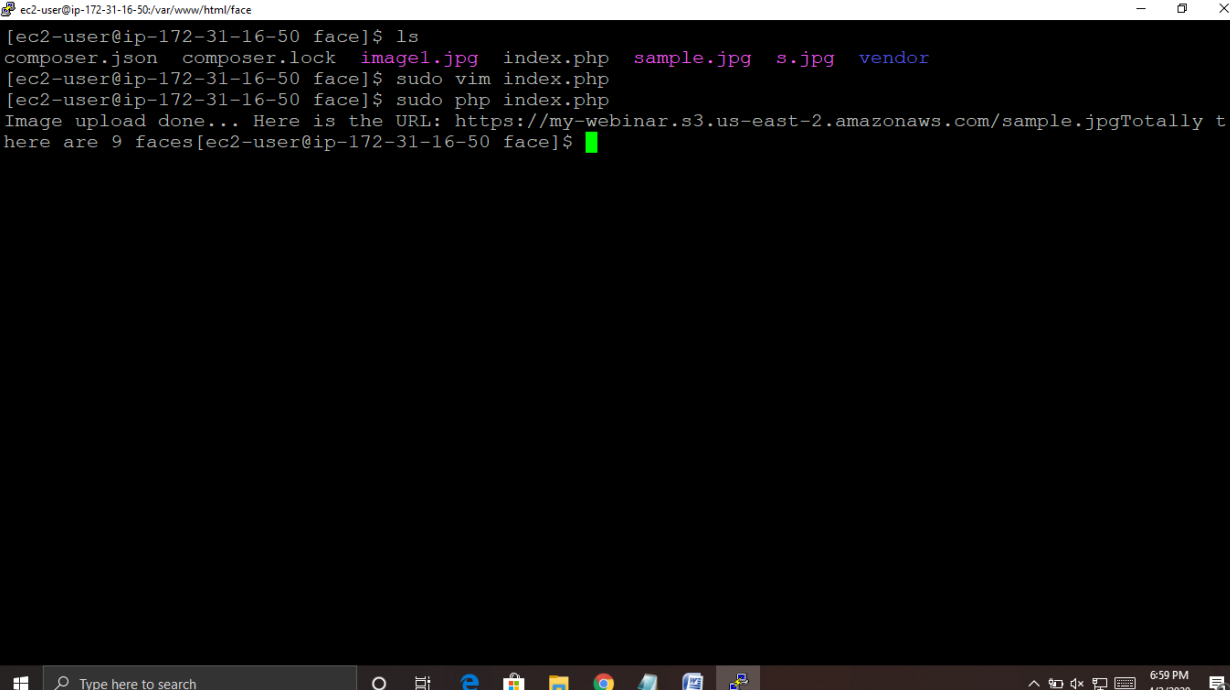
https://aws.amazon.com/amazon-linux-2/
1 package(s) needed for security, out of 7 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-16-50 ~]$ curl -sS https://getcomposer.org/installer | php
All settings correct for using Composer
Downloading...

Composer (version 1.10.1) successfully installed to: /home/ec2-user/composer.phar
Use it: php composer.phar

[ec2-user@ip-172-31-16-50 ~]$ cd /var/www/html
[ec2-user@ip-172-31-16-50 html]$ cd face
[ec2-user@ip-172-31-16-50 face]$ sudo vim index.php
[ec2-user@ip-172-31-16-50 face]$ sudo php index.php
Image upload done... Here is the URL: https://my-webinar.s3.us-east-2.amazonaws.com/sample.jpg[ec2-user@ip-172-31-16-50 face]$

```

## EC2 and Rekognition:



The screenshot shows a terminal window with the following commands and output:

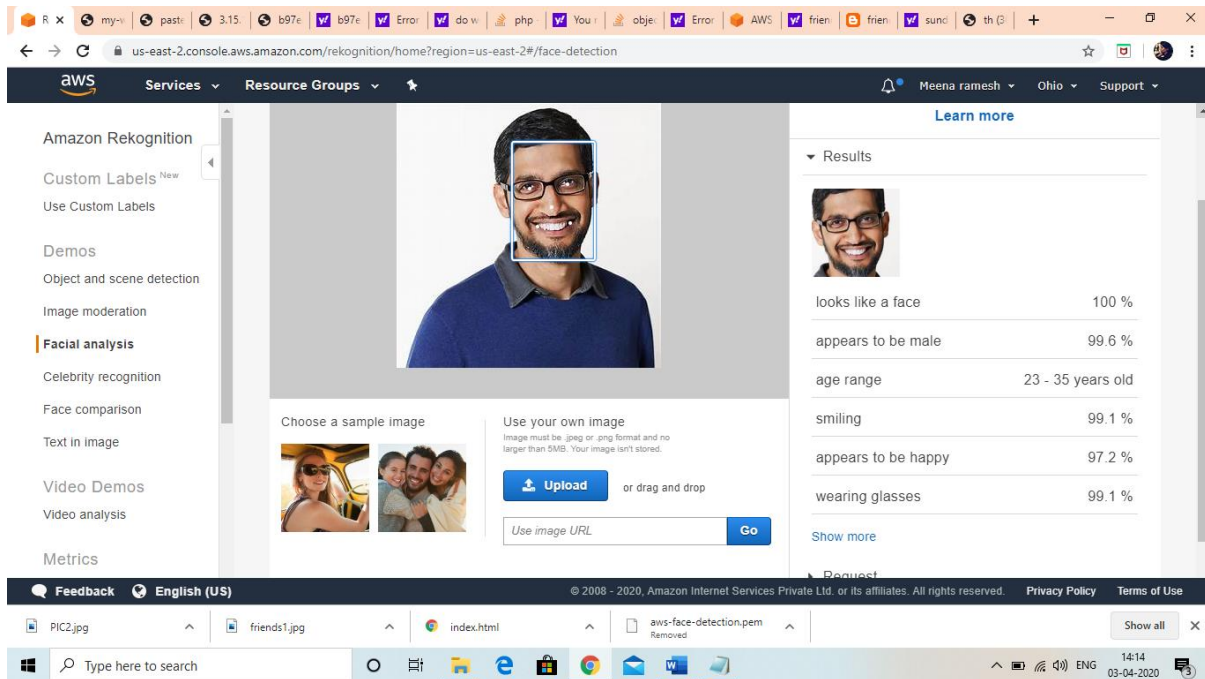
```

[ec2-user@ip-172-31-16-50 /var/www/html/face]$ ls
composer.json  composer.lock  imagel.jpg    index.php    sample.jpg    s.jpg        vendor
[ec2-user@ip-172-31-16-50 /var/www/html/face]$ sudo vim index.php
[ec2-user@ip-172-31-16-50 /var/www/html/face]$ sudo php index.php
Image upload done... Here is the URL: https://my-webinar.s3.us-east-2.amazonaws.com/sample.jpg
Totally t
here are 9 faces
[ec2-user@ip-172-31-16-50 /var/www/html/face]$
  
```

The terminal window is titled "ec2-user@ip-172-31-16-50:/var/www/html/face". The output of the commands shows that the file "sample.jpg" was successfully uploaded to the S3 bucket "my-webinar" in the "us-east-2" region. The URL for the uploaded file is "https://my-webinar.s3.us-east-2.amazonaws.com/sample.jpg". The output also indicates that there are 9 faces in the image.

## Screenshots for Rekognition

### Face analysis:



Amazon Rekognition

Custom Labels <sup>New</sup>

Use Custom Labels

Demos

Object and scene detection

Image moderation

**Facial analysis**

Celebrity recognition

Face comparison

Text in image

Video Demos

Video analysis

Metrics

Feedback English (US)

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us-east-2.console.aws.amazon.com/rekognition/home?region=us-east-2#/face-detection

Learn more

Results

looks like a face 100 %

appears to be male 99.6 %

age range 23 - 35 years old

smiling 99.1 %

appears to be happy 97.2 %

wearing glasses 99.1 %

Show more

Choose a sample image

Use your own image

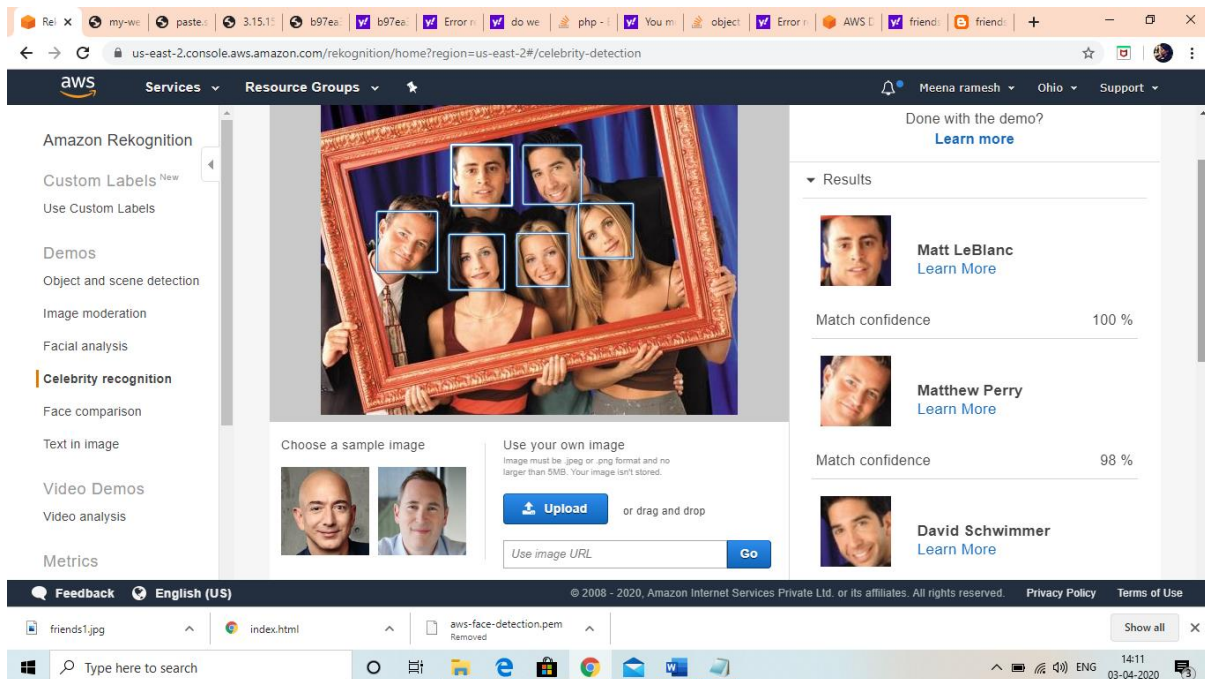
Image must be .jpeg or .png format and no larger than 5MB. Your image isn't stored.

Upload or drag and drop

Use image URL Go

14:14 03-04-2020

### Celebrity recognition:



Amazon Rekognition

Custom Labels <sup>New</sup>

Use Custom Labels

Demos

Object and scene detection

Image moderation

Facial analysis

**Celebrity recognition**

Face comparison

Text in image

Video Demos

Video analysis

Metrics

Feedback English (US)

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us-east-2.console.aws.amazon.com/rekognition/home?region=us-east-2#/celebrity-detection

Done with the demo? Learn more

Results

Matt LeBlanc Learn More

Match confidence 100 %

Matthew Perry Learn More

Match confidence 98 %

David Schwimmer Learn More

Choose a sample image

Use your own image

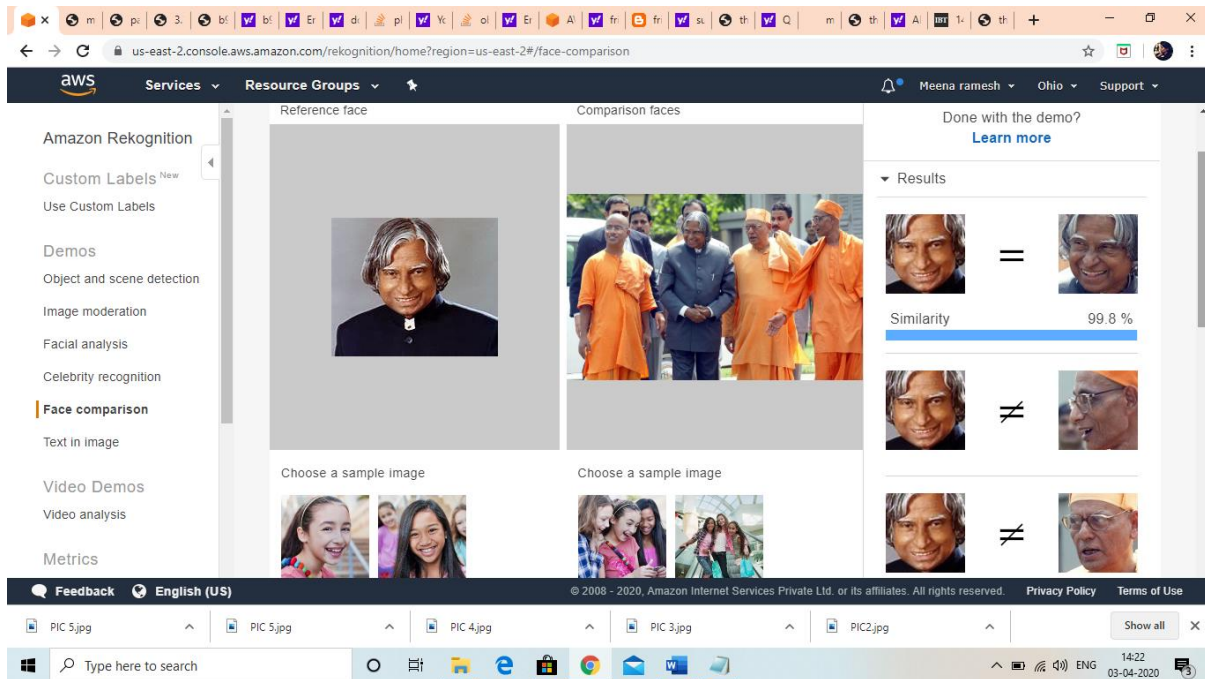
Image must be .jpeg or .png format and no larger than 5MB. Your image isn't stored.

Upload or drag and drop

Use image URL Go

14:11 03-04-2020

## Face comparison:



## Text in image:

