NAME: ANANYA ANILKUMAR

COURSE: CLOUD COMPUTING

MINI-PROJECT 2

PROBLEM STATEMENT

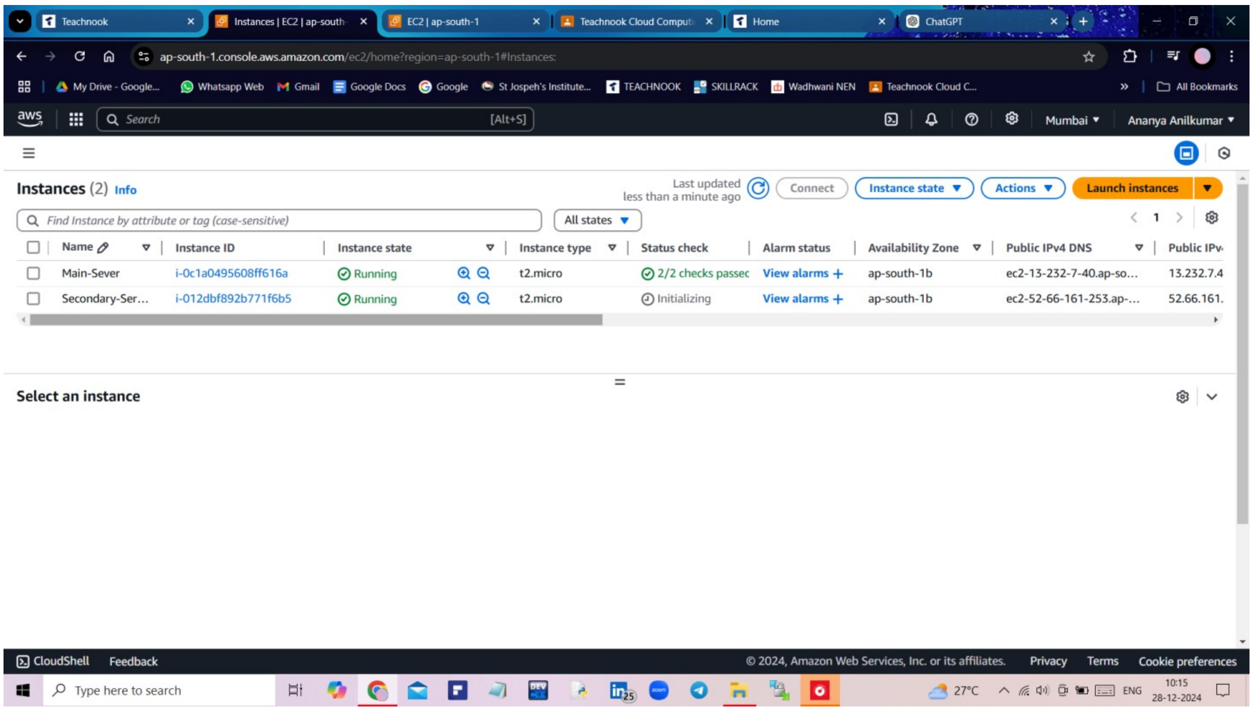
To achieve horizontal scaling, configure your load balancer so that it directs traffic to different servers upon each refresh. By hosting two distinct versions of your website on separate servers, you can easily verify that the scaling is functioning properly. As you refresh the page, the load balancer will alternate between the servers, demonstrating the balanced distribution of requests.

AWS SERVICES USED:

- ◆ EC2
  - ✧ INSTANCES
  - ✧ TARGET GROUPS
  - ✧ LOAD BALANCERS

STEP 1:

Create two LINUX servers using EC2 instances as shown below one named Main-Server while the other named as Secondary-Server in this case.



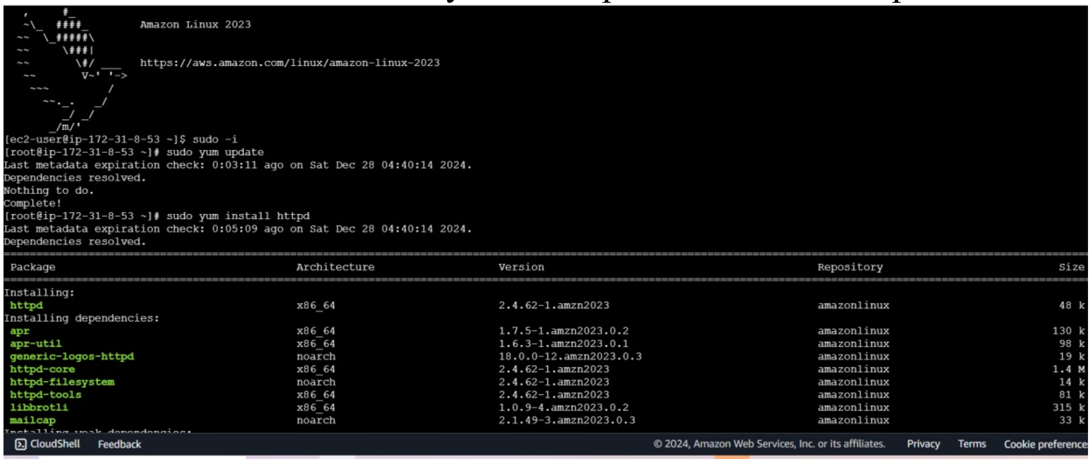
Instances (2) Info — Last updated less than a minute ago

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv
Main-Sever	i-0c1a0495608ff616a	Running	t2.micro	2/2 checks passec	View alarms +	ap-south-1b	ec2-13-232-7-40.ap-so...	13.232.7.4
Secondary-Ser...	i-012dbf892b771f6b5	Running	t2.micro	Initializing	View alarms +	ap-south-1b	ec2-52-66-161-253.ap-...	52.66.161.

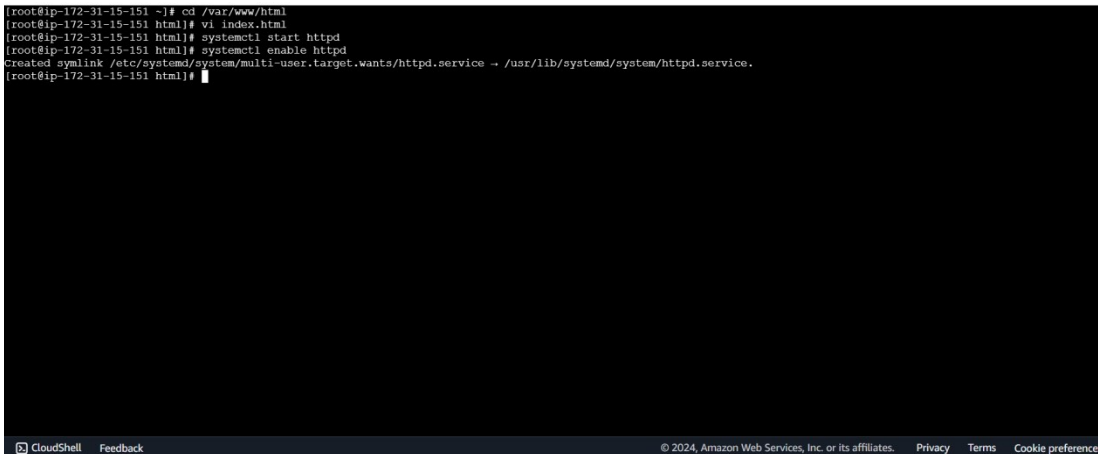
Select an instance

STEP 2:

In Main-Server and the Secondary-Server upload different sample websites.



```
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
[ec2-user@ip-172-31-8-53 ~]$ sudo -i
[root@ip-172-31-8-53 ~]# sudo yum update
Last metadata expiration check: 0:03:11 ago on Sat Dec 28 04:40:14 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-8-53 ~]# sudo yum install httpd
Last metadata expiration check: 0:05:09 ago on Sat Dec 28 04:40:14 2024.
Dependencies resolved.
================================================================================================================
 Package                     Architecture        Version                          Repository              Size
================================================================================================================
Installing:
 httpd                       x86_64              2.4.62-1.amzn2023                amazonlinux             48 k
Installing dependencies:
 apr                         x86_64              1.7.5-1.amzn2023.0.2             amazonlinux            130 k
 apr-util                    x86_64              1.6.3-1.amzn2023.0.1             amazonlinux             98 k
 generic-logos-httpd         noarch              18.0.0-12.amzn2023.0.3           amazonlinux             19 k
 httpd-core                  x86_64              2.4.62-1.amzn2023                amazonlinux            1.4 M
 httpd-filesystem            noarch              2.4.62-1.amzn2023                amazonlinux             14 k
 httpd-tools                 x86_64              2.4.62-1.amzn2023                amazonlinux             81 k
 libbrotli                   x86_64              1.0.9-4.amzn2023.0.2             amazonlinux            315 k
 mailcap                     noarch              2.1.49-3.amzn2023.0.3            amazonlinux             33 k
```

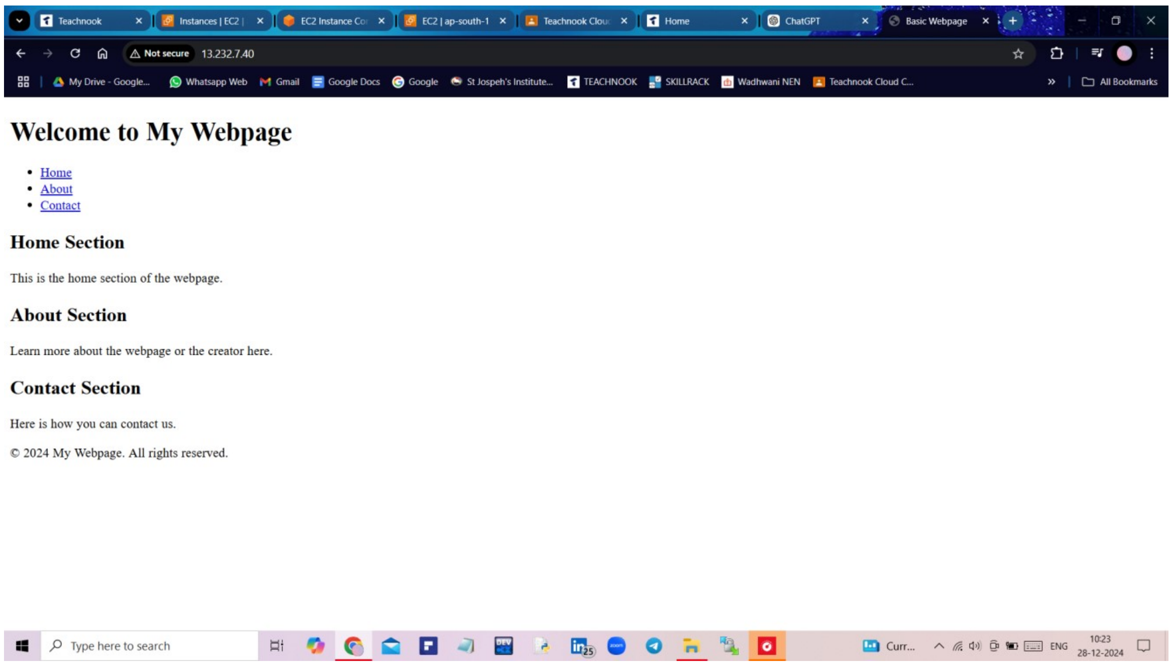


```
[root@ip-172-31-15-151 ~]# cd /var/www/html
[root@ip-172-31-15-151 html]# vi index.html
[root@ip-172-31-15-151 html]# systemctl start httpd
[root@ip-172-31-15-151 html]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-15-151 html]# 
```

STEP 3:

Copy the Public IPv4 address and paste it in the browsers.

Main Server



13.232.7.40

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- About
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Home Section

This is the home section of the webpage.

About Section

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Contact Section

Here is how you can contact us.

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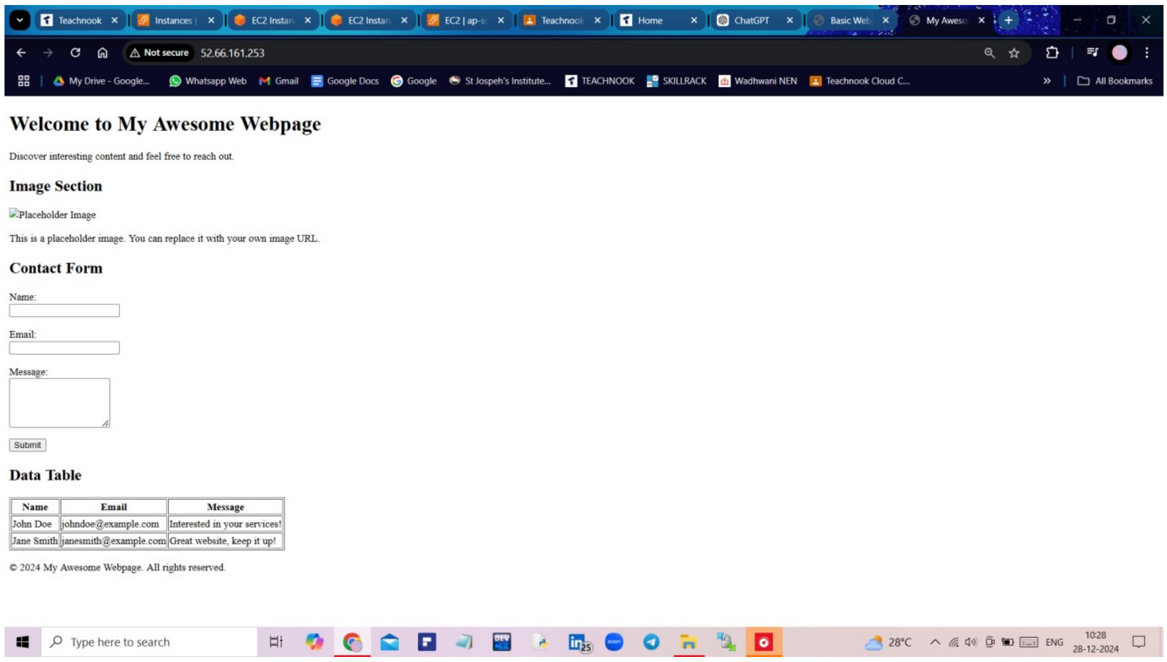
Secondary Server



52.66.161.253

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Image Section

Placeholder Image

This is a placeholder image. You can replace it with your own image URL.

Contact Form

Name:

Email:

Message:

Submit

Data Table

Name	Email	Message
John Doe	johndoe@example.com	Interested in your services!
Jane Smith	janesmith@example.com	Great website, keep it up!

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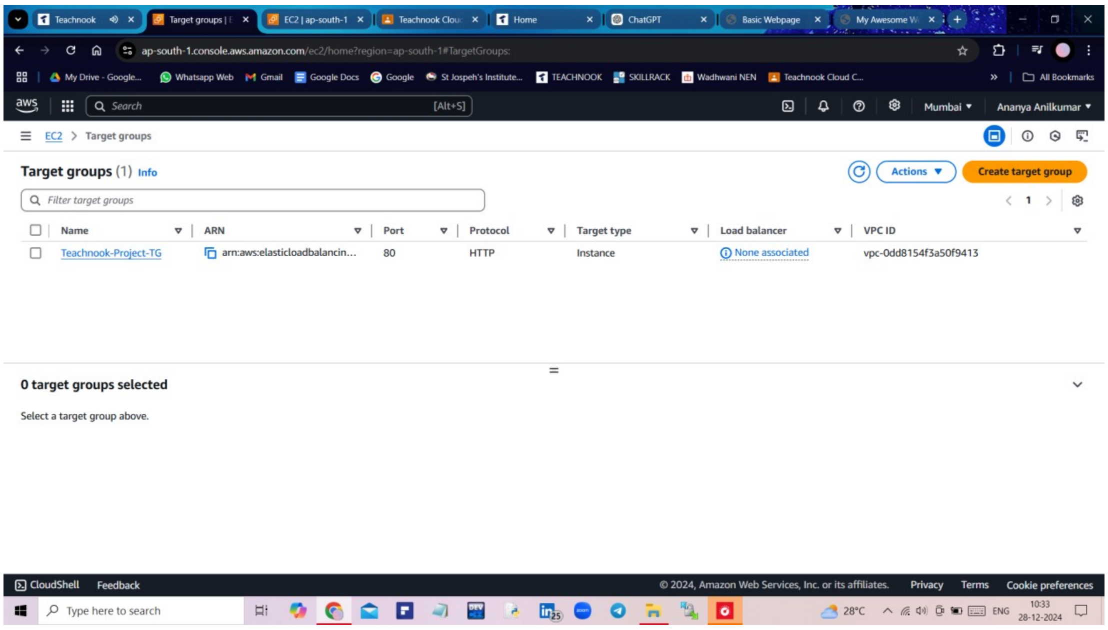
STEP 4:

Create a Target Group which consists of the above servers.



Target groups (1) Info

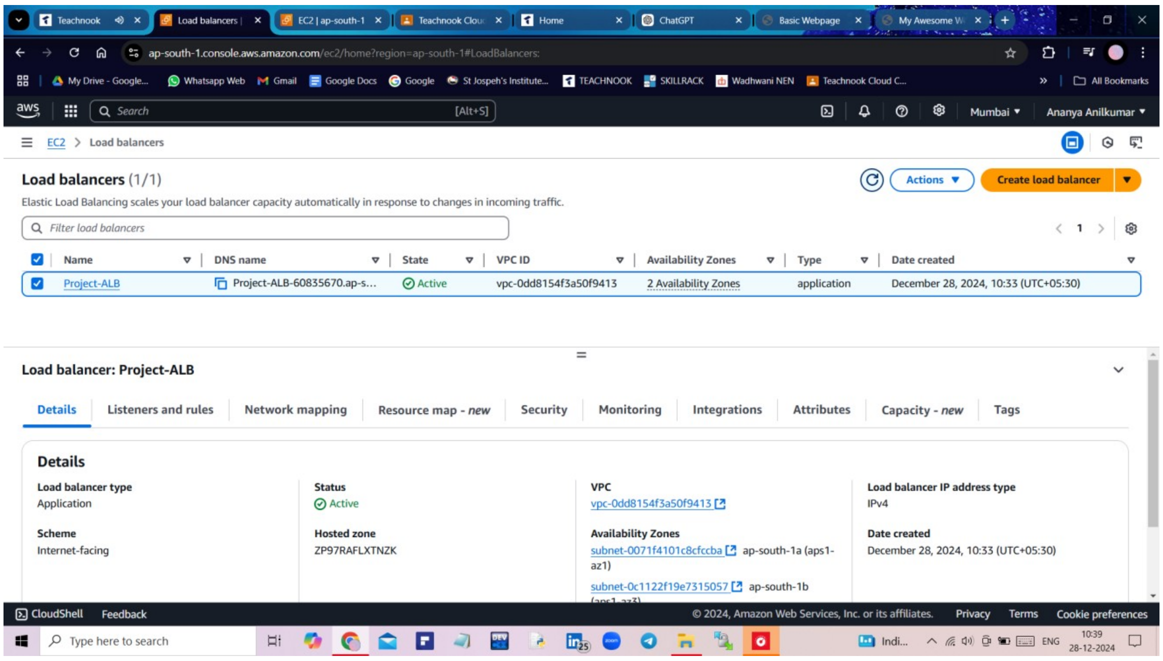
Name	ARN	Port	Protocol	Target type	Load balancer	VPC ID
Teachnook-Project-TG	arn:aws:elasticloadbalancin...	80	HTTP	Instance	None associated	vpc-0dd8154f3a50f9413

0 target groups selected

Select a target group above.

STEP 5:

Create a load balancer.



Load balancers (1/1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Name	DNS name	State	VPC ID	Availability Zones	Type	Date created
Project-ALB	Project-ALB-60835670.ap-s...	Active	vpc-0dd8154f3a50f9413	2 Availability Zones	application	December 28, 2024, 10:33 (UTC+05:30)

Load balancer: Project-ALB

Details

Load balancer type
Application

Scheme
Internet-facing

Status
Active

Hosted zone
ZP97RAFLXTNZK

VPC
vpc-0dd8154f3a50f9413

Availability Zones
subnet-0071f4101c8cfccba ap-south-1a (aps1-az1)
subnet-0c1122f19e7315057 ap-south-1b

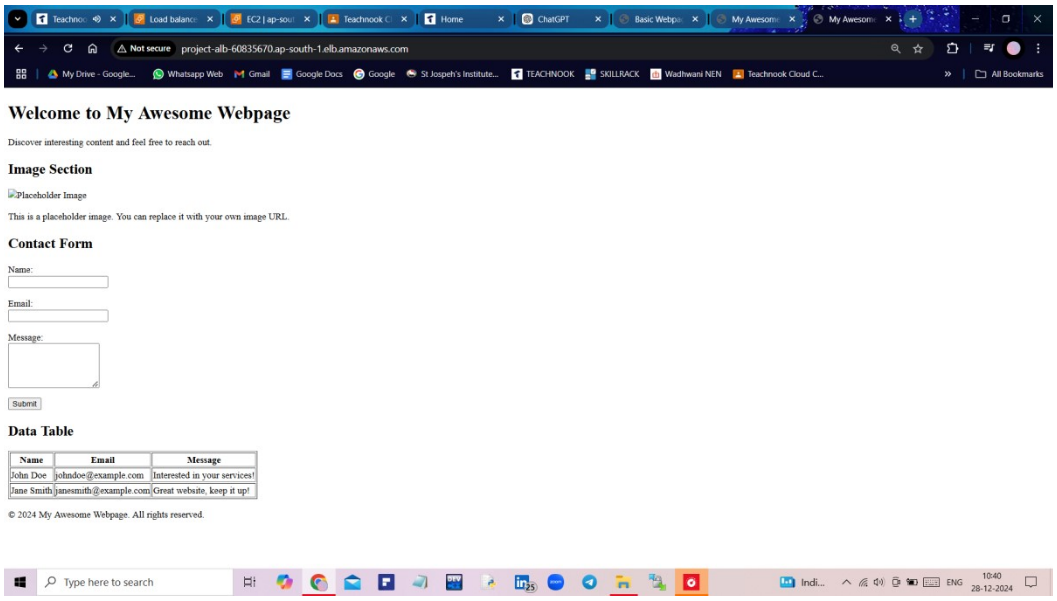
Load balancer IP address type
IPv4

Date created
December 28, 2024, 10:33 (UTC+05:30)

STEP 6:

Now copy the DNS name of the load balancer and paste it in the browser.

After pasting the DNS name.



project-alb-60835670.ap-south-1.elb.amazonaws.com

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Image Section

Placeholder Image

This is a placeholder image. You can replace it with your own image URL.

Contact Form

Name:

Email:

Message:

Submit

Data Table

Name	Email	Message
John Doe	johndoe@example.com	Interested in your services!
Jane Smith	janesmith@example.com	Great website, keep it up!

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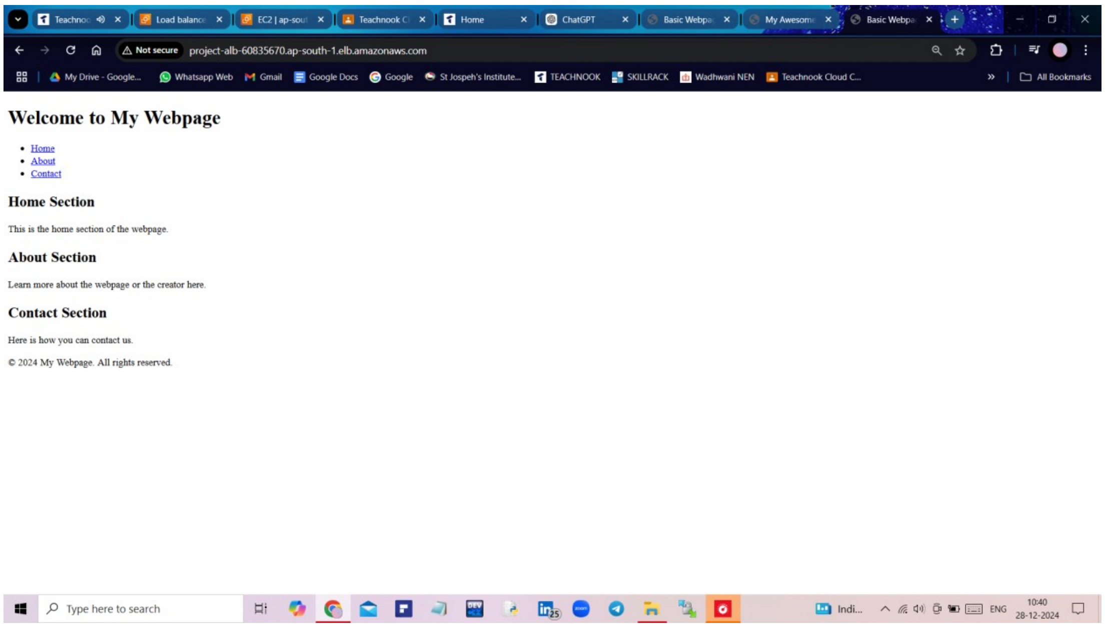
After refreshing the same page.



project-alb-60835670.ap-south-1.elb.amazonaws.com

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