DevOps Certification Training

Certification Project – Finance Me

Banking and Finance Domain

By Swapnil Jadhav

FinanceMe is a Global leading Banking and Financial services provider based out of Germany. The company offers products and services like Banking, Funds Management, Loans, Debit Cards and Credits Cards, Investment Banking etc. Initially the company was using a Monolithic application architecture, As the company grown, It started facing difficulties in managing the application infrastructure and application deployments and Scaling of application when the traffic load increases.

FinanceMe has decided to opt for microservice architecture for its applications and decided to go DevOps by implementing necessary automations using CICD. **FinanceMe** has decided to use AWS as primary cloud services provider to create servers, databases and application deployments.

The company's goal is to deliver the product updates frequently to production automatically with High quality & Reliability. They also want to accelerate software delivery speed, quality and reducing feedback time between developers and testers.

Currently, they are facing following problems, because of various technologies involved in the project.

- Building Complex Monolithic Application is difficult.
- Manual efforts to test various components/modules of the project
- Incremental builds are difficult to manage, test and deploy.
- It was not possible to scale up individual modules independently.
- Creation of infrastructure and configure it manually is very time consuming
- Continuous manual monitoring the application is quite challenging.

In order to implement a POC, you are requested to develop a mavenized microservice using spring boot and in memory h2 database.

1. a microservice which exposes below mentioned endpoints as APIs and uses pre configured AWS RDS – mysql database to store the data.

a. /createAccount (HTTP Method : POST) (Request Body : JSON)

b. /updateAccount/{account no.} (HTTP Method : PUT) (Request Body : JSON)

c. /viewPolicy/{account no.} (HTTP Method : GET) (No Request Body)

d. /deletePolicy/{account no.} (HTTP Method : DELETE) (No Request Body)

2. Write necessary Junit testcase.

3. Generate HTML report using TestNG.

4. Push your code into your GitHub Repository.

Note : Preload some data into the database. www.staragile.com

Later, you need to implement Continuous Integration & Continuous Deployment using following tools:

- Git - For version control for tracking changes in the code files
- Maven – For Continuous Build
- Jenkins - For continuous integration and continuous deployment
- Docker - For deploying containerized applications
- Ansible - Configuration management tools
- Selenium - For automating tests on the deployed web application
- Terraform - For creation of infrastructure.
- Prometheus and Grafana – For Automated Monitoring and Report Visualization

This project will be about how to test the services and deploy code to dev/stage/prod etc, just on a click of button.

Business challenge/requirement

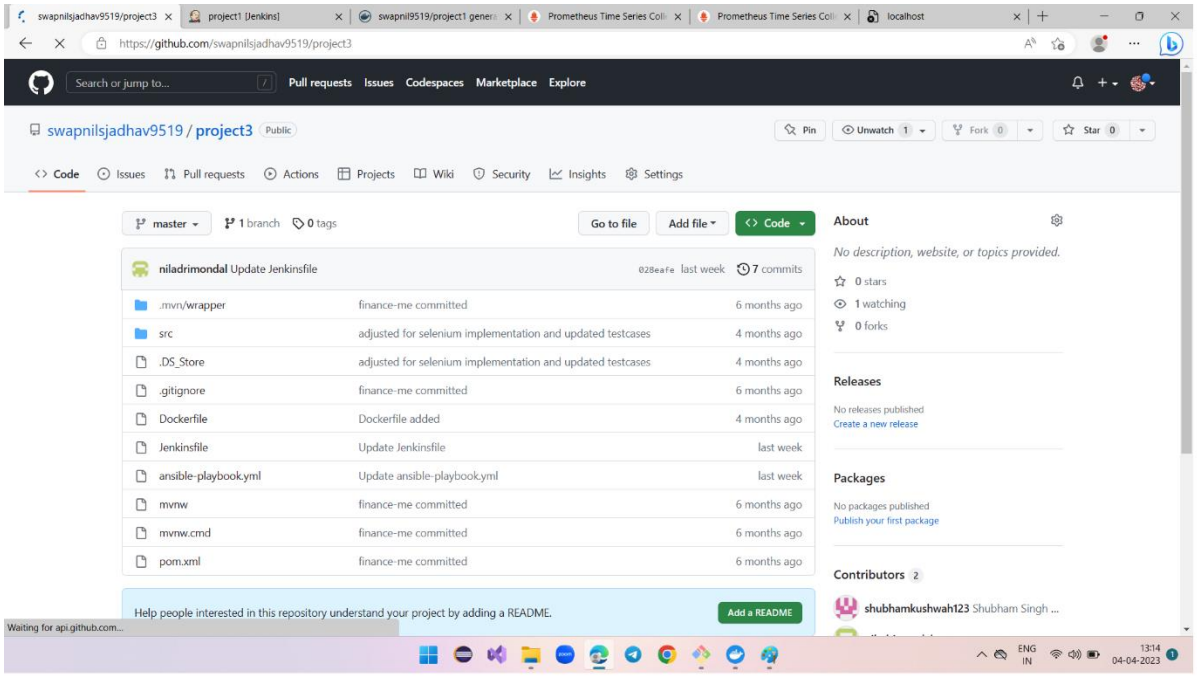
As soon as the developer pushes the updated code on the GIT master branch, the code should be checked out, compiled, tested, packaged and containerized. A new test-server should be provisioned using terraform and should be automatically configured using Ansible with all the required software's and as soon as the server is available, the application must be deployed to the test-server automatically.

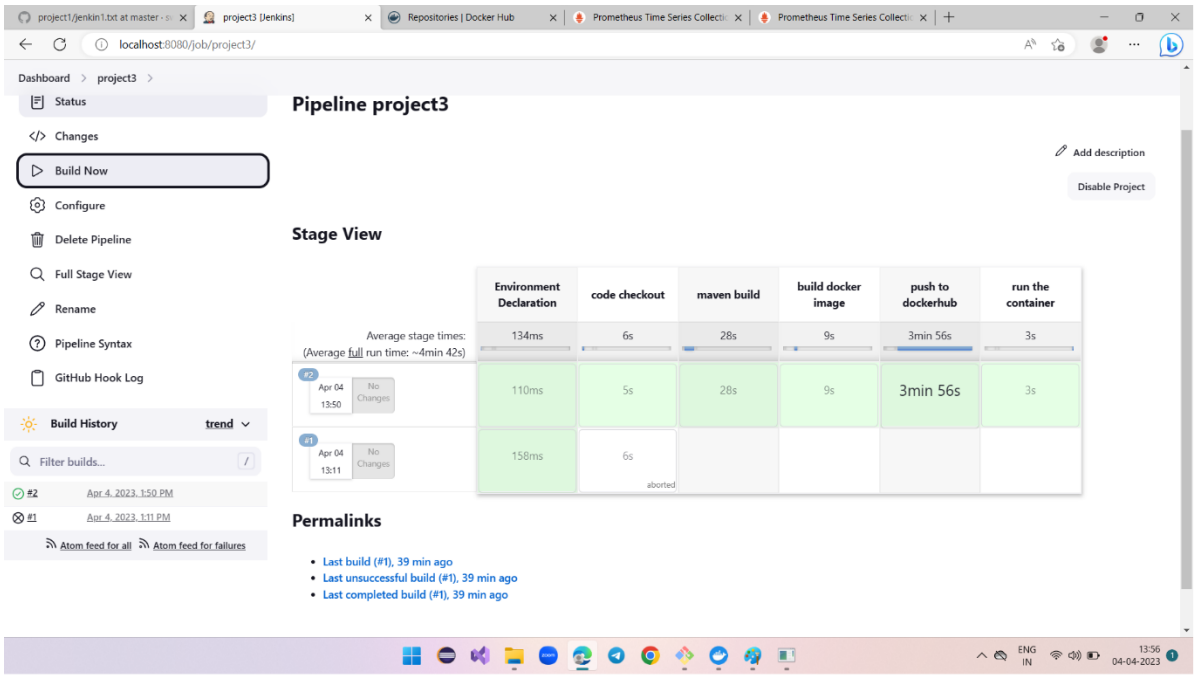
The deployment should then be tested using a test automation tool, and if the build is Successful, Prod server must be configured with all the software it should be pushed to the prod server. All this should happen automatically and should be triggered from a push to the GitHub master branch.

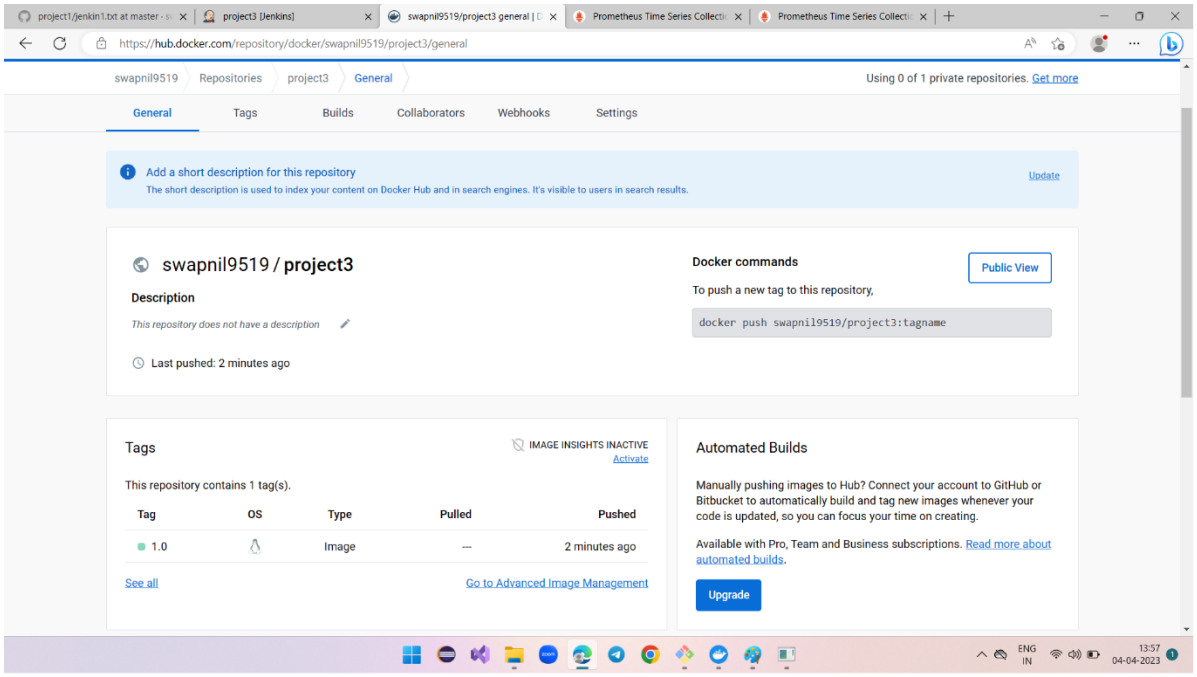
Continuous monitoring server must be configured to monitor the test as well as prod server using Prometheus and Grafana should be configured to display a dashboard with following metrics.

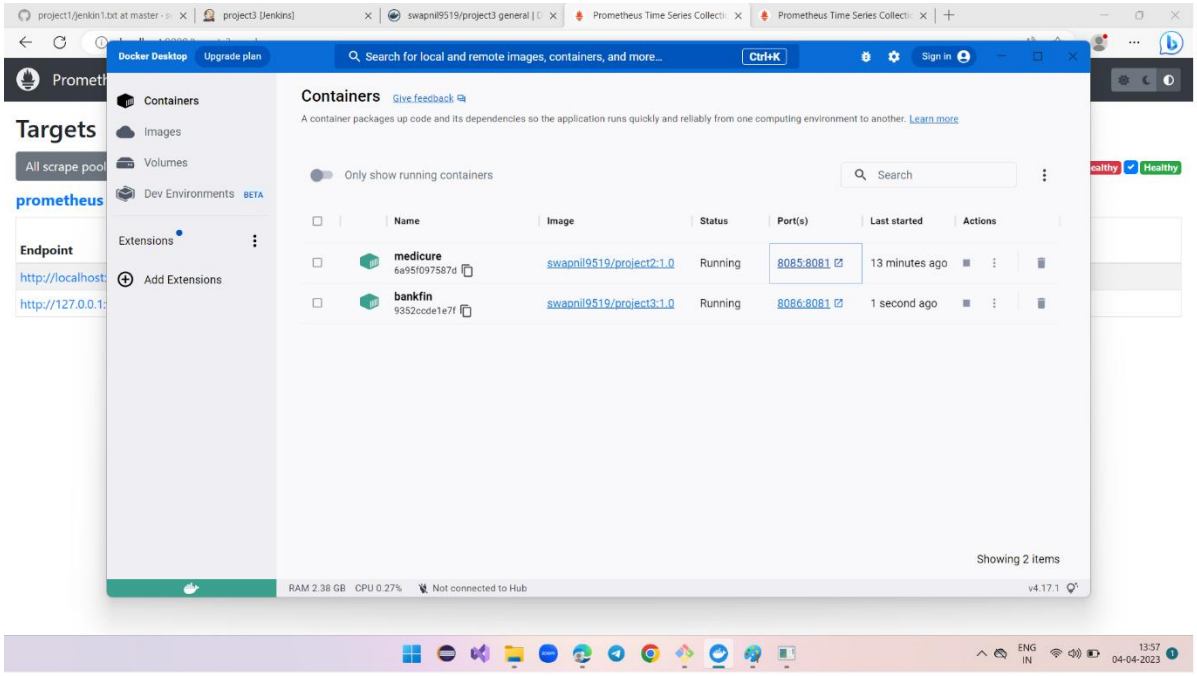
1. CPU utilization
2. Disk Space Utilization
3. Total Available Memory

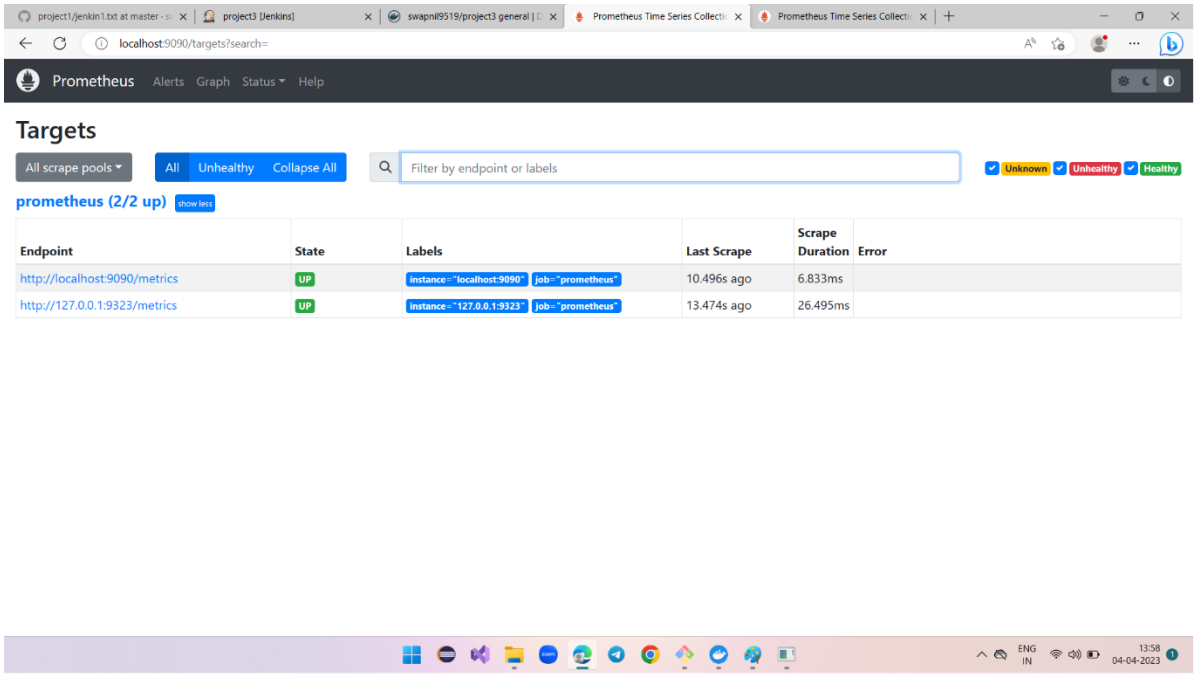
Note : To have a detailed information about running the application and exposed APIs, Input/Output format, Refer to the README.md in the GitHub repository.

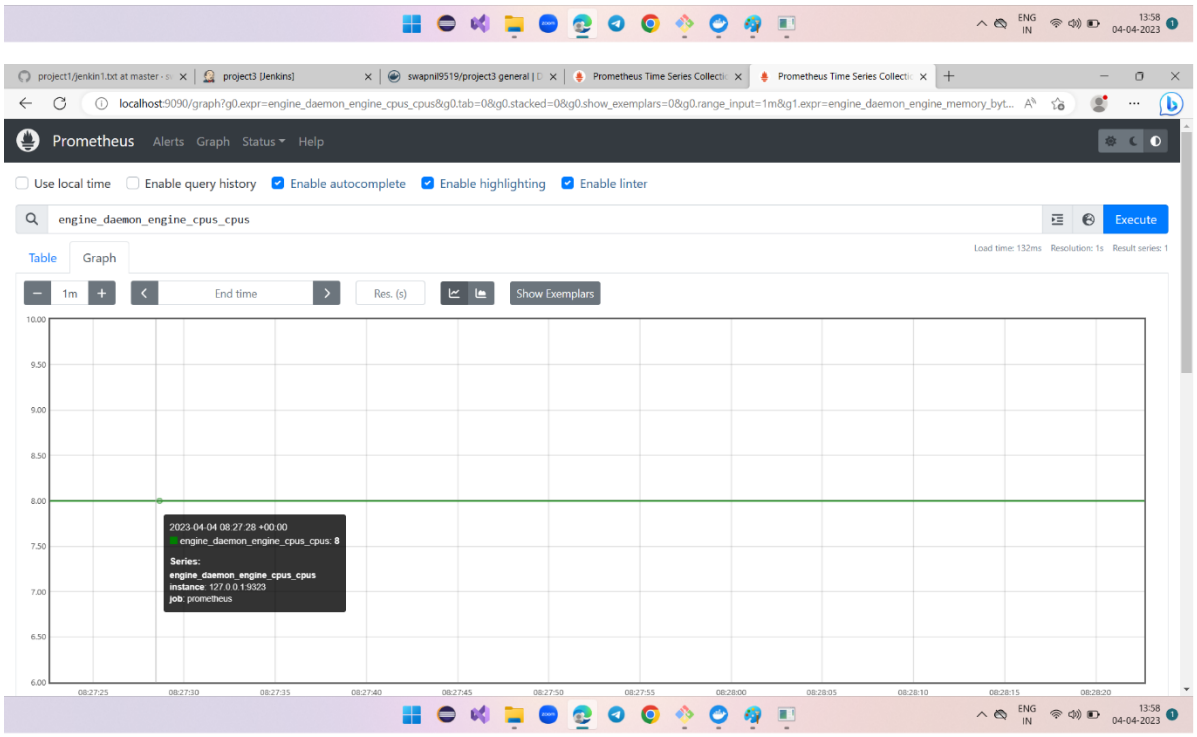

swapnilsjadhav9519/project3
https://github.com/swapnilsjadhav9519/project3
Search or jump to...
Pull requests Issues Codespaces Marketplace Explore
swapnilsjadhav9519 / project3 Public
Pin Unwatch 1 Fork 0 Star 0
Code Issues Pull requests Actions Projects Wiki Security Insights Settings
master 1 branch 0 tags
Go to file Add file Code
niladrimondal Update Jenkinsfile 028eafe last week 7 commits
.mvn/wrapper finance-me committed 6 months ago
src adjusted for selenium implementation and updated testcases 4 months ago
.DS_Store adjusted for selenium implementation and updated testcases 4 months ago
.gitignore finance-me committed 6 months ago
Dockerfile Dockerfile added 4 months ago
Jenkinsfile Update Jenkinsfile last week
ansible-playbook.yml Update ansible-playbook.yml last week
mvnw finance-me committed 6 months ago
mvnw.cmd finance-me committed 6 months ago
pom.xml finance-me committed 6 months ago
Help people interested in this repository understand your project by adding a README.
Add a README
About
No description, website, or topics provided.
0 stars
1 watching
0 forks
Releases
No releases published
Create a new release
Packages
No packages published
Publish your first package
Contributors 2
shubhamkushwah123 Shubham Singh ...
Waiting for api.github.com...

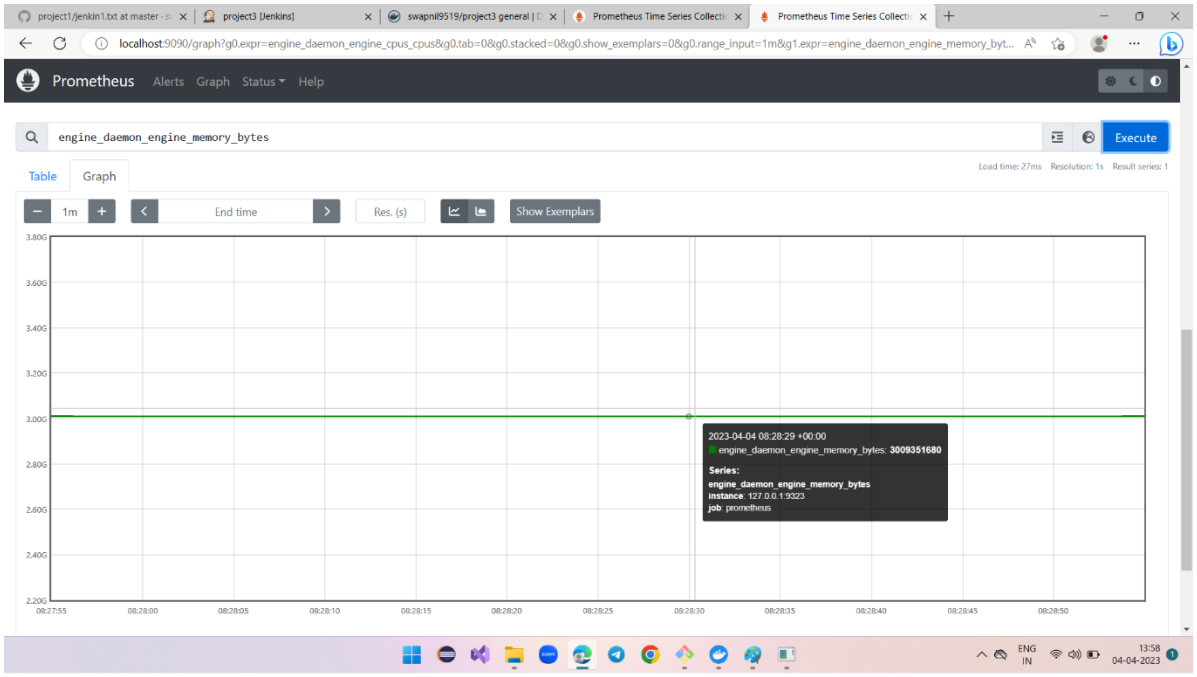

localhost:8080/job/project3/
Dashboard > project3 >
Status
Changes
Build Now
Configure
Delete Pipeline
Full Stage View
Rename
Pipeline Syntax
GitHub Hook Log
Build History trend
Filter builds...
#2 Apr 4, 2023, 1:50 PM
#1 Apr 4, 2023, 1:11 PM
Atom feed for all Atom feed for failures
Pipeline project3
Add description
Disable Project
Stage View
Environment Declaration
code checkout
maven build
build docker image
push to dockerhub
run the container
Average stage times:
(Average full run time: ~4min 42s)
134ms 6s 28s 9s 3min 56s 3s
#2 Apr 04 13:50 No Changes
110ms 5s 28s 9s 3min 56s 3s
#1 Apr 04 13:11 No Changes
158ms 6s aborted
Permalinks
Last build (#1), 39 min ago
Last unsuccessful build (#1), 39 min ago
Last completed build (#1), 39 min ago

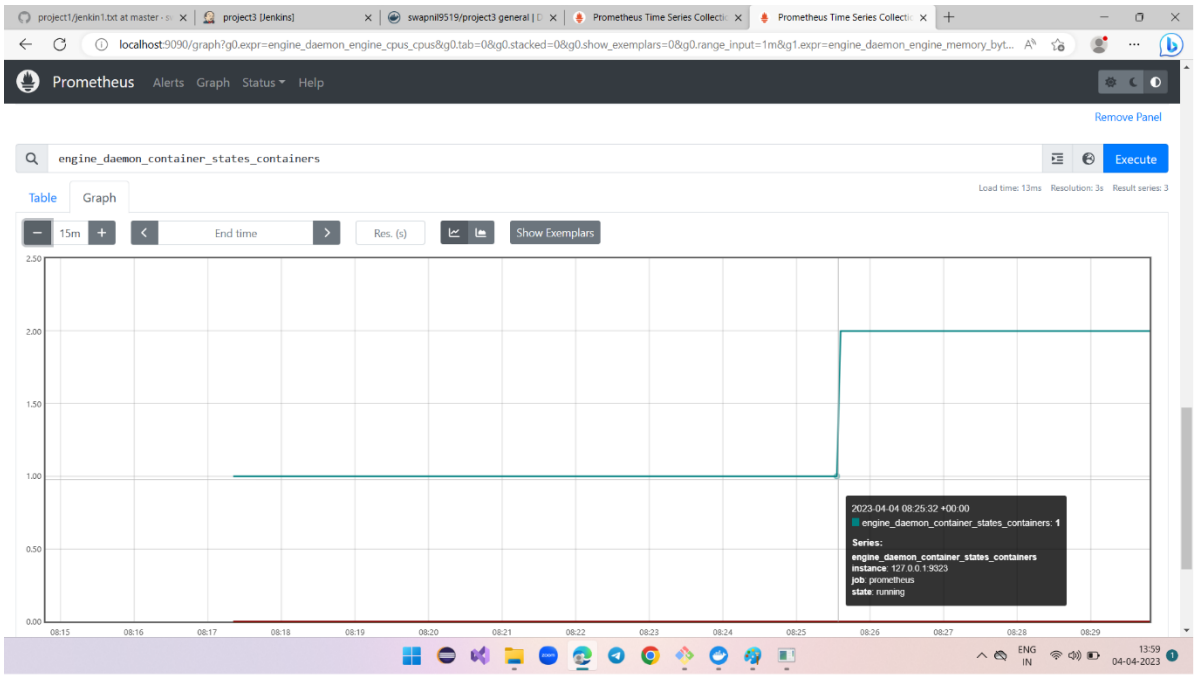

https://hub.docker.com/repository/docker/swapnil9519/project3/general
swapnil9519 / Repositories / project3 / General
Using 0 of 1 private repositories. Get more
General
Tags
Builds
Collaborators
Webhooks
Settings
Add a short description for this repository
The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results.
Update
swapnil9519 / project3
Description
This repository does not have a description
Last pushed: 2 minutes ago
Docker commands
Public View
To push a new tag to this repository,
docker push swapnil9519/project3:tagname
Tags
IMAGE INSIGHTS INACTIVE
Activate
This repository contains 1 tag(s).
Tag
OS
Type
Pulled
Pushed
1.0
Image
---
2 minutes ago
See all
Go to Advanced Image Management
Automated Builds
Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.
Available with Pro, Team and Business subscriptions. Read more about automated builds.
Upgrade

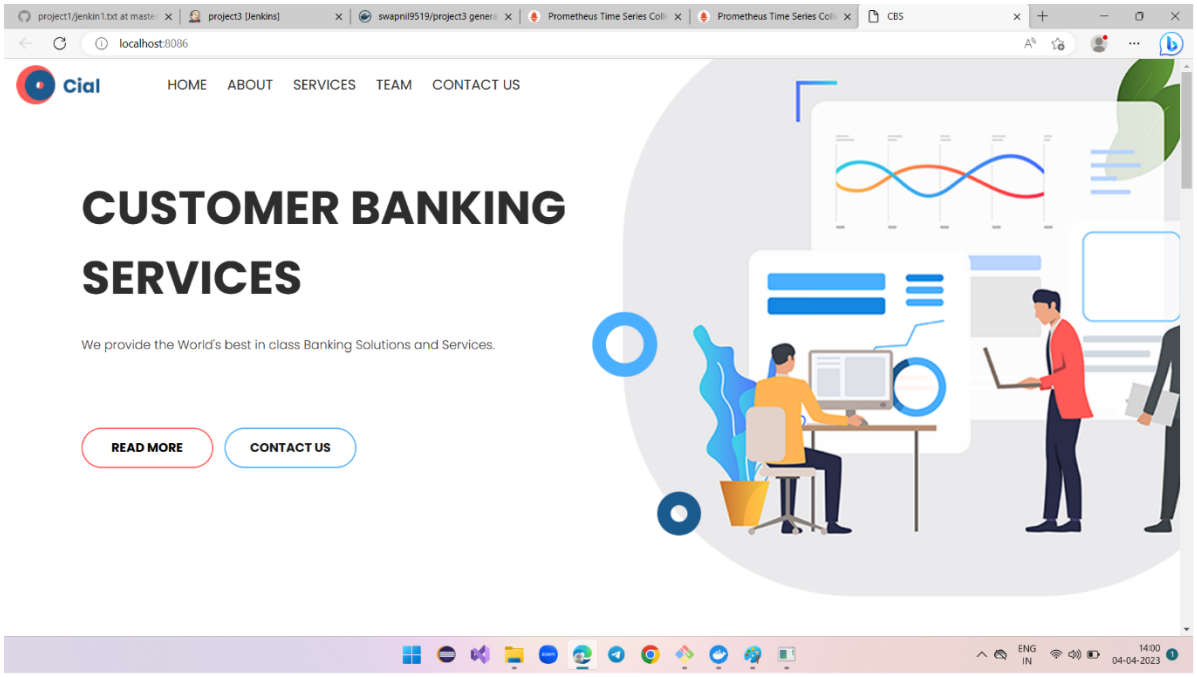

Docker Desktop
Upgrade plan
Search for local and remote images, containers, and more...
Ctrl+K
Sign in
Containers
Images
Volumes
Dev Environments BETA
Extensions
Add Extensions
Containers
Give feedback
A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. Learn more
Only show running containers
Search
Name
Image
Status
Port(s)
Last started
Actions
medicure
6a95f097587d
swapnil9519/project2:1.0
Running
8085:8081
13 minutes ago
bankfin
9352ccde1e7f
swapnil9519/project3:1.0
Running
8086:8081
1 second ago
Showing 2 items
RAM 2.38 GB
CPU 0.27%
Not connected to Hub
v4.17.1
Targets
All scrape pool
prometheus
Endpoint
http://localhost
http://127.0.0.1
Healthy


Prometheus
Alerts
Graph
Status
Help
Targets
All scrape pools
All
Unhealthy
Collapse All
Filter by endpoint or labels
Unknown
Unhealthy
Healthy
prometheus (2/2 up)
show less
Endpoint
State
Labels
Last Scrape
Scrape Duration
Error
http://localhost:9090/metrics
UP
instance="localhost:9090"
job="prometheus"
10.496s ago
6.833ms
http://127.0.0.1:9323/metrics
UP
instance="127.0.0.1:9323"
job="prometheus"
13.474s ago
26.495ms


Prometheus
Alerts
Graph
Status
Help
Use local time
Enable query history
Enable autocomplete
Enable highlighting
Enable linter
engine_daemon_engine_cpus_cpus
Execute
Table
Graph
1m
End time
Res. (s)
Show Exemplars
2023-04-04 08:27:28 +00:00
engine_daemon_engine_cpus_cpus: 8
Series:
engine_daemon_engine_cpus_cpus
instance: 127.0.0.1:9323
job: prometheus


Prometheus
Alerts
Graph
Status
Help
engine_daemon_engine_memory_bytes
Execute
Table
Graph
Show Exemplars
2023-04-04 08:28:29 +00:00
engine_daemon_engine_memory_bytes: 3009351680
Series:
engine_daemon_engine_memory_bytes
instance: 127.0.0.1:9323
job: prometheus


Prometheus
Alerts
Graph
Status
Help
Remove Panel
engine_daemon_container_states_containers
Execute
Table
Graph
Show Exemplars
2023-04-04 08:25:32 +00:00
engine_daemon_container_states_containers: 1
Series:
engine_daemon_container_states_containers
instance: 127.0.0.1:9323
job: prometheus
state: running


project1/jenkin1.txt at maste
project3 [Jenkins]
swapnil9519/project3 gener
Prometheus Time Series Colle
Prometheus Time Series Colle
CBS
localhost:8086
Cial
HOME
ABOUT
SERVICES
TEAM
CONTACT US
CUSTOMER BANKING SERVICES
We provide the World's best in class Banking Solutions and Services.
READ MORE
CONTACT US
ENG
IN
14:00
04-04-2023