

**Name: Vishwesh Rushi.**

## **Medicure**

### **Health-care-project**

Health-care Domain Project

#### **DEVOPS**

Medicure is a super specialty hospital based in New York, USA and provide world class treatment and surgery including Heart, Liver, Kidney transplants and first robotic surgery center. The chain is owned and managed by Global Health Limited.

The Medicure would centrally like to manage all the doctor's and patient's data across the Medicure hospitals in various cities. They have developed an microservice, which offers these services. In order to reduce unnecessary maintenance cost and manual labor, they would like to automate their application build and deployment process using DevOps. They are fine to use any one of the (AWS, Azure, GCP) cloud platform as their primary cloud service provider.

The company's primary goal is to deliver the product updates frequently to production with High quality & Reliability. They also want to accelerate software delivery speed, quality and reduce feedback time between developers and testers. They would like to use Kubernetes to manage their container deployments, scaling and descaling of containers etc.

Implementing Continuous Integration & Continuous Deployment using following tools:

- ✓ Aws – For infrastructure and networking.
- ✓ 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.
- ✓ Kubernetes – For continuous deployment.
- ✓ Terraform - For creation of infrastructure.
- ✓ Prometheus and Grafana – For Automated Monitoring and Report Visualization.

Aws-

- Creating an EC2 instance for terraform/git server.
- Creating key pair & security group for Terraform/git instance.
- Creating access key and secret key for aws ec2 console.

The screenshot shows the AWS Cloud Console interface for launching an EC2 instance. The top navigation bar includes links for Gmail, YouTube, Capita Jobs, Tools [Jenkins], and the user vishwesh. The main content area is titled "Launch an instance" under the EC2 Services menu. The "Summary" step is active, showing the configuration details:

- Name and tags**: Name is set to "Terraform".
- Software Image (AMI)**: Canonical, Ubuntu, 20.04 LTS.
- Virtual server type (instance type)**: t2.micro.
- Firewall (security group)**: New security group.
- Storage (volumes)**: 1 volume(s) - 8 GiB.

A tooltip for the "Free tier" is displayed, stating: "In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which you launch instances)." The "Launch instance" button is highlighted in orange at the bottom right of the summary step.

Below the summary, the "Quick Start" step is visible, showing options for key pair creation and network settings. The "Create key pair" dialog is open, prompting the user to enter a key pair name ("Project") and select a key pair type (RSA or ED25519). A note at the bottom of the dialog advises users to store the private key securely for future connection.

The bottom of the screen shows the Windows taskbar with various pinned icons and the system clock indicating it's 22-02-2024 at 10:05 AM.

**Launch an instance | EC2 | ap-south-1**

RushVishwesh/Health-care-prm

ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#LaunchInstances:

Gmail YouTube Capita Jobs Tools Jenkins

aws Services Search [Alt+S]

**Firewall (security groups) [Info](#)**  
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group    Select existing security group

**Security group name - required**  
Project-sg  
This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and \_-/0#@[!+&\_!]\$\*

**Description - required [Info](#)**  
Project-sg

**Inbound Security Group Rules**  
▼ Security group rule 1 (All, All, 0.0.0.0/0)

Type <a href="#">Info</a>	Protocol <a href="#">Info</a>	Port range <a href="#">Info</a>
All traffic	All	All
Source type <a href="#">Info</a>	Source <a href="#">Info</a>	Description - optional <a href="#">Info</a>
Anywhere	Add CIDR, prefix list or security	e.g. SSH for admin desktop
0.0.0.0/0		

⚠️ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting

**Summary**

Number of instances [Info](#)  
1

Software Image (AMI)  
Canonical, Ubuntu, 20.04 LTS, ...[read more](#)  
ami-0a7cf821b91bccbc

Virtual server type (instance type)  
t2.micro

Firewall (security group)  
New security group

Storage (volumes)  
1 volume(s) - 8 GiB

ⓘ Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which you launch instances.

Cancel **Launch instance** Review commands

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**Instances (1/1) [Info](#)**

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
Terraform/Git	i-0046d8d2a8fae38f4	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	ec2-13-233-148-15.ap...	13.233.148

**Instance: i-0046d8d2a8fae38f4 (Terraform/Git)**

Details Status and alarms New Monitoring Security Networking Storage Tags

**Instance summary [Info](#)**

Instance ID i-0046d8d2a8fae38f4 (Terraform/Git)	Public IPv4 address 13.233.148.15 <a href="#">open address</a>	Private IPv4 addresses 172.31.34.72
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-13-233-148-15.ap-south-1.compute.amazonaws.com <a href="#">open address</a>
Hostname type IP name: ip-172-31-34-72.ap-south-1.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-34-72.ap-south-1.compute.internal	Elastic IP addresses
Answer private resource DNS name	Instance type t2.micro	

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The screenshot shows a browser window with the URL [us-east-1.console.aws.amazon.com/iam/home#/security\\_credentials/access\\_key\\_wizard](https://us-east-1.console.aws.amazon.com/iam/home#/security_credentials/access_key_wizard). The page title is "Access key created". A green banner at the top states: "This is the only time that the secret access key can be viewed or downloaded. You cannot recover it later. However, you can create a new access key any time." Below this, there are two tabs: "Step 1" (Alternatives to root user access keys) and "Step 2" (Retrieve access key). The "Step 2" tab is active, showing a table with one row. The table has two columns: "Access key" and "Secret access key". The "Access key" column contains the value "AKIAT2TRW23YWAONVW". The "Secret access key" column contains a long string of asterisks followed by a "Show" link. To the right of the table is a section titled "Access key best practices" with a bulleted list: "Never store your access key in plain text, in a code repository, or in code.", "Disable or delete access key when no longer needed.", "Enable least-privilege permissions.", and "Rotate access keys regularly.". At the bottom right of the page are "Download .csv file" and "Done" buttons.

## Aws instance prerequisites :

### Terraform/git server:

- Installing Terraform , Java , Git , maven , docker.

The screenshot shows a MobaXterm terminal window titled "13.233.148.15 (ubuntu)". The terminal session is running as root on IP address 172.31.34.72. The user has run several commands to verify tool installations:

```

root@ip-172-31-34-72:~# java -version
openjdk version "11.0.21" 2023-10-17
OpenJDK Runtime Environment (build 11.0.21+9-post-Ubuntu-Ubuntu120.04)
OpenJDK 64-Bit Server VM (build 11.0.21+9-post-Ubuntu-Ubuntu120.04, mixed mode, sharing)

root@ip-172-31-34-72:~# mvn -version
Apache Maven 3.6.3
Maven home: /usr/share/maven
Java version: 11.0.21, vendor: Ubuntu, runtime: /usr/lib/jvm/java-11-openjdk-amd64
Default locale: en, platform encoding: UTF-8
OS name: "linux", version: "5.15.0-1048-aws", arch: "amd64", family: "unix"

root@ip-172-31-34-72:~# git --version
git version 2.25.1

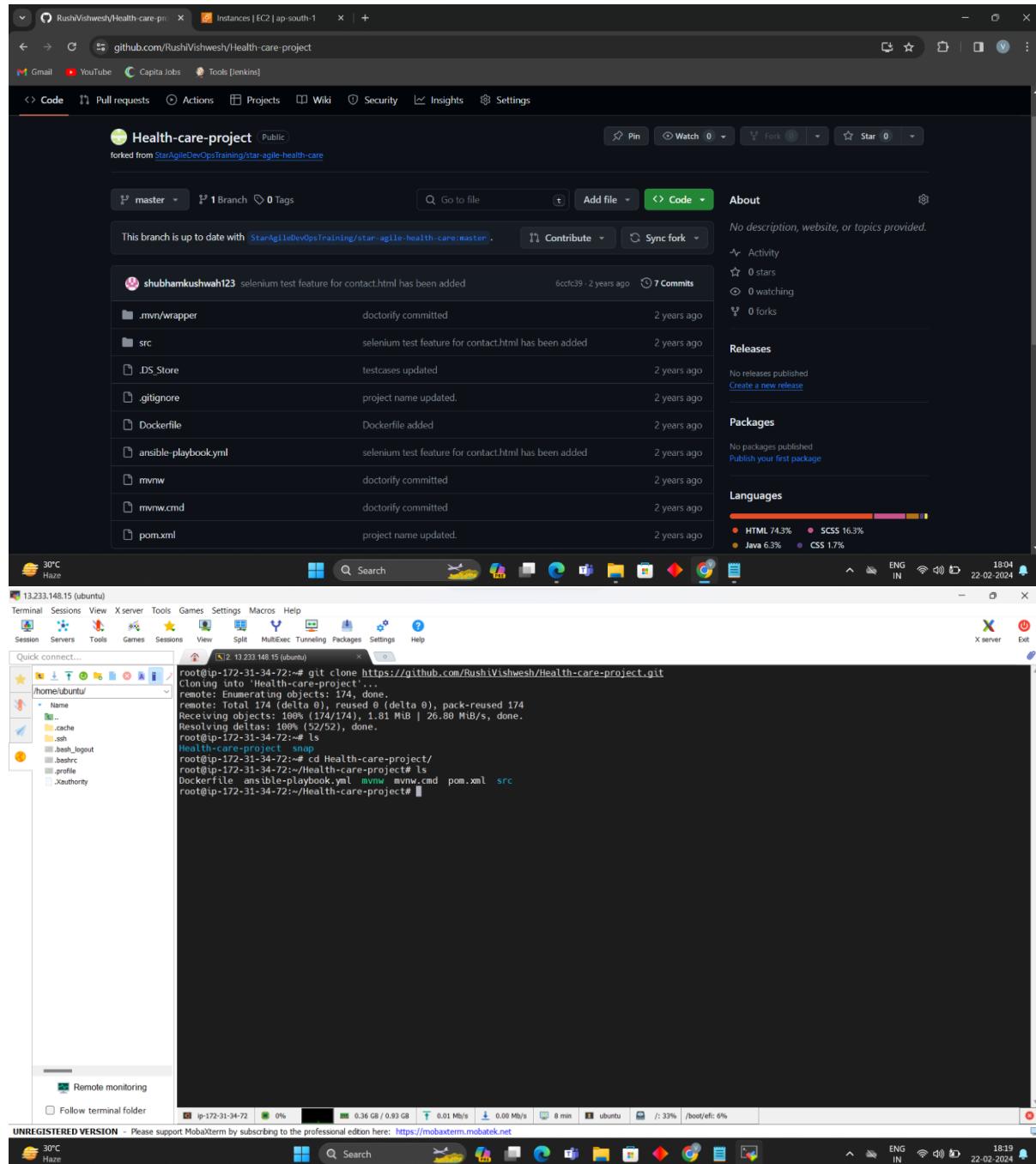
root@ip-172-31-34-72:~# docker --version
Docker: 24.0.5, build 24.0.5-0ubuntu1~20.04.1
root@ip-172-31-34-72:~# terraform --version
Terraform v1.7.4
on linux_amd64
root@ip-172-31-34-72:~#

```

The terminal window includes a sidebar for "Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help". The status bar at the bottom shows system information like CPU usage, memory, and network activity. The desktop taskbar at the bottom includes icons for File Explorer, Task View, Start, and various application icons.

## Git:

- Cloning the source code from github repository.
- Using github repository building the application image and running the image using built image.
- Creating access token for github account.



```

13.233.148.15 (ubuntu)
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
S: home/ubuntu/
D: Name .cache .ssh bash_logout bashrc profile .xauthority
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-shared-utils/3.1.0/maven-shared-utils-3.1.0.jar (164 kB at 153 kB)
Downloaded from central: https://repo.maven.apache.org/maven2/org/asf/asf-8.0.jar (122 kB at 114 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/jdom/jdom2/2.0.6/jdom2-2.0.6.jar
Downloaded from central: https://repo.maven.apache.org/maven/shared/maven-dependency-tree/3.0.1/maven-dependency-tree-3.0.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-dependency-tree/2.4.0/maven-dependency-tree-2.4.0.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/asf/asf-8.0.jar (53 kB at 49 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/guava/28.2-android/guava-28.2-android.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/maven/shared/maven-dependency-tree/3.0.1/maven-dependency-tree-3.0.1.jar (37 kB at 3 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/failureaccess/1.0.1/failureaccess-1.0.1.jar
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/failureaccess/1.0.1/failureaccess-1.0.1.jar (4.6 kB at 4.1 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/listenablefuture/9999.0-empty-to-avoid-conflict-with-guava/listenablefuture-9999.0-empty-to-avoid-conflict-with-guava.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/asf/asf-util/8.0/asf-util-8.0.jar (85 kB at 74 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/checkerframework/checker-compat-qual/2.5.5/checker-compat-qual-2.5.5.jar
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/listenablefuture/9999.0-empty-to-avoid-conflict-with-guava/listenablefuture-9999.0-empty-to-avoid-conflict-with-guava.jar (2.2 kB at 1.9 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/checkerframework/checker-compat-qual/2.5.5/checker-compat-qual-2.5.5.jar (5.9 kB at 5.0 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/errorprone/error_prone_annotations/2.3.4/error_prone_annotations-2.3.4.jar
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/j2objc/j2objc-annotations/1.3/j2objc-annotations-1.3.jar
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/errorprone/error_prone_annotations/2.3.4/error_prone_annotations-2.3.4.jar (14 kB at 12 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/water/idependency/2.4.0/idependency-2.4.0.jar (188 kB at 150 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/j2objc/j2objc-annotations/1.3/j2objc-annotations-1.3.jar (8.8 kB at 7.3 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-lang3/3.7/commons-lang3-3.7.jar
Downloaded from central: https://repo.maven.apache.org/maven2/org/ideajdom2/2.0.6/ideajdom2-2.0.6.jar (308 kB at 247 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/org/apache/commons/commons-lang3/3.7/commons-lang3-3.7.jar (500 kB at 376 kB/s)
Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/guava/28.2-android/guava-28.2-android.jar (2.6 MB at 1.8 MB/s)
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 39.512 s
[INFO] Finished at: 2024-02-22T12:50:20Z
[INFO] root@ip-172-31-34-72:~/Health-care-project# 

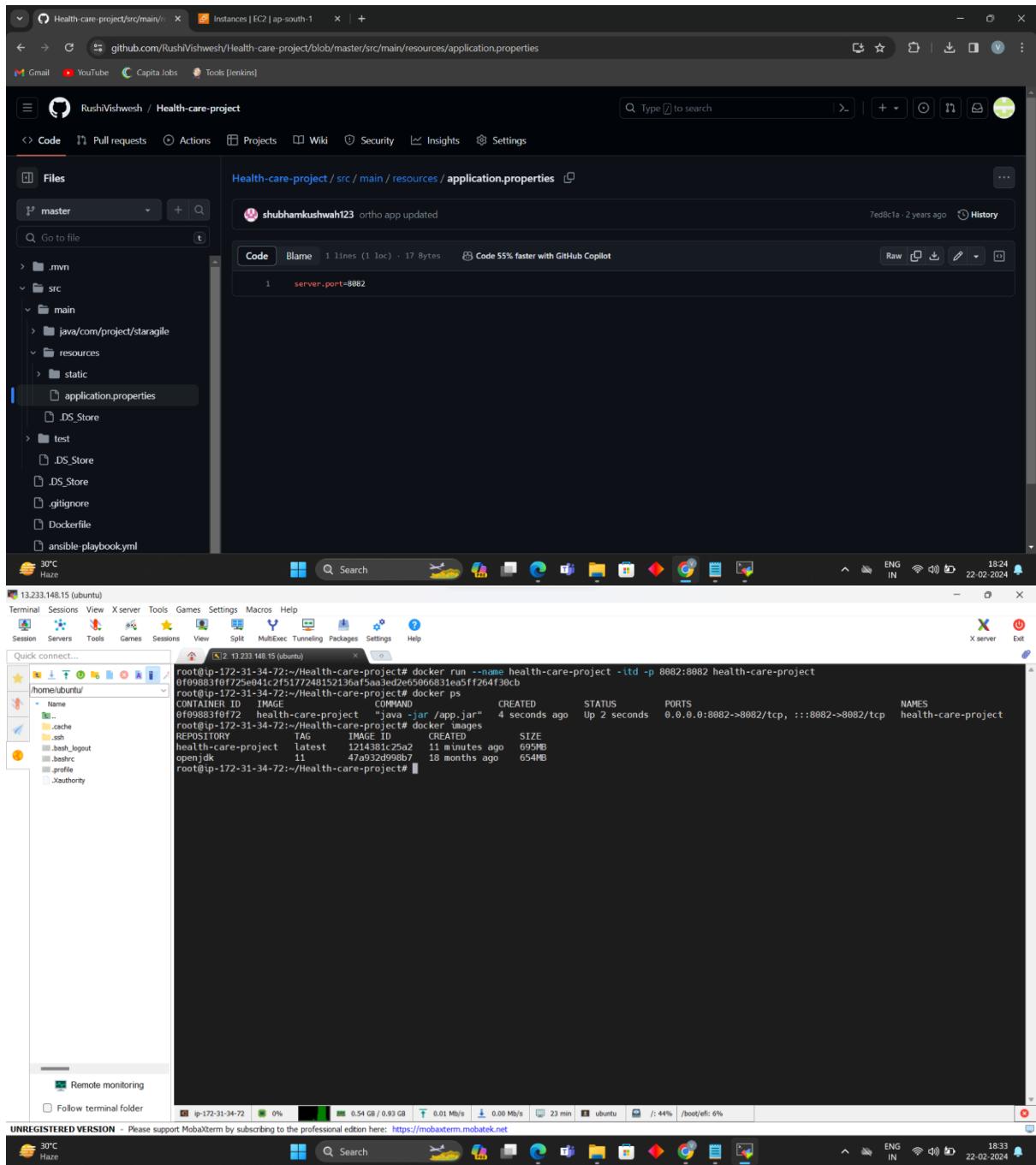
Ip-172-31-34-72 ~ 100% 0.37 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 10 min ubuntu / 35% /boot/efi: 6%
ENG IN 22-02-2024 1820

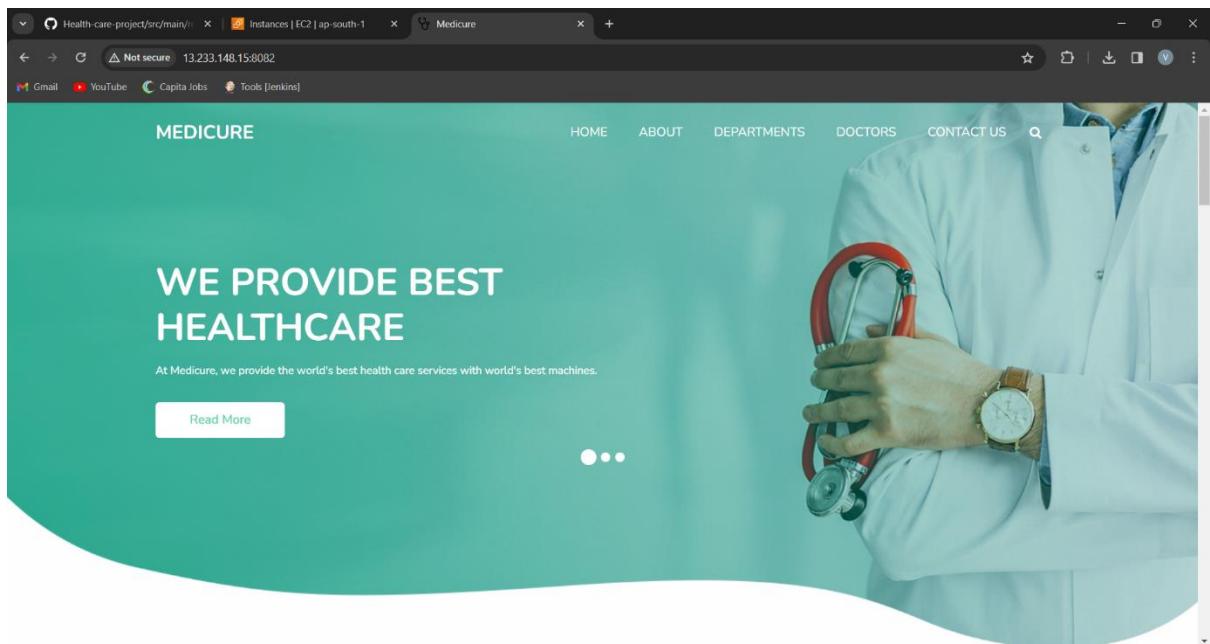
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30°C Haze
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
S: home/ubuntu/
D: Name .cache .ssh bash_logout bashrc profile .xauthority
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 39.512 s
[INFO] Finished at: 2024-02-22T12:50:20Z
[INFO] root@ip-172-31-34-72:~/Health-care-project# docker build -t health-care-project .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/
Sending build context to Docker daemon 49.59MB
Step 1/4 : FROM openjdk:11
1: Pulling from library/openjdk
001c52a620ad5: Pull complete
d9d40b6e964: Pull complete
2068746827ec: Pull complete
9daef3296350: Pull complete
d8515119b66: Pull complete
66223a18990: Pull complete
d838d58ec8db: Pull complete
Digest: sha256:99bac5b183633a3c7399aed725c8415e7b569b54e03e4599e580fc9cdb7c21ab
Status: Downloaded newer image for openjdk:11
--> 47a932d998b7
Step 2/4 : ARG JAR FILE=target/*.jar
--> Running in ab17d7e19d37
Removing intermediate container ab17d7e19d37
--> df70933dc64
Step 3/4 : COPY ${JAR_FILE} app.jar
--> 4b9c19332315
Step 4/4 : RUN PRINT ["java","-jar","./app.jar"]
--> Running in 3ce87a4e58d
Removing intermediate container 3ce87a4e58d
--> 1214381c25a2
Successfully built 1214381c25a2
Successfully tagged health-care-project:latest
root@ip-172-31-34-72:~/Health-care-project# docker images
REPOSITORY          TAG      IMAGE ID      CREATED             SIZE
health-care-project latest  1214381c25a2  19 seconds ago  695MB
openjdk              11      47a932d998b7  18 months ago   654MB
root@ip-172-31-34-72:~/Health-care-project# 

Ip-172-31-34-72 ~ 100% 0.42 GB / 0.83 GB 0.01 Mb/s 0.00 Mb/s 11 min ubuntu / 44% /boot/efi: 6%
ENG IN 22-02-2024 1822

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30°C Haze

```





Devops environment for Health care project:

### Terraform-

- Creating Terraform file on Terraform/git server.
- Initializing terraform
- Applying the terraform file.
- Creating instances and security group for all devops tools instances on aws ec2 console.
- Committing & pushing terraform file to github repository using access token on Terraform/git server.

```
root@ip-172-31-34-72:~/Health-care-project# vi Terraform.tf
root@ip-172-31-34-72:~/Health-care-project# cat Terraform.tf
provider "aws" {
  region      = "ap-south-1"
  access_key  = "AKIA1ZTFRW23YWA0ENVW"
  secret_key  = "2H1L6F3S1cdH@l17Kw75JlxGjpf65o5krFfBRY"
}

resource "aws_security_group" "Project-hc-sg" {
  name        = "Project-hc-sg"
  ingress {
    from_port  = 0
    to_port   = 65535
    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"]
  }
}
resource "aws_instance" "Project" {
  ami           = "ami-0a7cf821b91bccbc"
  instance_type = "t2.micro"
  security_groups = [aws_security_group.Project-hc-sg.name]
  key_name      = "Project"
  count         = 6
}

root@ip-172-31-34-72:~/Health-care-project# ls
Dockerfile  Terraform.tf  ansible-playbook.yml  mvnw  mvnw.cmd  pom.xml  src  target  terraform.tfstate
root@ip-172-31-34-72:~/Health-care-project#
```

The terminal window is part of the MobaXterm interface, which includes a file browser on the left and various system status indicators at the bottom.

13.233.148.15 (ubuntu)

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

[x] 13.233.148.15 (ubuntu)

```
protocol = "tcp"
cdr_blocks = ["0.0.0.0/0"]
}
egress {
from_port = 0
to_port = 0
protocol = "-1"
cdr_blocks = ["0.0.0.0/0"]
}
}

resource "aws_instance" "Project" {
ami = "ami-0a7cf82b1b91bcccbc"
instance_type = "t2.micro"
security_groups = [aws_security_group.Project-hc-sg.name]
key_name = "Project"
count = 6
}
root@ip-172-31-34-72:~/Health-care-project# ls
Dockerfile Terraform.tf ansbile-playbook.yml mvnw mvnw.cmd pom.xml src target terraform.tfstate
root@ip-172-31-34-72:~/Health-care-project# terraform init

Initializing the backend...

Initializing provider plugins...
- Reusing previous version of hashicorp/aws from the dependency lock file
- Using previously-installed hashicorp/aws v5.37.0

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.

If you ever set or change modules or backend configuration for Terraform,
run 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-172-31-34-72:~/Health-care-project# ls
Dockerfile Terraform.tf ansbile-playbook.yml mvnw mvnw.cmd pom.xml src target terraform.tfstate
root@ip-172-31-34-72:~/Health-care-project#
```

Remote monitoring

Follow terminal folder

ip-172-31-34-72 3% 0.37 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 36 min 16m 11s 54% /boot/efc: 6%

A screenshot of a Linux desktop environment, likely Ubuntu, featuring a terminal window in the foreground. The terminal shows the output of a Terraform 'apply' command, which is creating multiple AWS resources including security groups and instances. The desktop background is light blue, and the taskbar at the bottom displays various application icons. The terminal window has a scrollback buffer showing the progress of the resource creation.

Screenshot of the AWS CloudShell interface showing the EC2 Instances page. The browser tab is titled "Instances | EC2 | ap-south-1".

The left sidebar shows the navigation menu:

- EC2 Dashboard
- EC2 Global View
- Events
- Instances
  - Instances**
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
  - New
- Images
  - AMIs
  - AMI Catalog
- Elastic Block Store
  - Volumes
  - Snapshots

The main content area displays the "Instances (7) Info" table:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Terraform/Git	i-0046d8d2a8fae38f4	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-13-233-148-
Jenkins master	i-08d34342610867994	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-13-235-33-4
Build server(M...	i-02638ec4012bee071	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-13-
Kubernetes-m...	i-0717c071f0c28747f	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-13-201-2-10
Kubernetes-w...	i-064b4bd3bc30ef9d1	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-13-233-224-
Kubernetes-w...	i-053fcddb9ed77a210	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-3-108-67-11
Monitoring(gr...	i-0985205f7e6505b07	Running	t2.micro	2/2 checks passed	<a href="#">View alarms</a>	ap-south-1a	ec2-3-108-61-12

A modal window titled "Select an instance" is open at the bottom of the screen.

The bottom status bar shows the date and time as "22-02-2024 18:51".

Terraform/Git

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

home/ubuntu/

Name .cache auth .bashrc profile .Xauthority

root@ip-172-31-34-72:~/Health-care-project# git init  
Reinitialized existing Git repository in /root/Health-care-project/.git/  
root@ip-172-31-34-72:~/Health-care-project# git add Terraform.tf  
root@ip-172-31-34-72:~/Health-care-project# git commit -m "Terraform file"  
[master 4caa8d2] Terraform file  
Committer: root <root@ip-172-31-34-72.ap-south-1.compute.internal>  
Your name and email address were configured automatically based  
on your username and hostname. Please check that they are accurate.  
You can suppress this message by setting them explicitly. Run the  
following command and follow the instructions in your editor to edit  
your configuration file:  
git config --global --edit  
After doing this, you may fix the identity used for this commit with:  
git commit --amend --reset-author  
1 file changed, 30 insertions(+)  
create mode 100644 Terraform.tf  
root@ip-172-31-34-72:~/Health-care-project# git push -u origin master  
Username for 'https://github.com': RushiVishwesh  
Password for 'https://RushiVishwesh@github.com':  
Enumerating objects: 4, done.  
Counting objects: 4 (4/4), done.  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (3/3), 630 bytes | 630.00 KiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0)  
remote: Resolving deltas: 100% (1/1), completed with 1 local object.  
To https://github.com/RushiVishwesh/Health-care-project.git  
 cfa2634..4caa8d2 master --> master  
Branch 'master' set up to track remote branch 'master' from 'origin'.  
root@ip-172-31-34-72:~/Health-care-project#

Remote monitoring

Follow terminal folder

ip-172-31-34-72 8% 0.36 GB / 0.93 GB 0.01 MB/s 5 hours ubuntu /: 54% /boot/etc: 6%

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28°C Mostly cloudy

Search Medicure Setup Wizard [Jenkins]

Gmail YouTube Capita Jobs Tools [Jenkins]

github.com/RushiVishwesh/Health-care-project

This branch is 3 commits ahead of StarAgileDevOpsTraining/star-agile-health-care:master.

About

No description, website, or topics provided.

Activity

- 0 stars
- 0 watching
- 0 forks

Releases

No releases published

Packages

No packages published

Languages

HTML 73.7% SCSS 16.1%  
Java 6.2% CSS 1.7%  
JavaScript 1.3% HCL 0.9%  
Dockerfile 0.1%

Suggested workflows

Based on your tech stack

28°C Mostly cloudy

Search

## Aws devops tool instances prerequisites :

### 1. Jenkins master server:

- Installing Java , Jenkins , node-exporter.

The screenshot shows the AWS CloudWatch Instances console with the following details:

**Instances (1/7) Info**

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
Terraform/Git	i-0046d82a8fae38f4	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-114-114-114
<b>Jenkins master</b>	<b>i-08d34342610867994</b>	<b>Running</b>	<b>t2.micro</b>	<b>2/2 checks passed</b>	<b>View alarms</b>	<b>ap-south-1a</b>	<b>ec2-13-114-114-114</b>
Build server(M...)	i-02638bc4012bee071	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-114-114-114
Kubernetes-m...	i-0717c071f0c28747f	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-114-114-114
Kubernetes-w...	i-064b4bd3bc30ef9d1	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-114-114-114
Kubernetes-w...	i-053fcdd9ed77a210	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-11
Monitoring(gr...	i-0985205f7e6505b07	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-11

**Instance: i-08d34342610867994 (Jenkins master)**

**Details** | Status and alarms New | Monitoring | Security | Networking | Storage | Tags

**Instance summary**

Instance ID i-08d34342610867994 (Jenkins master)	Public IPv4 address 13.235.33.46 [open address]	Private IPv4 addresses 172.31.32.188
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-13-235-33-46.ap-south-1.compute.amazonaws.com

**Terminal Session**

```

root@ip-172-31-32-188:~# java -version
openjdk version "11.0.21" 2023-10-17
OpenJDK Runtime Environment (build 11.0.21+9-post-Ubuntu-0ubuntu120.04)
OpenJDK 64-Bit Server VM (build 11.0.21+9-post-Ubuntu-0ubuntu120.04, mixed mode, sharing)
root@ip-172-31-32-188:~# jenkins --version
2.446.1
root@ip-172-31-32-188:~# 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 2024-02-22 13:30:18 UTC; 1h 8min ago
       Main PID: 6104 (java)
          Tasks: 37 (limit: 1126)
         Memory: 316.0M
        CGroup: /system.slice/jenkins.service
               └─6104 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Feb 22 13:29:39 ip-172-31-32-188 jenkins[6104]: 72e3b50d9b034ac2a5df9d7939e5283
Feb 22 13:29:39 ip-172-31-32-188 jenkins[6104]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Feb 22 13:29:39 ip-172-31-32-188 jenkins[6104]: ****
Feb 22 13:30:18 ip-172-31-32-188 jenkins[6104]: 2024-02-22 13:30:18.379+0000 [id=38]      INFO  jenkins.InitReactorRunner$1#onAttained: Completed in
Feb 22 13:30:18 ip-172-31-32-188 jenkins[6104]: 2024-02-22 13:30:18.407+0000 [id=22]      INFO  hudson.lifecycle.Lifecycle$onReady: Jenkins is fully
Feb 22 13:30:18 ip-172-31-32-188 systemd[1]: Started Jenkins Continuous Integration Server.
Feb 22 13:30:18 ip-172-31-32-188 jenkins[6104]: 2024-02-22 13:30:19.423+0000 [id=45]      INFO  h.m.DownloadService$Downloadable#load: Obtained the us
Feb 22 13:30:18 ip-172-31-32-188 jenkins[6104]: 2024-02-22 13:30:19.424+0000 [id=45]      INFO  hudson.util.Retriger#start: Performed the action check
root@ip-172-31-32-188:~# sudo systemctl status node_exporter
● node_exporter.service - Prometheus Server
   Loaded: loaded (/etc/systemd/system/node_exporter.service; disabled; vendor preset: enabled)
     Active: active (running) since Thu 2024-02-22 14:37:58 UTC; 1min 19s ago
       Docs: https://prometheus.io/docs/introduction/overview/
     Main PID: 8749 (node exporter)
        Tasks: 3 (limit: 1126)
       Memory: 2.2M
        CGroup: /system.slice/node_exporter.service
               └─8749 /root/node_exporter-1.4.0-r0.0.linux-amd64/node_exporter

Feb 22 14:37:58 ip-172-31-32-188 node_exporter[8749]: ts=2024-02-22T14:37:58.024Z caller=node_exporter.go:115 level=info collector=thermal_zone
Feb 22 14:37:58 ip-172-31-32-188 node_exporter[8749]: ts=2024-02-22T14:37:58.024Z caller=node_exporter.go:115 level=info collector=time
Feb 22 14:37:58 ip-172-31-32-188 node_exporter[8749]: ts=2024-02-22T14:37:58.024Z caller=node_exporter.go:115 level=info collector=timex

```

**Remote monitoring**

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## 2. Build Server:

- Installing java , maven , docker , node-exporter.
- Creating user as devops name.
- Creating access token on dockerhub.

The screenshot shows the AWS CloudShell interface. At the top, the AWS Services navigation bar is visible, with 'CloudShell' selected. Below it, the 'Instances (1/7) Info' table lists one running t2.micro instance named 'Build server(M...)' with ID i-02638ec4012bee071. The 'Details' tab of the instance summary is open, showing its public IPv4 address (13.233.128.83), private IPv4 addresses (172.31.43.221), and public IPv4 DNS (ec2-13-233-128-83.ap-south-1.compute.amazonaws.com). The bottom half of the screen displays a terminal window titled 'Terraform/Git' showing the command-line session of a root user on the EC2 instance. The session includes commands like 'java -version', 'docker --version', and 'systemctl status node\_exporter'. A warning message about journal files being closed due to insufficient permissions is also present.

### 3. Kubernetes master and 2 worker-nodes servers:

- Creating kubernetes cluster with 2 worker-nodes.
- Adding devops user on Kubernetes master node.
- Creating ssh key for devops user.
- Installing node-exporter on all nodes.

**Instances (1/7) Info**

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
Terraform/Git	i-0046d8d2a8fae38f4	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Jenkins master	i-08d34342610867994	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Build server(M...)	i-02638ec4012bee071	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
<b>Kubernetes-m...</b>	<b>i-0717c071f0c28747f</b>	<b>Running</b>	<b>t2.micro</b>	<b>2/2 checks passed</b>	<b>View alarms</b>	<b>ap-south-1a</b>	<b>ec2-13-</b>
Kubernetes-w...	i-064b4bd3bc30ef9d1	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Kubernetes-w...	i-053fcdb9ed77a210	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-1t
Monitoring(gr...	i-0985205f7e6505b07	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-1t

**Instance: i-0717c071f0c28747f (Kubernetes-master)**

**Details** Status and alarms **New** Monitoring Security Networking Storage Tags

**Instance summary** **Info**

Instance ID	i-0717c071f0c28747f (Kubernetes-master)	Public IPv4 address	13.201.2.106 <a href="#">open address</a>	Private IPv4 addresses	172.31.47.43
IPv6 address	-	Instance state	Running	Public IPv4 DNS	ec2-13-201-2-106.ap-south-1.compute.amazonaws.com

**Instances (1/7) Info**

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
Terraform/Git	i-0046d8d2a8fae38f4	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Jenkins master	i-08d34342610867994	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Build server(M...)	i-02638ec4012bee071	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
<b>Kubernetes-m...</b>	<b>i-0717c071f0c28747f</b>	<b>Running</b>	<b>t2.micro</b>	<b>2/2 checks passed</b>	<b>View alarms</b>	<b>ap-south-1a</b>	<b>ec2-13-</b>
Kubernetes-w...	i-064b4bd3bc30ef9d1	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Kubernetes-w...	i-053fcdb9ed77a210	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-1t
Monitoring(gr...	i-0985205f7e6505b07	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-1t

**Instance: i-064b4bd3bc30ef9d1 (Kubernetes-workerNode1)**

**Details** Status and alarms **New** Monitoring Security Networking Storage Tags

**Instance summary** **Info**

Instance ID	i-064b4bd3bc30ef9d1 (Kubernetes-workerNode1)	Public IPv4 address	13.233.224.155 <a href="#">open address</a>	Private IPv4 addresses	172.31.40.255
IPv6 address	-	Instance state	Running	Public IPv4 DNS	ec2-13-233-224-155.ap-south-

Screenshot of an AWS CloudShell session showing the AWS Management Console and a terminal window.

**AWS Management Console:**

- Instances (1/7) Info** table:
 

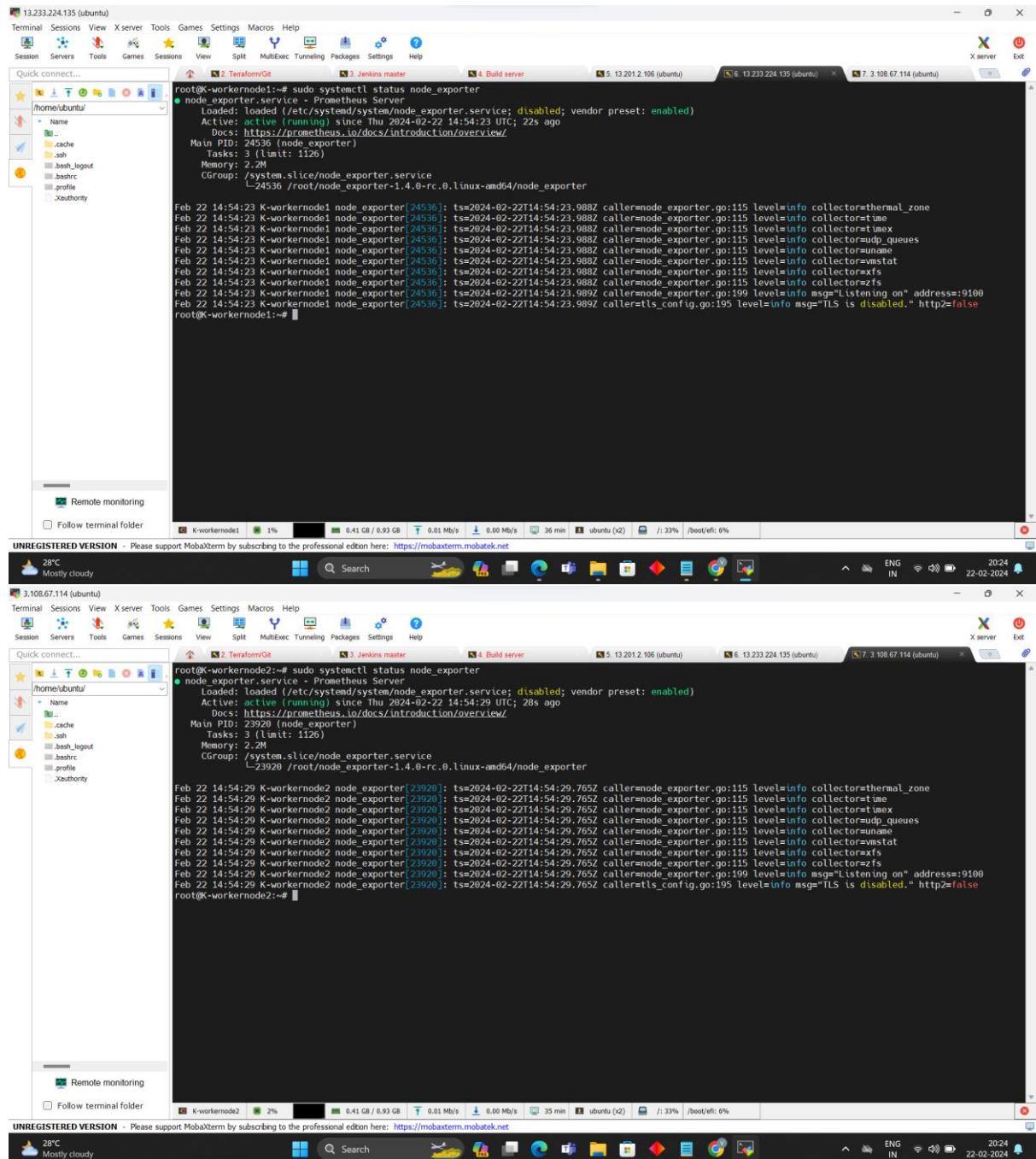
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
Terraform/Git	i-0046d8d2a8fae38f4	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-111.111.111.111
Jenkins master	i-08d34342610867994	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-111.111.111.111
Build server(M...)	i-02638ec4012bee071	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-111.111.111.111
Kubernetes-m...	i-0717c071f0c28747f	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-111.111.111.111
Kubernetes-w...	i-064b4bd3b3c30ef9d1	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-111.111.111.111
<b>Kubernetes-w...</b>	<b>i-053fcddb9ed77a210</b>	<b>Running</b>	<b>t2.micro</b>	<b>2/2 checks passed</b>	<b>View alarms</b>	<b>ap-south-1a</b>	<b>ec2-3-111.111.111.111</b>
Monitoring(gr...	i-0985205f7e6505b07	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-111.111.111.111
- Instance Details:** Kubernetes-w... (i-053fcddb9ed77a210) - Kubernetes-workernode2
  - Details tab: Status and alarms New, Monitoring, Security, Networking, Storage, Tags.
  - Instance summary: Instance ID i-053fcddb9ed77a210 (Kubernetes-workernode2), Public IPv4 address 3.108.67.114 [open address], Private IPv4 addresses 172.31.47.84, IPv6 address -, Instance state Running, Public IPv4 DNS ec2-3-108-67-114.ap-south-1.compute.amazonaws.com.

**MobaXterm Terminal Session:**

- Session List:** 1. 13.201.2.106 (ubuntu), 2. Jenkins master, 3. Build server, 4. 13.201.2.106 (ubuntu), 5. 13.233.224.135 (ubuntu), 6. 3.108.67.114 (ubuntu).
- Terminal 1 (13.201.2.106):**

```
root@kubernetes-master:~# devops
devops@kubernetes-master:~# kubectl get nodes -o wide
NAME           STATUS   ROLES      AGE     VERSION   INTERNAL-IP   EXTERNAL-IP   OS-IMAGE          KERNEL-VERSION   CONTAINER-RUNTIME
k-workernode1   Ready    <none>    16m    v1.28.2   172.31.40.255  <none>        Ubuntu 20.04.6 LTS   5.15.0-1048-aws  containerd://1.6.28
k-workernode2   Ready    <none>    16m    v1.28.2   172.31.47.84   <none>        Ubuntu 20.04.6 LTS   5.15.0-1048-aws  containerd://1.6.28
kubernetes-master   Ready    control-plane   22m   v1.28.2   172.31.47.43   <none>        Ubuntu 20.04.6 LTS   5.15.0-1048-aws  containerd://1.6.28
devops@kubernetes-master:~# sudo systemctl status node_exporter
● node_exporter.service - Prometheus Server
   Loaded: loaded (/etc/systemd/system/node_exporter.service; disabled; vendor preset: enabled)
   Active: active (running) since Thu 2024-02-22 14:50:55 UTC; 1min 11s ago
     Docs: https://prometheus.io/docs/introduction/overview/
   Main PID: 30788 (node exporter)
     Tasks: 3 (limit: 1126)
       Memory: 2.2M
      CGroup: /system.slice/node_exporter.service
              └─ 30788 /root/node_exporter-1.4.0-rc.0.linux-amd64/node_exporter

Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=thermal_zone
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=tme
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=mem
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=queues
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=memory
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=vmstat
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=zfs
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:115 level=info collector=zfs
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=node_exporter.go:199 level=info msg="Listening on" address=:9100
Feb 22 14:50:55 kubernetes-master node_exporter[30788]: ts=2024-02-22T14:50:55.460Z caller=tls_config.go:195 level=info msg="TLS is disabled." http2=false
devops@kubernetes-master:~$
```



## 4. Grafana and Prometheus Server:

- Installing Grafana and Prometheus.
- Adding all servers in Prometheus yaml file.

AWS CloudWatch Instances (1/7) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
Terraform/Git	i-0046d82a8fae38f4	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Jenkins master	i-08d34542610867994	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Build server(M...)	i-02638ec4012bee071	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Kubernetes-m...	i-0717c071fc2874f7	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Kubernetes-w...	i-064b4bd3bc30ef9d1	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-13-
Kubernetes-w...	i-053fcdd9ed77a210	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a	ec2-3-11
<b>Monitoring(gr...</b>	<b>i-0985205f7e6505b07</b>	<b>Running</b>	<b>t2.micro</b>	<b>2/2 checks passed</b>	<b>View alarms</b>	<b>ap-south-1a</b>	<b>ec2-3-11</b>

Instance: i-0985205f7e6505b07 (Monitoring(grafana/prometheus))

Details Status and alarms New Monitoring Security Networking Storage Tags

Instance summary Info

Instance ID: i-0985205f7e6505b07 (Monitoring(grafana/prometheus))

Public IPv4 address: 3.108.61.123 [open address]

Private IPv4 addresses: 172.31.46.70

IPv6 address: Instance state: Public IPv4 DNS:

```

Monitoring(Grafana/prometheus)
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
/home/ubuntu/
Name
cache
.ssh
bech_logout
bechrc
.profile
Xauthority

root@ip-172-31-46-70:~# sudo /bin/systemctl status grafana-server.service
● grafana-server.service - Grafana instance
   Loaded: loaded (/lib/systemd/system/grafana-server.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2024-02-22 17:07:44 UTC; 16s ago
     Docs: http://docs.grafana.org
 Main PID: 20587 (grafana)
   Tasks: 8 (limit: 1126)
    Memory: 163.0M
      CGroup: /system.slice/grafana-server.service
              └─ 20587 /usr/share/grafana/bin/grafana-server --configfile=/etc/grafana/grafana.ini - -pidfile=/run/grafana/grafana-server.pid --packaging=deb configdeb

Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=alert,scheduler t=2024-02-22T17:07:50.28015072Z level=info msg="Starting scheduler" tickInterval=10s
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=ticker t=2024-02-22T17:07:50.280475942Z level=info msg="Starting first ticks" tick=2024-02-22T17:08:00Z
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=local_finder t=2024-02-22T17:07:50.2107827317Z level=info msg="Skipping finding plugin as directory does not exist"
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=grafanastoragedLogger t=2024-02-22T17:07:50.2276840392Z level=info msg="Storage starting"
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=grafana-apiserver t=2024-02-22T17:07:50.251614528Z level=info msg="Authentication is disabled"
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=report t=2024-02-22T17:07:50.2561809652Z level=warn msg="Scheduling and sending of reports disabled"
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=malert,multiorg,alertmanager t=2024-02-22T17:07:50.27053368Z level=info msg="Starting Multiorg Alertmanager"
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=grafana-apiserver t=2024-02-22T17:07:50.297424381Z level=info msg="Adding GroupVersion playlist.grafana"
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=plugins.update.checker t=2024-02-22T17:07:50.776120225Z level=info msg="Update check succeeded" duration=1ms
Feb 22 17:07:50 ip-172-31-46-70 grafana[20587]: logger=grafana.update.checker t=2024-02-22T17:07:50.791356643Z level=info msg="Update check succeeded" duration=1ms
root@ip-172-31-46-70:~# sudo /bin/systemctl status prometheus
● prometheus.service - Prometheus Server
   Loaded: loaded (/etc/systemd/system/prometheus.service; disabled; vendor preset: enabled)
   Active: active (running) since Thu 2024-02-22 17:05:24 UTC; 2min 42s ago
     Docs: https://prometheus.io/docs/introduction/overview/
 Main PID: 8091 (prometheus)
   Tasks: 6 (limit: 1126)
    Memory: 21.7M
      CGroup: /system.slice/prometheus.service
              └─ 8091 /root/prometheus-2.50.0-rc.1.linux-amd64/prometheus --config.file=/root/prometheus-2.50.0-rc.1.linux-amd64/prometheus.yml

Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.443Z caller=mtls config.go:313 level=info component=web msg="Listening on" address=:443
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.444Z caller=mtls config.go:316 level=info component=web msg="TLS is disabled." http2=false
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.444Z caller=head.go:71 level=info component=tstdb msg="WAL segment loaded" segment=0
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.444Z caller=head.go:808 level=info component=tstdb msg="WAL replay completed" checkpoint=0
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.447Z caller=main.go:1139 level=info fs_type=EXT4_SUPER_MAGIC
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.447Z caller=main.go:1142 level=info msg="TSDB started"
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.447Z caller=main.go:1324 level=info msg="Loading configuration file" filename=/root/prometheus-2.50.0-rc.1.linux-amd64/prometheus.yml
Feb 22 17:05:24 ip-172-31-46-70 prometheus[8091]: ts=2024-02-22T17:05:24.451Z caller=main.go:1361 level=info msg="Completed loading of configuration file" file=prometheus.yml

```

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```

Monitoring(Grafana/prometheus)
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
1. Teraform/Git 2. Jenkins master 3. Jenkins master 4. Build server 5. 13.201.2.106 (ubuntu) 6. 13.233.224.135 (ubuntu) 7. 3.108.67.114 (ubuntu) 8. Monitoring(Grafana) 9. Monitoring(Grafana)

/home/ubuntu/
Name
.cache
.ssh
.ssh_history
.sshrc
.profile
.sudo_as_admin_successful
.Xauthority

root@ip-172-31-46-70:~# ls
grafana-enterprise_10.3.3_amd64.deb  prometheus-2.50.0-rc.1.linux-amd64  prometheus-2.50.0-rc.1.linux-amd64.tar.gz  snap
root@ip-172-31-46-70:~# cd prometheus-2.50.0-rc.1.linux-amd64
root@ip-172-31-46-70:~/prometheus-2.50.0-rc.1.linux-amd64# ls
LICENSE NOTICE  console_libraries  consoles  prometheus  prometheus.yaml  promtool
root@ip-172-31-46-70:~/prometheus-2.50.0-rc.1.linux-amd64# tail -n 20 prometheus.yaml
# metrics_path defaults to '/metrics'
# scheme defaults to 'http'.

static_configs:
  - targets: ["localhost:9090"]
  - targets: ["172.31.32.188:9100"]
  labels:
    name: "Jenkins-master"
  - targets: ["172.31.43.221:9100"]
  labels:
    name: "Build-server"
  - targets: ["172.31.47.43:9100"]
  labels:
    name: "Kubernetes-master-node"
  - targets: ["172.31.40.255:9100"]
  labels:
    name: "Kubernetes-workernode1"
  - targets: ["172.31.47.84:9100"]
  labels:
    name: "Kubernetes-workernode2"
root@ip-172-31-46-70:~/prometheus-2.50.0-rc.1.linux-amd64# sudo systemctl restart prometheus
root@ip-172-31-46-70:~/prometheus-2.50.0-rc.1.linux-amd64# 

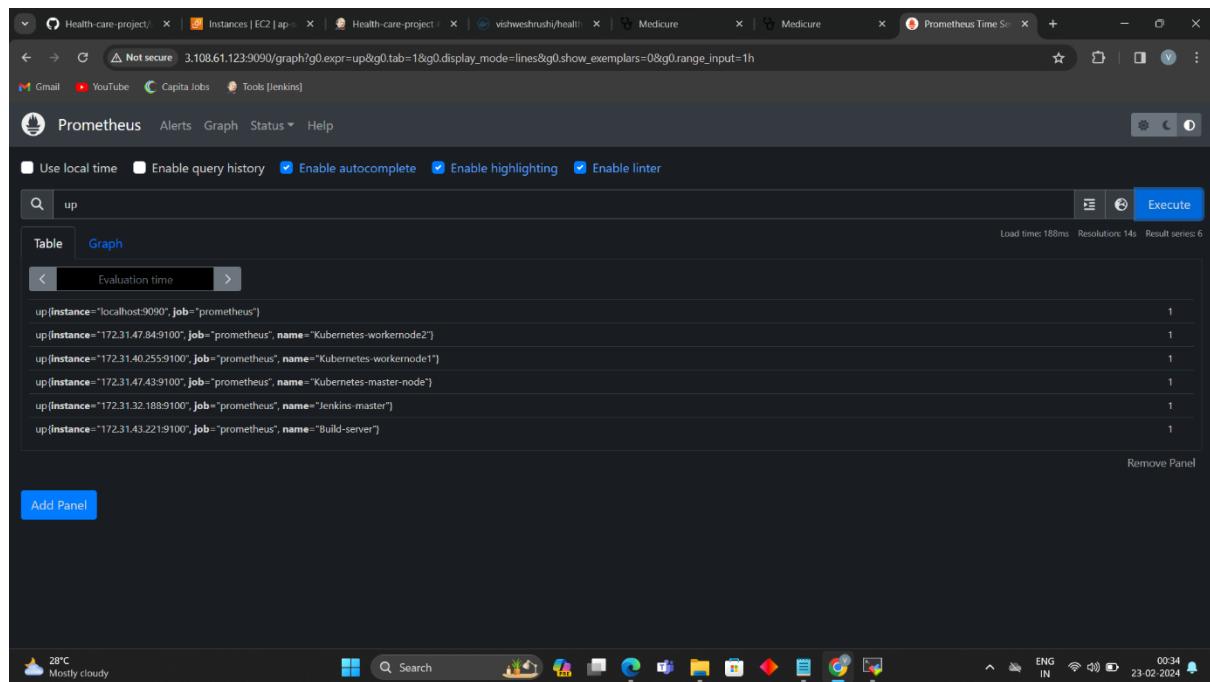
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
28°C Mostly cloudy 0.38 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 261 min ubuntu /: 35% /boot/efi: 6%
ENG IN 23:10 22-02-2024

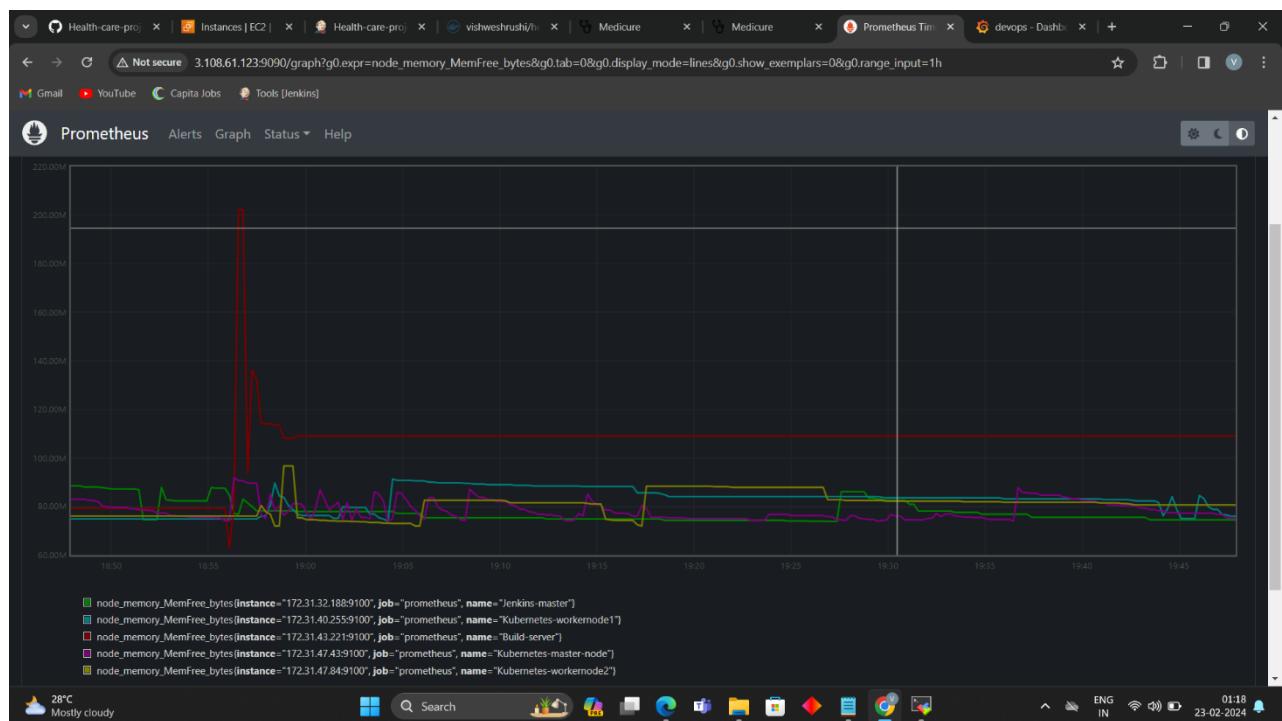
```

## Devops Tools:

### Prometheus:

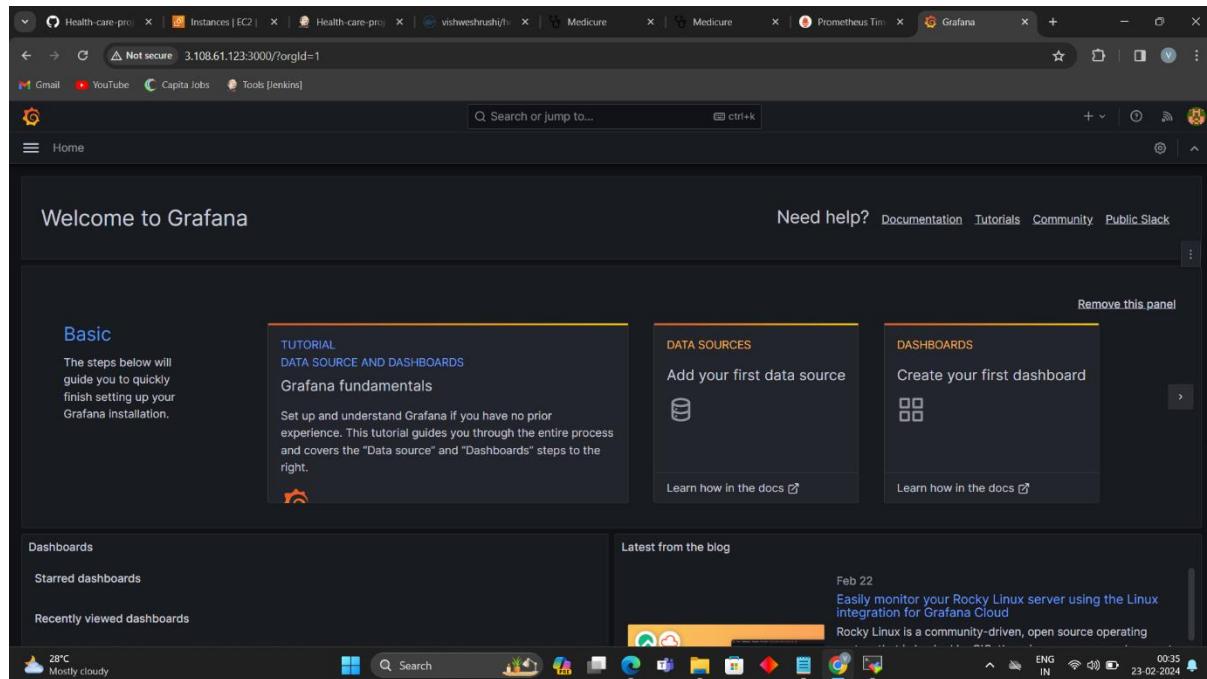
- Verifying all servers are up on Prometheus.
- Creating the node\_memory\_MemFree\_bytes graph on prometheus for CPU utilization of all servers (Jenkins master , Build server , Kubernetes master , Kubernetes workernode1&2).



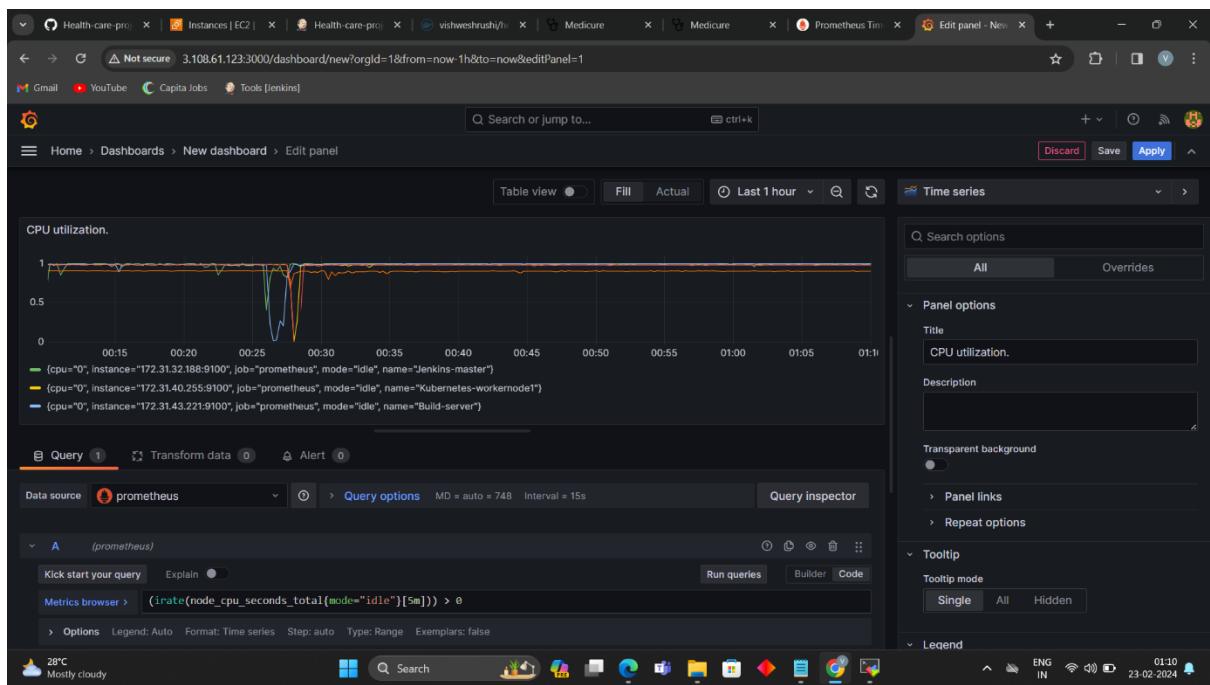


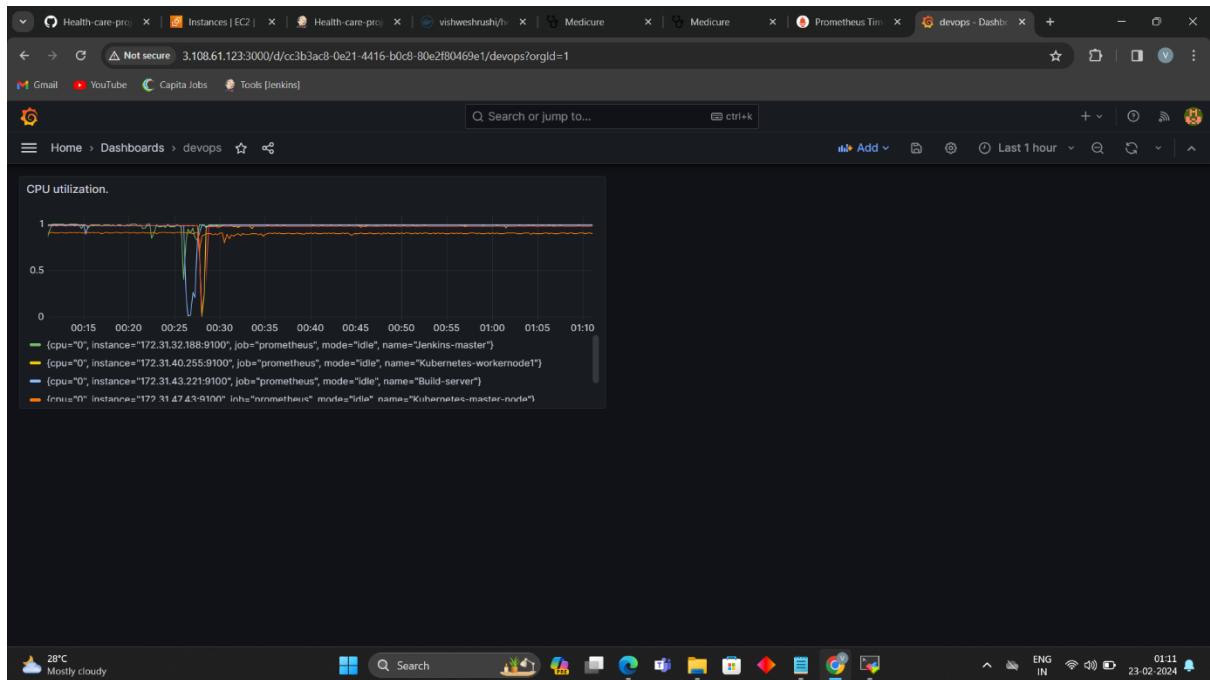
Grafana:

- Adding prometheus data source in Grafana.
- Creating the monitoring graph for CPU utilization of all servers (Jenkins master , Build server , Kubernetes master , Kubernetes workernode1&2).



The screenshot shows the Grafana interface for managing connections. A connection named "prometheus" has been created for the Prometheus type. The "Settings" tab is active, showing the configuration details. The "Name" field is set to "prometheus". A "Default" toggle switch is turned on. Below the configuration, there is a note: "Before you can use the Prometheus data source, you must configure it below or in the config file. For detailed instructions, [view the documentation](#). Fields marked with \* are required".





Git:

- Creating Kubernetes manifest file on Terraform/git server
- Committing & pushing Kubernetes manifest file to github repository on Terraform/git server.

```

root@ip-172-31-34-72:~/Health-care-project# ls
Dockerfile Terraform.tf  ansible-playbook.yml mvnw mvnw.cmd pom.xml src target terraform.tfstate terraform.tfstate.backup
root@ip-172-31-34-72:~/Health-care-project# vi kubernetes.yaml
root@ip-172-31-34-72:~/Health-care-project# cat kubernetes.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: health-care-project-deploy
  labels:
    app: health-care-project
spec:
  replicas: 3
  selector:
    matchLabels:
      app: health-care-project
  template:
    metadata:
      labels:
        app: health-care-project
    spec:
      containers:
        - name: health-care-project-container
          image: vishweshrishi/health_care_project
          ports:
            - containerPort: 8082
...
apiVersion: v1
kind: Service
metadata:
  name: health-care-project-np-svc
  labels:
    app: health-care-project
spec:
  selector:
    app: health-care-project
  type: NodePort
  ports:
    - nodePort: 31234
      port: 8082

```

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Terraform/Git

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

X server Exit

Quick connect...

Spec:

```

spec:
  selector:
    app: health-care-project
  type: NodePort
  port:
    - nodePort: 31234
      port: 8082
      targetPort: 8082
  root@ip-172-31-34-72:~/Health-care-project# git add kubernetes.yml
  root@ip-172-31-34-72:~/Health-care-project# git commit -m "Kubernetes manifest file"
[master e3074a5] Kubernetes manifest file
  Committer: root <root@ip-172-31-34-72.ap-south-1.compute.internal>
  Your name and email address were configured automatically based
  on your username and hostname. Please check that they are accurate.
  You can suppress this message by setting them explicitly, run the
  following command and follow the instructions in your editor to edit
  your configuration file:

  git config --global --edit

```

After doing this, you may fix the identity used for this commit with:

```

git commit --amend --reset-author

```

1 file changed, 37 insertions(+)

create mode 100644 kubernetes.yml

root@ip-172-31-34-72:~/Health-care-project# git push -u origin master

Username for 'https://github.com': RushiVishwesh

Password for 'https://RushiVishwesh@github.com':

Enumerating objects: 4, done.

Counting objects: 1000 (4/4), done.

Compression objects: 100% (3/3), done.

Writing objects: 100% (3/3) 564 bytes | 564.00 KiB/s, done.

Total 3 (delta 0), reused 0 (delta 0)

remote: Resolving deltas: 100% (1/1), completed with 1 local object.

To https://github.com/RushiVishwesh/Health-care-project.git

  dacc0f4..e3074a5 master -> master

Branch 'master' set up to track remote branch 'master' from 'origin'.

root@ip-172-31-34-72:~/Health-care-project#

Remote monitoring

Follow terminal folder

ip-172-31-34-72 8% 0.36 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 5 hours ubuntu 54% /boot/efc: 6%

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Search Dashboard Jenkins

github.com/RushiVishwesh/Health-care-project

Gmail YouTube Capita Jobs Tools Jenkins

master 1 Branch 0 Tags

Go to file Add file Code

This branch is 6 commits ahead of [StarAgileDevOpsTraining/star-agile-health-care:master](#).

Contribute Sync fork

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

HTML 73.7% SCSS 16.1%  
Java 6.2% CSS 1.7%  
JavaScript 1.3% HCL 0.9%  
Dockerfile 0.1%

Suggested workflows

Based on your tech stack

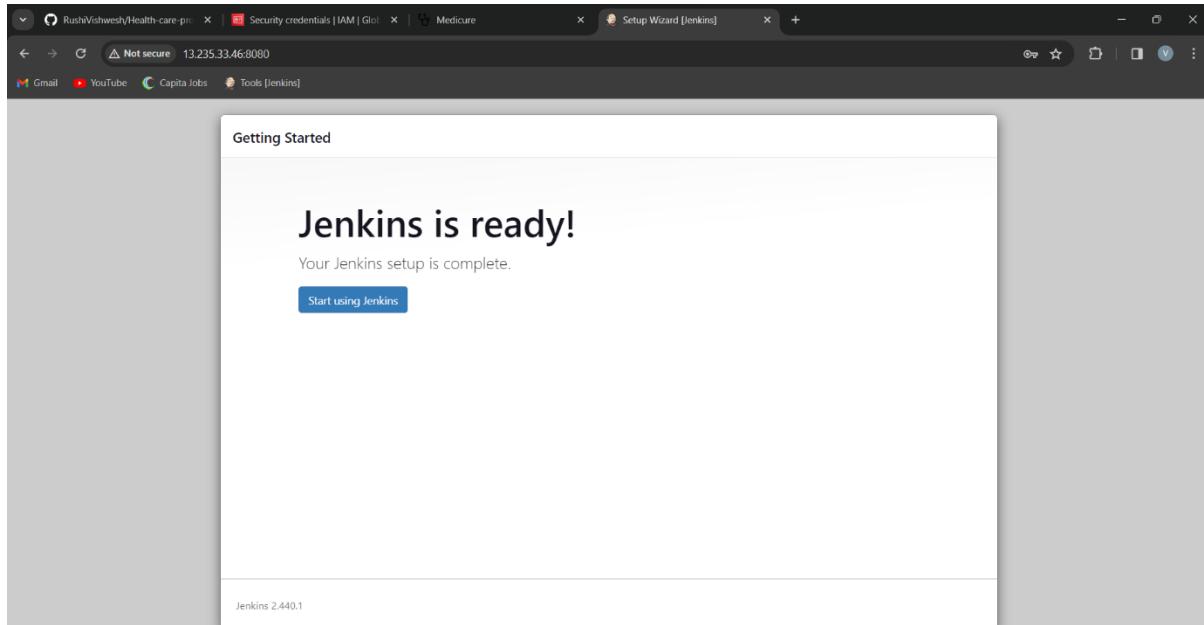
28°C Mostly cloudy

Search Dashboard Jenkins

ip-172-31-34-72 8% 0.36 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 5 hours ubuntu 54% /boot/efc: 6%

## Jenkins-

- Creating Build server node as a build slave node.
- Adding Kubernetes cluster using ssh-publisher.



A screenshot of the Jenkins Dashboard. The top navigation bar shows 'Instances | EC2 | ap-south-1' and 'Dashboard [jenkins]'. The main content area has a heading 'Welcome to Jenkins!'. It includes links for 'Create a job', 'Set up a distributed build', 'Set up an agent', 'Configure a cloud', and 'Learn more about distributed builds'. On the left, there's a sidebar with links for 'New Item', 'People', 'Build History', 'Manage Jenkins', and 'My Views'. A status bar at the bottom shows 'Jenkins 2.440.1'.

The screenshot shows the Jenkins 'New node' configuration page. The 'Node name' field is filled with 'Build server'. Under the 'Type' section, 'Permanent Agent' is selected. A descriptive text explains that this adds a plain, permanent agent to Jenkins. At the bottom is a blue 'Create' button.

The screenshot shows the Jenkins 'Agent Build server' configuration page for the 'Build server' node. On the left, there's a sidebar with options like Status, Delete Agent, Configure, Build History, Load Statistics, Log, and Trust SSH Host Key. The main area is titled 'Agent Build server' and shows a message that the node is being launched. It includes a 'Relaunch agent' button, a 'Mark this node temporarily offline' link, and an 'Edit description' link. Below this, there's a 'Labels' section with 'Build\_slave' listed. At the bottom, there's a section for 'Projects tied to Build server' which says 'None'.



The screenshot shows the Jenkins Nodes page. On the left, there are sections for 'Build Queue' (No builds in the queue) and 'Build Executor Status' (Built-In Node, showing 1 idle, 2 idle, and 3 idle). The main area displays a table of nodes:

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Build server		N/A	N/A	N/A	N/A	N/A
	Built-In Node	Linux (amd64)	In sync	4.90 GiB	0 B	4.90 GiB	0ms
	Data obtained	35 sec	35 sec	35 sec	35 sec	35 sec	35 sec

Icon: S M L

The screenshot shows the Jenkins Manage Jenkins > System page. It is configuring an SSH Server named 'Kubernetes-cluster'. The configuration fields are:

- Name: Kubernetes-cluster
- Hostname: 172.31.47.43
- Username: devops
- Remote Directory: /home/devops
- Avoid sending files that have not changed:

Buttons at the bottom include 'Advanced', 'Save' (highlighted), and 'Apply'.

## Docker:

- Creating a docker image using Jenkins pipeline.

The screenshot shows the Docker Desktop settings interface. The left sidebar has 'General' selected under 'Security'. The main area displays 'Access Tokens' with a table showing five entries. The first entry is checked and labeled 'Project'. The table includes columns for Description, Source, Scope, Last Used, and Created. Below this is a section for 'Two-Factor Authentication' which states 'Two-factor authentication is not enabled yet'.

## Kubernetes:

- Creating Kubernetes manifest file on Terraform/git server
- Committing & pushing Kubernetes manifest file to github repository on Terraform/git server.

The screenshot shows a terminal session in MobaXterm. The terminal window displays a YAML file for a Kubernetes Deployment named 'health-care-project'. The file specifies three replicas, each running a container named 'health-care-project-container' with port 8082. It also defines a Service 'health-care-project-np-svc' with a NodePort of 31234 and a port of 8082. The terminal session is connected to a host at ip-172-31-34-72.

```
root@ip-172-31-34-72:~/Health-care-project# ls
Dockerfile Terraform.tf ansible-playbook.yml mvnw mvnw.cmd pom.xml src target terraform.tfstate terraform.tfstate.backup
root@ip-172-31-34-72:~/Health-care-project# cat kubernetes.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: health-care-project-deploy
  labels:
    app: health-care-project
spec:
  replicas: 3
  selector:
    matchLabels:
      app: health-care-project
  template:
    metadata:
      labels:
        app: health-care-project
    spec:
      containers:
        - name: health-care-project-container
          image: vishweshrushi/health_care_project
          ports:
            - containerPort: 8082
...
apiVersion: v1
kind: Service
metadata:
  name: health-care-project-np-svc
  labels:
    app: health-care-project
spec:
  selector:
    app: health-care-project
  type: NodePort
  ports:
    - nodePort: 31234
      port: 8082
```

**Terraform/Git**

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

1.2 Terraform/Git 3. Jenkins master 4. Build server 5. 13.201.2.106 (ubuntu) 6. 13.233.224.135 (ubuntu) 7. 3.108.67.114 (ubuntu) 9. Monitoring(Grafana)

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Spec:

```

spec:
  selector:
    app: health-care-project
  type: NodePort
  ports:
    - name: http
      port: 8082
      targetPort: 8082
root@ip-172-31-34-72:~/Health-care-project# git add kubernetes.yml
root@ip-172-31-34-72:~/Health-care-project# git commit -m "Kubernetes manifest file"
[master e3074a5] Kubernetes manifest file
  Committer: root <root@ip-172-31-34-72.ap-south-1.compute.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

  git config --global --edit
After doing this, you may fix the identity used for this commit with:
  git commit --amend --reset-author
  1 file changed, 37 insertions(+)
  create mode 100644 kubernetes.yml
root@ip-172-31-34-72:~/Health-care-project# git push -u origin master
Username for 'https://github.com': RushiVishwesh
Password for 'https://RushiVishwesh@github.com':
Enumerating objects: 100, done.
Counting objects: 100, done.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3) 564 bytes | 564.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/RushiVishwesh/Health-care-project.git
  dacc0f4..e3074a5 master --> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
root@ip-172-31-34-72:~/Health-care-project# 
```

Remote monitoring

Follow terminal folder

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Search Dashboard Jenkins

RushiVishwesh/Health-care-project Instances | EC2 | ap-south-1

github.com/RushiVishwesh/Health-care-project

master Branch 0 Tags

This branch is 6 commits ahead of [StarAgileDevOpsTraining/star-agile-health-care:master](#).

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

HTML 73.7% SCSS 16.1%  
Java 6.2% CSS 1.7%  
JavaScript 1.3% HCL 0.9%  
Dockerfile 0.1%

Suggested workflows

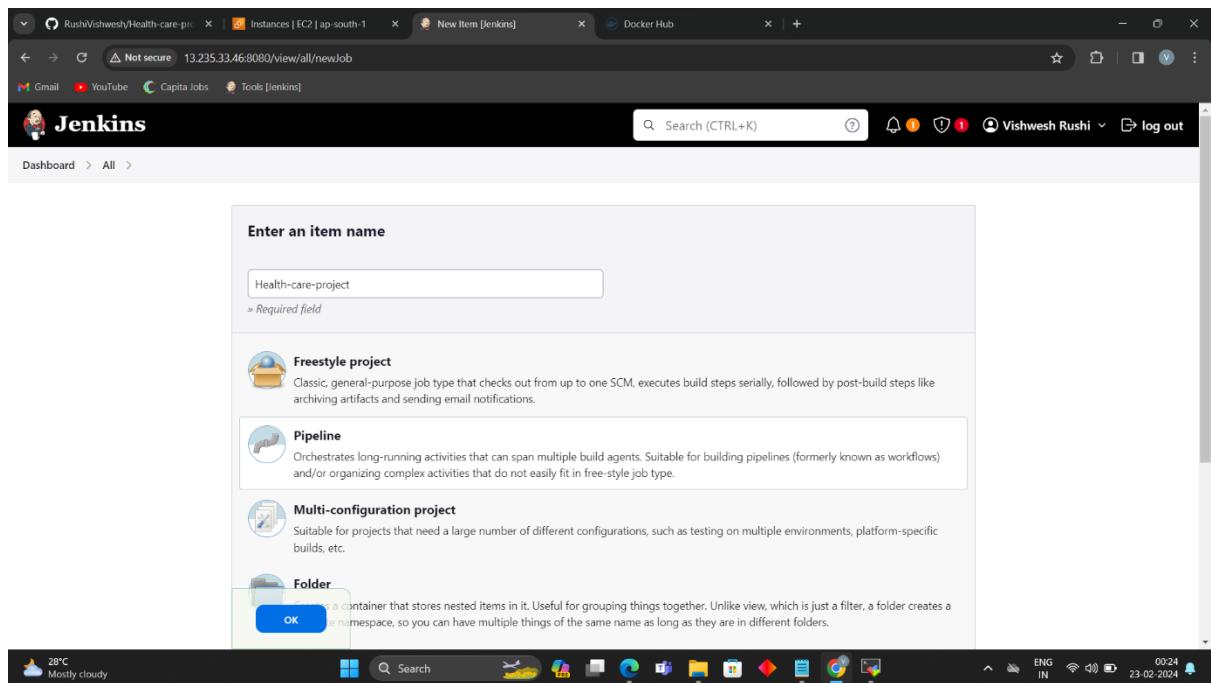
Based on your tech stack

28°C Mostly cloudy

Search Dashboard Jenkins

## CICD Pipeline (Git -> Jenkins -> Docker -> Kubernetes)

- Creating pipeline to integrate git-Jenkins-docker-kubernetes .
- Creating Kubernetes deployment code for pipeline using snippet generator.
- Run pipeline successfully.
- Verifying the docker image on dockerhub account.
- Verifying the Kubernetes pods and service on Kubernetes cluster.
- Verifying the deployed application on browser using allocated port number and Kubernetes worker-nodes Ip address.



**Configure**

**Pipeline**

```

1 pipeline {
2     agent { label 'Build_slave' }
3 
4     tools {
5         maven "maven"
6     }
7 
8     stages {
9         stage('SCM Checkout') {
10            steps [
11                git 'https://github.com/RushiVishwesh/Health-care-project.git'
12            ]
13        }
14        stage('Maven build') {
15            steps [
16                sh "mvn clean package"
17            ]
18        }
19        stage('Docker build') {
20            steps [
21                sh "docker build -t vishweshrushi/health_care_project:${BUILD_NUMBER} ."
22                sh "docker image list"
23                sh "docker tag vishweshrushi/health_care_project:${BUILD_NUMBER} vishweshrushi/health_care_project:latest"
24            ]
25        }
26        stage('Login dockerhub') {
27            steps [
28                sh "docker login --username vishweshrushi --password dckr_pat_c0v2cbsFFxpW1X1KHx_mDLYTsje"
29            ]
30        }
31    }
32 }
33 
34 stage("Docker build"){
35     steps {
36         sh "docker build -t vishweshrushi/health_care_project:${BUILD_NUMBER} ."
37         sh "docker image list"
38         sh "docker tag vishweshrushi/health_care_project:${BUILD_NUMBER} vishweshrushi/health_care_project:latest"
39     }
40 }
41 
42 stage('Push to dockerhub') {
43     steps [
44         sh "docker push vishweshrushi/health_care_project:latest"
45     ]
46 }
47 
48 stage('Deploy to kubernetes_cluster') {
49     steps [
50         script {
51             sshPublisher(publishers: [sshPublisherDesc(configName: 'Kubernetes-cluster', transfers: [sshTransfer(cleanRemote: false, e
52             ])]
53         }
54     }
55 }
56 }
```

**Configure**

**Pipeline**

```

16     steps [
17         sh "mvn clean package"
18     ]
19 }
20 stage("Docker build"){
21     steps [
22         sh "docker build -t vishweshrushi/health_care_project:${BUILD_NUMBER} ."
23         sh "docker image list"
24         sh "docker tag vishweshrushi/health_care_project:${BUILD_NUMBER} vishweshrushi/health_care_project:latest"
25     ]
26 }
27 
28 stage('Login dockerhub') {
29     steps [
30         sh "docker login --username vishweshrushi --password dckr_pat_c0v2cbsFFxpW1X1KHx_mDLYTsje"
31     ]
32 }
33 
34 stage('Push to dockerhub') {
35     steps [
36         sh "docker push vishweshrushi/health_care_project:latest"
37     ]
38 }
39 
40 stage('Deploy to kubernetes_cluster') {
41     steps [
42         script {
43             sshPublisher(publishers: [sshPublisherDesc(configName: 'Kubernetes-cluster', transfers: [sshTransfer(cleanRemote: false, e
44             ])]
45         }
46     }
47 }
48 
```

Screenshot of a web browser showing the Jenkins interface for a "Health-care-project".

The top navigation bar includes tabs for "RushiVishwesh/Health-care-project", "Instances | EC2 | ap-south-1", "Health-care-project [Jenkins]", and "Docker Hub". The address bar shows the URL: "Not secure 13.235.33.46:8080/job/Health-care-project/". The user is logged in as "Vishwesh Rishi".

The main content area displays the "Health-care-project" dashboard. On the left, there's a sidebar with various project management options like "Status", "Changes", "Build Now", "Configure", "Delete Pipeline", "Full Stage View", "Rename", "Pipeline Syntax", and a "Build History" section showing one build from Feb 23 at 24:25. Below the sidebar is a "Stage View" chart showing execution times for different stages: Declarative: Tool Install (2s), SCM Checkout (5s), Maven build (37s), Docker build (24s), Login dockerhub (2s), Push to dockerhub (17s), and Deploy to kubernetes\_cluster (4s).

The central part of the dashboard is the "Stage View" section, which provides a visual representation of the pipeline stages and their execution times. The chart has seven columns corresponding to the stages listed above.

At the bottom of the dashboard, there's a "Permalinks" section with links for the build history and a timestamp of "Feb 22, 2024, 6:55 PM".

The bottom portion of the screenshot shows the Jenkins log output for build #1:

```

Progress (1): 2.5/2.6 MB
Progress (1): 2.5/2.6 MB
Progress (1): 2.5/2.6 MB
Progress (1): 2.5/2.6 MB
Progress (1): 2.6/2.6 MB
Progress (1): 2.6/2.6 MB
Progress (1): 2.6/2.6 MB
Progress (1): 2.6/2.6 MB
Progress (1): 2.6 MB

Downloaded from central: https://repo.maven.apache.org/maven2/com/google/guava/guava/28.2-android/guava-28.2-android.jar (2.6 MB at 2.8 MB/s)
[INFO] Replacing main artifact with repackaged archive
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 34.493 s
[INFO] Finished at: 2024-02-22T18:56:34Z
[INFO] -----
[Pipeline]
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // stage
[Pipeline] stage
[Pipeline] [
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] [
[Pipeline] sh

```

The browser window is set against a background of a Windows desktop environment, showing the taskbar with various icons and system status indicators like battery level and signal strength.

Dashboard > Health-care-project > #1

```

d85151f15b66: Pull complete
66223a710990: Pull complete
db38d5e0e08ab: Pull complete
Digest: sha256:90bacs5bf83633e3c7399aed725c8415e7b569b54e03e4590e580fc9cd7c21ab
Status: Downloaded newer image for openjdk:11
---> 47a932d998b7
Step 2/4 : ARG JAR_FILE=target/*.jar
---> Running in b0280b58f8a4
Removing intermediate container b0280b58f8a4
--> f6dcad325477
Step 3/4 : COPY ${JAR_FILE} app.jar
--> c9fcfc28a535
Step 4/4 : ENTRYPOINT ["java","-jar","/app.jar"]
---> Running in 7b68cf599e31
Removing intermediate container 7b68cf599e31
--> 03d8e1283dfc
Successfully built 03d8e1283dfc
Successfully tagged vishweshrushi/health_care_project:1
[Pipeline] sh
+ docker image list
REPOSITORY          TAG      IMAGE ID      CREATED        SIZE
vishweshrushi/health_care_project  1        03d8e1283dfc  Less than a second ago  695MB
openjdk              11      47a932d998b7  18 months ago  654MB
[Pipeline] sh
+ docker tag vishweshrushi/health_care_project:1 vishweshrushi/health_care_project:latest
[Pipeline]
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // stage

```

28°C Mostly cloudy

Dashboard > Health-care-project > #1

```

[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] [
[Pipeline] sh
+ docker push vishweshrushi/health_care_project:latest
The push refers to repository [docker.io/vishweshrushi/health_care_project]
3456bccf16d5: Preparing
7b7f3078e1db: Preparing
826c3ddbb29c: Preparing
b626401ef603: Preparing
9b55156abf26: Preparing
293d5db30c9f: Preparing
03127cd479fb: Preparing
9c742cd6c7a5: Preparing
293d5db30c9f: Waiting
03127cd479fb: Waiting
9c742cd6c7a5: Waiting
9b55156abf26: Mounted from library/openjdk
826c3ddbb29c: Mounted from library/openjdk
7b7f3078e1db: Mounted from library/openjdk
b626401ef603: Mounted from library/openjdk
293d5db30c9f: Mounted from library/openjdk
03127cd479fb: Mounted from library/openjdk
9c742cd6c7a5: Mounted from library/openjdk
3456bccf16d5: Pushed
latest: digest: sha256:265d0701902f54b587c9b6e2e6dd13e9e3ce2c38be4512cb791e3b6ac67412b size: 2007
[Pipeline] }
[Pipeline] // withEnv
[Pipeline]
[Pipeline] }
[Pipeline] // stage

```

28°C Mostly cloudy

The screenshot shows a Jenkins pipeline log window. The log output is as follows:

```
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (Deploy to kubernetes_cluster)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] script
[Pipeline] {
[Pipeline] sshPublisher
SSH: Connecting from host [ip-172-31-43-221]
SSH: Connecting with configuration [Kubernetes-cluster] ...
[Pipeline]
[Pipeline] // script
[Pipeline]
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // stage
[Pipeline]
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

The screenshot shows a Docker Hub repository list for the user `vishweshrushi`. The repositories listed are:

- `vishweshrushi / health_care_project`: Contains: Image | Last pushed: less than a minute ago. Status: Inactive, Stars: 0, Forks: 0, Public.
- `vishweshrushi / banking_project`: Contains: Image | Last pushed: 3 days ago. Status: Inactive, Stars: 0, Forks: 11, Public.
- `vishweshrushi / springboot-k8s`: Contains: Image | Last pushed: 10 days ago. Status: Inactive, Stars: 0, Forks: 10, Public.
- `vishweshrushi / springboot-demo`: Contains: Image | Last pushed: 11 days ago. Status: Inactive, Stars: 0, Forks: 6, Public.
- `vishweshrushi / addressbook`: Contains: Image | Last pushed: 13 days ago. Status: Inactive, Stars: 0, Forks: 3, Public.

Screenshot of a web browser showing the Docker Hub repository page for "vishweshrushi/health\_care\_project".

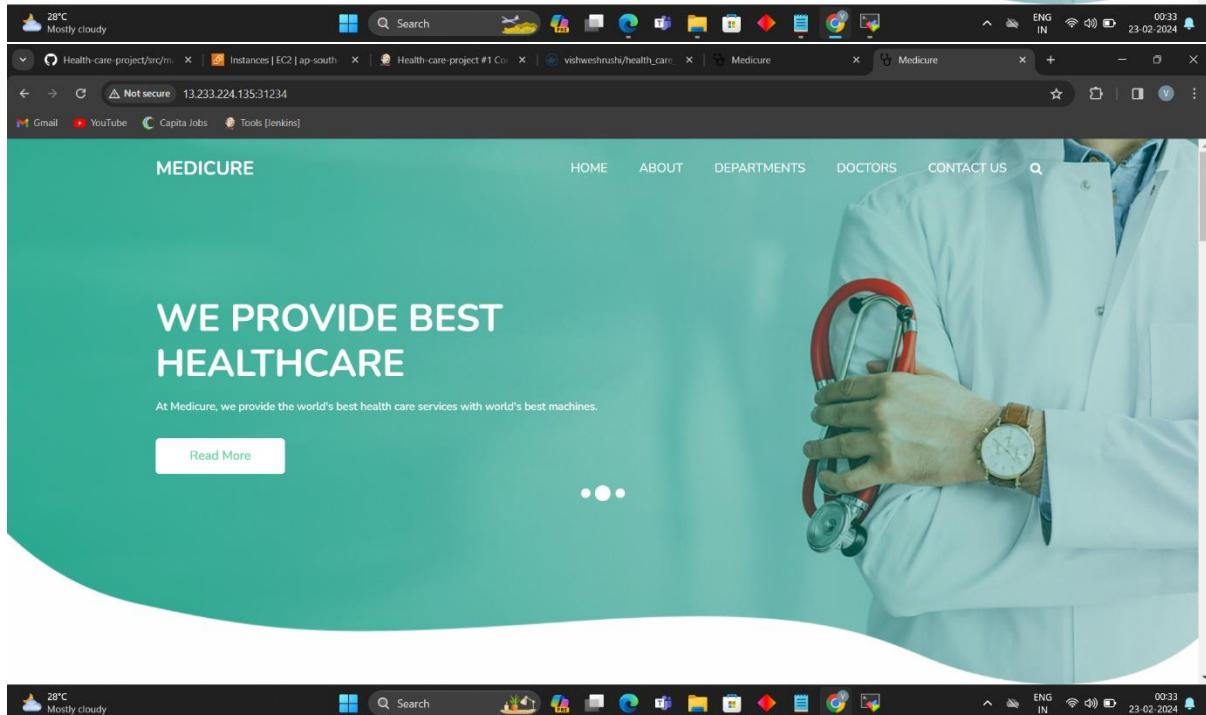
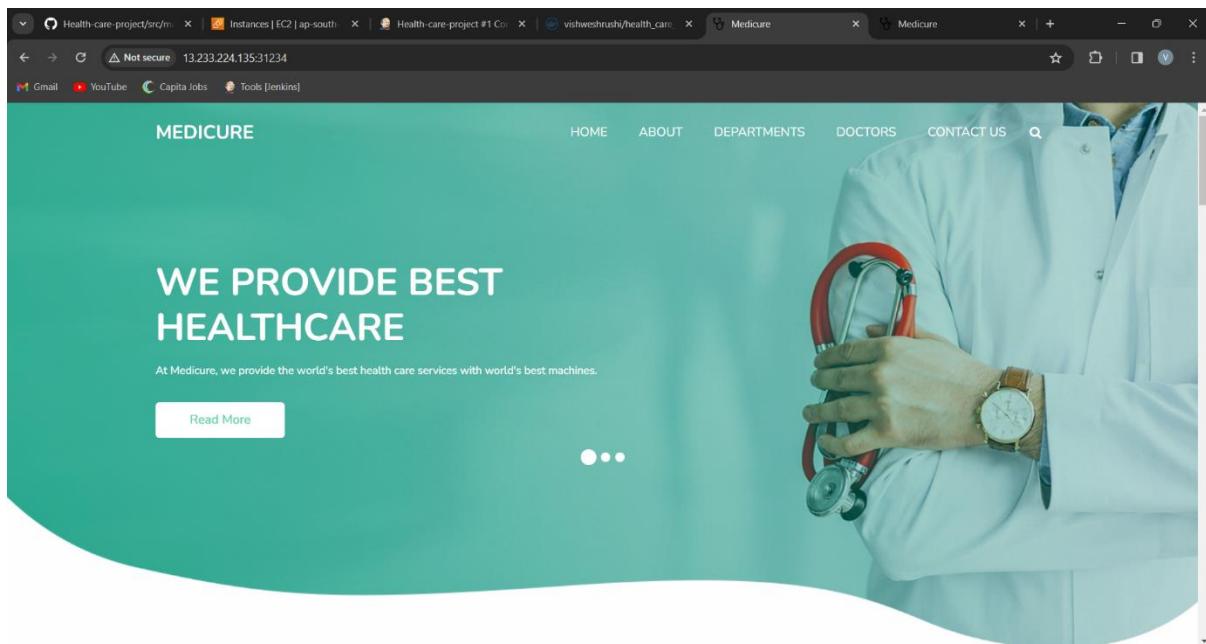
The Docker Hub page displays the following information:

- General Information:** Repository name is "vishweshrushi/health\_care\_project". It was updated 1 minute ago. There is no description provided.
- Docker commands:** A button to "Push a new tag to this repository" is present, with the command "docker push vishweshrushi/health\_care\_project:tagname".
- Tags:** One tag, "latest", is listed as an "Image" pulled a few seconds ago and pushed a few seconds ago.
- Automated Builds:** A section explaining how to automatically build and tag images. It mentions GitHub and Bitbucket integration and available subscriptions.

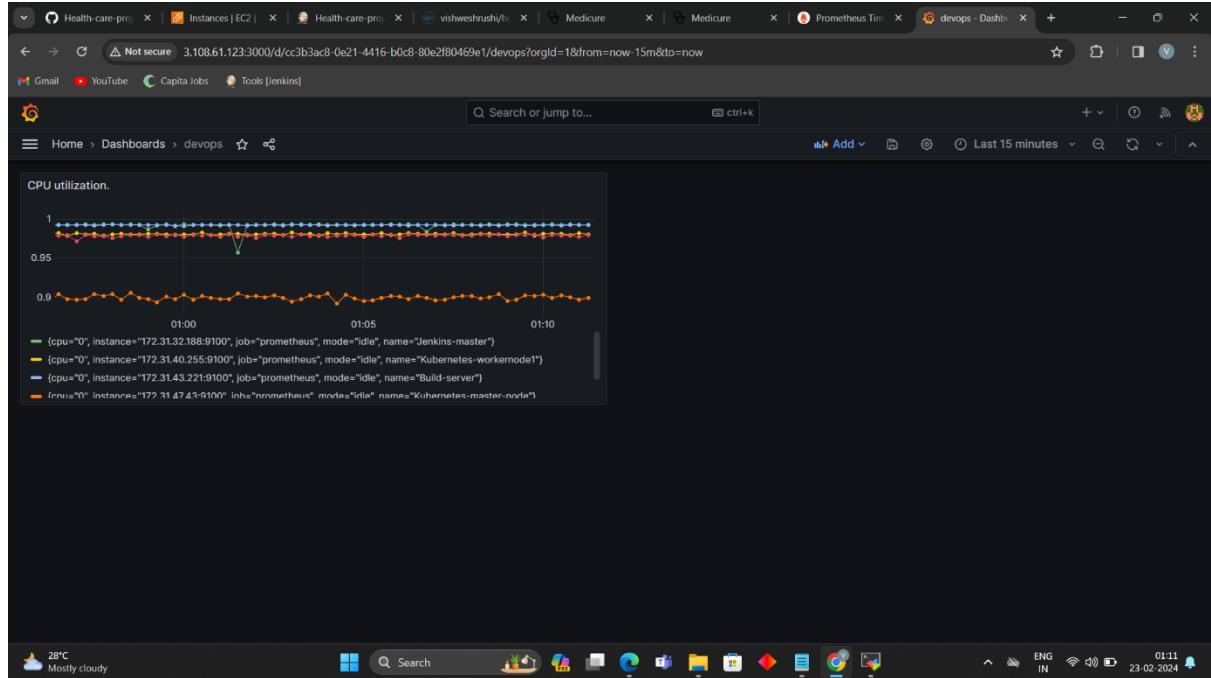
Below the Docker Hub page, there are two terminal sessions in MobaXterm:

- Terminal 1 (Jenkins master):** Shows the output of running Kubernetes commands like `kubectl get nodes` and `kubectl get pods -o wide` to list the cluster's nodes and pods.
- Terminal 2 (Build server):** Shows the output of running `kubectl get svc -o wide` to list the services in the cluster.

The desktop environment includes a taskbar with various application icons and system status indicators (weather, battery, network).



## Monitoring all servers using Grafana:



- \* Creating Jenkins pipeline file using successfully running pipeline code for reference and pushing it to github repository.

```
ubuntu@ip-172-31-34-72:~/Health-care-project
ubuntu@ip-172-31-34-72:~/Health-care-project$ vi Jenkinsfile
ubuntu@ip-172-31-34-72:~/Health-care-project$ cat Jenkinsfile
pipeline {
    agent { label 'Build_slave' }

    tools {
        maven "maven"
    }

    stages {
        stage('SCM Checkout') {
            steps {
                git 'https://github.com/BushiVishwesh/Health-care-project.git'
            }
        }
        stage('Maven build') {
            steps {
                sh "mvn clean package"
            }
        }
        stage("Docker build"){
            steps {
                sh "docker build -t vishweshrushi/health_care_project:${BUILD_NUMBER} ."
                sh "docker image list"
                sh "docker tag vishweshrushi/health_care_project:${BUILD_NUMBER} vishweshrushi/health_care_project:latest"
            }
        }
        stage('Login dockerhub') {
            steps {
                sh "docker login --username vishweshrushi --password dckr_pat_c0v2cbsFFxpW1XIKHX_mDLYTsjE"
            }
        }
        stage('Push to dockerhub') {
            steps {
                sh "docker push vishweshrushi/health_care_project:latest"
            }
        }
        stage('Deploy to kubernetes_cluster') {
            steps {
                script {
                    sshPublisher(publishers: [sshPublisherDesc(configName: 'Kubernetes-cluster', transfers: [sshTransfer(cleanRemote: false, excludes: '', execCommand: 'kubectl apply -f kubernetes.yml', execTimeout: 120000, flatten: false, makeEmptyDirs: false, noDefaultExcludes: false, patternSeparator: '[, ]+', remoteDirectory: '.', remoteDirectorySDF: false, removePrefix: '', sourceFiles: ['kubernetes.yml']), usePromotionTimestamp: false, useWorkspaceInPromotion: false, verbose: false])])
                }
            }
        }
    }
}
ubuntu@ip-172-31-34-72:~/Health-care-project$
```

Terraform/Git

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

127.0.0.1:50000 Terraform/Git 3 Jenkins master 4 Build server 5 13.201.2.106 (ubuntu) 6 13.233.224.135 (ubuntu) 7 3.108.67.114 (ubuntu) 8 Monitoring(Grafana) X server Exit

home/ubuntu/

- ..
- Name
- cache
- .ssh
- bank\_logout
- hashrc
- profile
- xauthority

```
ubuntu@ip-172-31-34-72:~/Health-care-projects$ ls
Dockerfile Jenkinsfile Terraform.tf ansible-playbook.yml kubernetes.yml mvnw mvnw.cmd pom.xml src

ubuntu@ip-172-31-34-72:~/Health-care-projects$ git init
Reinitialized existing Git repository in /home/ubuntu/Health-care-project/.git/
ubuntu@ip-172-31-34-72:~/Health-care-projects$ git add Jenkinsfile
ubuntu@ip-172-31-34-72:~/Health-care-projects$ git commit -m "Jenkins file."
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
ubuntu@ip-172-31-34-72:~/Health-care-projects$ git push -u origin master
Username for 'https://github.com': RushiVishwesh
Password for 'https://RushiVishwesh@github.com':
Enumerating objects: 4, done.
Counting objects: 4, done.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 940 bytes | 940.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/RushiVishwesh/Health-care-project.git
  e3074a5..3d5dc36 master --> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
ubuntu@ip-172-31-34-72:~/Health-care-projects$
```

Remote monitoring

Follow terminal folder

ip-172-31-34-72 0% 0.38 GB / 0.93 GB 0.01 Mb/s 0.00 Mb/s 7 hours ubuntu (x2) /: 54% /boot/efi: 6%

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github.com/RushiVishwesh/Health-care-project

Gmail YouTube Capita Jobs Tools [jenkins]

master 1 Branch 0 Tags

Go to file Add file Code About

This branch is 7 commits ahead of StarAgileDevOpsTraining/star-agile-health-care:master.

Contribute Sync fork

Ubuntu Jenkins file. 3d5dc36 - 3 minutes ago 14 Commits

.mvn/wrapper doctorify committed 2 years ago

src selenium test feature for contact.html has been added 2 years ago

.DS\_Store testcases updated 2 years ago

.gitignore project name updated. 2 years ago

Dockerfile Dockerfile added 2 years ago

Jenkinsfile Jenkins file. 3 minutes ago

Terraform.tf Terraform file 2 hours ago

ansible-playbook.yml selenium test feature for contact.html has been added 2 years ago

kubernetes.yml Kubernetes manifest file 1 hour ago

mvnw doctorify committed 2 years ago

mvnw.cmd doctorify committed 2 years ago

pom.xml project name updated. 2 years ago

Activity 0 stars 0 watching 0 forks

Releases No releases published Create a new release

Packages No packages published Publish your first package

Languages

HTML 73.7% SCSS 16.1%

Java 6.2% CSS 1.7%

JavaScript 1.3% HCL 0.9%

Dockerfile 0.1%

Suggested workflows Based on your tech stack

28°C Mostly cloudy