**Step 1:-** Create a kubernetes cluster on gcloud.

*gcloud container clusters create mycluster --num-nodes 1*

**Step 2:-** Create service, deployment, volume and secrets file for database and wordpress

**#wordpress deployment file**

# wordpress-deployment.yaml

*---*

*apiVersion: apps/v1*

*kind: Deployment*

*metadata:*

*name: wordpress*

*namespace: wordpress*

*spec:*

*selector:*

*matchLabels:*

*app: wordpress*

*id: C0905650*

*env: dev*

*replicas: 1*

*template:*

*metadata:*

*labels:*

*app: wordpress*

*id: C0905650*

*env: dev*

*spec:*

*containers:*

*- name: wordpress*

*image: wordpress:latest*

*ports:*

*- containerPort: 80*

*env:*

*- name: WORDPRESS\_DB\_HOST*

*value: mariadb.wordpress-db.svc.cluster.local*

*- name: WORDPRESS\_DB\_NAME*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_DATABASE*

*- name: WORDPRESS\_DB\_USER*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_USER*

*- name: WORDPRESS\_DB\_PASSWORD*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_PASSWORD*

*volumeMounts:*

*- name: wordpress-storage*

*mountPath: /var/www/html*

*volumes:*

*- name: wordpress-storage*

*persistentVolumeClaim:*

*claimName: wordpress-pvc*

*---*

*apiVersion: v1*

*kind: Service*

*metadata:*

*name: wordpress*

*namespace: wordpress*

*spec:*

*type: LoadBalancer*

*ports:*

*- port: 80*

*selector:*

*app: wordpress*

*id: C0905650*

*env: dev*

**#Wordpress secrets file**

# db-secrets.yaml

*apiVersion: v1*

*kind: Secret*

*metadata:*

*name: wordpress-secret*

*namespace: wordpress*

*type: Opaque*

*data:*

*# base64 of 'somewordpress'*

*MYSQL\_ROOT\_PASSWORD: c29tZXdvcmRwcmVzcw==*

*# base64 of 'wordpress'*

*MYSQL\_USER: d29yZHByZXNz*

*# base64 of 'wordpress'*

*MYSQL\_PASSWORD: d29yZHByZXNz*

*# base64 of 'wordpress'*

*MYSQL\_DATABASE: d29yZHByZXNz*

**#Wordpress encrypted secrets file**

*apiVersion: v1*

*kind: Secret*

*metadata:*

*name: wordpress-secret*

*namespace: wordpress*

*type: Opaque*

*data:*

*#ENC[AES256\_GCM,data:TN0A7EoURBOYTRr7TU4Q0YN20h+RgI8x9ek=,iv:/cwAy/kJ5FINamzuQWpGpG/sJgskbao7B8mDn2DaAgk=,tag:2Wf62OVFgQfzQAa4hyXDAQ==,type:comment]*

*MYSQL\_ROOT\_PASSWORD: ENC[AES256\_GCM,data:mfP5bq0Leskb1EzXnOcjArkZggI=,iv:hMEtRiRZ2p6uMw8kf6RBuQFjxP67o3p1lLiHNNTSsbo=,tag:PIS9UD1Dw4hHRXCFq04d+g==,type:str]*

*#ENC[AES256\_GCM,data:FoS+QJZa/TLQT4fEwJsnnQDdmvwvAQ==,iv:Y/U2IGluvnon/Z3uVxoazkC28L1+ET8Qhu7P7tyEmWE=,tag:9u1ryvk+KUFrHj2UBhdCvQ==,type:comment]*

*MYSQL\_USER: ENC[AES256\_GCM,data:OqqQKI8EjGBVqu/v,iv:GFeQ8rC4HahP3cA9n8voxhyb+elDpfg9Rvy91Xl8N7c=,tag:skKIbZiE03M52pJMXnXRBw==,type:str]*

*#ENC[AES256\_GCM,data:kTxsfQPW6Z22Mox+CGeVsPWOvPjgVA==,iv:7vS2sie/k8LVQHMAlQ7T2tjgg7PBExqfqzQsXil/2/8=,tag:bq6v9ZEdzcx+ohuZ0kZvZg==,type:comment]*

*MYSQL\_PASSWORD: ENC[AES256\_GCM,data:4nLlU71SBr5DVU9u,iv:SRx3iQR2wGGxloWORiKN40uKZjAQ+x1oSMKOxssjIC0=,tag:FDIw2ErEWi4FkPsAsi55LA==,type:str]*

*#ENC[AES256\_GCM,data:5lua1dAOSQ/S1WPWEgyfnO6BOaRRBA==,iv:0D6v3OmOSKug0+rQ+GTf/T8DGfHPm1Tgx5MCAytu0zA=,tag:38QG4M6COmn04zo5TFQzKw==,type:comment]*

*MYSQL\_DATABASE: ENC[AES256\_GCM,data:YstyYdtYHT8PMxXP,iv:q7v95SmrFzAnK8/cDToQH7EjOrDy3kR35OvNj+R3ZaY=,tag:SKhjqcFutHvvPxer2H5EAQ==,type:str]*

*sops:*

*kms: []*

*gcp\_kms:*

*- resource\_id: projects/shahnoor/locations/northamerica-northeast2/keyRings/shahnoor-kms/cryptoKeys/shahnoor-key*

*created\_at: "2024-11-09T16:03:43Z"*

*enc: CiQAty7YzhsLZ2XUOBm7OXLySbonuNmsiHNWMAG7OP4AtEvED4wSSQCB2RK/KbNEOl5xRYyrHWTRsp09OCprqimQ2eZ1d7XHFZgQ2Wmxexzlb8k14BSnjQ94pfSEQnpGbNx1QO5M7F0YmZ7tzvBx8kc=*

*azure\_kv: []*

*hc\_vault: []*

*age: []*

*lastmodified: "2024-11-09T16:03:50Z"*

*mac: ENC[AES256\_GCM,data:PTvHBDgmE1NJSw6vWHPJuFEKOOHDEdxI/nk0oVlaE43u5DhWbOJxvIfsxFdE14+6bJ84XJ0M/KucyBlWdtjzVnPKhdFTMQYCj4O63Kth4uEQ0Aas2b2j86hO38DZOBq8bLY/QfGtOOtsvjzHrPPTC/MZlykZwK/rrCRkquUQkUc=,iv:YoXO+emHB5KWAaKEqid79LGrkjvKYgTTK+P7tTwC18g=,tag:rGWcXUr1pUTGz07zg/zCqA==,type:str]*

*pgp: []*

*encrypted\_regex: ^(data)$*

*version: 3.9.1*

***#sops.yaml***

*creation\_rules:*

*- gcp\_kms: projects/shahnoor/locations/northamerica-northeast2/keyRings/shahnoor-kms/cryptoKeys/shahnoor-key*

*# Specify any file patterns you want to auto-encrypt*

*path\_regex: '.\*\.yaml$'*

*encrypted\_regex: '^(data)$'*

***# Database Deployment file***

# mariadb-deployment.yaml

*---*

*apiVersion: apps/v1*

*kind: Deployment*

*metadata:*

*name: mariadb*

*namespace: wordpress-db*

*spec:*

*selector:*

*matchLabels:*

*app: mariadb*

*id: C0905650*

*env: dev*

*replicas: 1*

*template:*

*metadata:*

*labels:*

*app: mariadb*

*id: C0905650*

*env: dev*

*spec:*

*containers:*

*- name: mariadb*

*image: mariadb:10.6.4-focal*

*ports:*

*- containerPort: 3306*

*env:*

*- name: MYSQL\_ROOT\_PASSWORD*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_ROOT\_PASSWORD*

*- name: MYSQL\_DATABASE*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_DATABASE*

*- name: MYSQL\_USER*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_USER*

*- name: MYSQL\_PASSWORD*

*valueFrom:*

*secretKeyRef:*

*name: db-secret*

*key: MYSQL\_PASSWORD*

*volumeMounts:*

*- name: mariadb-storage*

*mountPath: /var/lib/mysql*

*volumes:*

*- name: mariadb-storage*

*persistentVolumeClaim:*

*claimName: mariadb-pvc*

*---*

*apiVersion: v1*

*kind: Service*

*metadata:*

*name: mariadb*

*namespace: wordpress-db*

*spec:*

*ports:*

*- port: 3306*

*selector:*

*app: mariadb*

*id: C0905650*

*env: dev*

**#Database volume**

# mariadb-pv.yaml

---

apiVersion: v1

kind: PersistentVolumeClaim

metadata:

name: mariadb-pvc

namespace: wordpress-db

spec:

accessModes:

- ReadWriteOnce

resources:

requests:

storage: 5Gi

*# wordpress-pv.yaml*

*---*

*apiVersion: v1*

*kind: PersistentVolumeClaim*

*metadata:*

*name: wordpress-pvc*

*namespace: wordpress*

*spec:*

*accessModes:*

*- ReadWriteOnce*

*resources:*

*requests:*

*storage: 5Gi*

***#Database secrets***

*apiVersion: v1*

*kind: Secret*

*metadata:*

*name: db-secret*

*namespace: wordpress-db*

*type: Opaque*

*data:*

*# base64 of 'somewordpress'*

*MYSQL\_ROOT\_PASSWORD: c29tZXdvcmRwcmVzcw==*

*# base64 of 'wordpress'*

*MYSQL\_USER: d29yZHByZXNz*

*# base64 of 'wordpress'*

*MYSQL\_PASSWORD: d29yZHByZXNz*

*# base64 of 'wordpress'*

*MYSQL\_DATABASE: d29yZHByZXNz*

**#Database secrets encrypted yaml file**

*# db-secrets.yaml*

*apiVersion: v1*

*kind: Secret*

*metadata:*

*name: db-secret*

*namespace: wordpress-db*

*type: Opaque*

*data:*

*#ENC[AES256\_GCM,data:TN0A7EoURBOYTRr7TU4Q0YN20h+RgI8x9ek=,iv:/cwAy/kJ5FINamzuQWpGpG/sJgskbao7B8mDn2DaAgk=,tag:2Wf62OVFgQfzQAa4hyXDAQ==,type:comment]*

*MYSQL\_ROOT\_PASSWORD: ENC[AES256\_GCM,data:mfP5bq0Leskb1EzXnOcjArkZggI=,iv:hMEtRiRZ2p6uMw8kf6RBuQFjxP67o3p1lLiHNNTSsbo=,tag:PIS9UD1Dw4hHRXCFq04d+g==,type:str]*

*#ENC[AES256\_GCM,data:FoS+QJZa/TLQT4fEwJsnnQDdmvwvAQ==,iv:Y/U2IGluvnon/Z3uVxoazkC28L1+ET8Qhu7P7tyEmWE=,tag:9u1ryvk+KUFrHj2UBhdCvQ==,type:comment]*

*MYSQL\_USER: ENC[AES256\_GCM,data:OqqQKI8EjGBVqu/v,iv:GFeQ8rC4HahP3cA9n8voxhyb+elDpfg9Rvy91Xl8N7c=,tag:skKIbZiE03M52pJMXnXRBw==,type:str]*

*#ENC[AES256\_GCM,data:kTxsfQPW6Z22Mox+CGeVsPWOvPjgVA==,iv:7vS2sie/k8LVQHMAlQ7T2tjgg7PBExqfqzQsXil/2/8=,tag:bq6v9ZEdzcx+ohuZ0kZvZg==,type:comment]*

*MYSQL\_PASSWORD: ENC[AES256\_GCM,data:4nLlU71SBr5DVU9u,iv:SRx3iQR2wGGxloWORiKN40uKZjAQ+x1oSMKOxssjIC0=,tag:FDIw2ErEWi4FkPsAsi55LA==,type:str]*

*#ENC[AES256\_GCM,data:5lua1dAOSQ/S1WPWEgyfnO6BOaRRBA==,iv:0D6v3OmOSKug0+rQ+GTf/T8DGfHPm1Tgx5MCAytu0zA=,tag:38QG4M6COmn04zo5TFQzKw==,type:comment]*

*MYSQL\_DATABASE: ENC[AES256\_GCM,data:YstyYdtYHT8PMxXP,iv:q7v95SmrFzAnK8/cDToQH7EjOrDy3kR35OvNj+R3ZaY=,tag:SKhjqcFutHvvPxer2H5EAQ==,type:str]*

*sops:*

*kms: []*

*gcp\_kms:*

*- resource\_id: projects/shahnoor/locations/northamerica-northeast2/keyRings/shahnoor-kms/cryptoKeys/shahnoor-key*

*created\_at: "2024-11-09T16:03:43Z"*

*enc: CiQAty7YzhsLZ2XUOBm7OXLySbonuNmsiHNWMAG7OP4AtEvED4wSSQCB2RK/KbNEOl5xRYyrHWTRsp09OCprqimQ2eZ1d7XHFZgQ2Wmxexzlb8k14BSnjQ94pfSEQnpGbNx1QO5M7F0YmZ7tzvBx8kc=*

*azure\_kv: []*

*hc\_vault: []*

*age: []*

*lastmodified: "2024-11-09T16:03:50Z"*

*mac: ENC[AES256\_GCM,data:PTvHBDgmE1NJSw6vWHPJuFEKOOHDEdxI/nk0oVlaE43u5DhWbOJxvIfsxFdE14+6bJ84XJ0M/KucyBlWdtjzVnPKhdFTMQYCj4O63Kth4uEQ0Aas2b2j86hO38DZOBq8bLY/QfGtOOtsvjzHrPPTC/MZlykZwK/rrCRkquUQkUc=,iv:YoXO+emHB5KWAaKEqid79LGrkjvKYgTTK+P7tTwC18g=,tag:rGWcXUr1pUTGz07zg/zCqA==,type:str]*

*pgp: []*

*encrypted\_regex: ^(data)$*

*version: 3.9.1*

**Step 3:-** Deployment the yaml files

A screen shot of a computer screen

Description automatically generated

**Step 2:-** Create a Dockerfile and nginx configuration file for nginx proxy.

**#Dockerfile**

*FROM ubuntu:latest*

*RUN apt-get update && apt-get install -y nginx git*

*COPY default /etc/nginx/sites-available/default*

*CMD ["nginx", "-g", "daemon off;"]*

**#nginx configuration file**

*server {*

*listen 80;*

*location / {*

*proxy\_pass wordpress.wordpress.svc.cluster.local;*

*proxy\_set\_header Host $http\_host;*

*proxy\_set\_header X-Real-IP $remote\_addr;*

*proxy\_set\_header X-Forwarded-For $proxy\_add\_x\_forwarded\_for;*

*proxy\_set\_header X-Forwarded-Proto $scheme;*

*proxy\_set\_header X-Forwarded-Port $server\_port;*

*proxy\_set\_header X-Forwarded-Host $host;*

*}*

*}*

**Step 4:-** Create Deployment and service file for nginx

***#Nginx deployment***

*apiVersion: apps/v1*

*kind: Deployment*

*metadata:*

*name: nginx-proxy*

*namespace: nginx-proxy*

*labels:*

*app: nginx-proxy*

*spec:*

*replicas: 1*

*selector:*

*matchLabels:*

*app: nginx-proxy*

*template:*

*metadata:*

*labels:*

*app: nginx-proxy*

*spec:*

*containers:*

*- name: nginx*

*image: shahnoor786/nginx-proxy:latest*

*ports:*

*- containerPort: 80*

***# Nginx service***

*apiVersion: v1*

*kind: Service*

*metadata:*

*name: nginx-proxy-service*

*namespace: nginx-proxy*

*labels:*

*app: nginx-proxy*

*spec:*

*type: LoadBalancer*

*selector:*

*app: nginx-proxy*

*ports:*

*- protocol: TCP*

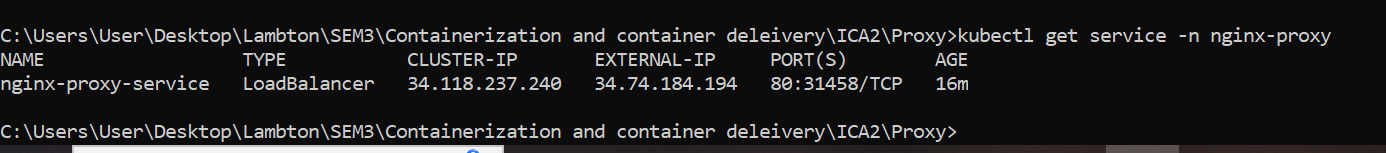
*port: 80*

*targetPort: 80*

**Step 5:-** Deploy service and deployment

A black screen with white text

Description automatically generated



**Step 5:-** Output of external IP on browser

A screenshot of a computer

Description automatically generated