


# Capstone Project:- FinanceMe

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Step 1: Launching Master server in AWS, using EC2 instance, Ubuntu 22.04 AMI, T3.medium, Region Ohio(US-east-2).

 Services  [Alt+S]

Master-Server


Add additional tags

▼ Application and OS Images (Amazon Machine Image) Info


An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Recents


Quick Start




Amazon Linux




macOS




Ubuntu




Windows



Red Hat



SUSE Linux



Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type

ami-003932de22c285676 (64-bit (x86)) / ami-03772d93fb1879bbe (64-bit (Arm))

Virtualization: hvm    ENA enabled: true    Root device type: ebs

Free tier eligible

▼ Instance type Info | Get advice

Instance type

t3.medium

Family: t3    2 vCPU    4 GiB Memory    Current generation: true

On-Demand SUSE base pricing: 0.0070 USD per Hour

On-Demand Linux base pricing: 0.0416 USD per Hour

On-Demand Windows base pricing: 0.06 USD per Hour

On-Demand RHEL base pricing: 0.0704 USD per Hour

All generations

Compare instance types

Additional costs apply for AMIs with pre-installed software

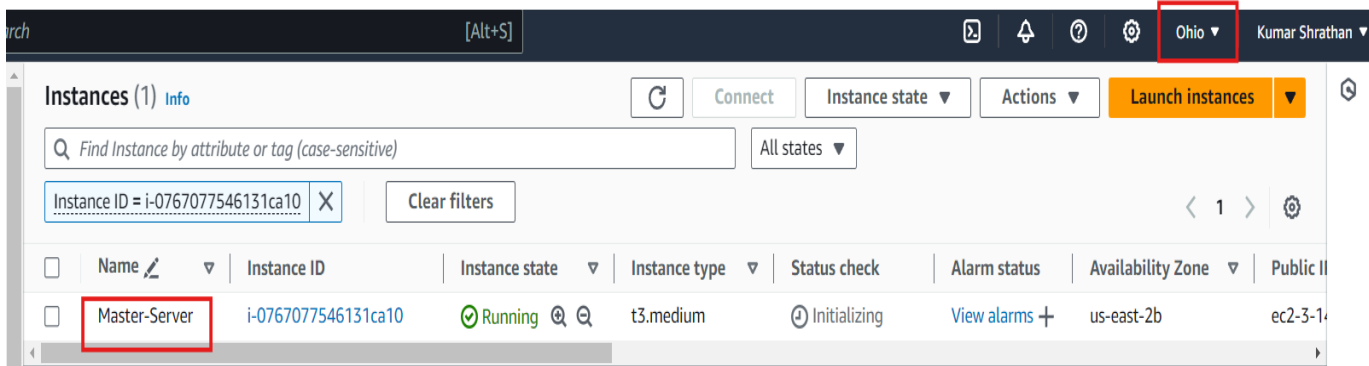
▼ Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required

sk-test

Create new key pair



## Step 2: Connect to master server

```
asus@LAPTOP-LKCPIG9S MINGW64 ~/Downloads
$ ssh -i "sk-test.pem" ubuntu@ec2-3-14-148-204.us-east-2.compute.amazonaws.com
The authenticity of host 'ec2-3-14-148-204.us-east-2.compute.amazonaws.com (3.14.148.204)' can't be established.
ED25519 key fingerprint is SHA256:UewpTaVxwVPPS1BKt0hryY14cv61spK231EHdnNr1jPo.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-14-148-204.us-east-2.compute.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1022-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Thu Aug  1 14:09:16 UTC 2024

System load:  0.02          Processes:           103
Usage of /:   9.8% of 16.29GB Users logged in:       0
Memory usage: 5%           IPv4 address for ens5: 172.31.31.102
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 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

Last login: Thu Aug  1 14:07:39 2024 from 3.16.146.5
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-31-102:~$
```

## Step 3: Install the required software like git, java, maven, Jenkins, docker, Ansible.

Required software has been installed.

```

root@ip-172-31-31-102:/home/ubuntu# java --version
openjdk 11.0.24 2024-07-16
OpenJDK Runtime Environment (build 11.0.24+8-post-Ubuntu-1ubuntu322.04)
OpenJDK 64-Bit Server VM (build 11.0.24+8-post-Ubuntu-1ubuntu322.04, mixed mode, sharing)
root@ip-172-31-31-102:/home/ubuntu# mvn --version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.24, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "6.5.0-1022-aws", arch: "amd64", family: "unix"
root@ip-172-31-31-102:/home/ubuntu# git --version
git version 2.34.1
root@ip-172-31-31-102:/home/ubuntu# which docker
/usr/bin/docker
root@ip-172-31-31-102:/home/ubuntu# systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
   Loaded: loaded (/lib/systemd/system/jenkins.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2024-08-01 14:14:36 UTC; 4min 22s ago
     Main PID: 6194 (java)
       Tasks: 44 (limit: 4574)
      Memory: 1.2G
         CPU: 1min 15.588s
        CGroup: /system.slice/jenkins.service
                └─6194 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Aug 01 14:14:06 ip-172-31-31-102 jenkins[6194]: f3cdb5bbf1444caeb5d98b7532e2251f
Aug 01 14:14:06 ip-172-31-31-102 jenkins[6194]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Aug 01 14:14:06 ip-172-31-31-102 jenkins[6194]: *****
Aug 01 14:14:06 ip-172-31-31-102 jenkins[6194]: *****
Aug 01 14:14:06 ip-172-31-31-102 jenkins[6194]: *****
Aug 01 14:14:36 ip-172-31-31-102 jenkins[6194]: 2024-08-01 14:14:36.406+0000 [id=30] INFO jenkins.InitReactorRunner$1#onAttained: Completing initialization
Aug 01 14:14:36 ip-172-31-31-102 jenkins[6194]: 2024-08-01 14:14:36.446+0000 [id=22] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is ready
Aug 01 14:14:36 ip-172-31-31-102 systemd[1]: Started Jenkins Continuous Integration Server.
Aug 01 14:14:36 ip-172-31-31-102 jenkins[6194]: 2024-08-01 14:14:36.710+0000 [id=47] INFO h.m.DownloadService$Downloadable#load: Obtaining data for https://d0120208.msdl.cf-eu1.cache.amazonaws.com/...
Aug 01 14:14:36 ip-172-31-31-102 jenkins[6194]: 2024-08-01 14:14:36.711+0000 [id=47] INFO hudson.util.Retrier#start: Performed the action 1 times
lines 1-20/20 (END)
root@ip-172-31-31-102:/home/ubuntu# docker --version
Docker version 24.0.7, build 24.0.7-0ubuntu2~22.04.1
root@ip-172-31-31-102:/home/ubuntu#

```

Add Jenkins to sudo group and Jenkins to docker group.

```

root@ip-172-31-31-102:/home/ubuntu# sudo usermod -aG sudo jenkins
root@ip-172-31-31-102:/home/ubuntu# sudo usermod -aG docker jenkins
root@ip-172-31-31-102:/home/ubuntu#

```

Step 4: Now will create the Prod and Grafana server using terraform

Creating prod server and Grafana server infrastructure using Terraform.( I will create 2 servers, and for Prod server I will attach elastic ip)

Installed terraform

```

root@ip-172-31-31-102:/home/ubuntu# terraform --version
Terraform v1.9.3
on linux_amd64
root@ip-172-31-31-102:/home/ubuntu#

```

Creating Terraform directory and creating main.tf file to create infrastructure

```
root@ip-172-31-31-102:/home/ubuntu/Terraform# cd ..
root@ip-172-31-31-102:/home/ubuntu# cd Terraform/
root@ip-172-31-31-102:/home/ubuntu/Terraform# vi main.tf
```

Terraform init

Terraform apply

Terraform main.tf file

```
# Specify the provider
provider "aws" {
  region = "us-east-2"
}

# Create a security group allowing SSH access
resource "aws_security_group" "instance_sg" {
  name      = "instance-sg"
  description = "Allow SSH access"

  ingress {
    from_port = 22
    to_port   = 22
    protocol  = "tcp"
    cidr_blocks = ["0.0.0.0/0"]
  }

  egress {
    from_port = 0
    to_port   = 0
    protocol  = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }
}

# Create an EC2 instance
resource "aws_instance" "prod_server" {
  ami          = "ami-003932de22c285676"
  instance_type = "t3.medium"
  key_name     = "sk-test"
  security_groups = [aws_security_group.instance_sg.name]

  tags = {
    Name = "Prod-server"
  }
}

resource "aws_instance" "grafana" {
```

```
ami      = "ami-003932de22c285676"
instance_type = "t2.micro"
key_name   = "sk-test"
security_groups = [aws_security_group.instance_sg.name]
```

```
tags = {
  Name = "Grafana"
}
```

# Allocate an Elastic IP

```
resource "aws_eip" "instance_eip" {
  instance = aws_instance.prod_server.id
}
```

```
root@ip-172-31-31-102:/home/ubuntu# cd Terraform/
root@ip-172-31-31-102:/home/ubuntu/Terraform# terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.60.0...
- Installed hashicorp/aws v5.60.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see
any changes that are required for your infrastructure. All Terraform commands
should now work.

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
root@ip-172-31-31-102:/home/ubuntu/Terraform# terraform fmt
main.tf
root@ip-172-31-31-102:/home/ubuntu/Terraform# terraform validate
Success! The configuration is valid.

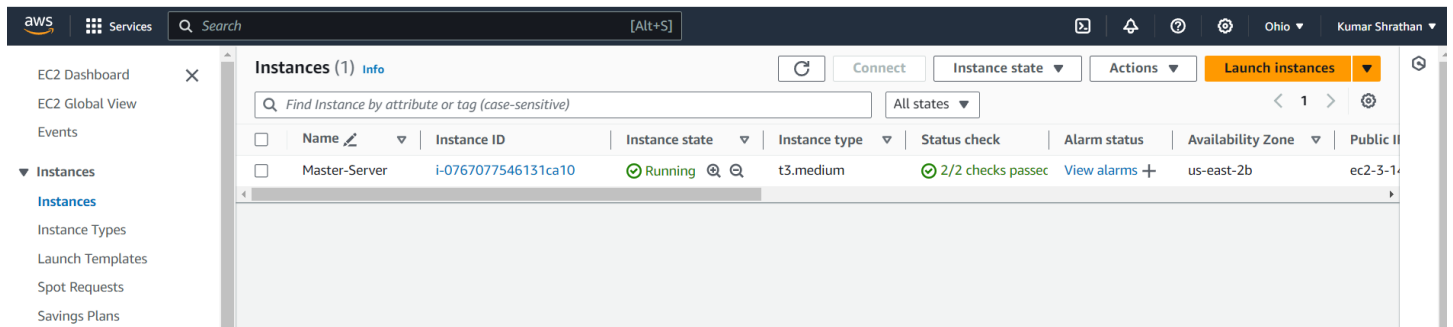
root@ip-172-31-31-102:/home/ubuntu/Terraform# terraform apply

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_eip.instance_eip will be created
+ resource "aws_eip" "instance_eip" {
+   allocation_id      = (known after apply)
+   arn                 = (known after apply)
+   association_id     = (known after apply)
```

Before in Ohio region had only 1 instance



After running terraform file.

search [Alt+S] Ohio Kumar Shrathan

Instances (3) Info

Find Instance by attribute or tag (case-sensitive) All states

running X Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
<input type="checkbox"/>	Master-Server	i-0767077546131ca10	Running	t3.medium	2/2 checks passed	View alarms +	us-east-2b	ec2-3-1...
<input type="checkbox"/>	Prod-server	i-09078760ea57fdb5f	Running	t3.medium	Initializing	View alarms +	us-east-2b	ec2-18-
<input type="checkbox"/>	Grafana	i-0d833d937f548c844	Running	t2.micro	Initializing	View alarms +	us-east-2a	ec2-18-

Installed and configured Ansible

```
root@ip-172-31-31-102:/home/ubuntu# ansible --version
ansible [core 2.16.9]
  config file = /etc/ansible/ansible.cfg
  configured module search path = ['/root/.ansible/plugins/modules', '/usr/share/ansible/plugins/modules']
  ansible python module location = /usr/lib/python3/dist-packages/ansible
  ansible collection location = /root/.ansible/collections:/usr/share/ansible/collections
  executable location = /usr/bin/ansible
  python version = 3.10.12 (main, Nov 20 2023, 15:14:05) [GCC 11.4.0] (/usr/bin/python3)
  jinja version = 3.0.3
  libyaml = True
root@ip-172-31-31-102:/home/ubuntu#
```

Added Private ip of Prod server in /etc/ansible/host in master.

```
## [webserver]
## alpha.example.org
## beta.example.org
## 192.168.1.100
## 192.168.1.110
[ansiblegroups]
172.31.16.177

# If you have multiple hosts following a pattern
# then like this:
```

Step 5: Goto Master instance and Login into Jenkins dashboard and configure.

← → ↻ Not secure 18.117.176.49:8080 ☆ ⋮

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# Jenkins

Search (CTRL+K) ? 🔔 1 🛡️ 1 👤 shrathan ▾ 🚪 log out

Dashboard >

+ New Item

📅 Build History

🕒 Project Relationship

🔍 Check File Fingerprint

⚙️ Manage Jenkins

📁 My Views

Build Queue ▾

No builds in the queue.

Build Executor Status ▾

1	Idle
2	Idle

## Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

### Start building your software project

Create a job +

### Set up a distributed build

Set up an agent 🖥️

Configure a cloud ☁️

Learn more about distributed builds ?

REST API Jenkins 2.452.3

Install the plugins required and configure the java, maven in Jenkins.

# Jenkins

Search (CTRL+K) ? 🔔 1 🛡️ 1 👤 shrathan ▾ 🚪 log out

Dashboard > Manage Jenkins > Plugins

## Plugins

🔍 deploy to / 📦 Install ▾ ↻

📦 Updates

📦 Available plugins

⚙️ Installed plugins

⚙️ Advanced settings

☰ Download progress

Install	Name ↓	Released
✓	<b>Docker</b> 1.6.2 <a href="#">Cloud Providers</a> <a href="#">Cluster Management</a> <a href="#">docker</a> This plugin integrates Jenkins with <a href="#">Docker</a>	1 mo 28 days ago
✓	<b>Docker Pipeline</b> 580.vc0c340686b_54 <a href="#">pipeline</a> <a href="#">DevOps</a> <a href="#">Deployment</a> <a href="#">docker</a> Build and use Docker containers from pipelines.	2 mo 11 days ago
✓	<b>Deploy to container</b> 1.16 <a href="#">Artifact Uploaders</a> This plugin allows you to deploy a war to a container after a successful build. Glassfish 3.x remote deployment	3 yr 9 mo ago

## Configure ansible

### Ansible installations

Add Ansible

Ansible

Name

ansible

☒ Install automatically ?


Add Installer ▾

Add Ansible

Step 6: Create new pipeline project to launch financeme java project using docker container also integrate ansible.

← → ↻ Not secure 18.117.176.49:8080/view/all/newJob ☆ ⬇

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 **Jenkins** 🔍 Search (CTRL+K) 🔔 1 🛡️ 1 👤 shrathan ▾ 🗄️

Dashboard > All >


Enter an item name

Financeme


» Required field

 **Freestyle project**


Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

 **Pipeline**

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in freestyle job type.

 **Multi-configuration project**

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

 **Folder**

Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

OK



## Configure

General

Advanced Project Options

Pipeline

### Pipeline

#### Definition

Pipeline script from SCM

#### SCM ?

Git

#### Repositories ?

##### Repository URL ?

https://github.com/shrathan/FinanceMe.git

##### Credentials ?

shrathan/\*\*\*\*\* (Github)

+ Add

Advanced

## From Pipeline Script configure Ansible

← → ↻ Not secure 18.117.176.49:8080/job/FinanceMe/pipeline-syntax/



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All Bookma

Dashboard &gt; FinanceMe &gt; Pipeline Syntax

Global Variables Reference

Online Documentation

Examples Reference

IntelliJ IDEA GDSDL

#### Sample Step

ansiblePlaybook: Invoke an ansible playbook

#### ansiblePlaybook ?

##### Ansible tool

ansible

##### Playbook file path in workspace

ansible-playbook.yml

##### Inventory file path in workspace

/etc/ansible/hosts

##### SSH connection credentials

ubuntu (Ansinode)

+ Add

Generate Pipeline Script

ansiblePlaybook become: true, credentialsId: 'Ansinode', installation: 'ansible', inventory: '/etc/ansible/hosts', playbook: 'ansible-playbook.yml', vaultTmpPath: ''



Copy this and use in Jenkins script to invoke ansible in pipeline.

The image shows a Jenkins Pipeline Syntax configuration interface. At the top, there is a 'Script Path' field with a question mark icon, containing the text 'Jenkinsfile'. Below this, there is a 'Lightweight checkout' checkbox which is checked. At the bottom, there are two buttons: 'Save' and 'Apply'. The 'Save' button is highlighted with a red box.

Jenkins Pipeline file :-

```
pipeline{
  agent any
  stages{
    stage('checkout the code from github'){
      steps{
        git url: 'https://github.com/shrathan/FinanceMe.git', branch: "master"
        echo 'github url checkout'
      }
    }
    stage('Code package '){
      steps{
        sh 'mvn clean package'
      }
    }
    stage('Build dockerfiles'){
      steps{
        sh 'docker build -t shrathan/banking:v1 .'
      }
    }
    stage('Docker login & Push') {
      steps {
        withCredentials([usernamePassword(credentialsId: 'dockerhub-pwd', passwordVariable:
'PASS', usernameVariable: 'USER'))] {
          sh "echo $PASS | docker login -u $USER --password-stdin"
```

```

        sh 'docker push shrathan/banking:v1'
    }
}
}
stage('Run Container using ansible'){
    steps{
ansiblePlaybook become: true, credentialsId: 'Ansinode', disableHostKeyChecking: true, installation:
'ansible', inventory: '/etc/ansible/hosts', playbook: 'ansible-playbook.yml', vaultTmpPath: "    }
    }
}
}

```

### **Ansible YAML file**

```

---
- name: Docker
  hosts: all
  become: yes
  connection: ssh
  tasks:
    - name: Update apt package index
      command: sudo apt update

    - name: Install Docker engine
      apt:
        name: docker.io
        state: present

    - name: Start Docker service
      service:
        name: docker
        state: started
        enabled: yes
        become: yes

    - name: Pull Docker application image
      docker_image:
        name: shrathan/banking:v1
        source: pull
        state: present

    - name: Run Docker container
      docker_container:
        name: finance
        image: shrathan/banking:v1

```

```
state: started
restart_policy: always
ports:
  - "8005:8005"
```

Click on Build Now to execute the pipeline

Build success

← → ↻ ⚠ Not secure 18.117.176.49:8080/job/FinanceMe/ ☆ ⬇ 🌐 ⋮

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All Bookmarks

Jenkins

🔍 Search (CTRL+K) 🔔 1 🛡 1 👤 shrathan ▾ 🚪 log out

Dashboard > FinanceMe >

📄 Status

</> Changes

▶ Build Now

⚙ Configure

🗑 Delete Pipeline

🔍 Full Stage View

📊 Stages

✏ Rename

❓ Pipeline Syntax

🔆 Build History trend ▾

🔍 Filter... /

🟢 #1

Aug 5, 2024, 5:10 PM

🟢 FinanceMe

✎ Add description

Disable Project

Stage View

Average stage times:  
(Average full run time: ~59s)

#1

Aug 05 22:40

No Changes

Declarative: Checkout SCM	checkout the code from github	Code package	Build dockerfiles	Docker login & Push	Running Container via Ansible
780ms	597ms	23s	3s	6s	18s
780ms	597ms	23s	3s	6s	18s

Permalinks

- Last build (#1), 10 min ago
- Last stable build (#1), 10 min ago

```
Not secure 18.117.176.49:8080/job/FinanceMe/1/console

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FinanceMe > #1

TASK [Updating index]
ok: [172.31.16.177]

TASK [Update apt package index] *****
changed: [172.31.16.177]

TASK [Install Docker engine] *****
ok: [172.31.16.177]

TASK [Start Docker service] *****
ok: [172.31.16.177]

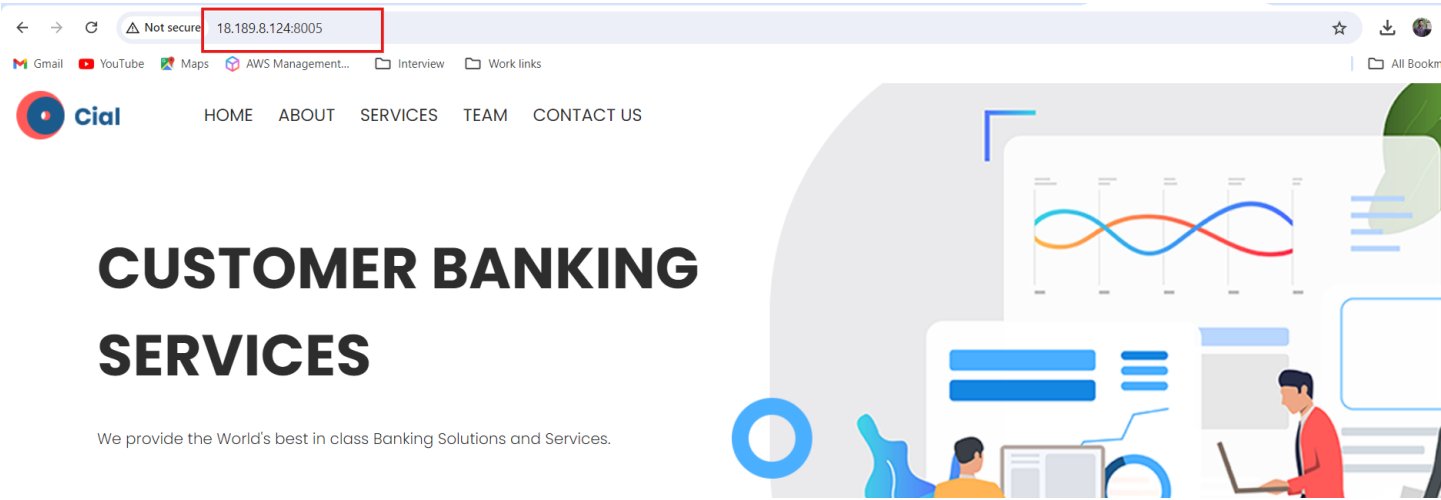
TASK [Pull Docker application image] *****
changed: [172.31.16.177]

TASK [Run Docker container] *****
changed: [172.31.16.177]

PLAY RECAP *****
172.31.16.177      : ok=6    changed=3    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0

[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Now u can access the container using pod server ip with port



Prod server IP

EC2 > Instances > i-09078760ea57fdb5f

**Instance summary for i-09078760ea57fdb5f (Prod-server)** Info

Updated 31 minutes ago

Instance ID  
i-09078760ea57fdb5f (Prod-server)

Public IPv4 address  
18.189.8.124 | [open address](#)

Private IPv4 addresses  
172.31.16.177

IPv6 address  
-

Instance state  
Running

Public IPv4 DNS  
ec2-18-189-8-124.us-east-2.compute.amazonaws.com | [open address](#)

You can access my all code files in my git repository:-

<https://github.com/shrathan/FinanceMe>

Step 7: Creating github webhook triggers.

Enable Github webhook option in Jenkins.

← → ↻ ⚠ Not secure 18.117.176.49:8080/job/FinanceMe/configure

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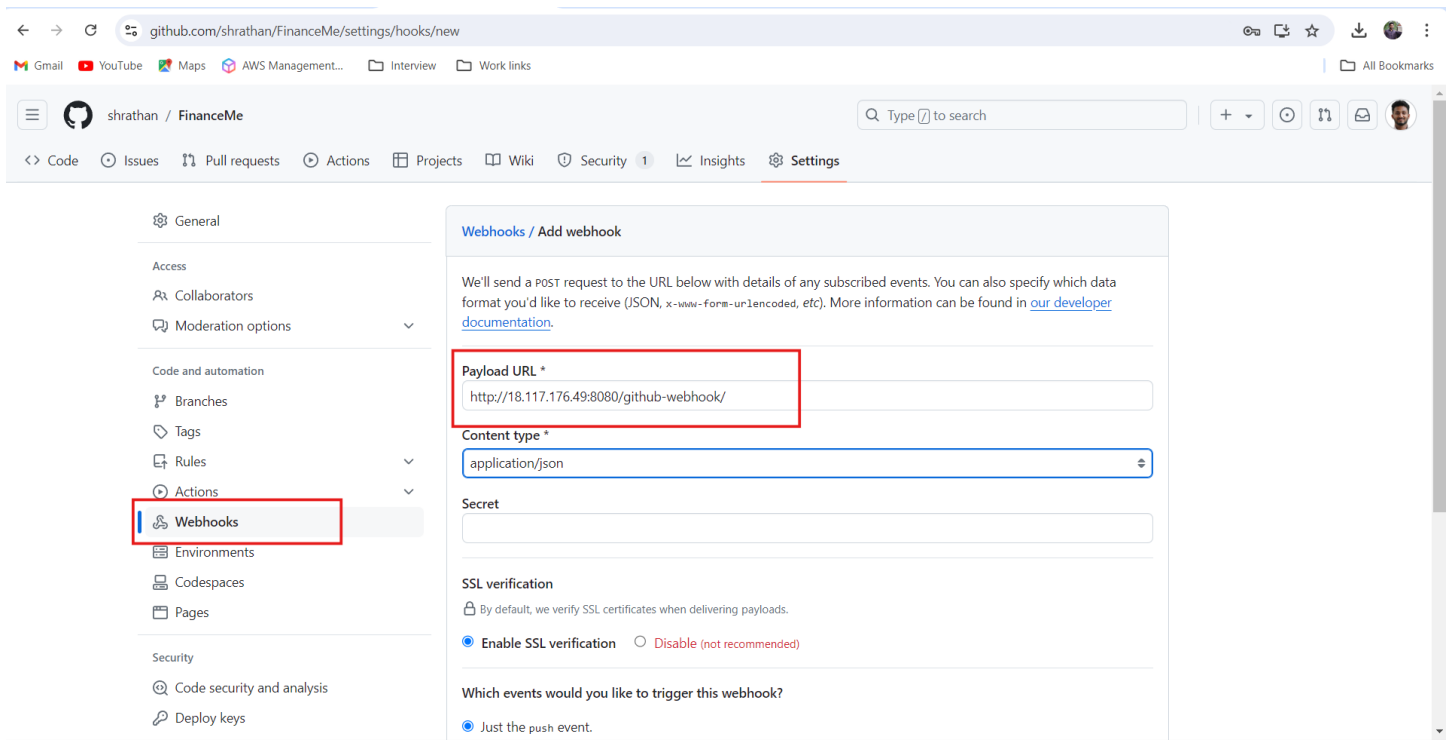
Dashboard > FinanceMe > Configuration

### Configure

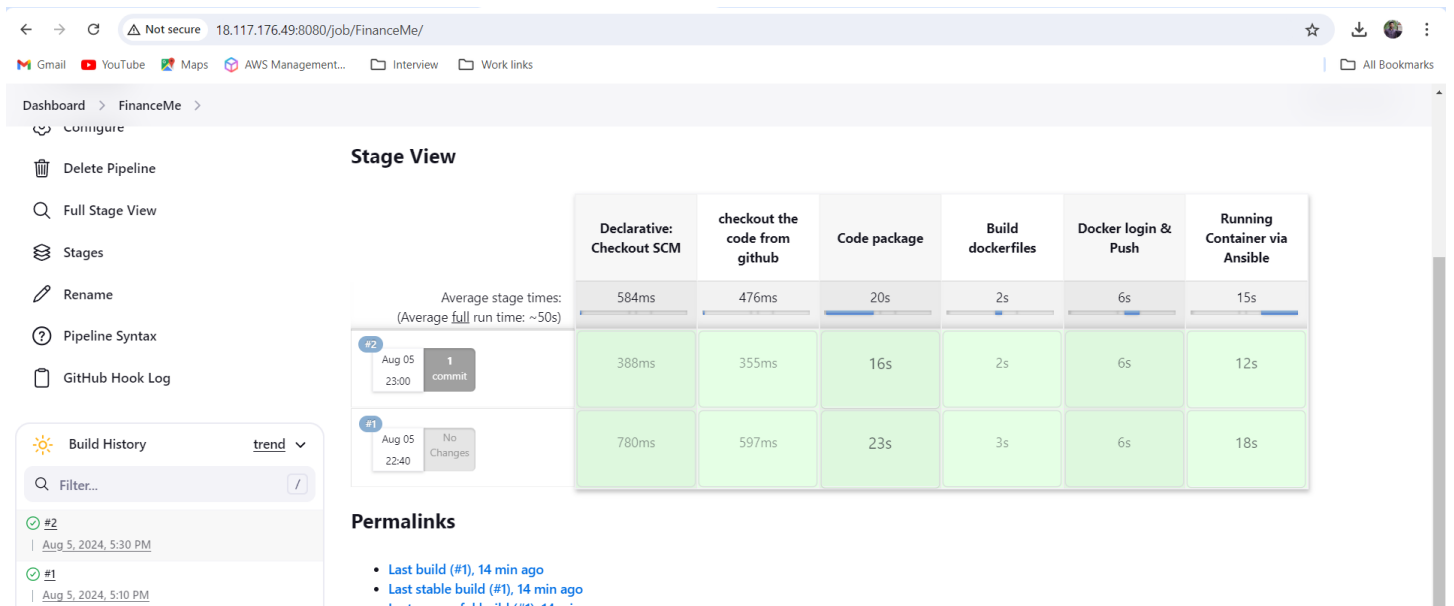
- General
- Advanced Project Options
- Pipeline

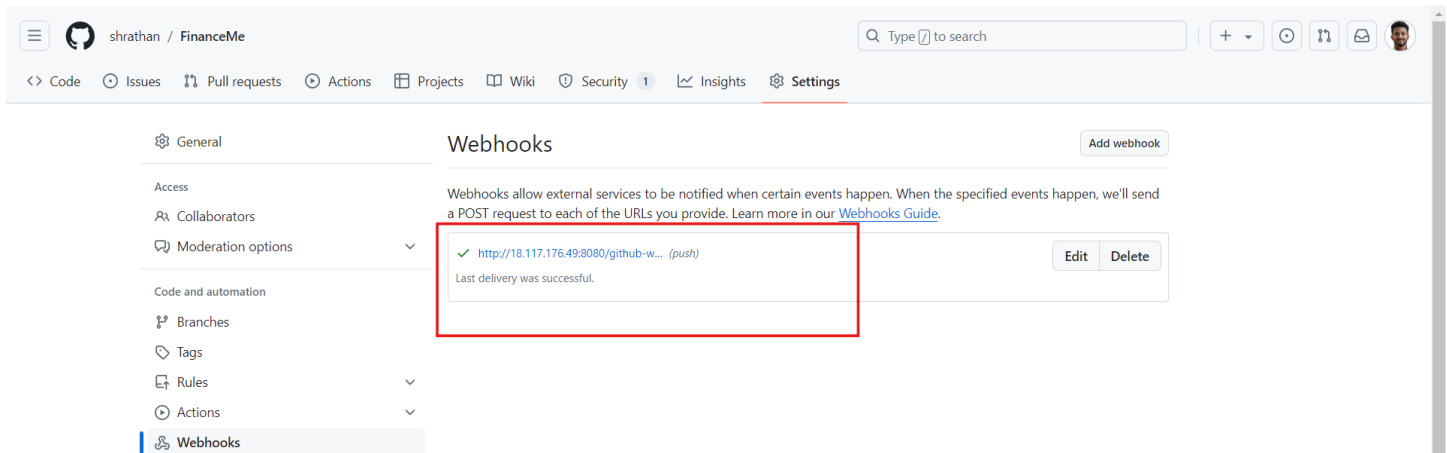
- ☐ Build after other projects are built ?
- ☐ Build periodically ?
- ☒ GitHub hook trigger for GITScm polling ?
- ☐ Poll SCM ?
- ☐ Quiet period ?
- ☐ Trigger builds remotely (e.g., from scripts) ?

Configure Webhook in Github

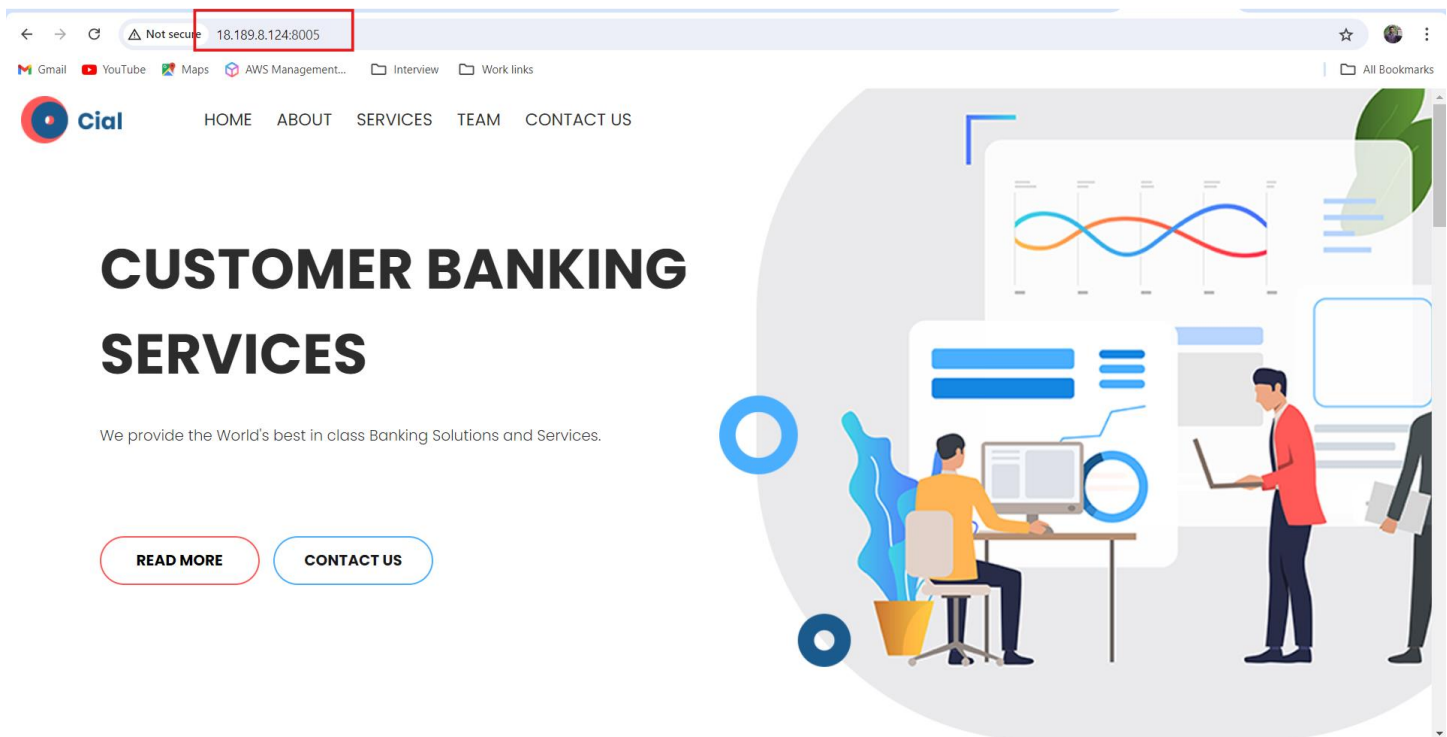


I have changed the some code in github, trigger was successful





Now will access the Prod-server and check the running application.



We have successfully launched docker container in Prod server.



Step 7: Now will install and configure Prometheus and node exporter in Master and Prod server.

Master server

```
root@ip-172-31-31-102:/home/ubuntu# ls
Terraform jenkins.sh node_exporter-1.8.2.linux-amd64 prometheus-2.53.1.linux-amd64
root@ip-172-31-31-102:/home/ubuntu#
```

Adding Node exporter in Prometheus yaml file in master server

```
# The job name is added as a label `job=<job_name>` to any timeseries
- job_name: "prometheus"

# metrics_path defaults to '/metrics'
# scheme defaults to 'http'.

static_configs:
  - targets: ["localhost:9090"]

- job_name: "Node-Exporter"

# metrics_path defaults to '/metrics'
# scheme defaults to 'http'.

static_configs:
  - targets: ["18.117.176.49:9100"]

"prometheus.yml" 37L, 1107B
```

Node exporter is collecting metrics from Master server

```
← → ↻ ⚠ Not secure 18.117.176.49:9100/metrics

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# HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
# TYPE go_gc_duration_seconds summary
go_gc_duration_seconds{quantile="0"} 0
go_gc_duration_seconds{quantile="0.25"} 0
go_gc_duration_seconds{quantile="0.5"} 0
go_gc_duration_seconds{quantile="0.75"} 0
go_gc_duration_seconds{quantile="1"} 0
go_gc_duration_seconds_sum 0
go_gc_duration_seconds_count 0
# HELP go_goroutines Number of goroutines that currently exist.
# TYPE go_goroutines gauge
go_goroutines 9
# HELP go_info Information about the Go environment.
# TYPE go_info gauge
go_info{version="go1.22.5"} 1
# HELP go_memstats_alloc_bytes Number of bytes allocated and still in use.
# TYPE go_memstats_alloc_bytes gauge
go_memstats_alloc_bytes 874344
# HELP go_memstats_alloc_bytes_total Total number of bytes allocated, even if freed
```

Now will access the Prometheus server

Targets

All scrape pools All Unhealthy Collapse All Filter by endpoint or labels Unknown Unhealthy Healthy

**Node-Exporter (1/1 up)** show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
<a href="http://18.117.176.49:9100/metrics">http://18.117.176.49:9100/metrics</a>	UP	instance="18.117.176.49:9100" job="Node-Exporter"	6.204s ago	14.709ms	

**prometheus (1/1 up)** show less

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
<a href="http://localhost:9090/metrics">http://localhost:9090/metrics</a>	UP	instance="localhost:9090" job="prometheus"	1.601s ago	5.827ms	

Now will configure same in Prod server

```
root@ip-172-31-16-177: /home/ubuntu# ls
node_exporter-1.8.2.linux-amd64 prometheus-2.53.1.linux-amd64
root@ip-172-31-16-177: /home/ubuntu# cd prometheus-2.53.1.linux-amd64/
root@ip-172-31-16-177: /home/ubuntu/prometheus-2.53.1.linux-amd64# vi prometheus.yml
root@ip-172-31-16-177: /home/ubuntu/prometheus-2.53.1.linux-amd64#
```

```
# Here it's Prometheus itself.
scrape_configs:
  # The job name is added as a label `job=<job_name>`
  - job_name: "prometheus"

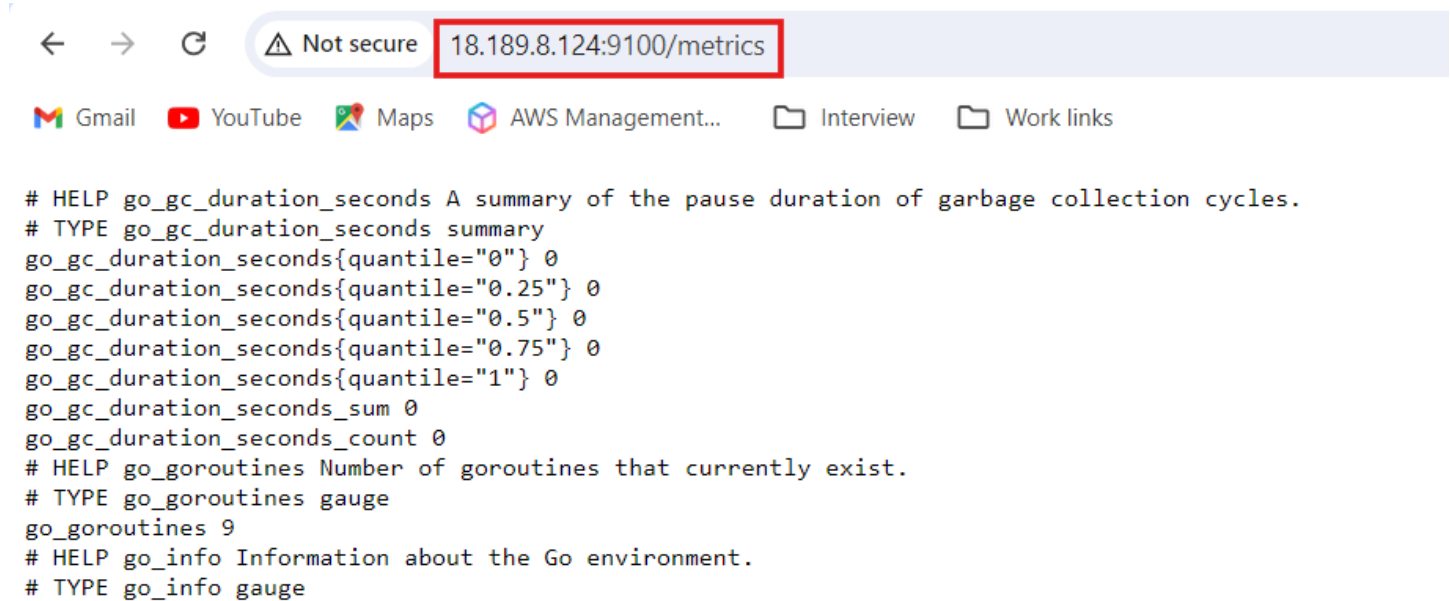
  # metrics_path defaults to '/metrics'
  # scheme defaults to 'http'.

  static_configs:
    - targets: ["localhost:9090"]
    - job_name: "Node-Exporter-Prod"

  # metrics_path defaults to '/metrics'
  # scheme defaults to 'http'.

  static_configs:
    - targets: ["18.189.8.124:9100"]
```

## Accessing node exporter

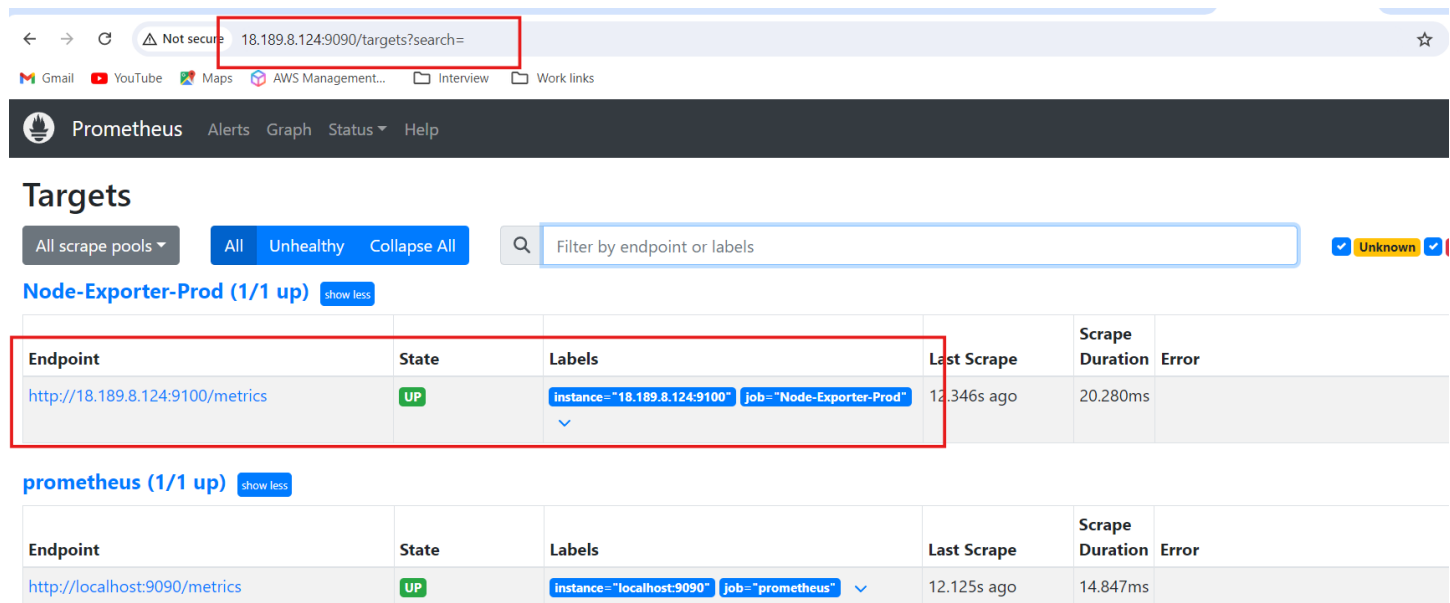


← → ↻ ⚠ Not secure 18.189.8.124:9100/metrics

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```
# HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.
# TYPE go_gc_duration_seconds summary
go_gc_duration_seconds{quantile="0"} 0
go_gc_duration_seconds{quantile="0.25"} 0
go_gc_duration_seconds{quantile="0.5"} 0
go_gc_duration_seconds{quantile="0.75"} 0
go_gc_duration_seconds{quantile="1"} 0
go_gc_duration_seconds_sum 0
go_gc_duration_seconds_count 0
# HELP go_goroutines Number of goroutines that currently exist.
# TYPE go_goroutines gauge
go_goroutines 9
# HELP go_info Information about the Go environment.
# TYPE go_info gauge
```

## Accessing Prometheus server in Prod.



← → ↻ ⚠ Not secure 18.189.8.124:9090/targets?search= ☆

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Prometheus Alerts Graph Status ▾ Help

### Targets

All scrape pools ▾ All Unhealthy Collapse All 🔍 Filter by endpoint or labels ✓ Unknown ✓

**Node-Exporter-Prod (1/1 up)** [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
<a href="http://18.189.8.124:9100/metrics">http://18.189.8.124:9100/metrics</a>	UP	instance="18.189.8.124:9100" job="Node-Exporter-Prod" ▾	12.346s ago	20.280ms	

**prometheus (1/1 up)** [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
<a href="http://localhost:9090/metrics">http://localhost:9090/metrics</a>	UP	instance="localhost:9090" job="prometheus" ▾	12.125s ago	14.847ms	

Step 8: Now lets configure grafana server.

Instances (1/3) Info									
Find Instance by attribute or tag (case-sensitive)									
All states									
	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public	
<input checked="" type="checkbox"/>	Prod-server	i-09078760ea57fdb5f	Running	t3.medium	2/2 checks passed	View alarms +	us-east-2b	ec2-18	
<input type="checkbox"/>	Master-Server	i-0767077546131ca10	Running	t3.medium	2/2 checks passed	View alarms +	us-east-2b	ec2-18	
<input type="checkbox"/>	Grafana	i-0d833d937f548c844	Running	t2.micro	2/2 checks passed	View alarms +	us-east-2a	ec2-3-	


Launch instance and install grafana

```
root@ip-172-31-12-167:/home/ubuntu/grafana-8.4.4# ./bin/grafana-server
Grafana server is running with elevated privileges. This is not recommended
INFO[08-02|06:06:39] Starting Grafana              logger=settings version=8.4.4 commit=fcb01fae branch=HEAD co
WARN[08-02|06:06:39] falling back to legacy setting of 'min_interval_seconds'; please use the configuration option in the `
alerts are enabled. logger=settings
INFO[08-02|06:06:39] Config loaded from            logger=settings file=/home/ubuntu/grafana-8.4.4/conf/defaults
INFO[08-02|06:06:39] Path Home                    logger=settings path=/home/ubuntu/grafana-8.4.4
INFO[08-02|06:06:39] Path Data                    logger=settings path=/home/ubuntu/grafana-8.4.4/data
INFO[08-02|06:06:39] Path Logs                    logger=settings path=/home/ubuntu/grafana-8.4.4/data/log
INFO[08-02|06:06:39] Path Plugins                  logger=settings path=/home/ubuntu/grafana-8.4.4/data/plugins
```

Access grafana server using port 3000

Not secure
 3.141.31.158:3000/login

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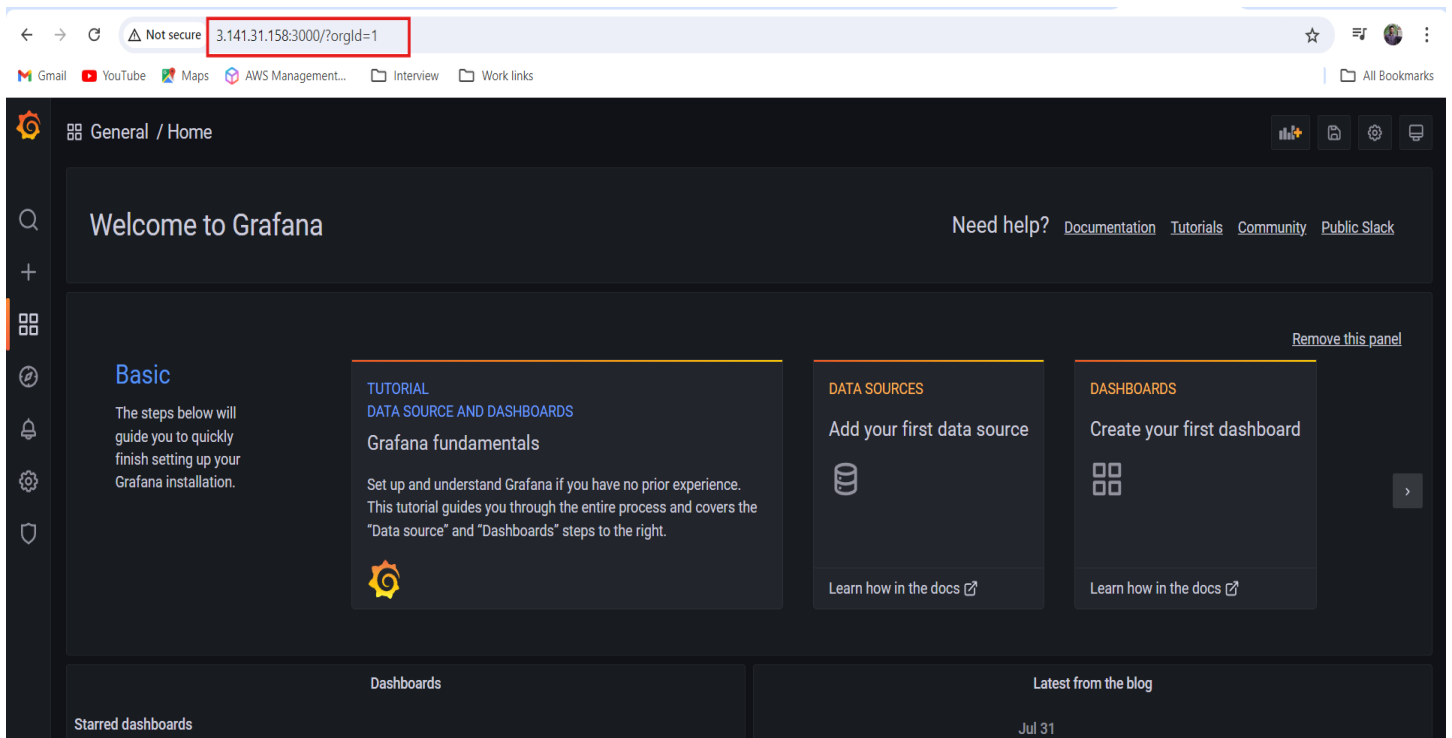
## Welcome to Grafana

Email or username

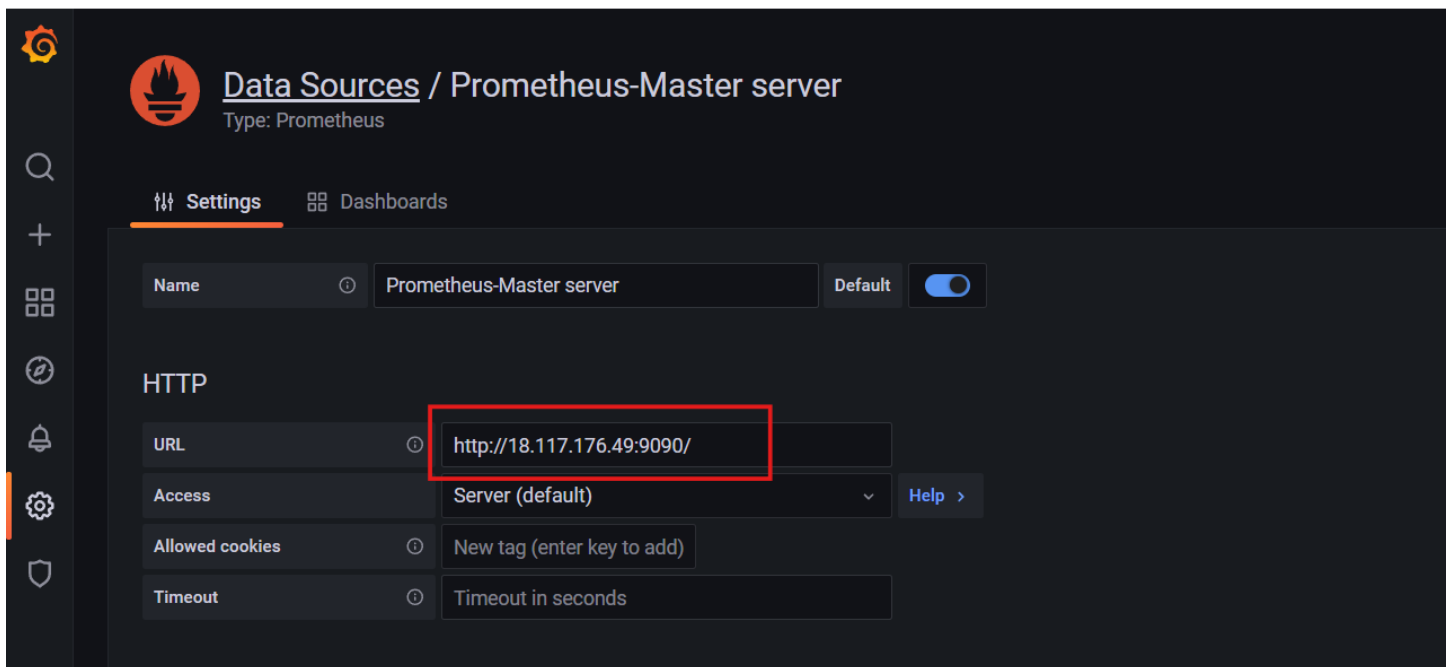
Password

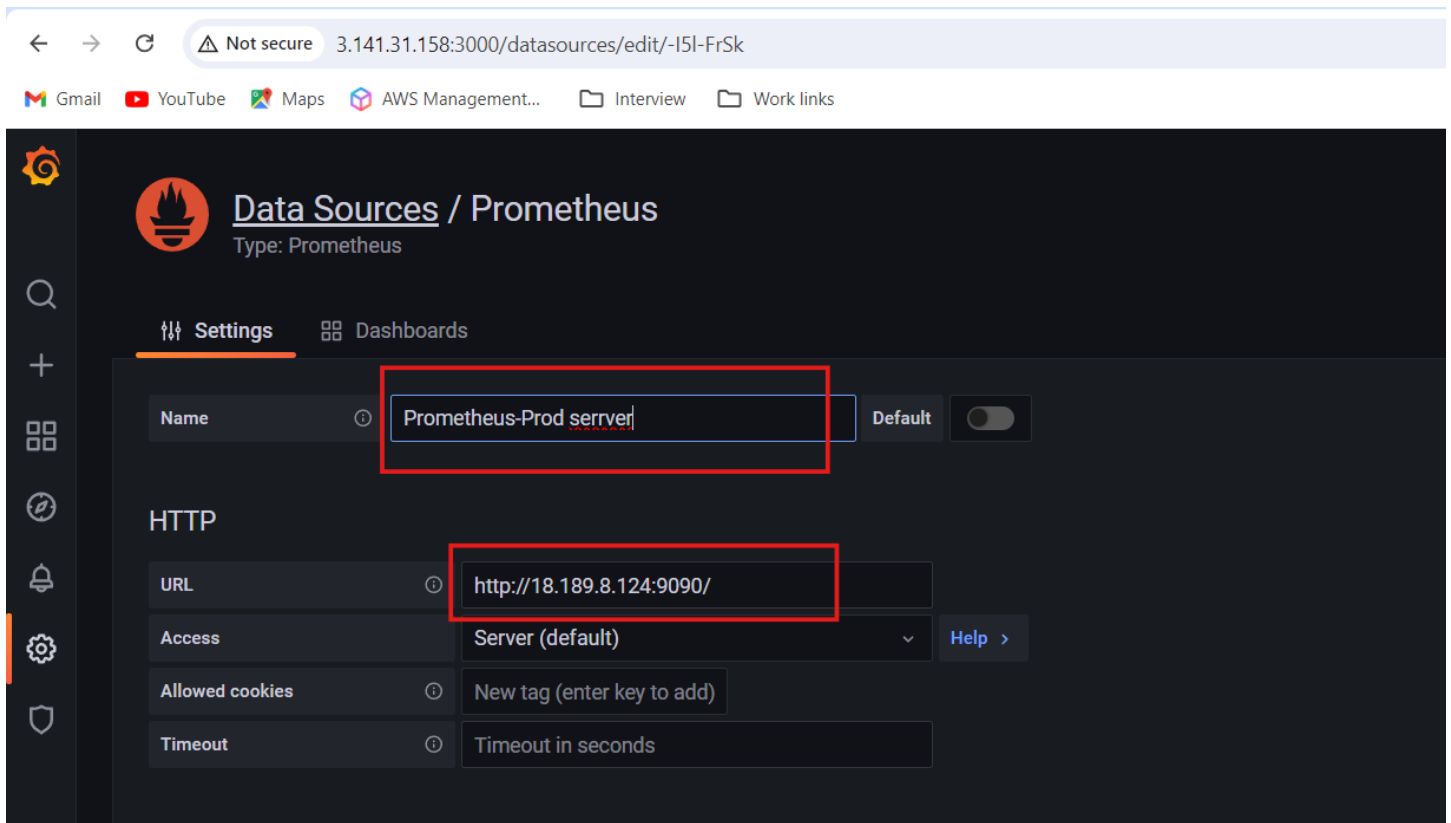
Log in

Forgot your password?

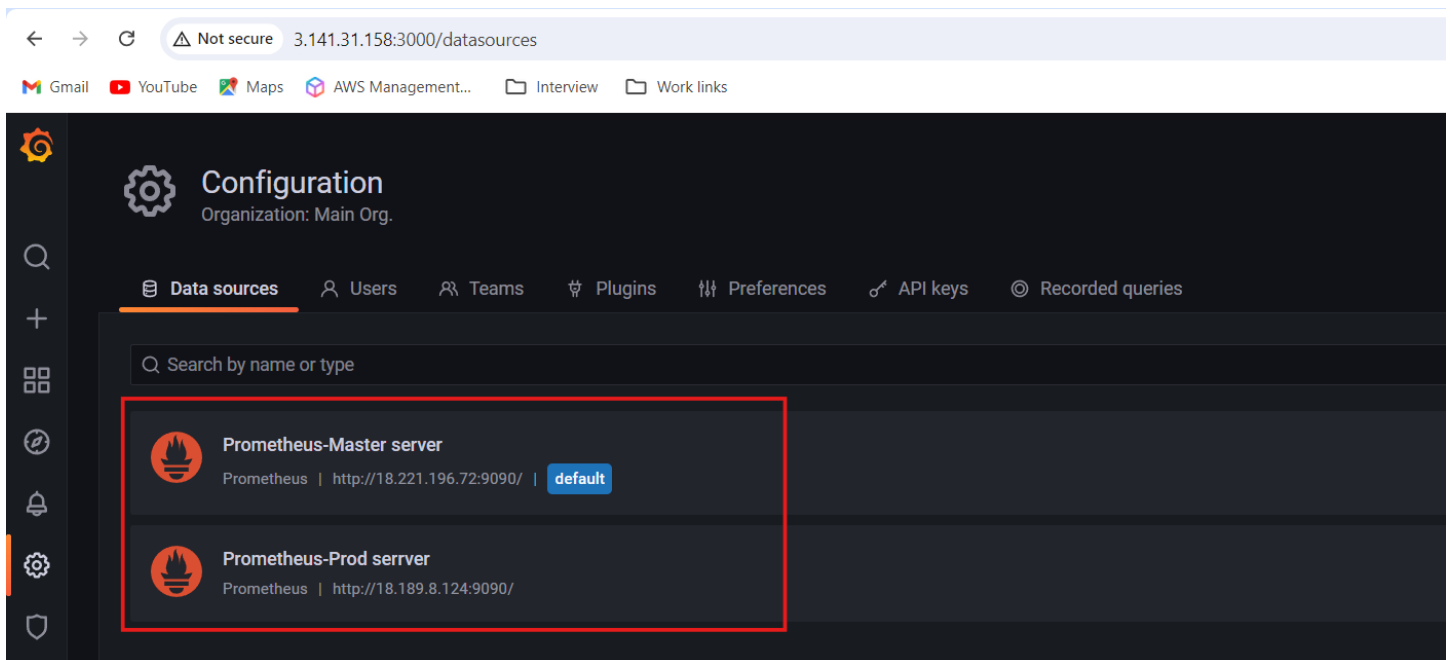


Now configure the Prometheus data source of both the server in grafana



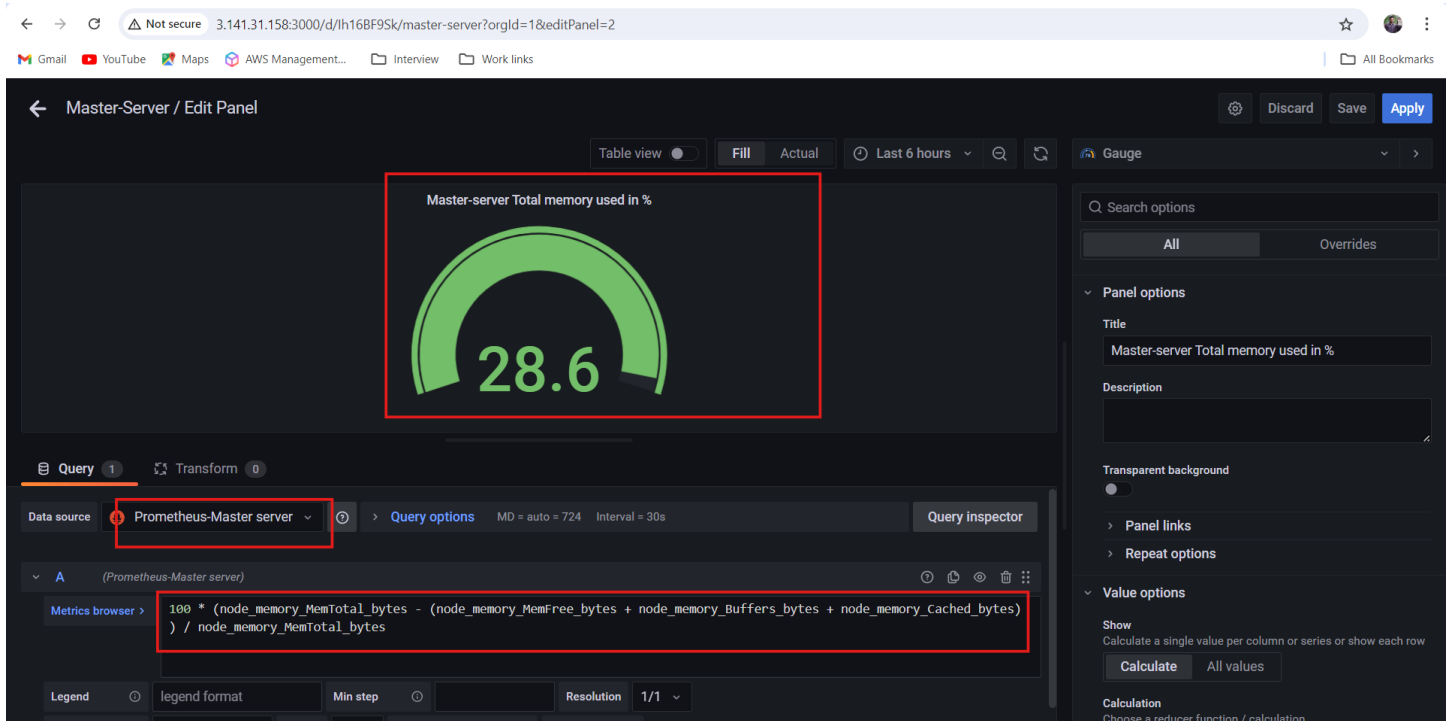


Both server data source has been added

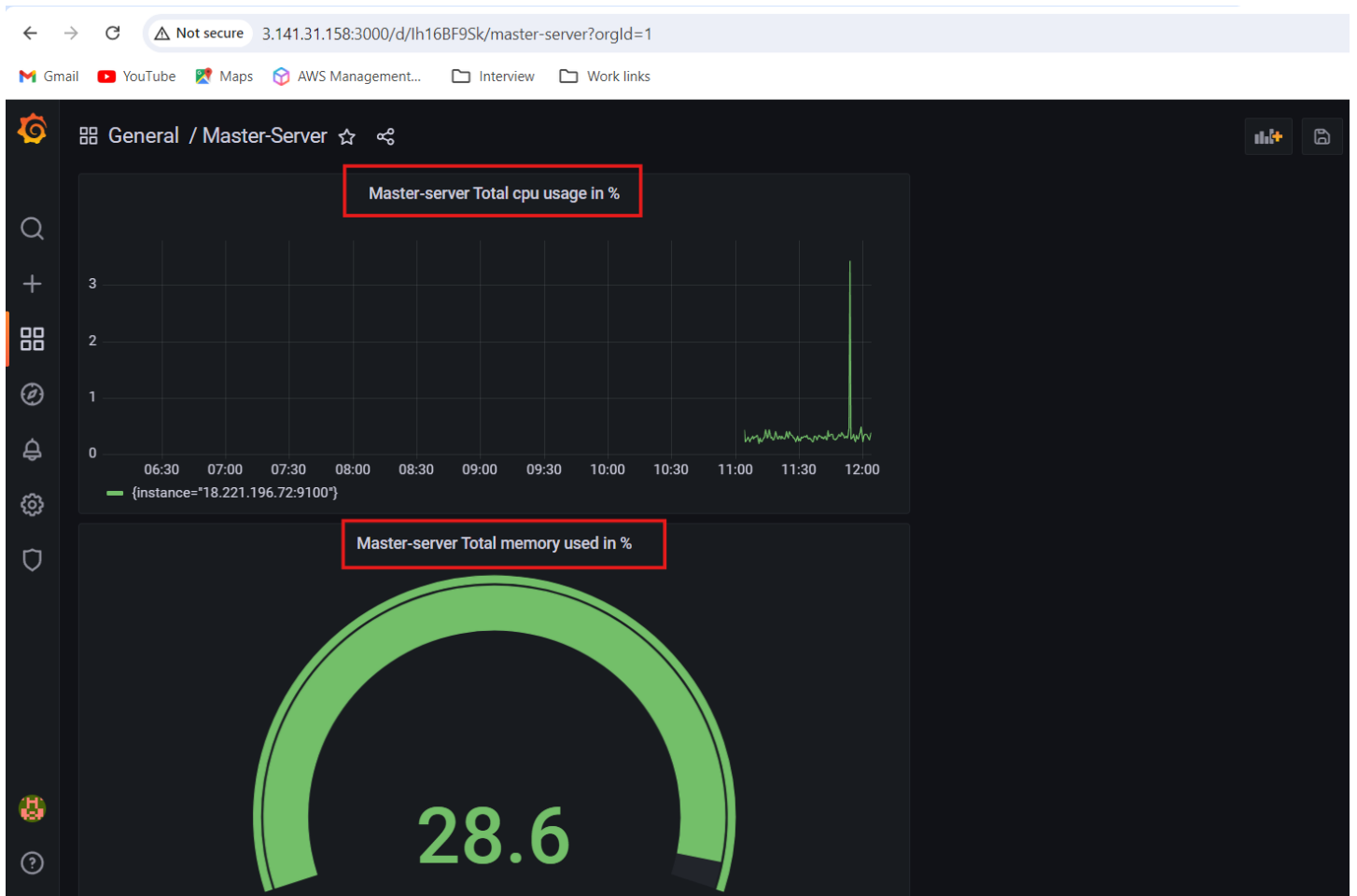


Now configure the dashboard for both the server.

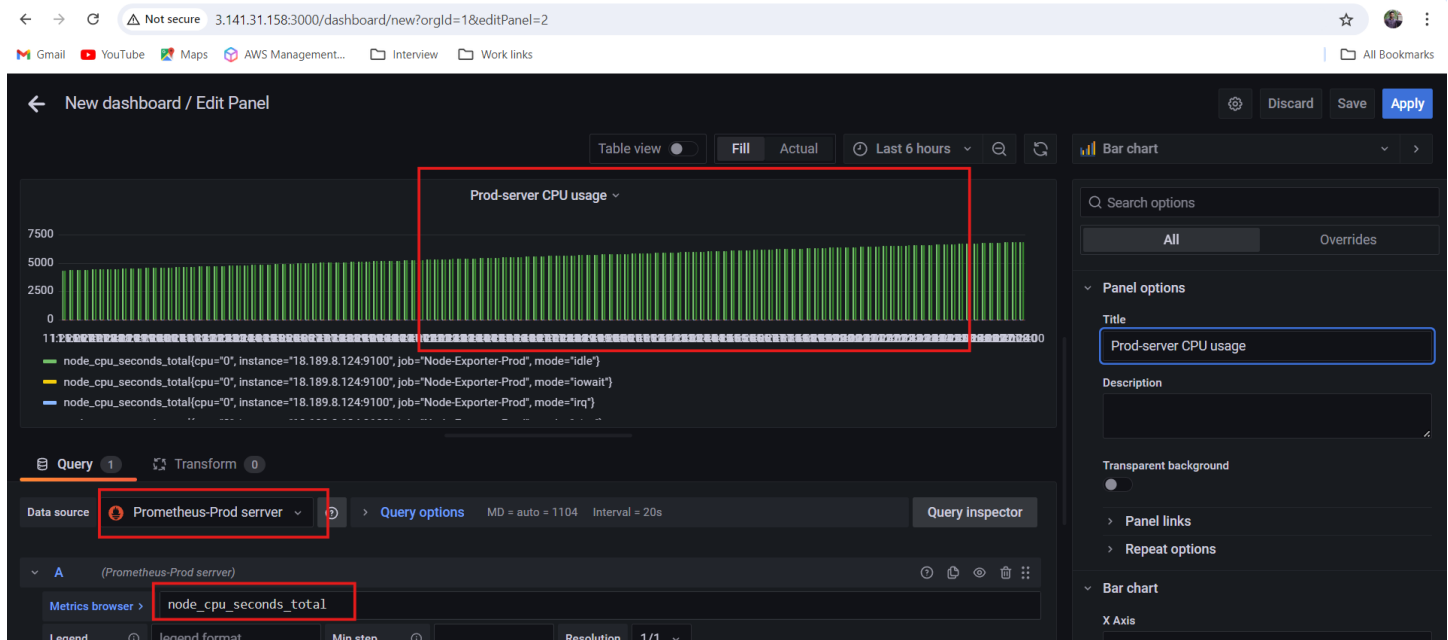
Master server



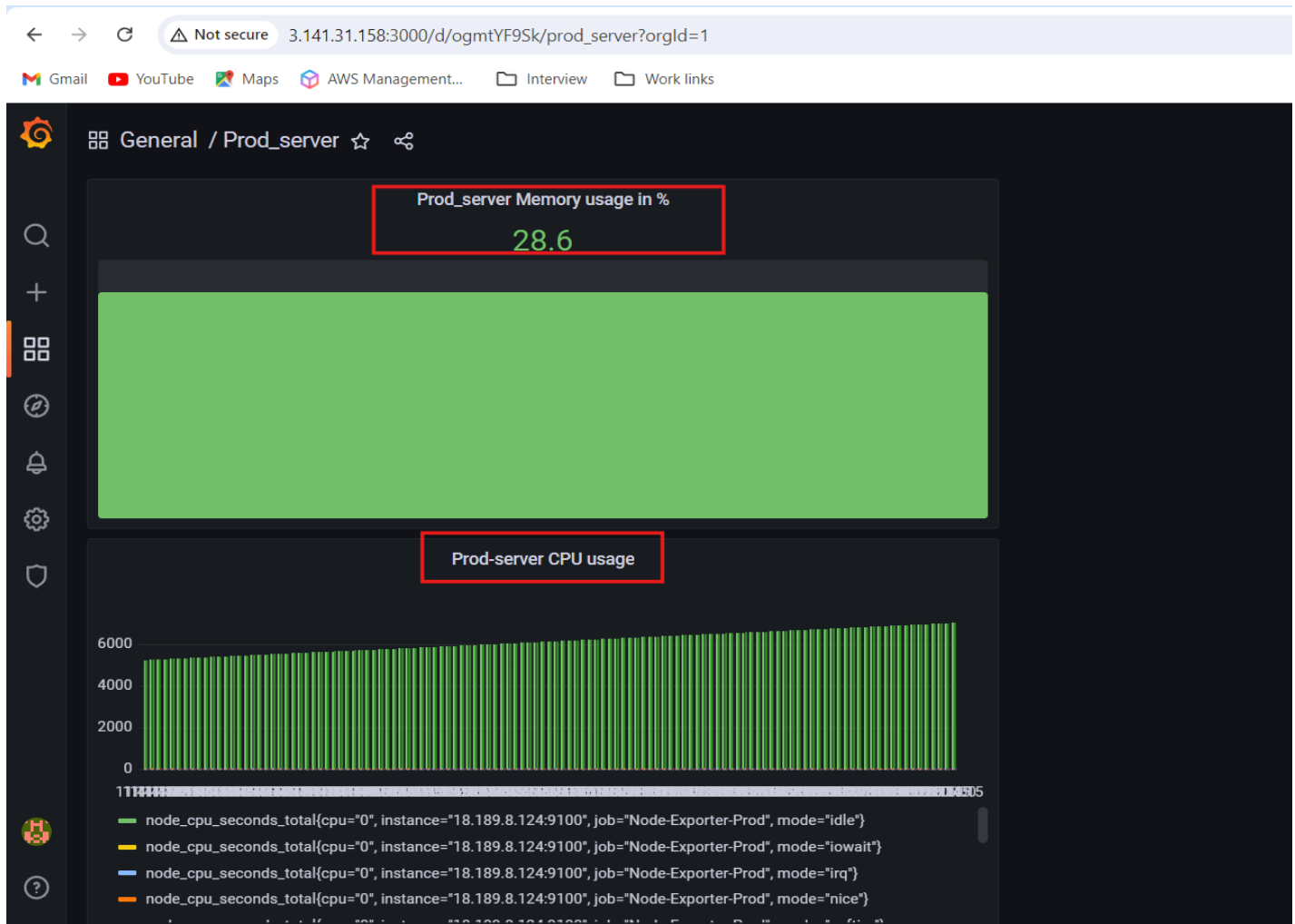
## Master server cpu and memory usage graph



## Prod server



## Prod Server cpu and memory usage graph



!!!!!!!!!!!!!!.....We have successfully completed "FinanceMe" project .....!!!!!!!!!!!!!!