

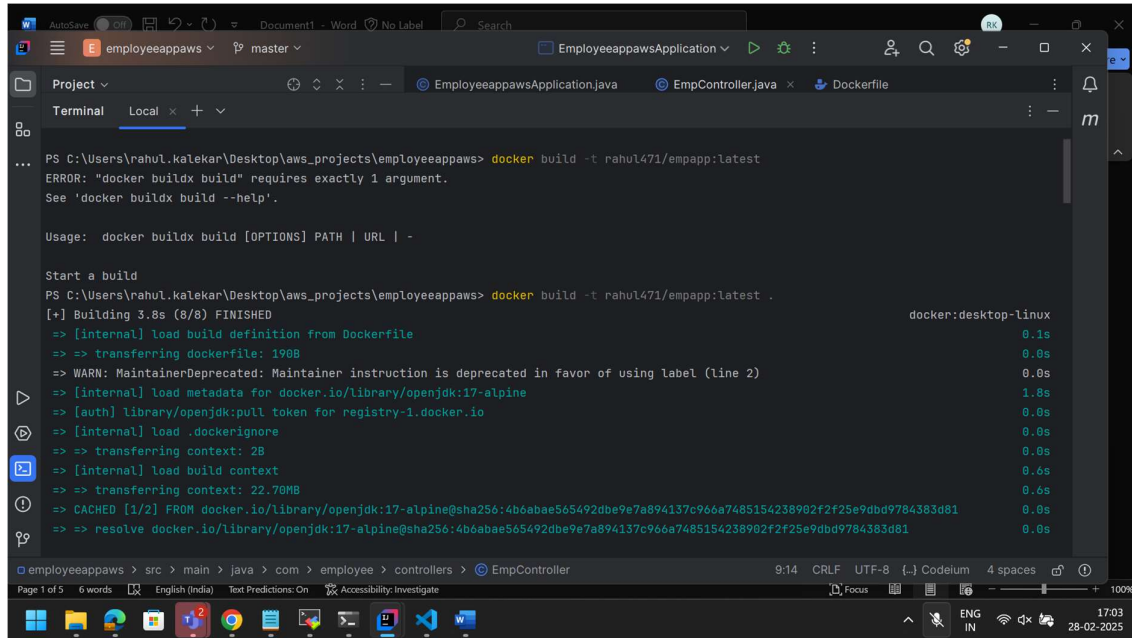
LAB-EXAM-7

AWS-EKS

Rahul C Kalekar

Using eksctl

Creating the image

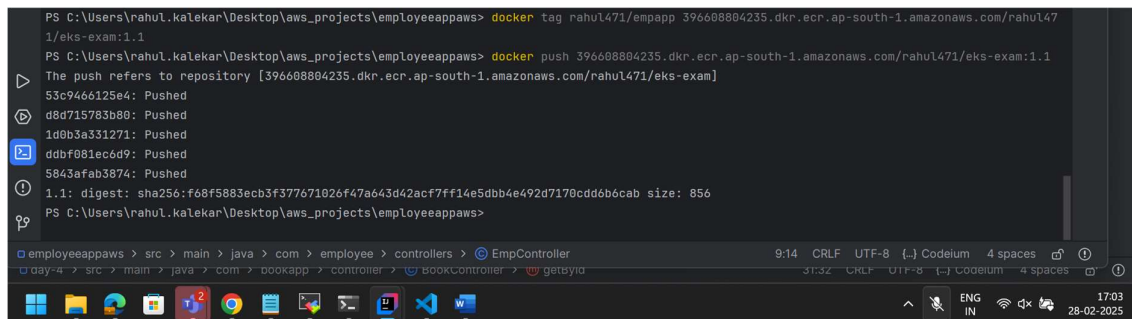


```
PS C:\Users\rahul.kalekar\Desktop\aws_projects\employeeappaws> docker build -t rahul471/empapp:latest
ERROR: "docker buildx build" requires exactly 1 argument.
See 'docker buildx build --help'.

Usage: docker buildx build [OPTIONS] PATH | URL | -

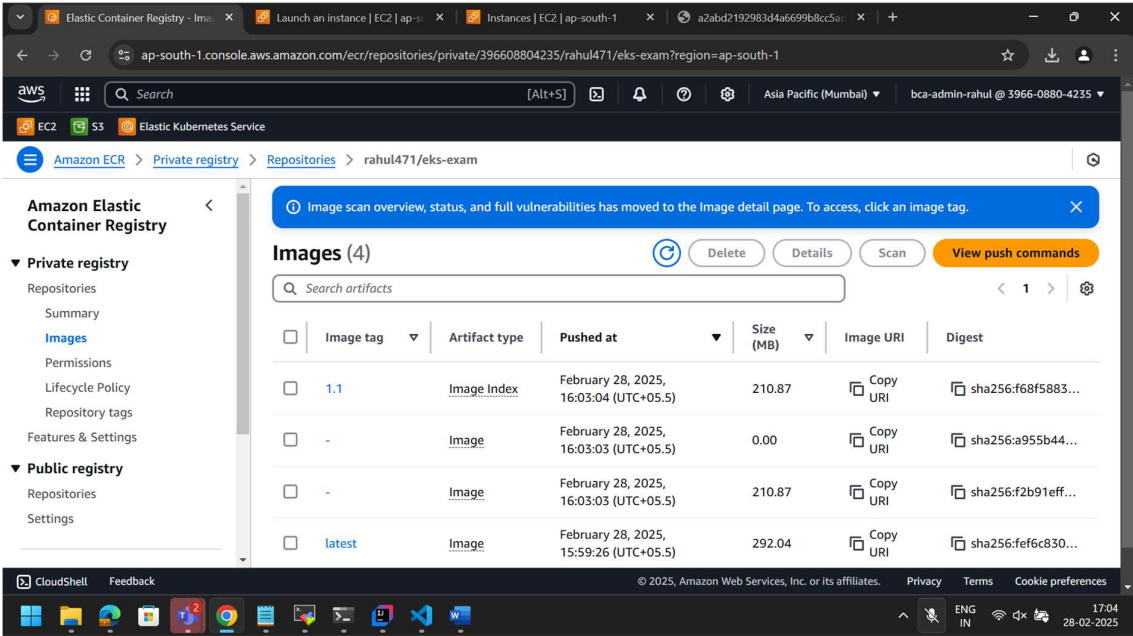
Start a build
PS C:\Users\rahul.kalekar\Desktop\aws_projects\employeeappaws> docker build -t rahul471/empapp:latest .
[+] Building 3.8s (8/8) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 196B
=> WARN: MaintainerDeprecated: Maintainer instruction is deprecated in favor of using label (line 2)
=> [internal] load metadata for docker.io/library/openjdk:17-alpine
=> [auth] library/openjdk:pull token for registry-1.docker.io
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load build context
=> => transferring context: 22.70MB
=> CACHED [1/2] FROM docker.io/library/openjdk:17-alpine@sha256:4b6abae565492dbe9e7a894137c966a7485154238902f2f25e9dbd9784383d81
=> => resolve docker.io/library/openjdk:17-alpine@sha256:4b6abae565492dbe9e7a894137c966a7485154238902f2f25e9dbd9784383d81
```

Pushing it to ECR



```
PS C:\Users\rahul.kalekar\Desktop\aws_projects\employeeappaws> docker tag rahul471/empapp 396608804235.dkr.ecr.ap-south-1.amazonaws.com/rahul471/eks-exam:1.1
PS C:\Users\rahul.kalekar\Desktop\aws_projects\employeeappaws> docker push 396608804235.dkr.ecr.ap-south-1.amazonaws.com/rahul471/eks-exam:1.1
The push refers to repository [396608804235.dkr.ecr.ap-south-1.amazonaws.com/rahul471/eks-exam]
53c9466125e4: Pushed
d8d715783b80: Pushed
1d0b3a331271: Pushed
ddb6f081ec6d9: Pushed
5843afab3874: Pushed
1.1: digest: sha256:f68f5883ecb3f377671026f47a643d42acf7ff14e5dbb4e492d7170cdd6b6cab size: 856
PS C:\Users\rahul.kalekar\Desktop\aws_projects\employeeappaws>
```

Image on ECR



Configuring cluster

```
65.0.178.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect... 2 13 203 104 86 (ubuntu) 3 65.0.178.179 (ubuntu)
/home/ubuntu/
Name
.cache
.ssh
.bash_logout
.bashrc
.profile
.xauthority
Remote monitoring
ollow terminal fold

root@ip-172-31-13-223:/home/ubuntu# ls
1.yaml aws awscli v2.zip eksctl.tar.gz exam.yaml kubectl
root@ip-172-31-13-223:/home/ubuntu# cat 1.yaml
apiVersion: eksctl.io/v1alpha5
kind: ClusterConfig

metadata:
  name: lab-exam-cluster
  region: ap-south-1

nodeGroups:
  - name: ng-1
    instanceType: t2.micro
    desiredCapacity: 2
root@ip-172-31-13-223:/home/ubuntu#
```

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```
65.0.178.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect... 2 13 203 104 86 (ubuntu) 3 65.0.178.179 (ubuntu)
/home/ubuntu/
Name
.cache
.ssh
.bash_logout
.bashrc
.profile
.xauthority
Remote monitoring
ollow terminal fold

nodeGroups:
  - name: ng-1
    instanceType: t2.micro
    desiredCapacity: 2
root@ip-172-31-13-223:/home/ubuntu# cat exam.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: empapp
spec:
  replicas: 1
  selector:
    matchLabels:
      app: empapp
  template:
    metadata:
      labels:
        app: empapp
    spec:
      containers:
        - name: empapp
          image: 396608804235.dkr.ecr.ap-south-1.amazonaws.com/rahul471/eks-exam:1.1
          ports:
            - containerPort: 8080
---
apiVersion: v1
kind: Service
metadata:
  name: empapp-service
spec:
  selector:
    app: empapp
```

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Creating cluster

```
65.0.178.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
/home/ubuntu/
Name
.cache
.ssh
.bash_logout
.bashrc
.profile
.xauthority
Remote monitoring
Follow terminal fold

root@ip-172-31-13-223:/home/ubuntu# ls
aws awscli v2.zig eksctl tar.gz exam.yaml kubectl
root@ip-172-31-13-223:/home/ubuntu# vim 1.yaml
root@ip-172-31-13-223:/home/ubuntu# eksctl create cluster -f 1.yaml
2025-02-28 10:58:24 [i] eksctl version 0.204.0
2025-02-28 10:58:24 [i] using region ap-south-1
2025-02-28 10:58:24 [i] skipping ap-south-1c from selection because it doesn't support the following instance type(s): t2.micro
2025-02-28 10:58:24 [i] setting availability zones to [ap-south-1a ap-south-1b]
2025-02-28 10:58:24 [i] subnets for ap-south-1a - public:192.168.0.0/19 private:192.168.64.0/19
2025-02-28 10:58:24 [i] subnets for ap-south-1b - public:192.168.32.0/19 private:192.168.96.0/19
2025-02-28 10:58:24 [i] nodegroup "ng-1" will use "ami-0c5c573feb08cfa4d" [AmazonLinux2/1.30]
2025-02-28 10:58:24 [i] using Kubernetes version 1.30
2025-02-28 10:58:24 [i] creating EKS cluster "lab-exam-cluster" in "ap-south-1" region with un-managed nodes
2025-02-28 10:58:24 [i] 1 nodegroup (ng-1) was included (based on the include/exclude rules)
2025-02-28 10:58:24 [i] will create a CloudFormation stack for cluster itself and 1 nodegroup stack(s)
2025-02-28 10:58:24 [i] if you encounter any issues, check CloudFormation console or try 'eksctl utils describe-stacks --region=ap-south-1 --cluster=lab-exam-cluster'
2025-02-28 10:58:24 [i] Kubernetes API endpoint access will use default of {publicAccess=true, privateAccess=false} for cluster "lab-exam-cluster" in "ap-south-1"
2025-02-28 10:58:24 [i] CloudWatch logging will not be enabled for cluster "lab-exam-cluster" in "ap-south-1"
2025-02-28 10:58:24 [i] you can enable it with 'eksctl utils update-cluster-logging --enable-types={SPECIFY-YOUR-LOG-TYPES-HERE (e.g. all)} --region=ap-south-1 --cluster=lab-exam-cluster'
2025-02-28 10:58:24 [i] default addons metrics-server, vpc-cni, kube-proxy, coredns were not specified, will install them as EKS addons
2025-02-28 10:58:24 [i]
2 sequential tasks: { create cluster control plane "lab-exam-cluster",
  2 sequential sub-tasks: {
    2 sequential sub-tasks: {
      1 task: { create addons },
      wait for control plane to become ready,
    },
    create nodegroup "ng-1",
  }
}
```

Configuring deployment

```
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Quick connect...
/home/ubuntu/
Name
.cache
.ssh
.bash_logout
.bashrc
.profile
.xauthority
Remote monitoring
Follow terminal fold

nodeGroups:
- name: ng-1
  instanceType: t2.micro
  desiredCapacity: 2
root@ip-172-31-13-223:/home/ubuntu# cat exam.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: empapp
spec:
  replicas: 1
  selector:
    matchLabels:
      app: empapp
  template:
    metadata:
      labels:
        app: empapp
    spec:
      containers:
      - name: empapp
        image: 396608804235.dkr.ecr.ap-south-1.amazonaws.com/rahu1471/eks-exam:1.1
        ports:
        - containerPort: 8080
---
apiVersion: v1
kind: Service
metadata:
  name: empapp-service
spec:
  selector:
    app: empapp
```

Scaling resources because it was not enough

```
65.0.178.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
lab-exam-cluster
root@ip-172-31-13-223:/home/ubuntu# eksctl get clusters
NAME REGION EKSCTL CREATED
lab-exam-cluster ap-south-1 True
root@ip-172-31-13-223:/home/ubuntu# eksctl scale nodegroup --cluster=lab-exam-cluster --name=ng-1 --nodes=4 --nodes-min=2 --nodes-max=6
2025-02-28 11:25:42 [0] scaling nodegroup "ng-1" in cluster lab-exam-cluster
2025-02-28 11:25:43 [0] initiated scaling of nodegroup
2025-02-28 11:25:43 [0] to see the status of the scaling run `eksctl get nodegroup --cluster lab-exam-cluster --region ap-south-1 --name ng-1`
root@ip-172-31-13-223:/home/ubuntu# ^C
root@ip-172-31-13-223:/home/ubuntu# eksctl get nodegroup --cluster lab-exam-cluster --region ap-south-1 --name ng-1
NAME STATUS CREATED MIN SIZE MAX SIZE TYPE DESIRED CAPACITY I
lab-exam-cluster ng-1 CREATE_COMPLETE 2025-02-28T11:08:27Z 2 6 unmanaged 4 t
root@ip-172-31-13-223:/home/ubuntu# kubectl get pods
NAME READY STATUS RESTARTS AGE
empapp-c59c445c6-lbjwf 0/1 Pending 0 11m
root@ip-172-31-13-223:/home/ubuntu# ^C
root@ip-172-31-13-223:/home/ubuntu# kubectl describe pod/empapp-c59c445c6-lbjwf
Name: empapp-c59c445c6-lbjwf
Namespace: default
Priority: 0
Service Account: default
Node: ip-192-168-36-20.ap-south-1.compute.internal/192.168.36.20
Start Time: Fri, 28 Feb 2025 11:26:29 +0000
Labels: app=empapp
pod-template-hash=c59c445c6
Annotations: <none>
Status: Pending
IP: <none>
IPs: <none>
Controlled By: ReplicaSet/empapp-c59c445c6
Containers:
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```

Now we get the pod running status, use the external ip

```
65.0.178.179 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
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Quick connect...
kube-api-access-dplj4:
Type: Projected (a volume that contains injected data from multiple sources)
TokenExpirationSeconds: 3607
ConfigMapName: kube-root-ca.crt
ConfigMapOptional: <nil>
DownwardAPI: true
QoS Class: BestEffort
Node-Selectors: <none>
Tolerations: node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
Type Reason Age From Message
----
Warning FailedScheduling 91s (x3 over 11m) default-scheduler 0/2 nodes are available: 2 Too many pods.
preemption: 0/2 nodes are available: 2 No preemption victims found for incoming pod.
Normal Scheduled 6s default-scheduler Successfully assigned default/empapp-c59c445c6-lbjwf to ip-192-168-36-20.ap-south-1.compute.internal
Normal Pulling 5s kubelet Pulling image "396608804235.dkr.ecr.ap-south-1.amazonaws.com/rahu1471/eks-exam:1.1"
root@ip-172-31-13-223:/home/ubuntu# kubectl get pods
NAME READY STATUS RESTARTS AGE
empapp-c59c445c6-lbjwf 1/1 Running 0 12m
root@ip-172-31-13-223:/home/ubuntu# kubectl get svc
NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S)
empapp-service LoadBalancer 10.100.48.255 a2abd2192983d4a6699b8cc5ad3da6d3-1588684079.ap-south-1.elb.amazonaws.com 80:31563/TCP
kubernetes ClusterIP 10.100.0.1 <none> 443/TCP
root@ip-172-31-13-223:/home/ubuntu# ^C
root@ip-172-31-13-223:/home/ubuntu# ^C
root@ip-172-31-13-223:/home/ubuntu#
root@ip-172-31-13-223:/home/ubuntu# ls
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```

Running on external ip

