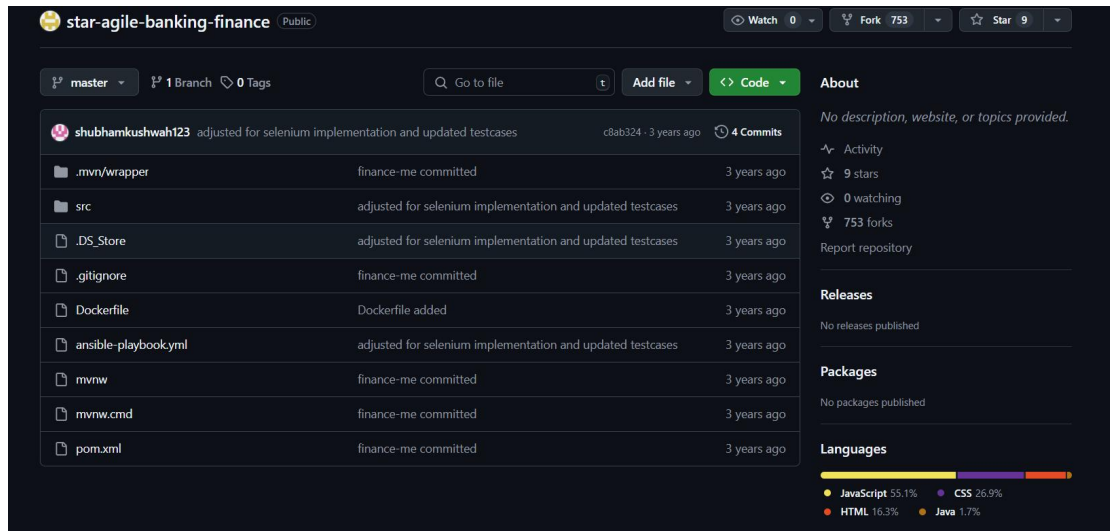


BANKING/FINANCE CAPSTONE PROJECT

Setting up Repositories



Forked the required files from Staragile github

Name	Date modified	Type	Size
.git	17-01-2025 21:40	File folder	
.mvn	17-01-2025 18:49	File folder	
.vscode	17-01-2025 19:36	File folder	
src	17-01-2025 18:49	File folder	
target	17-01-2025 19:38	File folder	
.DS_Store	17-01-2025 18:49	DS_STORE File	7 KB
.gitignore	17-01-2025 18:49	Git Ignore Source ...	1 KB
ansible-playbook.yml	17-01-2025 18:49	Yaml Source File	1 KB
Dockerfile	17-01-2025 18:49	File	1 KB
Jenkinsfile	17-01-2025 21:40	File	2 KB
mvnw	17-01-2025 18:49	File	11 KB
mvnw.cmd	17-01-2025 18:49	Windows Comma...	7 KB
pom.xml	17-01-2025 18:49	XML File	2 KB

Made a local repo

```

1 pipeline{
2   agent any
3   stages{
4     stage('checkout the code from github'){
5       steps{
6         git url: 'https://github.com/athul-anilkumar/star-agile-banking-finance/'
7         echo 'github url checkout'
8       }
9     }
10    stage('codecompile '){
11      steps{
12        echo 'starting compiling'
13        sh 'mvn compile'
14      }
15    }
16    stage('codetesting'){
17      steps{
18        sh 'mvn test'
19      }
20    }
21    stage('qa'){
22      steps{
23        sh 'mvn checkstyle:checkstyle'
24      }
25    }
26    stage('package'){
27      steps{
28        sh 'mvn package'
29      }
30    }
31    stage('run dockerfile'){
32      steps{
33        sh 'docker build -t myimg .'
34      }
35    }
36    stage('port expose'){
37      steps{
38        sh 'docker run -dt -p 8091:8091 --name c000 myimg'
39      }
40    }
41  }
42 }

```

Added Jenkins file to Repo

master 1 Branch 0 Tags

Go to file t Add file <> Code About

This branch is 4 commits ahead of StarAgileDevOpsTraining/star-agile-banking-finance:master

Contribute Sync fork

athul-anilkumar Update application.properties to 8091 f6587ae · 2 hours ago 8 Commits

.mvn/wrapper	finance-me committed	3 years ago
src	Update application.properties to 8091	2 hours ago
.DS_Store	adjusted for selenium implementation and updated testcases	3 years ago
.gitignore	finance-me committed	3 years ago
Dockerfile	Dockerfile added	3 years ago
Jenkinsfile	Rename jenkinsfile to Jenkinsfile	2 hours ago
ansible-playbook.yml	adjusted for selenium implementation and updated testcases	3 years ago
mvnw	finance-me committed	3 years ago
mvnw.cmd	finance-me committed	3 years ago
pom.xml	finance-me committed	3 years ago

About
No description, website, or topics provided.

Activity
0 stars
0 watching
0 forks

Releases
No releases published
[Create a new release](#)

Packages
No packages published
[Publish your first package](#)

Languages

JavaScript 55.1%	CSS 26.9%
HTML 16.3%	Java 1.7%

Suggested workflows
Based on your tech stack

Updated remote repository by using git push

Setting Up Terraform

```
terraform > credentials.tf > provider "aws"
1 provider "aws" {
2   region = "ap-south-1"
3   access_key = "AKI"
4   secret_key = "PptDk"
5 }
```

Created a credentials.tf file. region used is Mumbai.

```
ec2.tf > resource "aws_instance" "res1" > tags
1 resource "aws_instance" "res1" {
2
3
4   ami           = "ami-00bb6a80f01f03502"
5   instance_type = "t3.micro"
6
7   tags = {
8     Name = "grafana"
9   }
10 }
11 resource "aws_instance" "res1" {
12   ami           = "ami-00bb6a80f01f03502"
13   instance_type = "t3.medium"
14
15   tags = {
16     Name = "jenkins"
17   }
18 }
```

Created a ec2.tf file to create 1 t2.micro instance and 1 t2.medium in Mumbai.

```
C:\Users\Athul\Desktop\Banking Capstone project\terraform>terraform init
Initializing the backend...
Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.84.0

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.
```

Initiated terraform using terraform init in CMD terminal.

```
C:\Users\Athul\Desktop\Banking Capstone project\terraform>terraform validate
Success! The configuration is valid.

C:\Users\Athul\Desktop\Banking Capstone project\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_instance.res1 will be created
+ resource "aws_instance" "res1" {
  + ami           = "ami-00bb6a80f01f03502"
  + arn           = (known after apply)
  + associate_public_ip_address = (known after apply)
  + availability_zone = (known after apply)
  + cpu_core_count = (known after apply)
  + cpu_threads_per_core = (known after apply)
  + disable_api_stop = (known after apply)
  + disable_api_termination = (known after apply)
  + ebs_optimized = (known after apply)
  + enable_primary_ipv6 = (known after apply)
  + get_password_data = false
  + host_id        = (known after apply)
  + host_resource_group_arn = (known after apply)
  + iam_instance_profile = (known after apply)
  + id            = (known after apply)
  + instance_initiated_shutdown_behavior = (known after apply)
  + instance_lifecycle = (known after apply)
  + instance_state = (known after apply)
  + instance_type = "t3.micro"
  + ipv6_address_count = (known after apply)
  + ipv6_addresses = (known after apply)
  + key_name      = (known after apply)
```

Instances (2)

Info

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

<input type="checkbox"/>	Name <div></div>	Instance ID	Instance state <div></div>	Instance type <div></div>	Status check	Alarm status	Av
<input type="checkbox"/>	jenkins	i-00f7da5752aa6d471	<div>Running</div> <div></div> <div></div>	t3.medium	<div>Initializing</div>	<div>View alarms +</div>	ap
<input type="checkbox"/>	grafana	i-0510c21d366f26152	<div>Running</div> <div></div> <div></div>	t3.micro	<div>Initializing</div>	<div>View alarms +</div>	ap

Used “terraform apply “ to start the instances.

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

System information as of Fri Jan 17 15:51:10 UTC 2025

System load: 0.03      Temperature: -273.1 C
Usage of /: 24.9% of 6.71GB   Processes: 111
Memory usage: 5%      Users logged in: 0
Swap usage: 0%        IPv4 address for ens5: 172.31.15.132

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 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-172-31-15-132:~$
```

Connected to The jenkins machine

```
Need to get 99.1 MB of archives:
After this operation, 97.7 MB of additional disk space will be used.
Get:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-0.1ubuntu4 [204 kB]
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.479.3 [94.9 MB]
Fetched 95.1 MB in 6s (17.1 MB/s)
Selecting previously unselected package net-tools.
(Reading database ... 87065 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4) ...
Selecting previously unselected package jenkins.
Preparing to unpack ../jenkins_2.479.3_all.deb ...
Unpacking jenkins (2.479.3) ...
Setting up net-tools (2.10-0.1ubuntu4) ...
Setting up jenkins (2.479.3) ...
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /usr/lib/systemd/system/jenkins.service.
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

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.
5b4dbc7be674bd0be4a696bb8798311
root@ip-172-31-15-132:~#
```

Installed jenkins using shell script.

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
root@ip-172-31-15-132:/home/ubuntu# DOCKER --VERSION
DOCKER: command not found
root@ip-172-31-15-132:/home/ubuntu# docker --version
Docker version 27.5.0, build a187fa5
root@ip-172-31-15-132:/home/ubuntu#
```


Installed docker in Jenkins machine

Getting Started

Getting Started

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	⚙ Credentials Binding	** Ionicons API
⚙ Timestamper	⚙ Workspace Cleanup	⚙ Ant	⚙ Gradle	Folders
⚙ Pipeline	⚙ GitHub Branch Source	⚙ Pipeline: GitHub Groovy Libraries	⚙ Pipeline Graph View	OWASP Markup Formatter
⚙ Git	⚙ SSH Build Agents	⚙ Matrix Authorization Strategy	ⓘ PAM Authentication	** ASM API
ⓘ LDAP	⚙ Email Extension	ⓘ Mailer	ⓘ Dark Theme	** JSON Path API
				** Struts
				** Pipeline: Step API
				** Token Macro
				Build Timeout
				** - required dependency

Connected to jenkins machine using publicip:8080 logged in and installed default plugins

 **Jenkins**

Search (CTRL+K)

admin

log out

Dashboard > Manage Jenkins > Plugins

Plugins

Updates

Available plugins

Installed plugins

Advanced settings

Download progress

docker

Install

Install	Name	Released
<input checked="" type="checkbox"/>	Docker 1.7.0 Cloud Providers Cluster Management docker This plugin integrates Jenkins with Docker	3 mo 4 days ago
<input type="checkbox"/>	Docker Commons 445.v6b_646c962a_94 Library plugins (for use by other plugins) docker Provides the common shared functionality for various Docker-related plugins.	2 mo 10 days ago
<input type="checkbox"/>	Docker Pipeline 580.vcd0c340686b_54 pipeline DevOps Deployment docker Build and use Docker containers from pipelines.	8 mo 0 days ago
<input type="checkbox"/>	Docker API 3.4.1-96.v77147a_de67f8 Library plugins (for use by other plugins) docker This plugin provides docker-java API for other plugins.	1 mo 4 days ago


Downloaded docker plugin for jenkins

NEW ITEM


Enter an item name

Bank Finance


Select an item type




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 free-style 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.



Multibranch Pipeline
Creates a set of Pipeline projects according to detected branches in one SCM repository.

OK

Created new “bank finance” pipeline.

```
root@ip-172-31-15-132:/home/ubuntu# docker --version
Docker version 27.5.0, build a187fa5
root@ip-172-31-15-132:/home/ubuntu# ^C
root@ip-172-31-15-132:/home/ubuntu# sudo usermod -aG docker jenkins
root@ip-172-31-15-132:/home/ubuntu#
systemctl restart jenkins
```

Gave Jenkins user docker privileges

Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted) >

Global credentials (unrestricted)

+

 Add Credentials

Credentials that should be available irrespective of domain specification to requirements matching.

ID	Name	Kind	Description
 43b1f86f-7d74-47b8-8c76-cfad665f52de	Theertha23/*****	Username with password	

Icon: S M L

☐ Build after other projects are built ?
☐ Build periodically ?
☐ GitHub hook trigger for GITScm polling ?
☒ Poll SCM ?

Schedule ?
 H * * * * *
 Would last have run at Friday, January 17, 2025 at 4:06:07 PM Coordinated Universal Time; would next run at Friday, January 17, 2025 at 5:06:07 PM Coordinated Universal Time.
☐ Ignore post-commit hooks ?

☐ Trigger builds remotely (e.g., from scripts) ?

Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition

Pipeline script from SCM

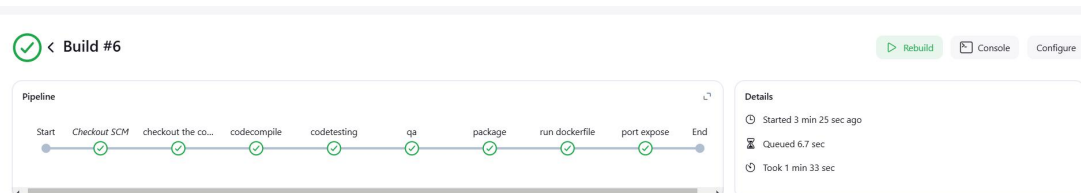
SCM ?
 Git

Repositories ?
 Repository URL ?
 https://github.com/athul-anilkumar/star-agile-banking-finance
 Credentials ?
 - none -
 + Add
 Advanced ▾
 Add Repository

Branches to build ?
 Branch Specifier (blank for 'any') ?
 */master

Save Apply

Pipeline configured, added git SCM hook as well as a timed build every 1 hour



Build completed successfully



CUSTOMER BANKING SERVICES

We provide the World's best in class Banking Solutions and Services.

READ MORE

CONTACT US



Website is running successfully

Setup of monitoring

```
root@ip-172-31-13-106:/home/ubuntu# apt install grafana
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
grafana is already the newest version (11.4.0).
0 upgraded, 0 newly installed, 0 to remove and 1 not upgraded.
root@ip-172-31-13-106:/home/ubuntu#
```

Installed grafana on a separate server

```
my global config
global:
  scrape_interval: 15s # Set the scrape interval to every 15 seconds. Default is every 1 minute.
  evaluation_interval: 15s # Evaluate rules every 15 seconds. The default is every 1 minute.
  # scrape_timeout is set to the global default (10s).

# Alertmanager configuration
alerting:
  alertmanagers:
    - static_configs:
      - targets:
        # - alertmanager:9093

# Load rules once and periodically evaluate them according to the global 'evaluation_interval'.
rule_files:
  # - "first_rules.yml"
  # - "second_rules.yml"

# A scrape configuration containing exactly one endpoint to scrape:
# Here it's Prometheus itself.
# The job name is added as a label 'job=<job_name>' to any timeseries scraped from this config.
scrape_configs:
  - job_name: 'node-exporter'
    static_configs:
      - targets: ["13.235.74.244:9100"]

"prometheus.yml" 25L, 865B 1,1 All

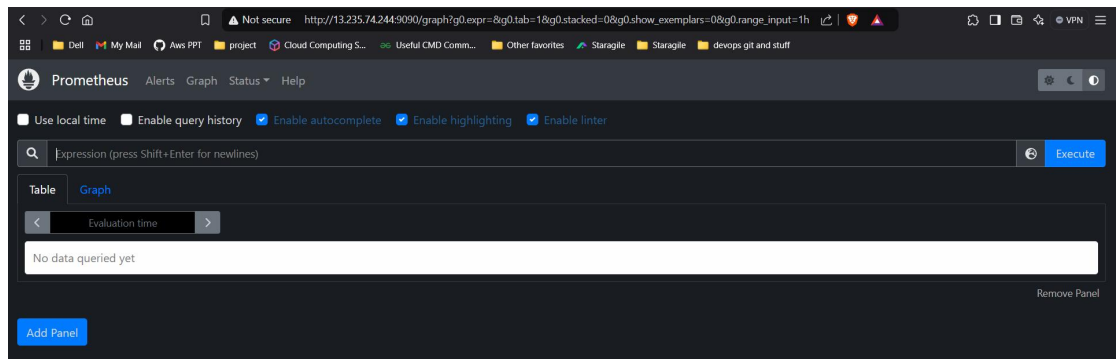
docker.sh node_exporter-1.8.2.darwin-amd64.tar.gz node_exporter-1.8.2.linux-amd64.tar.gz prometheus-2.34.0.linux-amd64.tar.gz
jenkins.sh node_exporter-1.8.2.linux-amd64 prometheus-2.34.0.linux-amd64
root@ip-172-31-15-132:/home/ubuntu# cd node_exporter-1.8.2.linux-amd64
root@ip-172-31-15-132:/home/ubuntu/node_exporter-1.8.2.linux-amd64# ./node_exporter
bash: ./node_exporter: No such file or directory
root@ip-172-31-15-132:/home/ubuntu/node_exporter-1.8.2.linux-amd64# ls
LICENSE NOTICE node_exporter
root@ip-172-31-15-132:/home/ubuntu/node_exporter-1.8.2.linux-amd64# ./node_exporter
```

Installed Prometheus and node_exporter on the jenkins server using shell script and edited prometheus.yml file

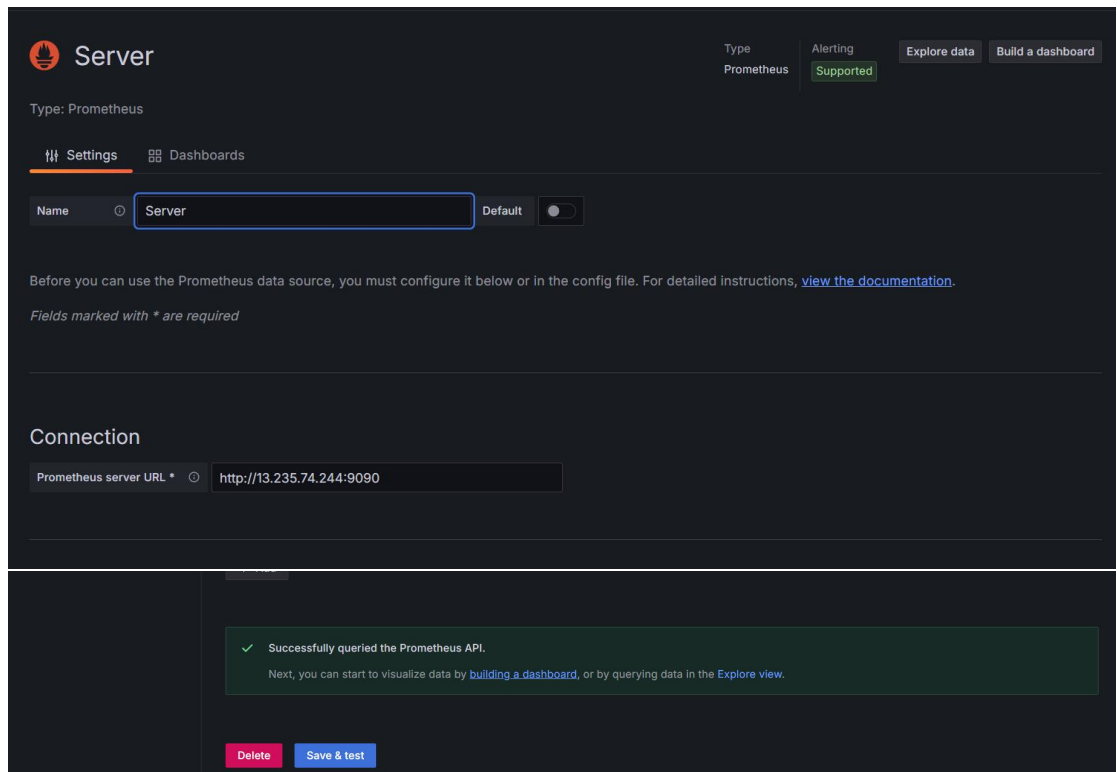

```

root@ip-172-31-15-132:/home/ubuntu/prometheus-2.34.0.linux-amd64# ./prometheus
ts=2025-01-17T17:36:18.465Z caller=main.go:479 level=info msg="No time or size retention was set so using the default time retention" duration=15d
ts=2025-01-17T17:36:18.466Z caller=main.go:516 level=info msg="Starting Prometheus" version="(version=2.34.0, branch=HEAD, revision=881111fec4332c33094a6fb2680c71fffc427275)"
ts=2025-01-17T17:36:18.466Z caller=main.go:522 level=info host_details="(Linux 6.8.0-1021-aws #23-Ubuntu SMP Mon Dec 9 23:59:34 UTC 2024 x86_64 ip-172-31-15-132 (none))"
ts=2025-01-17T17:36:18.466Z caller=main.go:523 level=info fd_limits="(soft=1024, hard=1048576)"
ts=2025-01-17T17:36:18.466Z caller=main.go:524 level=info vm_limits="(soft=unlimited, hard=unlimited)"
ts=2025-01-17T17:36:18.471Z caller=web.go:540 level=info component=web msg="Start listening for connections" address=0.0.0.0:9090
ts=2025-01-17T17:36:18.471Z caller=main.go:937 level=info msg="Starting TSDB ..."
ts=2025-01-17T17:36:18.473Z caller=tsdb/config.go:195 level=info component=tsdb msg="TSS is disabled." http2=false
ts=2025-01-17T17:36:18.475Z caller=head.go:493 level=info component=tsdb msg="Replaying on-disk memory mappable chunks if any"
ts=2025-01-17T17:36:18.475Z caller=head.go:536 level=info component=tsdb msg="On-disk memory mappable chunks replay completed" duration=2.458µs
ts=2025-01-17T17:36:18.475Z caller=head.go:542 level=info component=tsdb msg="Replaying WAL, this may take a while"
ts=2025-01-17T17:36:18.725Z caller=head.go:613 level=info component=tsdb msg="WAL segment loaded" segment=0 maxSegment=1
ts=2025-01-17T17:36:18.725Z caller=head.go:613 level=info component=tsdb msg="WAL segment loaded" segment=1 maxSegment=1
ts=2025-01-17T17:36:18.725Z caller=head.go:619 level=info component=tsdb msg="WAL replay completed" checkpoint_replay_duration=55.381µs wal_replay_duration=249.975621ms
s total replay duration=250.06096ms
ts=2025-01-17T17:36:18.728Z caller=main.go:958 level=info fs_type=EXT4_SUPER_MAGIC
ts=2025-01-17T17:36:18.728Z caller=main.go:961 level=info msg="TSDB started"
ts=2025-01-17T17:36:18.728Z caller=main.go:1142 level=info msg="Loading configuration file" filename=prometheus.yml
ts=2025-01-17T17:36:18.736Z caller=main.go:1179 level=info msg="Completed loading of configuration file" filename=prometheus.yml totalDuration=7.781505ms db_storage=1.14µs remote_storage=2.073µs web_handler=515ns query_engine=1.011µs scrape=7.136829ms scrape_sd=36.634µs notify=38.669µs notify_sd=14.669µs rules=1.759µs tracing=7.764µs
ts=2025-01-17T17:36:18.736Z caller=main.go:910 level=info msg="Server is ready to receive web requests."

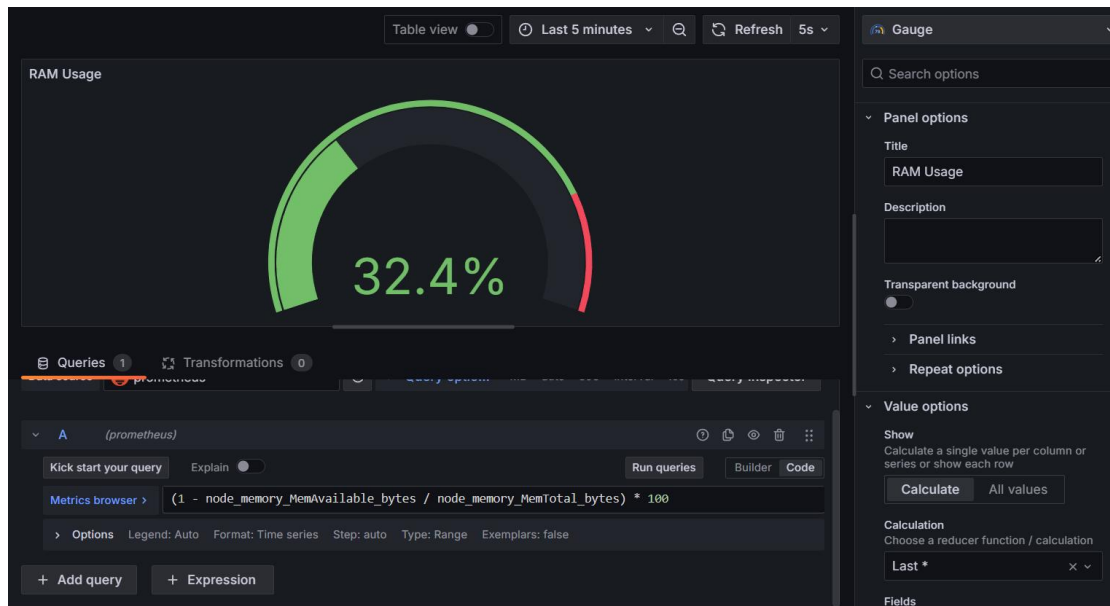
```



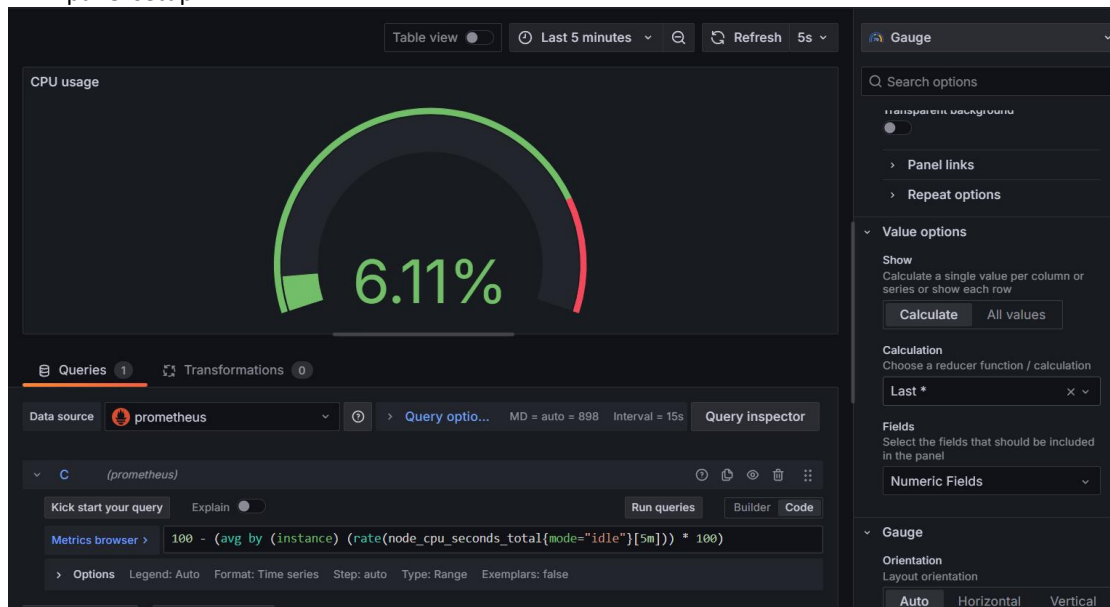
Started prometheus using “./prometheus”



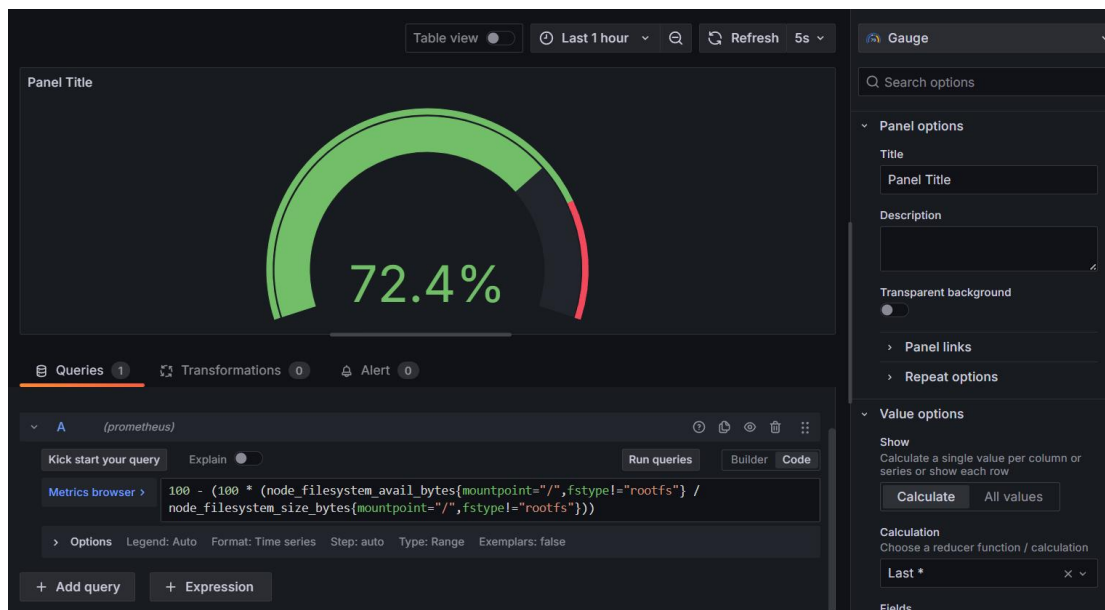
Setting up Grafana using prometheus datapoint



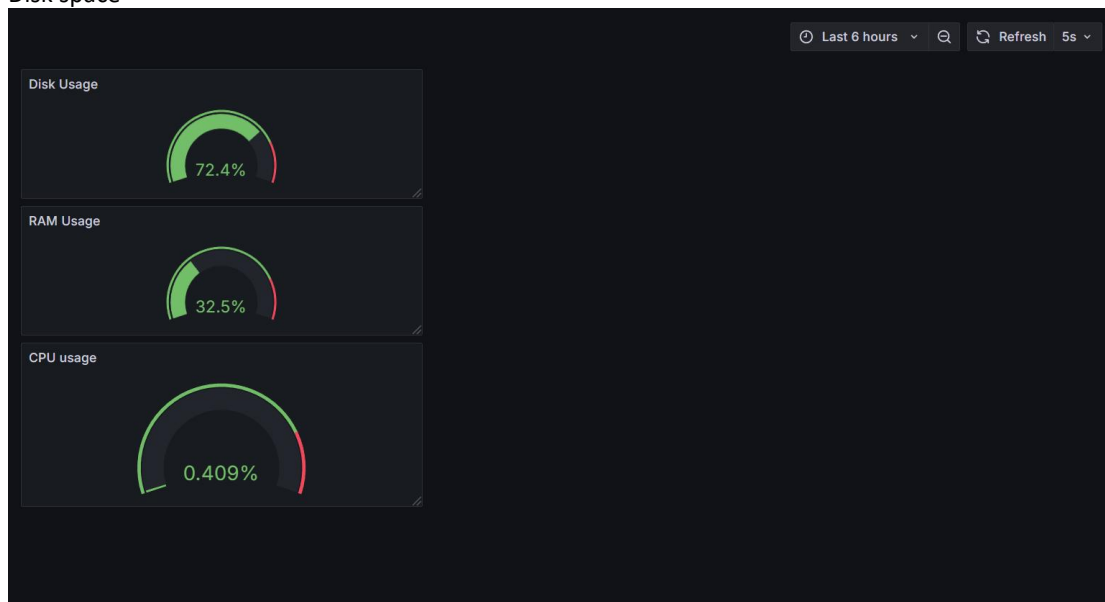
RAM panel setup



CPU panel setup



Disk space



Final dashboard setup