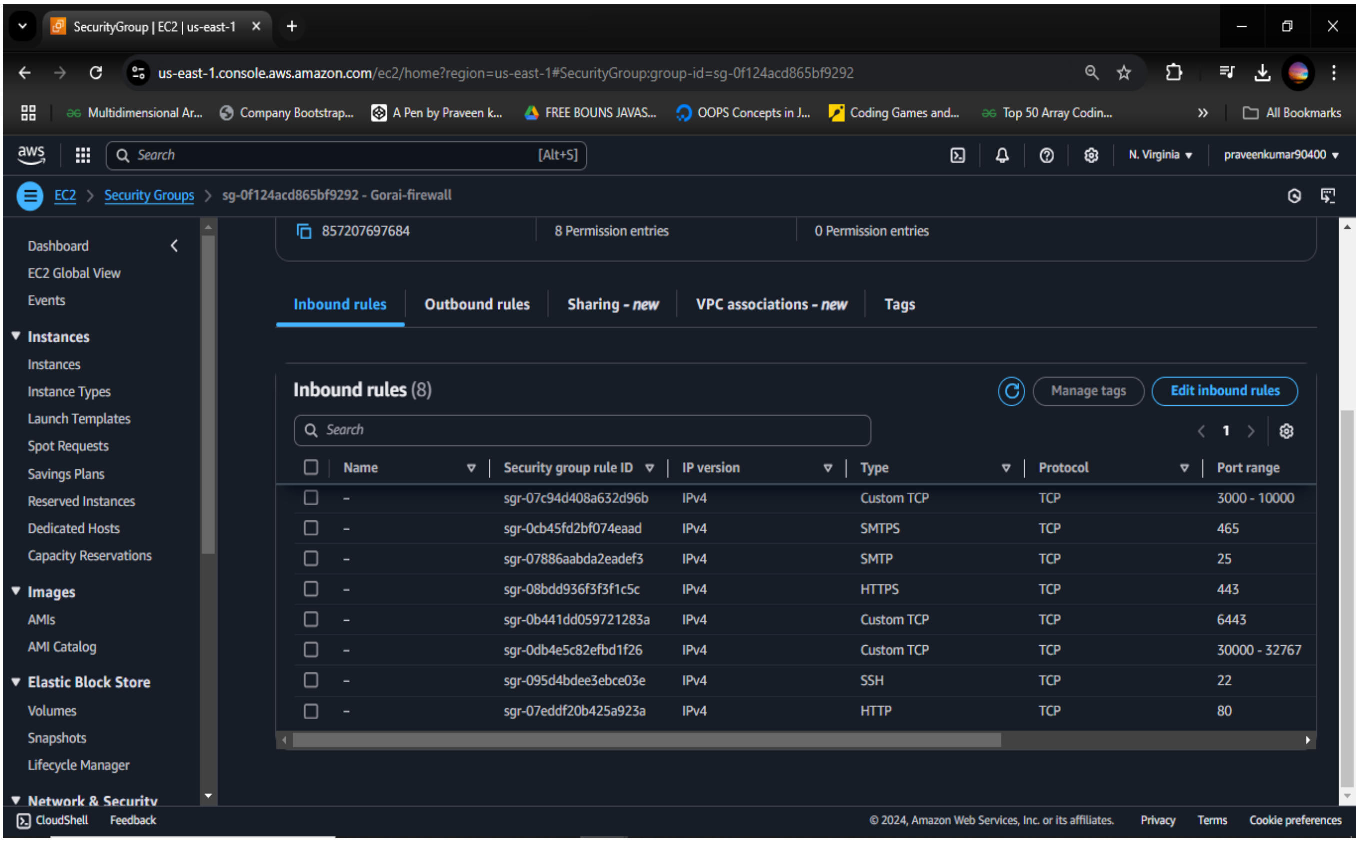
Deployment of web application

Description

Board Game Database Full-Stack Web Application.
This web application displays lists of board games and their reviews. While anyone can view the board game lists and reviews, they are required to log in to add/ edit the board games and their reviews. The 'users' have the authority to add board games to the list and add reviews, and the 'managers' have the authority to edit/ delete the reviews on top of the authorities of users.
My task is to Deploy a Board game Using severel tools and Process.

Stage 1:

Creating a private VPC and Security Group

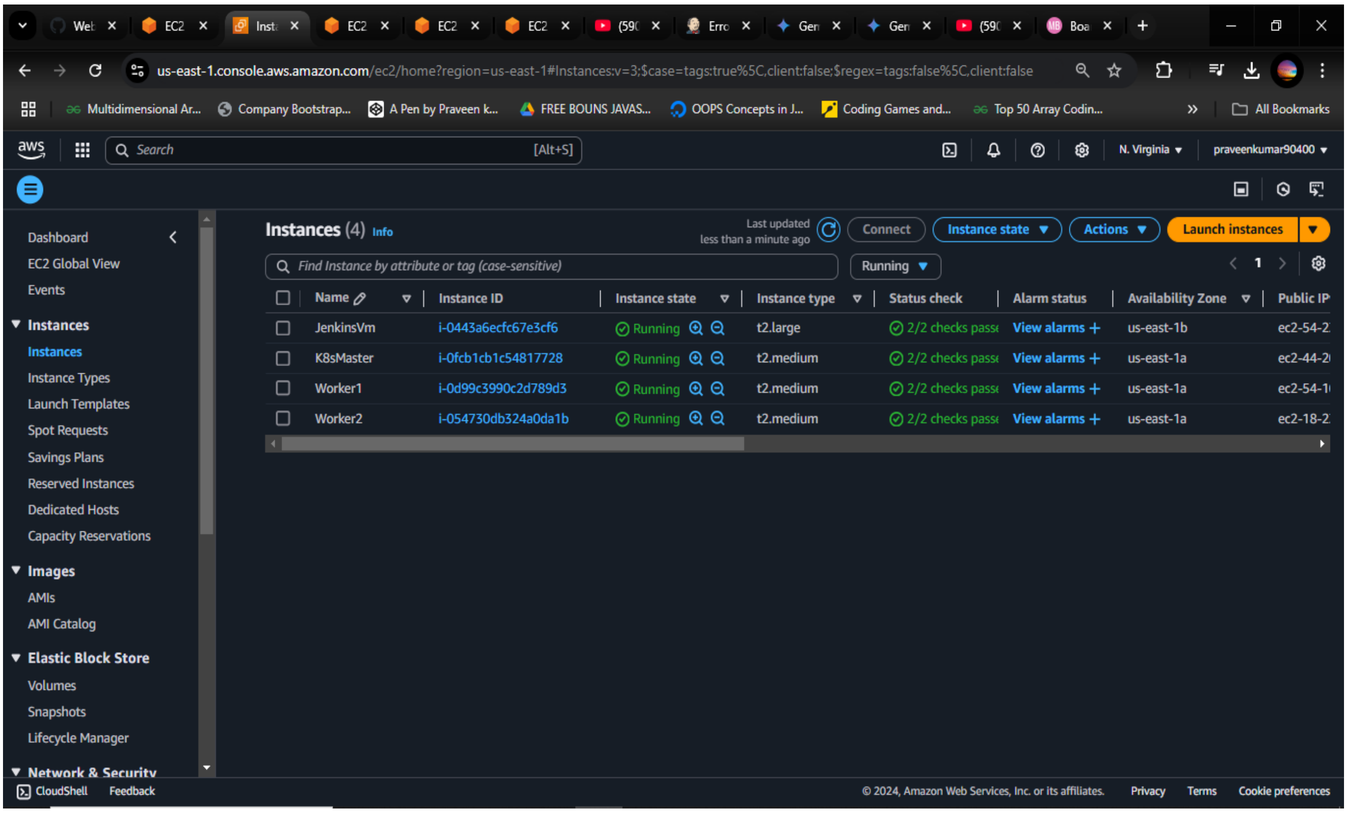


Inbound rules (8)

☐	Name	Security group rule ID	IP version	Type	Protocol	Port range
☐	–	sgr-07c94d408a632d96b	IPv4	Custom TCP	TCP	3000 - 10000
☐	–	sgr-0cb45fd2bf074eaad	IPv4	SMTPS	TCP	465
☐	–	sgr-07886aabda2eadef3	IPv4	SMTP	TCP	25
☐	–	sgr-08bdd936f3f3f1c5c	IPv4	HTTPS	TCP	443
☐	–	sgr-0b441dd059721283a	IPv4	Custom TCP	TCP	6443
☐	–	sgr-0db4e5c82efbd1f26	IPv4	Custom TCP	TCP	30000 - 32767
☐	–	sgr-095d4bdee3ebce03e	IPv4	SSH	TCP	22
☐	–	sgr-07eddf20b425a923a	IPv4	HTTP	TCP	80

Deployment of web application

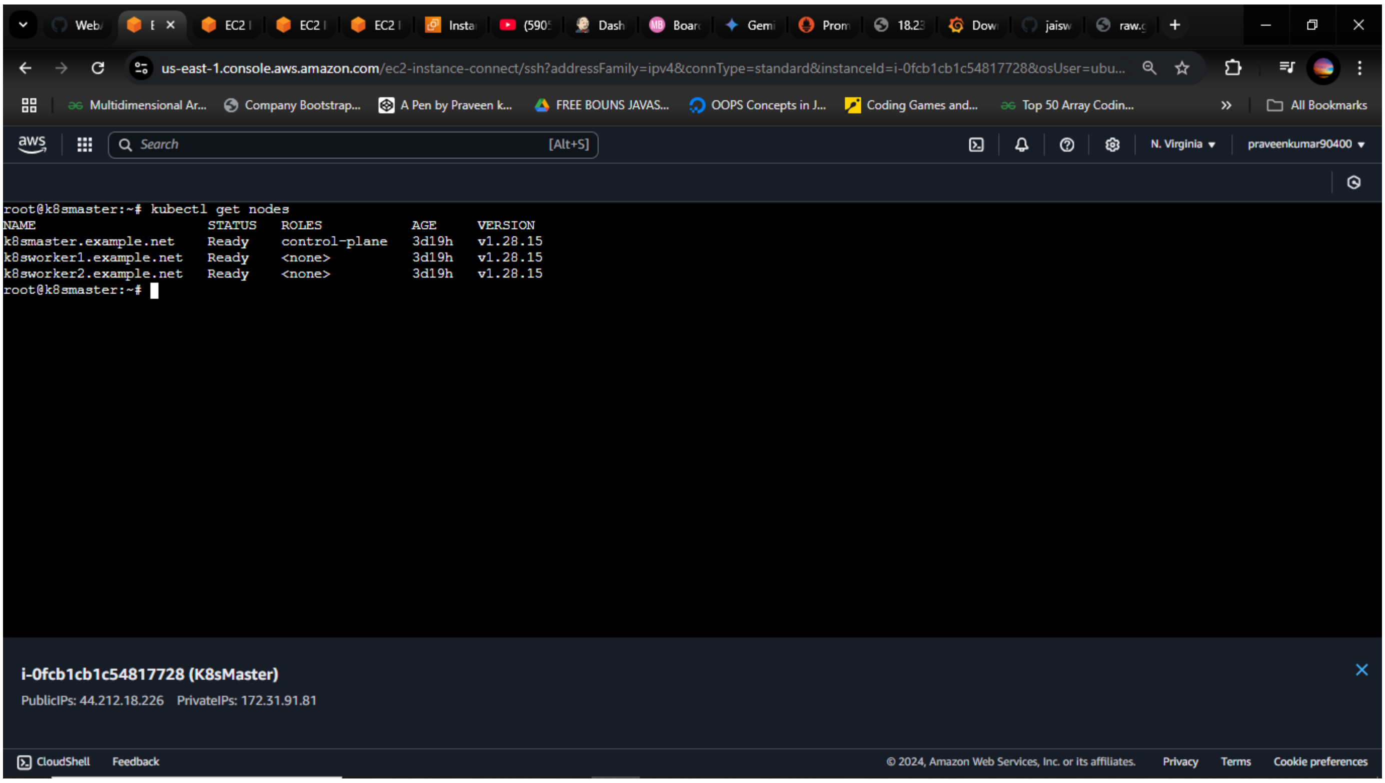
Creating a Ec2 instance for Kubernetes cluster and Jenkins



Instances (4) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IP
JenkinsVm	i-0443a6ecfc67e3cf6	Running	t2.large	2/2 checks passe	View alarms +	us-east-1b	ec2-54-2
K8sMaster	i-0fcb1cb1c54817728	Running	t2.medium	2/2 checks passe	View alarms +	us-east-1a	ec2-44-2
Worker1	i-0d99c3990c2d789d3	Running	t2.medium	2/2 checks passe	View alarms +	us-east-1a	ec2-54-1
Worker2	i-054730db324a0da1b	Running	t2.medium	2/2 checks passe	View alarms +	us-east-1a	ec2-18-2

Create and install kubernetes cluster for deploying web application



```
root@k8smaster:~# kubectl get nodes
NAME                   STATUS   ROLES           AGE    VERSION
k8smaster.example.net  Ready    control-plane   3d19h  v1.28.15
k8sworker1.example.net Ready    <none>          3d19h  v1.28.15
k8sworker2.example.net Ready    <none>          3d19h  v1.28.15
root@k8smaster:~#
```

i-0fcb1cb1c54817728 (K8sMaster)

PublicIPs: 44.212.18.226 PrivateIPs: 172.31.91.81

us-east-1.console.aws.amazon.com/ec2-instance-connect/ssh?addressFamily=ipv4&connType=standard&instanceId=i-0fcb1cb1c54817728&osUser=ubu...
N. Virginia
praveenkumar90400
CloudShell
Feedback
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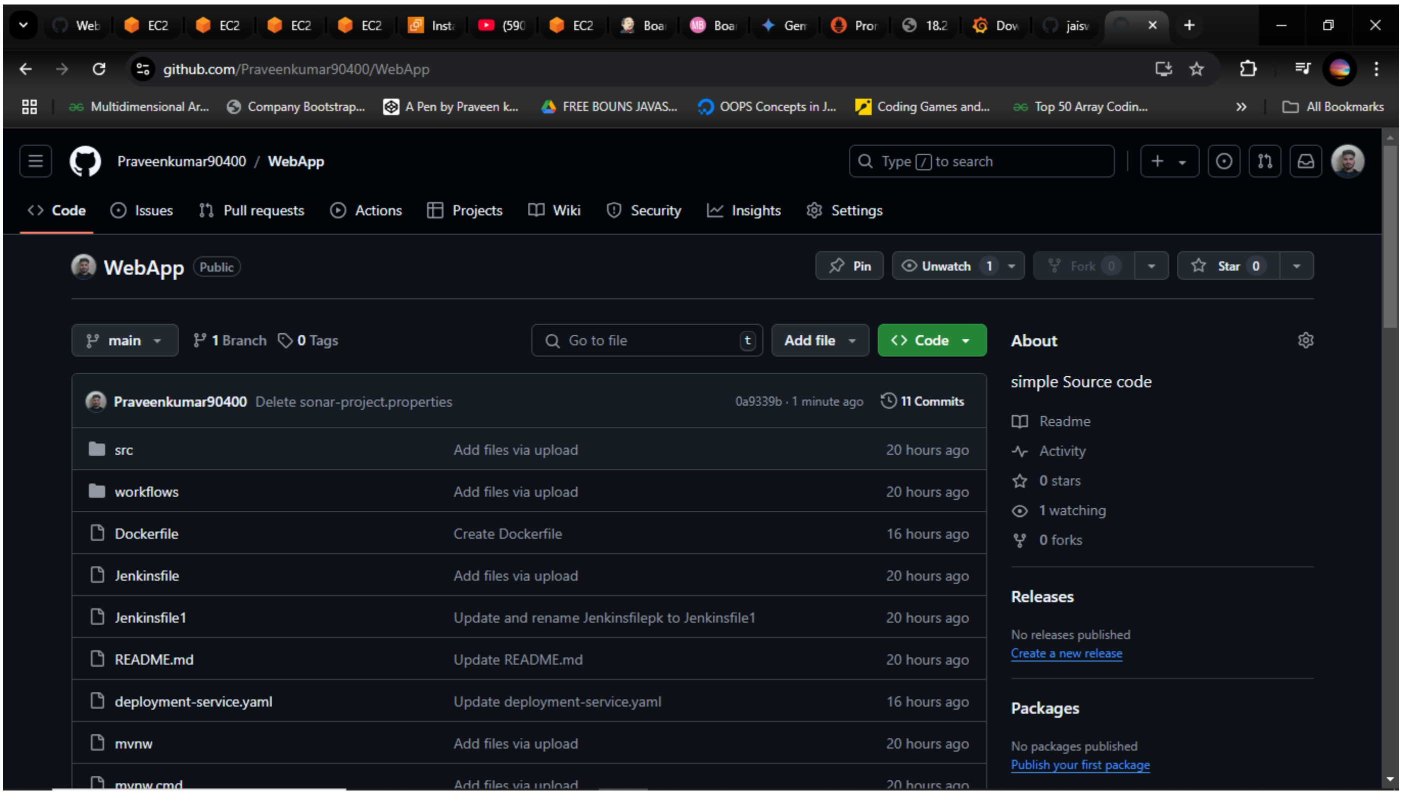
Deployment of web application

Stage 2:

Creating a Git Repository for Storing a Source Code



Praveenkumar90400 Delete sonar-project.properties 0a9339b · 1 minute ago 11 Commits

src	Add files via upload	20 hours ago
workflows	Add files via upload	20 hours ago
Dockerfile	Create Dockerfile	16 hours ago
Jenkinsfile	Add files via upload	20 hours ago
Jenkinsfile1	Update and rename Jenkinsfilepk to Jenkinsfile1	20 hours ago
README.md	Update README.md	20 hours ago
deployment-service.yaml	Update deployment-service.yaml	16 hours ago
mvnw	Add files via upload	20 hours ago
mvnw.cmd	Add files via upload	20 hours ago

About

simple Source code

- Readme
- Activity
- 0 stars
- 1 watching
- 0 forks

Releases

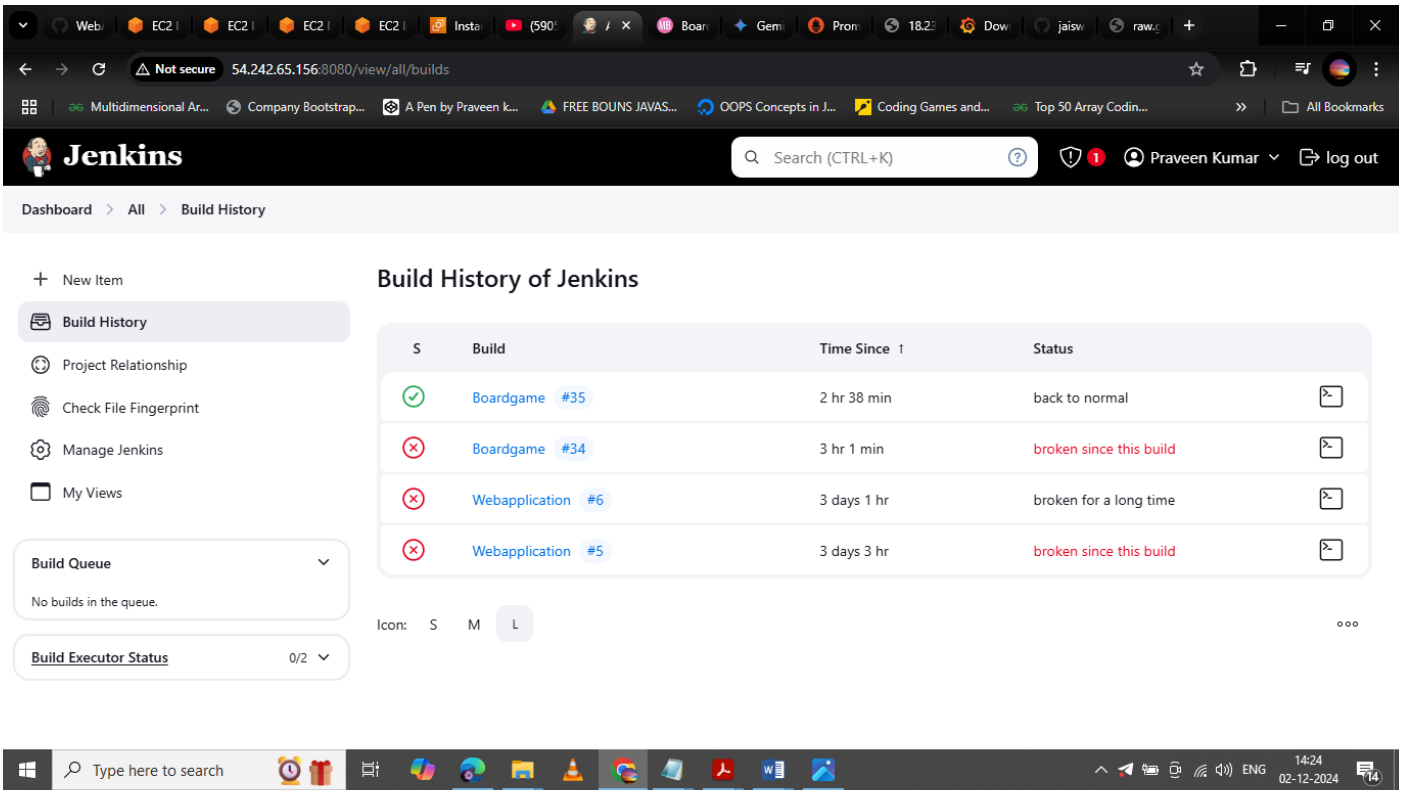
No releases published
Create a new release

Packages

No packages published
Publish your first package

Stage 3:

Creating a Jenkins Setup for CICD



Build Queue

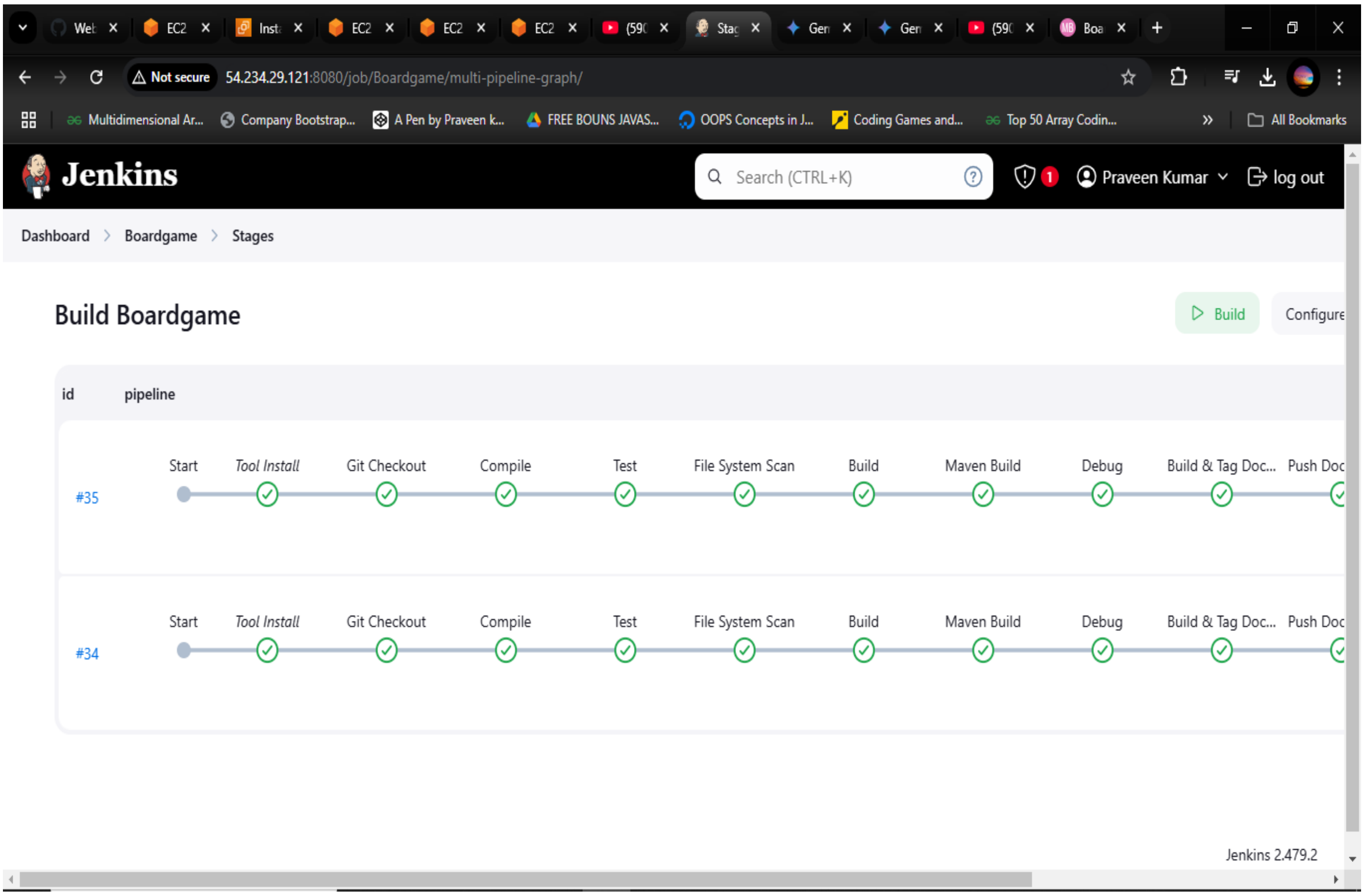
No builds in the queue.

Build Executor Status 0/2

Build History of Jenkins

S	Build	Time Since ↑	Status
✓	Boardgame #35	2 hr 38 min	back to normal
☒	Boardgame #34	3 hr 1 min	broken since this build
☒	Webapplication #6	3 days 1 hr	broken for a long time
☒	Webapplication #5	3 days 3 hr	broken since this build

Deployment of web application



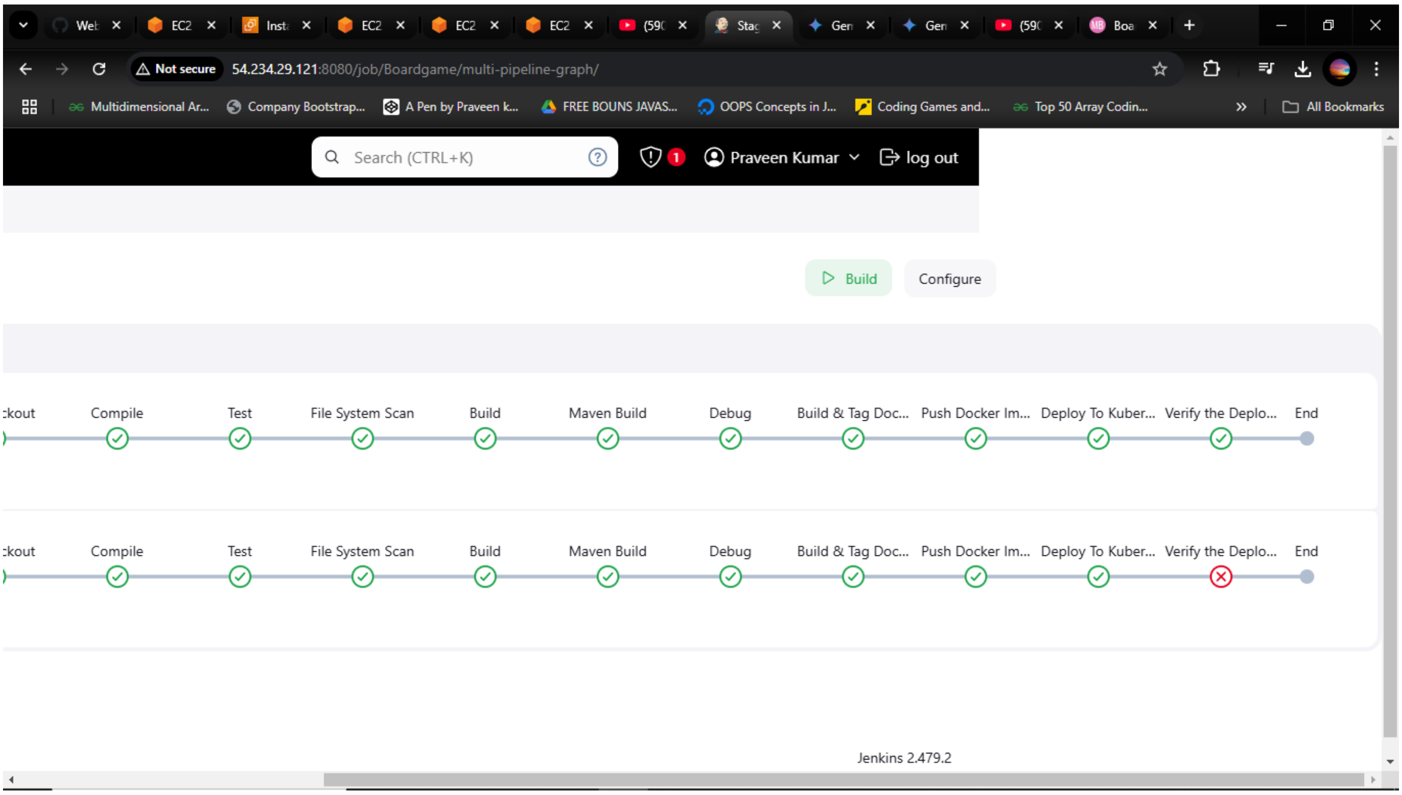
54.234.29.121:8080/job/Boardgame/multi-pipeline-graph/

Dashboard > Boardgame > Stages

Build Boardgame

id	Start	Tool Install	Git Checkout	Compile	Test	File System Scan	Build	Maven Build	Debug	Build & Tag Doc...	Push Doc
#35	●	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
#34	●	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Jenkins 2.479.2

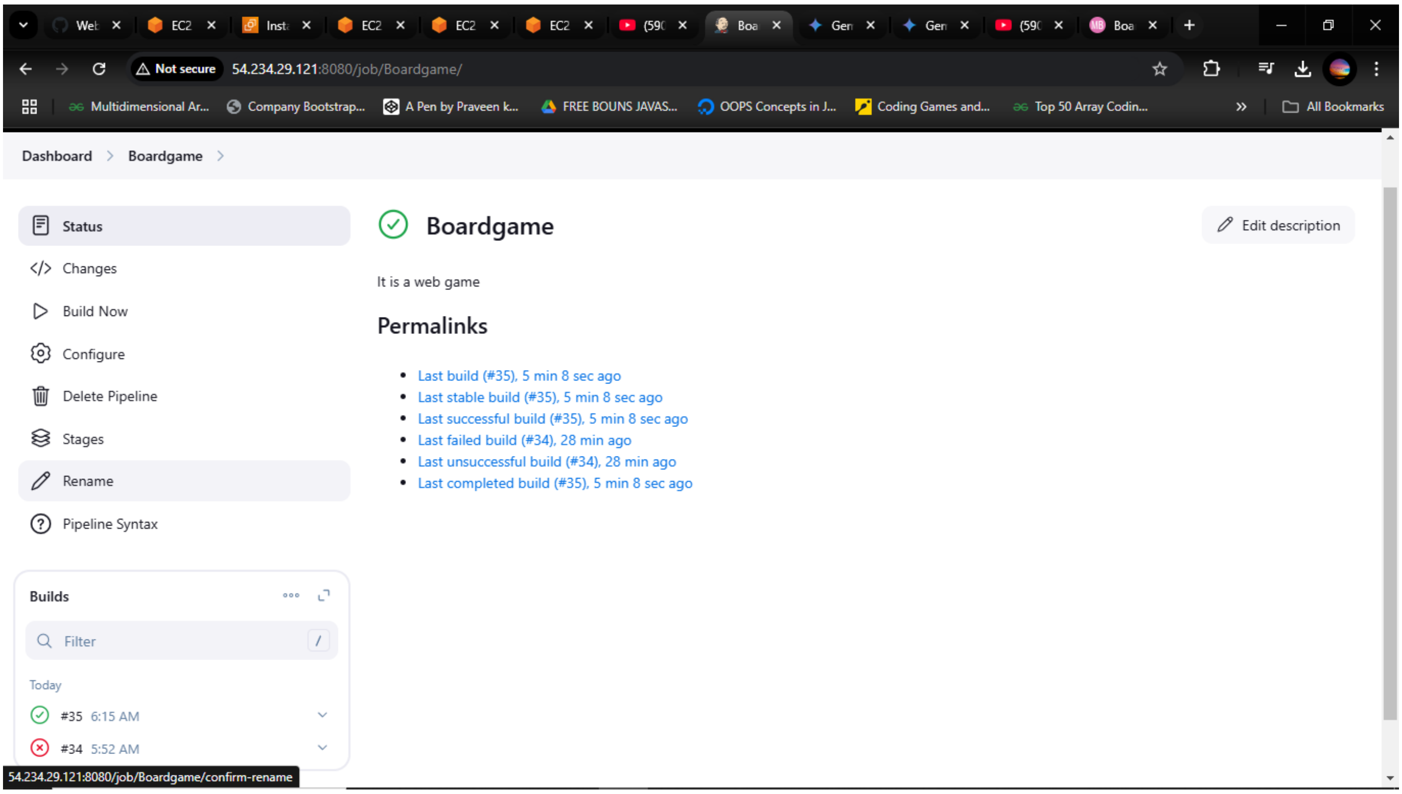


54.234.29.121:8080/job/Boardgame/multi-pipeline-graph/

ckout	Compile	Test	File System Scan	Build	Maven Build	Debug	Build & Tag Doc...	Push Docker Im...	Deploy To Kuber...	Verify the Deplo...	End
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	●
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	●

Jenkins 2.479.2

Deployment of web application



Boardgame

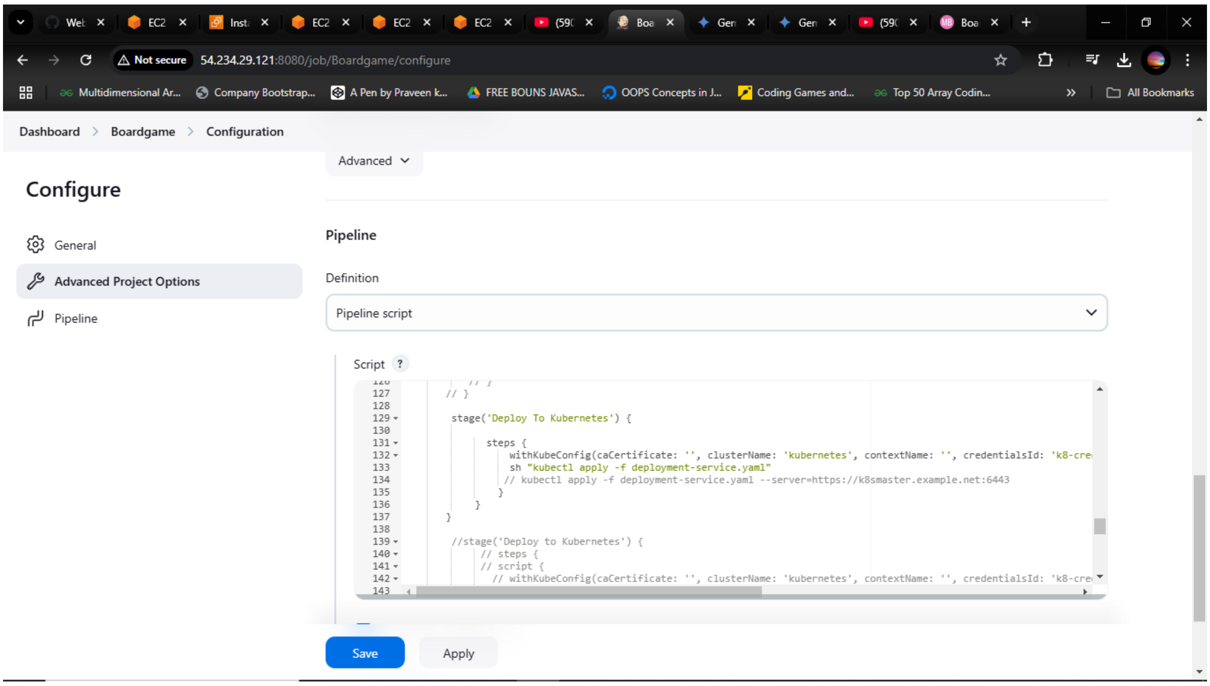
It is a web game

Permalinks

- Last build (#35), 5 min 8 sec ago
- Last stable build (#35), 5 min 8 sec ago
- Last successful build (#35), 5 min 8 sec ago
- Last failed build (#34), 28 min ago
- Last unsuccessful build (#34), 28 min ago
- Last completed build (#35), 5 min 8 sec ago

✓ #35 6:15 AM

✗ #34 5:52 AM



Configure

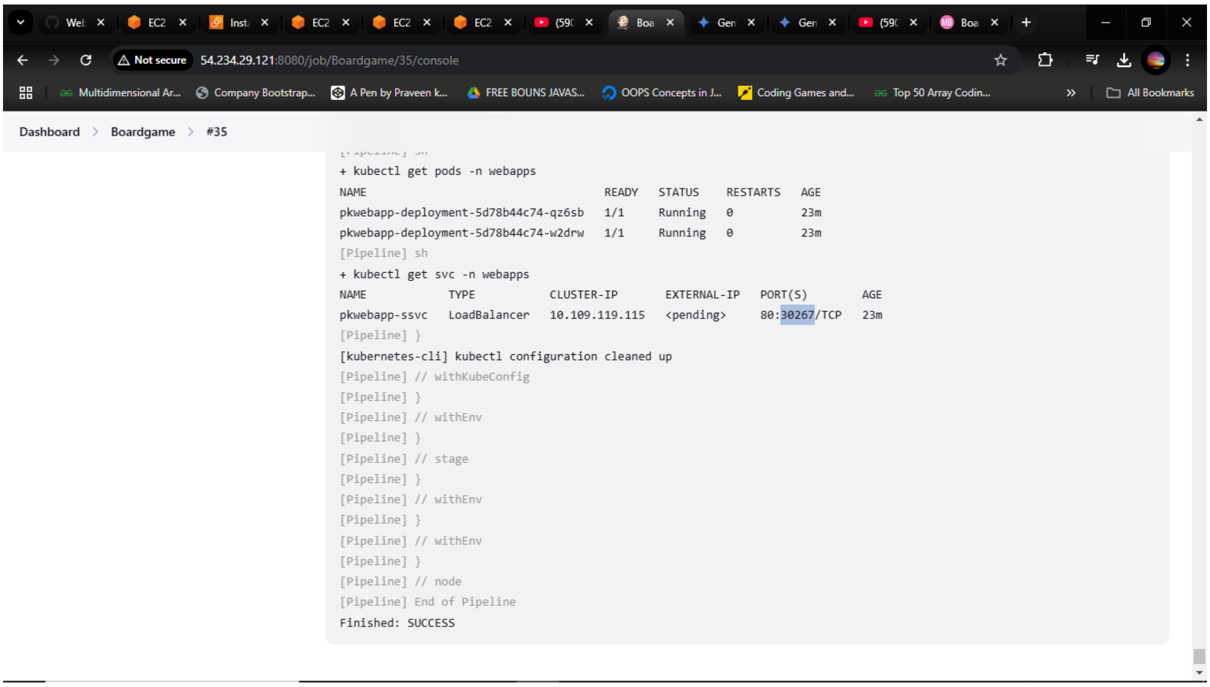
Pipeline

Definition: Pipeline script

Script

```
    // }

     stage('Deploy To Kubernetes') {

          steps {
             withKubeConfig(caCertificate: '', clusterName: 'kubernetes', contextName: '', credentialsId: 'k8-cre
             sh "kubectl apply -f deployment-service.yaml"
            // kubectl apply -f deployment-service.yaml --server=https://k8smaster.example.net:6443
            }
        }
    }

     //stage('Deploy to Kubernetes') {
         // steps {
         // script {
           // withKubeConfig(caCertificate: '', clusterName: 'kubernetes', contextName: '', credentialsId: 'k8-cre
```

Deployment of web application



```
[Pipeline] sh
+ kubectl get pods -n webapps
NAME                                READY   STATUS    RESTARTS   AGE
pkwebapp-deployment-5d78b44c74-qz6sb   1/1     Running   0          23m
pkwebapp-deployment-5d78b44c74-w2drw   1/1     Running   0          23m
[Pipeline] sh
+ kubectl get svc -n webapps
NAME            TYPE           CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
pkwebapp-ssvc   LoadBalancer   10.109.119.115   <pending>     80:30267/TCP   23m
[Pipeline] }
[kubernetes-cli] kubectl configuration cleaned up
[Pipeline] // withKubeConfig
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Jenkins pipe line for building a web application and creating a Docker image ,Deployment in kubernetes

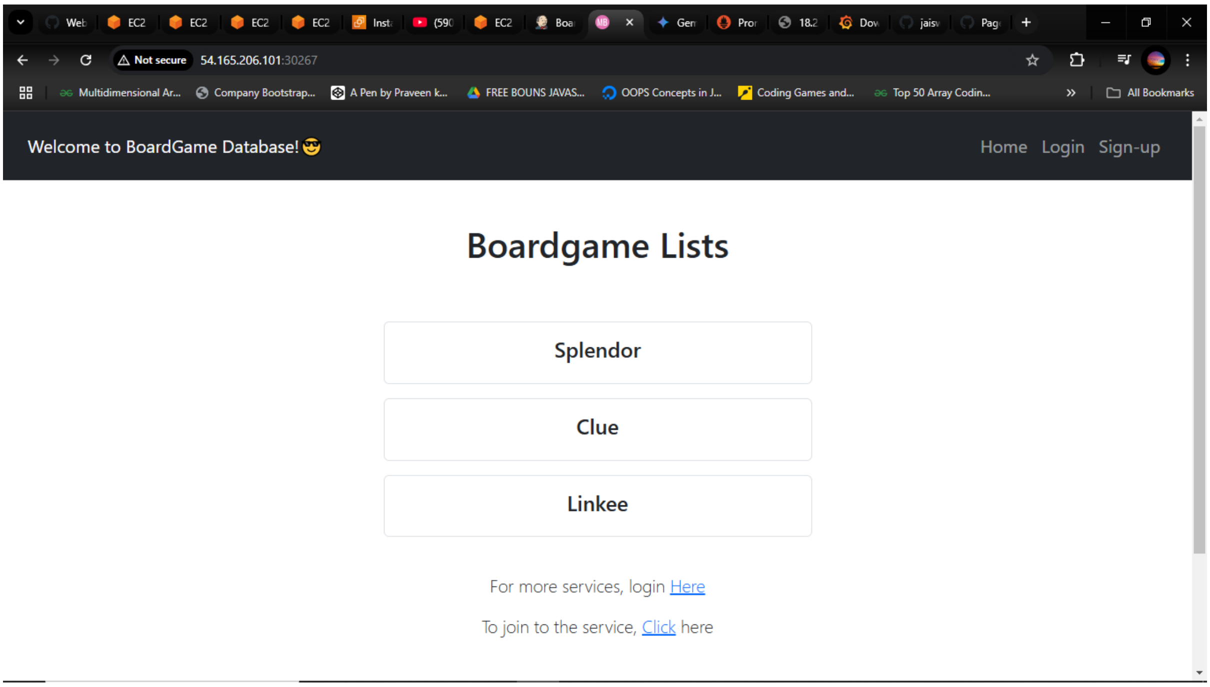
```
pipeline {
    agent any
       tools{
      jdk "jdk17"
     maven "maven3"
    }
  stages{
      stage('Git Checkout') {
         steps {
           git branch: 'main', credentialsId: 'git-cred', url: 'https://github.com/Praveenkumar90400/WebApp.git'
         }
     }
      stage('Compile') {
        steps {
           sh "mvn compile"
         }
     }
      stage('Test') {
        steps {
         sh"mvn test"
     }
 }
 stage('File System Scan') {
   steps {
      sh "trivy fs --format table -o trivy-fs-report.html ."
     }
 }
  stage('Build') {
     steps {
         sh "mvn package"
     }
 }
    stage('Maven Build') {
     steps {
         sh 'mvn clean install'
     }
 }
stage('Debug') {
   steps {
      sh 'whoami'
      sh 'groups'
      sh 'ls -l /var/run/docker.sock'
    }
 }
 stage('Build & Tag Docker Image') {
     steps {
         script{
               withDockerRegistry(credentialsId: 'docker-cred', toolName: 'docker') {
                  sh "docker build -t praveenkumar90400/pkwebapp:latest ."
               }
         }
     }
 }
 stage('Push Docker Image') {
```

Deployment of web application

```
         steps {
           script{
               withDockerRegistry(credentialsId: 'docker-cred', toolName: 'docker') {
                 sh "docker push praveenkumar90400/pkwebapp:latest "
                }
           }
         }
   }



 stage('Deploy To Kubernetes') {
         steps {
             withKubeConfig(caCertificate: '', clusterName: 'kubernetes', contextName: '', credentialsId: 'k8-cred',
namespace: 'webapps', restrictKubeConfigAccess: false, serverUrl: 'https://44.205.245.189:6443') {
             sh "kubectl apply -f deployment-service.yaml"


            }
         }
     }
      stage('Verify the Deployment') {
         steps {
           withKubeConfig(caCertificate: '', clusterName: 'kubernetes', contextName: '', credentialsId:        'k8-cred',
         serverUrl: 'https://44.205.245.189:6443') {
               sh "kubectl get pods -n webapps"
               sh "kubectl get svc -n webapps"
            }
         }
      }
  }
}
```

Deployment of web application

After Jenkins Build Success we can access the web application using port 30267



Welcome to BoardGame Database! 😎

Boardgame Lists

For more services, login Here

To join to the service, Click here