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MAIN PROJECT - 2
CLOUD COMPUTING - AZURE

PROJECT - 1:

OBJECTIVE OF THE PROJECT:

Have to create a demo of any of cognitive services and showcase the uses of the services.

Azure cognitive services consists of various services, here I have attached the list of azure cognitive services with their functions.

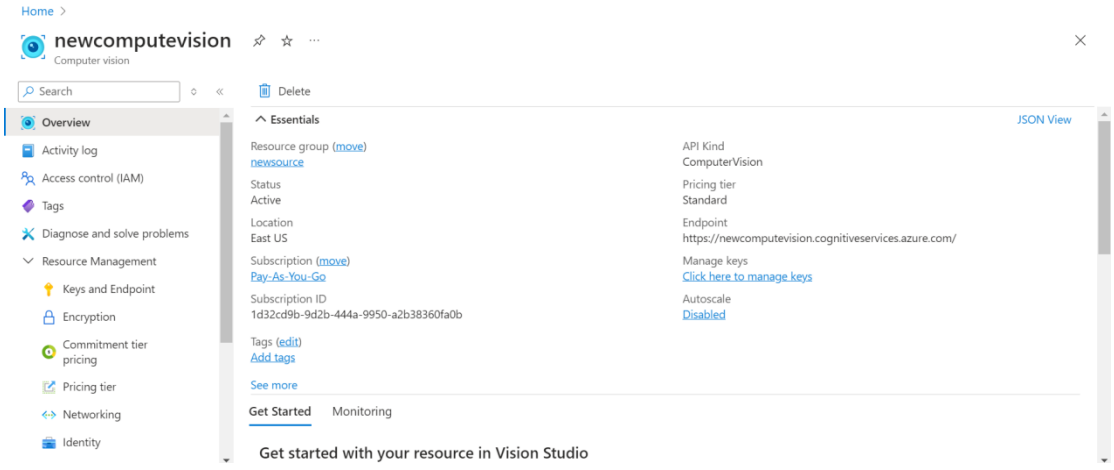
Technology selection guide	Service descriptions
Targeted language processing	Azure AI Language • Azure AI Translator • Azure AI Document Intelligence
Speech recognition and generation	Azure AI Speech • Immersive Reader
Image and video processing guide	Azure AI Vision • Azure AI Custom Vision • Azure AI Video Indexer • Azure AI Face • Azure OpenAI
Azure AI Content Safety	Azure AI Content Safety is an AI service that detects harmful user-generated and AI-generated content in applications and processes images and text to flag content that's potentially offensive or unwanted. It's able to automatically detect and scan content regardless of its source language.
Custom Machine Learning	Azure Machine Learning service procures and exposes many proprietary and open-source models that you can use directly or customize further with more training. It also supports the creation of new models of any type trained using your own data.

From these services we are going to deploy AZURE AI CUSTOM VISION from image and video processing guide.

Here I mentioned the procedures that we have to follow to create and deploy the custom vision using azure.

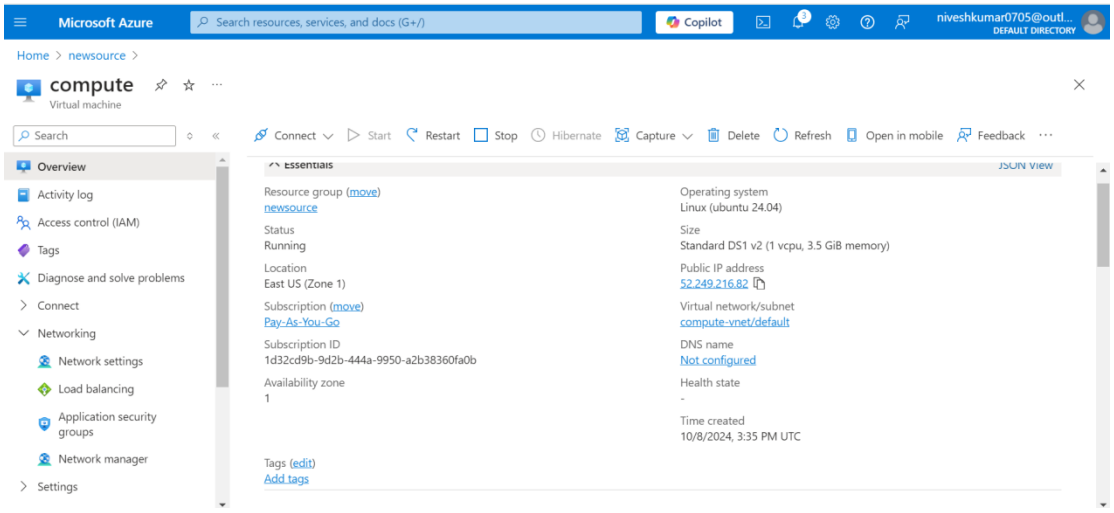
STEP 1:

Create compute vision from azure AI services.



STEP 2:

Create and deploy virtual machine within the same resource group, used to create the compute vision.



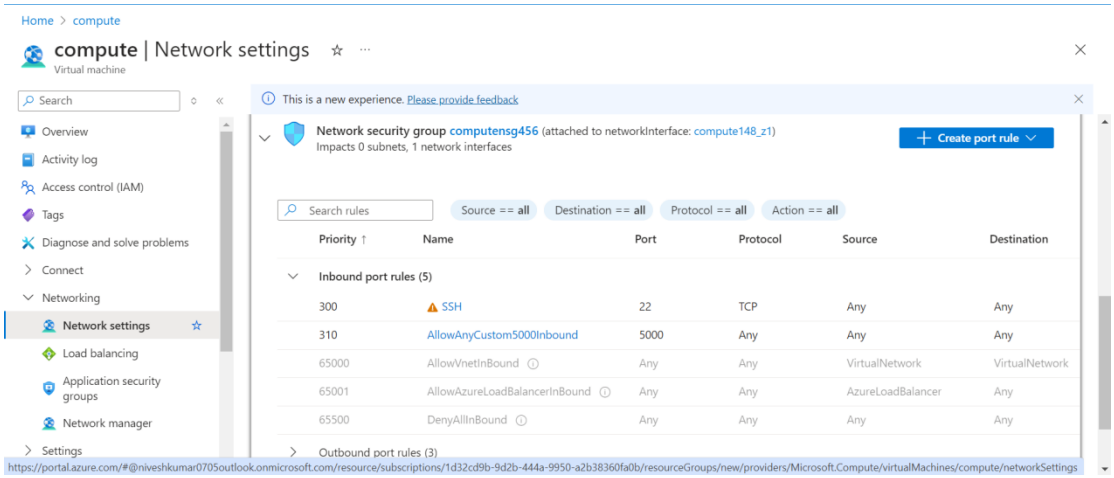
STEP 3:

- Open the power-shell and connect to the virtual machine using the username and password.
- Place the key value and endpoint in the code from the created compute vision tab.
- Run and execute the code one by one.

```
azure@compute: ~
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\nives> ssh azure@52.249.216.82
The authenticity of host '52.249.216.82 (52.249.216.82)' can't be established.
ED25519 key fingerprint is SHA256:KFk1dK5pCKqYU6hJs1EUEGEtj5jBds6Lupe7NfyNOpI.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '52.249.216.82' (ED25519) to the list of known hosts.
azure@52.249.216.82's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1015-azure x86_64)

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

 System information as of Tue Oct  8 15:40:16 UTC 2024

  System load:  0.1               Processes:             126
  Usage of /:   5.0% of 28.02GB   Users logged in:       0
  Memory usage: 8%                IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%

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


No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
azure@compute:~$ sudo apt install python3-request
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
E: Unable to locate package python3-request
azure@compute:~$ sudo apt install python3-requests
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
python3-requests is already the newest version (2.31.0+dfsg-1ubuntu1).
python3-requests set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
azure@compute:~$ sudo apt install python3-pillow
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'python3-pil' instead of 'python3-pillow'
The following additional packages will be installed:
  libgraphite2-3 libharfbuzz0b libimagequant0 liblcms2-2 libopenjp2-7 libraqm0 libwebpdemux2 libwebpmux3 python3-olefile
Suggested packages:
  liblcms2-utils python-pil-doc
The following NEW packages will be installed:
  libgraphite2-3 libharfbuzz0b libimagequant0 liblcms2-2 libopenjp2-7 libraqm0 libwebpdemux2 libwebpmux3 python3-olefile
  python3-pil
0 upgraded, 10 newly installed, 0 to remove and 7 not upgraded.
Need to get 1451 kB of archives.
After this operation, 4436 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

STEP 4:

Add the port rule in the virtual machine as the port range of 5000.



STEP 5:

Create a separate template in the code to execute the display, result and error of the output of the project.

```
azure@compute:~$ sudo iptables -A INPUT -p tcp --dport 5000 -j ACCEPT
azure@compute:~$ nano app.py
azure@compute:~$ cat app.py
from flask import Flask, request, render_template, redirect, url_for
import requests
import json
from PIL import Image, ImageDraw
from io import BytesIO
import base64
```

```
azure@compute:~$ ls
app.py
azure@compute:~$ mkdir templates
azure@compute:~$ ls
app.py  templates
azure@compute:~$ cd templates/
azure@compute:~/templates$ nano upload.html
azure@compute:~/templates$ nano result.html
azure@compute:~/templates$ nano error.html
azure@compute:~/templates$ ls
error.html  result.html  upload.html
azure@compute:~/templates$ cd ..
azure@compute:~$ ls
app.py  templates
azure@compute:~$ python3 app.py
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://10.0.0.4:5000
Press CTRL+C to quit
```

STEP 6:

Run the public ip address with the port range 5000 in the chrome, the output of the project will display . Upload a image in JPEG format It will execute in the following manner.