**Explanation:** All questions are separate and should be completed separately. You can use EKS/GKE/Minikube anything, all have the same marks.

**Full marks** - 100

**Project marks** - 80/100

**MCQ marks-** 20/100

**Time-** One week

**Deadline-** 20th Aug. 1:00 PM AST

**Submission link-** <https://docs.google.com/forms/d/e/1FAIpQLScCrqsWwmHWHvvR9tKCqDeQdSYvio8uOyR96NzWG_iZ7_88FA/viewform>

**Checkpoints:**

1. Install jenkins using Helm
2. Setups grafana+prometheus or ELK using Kubernetes
3. K8s Cluster and Pod dashboard
4. (option1) Persistent volume - PV, PVC, Nginx pod using PVC
5. (option2) Postgres with Config map - Config map, Pod using Config map, Apply service

**Submissions:**

1. Install Jenkins using helm. Write all commands and show dashboard screenshot- 20 marks

All commands

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| * brew install helm * helm install jenkins -f values.yaml stable/jenkins --namespace jenkins * kubectl get pods --namespace=jenkins |

Screenshot of the dashboard

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| Graphical user interface  Description automatically generated |

1. Setup prometheus and grafana in k8s cluster. Paste all commands used.   
   Paste screenshot - 10 marks   
     
   You can setup ELK stack as well if you want.

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| Commands   * helm install prometheus stable/prometheus * export POD\_NAME=$(kubectl get pods --namespace monitoring -l "app=prometheus,component=pushgateway" -o jsonpath="{.items[0].metada   ta.name}  kubectl --namespace monitoring port-forward $POD\_NAME 9091   * helm install grafana --namespace=monitoring --set=adminUser=admin --set=adminPassword=admin --set=service.typ * helm install grafana --namespace=monitoring --name=grafana --version=1.12.0 --set=adminUser=admin,adminPassword=admin,service.type=NodePort stable/grafana" * grafana.monitoring.svc.cluster.local * export NODE\_PORT=$(kubectl get --namespace monitoring -o jsonpath="{.spec.ports[0].nodePort}" services grafana)   export NODE\_IP=$(kubectl get nodes --namespace monitoring -o jsonpath="{.items[0].status.addresses[0].address}")  echo <http://$NODE_IP:$NODE_PORT> |
| Screenshot |

1. Show K8s **Cluster** and **Pods** monitoring dashboard on grafana - 10 marks

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| Cluster screenshot |
| Pods screenshot |

1. (Option1) Persistent volume. - 40 marks
   1. Create persistent volume in EBS or GCP persistent volume or local system

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| **Yml file** |

* 1. Create a persistent volume claim on this persistent volume

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| **Yml file** |

* 1. Create nginx pod using mountPath: /usr/share/nginx/html

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| **Yml file** |

1. (Option2) Postgres db deployment - 40 marks
   1. Config map/Secret with POSTGRES\_DB= postgres and POSTGRES\_PASSWORD=Dojo@123   
      Paste the yml file

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* 1. Postgres deployment with one replica and correct configMapRef.   
     Paste the yml file.

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* 1. Postgres service with service type ClusterIP.   
     Paste the yml file.

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