# DevOps Lab 5 – RKE ArgoCD Mongo

Please create Kubernetes environment as following:

Phase 1:

* Create a K8s Cluster with 1 node & 2 workers
* you can use any version of k8s, 1.25 and above
* Use **RKE** version 1.2+
* After deployment check that your nodes is in operational state (ready)
* Use the kubectl from another linux machine (not from the machines you have been deployed) – use should work only threw the API of the k8s, and not directly from the k8s nodes that you deployed.
* Use this linux machine as your Storage machine in the next steps

Phase 2:

* Use Helm to deploy Ingress on the New k8s Cluster (any Ingress is suitable, for example use: Nginx)
* Use Helm to deploy deploy glaster-fs or nfs-dynamic-provisioner or OpenEBS
* Use Helm to deploy ArgoCD and expose it via ingress (not NodePort)
* Create new NameSpace and call it “apps”
* Write a simple UI app (nodeJS, python, etc..) that’s Writes “Task Complete” in green color on the web page and have some JPG file located on the Storage machine (Use PVC)
* Make sure that you not creating PV in a manual way (it should created automatically)
* Build a container (with docker) for that application
* Create Manifests (Deployment + Service) for this application and deploy it in the NameSpace you created.
* For testing, make http request from your PC to this application and see the web page (“Task Complete” in red color).
* If the test pass it means that your K8s Cluster, Ingress and Deployment is operational
* Create a repo in github and push mongoDB manifest there, then deploy the mongoDB via ArgoCD
* Check that you can access the db and create a new Collection (use Compass for example or write your own client using mongoose)

Phase 3:

* Write documentation file (README.md) that describe your work, including the deployment instructions with all the steps of the Resource deployments
* Upload your documentation to a new GitHub repo and send me a link
* The repo should include the **Ingress Helm Chart** that’s been used, the Code that was used to build the application and the **Dockerfile** for the container build.

(The Helm Chart and the Code should be in different branches) – name the branches as you wish.