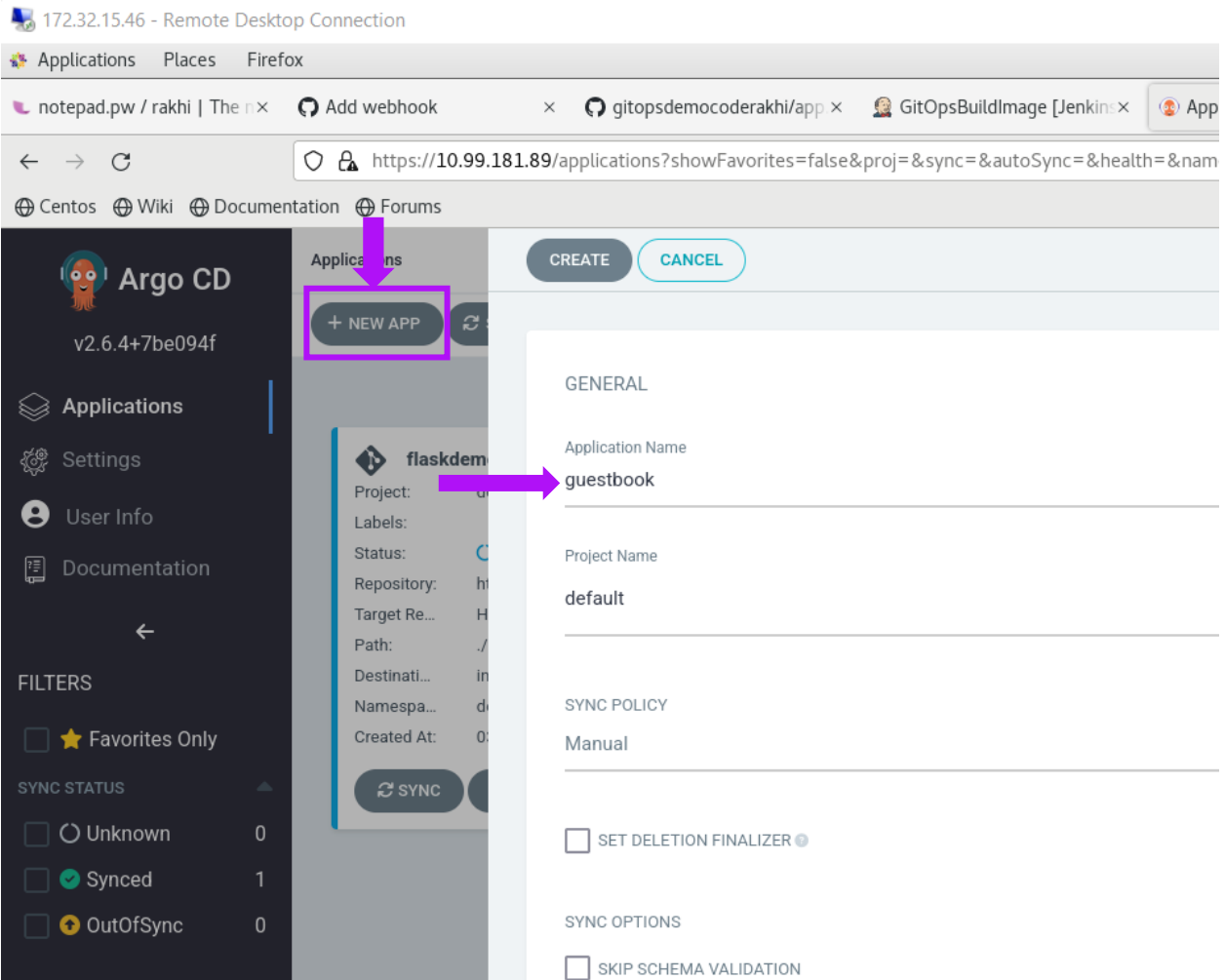


GitOps

Activity 5: GitOps - Single Source of Truth.

Version	Revision Date	Description	Author	Reviewed by	Approved by
V1.0	21-Apr-23	Initial Version	Rakhi Parashar	Rathna Perumalsamy	CPCL, Sreenivasa Rao

This Activity demonstrates how to make use of Actions and using configuration files creating CICD workflow.

1	<p>Pre-requisite:</p> <ol style="list-style-type: none"> 1. Create account in github by signing up in github.com with your any valid mail id. 2. Docker and Kubernetes is installed and up and running in your VM remote desktop. 3. ArgoCD is installed and logged in.
2	<p>Click on NEW APP in ArgoCD and provide below details:</p> <p>Source:</p> <p>Application Name: guessbook</p> <p>Repository URL: https://github.com/rakhar/argocd-example-apps-rakhi.git</p> <p>Revision : HEAD</p> <p>Path: guestbook</p> <p>Destination :</p> <p>Cluster URL: https://kubernetes.default.svc</p> <p>Namespace: default</p>  <p>The screenshot shows the Argo CD web interface. The 'NEW APP' button is highlighted with a red box. A red arrow points from this button to the 'Application Name' field in the 'GENERAL' section, which is filled with 'guessbook'. Another red arrow points from the 'Project Name' field, which is filled with 'default'. The interface also shows a list of applications on the left, including 'flaskdemo'.</p>

SOURCE

Repository URL
`https://github.com/rakhar/argocd-example-apps-rakhi.git` GIT ▼

Revision
HEAD Branches ▼

Path
guestbook

DESTINATION

Cluster URL
`https://kubernetes.default.svc` URL ▼

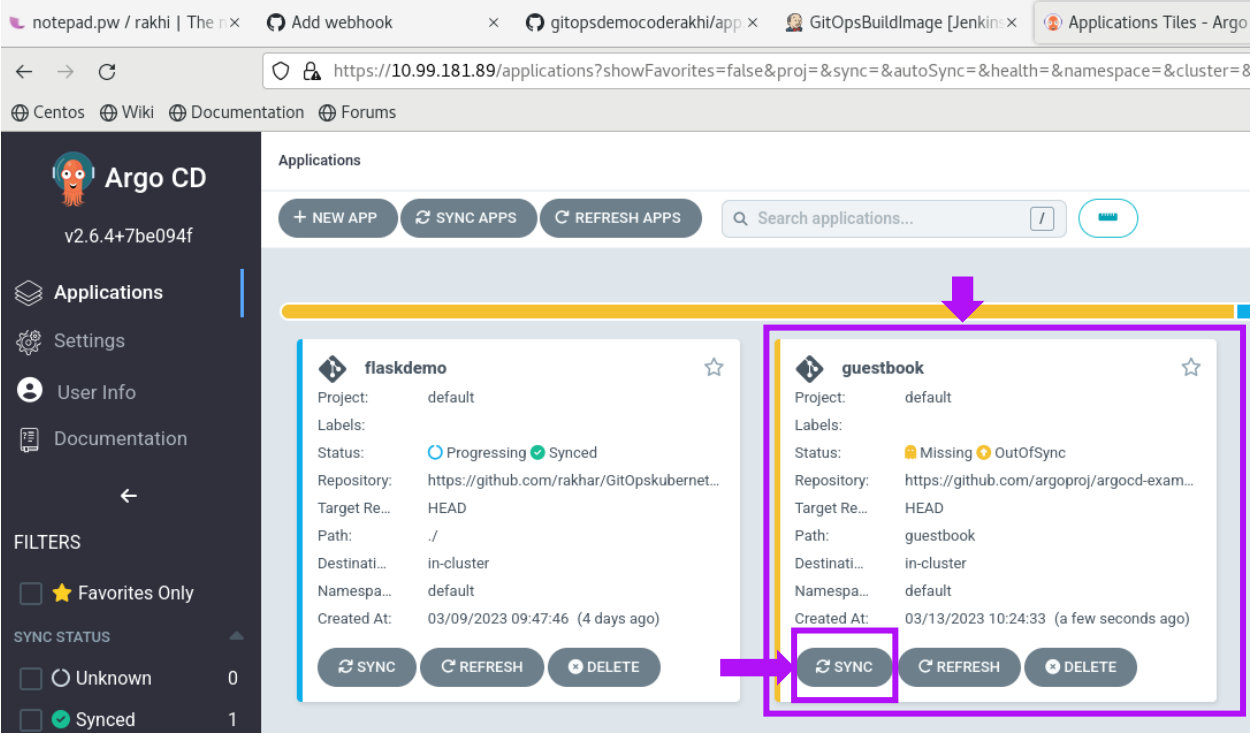
Namespace
default

Click on Create button on top left as shown below.

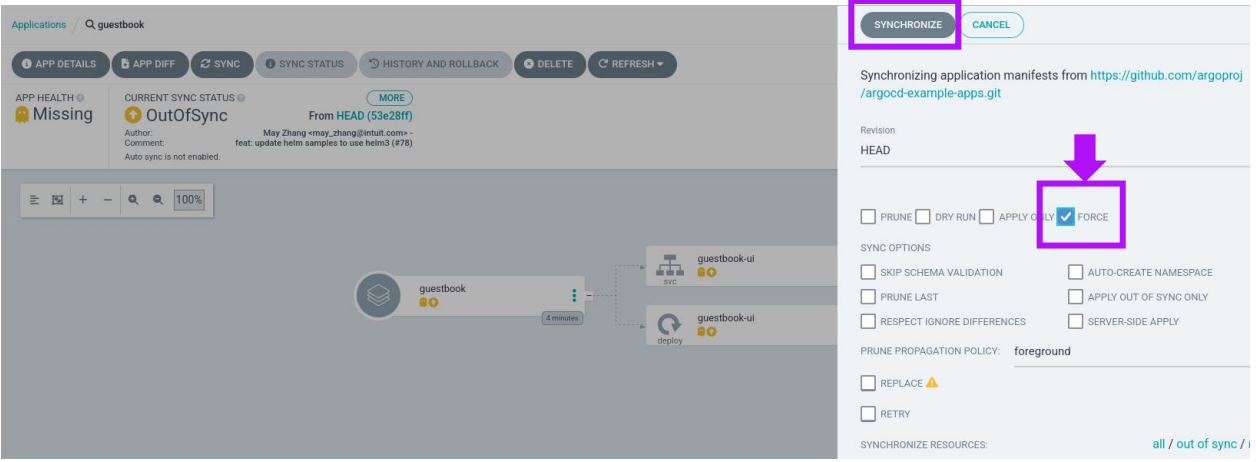
CREATE CANCEL

GENERAL

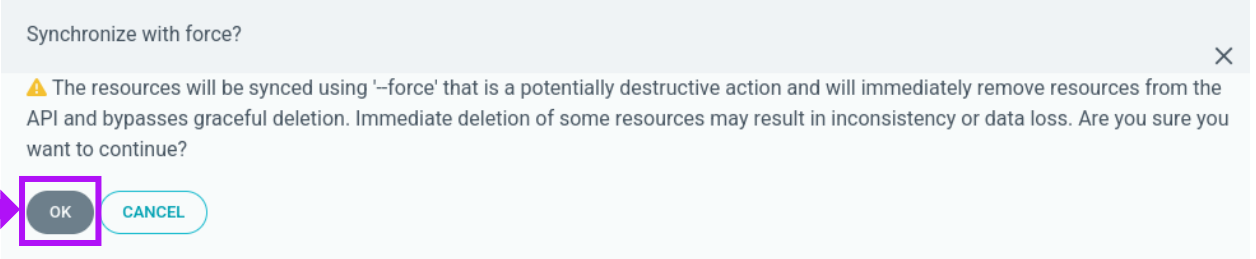
Application Name
guestbook



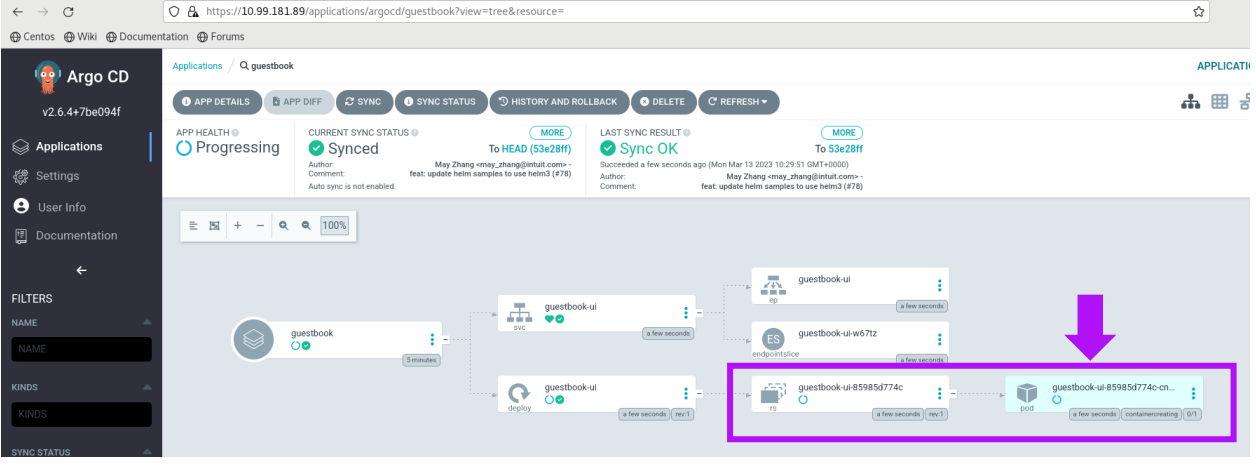
Click on the SYNC button.



Select FORCE check box and select OK.



You can see your guestbook application workflow and it is deployed in the cluster and running on single pod as shown in below screenshot.

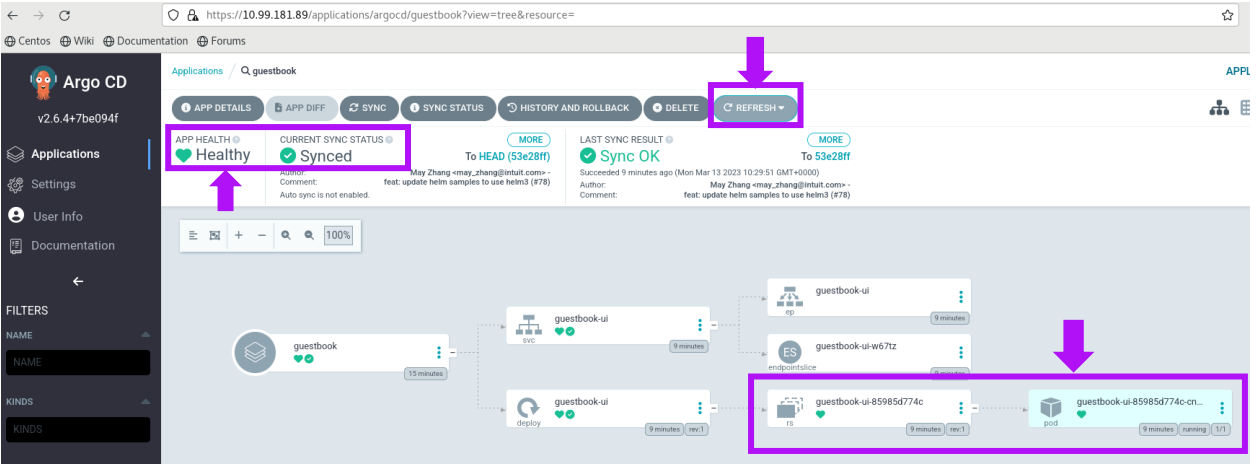


Backend also Kubernetes command you can run see.


```
[root@ip-172-32-15-46 gitopsdemocoderakhi]# minikube kubectl -- get pods -A
```


NAMESPACE	NAME	READY	STATUS	RESTARTS	AGE
argocd	argocd-application-controller-0	1/1	Running	4	4d2h
argocd	argocd-applicationset-controller-695df5687d-gjdt	1/1	Running	4	4d2h
argocd	argocd-dex-server-54c99dd844-t8c6m	1/1	Running	4	4d2h
argocd	argocd-notifications-controller-7d7568845c-s27fj	1/1	Running	4	4d2h
argocd	argocd-redis-6d8cfffcc47-77pv7	1/1	Running	4	4d2h
argocd	argocd-repo-server-647c6568c9-fsklb	1/1	Running	4	4d2h
argocd	argocd-server-8bdf66d5-frwcv	1/1	Running	4	4d2h
default	flaskdemo-dcbcbcf5f-49s2x	1/1	Running	0	138m
default	flaskdemo-dcbcbcf5f-bn6jg	1/1	Running	0	138m
default	flaskdemo-dcbcbcf5f-n66kh	1/1	Running	0	138m
default	guestbook-ui-85985d774c-cnnp	1/1	Running	0	34s
default	testing-3dc09ecd7-464nt	0/1	CrashLoopBackOff	43	3m29m
default	testrakhi-68d9795c49-vbvr	1/1	Running	0	3h12m
kube-system	coredns-558bd4d5db-qsqdx	1/1	Running	5	7d1h
kube-system	etcd-ip-172-32-15-46.ap-south-1.compute.internal	1/1	Running	5	7d1h
kube-system	kube-apiserver-ip-172-32-15-46.ap-south-1.compute.internal	1/1	Running	5	7d1h
kube-system	kube-controller-manager-ip-172-32-15-46.ap-south-1.compute.internal	1/1	Running	5	7d1h
kube-system	kube-proxy-xpl9q	1/1	Running	5	7d1h
kube-system	kube-scheduler-ip-172-32-15-46.ap-south-1.compute.internal	1/1	Running	5	7d1h
kube-system	storage-provisioner	1/1	Running	9	7d1h

Click on Refresh button and you can see health of your application.



Goto to github project repository source code and observe the YAML file:

 Search or jump to... / Pull requests Issues Codespaces Marketplace Explore

 rakhar / **argocd-example-apps-rakhi** Public

<> Code Issues Pull requests Projects Wiki Security Insights Settings

argocd-example-apps-rakhi / guestbook / guestbook-ui-deployment.yaml in master

<> Edit file Preview changes

```
1 apiVersion: apps/v1
2 kind: Deployment
3 metadata:
4   name: guestbook-ui
5 spec:
6   replicas: 1
7   revisionHistoryLimit: 3
8   selector:
9     matchLabels:
10      app: guestbook-ui
11   template:
12     metadata:
13       labels:
14         app: guestbook-ui
15   spec:
16     containers:
17       - image: gcr.io/heptio-images/ks-guestbook-demo:0.2
18         name: guestbook-ui
19         ports:
20           - containerPort: 80
21
```

Now if we want to make changes in the infra and scale our applications, we can make changes at line no. 6
Replicas : 3.

<> Code Issues Pull requests Projects Wiki Security Insights Settings

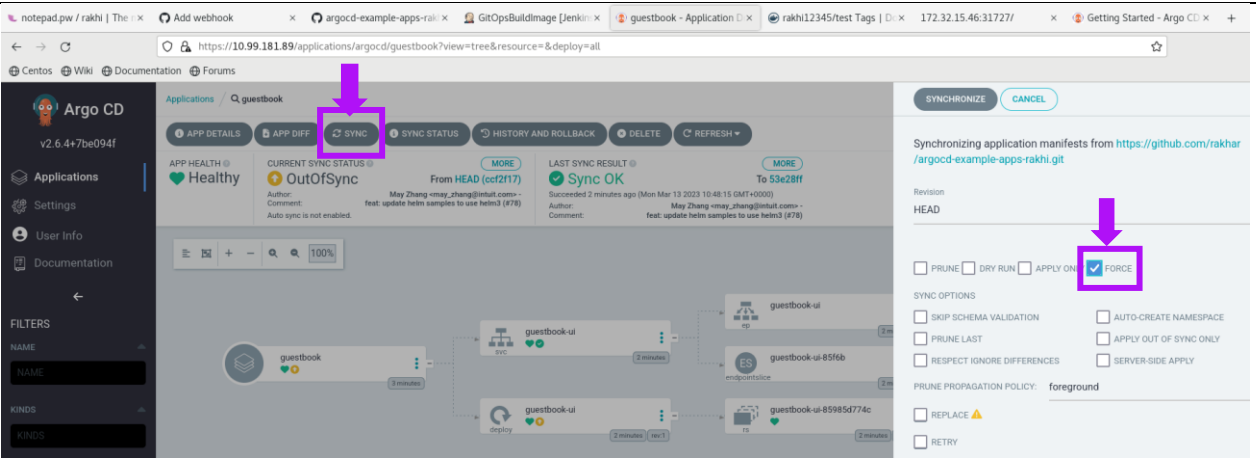
argocd-example-apps-rakhi / guestbook / guestbook-ui-deployment.yaml in master

<> Edit file Preview changes

```
1 apiVersion: apps/v1
2 kind: Deployment
3 metadata:
4   name: guestbook-ui
5 spec:
6   replicas: 3
7   revisionHistoryLimit: 3
8   selector:
9     matchLabels:
10      app: guestbook-ui
11   template:
12     metadata:
13       labels:
14         app: guestbook-ui
15   spec:
16     containers:
17       - image: gcr.io/heptio-images/ks-guestbook-demo:0.2
18         name: guestbook-ui
19         ports:
20           - containerPort: 80
21
```

Commit your changes in the github and goto ArgoCD workflow for guestbook application.

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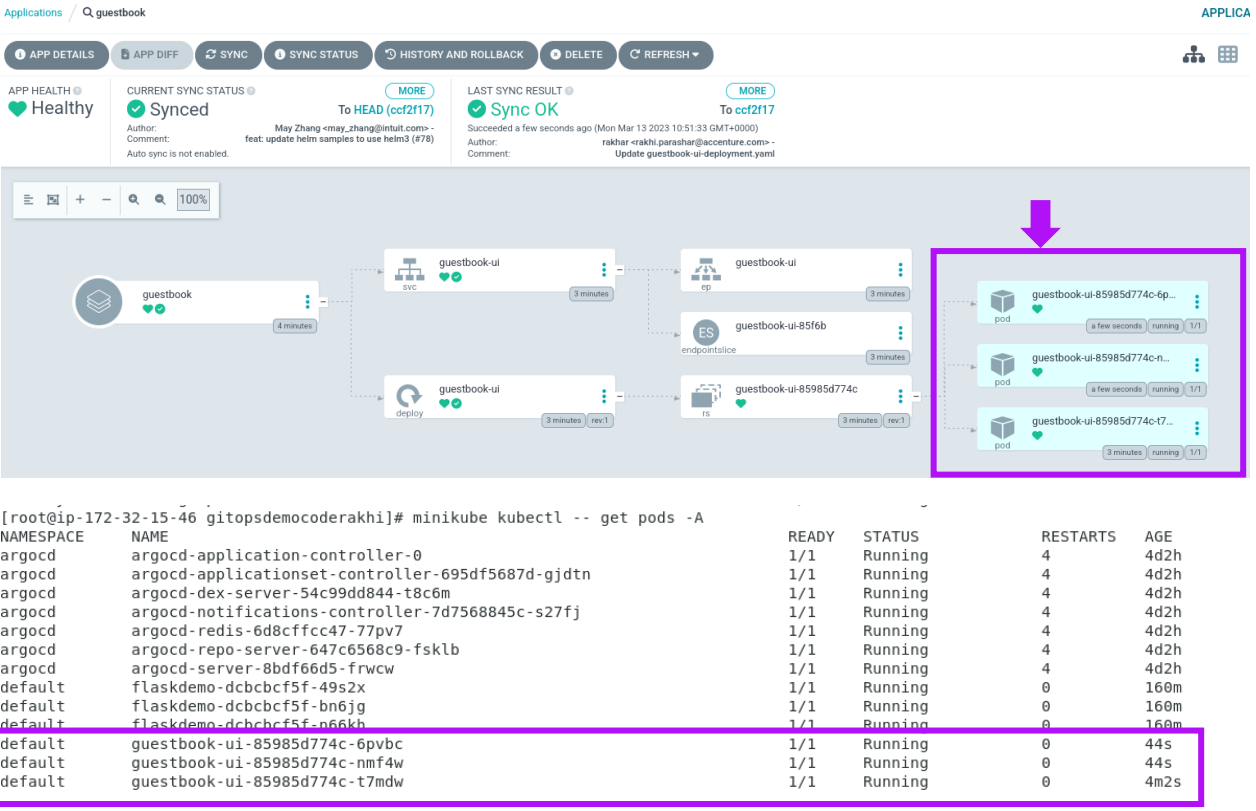
Click on SYNC and select FORCE checkbox and click on OK.

Synchronize with force?

⚠ The resources will be synced using '-force' that is a potentially destructive action and will immediately remove resources from the API and bypasses graceful deletion. Immediate deletion of some resources may result in inconsistency or data loss. Are you sure you want to continue?

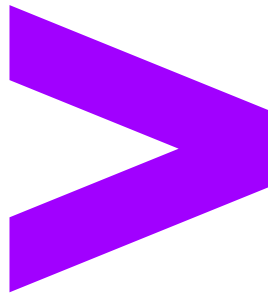
OK CANCEL

You will observe that your github changes are picked up and 3 pods gets created and your application gets scaled as replicas gets created. You can verify same in the backend by running Kubernetes commands.



```
[root@ip-172-32-15-46 gitopsdemocoderakhi]# minikube kubectl -- get pods -A
```

NAMESPACE	NAME	READY	STATUS	RESTARTS	AGE
argocd	argocd-application-controller-0	1/1	Running	4	4d2h
argocd	argocd-applicationset-controller-695df5687d-gjdtm	1/1	Running	4	4d2h
argocd	argocd-dex-server-54c99dd844-t8c6m	1/1	Running	4	4d2h
argocd	argocd-notifications-controller-7d7568845c-s27fj	1/1	Running	4	4d2h
argocd	argocd-redis-6d8cfffcc47-77pv7	1/1	Running	4	4d2h
argocd	argocd-repo-server-647c6568c9-fsklb	1/1	Running	4	4d2h
argocd	argocd-server-8bdf66d5-frwcw	1/1	Running	4	4d2h
default	flaskdemo-dcbcbcf5f-49s2x	1/1	Running	0	160m
default	flaskdemo-dcbcbcf5f-bn6jg	1/1	Running	0	160m
default	flaskdemo-dcbcbcf5f-n66kh	1/1	Running	0	160m
default	guestbook-ui-85985d774c-6pvc	1/1	Running	0	44s
default	guestbook-ui-85985d774c-nmf4w	1/1	Running	0	44s
default	guestbook-ui-85985d774c-t7mdw	1/1	Running	0	4m2s



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