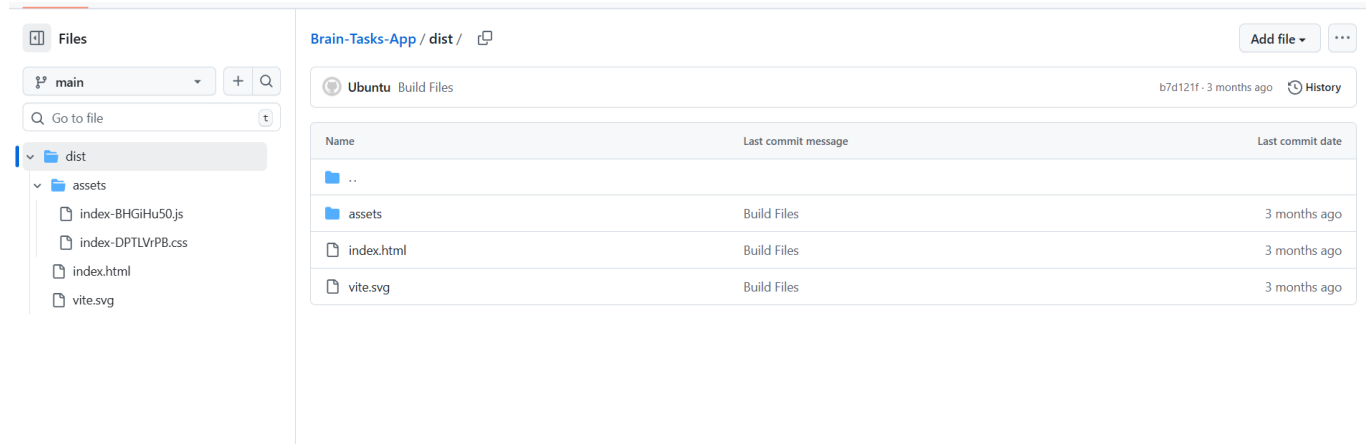
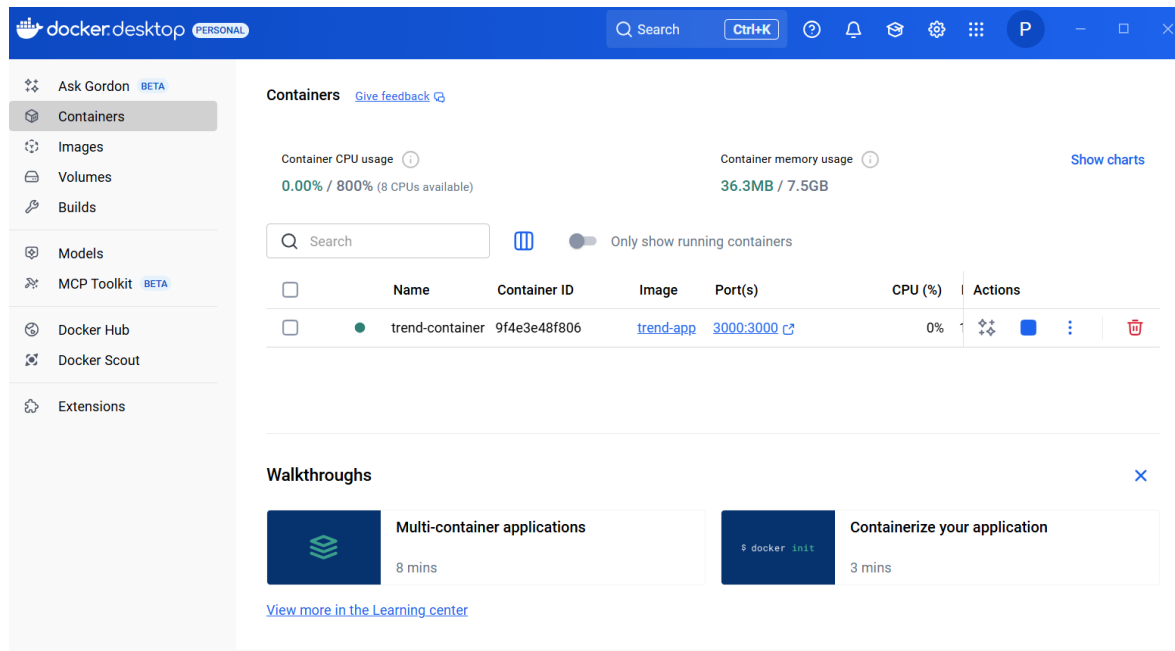


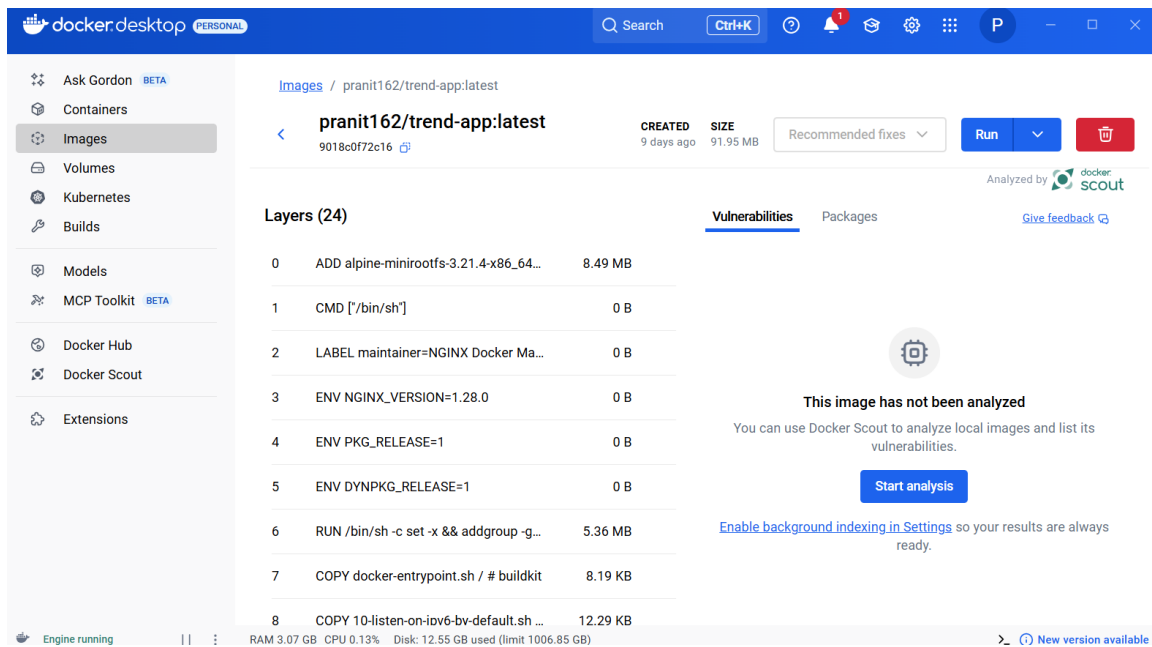
Project Trend-App

➔ Step 1: Preparation — repo + local workspace



➔ Step 2: Dockerize the React app and build the image





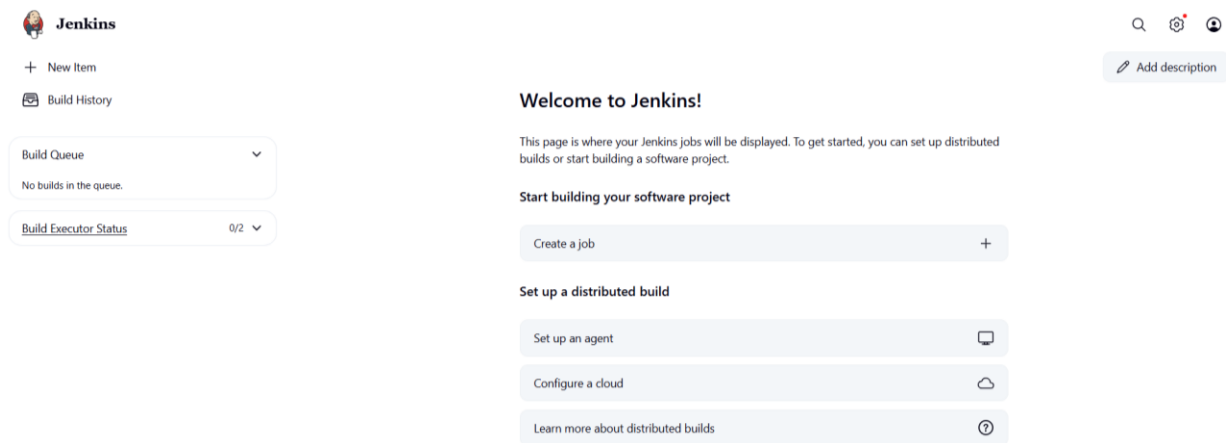
➔ Step 3: Terraform infra and Jenkins configuration

Purpose: provision VPC, subnets (2 AZs), IGW, route tables, security groups, EC2 for Jenkins, IAM roles, EKS cluster and node group.

Files: main.tf, eks.tf

In Jenkins UI:

- Install required plugins: Docker, Git, Kubernetes, Pipeline.
- Add credentials: DockerHub username/password, GitHub token



?

Git

?

Repositories ?

Repository URL ?

https://github.com/Wanted162/trend-app.git

Credentials ?

Wanted162/*****

?

Advanced ▾

Configure

- General
- Triggers
- Pipeline
- Advanced

(Auto)

Additional Behaviours

Add ▾

Script Path ?

Jenkinsfile

☒ Lightweight checkout ?

[Pipeline Syntax](#)

Advanced

Advanced ▾

Save

Apply

REST API Jenkins 2.516.3

 **Jenkins** / trend-app-pipeline

 Status

 Changes

 Build Now

 Configure

 Delete Pipeline

 Favorite

 Open Blue Ocean

 trend-app-pipeline

Permalinks

- Last build (#3), 5 min 35 sec ago
- Last stable build (#3), 5 min 35 sec ago
- Last successful build (#3), 5 min 35 sec ago
- Last failed build (#2), 14 min ago
- Last unsuccessful build (#2), 14 min ago
- Last completed build (#3), 5 min 35 sec ago

➔ Step 4: Create EKS cluster & worker nodegroup and Deploy Kubernetes manifests and Install AWS Load Balancer Controller and monitoring the app

EC2 > Load balancers > k8s-trendapp-trending-c80c7ce2ef

k8s-trendapp-trending-c80c7ce2ef

Details

Load balancer type Application	Status Active	VPC vpc-0164bc29bccaff5ca	Load balancer IP address type IPv4
Scheme Internet-facing	Hosted zone ZP97RAFLXTNZK	Availability Zones subnet-0822c1ba4c725ab6a ap-south-1a (aps1-az1) subnet-0ba6c49d0da6d4aa8 ap-south-1a (aps1-az3)	Date created September 17, 2025, 21:21 (UTC+05:30)

Load balancer ARN
arn:aws:elasticloadbalancing:ap-south-1:907969929387:loadbalancer/app/k8s-trendapp-trending-c80c7ce2ef/4daf9dd2c928059

DNS name copied
k8s-trendapp-trending-c80c7ce2ef-300746421.ap-south-1.elb.amazonaws.com (A Record)

Listeners and rules (1) info

A listener checks for connection requests on its configured protocol and port. Traffic received by the listener is routed according to the default action and any additional rules.

Filter listeners

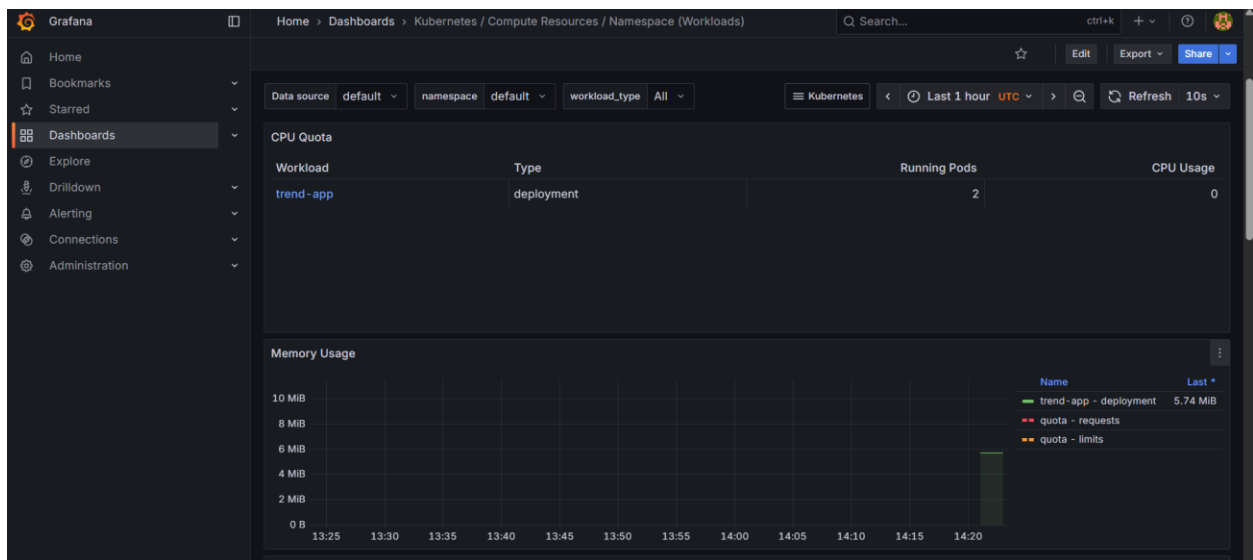
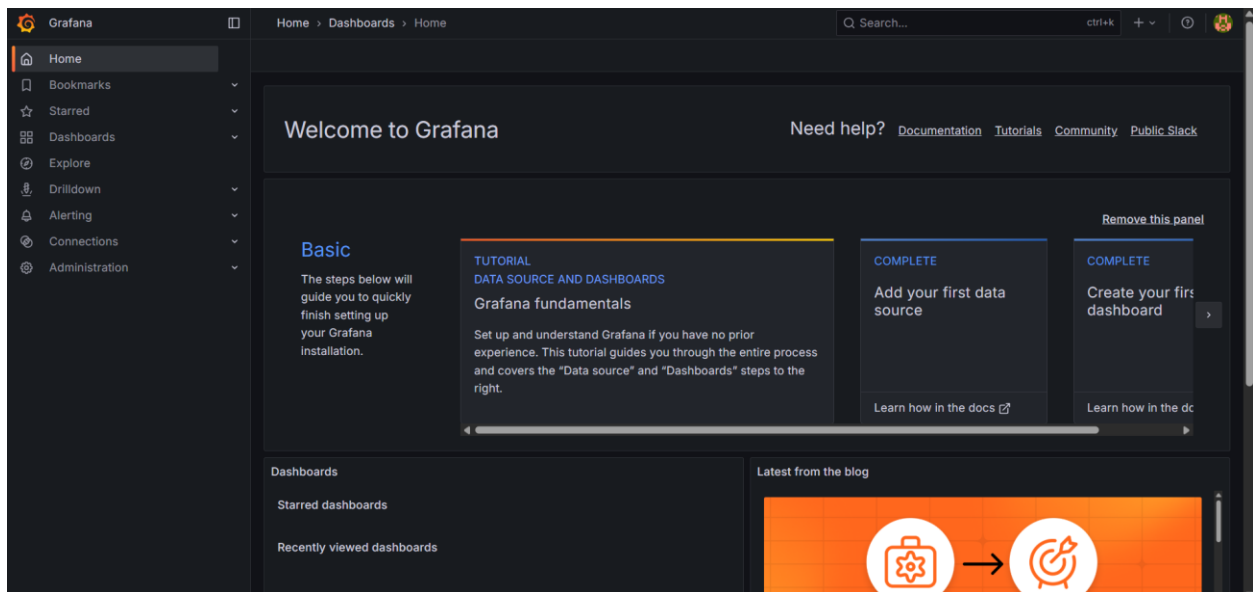
```
PS C:\Users\91866\projectss\trend-app> kubectl get all -A
NAMESPACE   NAME                                     READY   STATUS    RESTARTS   AGE
default     pod/trend-app-68bbd485c-62r22          1/1     Running   0           6d8h
default     pod/trend-app-68bbd485c-fl1g4          1/1     Running   0           6d8h
kube-system pod/aws-node-89tzm                     2/2     Running   0           11m
kube-system pod/coredns-6799d65cb-hmnp8            1/1     Running   0           6d8h
kube-system pod/coredns-6799d65cb-xft9h          1/1     Running   0           6d8h
kube-system pod/kube-proxy-dmhp6               1/1     Running   0           11m
kube-system pod/metrics-server-5775b55498-hcr5t 1/1     Running   0           6d8h
kube-system pod/metrics-server-5775b55498-vczq7 1/1     Running   0           6d8h

NAMESPACE   NAME                                     TYPE          CLUSTER-IP   EXTERNAL-IP
default     service/kubernetes                      ClusterIP     10.100.0.1   <none>
default     service/trend-app-service              LoadBalancer 10.100.161.137 a992d5008d1fa43b8a7ec41a300c8808-1200284328.ap-south-1.elb.amazonaws.com
amazonaws.com 80:32031/TCP
kube-system  service/eks-extension-metrics-api      ClusterIP     10.100.165.208 <none>
kube-system  service/kube-dns                       ClusterIP     10.100.0.10   <none>
kube-system  service/metrics-server                 ClusterIP     10.100.111.45 <none>

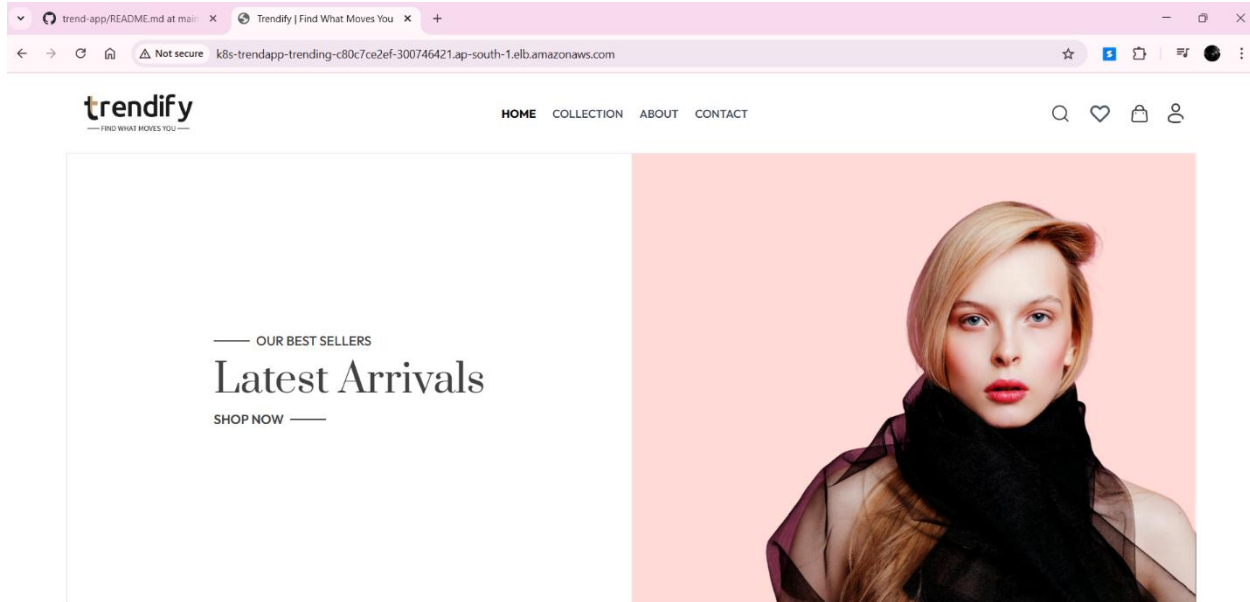
NAMESPACE   NAME                                     DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE_SELECTOR   AGE
kube-system  daemonset.apps/aws-node                 1         1         1         1             1           <none>          7d
kube-system  daemonset.apps/kube-proxy               1         1         1         1             1           <none>          7d

NAMESPACE   NAME                                     READY   UP-TO-DATE   AVAILABLE   AGE
default     deployment.apps/trend-app                2/2     2             2           7d
kube-system deployment.apps/coredns                  2/2     2             2           7d
kube-system deployment.apps/metrics-server    2/2     2             2           7d

NAMESPACE   NAME                                     DESIRED   CURRENT   READY   AGE
default     replicaset.apps/trend-app-68bbd485c      2         2         2       7d
kube-system replicaset.apps/coredns-6799d65cb      2         2         2       7d
kube-system replicaset.apps/metrics-server-5775b55498 2         2         2       7d
```



➔ Step 5: Test the application in the cluster



➔ Step 6: Auto-scaling and load-testing

```
PS C:\Users\91866\projects\Trend\k8s> kubectl get hpa -n trend-app
```

NAME	REFERENCE	TARGETS	MINPODS	MAXPODS	REPLICAS	AGE
trend-app-hpa	Deployment/trend-app-deployment	cpu: 15%/30%	2	5	2	25h

➔ Step 7: Push the Project to GitHub & Terminate the AWS resources to avoid costs.

