T.C ADNAN MENDERES UNIVERSITY

Cloud Computing and Virtualization

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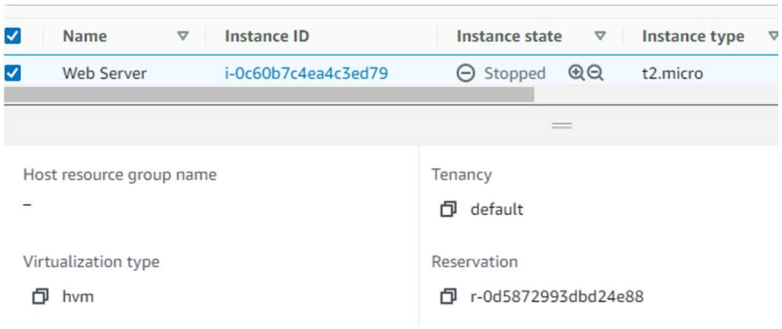
Class : CSE423

Number : 171805019

Homework : Lab-1

(Virtual Machines & Compute Instances)

Exercise-1) **Describe the type of virtualization is used by the EC2 instance launched?**



- The virtualization type used is HVM.
- Linux Amazon Machine Images uses one of two types of virtualization: paravirtual (PV) or hardware virtual machine (HVM).
- The main differences between PV and HVM, AMIs are boot methods and whether it will use custom hardware extensions (storage, CPU) for better performance.

	PV	HVM
Description	• PV AMIs start the boot loop and are then loaded with a special bootloader named PV-GRUB that deactivates the kernel specified in the "menu.lst" file in the image. • Paravirtual guests do not have explicit support for virtualization.	• HVM AMIs are provided with virtualized hardware set and loaded by running the master boot record of the root block device of the image. • The Amazon EC2 host system brings some or all of the basic hardware available to the user to a similar structure.
Support for hardware extensions	• No, they cannot use advanced networking or special hardware extensions.	• HVM users can use hardware extensions that provide quick access to basic hardware in the host system.
Supported instance types	• Legacy generation instance types support PV AMIs: C1, C3, T1, M1, M2, M3, and HS1. • Current generation instance types do not support PV AMIs.	• All current generation instance types support HVM AMIs.
Supported Regions	• Asia Pacific (Tokyo), Asia Pacific (Sydney), Asia Pacific (Singapore), US West (N. California), US East (N. Virginia), US West (Oregon) Europe (Frankfurt), Europe (Ireland)	• All Regions support HVM instances.

Selam Dünya

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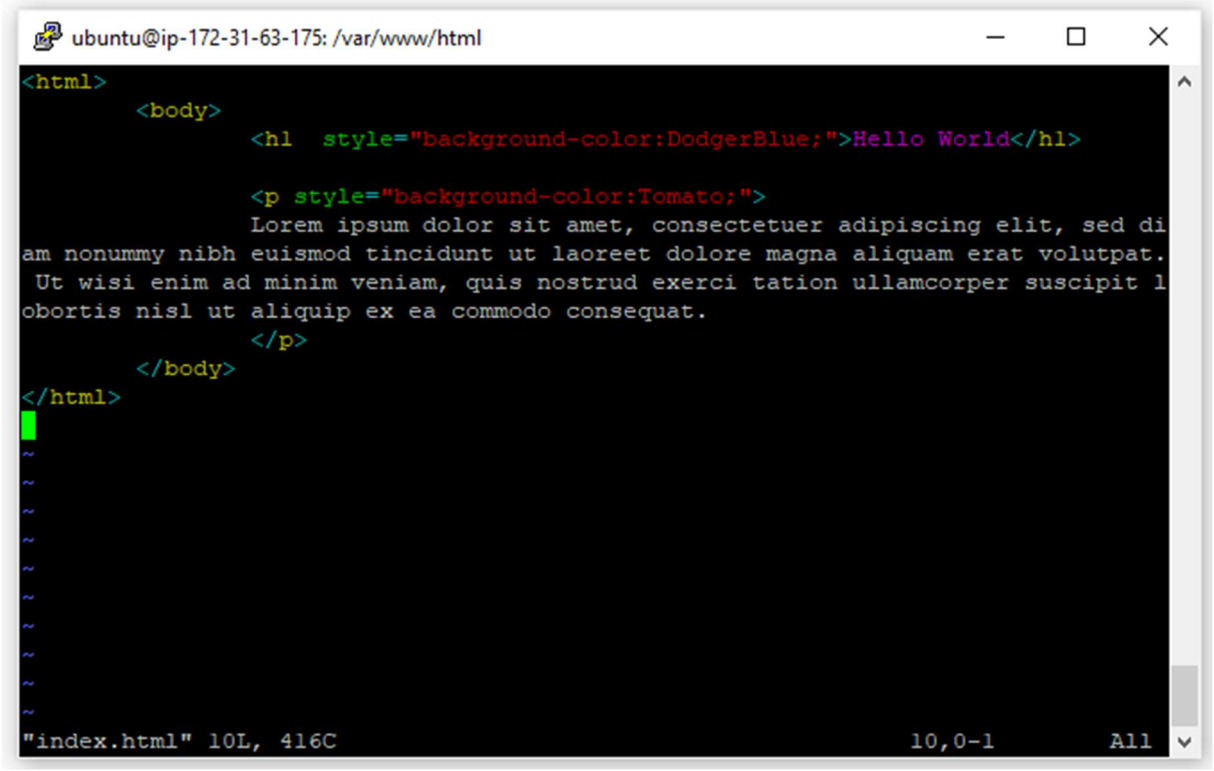
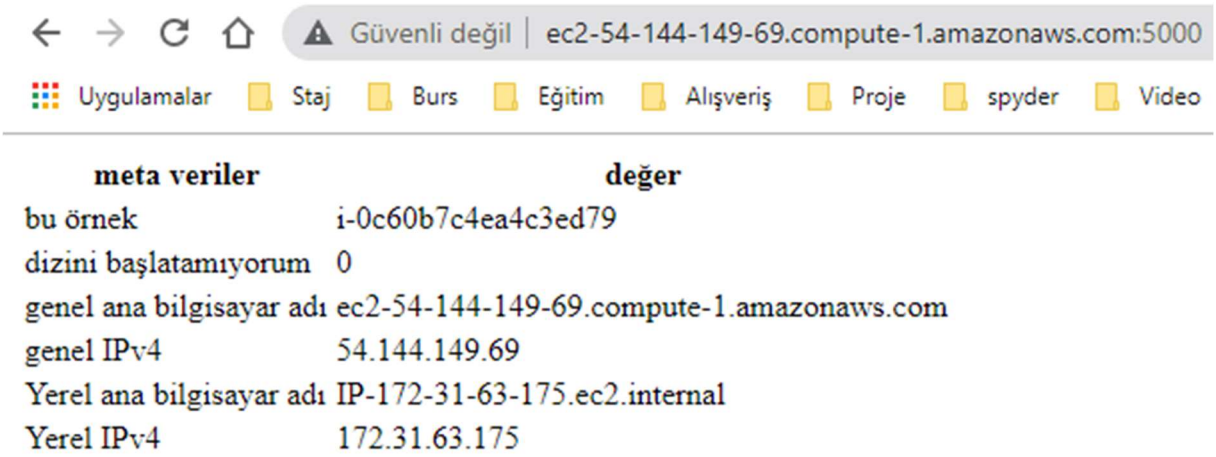


Exercise-2) **Create a flask web application that displays the instance meta-data as shown in the following figure (for more info please see https://github.com/adamchainz/ec2-metadata**).



Python Code -)

```
from flask import Flask
from ec2_metadata import ec2_metadata
from flask import request

app=Flask(__name__)

@app.route('/')
def hello_world():
    instanceID = ec2_metadata.instance_id
    amiLaunchIndex = ec2_metadata.ami_launch_index
    publicHostname = ec2_metadata.public_hostname
    publicIpv4 = ec2_metadata.public_ipv4
    localHostname = ec2_metadata.private_hostname
    localIpv4 = ec2_metadata.private_ipv4

    resultString = "<table><thead><tr><th>Metadata</th><th>Value</th></tr></thead><tbody><tr><td>instance id</td><td>" + instanceID +
 "</td></tr><tr><td>ami launch index</td><td>" + str(amiLaunchIndex) + "</td></tr><tr><td>public hostname</td><td>" + publicHostname +
 "</td></tr><tr><td>public ipv4</td><td>" + publicIpv4 + "</td></tr><tr><td>local hostname</td><td>" + localHostname +
 "</td></tr><tr><td>local ipv4</td><td>" + localIpv4 + "</td></tr></tbody></table>"

    return resultString

if __name__=='__main__':
        app.run(host='0.0.0.0',port=5000,debug=True)
```