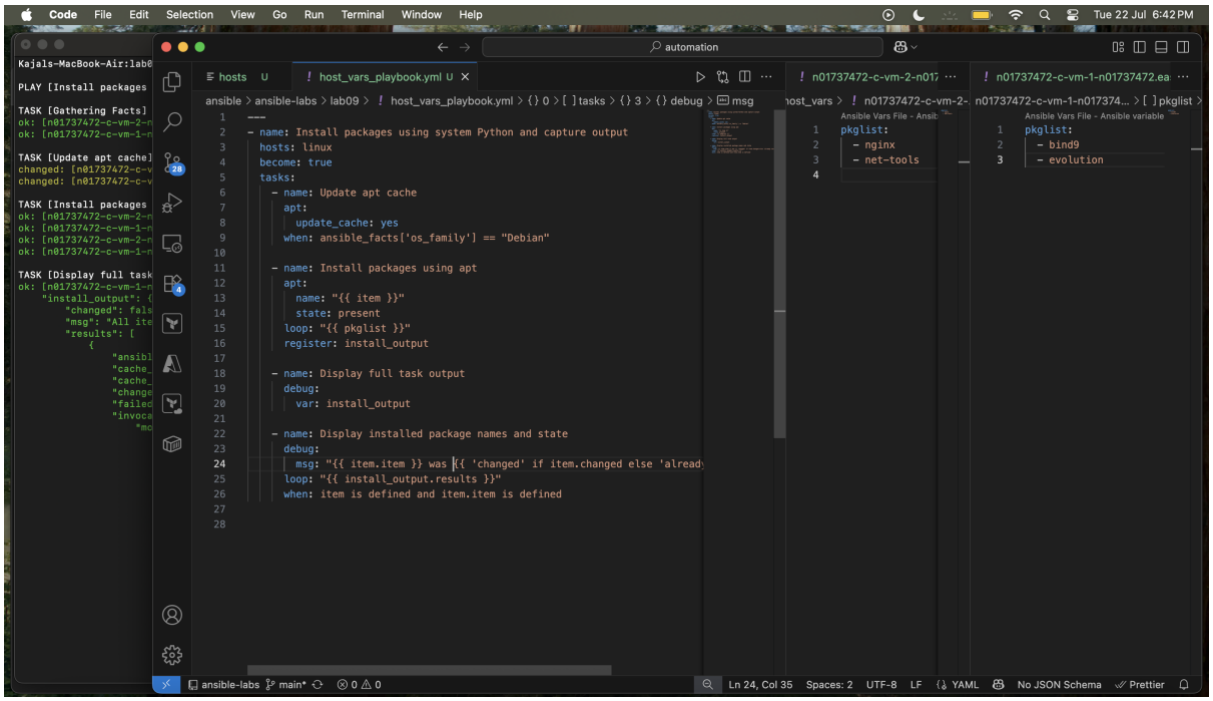
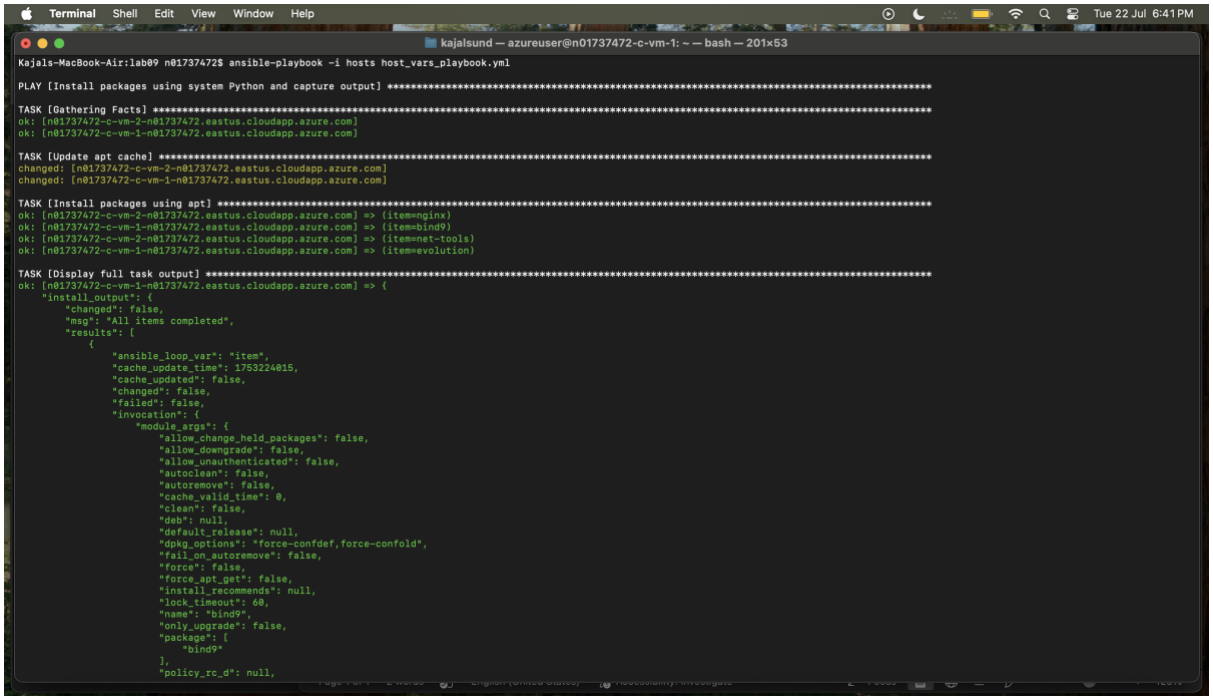
Lab 9

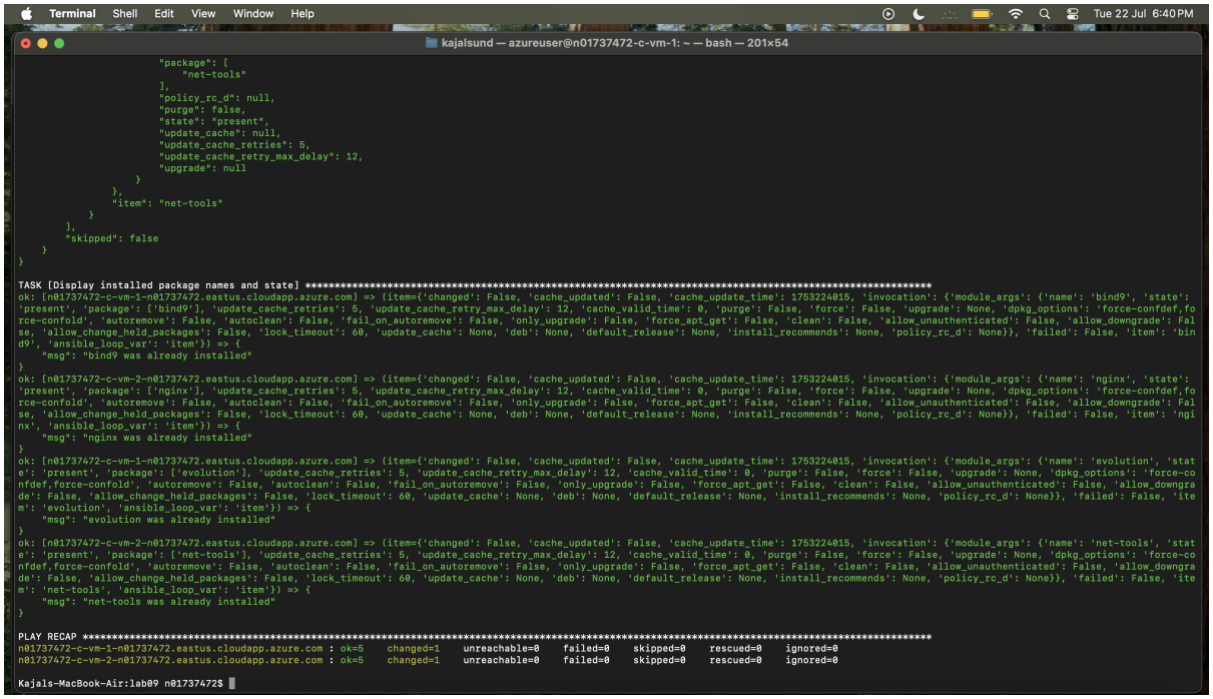
Section 1

Part 1: Capture and display task output:

1. Make a copy of the playbook from Lab 08 section 03 that uses host variables
2. Use register to capture the output of the package installation task
3. Display the entire task output
4. Display the names of the packages that were installed







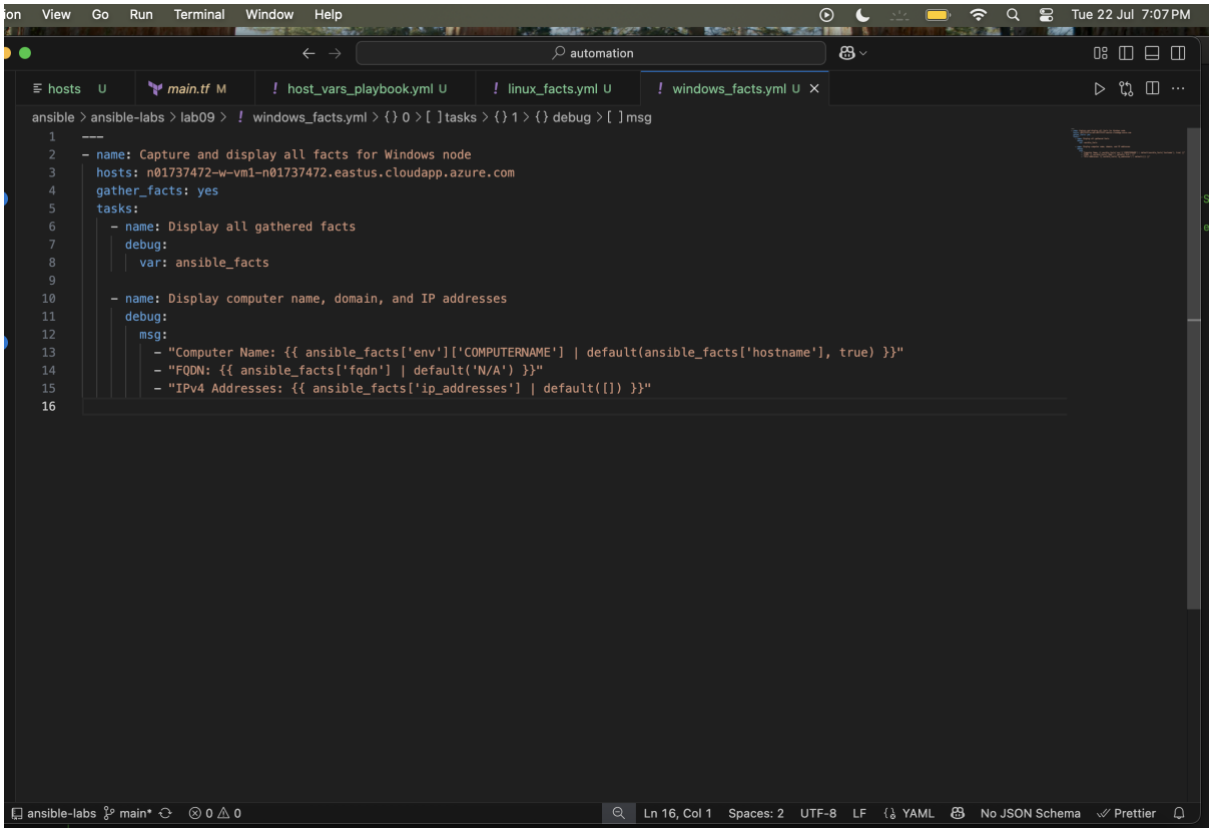
Section 2

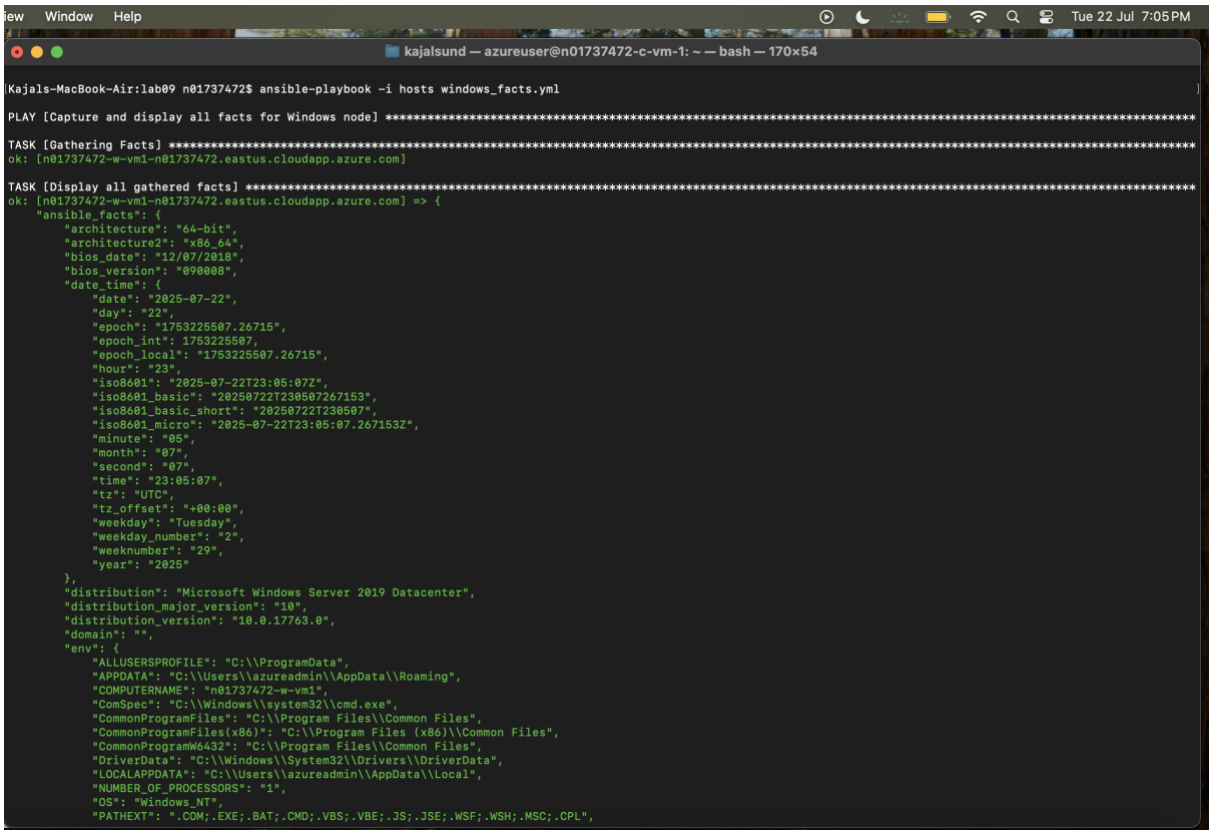
Objectives:

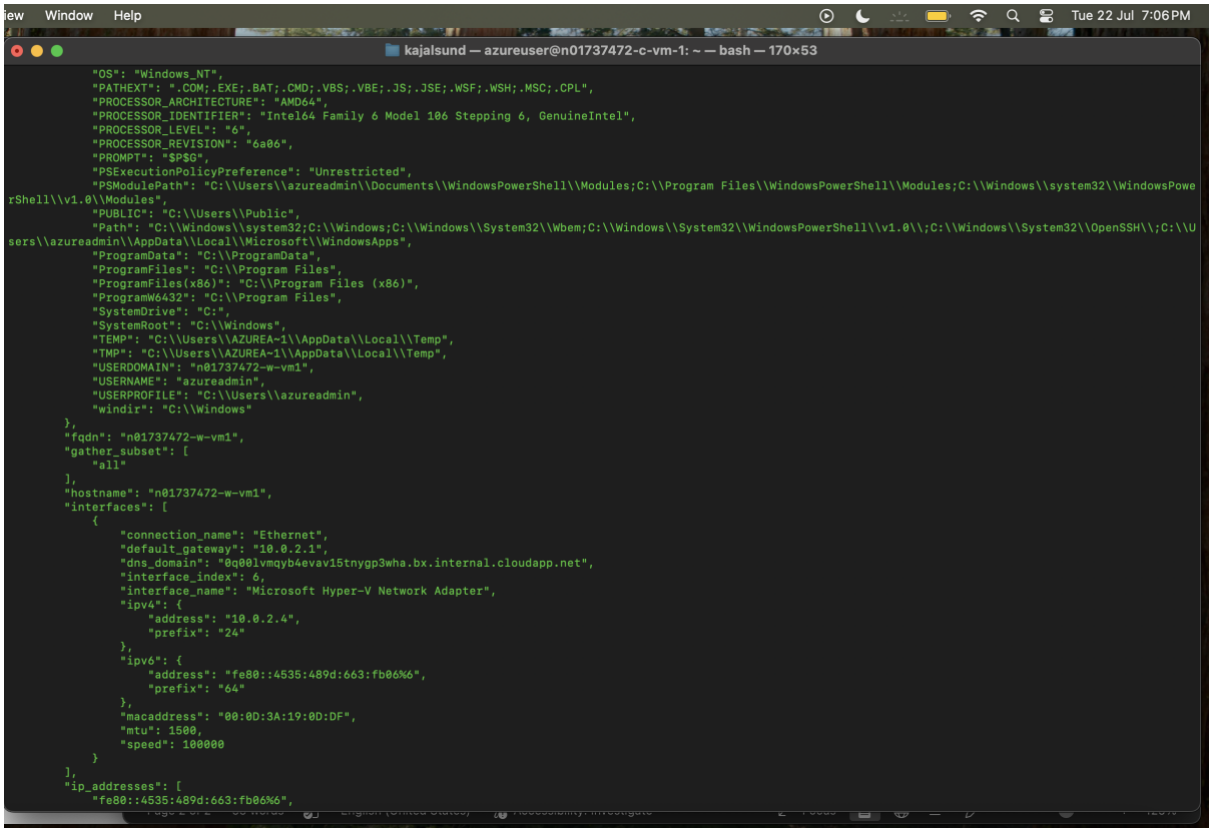
- Work with facts (Ansible facts and package facts)

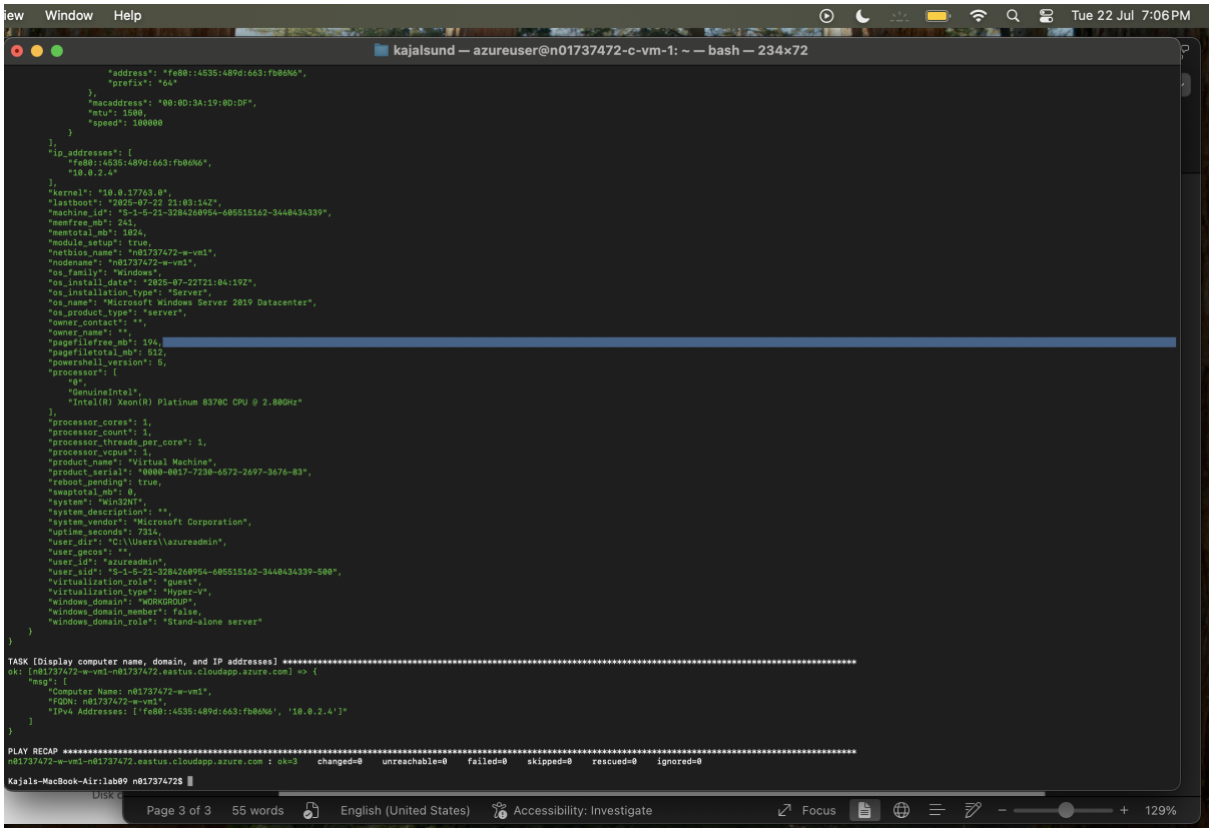
Part 1: Capture and display Ansible facts:

1. Write a playbook and capture facts for a single node ansible-w-vm1
2. Display all the facts on the screen
3. Display only the FQDN, IPv4 address, and short hostname of the node



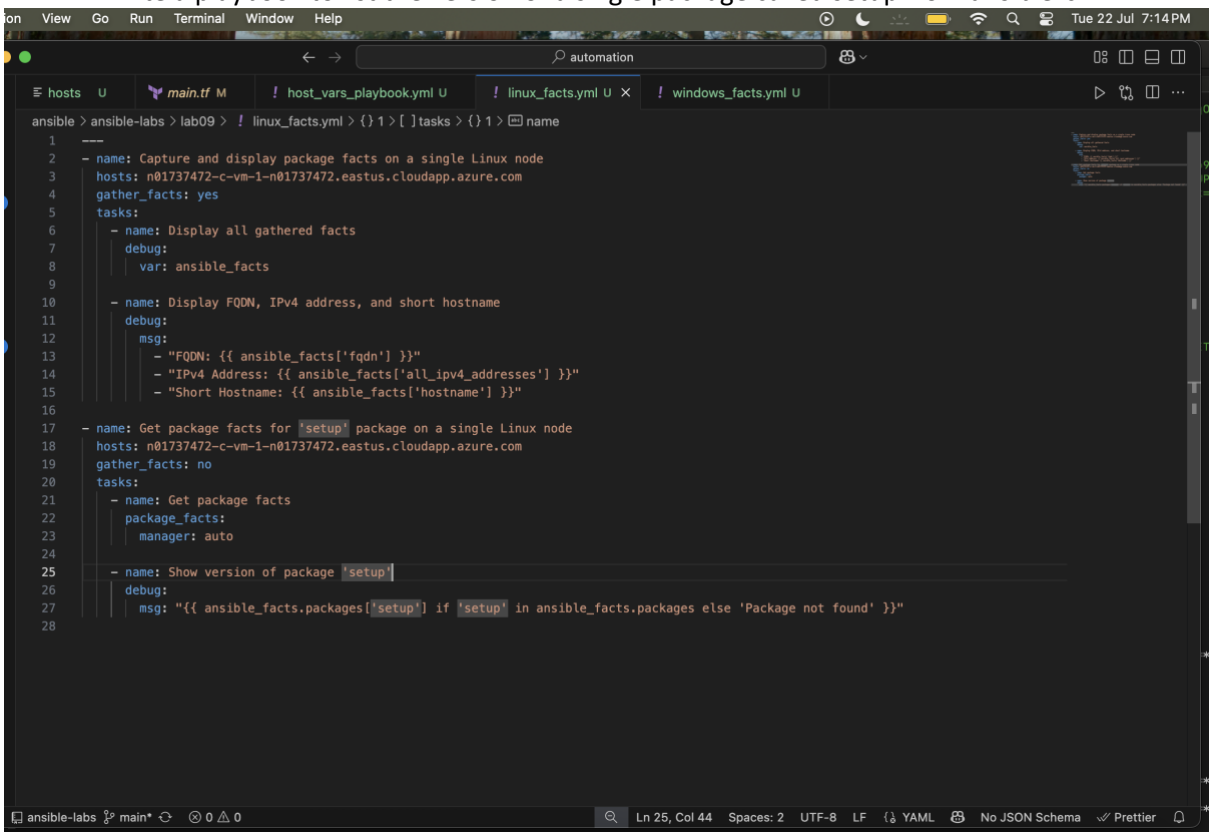

iew Window Help
Tue 22 Jul 7:05 PM
kajalsund — azureuser@n01737472-c-vm-1: ~ — bash — 170×54
(Kajals-MacBook-Air:lab09 n01737472$ ansible-playbook -i hosts windows_facts.yml
PLAY [Capture and display all facts for Windows node] ****
TASK [Gathering Facts] ****
ok: [n01737472-w-vm1-n01737472.eastus.cloudapp.azure.com]
TASK [Display all gathered facts] ****
ok: [n01737472-w-vm1-n01737472.eastus.cloudapp.azure.com] => {
"ansible_facts": {
"architecture": "64-bit",
"architecture2": "x86_64",
"bios_date": "12/07/2018",
"bios_version": "090008",
"date_time": {
"date": "2025-07-22",
"day": "22",
"epoch": "1753225507.26715",
"epoch_int": 1753225507,
"epoch_local": "1753225507.26715",
"hour": "23",
"iso8601": "2025-07-22T23:05:07Z",
"iso8601_basic": "20250722T230507267153",
"iso8601_basic_short": "20250722T230507",
"iso8601_micro": "2025-07-22T23:05:07.267153Z",
"minute": "05",
"month": "07",
"second": "07",
"time": "23:05:07",
"tz": "UTC",
"tz_offset": "+00:00",
"weekday": "Tuesday",
"weekday_number": "2",
"weeknumber": "29",
"year": "2025"
},
"distribution": "Microsoft Windows Server 2019 Datacenter",
"distribution_major_version": "10",
"distribution_version": "10.0.17763.0",
"domain": "",
"env": {
"ALLUSERSPROFILE": "C:\\ProgramData",
"APPDATA": "C:\\Users\\azureadmin\\AppData\\Roaming",
"COMPUTERNAME": "n01737472-w-vm1",
"ComSpec": "C:\\Windows\\system32\\cmd.exe",
"CommonProgramFiles": "C:\\Program Files\\Common Files",
"CommonProgramFiles(x86)": "C:\\Program Files (x86)\\Common Files",
"CommonProgramW6432": "C:\\Program Files\\Common Files",
"DriverData": "C:\\Windows\\System32\\Drivers\\DriverData",
"LOCALAPPDATA": "C:\\Users\\azureadmin\\AppData\\Local",
"NUMBER_OF_PROCESSORS": "1",
"OS": "Windows_NT",
"PATHEXT": ".COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.CPL",

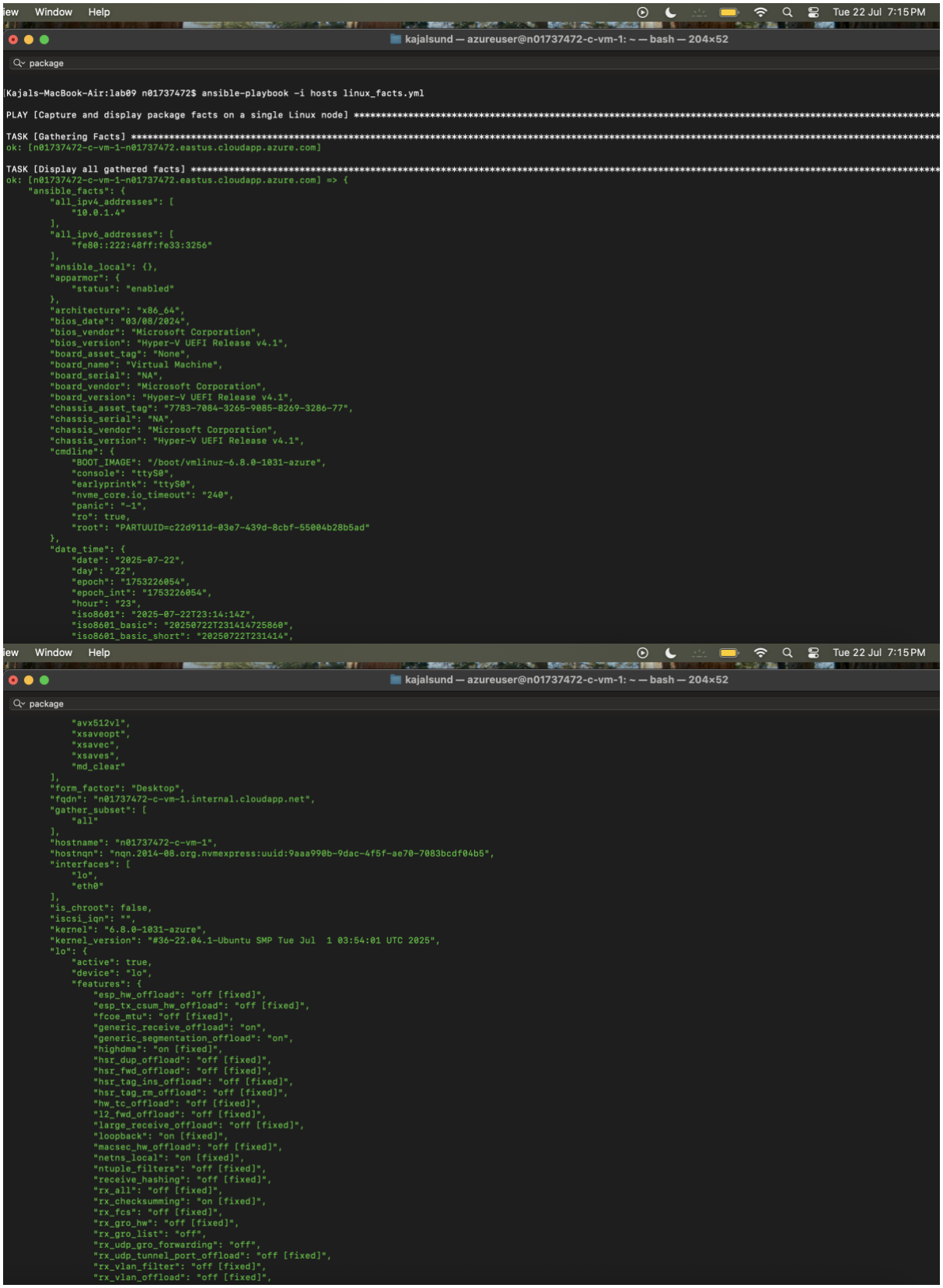

iew Window Help
Tue 22 Jul 7:06 PM
kajalsund — azureuser@n01737472-c-vm-1: ~ — bash — 170×53
"OS": "Windows_NT",
"PATHEXT": ".COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC;.CPL",
"PROCESSOR_ARCHITECTURE": "AMD64",
"PROCESSOR_IDENTIFIER": "Intel64 Family 6 Model 106 Stepping 6, GenuineIntel",
"PROCESSOR_LEVEL": "6",
"PROCESSOR_REVISION": "6a06",
"PROMPT": "PG",
"PSExecutionPolicyPreference": "Unrestricted",
"PSModulePath": "C:\\Users\\azureadmin\\Documents\\WindowsPowerShell\\Modules;C:\\Program Files\\WindowsPowerShell\\Modules;C:\\Windows\\system32\\WindowsPowe
rShell\\v1.0\\Modules",
"PUBLIC": "C:\\Users\\Public",
"Path": "C:\\Windows\\system32;C:\\Windows;C:\\Windows\\System32\\Wbem;C:\\Windows\\System32\\WindowsPowerShell\\v1.0\\;C:\\Windows\\System32\\OpenSSH\\;C:\\U
sers\\azureadmin\\AppData\\Local\\Microsoft\\WindowsApps",
"ProgramData": "C:\\ProgramData",
"ProgramFiles": "C:\\Program Files",
"ProgramFiles(x86)": "C:\\Program Files (x86)",
"ProgramW6432": "C:\\Program Files",
"SystemDrive": "C:",
"SystemRoot": "C:\\Windows",
"TEMP": "C:\\Users\\AZUREA~1\\AppData\\Local\\Temp",
"TMP": "C:\\Users\\AZUREA~1\\AppData\\Local\\Temp",
"USERDOMAIN": "n01737472-w-vm1",
"USERNAME": "azureadmin",
"USERPROFILE": "C:\\Users\\azureadmin",
"windir": "C:\\Windows"
},
"fqdn": "n01737472-w-vm1",
"gather_subset": [
"all"
],
"hostname": "n01737472-w-vm1",
"interfaces": [
{
"connection_name": "Ethernet",
"default_gateway": "10.0.2.1",
"dns_domain": "0q00lvmqyb4evav15tnygp3wha.bx.internal.cloudapp.net",
"interface_index": 6,
"interface_name": "Microsoft Hyper-V Network Adapter",
"ipv4": {
"address": "10.0.2.4",
"prefix": "24"
},
"ipv6": {
"address": "fe80::4535:489d:663:fb06%6",
"prefix": "64"
},
"macaddress": "00:0D:3A:19:0D:DF",
"mtu": 1500,
"speed": 100000
}
],
"ip_addresses": [
"fe80::4535:489d:663:fb06%6",

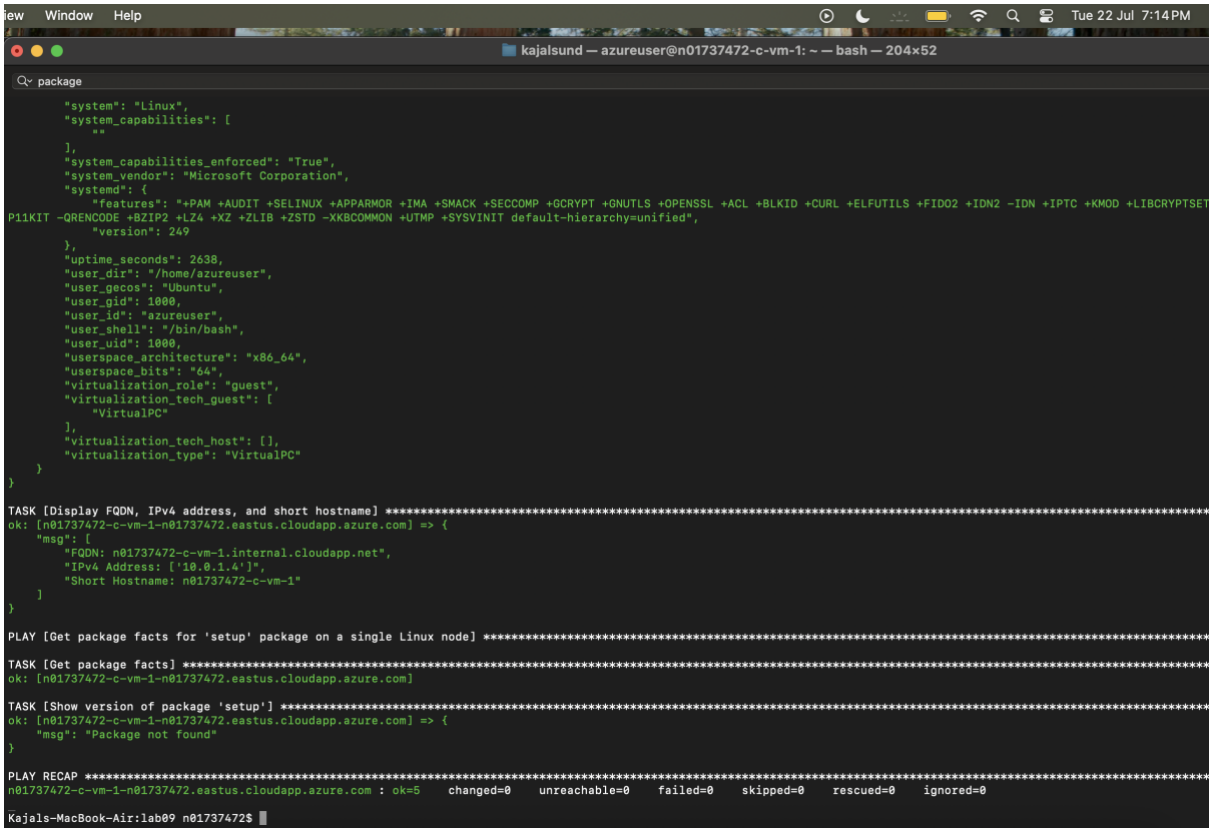


Part 2: Capture and display package facts:

4. Write a playbook to list the version of a single package called setup from ansible-c-vm1




iew Window Help
Tue 22 Jul 7:15 PM
kajalsund — azureuser@n01737472-c-vm-1: ~ — bash — 204×52
package
Kajals-MacBook-Air:lab09 n01737472$ ansible-playbook -i hosts linux_facts.yml
PLAY [Capture and display package facts on a single Linux node] ****
TASK [Gathering Facts] ****
ok: [n01737472-c-vm-1-n01737472.eastus.cloudapp.azure.com]
TASK [Display all gathered facts] ****
ok: [n01737472-c-vm-1-n01737472.eastus.cloudapp.azure.com] => {
"ansible_facts": {
"all_ipv4_addresses": [
"10.0.1.4"
],
"all_ipv6_addresses": [
"fe80::222:48ff:fe33:3256"
],
"ansible_local": {},
"apparmor": {
"status": "enabled"
},
"architecture": "x86_64",
"bios_date": "03/08/2024",
"bios_vendor": "Microsoft Corporation",
"bios_version": "Hyper-V UEFI Release v4.1",
"board_asset_tag": "None",
"board_name": "Virtual Machine",
"board_serial": "NA",
"board_vendor": "Microsoft Corporation",
"board_version": "Hyper-V UEFI Release v4.1",
"chassis_asset_tag": "7783-7084-3265-9085-8269-3286-77",
"chassis_serial": "NA",
"chassis_vendor": "Microsoft Corporation",
"chassis_version": "Hyper-V UEFI Release v4.1",
"cmdline": {
"BOOT_IMAGE": "/boot/vmlinuz-6.8.0-1031-azure",
"console": "ttyS0",
"earlyprintk": "ttyS0",
"nvme_core.io_timeout": "240",
"panic": "-1",
"ro": true,
"root": "PARTUUID=c22d911d-03e7-439d-8cbf-55004b28b5ad"
},
"date_time": {
"date": "2025-07-22",
"day": "22",
"epoch": "1753226054",
"epoch_int": "1753226054",
"hour": "23",
"iso8601": "2025-07-22T23:14:14Z",
"iso8601_basic": "20250722T231414725860",
"iso8601_basic_short": "20250722T231414",
Tue 22 Jul 7:15 PM
kajalsund — azureuser@n01737472-c-vm-1: ~ — bash — 204×52
package
"avx512vl",
"xsaveopt",
"xsavec",
"xsaves",
"md_clear"
],
"form_factor": "Desktop",
"fqdn": "n01737472-c-vm-1.internal.cloudapp.net",
"gather_subset": [
"all"
],
"hostname": "n01737472-c-vm-1",
"hostnqn": "nqn.2014-08.org.nvmexpress:uuid:9aaa990b-9dac-4f5f-ae70-7083bcdf04b5",
"interfaces": [
"lo",
"eth0"
],
"is_chroot": false,
"iscsi_iqn": "",
"kernel": "6.8.0-1031-azure",
"kernel_version": "#36~22.04.1-Ubuntu SMP Tue Jul 1 03:54:01 UTC 2025",
"lo": {
"active": true,
"device": "lo",
"features": {
"esp_hw_offload": "off [fixed]",
"esp_tx_csum_hw_offload": "off [fixed]",
"fcoe_mtu": "off [fixed]",
"generic_receive_offload": "on",
"generic_segmentation_offload": "on",
"highdma": "on [fixed]",
"hsr_dup_offload": "off [fixed]",
"hsr_fwd_offload": "off [fixed]",
"hsr_tag_ins_offload": "off [fixed]",
"hsr_tag_rm_offload": "off [fixed]",
"hw_tc_offload": "off [fixed]",
"l2_fwd_offload": "off [fixed]",
"large_receive_offload": "off [fixed]",
"loopback": "on [fixed]",
"macsec_hw_offload": "off [fixed]",
"netns_local": "on [fixed]",
"ntuple_filters": "off [fixed]",
"receive_hashing": "off [fixed]",
"rx_all": "off [fixed]",
"rx_checksumming": "on [fixed]",
"rx_fcs": "off [fixed]",
"rx_gro_hw": "off [fixed]",
"rx_gro_list": "off",
"rx_udp_gro_forwarding": "off",
"rx_udp_tunnel_port_offload": "off [fixed]",
"rx_vlan_filter": "off [fixed]",
"rx_vlan_offload": "off [fixed]",



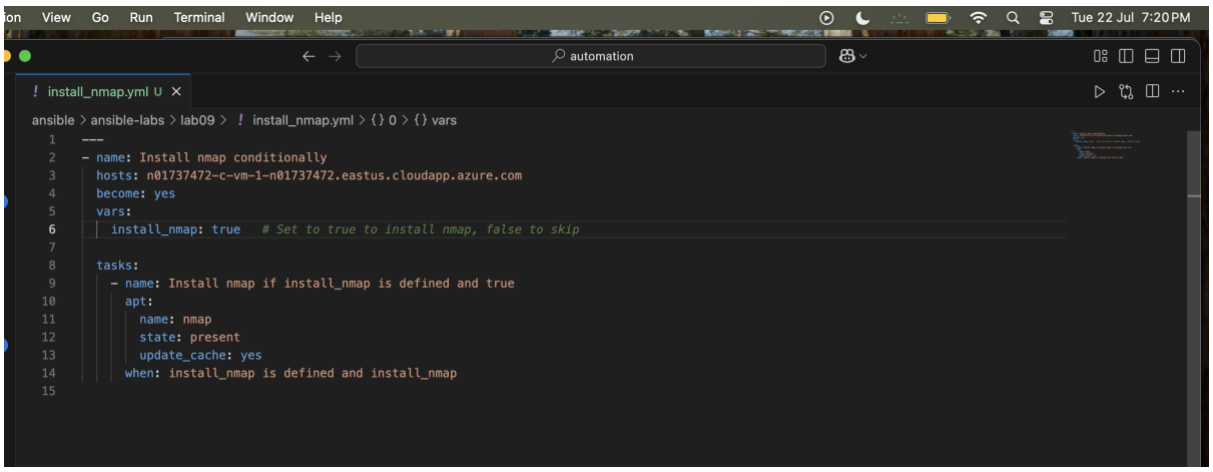
Section 3

Objectives:

- Demonstrate the use of conditions in task execution

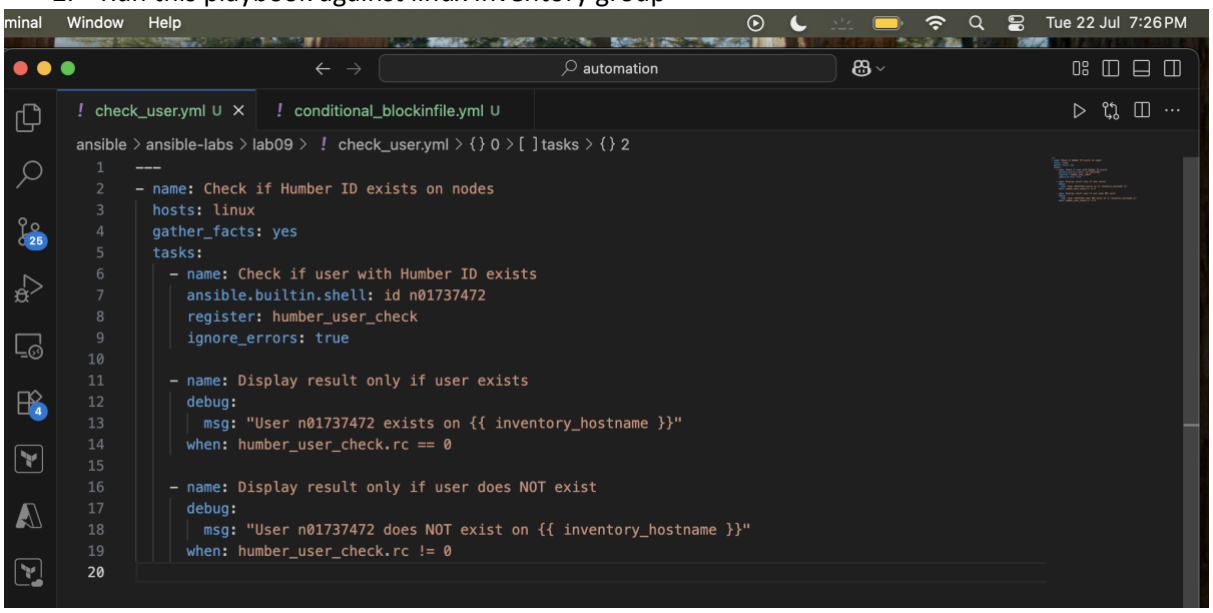
Part 1: Demonstrate conditional task execution 1:

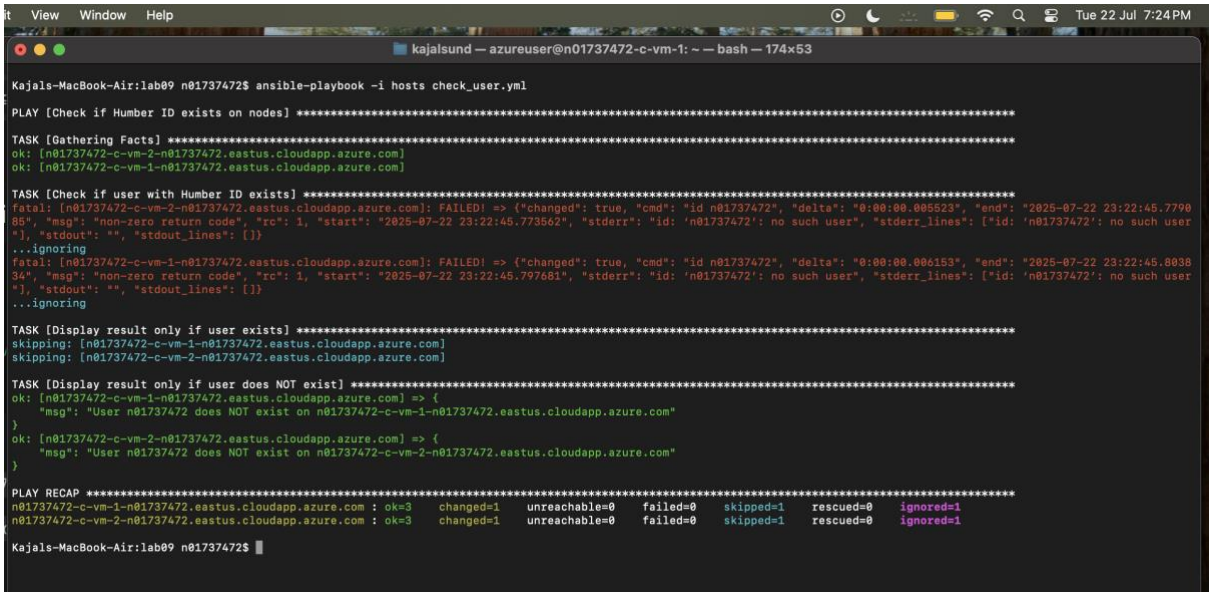
1. Write a playbook to install the nmap package only if it is defined in the playbook
2. Run this playbook against ansible-c-vm1



Part 2: Demonstrate conditional task execution 2:

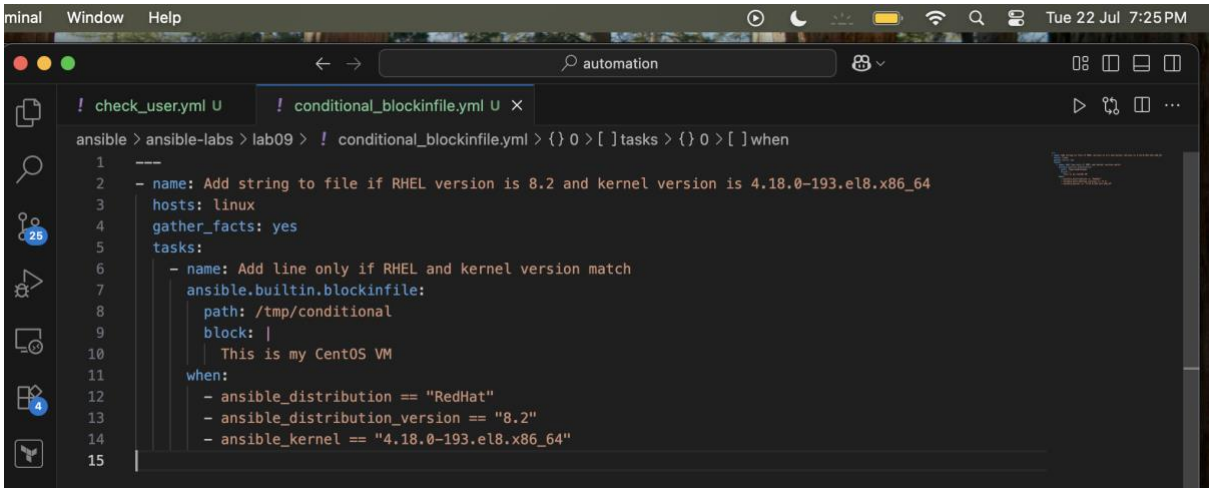
1. Write a playbook to show which nodes have <HumberID> existed
2. Run this playbook against linux inventory group

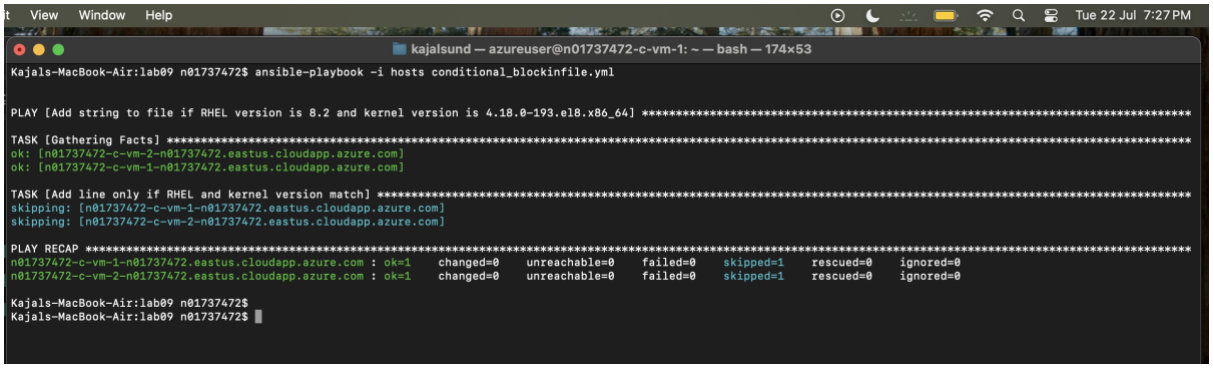




Part 3: Demonstrate conditional task execution 3:

1. Write a playbook to add the string This is my CentOS VM to the /tmp/conditional file only if the RHEL version is 8.2 and the kernel version is 4.18.0-193.el8.x86_64. Hint: use the blockinfile module.
2. Run this playbook against linux inventory group





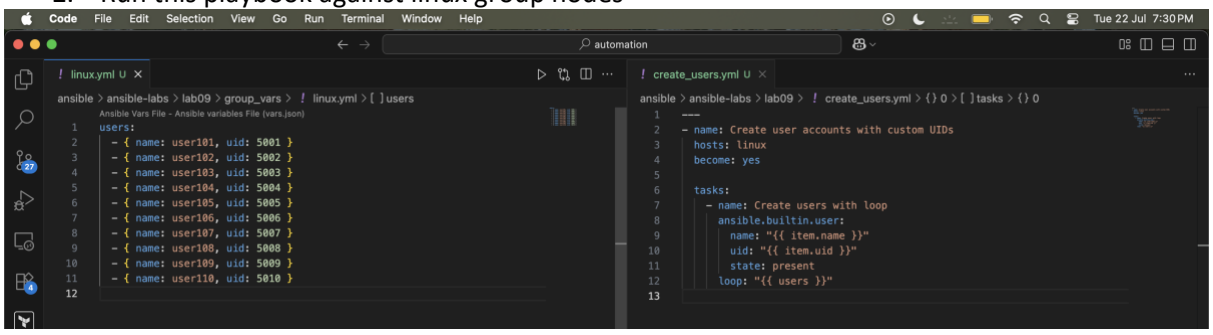
Section 4

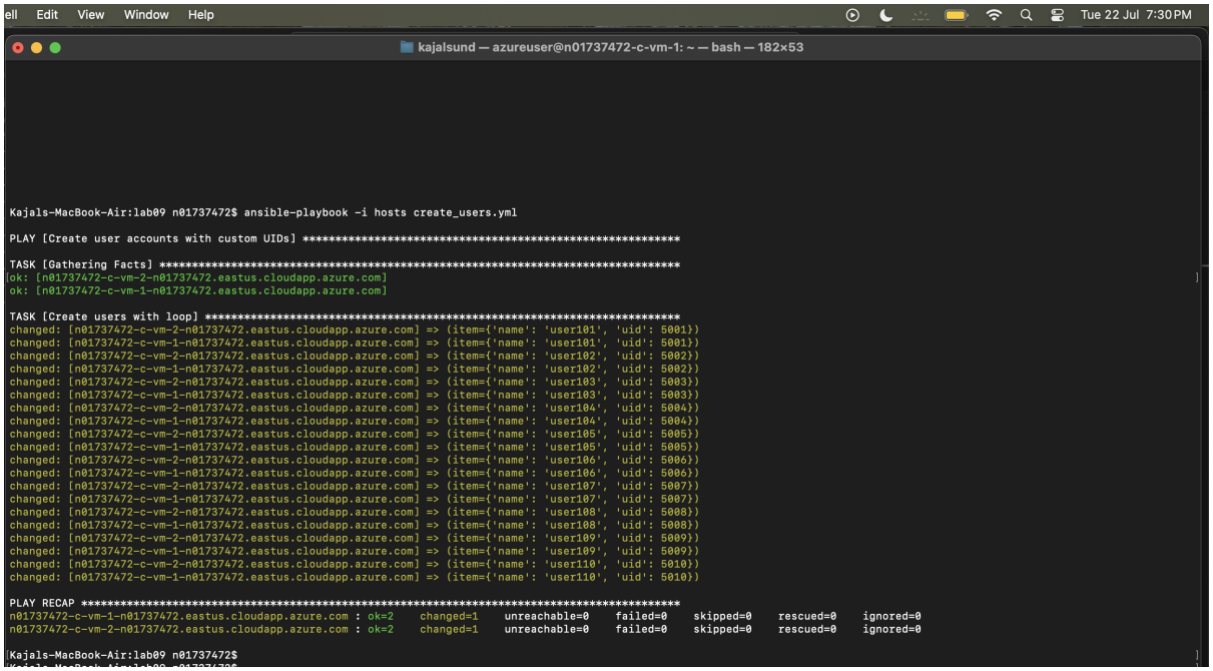
Objectives:

- Demonstrate the use of loops in task execution

Part 1: Demonstrate task iteration 1:

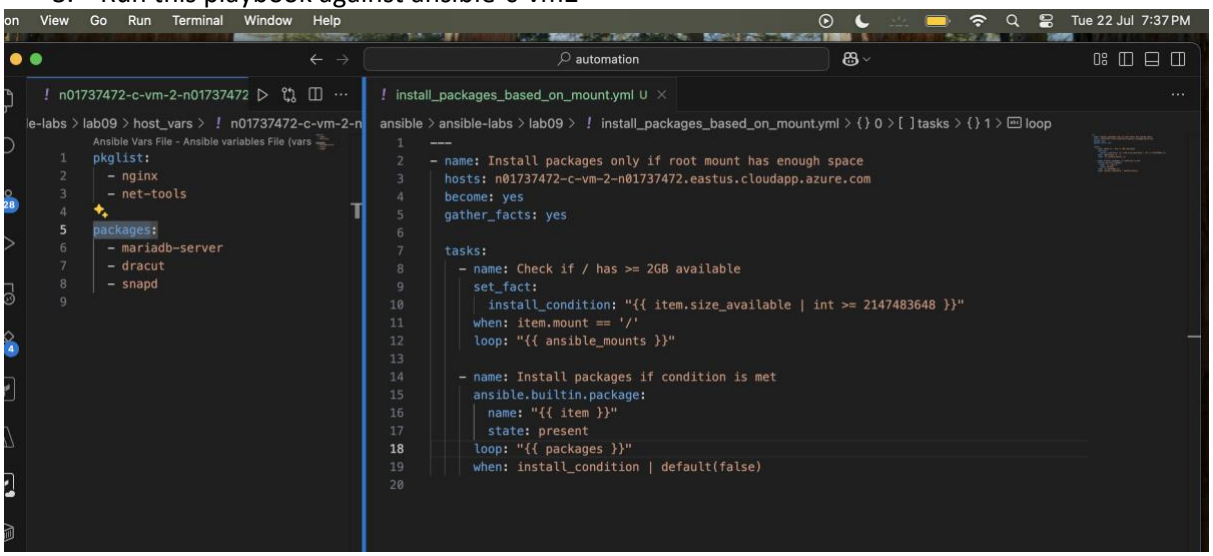
1. Write a playbook to create 10 user accounts called user101 to user110 using loop and group vars. Define custom UIDs 5001 to 5010 respectively.
2. Run this playbook against linux group nodes

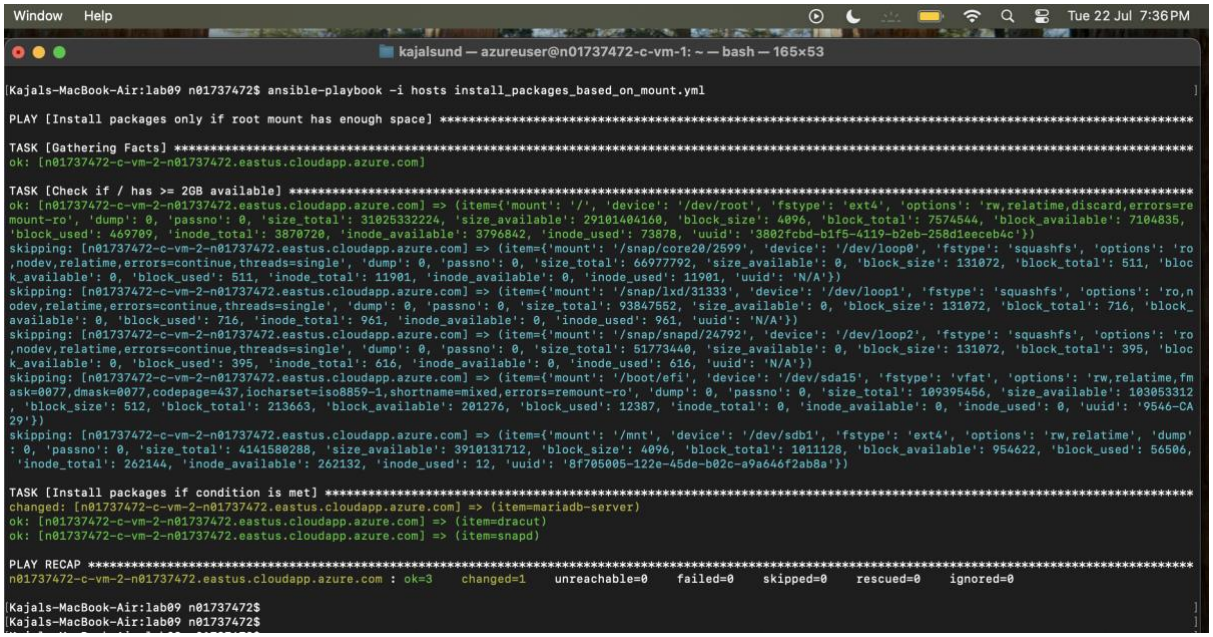




Part 2: Demonstrate task iteration 2:

1. Write a playbook to use ansible_mounts to install mariadb, dracut, and snappy packages only if the / file system is mounted and has 2GB of free disk space available.
2. Use host vars to define packages
3. Run this playbook against ansible-c-vm2





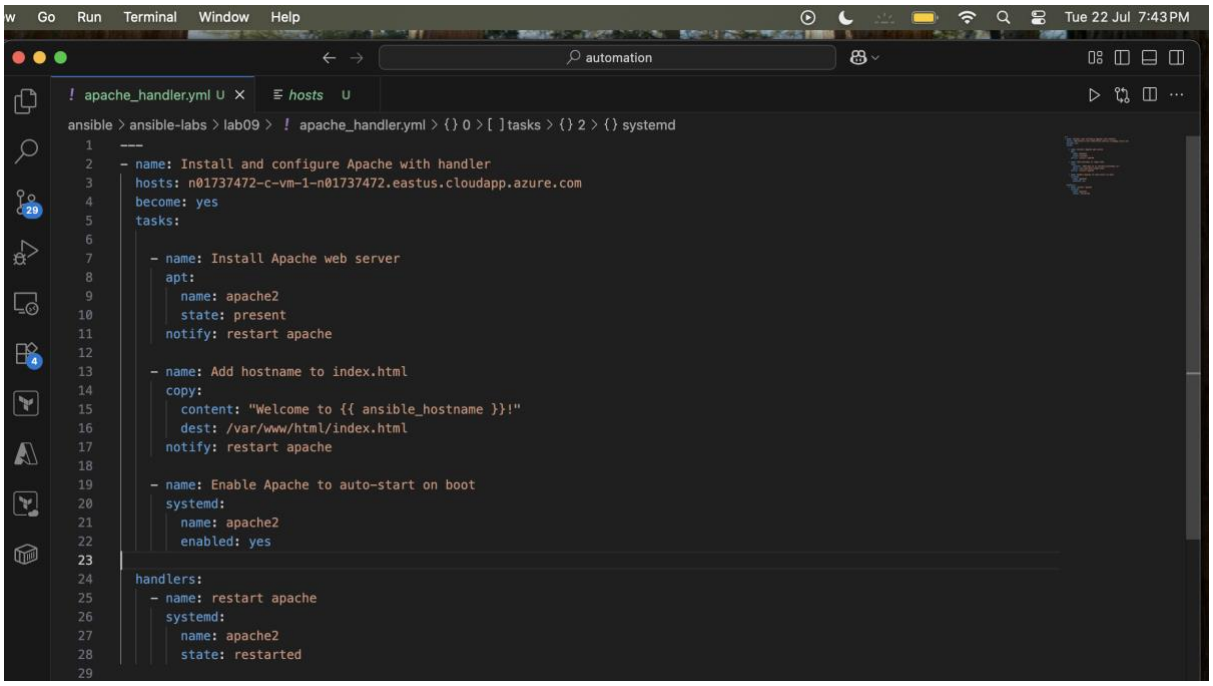
Section 5

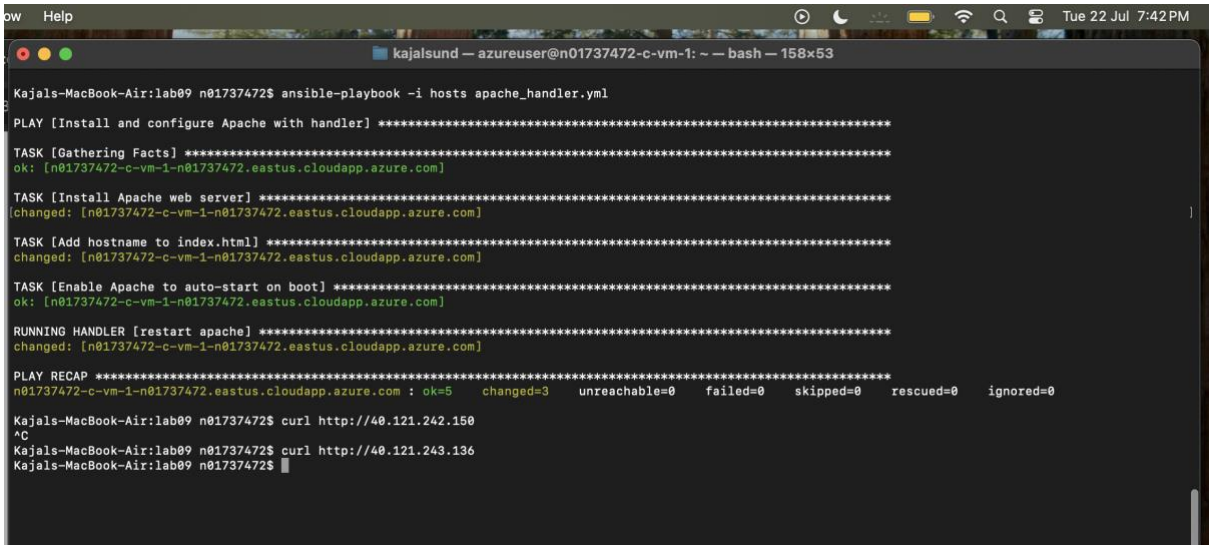
Objectives:

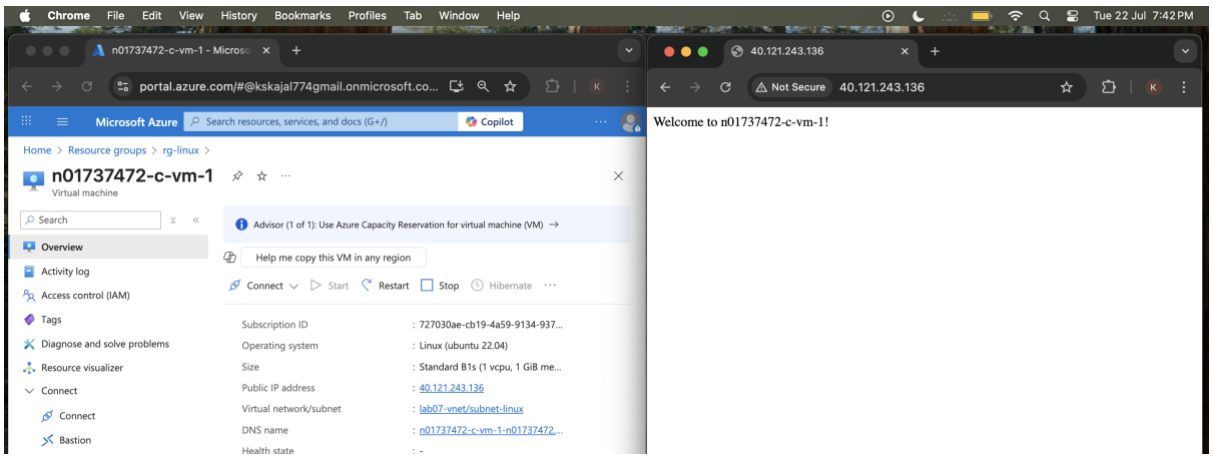
- Demonstrate the use of handlers

Part 1: Demonstrate the use of a single handler:

1. Write a playbook to install the Apache web server software, add hostname of the system to the /var/www/html/index.html file, enable the Apache service to auto-start on system reboots, and start the service.
2. Run this playbook against ansible-c-vm1
3. Open a browser window and enter the full DNS name of the managed node in the browser. You should see the hostname on the screen.

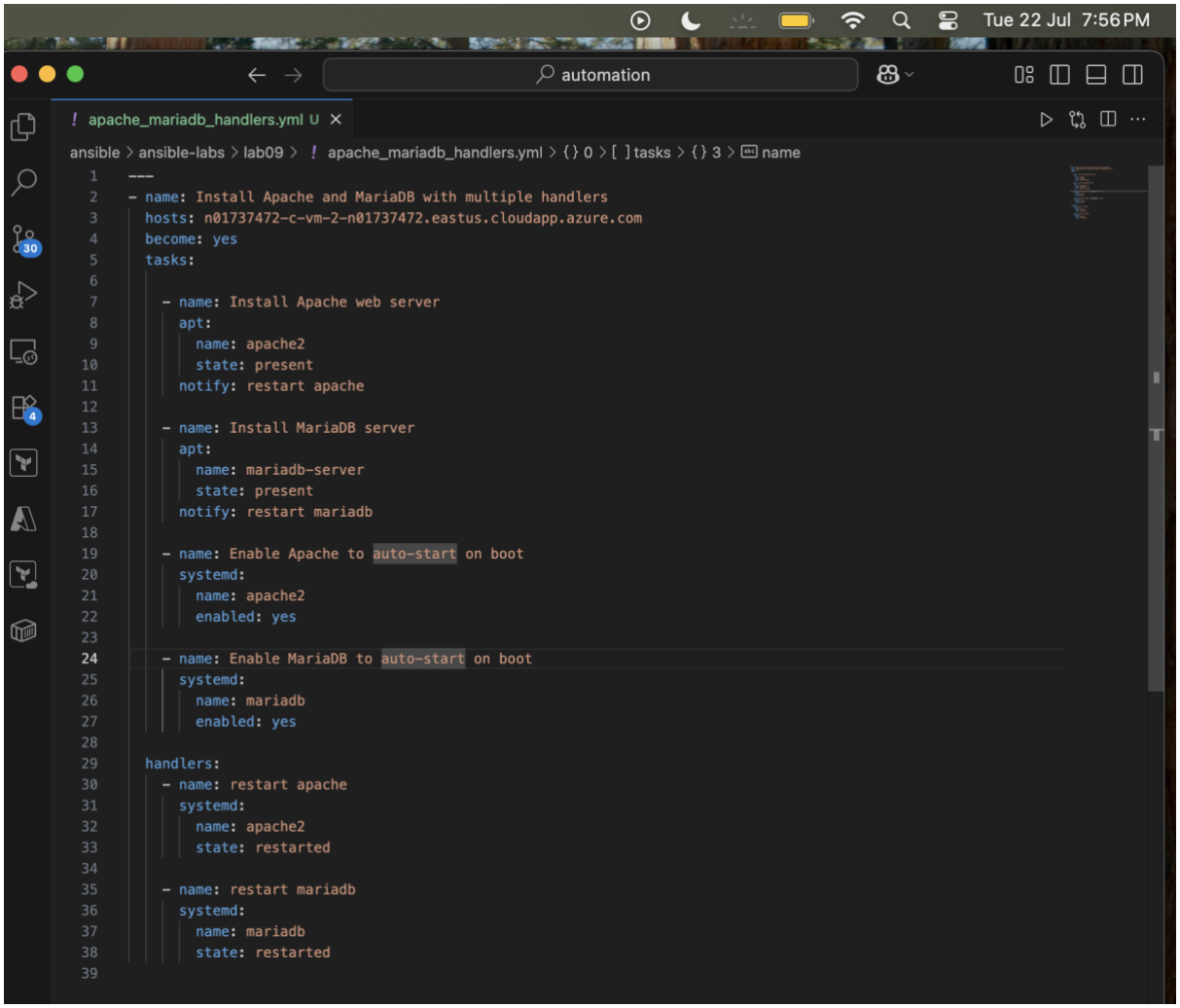


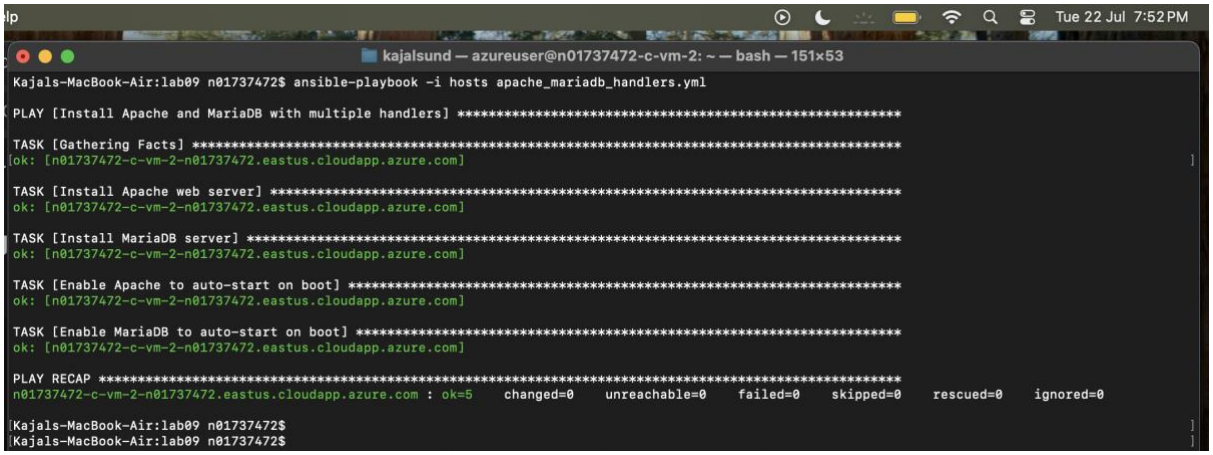


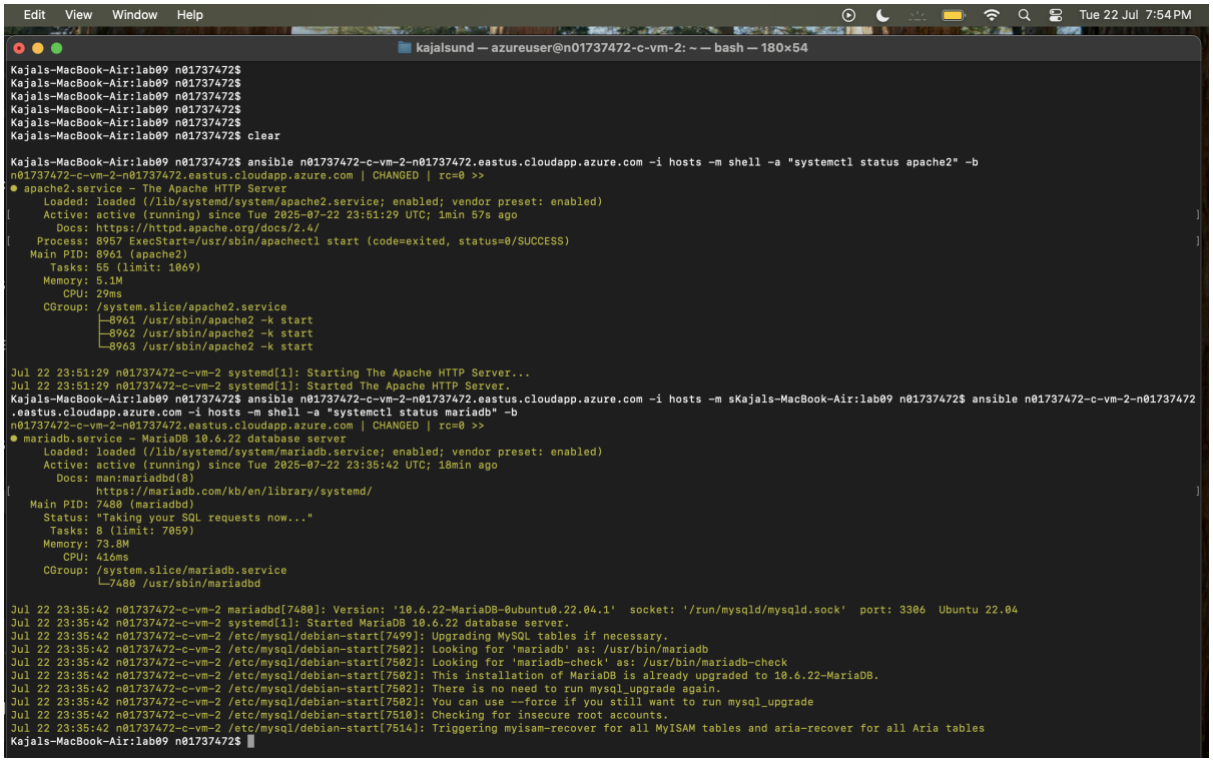


Part 2: Demonstrate the use of multiple handlers:

1. Write a playbook to install the Apache web server and mariadb-server software, enable both Apache and mariadb services to auto-start on system reboots, and start both services.
2. Run this playbook against ansible-c-vm2
3. Use appropriate ad-hoc commands to display the operating state of both services.


Tue 22 Jul 7:56 PM
automation
apache_mariadb_handlers.yml U
ansible > ansible-labs > lab09 > apache_mariadb_handlers.yml > {} 0 > [ ] tasks > {} 3 > name
---
- name: Install Apache and MariaDB with multiple handlers
hosts: n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com
become: yes
tasks:
- name: Install Apache web server
apt:
name: apache2
state: present
notify: restart apache
- name: Install MariaDB server
apt:
name: mariadb-server
state: present
notify: restart mariadb
- name: Enable Apache to auto-start on boot
systemd:
name: apache2
enabled: yes
- name: Enable MariaDB to auto-start on boot
systemd:
name: mariadb
enabled: yes
handlers:
- name: restart apache
systemd:
name: apache2
state: restarted
- name: restart mariadb
systemd:
name: mariadb
state: restarted


Tue 22 Jul 7:52 PM
kajalsund — azureuser@n01737472-c-vm-2: ~ — bash — 151×53
Kajals-MacBook-Air:lab09 n01737472$ ansible-playbook -i hosts apache_mariadb_handlers.yml
PLAY [Install Apache and MariaDB with multiple handlers] **
TASK [Gathering Facts] **
ok: [n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com]
TASK [Install Apache web server] **
ok: [n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com]
TASK [Install MariaDB server] **
ok: [n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com]
TASK [Enable Apache to auto-start on boot] **
ok: [n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com]
TASK [Enable MariaDB to auto-start on boot] **
ok: [n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com]
PLAY RECAP **
n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com : ok=5 changed=0 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
Kajals-MacBook-Air:lab09 n01737472$
Kajals-MacBook-Air:lab09 n01737472$


Edit View Window Help
Tue 22 Jul 7:54 PM
kajalsund — azureuser@n01737472-c-vm-2: ~ — bash — 180×54
Kajals-MacBook-Air:lab09 n01737472$
Kajals-MacBook-Air:lab09 n01737472$
Kajals-MacBook-Air:lab09 n01737472$
Kajals-MacBook-Air:lab09 n01737472$
Kajals-MacBook-Air:lab09 n01737472$
Kajals-MacBook-Air:lab09 n01737472$ clear
Kajals-MacBook-Air:lab09 n01737472$ ansible n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com -i hosts -m shell -a "systemctl status apache2" -b
n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com | CHANGED | rc=0 >>
● apache2.service - The Apache HTTP Server
Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
Active: active (running) since Tue 2025-07-22 23:51:29 UTC; 1min 57s ago
Docs: https://httpd.apache.org/docs/2.4/
Process: 8957 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
Main PID: 8961 (apache2)
Tasks: 55 (limit: 1069)
Memory: 5.1M
CPU: 29ms
CGroup: /system.slice/apache2.service
├─8961 /usr/sbin/apache2 -k start
├─8962 /usr/sbin/apache2 -k start
└─8963 /usr/sbin/apache2 -k start
Jul 22 23:51:29 n01737472-c-vm-2 systemd[1]: Starting The Apache HTTP Server...
Jul 22 23:51:29 n01737472-c-vm-2 systemd[1]: Started The Apache HTTP Server.
Kajals-MacBook-Air:lab09 n01737472$ ansible n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com -i hosts -m sKajals-MacBook-Air:lab09 n01737472$ ansible n01737472-c-vm-2-n01737472
.eastus.cloudapp.azure.com -i hosts -m shell -a "systemctl status mariadb" -b
n01737472-c-vm-2-n01737472.eastus.cloudapp.azure.com | CHANGED | rc=0 >>
● mariadb.service - MariaDB 10.6.22 database server
Loaded: loaded (/lib/systemd/system/mariadb.service; enabled; vendor preset: enabled)
Active: active (running) since Tue 2025-07-22 23:35:42 UTC; 18min ago
Docs: man:mariadbd(8)
https://mariadb.com/kb/en/library/systemd/
Main PID: 7480 (mariadbd)
Status: "Taking your SQL requests now..."
Tasks: 8 (limit: 7059)
Memory: 73.8M
CPU: 416ms
CGroup: /system.slice/mariadb.service
└─7480 /usr/sbin/mariadbd
Jul 22 23:35:42 n01737472-c-vm-2 mariadbd[7480]: Version: '10.6.22-MariaDB-0ubuntu0.22.04.1' socket: '/run/mysqld/mysqld.sock' port: 3306 Ubuntu 22.04
Jul 22 23:35:42 n01737472-c-vm-2 systemd[1]: Started MariaDB 10.6.22 database server.
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7499]: Upgrading MySQL tables if necessary.
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7502]: Looking for 'mariadb' as: /usr/bin/mariadb
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7502]: Looking for 'mariadb-check' as: /usr/bin/mariadb-check
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7502]: This installation of MariaDB is already upgraded to 10.6.22-MariaDB.
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7502]: There is no need to run mysql_upgrade again.
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7502]: You can use --force if you still want to run mysql_upgrade
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7510]: Checking for insecure root accounts.
Jul 22 23:35:42 n01737472-c-vm-2 /etc/mysql/debian-start[7514]: Triggering myisam-recover for all MyISAM tables and aria-recover for all Aria tables
Kajals-MacBook-Air:lab09 n01737472$