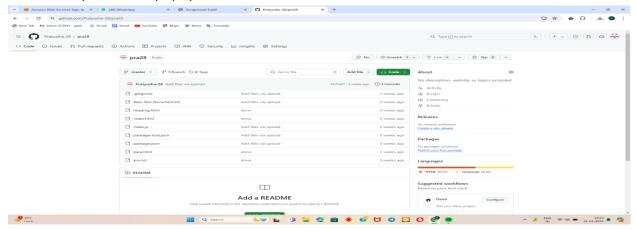
Assignment No: 9

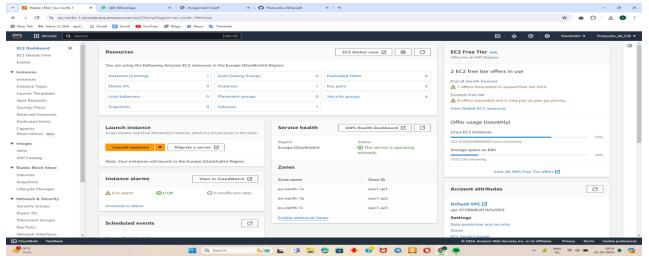
Problem Statement: Deploy a project from GitHub on EC2.

Steps:-

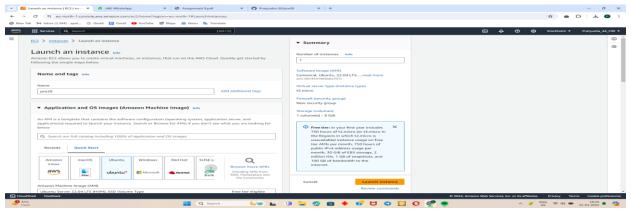
1. At first upload files(repo) to GitHub.



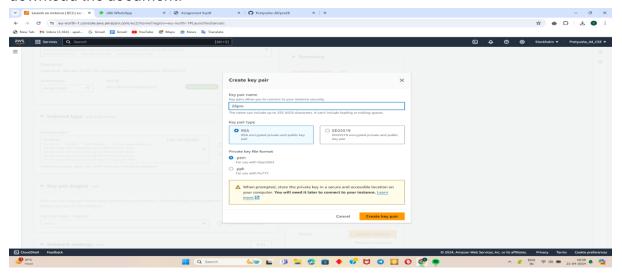
2. Now open EC2 and go to Launch Instance.



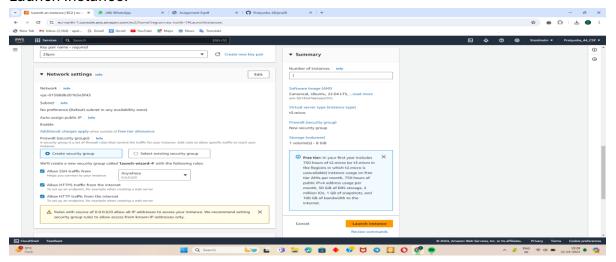
3. Now give name of server which should be unique and select Ubuntu application and OS image inside quick start.



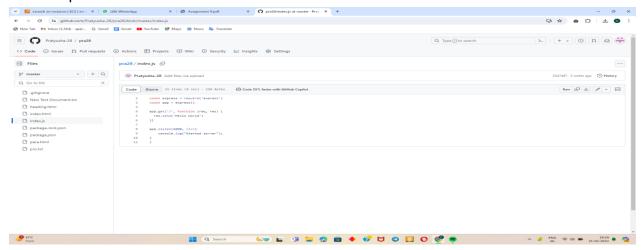
4. Now generate new key pair, give name(unique) and now click Create Key Pair and also download the document.



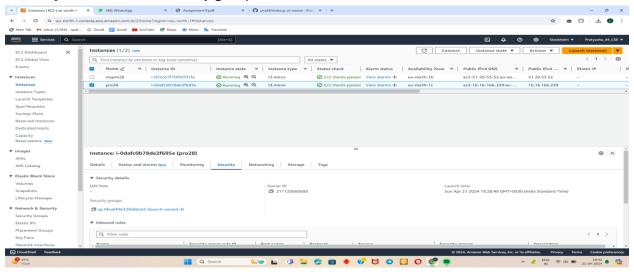
5. After that select Create security group and click all checkboxes bellow it. After it click on Launch Instance.



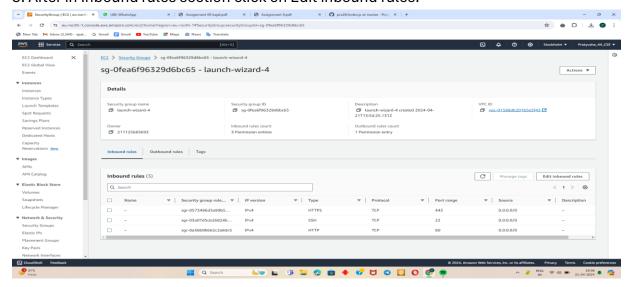
6. Now go to GitHub that project and then to index.js ,there you can see 4000 in app.listen which is port no that will be added to custom TCP.



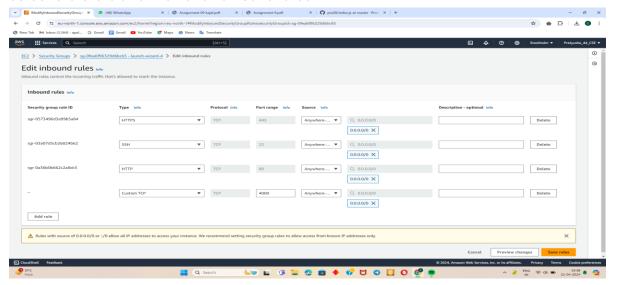
7. After it go back to EC2 instances then select that instance newly made and click on Security tab and then Security groups.



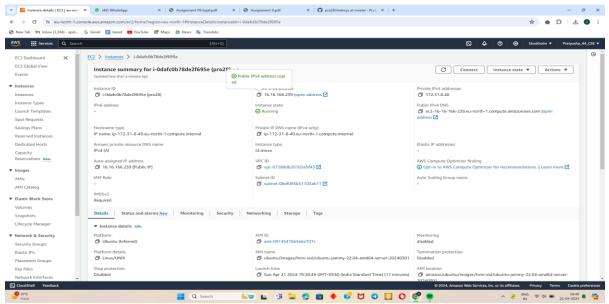
8. After in Inbound rules section click on Edit inbound rules.



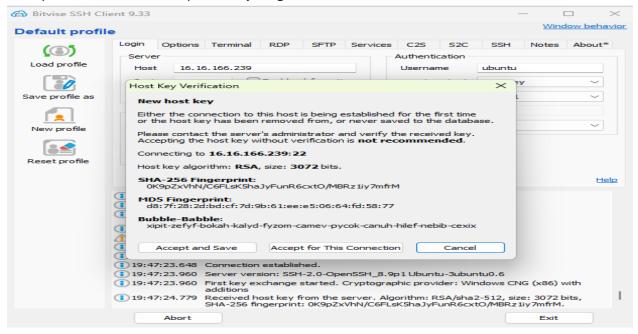
9. Then in inbound rules, click on Add rule select Custom TCP ,give port range 4000 and select 0.0.0.0/0 and then click on Save rules.



10. Now go back to EC2 recently created instance and copy the public IPv4 address.



11. Now open Bitvise SSH, go to Client key manager and import that downloaded key and then after that paste the copied IPv4 public address in host and then login and also do Accept and Save, also set publickey as global 2.



12. Now open new terminal and write pwd, we are in ubuntu.

```
🗾 🔆 🕂 ubuntu@16.16.166.239:22 - Bitvise xterm - ubuntu@ip-172-31-8-40: -
                    https://landscape.canonical.com
   Support:
                    https://ubuntu.com/pro
  System information as of Sun Apr 21 14:17:41 UTC 2024
  System load: 0.0
                                                            100
 Usage of /: 20.4% of 7.57GB
Memory usage: 21%
                                   Users logged in:
                                    IPv4 address for ens5: 172.31.8.40
  Swap usage:
Expanded Security Maintenance for Applications is not enabled.
 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
ubuntu@ip-172-31-8-40:~$ pwd
/home/ubuntu
```

13. Now write command "sudo apt-get update" to fetch all packages.

```
ubuntu@ip-172-31-8-40:~$ sudo apt-get update
Hit:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B
.
Get:11 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1597 kB]
Get:12 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [302 kB]
Get:13 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [1806
Get:14 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [305
kB]
Get:15 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1070 k
В]
Get:16 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [244 kB
Get:17 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata
```

14. Write "sudo apt-get upgrade" to upgrade all outdated packages.

```
🔼 🔆 🖒 ubuntu@16.16.166.239:22 - Bitvise xterm - ubuntu@ip-172-31-8-40:
 [644 B]
Get:28 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metada
ta [116 B]
Get:29 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1381 kB]
Get:30 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [242 kB]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1744 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [294 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [848 kB]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [162 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [16.8 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [37.2 kB]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [7588 B]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [260 B]
Fetched 31.0 MB in 5s (6154 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-8-40:~$ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  linux-aws linux-headers-aws linux-image-aws python3-update-manager ubuntu-advantage-tools
  ubuntu-pro-client-l10n update-manager-core
The following packages will be upgraded:
  apt apt-utils bash bsdextrautils bsdutils coreutils curl dpkg eject ethtool fdisk klibc-utils
libapt-pkg6.0 libblkid1 libc-bin libc6 libcurl3-gnutls libcurl4 libexpat1 libfdisk1 libgnutls30
  libgpgme11 libklibc libldap-2.5-0 libldap-common libmount1 libnspr4 libnss3 libsmartcols1
  libuuid1 locales mount openssh-client openssh-server openssh-sftp-server python3-cryptography snapd update-notifier-common util-linux uuid-runtime vim vim-common vim-runtime vim-tiny xxd
45 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
Need to get 56.0 MB of archives.
After this operation, 1375 kB disk space will be freed.
Do you want to continue? [Y/n] y
```

15. Now write command "sudo apt install nginx" to install webserver.

```
🔼 💮 🛟 ubuntu@16.16.166.239:22 - Bitvise xterm - ubuntu@ip-172-31-8-40: ~
ackagekit.service polkit.service rsyslog.service serial-getty@ttyS0.service systemd-journald.service
systemd-networkd.service systemd-resolved.service systemd-udevd.service
Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart getty@tty1.service
 systemctl restart networkd-dispatcher.service
 systemctl restart systemd-logind.service
 systemctl restart unattended-upgrades.service
 systemctl restart user@1000.service
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-8-40:~$ sudo apt install nginx
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
 fontconfig-config fonts-dejavu-core libdeflate0 libfontconfig1 libgd3 libjbig0 libjpeg-turbo8
  libjpeg8 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libtiff5 libwebp7 libxpm4
  nginx-common nginx-core
Suggested packages:
  libgd-tools fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
 fontconfig-config fonts-dejavu-core libdeflate0 libfontconfig1 libgd3 libjbig0 libjpeg-turbo8
  libjpeg8 libnginx-mod-http-geoip2 libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libnginx-mod-stream-geoip2 libtiff5 libwebp7 libxpm4 nginx
 nginx-common nginx-core
 upgraded, 20 newly installed, 0 to remove and 7 not upgraded.
Need to get 2693 kB of archives.
After this operation, 8350 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

16. Now to execute javascript, we need to install node is. Write command

"curl -SL https://deb.nodesource.com/setup_16.x | sudo -E bash - ".

```
Last login: Sun Apr 21 14:18:09 2024 from 103.211.132.68
ubuntu@ip-172-31-8-40:~$ nginx -v
nginx version: nginx/1.18.0 (Ubuntu)
ubuntu@ip-172-31<sup>-</sup>8-40:~$ curl -SL https://deb.nodesource.com/setup_16.x|sudo -E bash -
           % Received % Xferd Average Speed Time
 % Total
                                                  Time
                                                          Time Current
Left Speed
                             Dload Upload
                                           Total
                                                  Spent
                                                          -:--:-- 49707
100 5617 100 5617
                    0
                          0 50007
                                       0 -
                          DEPRECATION WARNING
   Node.js 16.x is no longer actively supported!
 You will not receive security or critical stability updates for this version.
 You should migrate to a supported version of Node.js as soon as possible.
 Use the installation script that corresponds to the version of Node.js you
 wish to install. e.g.
  Please see https://github.com/nodejs/Release for details about which
 version may be appropriate for you.
 The NodeSource Node.js distributions repository contains
 information both about supported versions of Node.js and supported Linux
```

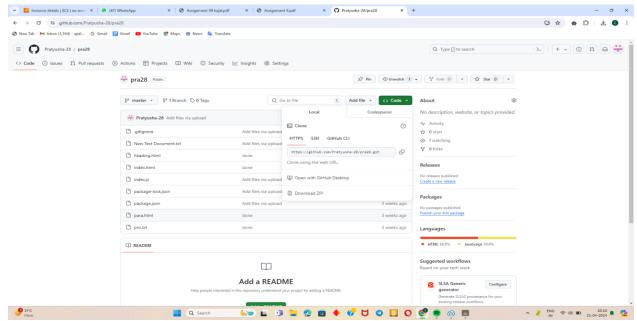
17. Now to install write "sudo apt-get install nodejs".

```
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.22.04.1).
curl is already the newest version (7.81.0-1ubuntu1.16).
gnupg is already the newest version (7.81.0-1ubuntu1.16).
gnupg is already the newest version (2.2.27-3ubuntu2.1).
apt-transport-https is already the newest version (2.4.12).
0 upgraded, 0 newly installed, 0 to remove and 7 not upgraded.
Hit:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:3 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 https://deb.nodesource.com/node_16.x nodistro/main amd64 Packages [7462 B]
Fetched 19.6 kB in 1s (29.8 kB/s)
Reading package lists... Done
Get-1 https://deb.nodesource.com/node_16.x nodistro/main amd64 Packages [7462 B]
Fetched 19.6 kB in 1s (29.8 kB/s)
Reading package lists... Done
Reading package lists... Done
Reading package lists... Done
Reading state information... Done
Reading dep
```

18. Write "node -version" to see what version of node is installed.

```
🗾 💮 👇 ubuntu@16.16.166.239:22 - Bitvise xterm - ubuntu@ip-172-31-8-40: ~
           to unpack .../nodejs_16.20.2-1nodesource1_amd64.deb ...
Unpacking nodejs (16.20.2-1nodesource1) ...
Setting up nodejs (16.20.2-1nodesource1) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning candidates...
Scanning linux images...
Running kernel seems to be up-to-date.
Restarting services...
Service restarts being deferred:
 /etc/needrestart/restart.d/dbus.service
 systemctl restart getty@tty1.service
 systemctl restart networkd-dispatcher.service
 systemctl restart systemd-logind.service
 systemctl restart unattended-upgrades.service
 systemctl restart user@1000.service
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-8-40:~$ node -v
v16.20.2
ubuntu@ip-172-31-8-40:~$ git clone https://github.com/Pratyusha-28/pra28.git
Cloning into 'pra28'.
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (12/12), done.
remote: Total 13 (delta 1), reused 5 (delta 0), pack-reused 0
Receiving objects: 100% (13/13), 49.52 KiB | 1.10 MiB/s, done.
Resolving deltas: 100% (1/1), done.
ubuntu@ip-172-31-8-40:~$
```

19. Now go back to GitHub and in code copy HTTPS URL.



22. Now write git clone and paste that URL and write Is to see if project has been cloned or not.

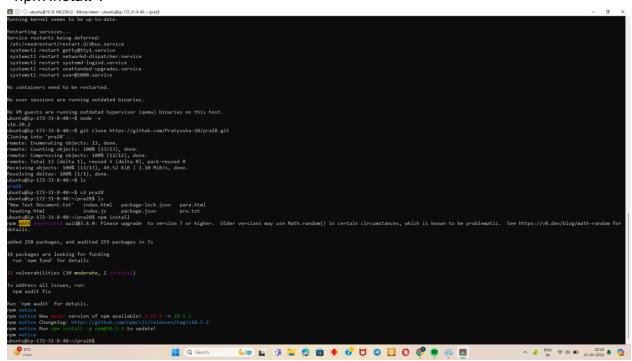
```
→ 13 pc [/] to 3ca.

🗾 💮 🛟 ubuntu@16.16.166.239:22 - Bitvise xterm - ubuntu@ip-172-31-8-40: ~
                                                                                                     - 🗆 X
Setting up nodejs (16.20.2-1nodesource1) ...
Processing triggers for man-db (2.10.2-1) ...
Scanning processes...
Scanning candidates...
Scanning linux images...
Running kernel seems to be up-to-date.
Restarting services...
Service restarts being deferred:
/etc/needrestart/restart.d/dbus.service
systemctl restart getty@tty1.service
systemctl restart networkd-dispatcher.service
systemctl restart systemd-logind.service
systemctl restart unattended-upgrades.service
systemctl restart user@1000.service
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-8-40:~$ node -v
v16.20.2
ubuntu@ip-172-31-8-40:∼$ git clone https://github.com/Pratyusha-28/pra28.git
Cloning into 'pra28'...
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (12/12), done.
remote: Total 13 (delta 1), reused 5 (delta 0), pack-reused 0
Receiving objects: 100% (13/13), 49.52 KiB | 1.10 MiB/s, done.
Resolving deltas: 100% (1/1), done.
ubuntu@ip-172-31-8-40:~$ ls
ubuntu@ip-172-31-8-40:~$ cd pra28
```

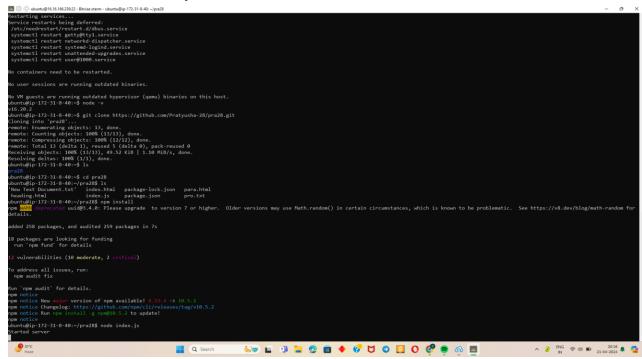
20. After it write command cd (project name) to enter into project and then Is to see what files have been uploaded.

```
## Comparison of the Comparis
```

21. Now to execute node command we have to install node packet manager(npm). So write "npm install".



22. Now write node index.js.

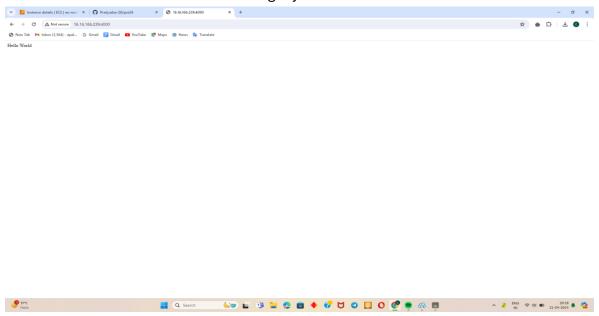


23. After it again copy public IPv4 address in EC2 instance and then paste it in another tab URL section.

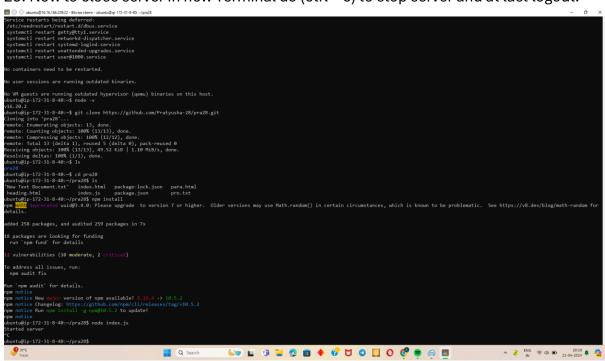




24. At last in URL at end write: 4000 to get your website.



25. Now to close server in new Terminal do (ctrl + c) to stop server and at last logout.



■ In this way we have deployed a project from GitHub to EC2.