**EXPLANATION ABOUT THE PROJECT**

TERRAFORM

The following flow chart explain the overall work

1. **Terraform:-**

At first, created the basic conguration using **terraform**  i.e, EC2, VPC,SG etc. using scripts ( attached in github profile) with **AWS free tier account**.

CONNECTION TO EC2

1. **Connection to EC2:-**

Used **.pem** key to have **SSH connection** to the instance using **Gitbash**.or alternatively, we can use putty also for .ppk file.

1. **GIT:-**

GIT

* **Forked** the swimlane repo with my github account.
* **Cloned** the same repo to the ec2 instance.

1. **Docker:-**

* Installed docker on the ec2 instance.

DOCKER

* Wrote the **‘docker file’** for the given code as well as **‘docker-compose.yaml’** for provisioning both **nodejs** and **mongodb** at once.
* Pushed the **docker image** to my **dockerhub account**.

(<https://hub.docker.com/layers/sun113/swimlane/latest/images/sha256-a4f9f0ca03e7e77117d302c4ff495d48d14f985e8ad5612ebd6ed24f4b133517?context=repo>).

MINIKUBE CLUSTER

1. **Minikube cluster:-**

* Installed the **minikube cluster** on the ec2 instance.
* Deployed the **docker image** on minikube cluster.
* **For Scalablity:-**Also provisioned the pods for **HPA** (horizaontal pod autoscaling)with **nginx** for reverse proxy.

HELM

1. **HELM:-**

* used helm chart for management and deployment of **multiple yaml files**.
* Yaml files include **templates ,charts.yaml,values.yaml.**

1. **ANSIBLE**

* Installed the ansible on ec2 instance.
* Provisioned the **NTP server** on the node using playbook.

ANSIBLE

**Conclusion:-**

* To be honest, the pod crashed frequently, because of **mongodb connection issue** , as I don’t have enough expertise regarding the **javascript & nodejs** to fix that issue.
* So on a concluding note, here I am submitting the work i have tried so far till that issue.

**Note or Comments:-**

* We can also provision the **helm-kubernetes with terraform** , needed some more time to work about the script.
* All the **files,scripts,yaml files** are attached through separate folder in my **github account –link shared in the reply mail.**
* Refer **Readme** for the commands used for the case study.