Explain your CI-CD Framework / architecture / Pipeline :

Developers will create the **feature branches** for their development activity (*from **dev branch** as source branch*), once they have done with their development work on their feature branch, they will **create a pull request (PR)** from their branch to **dev branch.**

And they will add the reviewers (***Team lead***) to review the code, then the reviewer will review the code changes and also checks **Automated sanity test case results**

if results are **good**, they will **approve the PR (Pull request) i.e.** feature branch gets merged into **dev branch**.

We have integrated webhooks in our GitHub repository.

CI part:

Once the PR is merged to dev branch **CI pipeline will get triggered automatically,** we have multiple stages in our ci-cd pipeline, with declarative type Jenkins pipeline.

- Jenkins will checkout the source code starts **building source code using maven** (*artifacts- jar/war files get created*) **along with build, unit test will be done** using junit framework
- once unit test completed, **sonar scan** (SonarQube) stage will get executed to check quality of source code.
- Then docker build job will **build the docker image** & **helm charts (***values.yml file gets updated for image tag***) gets updated,** then using **Trivy** we will **scan the created docker Images** (*i.e., we will verify if our images has any vulnerabilities in base image / overall image*) and finally we will push **those created docker images to image registry (i.e.) JFrog artifactory.**

Once these set of activities are successfully completed then we can say that CI part is completed successfully and CD job gets triggered automatically.

CD :

We are hosting our applications in EKS (managed k8s cluster).

- Once CD job starts helm charts & docker images will be pulled from JFrog artifactory.

- using **helm commands**, we will **deploy our application** along **with monitoring tools Prometheus & Grafana**.
- Soon after deploying all the required k8s objects like deployments, pods, services, pv, pvc's, Ingress will get created.
- once all k8s objects created successfully, we can conclude CD part is completed.

Then we will monitor our application to check its performances (like response time, network usage, throughput etc.) we will also monitor Kubernetes objects performance, alerts & EKS cluster resource usage.