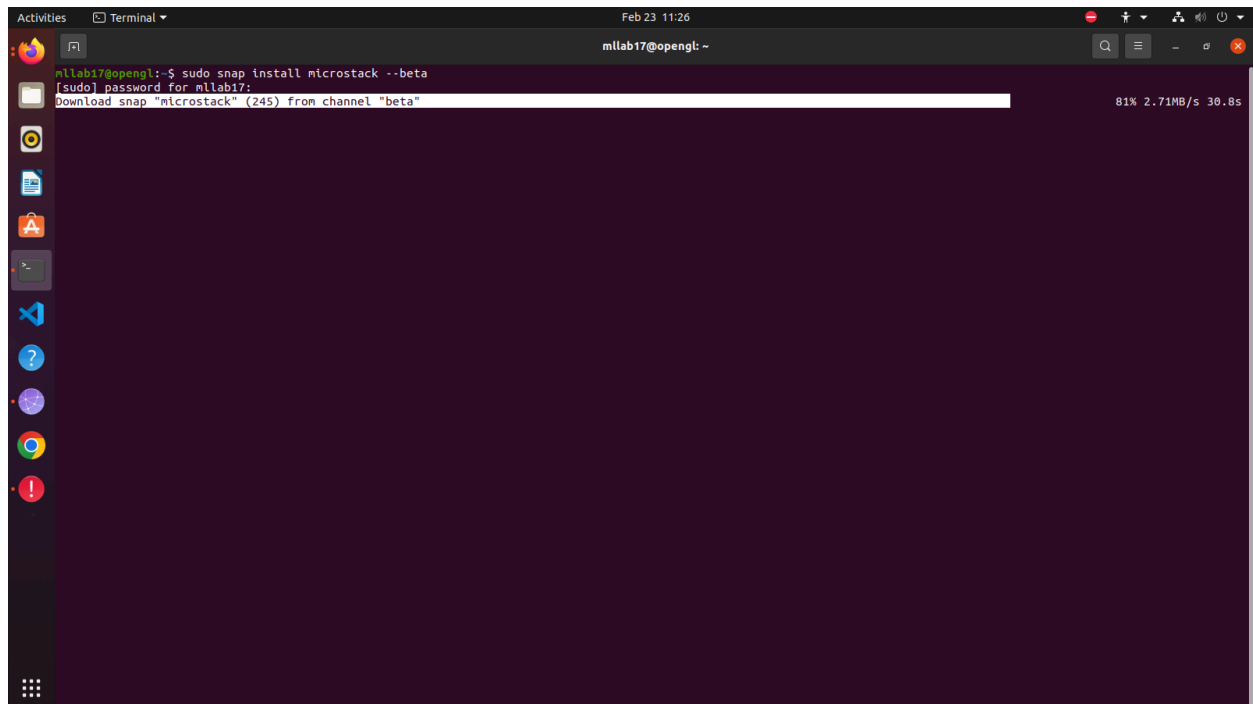


STEP 1:-

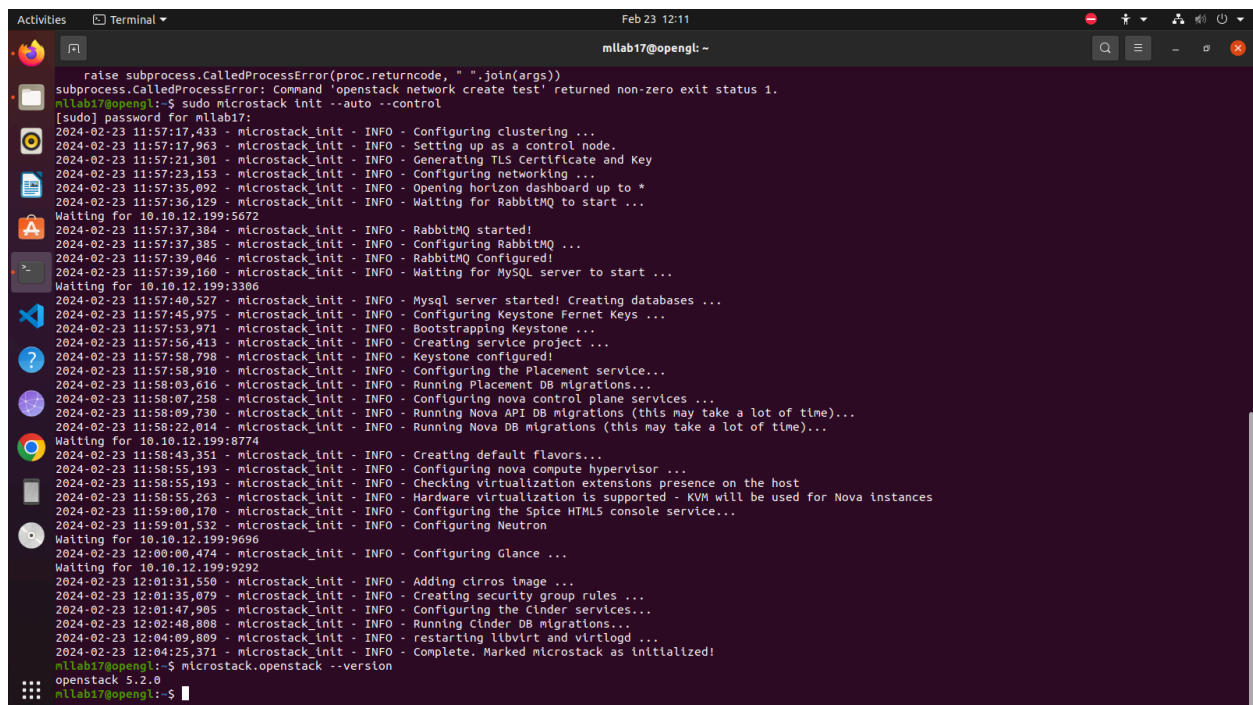
First of all Download Microstack in your device through which we will install and access OpenStack.

A terminal window titled 'Terminal' with a dark background. The prompt is 'mllab17@opengl: ~'. The user enters 'sudo snap install microstack --beta'. The terminal shows the password prompt '[sudo] password for mllab17:' and then a progress bar for downloading the snap 'microstack' (245) from channel 'beta'. The progress bar is at 81% with a speed of 2.71MB/s and 30.8s remaining. The window title bar shows 'Feb 23 11:26' and standard window controls.

```
mllab17@opengl:~$ sudo snap install microstack --beta
[sudo] password for mllab17:
Download snap "microstack" (245) from channel "beta"
81% 2.71MB/s 30.8s
```

STEP 2:-

This Command helps Auto-Initialise MicroStack components such as RabbitMQ , MySQL server ,Node Control ,etc.

A terminal window titled 'Terminal' with a dark background. The prompt is 'mllab17@opengl: ~'. The user enters 'sudo microstack init --auto --control'. The terminal shows a series of log messages from 'microstack_init' indicating the configuration of various services: clustering, control node, TLS certificate, networking, RabbitMQ, MySQL, Keystone, Placement, Nova, Glance, and Cinder. The process concludes with 'Complete. Marked microstack as initialized!'. The window title bar shows 'Feb 23 12:11' and standard window controls.

```
mllab17@opengl:~$ sudo microstack init --auto --control
[sudo] password for mllab17:
2024-02-23 11:57:17,433 - microstack_init - INFO - Configuring clustering ...
2024-02-23 11:57:17,963 - microstack_init - INFO - Setting up as a control node.
2024-02-23 11:57:21,301 - microstack_init - INFO - Generating TLS Certificate and Key
2024-02-23 11:57:23,153 - microstack_init - INFO - Configuring networking ...
2024-02-23 11:57:35,092 - microstack_init - INFO - Opening horizon dashboard up to *
2024-02-23 11:57:36,129 - microstack_init - INFO - Waiting for RabbitMQ to start ...
Waiting for 10.10.12.199:5672
2024-02-23 11:57:37,384 - microstack_init - INFO - RabbitMQ started!
2024-02-23 11:57:37,385 - microstack_init - INFO - Configuring RabbitMQ ...
2024-02-23 11:57:39,046 - microstack_init - INFO - RabbitMQ Configured!
2024-02-23 11:57:39,160 - microstack_init - INFO - Waiting for MySQL server to start ...
Waiting for 10.10.12.199:3306
2024-02-23 11:57:40,527 - microstack_init - INFO - Mysql server started! Creating databases ...
2024-02-23 11:57:45,975 - microstack_init - INFO - Configuring Keystone Fernet Keys ...
2024-02-23 11:57:53,971 - microstack_init - INFO - Bootstrapping Keystone ...
2024-02-23 11:57:56,413 - microstack_init - INFO - Creating service project ...
2024-02-23 11:57:58,798 - microstack_init - INFO - Keystone configured!
2024-02-23 11:57:58,910 - microstack_init - INFO - Configuring the Placement service...
2024-02-23 11:58:03,616 - microstack_init - INFO - Running Placement DB migrations...
2024-02-23 11:58:07,258 - microstack_init - INFO - Configuring nova control plane services ...
2024-02-23 11:58:09,730 - microstack_init - INFO - Running Nova API DB migrations (this may take a lot of time)...
2024-02-23 11:58:22,014 - microstack_init - INFO - Running Nova DB migrations (this may take a lot of time)...
Waiting for 10.10.12.199:8774
2024-02-23 11:58:43,351 - microstack_init - INFO - Creating default flavors...
2024-02-23 11:58:55,193 - microstack_init - INFO - Configuring nova compute hypervisor ...
2024-02-23 11:58:55,193 - microstack_init - INFO - Checking virtualization extensions presence on the host
2024-02-23 11:58:55,263 - microstack_init - INFO - Hardware virtualization is supported - KVM will be used for Nova instances
2024-02-23 11:59:00,170 - microstack_init - INFO - Configuring the Spice HTML5 console service...
2024-02-23 11:59:01,532 - microstack_init - INFO - Configuring Neutron
Waiting for 10.10.12.199:9696
2024-02-23 12:00:00,474 - microstack_init - INFO - Configuring Glance ...
Waiting for 10.10.12.199:9292
2024-02-23 12:01:31,550 - microstack_init - INFO - Adding cirros image ...
2024-02-23 12:01:35,079 - microstack_init - INFO - Creating security group rules ...
2024-02-23 12:01:47,905 - microstack_init - INFO - Configuring the Cinder services...
2024-02-23 12:02:48,808 - microstack_init - INFO - Running Cinder DB migrations...
2024-02-23 12:04:09,809 - microstack_init - INFO - restarting libvirt and virtlogd ...
2024-02-23 12:04:25,371 - microstack_init - INFO - Complete. Marked microstack as initialized!
mllab17@opengl:~$ sudo microstack.openstack --version
openstack 5.2.0
mllab17@opengl:~$
```

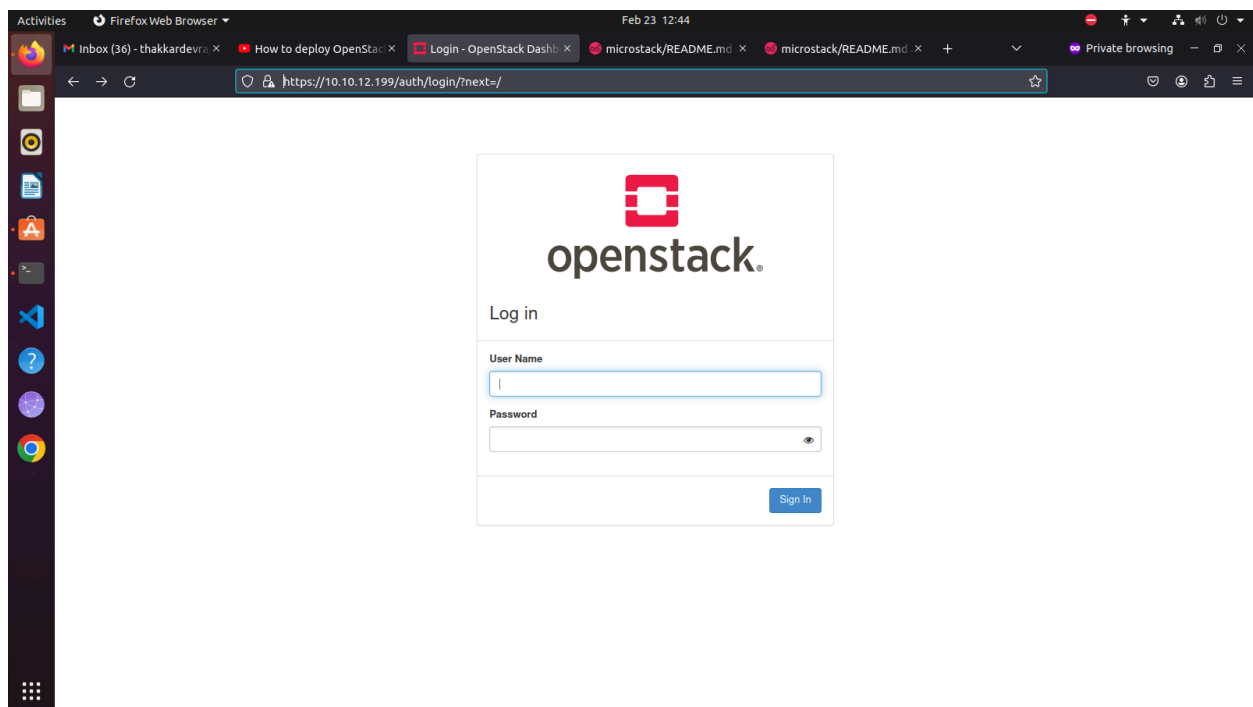
STEP 3:-

After initialisation of microstack we can check the Openstack version installed using MicroStack and can check the status of openstack image list.

```
Activities Terminal Feb 23 12:43 mllab17@opengl: ~
2024-02-23 12:04:09.809 - microstack_init - INFO - restarting libvirt and virtlogd ...
2024-02-23 12:04:25.371 - microstack_init - INFO - Complete. Marked microstack as initialized!
mllab17@opengl:~$ microstack.openstack --version
openstack 5.2.0
mllab17@opengl:~$ microstack.openstack image list
+-----+-----+-----+
| ID | Name | Status |
+-----+-----+-----+
| b65ee649-42da-42da-bb09-90c9df2c65e | cirros | active |
+-----+-----+-----+
mllab17@opengl:~$ microstack.openstack flavor list
+-----+-----+-----+-----+-----+-----+-----+
| ID | Name | RAM | Disk | Ephemeral | VCPUs | Is Public |
+-----+-----+-----+-----+-----+-----+-----+
| 1 | m1.tiny | 512 | 1 | 0 | 1 | True |
| 2 | m1.small | 2048 | 20 | 0 | 1 | True |
| 3 | m1.medium | 4096 | 20 | 0 | 2 | True |
| 4 | m1.large | 8192 | 20 | 0 | 4 | True |
| 5 | m1.xlarge | 16384 | 20 | 0 | 8 | True |
+-----+-----+-----+-----+-----+-----+-----+
mllab17@opengl:~$ hostname -I
10.10.12.199 10.10.12.20.1 fd48:c865:fd97::17f fd48:c865:fd97::835e:a74:7cb6:c898 fd48:c865:fd97::3523:304b:2d2:171c
```

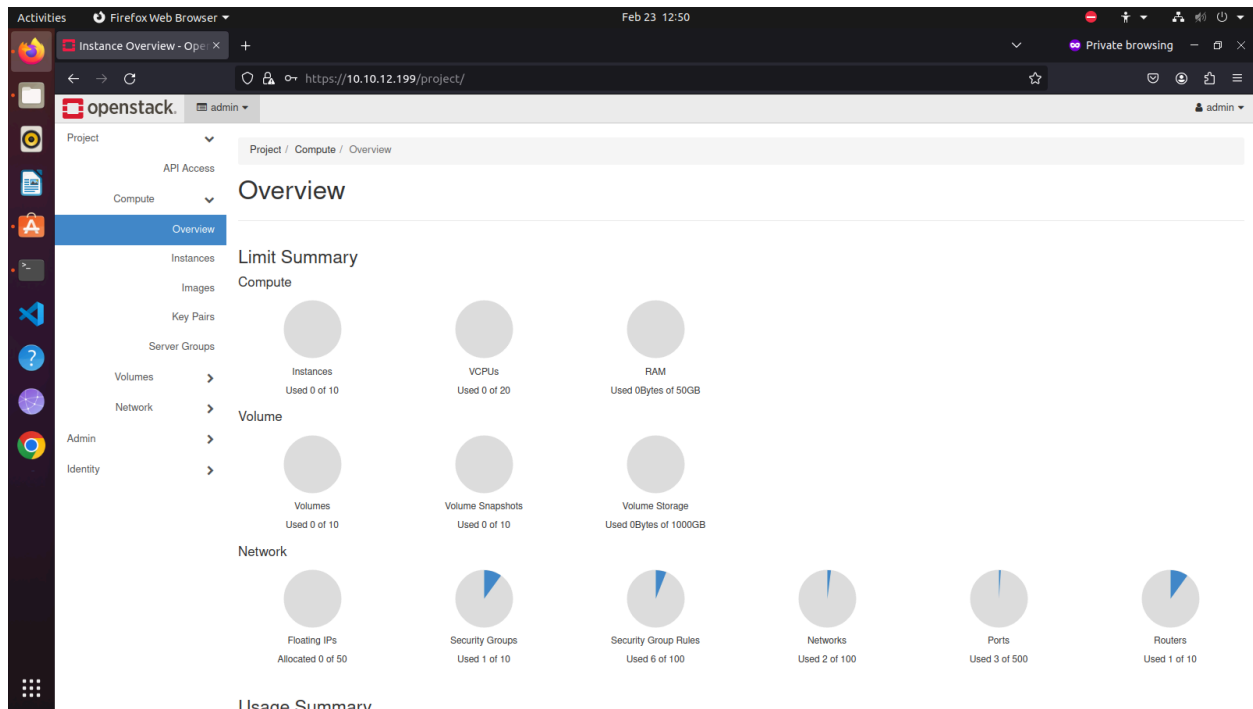
STEP 4:-

After this step get the Host IP address and open the host home page using the localhost IP address and login using the credentials given in the microstack setting file in the system.



STEP 5:-

After a successful login we get the Openstack homepage.



COMMANDS:-

1. `sudo snap install microstack --beta`
2. `snap list microstack`
3. `sudo microstack init --auto --control`
4. `microstack.openstack --version`
5. `microstack.openstack image list`
6. `microstack.openstack flavor list`
7. to get the IP address use command: `hostname -I`
8. dashboard URL is `https://<ip-address>` or `https://<ip-address>/dashboard` or `https://<ip-address>/horizon`
9. username for dashboard is 'admin'
10. below command is for getting dashboard password : `sudo snap get microstack config.credentials keystone-password`

CONCLUSION:-

Thus, in this assignment Virtual Machine using Microstack for Infrastructure as a Service and implemented Openstack.