



PARSHVANATH CHARITABLE TRUST'S
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Department of Computer Engineering

CSL605 SKILL BASED LAB COURSE: CLOUD COMPUTING

Mini Project Report

- **Title of Project** IMAGE VERIFY
- **Year and Semester** T.E. (Sem VI)
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Chapter 1

Abstract

- IMAGE VERIFY is a program which verifies the image uploaded on a cloud software and then verifies it on the image saved on the server
- It identifies the image with 90-95 % accuracy. If it identifies the person as same it will return 1 on the API request we sent
- This program can further be extended and used for image detection, verification process, object detection and many other process

Chapter 2

Introduction

In today's digital age, cloud storage has become an integral part of our lives. With the rise of cloud computing and storage systems, the need for secure and reliable authentication mechanisms has increased. In this context, Image Verify, a cutting-edge program, has emerged as a powerful tool for image verification and authentication.

Image Verify is a sophisticated program designed to verify an uploaded image on a cloud software and then compare it with the image saved on the server. It uses advanced algorithms and techniques to identify the image with a remarkable accuracy rate of 90-95%. If the program identifies the person in the uploaded image as the same person in the server image, it returns a value of 1 in response to the API request that is sent to it.

The program has the potential to revolutionize the way we perform image detection, verification, object detection, and many other related processes. With the increasing demand for secure and reliable image authentication mechanisms, Image Verify can be an invaluable tool for organizations and individuals alike.

The program's versatility makes it adaptable to a wide range of applications, including facial recognition, security systems, identity verification, and more. It can also be integrated into various systems and software, making it a valuable addition to any tech stack.

As technology continues to advance, the need for secure and efficient image authentication mechanisms will only increase. In this context, Image Verify has emerged as a potent solution that can help organizations and individuals authenticate images with a high degree of accuracy, reliability, and efficiency.

Chapter 3

Problem Definition

In today's digital era, with the rise of cloud computing and storage systems, the need for secure and reliable image authentication mechanisms has become increasingly critical. Uploading images to cloud storage systems is convenient, but it also poses a security risk as the images can be accessed by unauthorized users. To address this problem, there is a need for a program that can verify the authenticity of an uploaded image and compare it with the image saved on the server.

The Image Verify program is designed to address this problem by providing a solution that can verify an uploaded image on a cloud software and compare it with the image saved on the server with high accuracy. The program uses advanced algorithms and techniques to identify the image with an accuracy rate of 90-95%. This verification process ensures that only authorized users can access the images stored on the cloud.

However, there are still significant challenges in the field of image authentication that need to be addressed. One of the main issues is the increasing sophistication of image tampering techniques, which makes it increasingly difficult to distinguish between authentic and fake images. Another challenge is the lack of standardization in image authentication, which makes it challenging to compare results across different programs and systems.

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Despite these challenges, Image Verify represents a significant step forward in the field of image authentication. By providing a reliable and accurate image verification mechanism, Image Verify can help organizations and individuals protect their data and ensure the security of their images stored on the cloud. With further research and development, Image Verify has the potential to become an essential tool for image authentication in a wide range of applications.

Chapter 4

Objective and Scope

Objective:

The main objective of the Image Verify program is to provide a reliable and accurate image verification mechanism to ensure the security of images uploaded to cloud storage systems. The program aims to use advanced algorithms and techniques to verify the authenticity of an uploaded image and compare it with the image saved on the server with an accuracy rate of 90-95%. The ultimate goal is to prevent unauthorized access to images stored on the cloud and provide a secure and reliable authentication mechanism.

Scope:

The scope of the Image Verify program is wide-ranging and includes a broad range of applications related to image authentication. The program can be used for facial recognition, security systems, identity verification, object detection, and many other related processes. It can also be integrated into various systems and software, making it a valuable addition to any tech stack.

The program's scope extends beyond just verifying images uploaded to cloud storage systems, as it can be adapted to different image authentication applications. It has the potential to be used in a wide range of industries, including finance, healthcare, e-commerce, and more.

While the program's primary focus is on image authentication, it can also be used to address related issues such as image tampering and data security. With the increasing demand for secure and reliable image authentication mechanisms, Image Verify has significant potential for growth and expansion, and its scope is expected to expand as further research and development takes place.

Chapter 5

Description

Cloud Services used in this project are as follows:

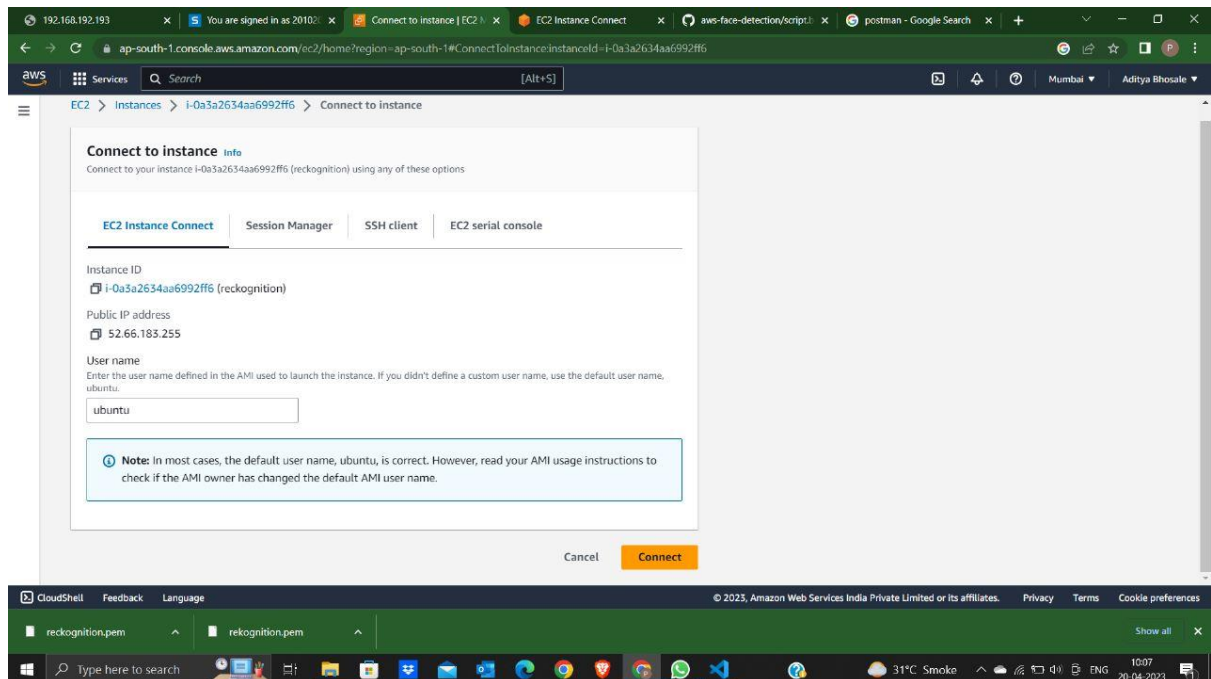
1. **AWS EC2:** Amazon Elastic Compute Cloud (EC2) is a web service that provides scalable computing capacity in the cloud. It is designed to make web-scale cloud computing easier for developers. EC2 allows you to rent virtual computers, also known as instances, on which you can run your own applications.
2. **AWS IAM Policies and Roles:** AWS Identity and Access Management (IAM) is a service that enables you to manage access to AWS services and resources securely. IAM allows you to create policies that define permissions for users, groups, and roles.
3. **AWS Recognition:** AWS Identity and Access Management (IAM) is a service that enables you to manage access to AWS services and resources securely. IAM allows you to create policies that define permissions for users, groups, and roles.

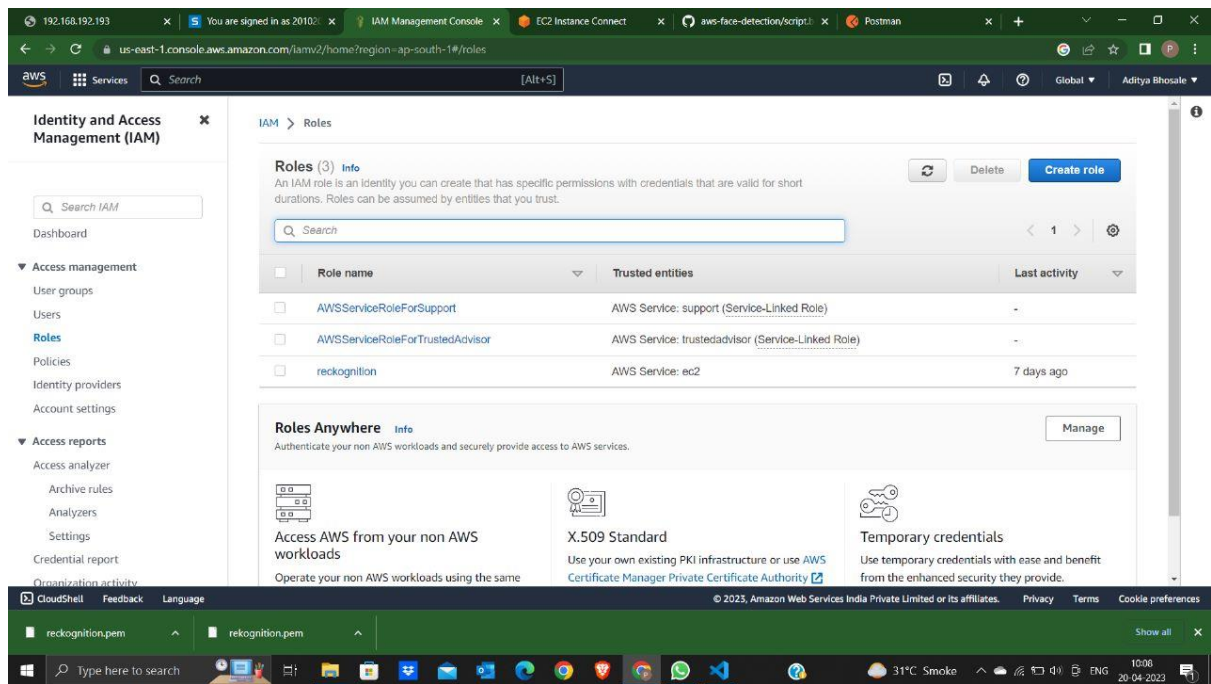
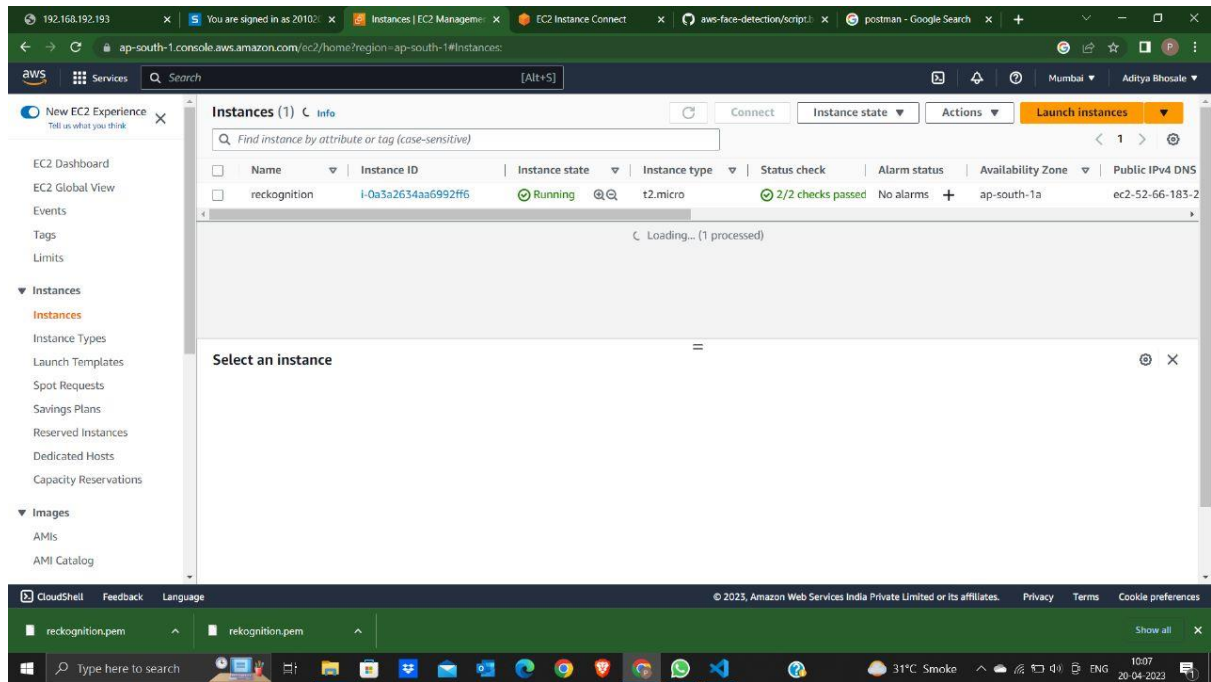
Chapter 6

Implementation

```
192.168.192.193 x You are signed in as 20102 x Connect to Instance | EC2 x EC2 Instance Connect x aws-face-detection/script x postman - Google Search x + - - - - - x
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0a3a2634aa6992ff6&osUser=ubuntu&region=ap-south-1&sshPort=22#/
[Alt+S]
1.3/1.3 MB 86.4 MB/s eta 0:00:00
Collecting uvloop!<0.15.0,!<0.15.1,>=0.14.0
  Downloading uvloop-0.17.0-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (4.1 MB)
    4.1/4.1 MB 86.8 MB/s eta 0:00:00
Requirement already satisfied: anyio<3.0.0 in /usr/local/lib/python3.10/dist-packages (from watchfiles>0.13->uvicorn[standard]) (3.6.2)
Requirement already satisfied: sniffio<1.1 in /usr/local/lib/python3.10/dist-packages (from anyio<3.0.0->watchfiles>0.13->uvicorn[standard]) (1.3.0)
Requirement already satisfied: idna<=2.8 in /usr/lib/python3/dist-packages (from anyio<3.0.0->watchfiles>0.13->uvicorn[standard]) (3.3)
Installing collected packages: websockets, uvloop, python-dotenv, httptools, h11, watchfiles, uvicorn
Successfully installed h11-0.14.0 httptools-0.5.0 python-dotenv-1.0.0 uvicorn-0.21.1 uvloop-0.17.0 watchfiles-0.19.0 websockets-11.0.2
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
ubuntu@ip-172-31-39-202:~/aws-face-detection$ sudo pip3 install pillow
Collecting pillow
  Downloading Pillow-9.5.0-cp310-cp310-manylinux_2_28_x86_64.whl (3.4 MB)
    3.4/3.4 MB 31.6 MB/s eta 0:00:00
Installing collected packages: pillow
Successfully installed pillow-9.5.0
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager. It is recommended to use a virtual environment instead: https://pip.pypa.io/warnings/venv
ubuntu@ip-172-31-39-202:~/aws-face-detection$ sudo uvicorn main:app --host 0.0.0.0
INFO: Started server process [13448]
INFO: Waiting for application startup.
INFO: Application startup complete.
INFO: Uvicorn running on http://0.0.0.0:8000 (Press CTRL+C to quit)
```

i-0a3a2634aa6992ff6 (reckognition)
PublicIPs: 52.66.183.255 PrivateIPs: 172.31.39.202





192.168.192.193 x You are signed in as 20102046 x IAM Management Console x EC2 Instance Connect x aws-face-detection/script... x Postman x +

us-east-1.console.aws.amazon.com/iamv2/home?region=ap-south-1#/policies

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles
- Policies**
- Identity providers
- Account settings

Access reports

- Access analyzer
- Archive rules
- Analysers
- Settings
- Credential report

Policies (1068)

A policy is an object in AWS that defines permissions.

Filter policies by property or policy name and press enter.

Policy name	Type	Used as	Description
Rekognition	Customer managed	Permissions policy (1)	
AWSDirectConnectReadOnlyAccess	AWS managed	None	
AmazonGlacierReadOnlyAccess	AWS managed	None	
AWSMarketplaceFullAccess	AWS managed	None	
ClientVPNServiceRolePolicy	AWS managed	None	
AWSSSODirectoryAdministrator	AWS managed	None	
AWSIoT1ClickReadOnlyAccess	AWS managed	None	
AutoScalingConsoleReadOnlyAccess	AWS managed	None	
AmazonDMSRedshiftS3Role	AWS managed	None	

CloudShell Feedback Language

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rekognition.pem rekognition.pem Show all x

Type here to search

31°C Smoke ENG 10:08 20-04-2023

192.168.192.193 x You are signed in as 20102046 x Instances | EC2 Management Console x EC2 Instance Connect x 52.66.183.255:8000/compare_faces x +

web.postman.co/workspace/My-Workspace--bf06816a-b553-41e3-8381-80bf8de7d390/request/27007211-05167d62-7cab-4a9e-8a76-acc1b37323c5

Postman

Home Workspaces API Network Explore

My Workspace

Overview POST 52.66.183.255:8000/compare_faces

Save Send

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies

Body

1 "url": "https://res.cloudinary.com/dzowax2n/image/upload/v1681388811/WhatsApp_Image_2023-04-12_at_19.27.59_dy88ub.jpg"

Response

Online Console

Type here to search

31°C Smoke ENG 10:16 20-04-2023

Chapter 7

Learning Outcome

The usage of AWS EC2, IAM policies and rules, and AWS Recognition in this project provides several learning outcomes, including:

1. **Cloud Computing:** The project provides an opportunity to learn about cloud computing and the benefits of using cloud storage systems such as AWS EC2. This experience can enhance the understanding of how to leverage cloud computing resources to build scalable and secure applications.
2. **Access Management:** The use of AWS IAM policies and rules provides insight into how to manage access to AWS resources and how to create secure and scalable applications. Learning about IAM policies and rules can help in creating an access control strategy for different applications and services.
3. **Image Recognition:** The use of AWS Recognition enables learning about image recognition and its applications. The project can provide hands-on experience in using AWS Recognition for face detection, face comparison, and image analysis. Understanding the underlying algorithms and techniques for image recognition can help in developing solutions for various applications, including security, e-commerce, and healthcare.

Overall, the project provides a comprehensive learning experience in cloud computing, access management, and image recognition. It can help in developing skills and knowledge that are essential for building secure, scalable, and efficient applications.