Tools used:

1. Vagrant
2. Ansible

Steps followed:

1. Configured Vagrantfile for spinning up two Ubuntu machines one with ansible and other is the host or node for installing nginx.

```
Vagrant.configure(2) do |config|
  config.vm.define "webserver" do |webserver|
    webserver.vm.box = "ubuntu/trusty64"
    webserver.vm.network "private_network", ip: "10.10.0.2"
    webserver.vm.hostname = "webserver"
  end
  config.vm.define "ansible" do |ansible|
    ansible.vm.box = "ubuntu/trusty64"
    ansible.vm.network "private_network", ip: "10.10.0.254"
    ansible.vm.hostname = "ansible"
  end
end
```

2. Spinning up both the machines and logging in into the ansible machine for installing ansible
3. Installing ansible using apt
4. Generating a new keypair on the ansible machine to ensure ansible can execute commands using ssh on host machine
5. Using ssh-keygen a new key pair is generated without any passphrase in such a way that It can access without restrictions
6. Private key is stored in .ssh/id_rsa
7. Public key is stored in .ssh/id_rsa.pub and copied to .ssh/authorized_keys on hosts

```
vagrant@ansible:~$ cat .ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDTZk+XVTRpgsC77XJzTK931vsifIhWygHXGFwk5MiO
g+Kvms1WmCTD7w+gjydZwpURrLBsKUSOOwL7hgIA7Lm2mpGvDM9L7m7ZVjSfF4u7nzjdKei0SyB7gL3K
ndXCM+UbE6MjpXX9jbljp9BeBkvHhRccv4jAiQ1uNnDE92e/fOKkOYO9LXJ/6OQBhMlWu9mk8XrxgTrZ
K1UuT8Z26KO5l8G7ByQYM/2zqiDrF1+ZP4/pdK/kVIrdZxU+8xOltvVSlKHFAYDuJiDFY4ZsrDpo/vYN
8IOl4fc+JpvtWTpIdFsfBUFNKmRHz2OVUCHPO23PuvNeX3K3wYhVaHDFaY3H vagrant@ansible
vagrant@ansible:~$
```

8. On a new terminal key is copied after ssh into webserver using echo command
9. Now, ssh into ansible server and generate a hosts file with following ip address config.

```
[webservers]
10.10.0.2
```

10. Now, using ssh-agent key generated is automatically sent to host without putting it as an argument and identity is added using ssh-add.
11. To ensure whether this worked, command ansible - I hosts –u root –m ping all is used and achieved pong.

```
10.10.0.2 | success >> {
    "changed": false,
    "ping": "pong"
}

vagrant@ansible:~$
```

12. Now, a nginx engine Is to be installed using playbooks as below.

13. Nginx.yml file

```
vagrant@ansible:~$ cat /vagrant/nginx.yml
---
- hosts: webservers
  vars:
    user: www-data
    worker_processes: 2
    pid: /run/nginx.pid
    worker_connections: 768
  tasks:
  - name: install nginx
    apt: name=nginx state=latest update_cache=yes
  - name: ensure nginx is running (and enable it at boot)
    service: name=nginx state=started enabled=yes
  - name: write the nginx config file
    template: src=templates/nginx.conf.j2 dest=/etc/nginx/nginx.conf
    notify:
    - restart nginx
  handlers:
    - name: restart nginx
      service: name=nginx state=restarted
```

14. Config. File written adopting jinja2 template

```
vagrant@ansible:~$ cat demo/nginx.conf.j2
user {{ user }};
worker_processes {{ worker_processes }};
pid {{ pid }};

events {
        worker_connections {{ worker_connections }} ;
}

http {

        sendfile on;
        tcp_nopush on;
        tcp_nodelay on;
        keepalive_timeout 65;
        types_hash_max_size 2048;

        include /etc/nginx/mime.types;
        default_type application/octet-stream;

        access_log /var/log/nginx/access.log;
        error_log /var/log/nginx/error.log;

        gzip on;
        gzip_disable "msie6";

        include /etc/nginx/conf.d/*.conf;
        include /etc/nginx/sites-enabled/*;
}
```

15. To ensure that the deployed nginx is running 10.10.0.2 is accessed as below.