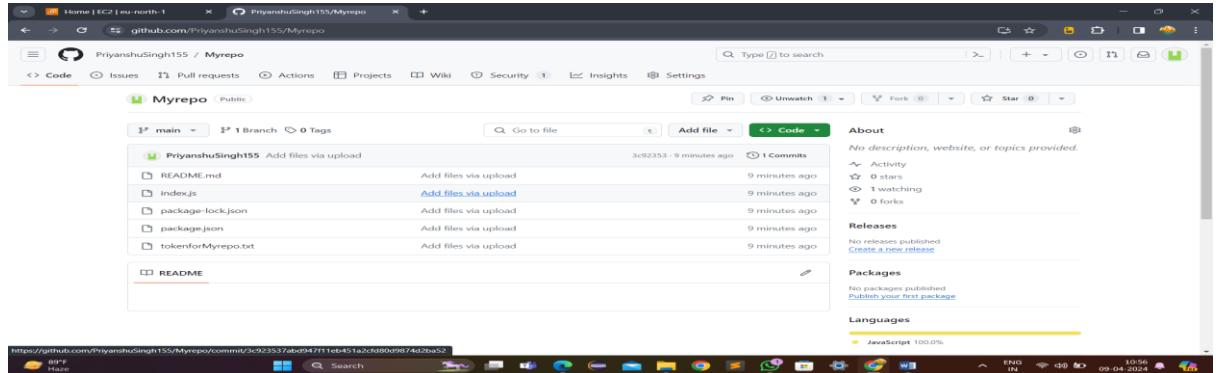


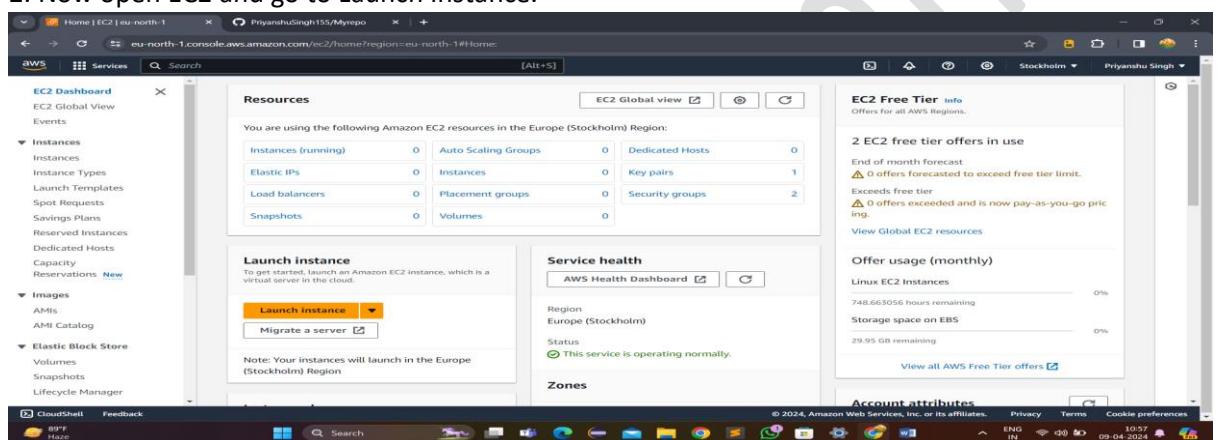
Assignment No : 9

Problem Statement : Deploy a project from GitHub on EC2.

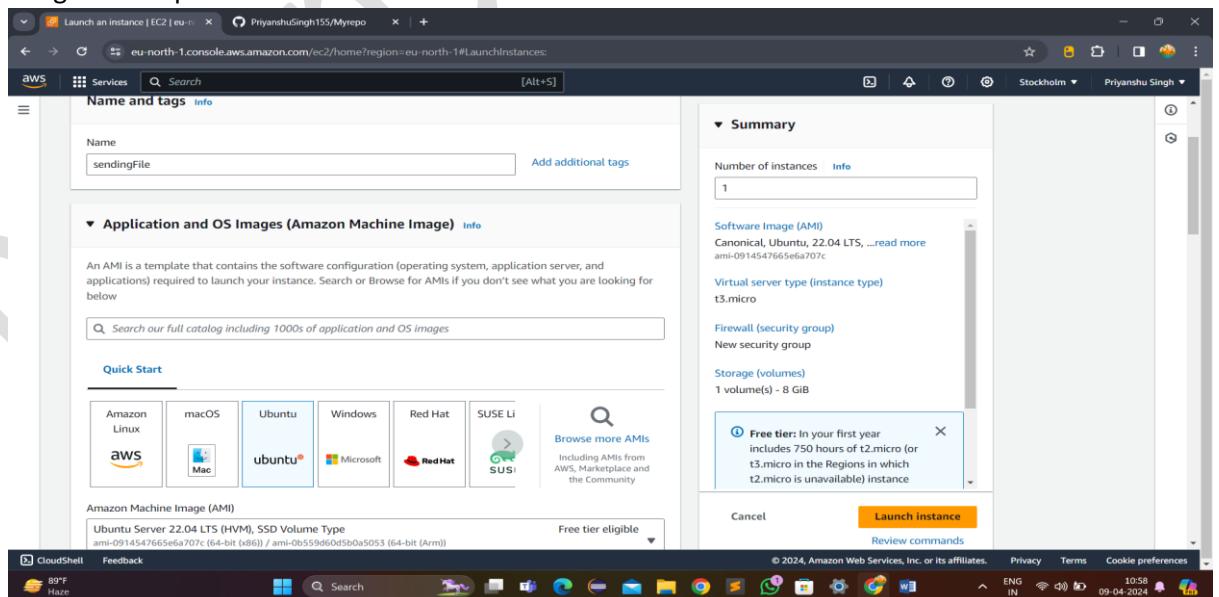
Steps :- 1. At first upload files(repo) to GitHub.



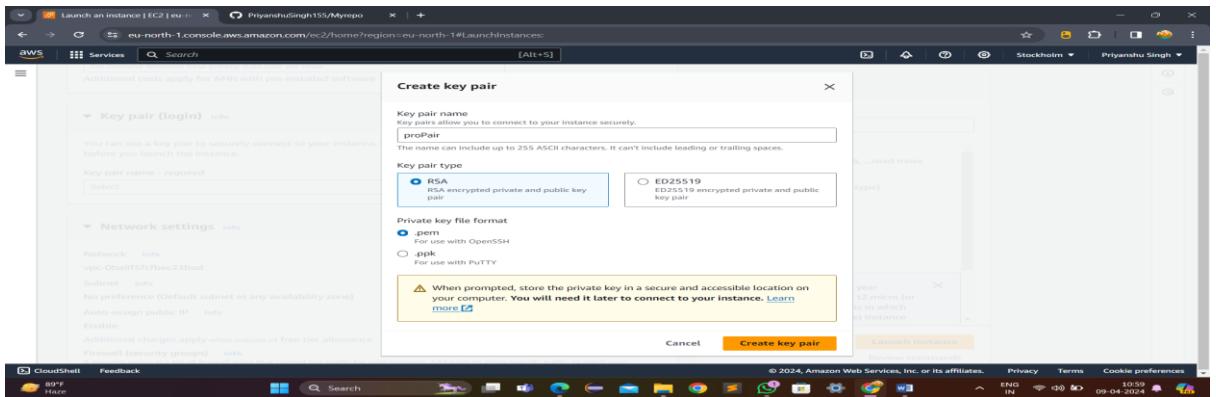
2. Now open EC2 and go to Launch Instance.



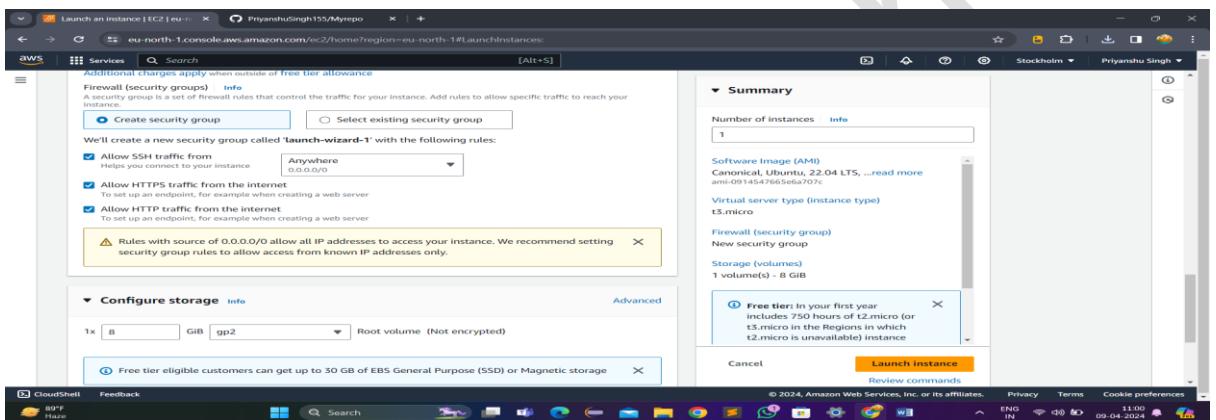
3. Now give name of server which should be unique and select Ubuntu application and OS image inside quick start



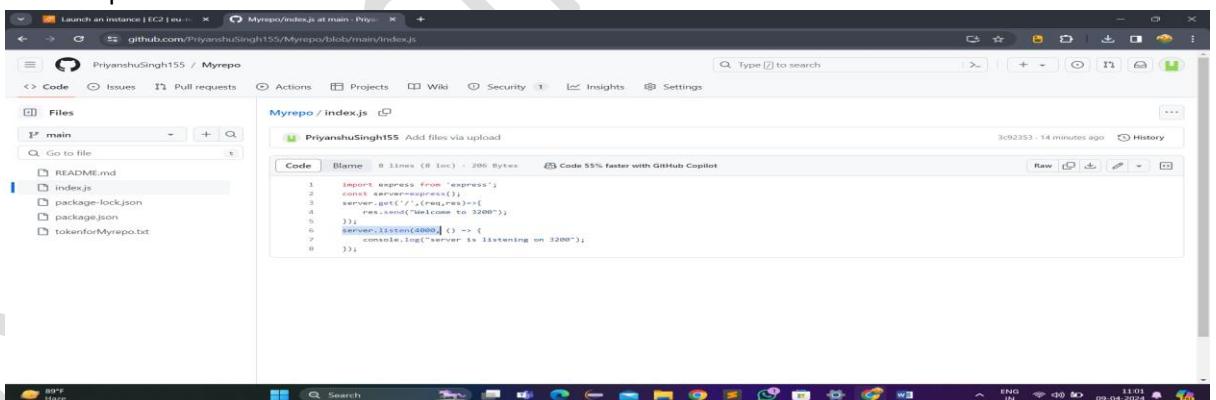
4. Now generate new key pair, give name(unique) and now click Create Key Pair and also download the document.



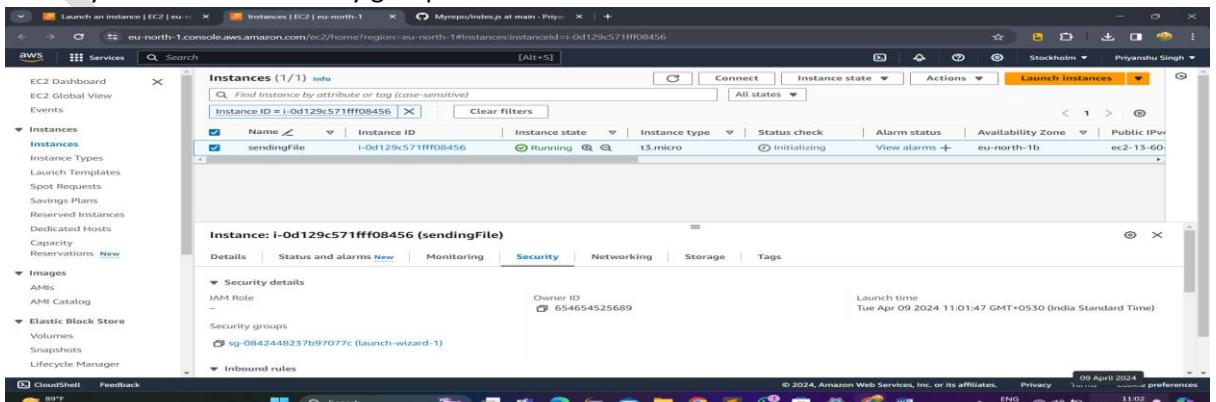
5. After that select Create security group and click all checkboxes bellow it. After it click on Launch Instance.



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.

The screenshot shows the AWS EC2 Security Groups page. A security group named "sg-0842448237b97077c - launch-wizard-1" is selected. The "Inbound rules" tab is active, displaying three rules:

- SSH (TCP port 22) from 0.0.0.0/0
- HTTPS (TCP port 443) from 0.0.0.0/0
- HTTP (TCP port 80) from 0.0.0.0/0

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

The screenshot shows the "ModifyInboundSecurityGroupRules" page. A new rule is being added:

- Type: Custom TCP
- Protocol: TCP
- Port range: 4000
- Source: Anywhere (0.0.0.0/0)

10. After it click on Save rules.

The screenshot shows the "ModifyInboundSecurityGroupRules" page after saving. The updated list of inbound rules includes the new rule:

- SSH (TCP port 22) from 0.0.0.0/0
- HTTPS (TCP port 443) from 0.0.0.0/0
- HTTP (TCP port 80) from 0.0.0.0/0
- Custom TCP (TCP port 4000) from Anywhere (0.0.0.0/0)

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

The screenshot shows the EC2 Instances page for the instance "i-0d129c571fff08456". Key details include:

- Instance ID: i-0d129c571fff08456
- Private IP: 13.60.26.31
- Public IP: 172.31.35.214
- Instance type: t5.micro
- VPC ID: vpc-0ba8f5fcfbec23bad
- Subnet ID: subnet-09b2eccbc2559417c

12. Now open Bitvise SSH, go to Client key manager and import that downloaded key.

13. After it paste that copied IPv4 public address in host and then login and also do Accept and Save, also set publickey as global 2 .

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

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-38-194:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-38-194:~$
```

15. Now write command “sudo apt-get update” to fetch all packages.

```
ubuntu@ip-172-31-38-194:~$ sudo apt-get update
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:6 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5652 kB]
Get:7 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [286 kB]
Get:8 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
```

16. Write “sudo apt-get upgrade” to upgrade all outdated packages.

```
ubuntu@ip-172-31-38-194:~$ 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 ubuntu-adantage-tools ubuntu-pro-client-110n
The following packages will be upgraded:
  apt apt-utils bash bsdextrautils bsduutils coreutils curl dpkg eject ethtool fdisk libapt-pkg6.0
  libblkid1 libcurl3-gnutls libcurl4 libexpat1 libfdisk1 libgpgme11 libldap-2.5-0 libldap-common
  libmount1 libsmartcols1 libuuid1 mount python3-cryptography python3-update-manager snapd
  update-manager-core update-notifier-common util-linux uuid-runtime vim vim-common vim-runtime
  vim-tiny xxd
36 upgraded, 0 newly installed, 0 to remove and 5 not upgraded.
Need to get 43.9 MB of archives.
After this operation, 1584 kB disk space will be freed.
```

17. Now write command “sudo apt install nginx” to install webserver.

```

ubuntu@ip-172-31-38-194:~$ 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
0 upgraded, 20 newly installed, 0 to remove and 5 not upgraded.
Need to get 2693 kB of archives.
After this operation, 8350 kB of additional disk space will be used.

```

18. Now to execute javascript, we need to install nodejs. Write command “ curl -SL

```
https://deb.nodesource.com/setup_16.x | sudo -E bash – ”
```

```

2024-04-07 19:26:34 - Installing pre-requisites
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Fetched 110 kB in 1s (129 kB/s)
Reading package lists... Done
Reading package lists... Done
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 (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 5 not upgraded.
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 https://deb.nodesource.com/node_16.x nodistro InRelease [12.1 kB]
Hit:5 https://security.ubuntu.com/ubuntu jammy-security InRelease
Get:6 https://deb.nodesource.com/node_16.x nodistro/main amd64 Packages [7462 B]
Fetched 19.6 kB in 2s (11.8 kB/s)
Reading package lists... Done
2024-04-07 19:26:41 - Repository configured successfully. To install Node.js, run: apt-get install nodejs -y
ubuntu@ip-172-31-38-194:~$
```

19. Now to install write “sudo apt-get install -y nodejs”.

```

ubuntu@ip-172-31-38-194:~$ sudo apt-get install -y nodejs
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  nodejs
0 upgraded, 1 newly installed, 0 to remove and 5 not upgraded.
Need to get 27.5 MB of archives.
After this operation, 128 MB of additional disk space will be used.
Get:1 https://deb.nodesource.com/node_16.x nodistro/main amd64 nodejs amd64 16.20.2-1nodesource1 [27.5 MB]
Fetched 27.5 MB in 2s (17.0 MB/s)
Selecting previously unselected package nodejs.
(Reading database ... 65516 files and directories currently installed.)
Preparing 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) ...

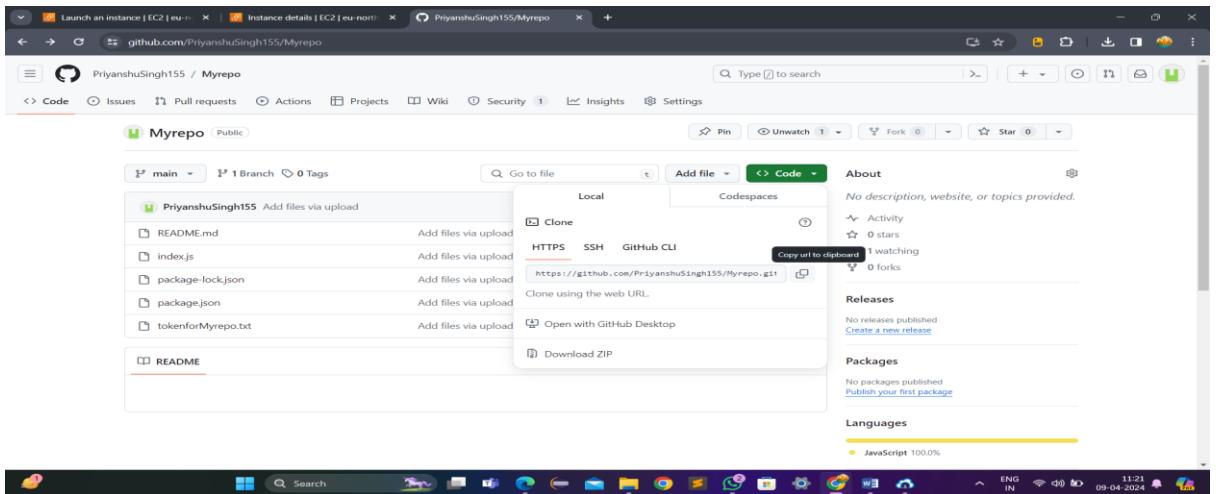
```

20. Write “node --version” to see what version of nodejs installed.

```

ubuntu@ip-172-31-38-194:~$ node --version
v16.20.2
ubuntu@ip-172-31-38-194:~$
```

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



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

```
ubuntu@13.60.26.31:22 - Bitvise xterm - ubuntu@ip-172-31-35-214: ~
Last login: Tue Apr  9 05:47:28 2024 from 152.58.183.180
ubuntu@ip-172-31-35-214:~$ node --version
v12.22.9
ubuntu@ip-172-31-35-214:~$ git clone https://github.com/PriyanshuSingh155/Myrepo.git
Cloning into 'Myrepo'...
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (7/7), 8.23 KiB | 2.74 MiB/s, done.
ubuntu@ip-172-31-35-214:~$ ls
Myrepo
ubuntu@ip-172-31-35-214:~$
```

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

```
ubuntu@13.60.26.31:22 - Bitvise xterm - ubuntu@ip-172-31-35-214: ~/Myrepo
Last login: Tue Apr  9 05:47:28 2024 from 152.58.183.180
ubuntu@ip-172-31-35-214:~$ node --version
v12.22.9
ubuntu@ip-172-31-35-214:~$ git clone https://github.com/PriyanshuSingh155/Myrepo.git
Cloning into 'Myrepo'...
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (7/7), 8.23 KiB | 2.74 MiB/s, done.
ubuntu@ip-172-31-35-214:~$ ls
Myrepo
ubuntu@ip-172-31-35-214:~$ cd Myrepo
ubuntu@ip-172-31-35-214:~/Myrepo$ ls
README.md index.js package-lock.json package.json tokenforMyrepo.txt
ubuntu@ip-172-31-35-214:~/Myrepo$ npm install
```

24. Now to execute node command we have to install node packet manager(npm). So write “npm install”.

```
ubuntu@ip-172-31-38-194:~/Myrepo1$ npm install
npm WARN deprecated uuid@3.4.0: Please upgrade to version 7 or higher. Older versions may use Math.random() in certain circumstances, which is known to be problematic. See https://v8.dev/blog/math-random for details.

added 258 packages, and audited 259 packages in 7s

18 packages are looking for funding
  run `npm fund` for details

12 vulnerabilities (10 moderate, 2 critical)

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
npm notice
npm notice New major version of npm available! 8.19.4 -> 10.5.1
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.5.1
npm notice Run npm install -g npm@10.5.1 to update!
npm notice
```

25. Now write node index.js

```
ubuntu@ip-172-31-38-194:~/Myrepo1$ node index.js
Started server
```

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



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



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

```
ubuntu@ip-172-31-38-194:~/Myrepo1$ node index.js
Started server
^C
```

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