**Spring petclinic application**

**Step 1: Set Up infrastructure using Terraform:**

Create an infrastructure using (here we have **main.tf)** Terraform HCL: Here we have created AWS instance to deploy using Kubernetes file.

To run terraform script main.tf we have to use following commands:

**terraform init** : to initialize the from local file(main.tf) location.

**terraform validate** : to validate the code if there is any syntax mistake it will show.

**terraform apply :** to apply/create the infrastructure whatever we have written in Terraform script.

**Step 2: Create a Docker image the Application:**

Clone the file from github using:

**git clone https://github.com/spring-projects/spring-petclinic.git**

**cd spring-petclinic**

Create a docker image from Dockerfile (whare we have dockerfile script)

To build docker image and push using following commands:

**docker build -t <your\_dockerhub\_username>/petclinic:latest .**

**docker login**

**docker push <your\_dockerhub\_username>/petclinic:latest**

**Step 3: Kubernetes Deployment:**

Here we have **deployment.yaml** where we used deploy using docker image and **service.yaml** where we specify services.

To run these deployment, service yaml files we have to use the following commands.

**kubectl apply -f deployment.yaml**

**kubectl apply -f service.yaml**

**Step 4: Set Up Prometheus Monitoring:**

<https://helm.sh/docs/intro/install>

the above website has helm commands (here we have used ubuntu):

**curl https://baltocdn.com/helm/signing.asc | gpg --dearmor | sudo tee /usr/share/keyrings/helm.gpg > /dev/null**

**sudo apt-get install apt-transport-https --yes**

**echo "deb [arch=$(dpkg --print-architecture) signed-by=/usr/share/keyrings/helm.gpg] https://baltocdn.com/helm/stable/debian/ all main" | sudo tee /etc/apt/sources.list.d/helm-stable-debian.list**

**sudo apt-get update**

**sudo apt-get install helm**

Add and Install Prometheus Helm Chart:

**helm repo add prometheus-community** [**https://prometheus-community.github.io/helm-charts**](https://prometheus-community.github.io/helm-charts)

**helm repo update helm install**

**prometheus prometheus-community/prometheus**

Here we have prometheus.yaml file.

Create or update the Prometheus configuration file (prometheus.yaml) to include your Kubernetes targets.

To apply the Prometheus file, use the following command.

**kubectl apply -f prometheus.yaml**

Now access the application using <http://localhost:8080/>.

