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Instructor: Dr.Taylar	Semester and SY: 2023-2024

Midterm Skills Exam: Install, Configure, and Manage Log Monitoring tools

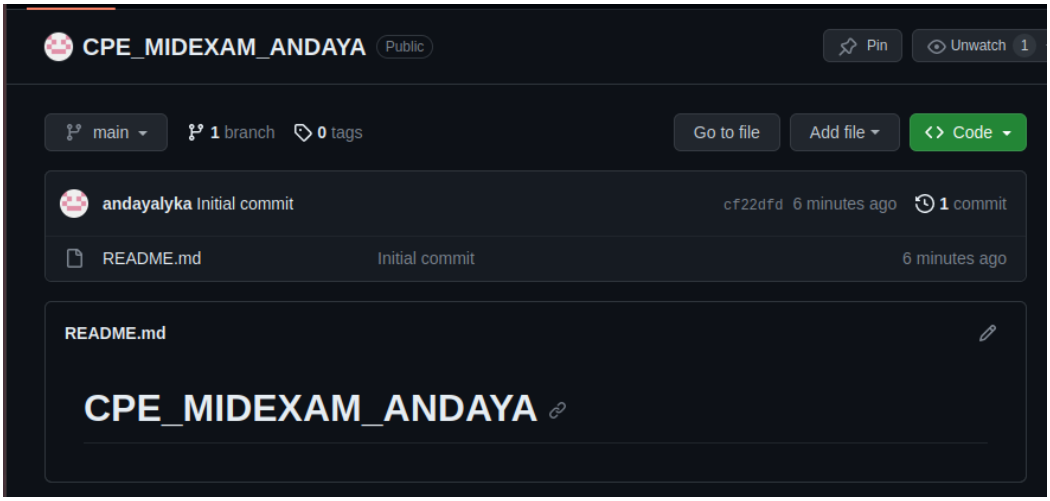
1. Objectives

Create and design a workflow that installs, configure and manage enterprise availability, performance and log monitoring tools using Ansible as an Infrastructure as Code (IaC) tool.

2. Instructions

1. Create a repository in your GitHub account and label it CPE_MIDEXAM_SURNAME.
2. Clone the repository and do the following:
   2.1. Create an Ansible playbook that does the following with an input of a config.yaml file and arranged Inventory file:
   2.2. Install and configure Elastic Stack in separate hosts (Elastic Search, Kibana, Logstash) • Install Nagios in one host
   2.3. Install Grafana,Prometheus and Influxdb in seperate hosts (Influxdb,Grafana,Prometheus)
   2.4. Install Lamp Stack in separate hosts (Httpd + Php,Mariadb)
3. Document all your tasks using this document. Provide proofs of all the ansible playbooks codes and successful installations.
4. Document the push and commit from the local repository to GitHub.
5. Finally, paste also the link of your GitHub repository in the documentation.

3. Output (screenshots and explanations)



Explanation: New repository has been created and named as CPE_MIDEXAM_ANDAYA

```
andayalyka@managenode:~$ git clone git@github.com:andayalyka/CPE_MIDEXAM_
git
Cloning into 'CPE_MIDEXAM_ANDAYA'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
```

Explanation: The created repository has been cloned to the virtual machine

```
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA$ mkdir roles
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA$ cd roles
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles$ mkdir Ubuntu
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles$ cd Ubuntu
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles/Ubuntu$ mkdir tasks
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles/Ubuntu$ cd tasks
```

Explanation: Directory roles, Ubuntu and tasks has been created

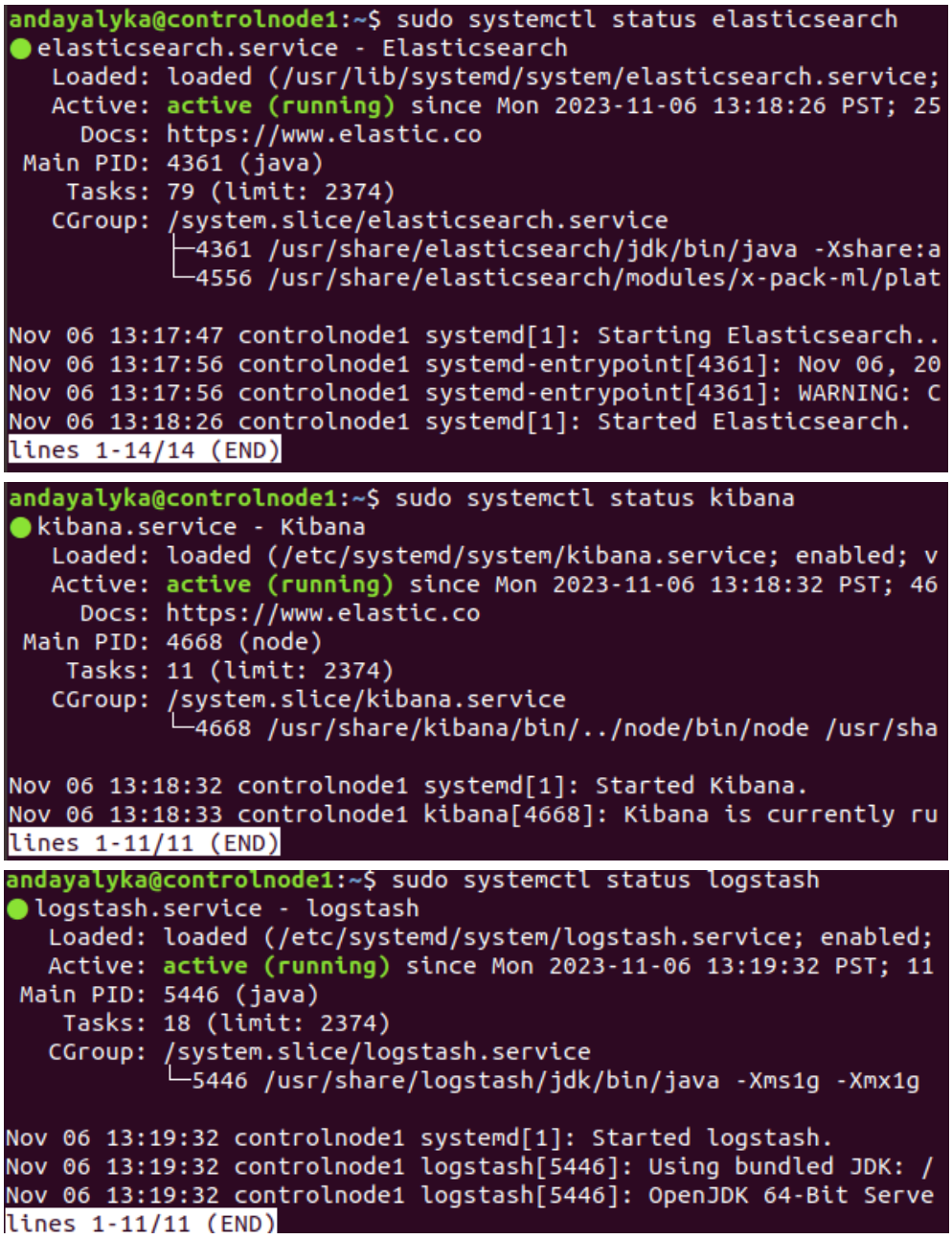
```
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA$ cd roles
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles$ mkdir CentOS
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles$ cd CentOS
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles/CentOS$ mkdir tasks
andayalyka@managenode:~/CPE_MIDEXAM_ANDAYA/roles/CentOS$ cd tasks
```

Explanation: Directory roles, CentOS and tasks has been created

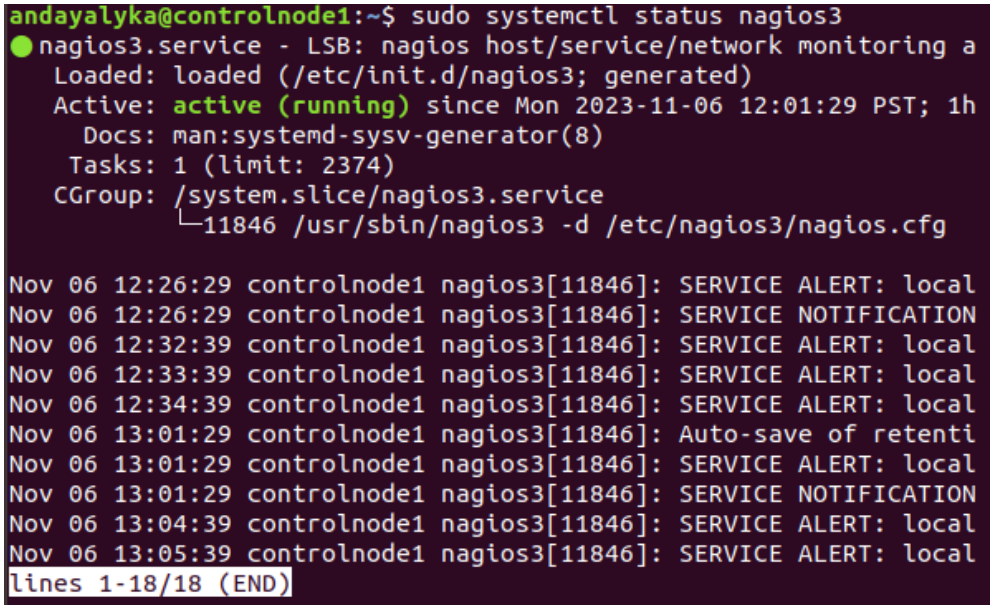
INPUT	
Explanation: In this playbook it will install Elastic Stack (Elastic Search, Kibana, Logstash) and Install Nagios on Ubuntu server 1 and while on CentOS it will only install the Elastic Stack (Elastic Search, Kibana, Logstash). It will also install Grafana,Prometheus, Influxdb, and Lamp Stack (Httpd + Php,Mariadb) in both server of Ubuntu and CentOS	

PROCESS	
Explanation: It shows that it executed the instructions in the tasks of the playbook that I created	

OUTPUT

Ubuntu	

andayalyka@controlnode1:~$ sudo systemctl status elasticsearch
● elasticsearch.service - Elasticsearch
Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service;
Active: active (running) since Mon 2023-11-06 13:18:26 PST; 25
Docs: https://www.elastic.co
Main PID: 4361 (java)
Tasks: 79 (limit: 2374)
CGroup: /system.slice/elasticsearch.service
├─4361 /usr/share/elasticsearch/jdk/bin/java -Xshare:a
└─4556 /usr/share/elasticsearch/modules/x-pack-ml/plat
Nov 06 13:17:47 controlnode1 systemd[1]: Starting Elasticsearch..
Nov 06 13:17:56 controlnode1 systemd-entrypoint[4361]: Nov 06, 20
Nov 06 13:17:56 controlnode1 systemd-entrypoint[4361]: WARNING: C
Nov 06 13:18:26 controlnode1 systemd[1]: Started Elasticsearch.
lines 1-14/14 (END)
andayalyka@controlnode1:~$ sudo systemctl status kibana
● kibana.service - Kibana
Loaded: loaded (/etc/systemd/system/kibana.service; enabled; v
Active: active (running) since Mon 2023-11-06 13:18:32 PST; 46
Docs: https://www.elastic.co
Main PID: 4668 (node)
Tasks: 11 (limit: 2374)
CGroup: /system.slice/kibana.service
└─4668 /usr/share/kibana/bin/../node/bin/node /usr/sha
Nov 06 13:18:32 controlnode1 systemd[1]: Started Kibana.
Nov 06 13:18:33 controlnode1 kibana[4668]: Kibana is currently ru
lines 1-11/11 (END)
andayalyka@controlnode1:~$ sudo systemctl status logstash
● logstash.service - logstash
Loaded: loaded (/etc/systemd/system/logstash.service; enabled;
Active: active (running) since Mon 2023-11-06 13:19:32 PST; 11
Main PID: 5446 (java)
Tasks: 18 (limit: 2374)
CGroup: /system.slice/logstash.service
└─5446 /usr/share/logstash/jdk/bin/java -Xms1g -Xmx1g
Nov 06 13:19:32 controlnode1 systemd[1]: Started logstash.
Nov 06 13:19:32 controlnode1 logstash[5446]: Using bundled JDK: /
Nov 06 13:19:32 controlnode1 logstash[5446]: OpenJDK 64-Bit Serve
lines 1-11/11 (END)



CentOS	

Explanation: In Ubuntu, it indicates that elasticsearch, kibana, logstash, nagios, Grafana,Prometheus, Influxdb, Httpd + Php,Mariadb are installed and the service is currently active and running. Also, in CentOS, elasticsearch, kibana, logstash, Grafana,Prometheus, Influxdb, Httpd + Php,Mariadb are installed and its service is also active and running.

GitHub link:
https://github.com/andayalyka/CPE_MIDEXAM_ANDAYA

Conclusions: (link your conclusion from the objective)
I have learned proficiency in the fundamental principles of Ansible, an open-source automation platform. This encompasses comprehending its architecture, handling inventory, and creating basic playbooks. Armed with this knowledge, I will advance to more sophisticated subjects, emphasizing Ansible's role in Infrastructure as Code, where I will define infrastructure using code to ensure uniformity and replicability.

Through the process of devising and structuring a workflow for log monitoring using Ansible, I will acquire the knowledge to streamline the setup, configuration, and administration of log monitoring tools in a corporate context. This involves grasping the fundamentals of Infrastructure as Code (IaC) and recognizing Ansible as a potent instrument for this purpose.

With progression, I'll become adept at crafting efficient workflows. This entails orchestrating the deployment, configuration, and administration of these performance tools across diverse systems and environments. I'll gain expertise in managing dependencies, employing conditionals, and implementing loops, enabling me to devise workflows adaptable to various scenarios.

Upon completion of the activity, I will have honed the skill of crafting resilient, automated workflows capable of seamlessly deploying and overseeing enterprise performance tools. This ensures that systems are consistently monitored and optimized for peak performance. This proficiency is indispensable for any organization aiming to streamline their performance monitoring procedures and uphold elevated levels of system dependability.