Brain-Tasks-App Deployment Project

Project Overview

This project demonstrates the deployment of a React application to a production-ready environment using Docker, AWS Codepipeline, AWS EKS, and CloudWatch for monitoring. The application is containerized and deployed to an EKS cluster with CI/CD automation via CodePipeline.

Features

- • React frontend running on port 80
- • Dockerized for container management
- • AWS CodePipeline for automated builds and deployments
- • AWS EKS for scalable Kubernetes deployment
- • CloudWatch logs integration for monitoring application and cluster activity

Prerequisites

- • AWS CLI configured
- • Kubernetes CLI (kubectl)
- • Docker installed
- • Jenkins server with access to GitHub repository
- • AWS EKS cluster setup

Deployment Steps

1. Clone the Repository

```
git clone https://github.com/Deepak-r-2001/Brain-Tasks-App.git
```

cd Brain-Tasks-App

2. Docker Build and Push

```
docker build -t deepwhoo/brain-tasks-app:latest .

docker push deepwhoo/brain-tasks-app:latest
```

3. Kubernetes Deployment

```
kubectl apply -f deployment.yaml

kubectl apply -f service.yaml

kubectl rollout status deployment brain-tasks-deployment
```

kubectl get pods

4. Enable CloudWatch Logs for Monitoring

kubectl create namespace amazon-cloudwatch

kubectl apply -f cwagent-fluent-bit.yaml

kubectl get pods -n amazon-cloudwatch

5. Jenkins CI/CD Pipeline

- • Set up AWS CodePipeline with GitHub repo integration
- Configure build steps:
- Build Docker image
- Push to DockerHub
- Deploy to EKS using kubectl or CodeDeploy
- Enable CloudWatch logs tracking for monitoring

Repository

GitHub Repository: https://github.com/Deepak-r-2001/Brain-Tasks-App

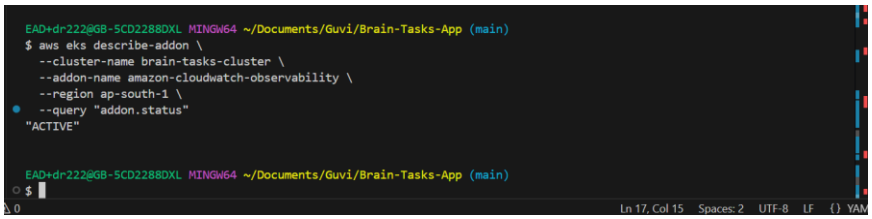
Monitoring

- • CloudWatch logs show build, deploy, and application logs
- • Visualization can be added to CloudWatch dashboard

Project Screenshots

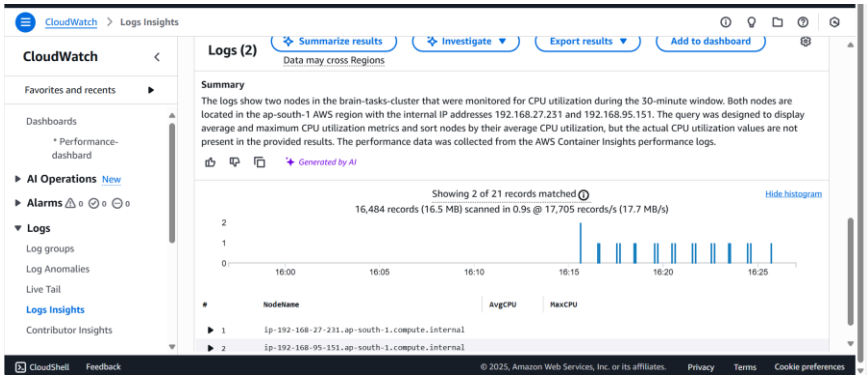
Screenshot 1

Amazon CloudWatch Add on



Screenshot 2

CPU usage



Screenshot 3

Code deployment

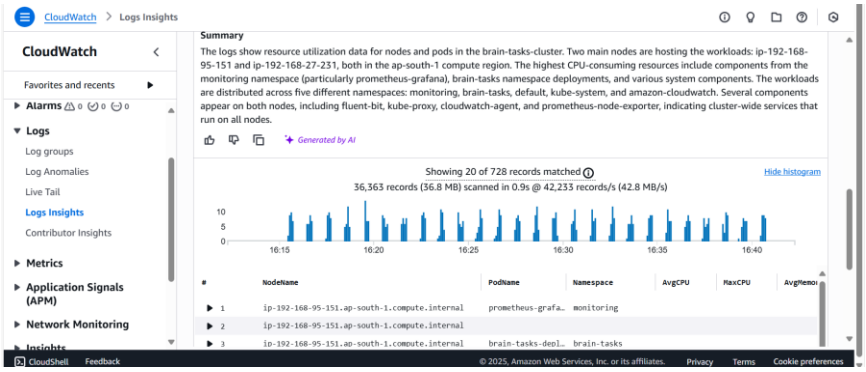
```
EAD+dr222@GB-5CD2288DXL MINGW64 ~/Documents/Guvi/Brain-Tasks-App (main)
$ aws deploy get-application \
    --application-name brain-tasks-app-deploy \
    --region ap-south-1
{
    "application": {
        "applicationId": "62d416ce-c1b1-476f-ae8d-b5267bed0e1a",
        "applicationName": "brain-tasks-app-deploy",
        "createTime": "2025-08-20T18:40:45.439000+05:30",
        "linkedToGitHub": false,
        "computePlatform": "ECS"
    }
}
```

Screenshot 4

Dashboard 1

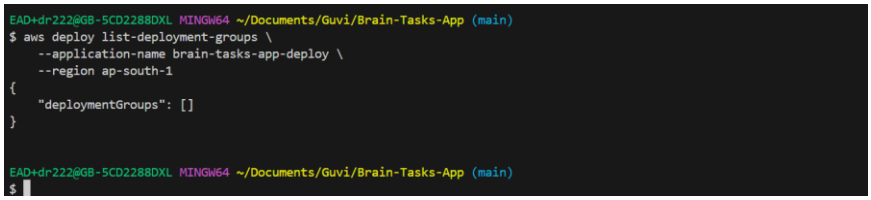
Screenshot 5

Data utilisation of nodes and pods



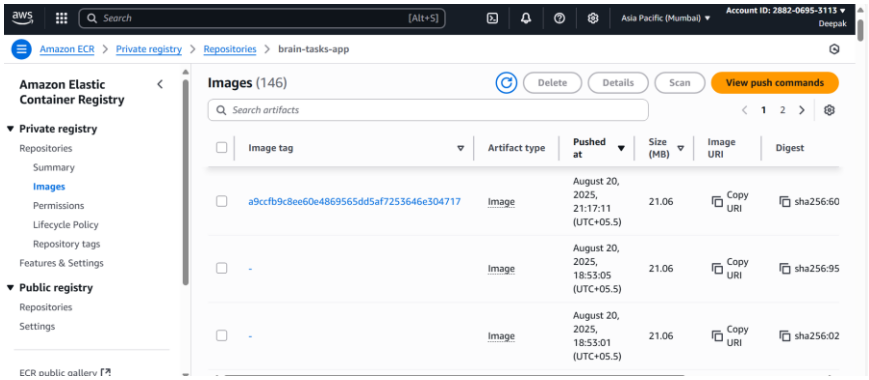
Screenshot 6

Deployment group



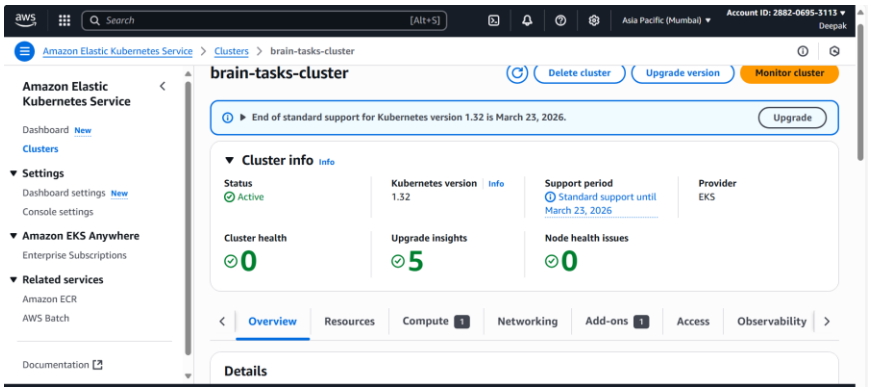
Screenshot 7

ECR Repository



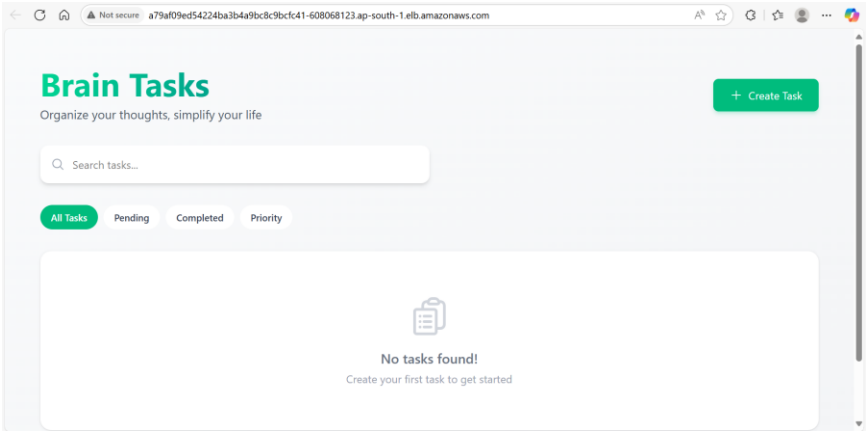
Screenshot 8

EKS cluster status



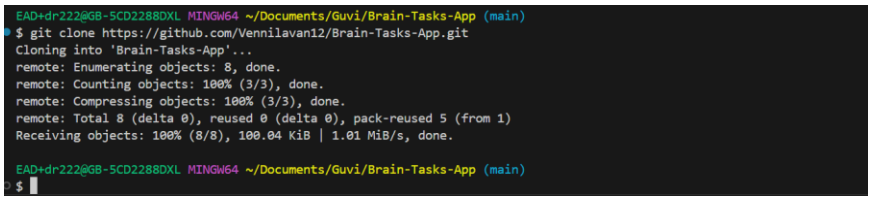
Screenshot 9

Exposed app via LoadBalancer & tested public URL



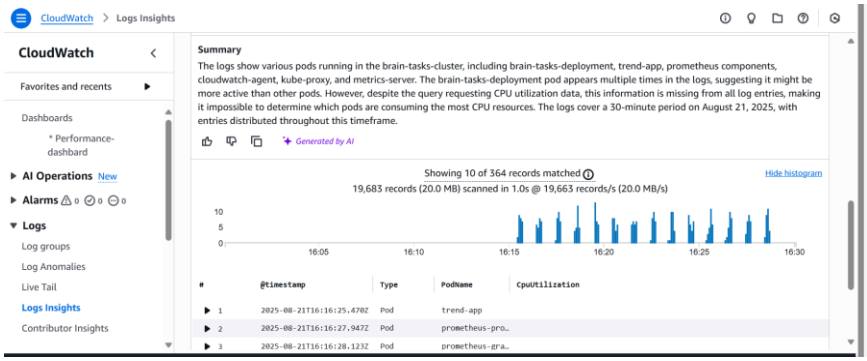
Screenshot 10

Git Clone



Screenshot 11

High CPU usage pods



Screenshot 12

Kubernetes DaemonSets

```
EAD+dr222@GB-5CD2288DXL MINGW64 ~/Documents/Guvi/Brain-Tasks-App (main)
$ kubectl get daemonset -n amazon-cloudwatch
NAME                                      DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR
     AGE
cloudwatch-agent                          2         2         2       2            2           kubernetes.io/os=linux
    74m
cloudwatch-agent-windows                  0         0         0       0            0           kubernetes.io/os=window
s   74m
cloudwatch-agent-windows-container-insights   0         0         0       0            0           kubernetes.io/os=window
s   74m
dcgm-exporter                             0         0         0       0            0           kubernetes.io/os=linux
    74m
fluent-bit                                2         2         2       2            2           kubernetes.io/os=linux
    75m
fluent-bit-windows                        0         0         0       0            0           kubernetes.io/os=window
```

Screenshot 13

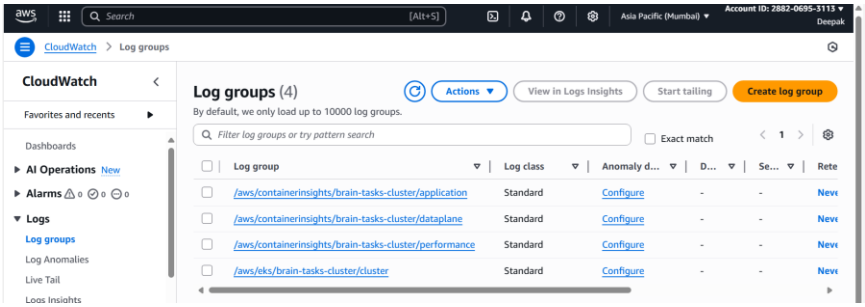
Kubernetes Deployment

```
EAD+dr222@GB-5CD2288DXL MINGW64 ~/Documents/Guvi/Brain-Tasks-App (main)
$ kubectl get pods -n default
NAME                                    READY   STATUS    RESTARTS   AGE
brain-tasks-deployment-9557664f-hqrbl   1/1     Running   0          27h
brain-tasks-deployment-9557664f-q6rdn   1/1     Running   0          27h
trend-app-55d46c64c4-d9s9g              1/1     Running   0          13d
trend-app-55d46c64c4-gp86c              1/1     Running   0          13d

EAD+dr222@GB-5CD2288DXL MINGW64 ~/Documents/Guvi/Brain-Tasks-App (main)
$
```

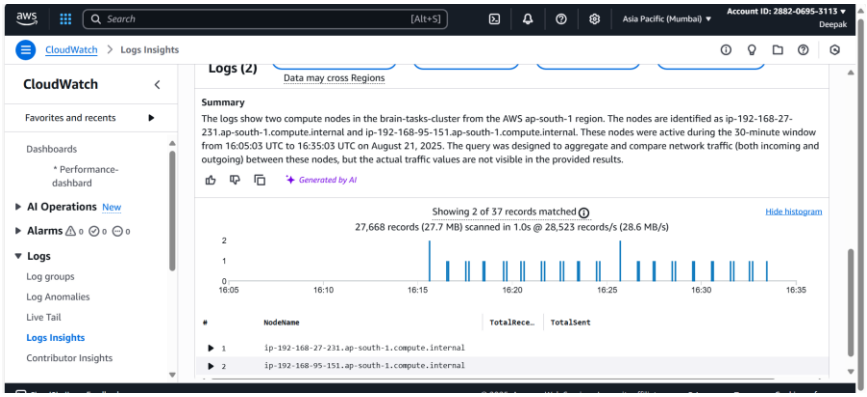
Screenshot 14

Log groups



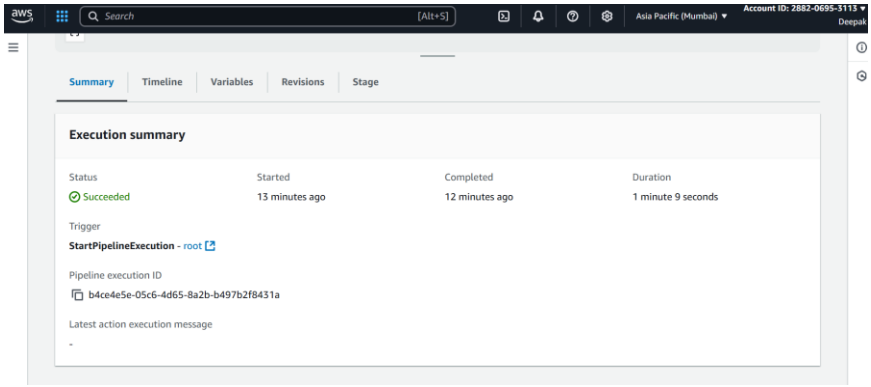
Screenshot 15

Network performance



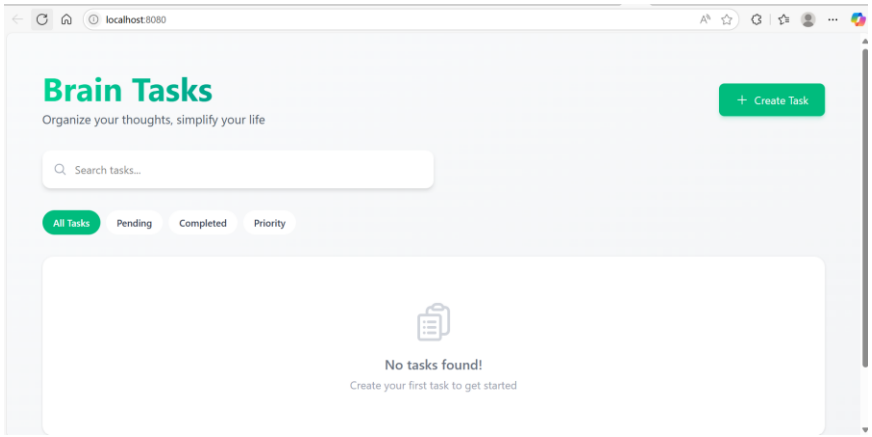
Screenshot 16

Pipeline execution summary



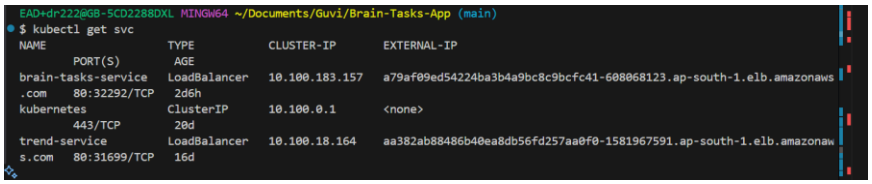
Screenshot 17

React app loaclly



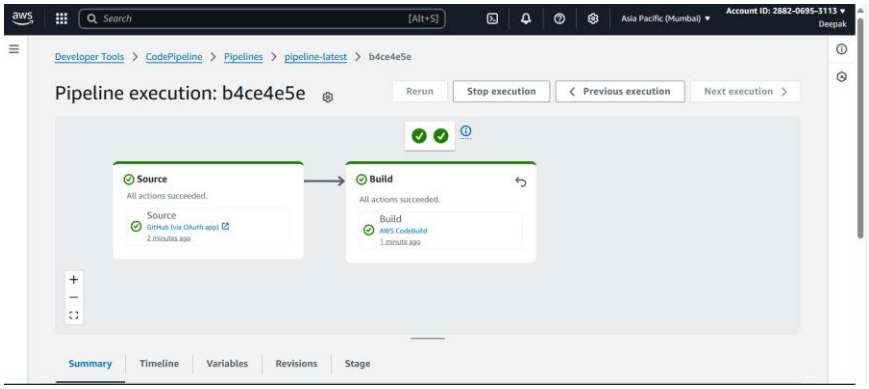
Screenshot 18

Service Exposure



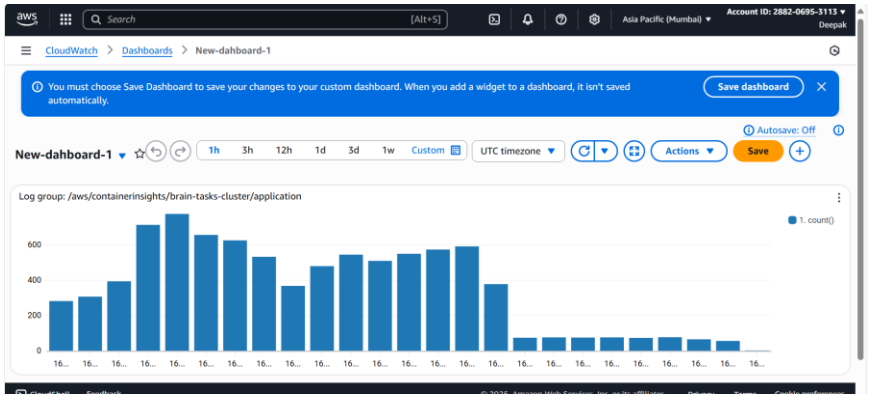
Screenshot 19

code pipeline



Screenshot 20

error occurance of app per min



Screenshot 21

memory usage