

DevOps

Assignment 1 – Task1

Task -1 : Use Kubernetes Helm Package Installer and perform installation, configuration and revision of software package

Submitted by :

TEAM-9

Submitted to :

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Install Kubernetes helm and Kubernetes:

```
Command Prompt
Microsoft Windows [Version 10.0.22000.160]
(c) Microsoft Corporation. All rights reserved.

C:\Users\YASHWANTH>install helm
'install' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\YASHWANTH>choco install kubernetes-helm
Chocolatey v0.11.1
Chocolatey detected you are not running from an elevated command shell
(cmd/powershell).

You may experience errors - many functions/packages
require admin rights. Only advanced users should run choco w/out an
elevated shell. When you open the command shell, you should ensure
that you do so with "Run as Administrator" selected. If you are
attempting to use Chocolatey in a non-administrator setting, you
must select a different location other than the default install
location. See
https://docs.chocolatey.org/en-us/choco/setup#non-administrative-install
for details.

Do you want to continue?([Y]es/[N]o): y

Installing the following packages:
kubernetes-helm
By installing, you accept licenses for the packages.
kubernetes-helm v3.6.3 already installed.
Use --force to reinstall, specify a version to install, or try upgrade.

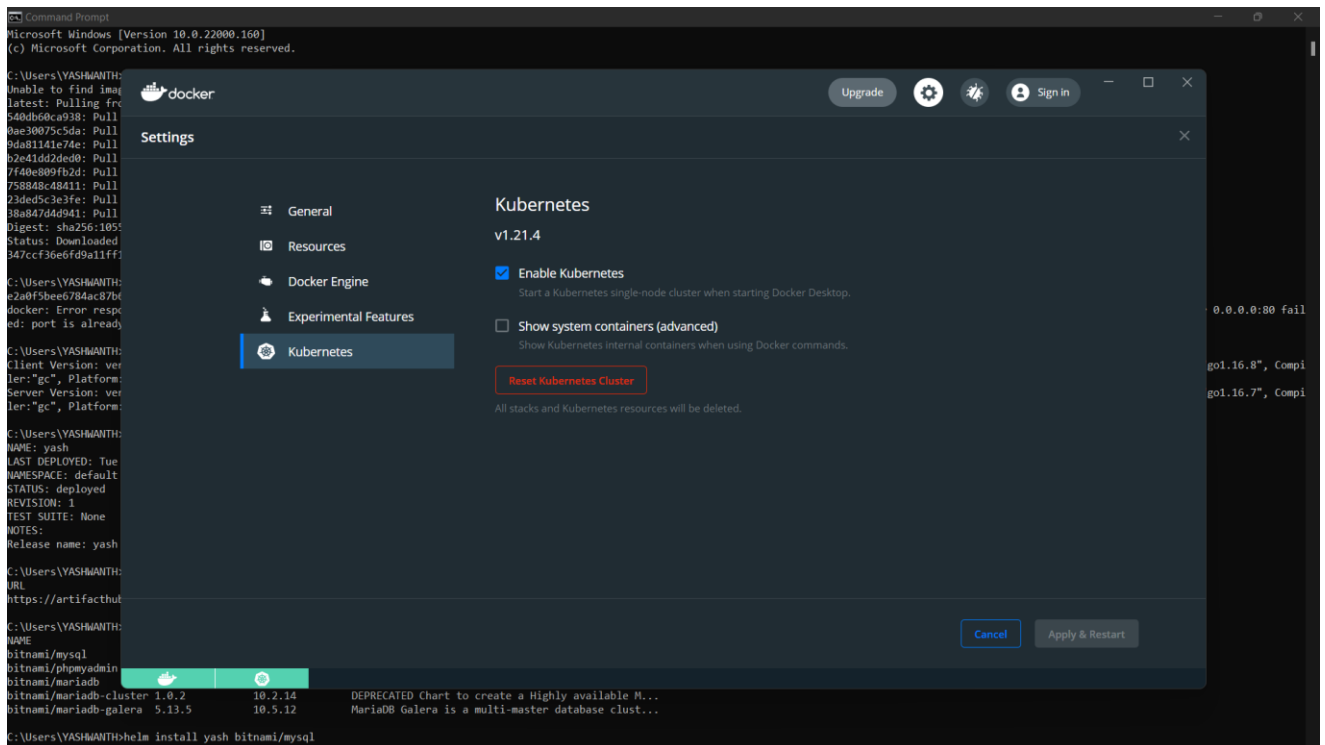
Chocolatey installed 0/1 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).

Warnings:
- kubernetes-helm - kubernetes-helm v3.6.3 already installed.
Use --force to reinstall, specify a version to install, or try upgrade.

C:\Users\YASHWANTH>choco install kubernetes-cli
Chocolatey v0.11.1
Chocolatey detected you are not running from an elevated command shell
(cmd/powershell).

You may experience errors - many functions/packages
require admin rights. Only advanced users should run choco w/out an
elevated shell. When you open the command shell, you should ensure
that you do so with "Run as Administrator" selected. If you are
attempting to use Chocolatey in a non-administrator setting, you
must select a different location other than the default install
location. See
https://docs.chocolatey.org/en-us/choco/setup#non-administrative-install
for details.
```

Install Docker Desktop and enable Kubernetes :



Searching for charts in HELM hub and add local repo and search :

```

C:\Users\YASHWANTH>helm search hub wordpress
NAME: wordpress
URL: https://artifacthub.io/packages/helm/wordpress/wordpress
CHART VERSION: 0.1.0
APP VERSION: 1.1
DESCRIPTION: this is my wordpress package

NAME: groundhog2
URL: https://artifacthub.io/packages/helm/groundhog2/groundhog2
CHART VERSION: 0.4.2
APP VERSION: 5.8.1-apache
DESCRIPTION: A Helm chart for Wordpress on Kubernetes

NAME: bitnami-ak
URL: https://artifacthub.io/packages/helm/bitnami-ak/bitnami-ak
CHART VERSION: 12.1.16
APP VERSION: 5.8.1
DESCRIPTION: Web publishing platform for building blogs and ...

NAME: bitnami-wo
URL: https://artifacthub.io/packages/helm/bitnami-wo/bitnami-wo
CHART VERSION: 12.1.16
APP VERSION: 5.8.1
DESCRIPTION: Web publishing platform for building blogs and ...

NAME: homeenterp
URL: https://artifacthub.io/packages/helm/homeenterp/homeenterp
CHART VERSION: 1.1.0
APP VERSION: 5.8.0-php8.0-apache
DESCRIPTION: Blog server

NAME: securecode
URL: https://artifacthub.io/packages/helm/securecode/securecode
CHART VERSION: 3.1.1
APP VERSION: 4.0
DESCRIPTION: Insecure & Outdated Wordpress Instance: Never e...

NAME: wordpress
URL: https://artifacthub.io/packages/helm/wordpress/wordpress
CHART VERSION: 1.0.0
APP VERSION: 5.8.0
DESCRIPTION: This is the Helm Chart that creates the Wordpress...

NAME: presslabs
URL: https://artifacthub.io/packages/helm/presslabs/presslabs
CHART VERSION: 0.11.0-alpha.3
APP VERSION: 0.11.0-alpha.3
DESCRIPTION: Presslabs WordPress Operator Helm Chart

NAME: wordpress
URL: https://artifacthub.io/packages/helm/wordpress/wordpress
CHART VERSION: 0.11.1
APP VERSION: v0.11.1
DESCRIPTION: A Helm chart for deploying a WordPress site on ...

NAME: static-wordpress
URL: https://artifacthub.io/packages/helm/phntom/bin/static-wordpress
CHART VERSION: 0.0.3
APP VERSION: 0.0.3
DESCRIPTION: www.binaryvision.co.il static wordpress

NAME: shessel
URL: https://artifacthub.io/packages/helm/gh-shessel/gh-shessel
CHART VERSION: 1.0.34
APP VERSION: 5.8.0
DESCRIPTION: Web publishing platform for building blogs and ...

NAME: sonu-wordpress
URL: https://artifacthub.io/packages/helm/sonu-wordpress/sonu-wordpress
CHART VERSION: 1.0.0
APP VERSION: 2
DESCRIPTION: This is my custom chart to deploy wordpress and...

NAME: wordpress
URL: https://artifacthub.io/packages/helm/wordpress/wordpress
CHART VERSION: 0.2.0
APP VERSION: 1.1.0
DESCRIPTION: Wordpress for Kubernetes

NAME: wordpress
URL: https://artifacthub.io/packages/helm/wordpress/wordpress
CHART VERSION: 1.0.0
APP VERSION: 2
DESCRIPTION: This is my custom chart to deploy wordpress and...

NAME: security-scanner
URL: https://artifacthub.io/packages/helm/securecode/security-scanner
CHART VERSION: 3.1.1
APP VERSION: 3.8.17
DESCRIPTION: A Helm chart for the WordPress security scanner...

NAME: vivesahu2
URL: https://artifacthub.io/packages/helm/vivesahu2/vivesahu2
CHART VERSION: 1.0.0
APP VERSION: 2
DESCRIPTION: This is my custom chart to deploy wordpress and...

NAME: presslabs
URL: https://artifacthub.io/packages/helm/presslabs/presslabs
CHART VERSION: 0.11.0-rc.2
APP VERSION: v0.11.0-rc.2
DESCRIPTION: Open-Source WordPress Infrastructure on Kubernetes

NAME: presslabs
URL: https://artifacthub.io/packages/helm/presslabs/presslabs
CHART VERSION: 0.11.1
APP VERSION: v0.11.1
DESCRIPTION: Open-Source WordPress Infrastructure on Kubernetes

NAME: wordpress
URL: https://artifacthub.io/packages/helm/wordpress/wordpress
CHART VERSION: 0.1.0
APP VERSION: 1.1
DESCRIPTION: Open-Source WordPress Infrastructure on Kubernetes

NAME: presslabs
URL: https://artifacthub.io/packages/helm/presslabs/presslabs
CHART VERSION: 0.11.2
APP VERSION: 0.11.2
DESCRIPTION: Presslabs WordPress Operator Helm Chart

C:\Users\YASHWANTH>helm search repo add brigade https://brigadecore.github.io/charts
No results found

C:\Users\YASHWANTH>helm repo add brigade https://brigadecore.github.io/charts
"brigade" already exists with the same configuration, skipping

C:\Users\YASHWANTH>helm search repo brigade
NAME: brigade
CHART VERSION: 1.8.0
APP VERSION: v1.4.0
DESCRIPTION: Brigade provides event-driven scripting of Kube...

NAME: brigade-github-app
CHART VERSION: 0.7.1
APP VERSION: v0.4.1
DESCRIPTION: The Brigade GitHub App, an advanced gateway for...

NAME: brigade-github-oauth
CHART VERSION: 0.3.0
APP VERSION: v0.20.0
DESCRIPTION: The legacy OAuth GitHub Gateway for Brigade

NAME: brigade-k8s-gateway
CHART VERSION: 0.3.0
APP VERSION: 
DESCRIPTION: A Helm chart for Kubernetes

```

```

C:\Users\YASHWANTH>helm search repo add brigade https://brigadecore.github.io/charts
No results found

C:\Users\YASHWANTH>helm repo add brigade https://brigadecore.github.io/charts
"brigade" already exists with the same configuration, skipping

C:\Users\YASHWANTH>helm search repo brigade
NAME                CHART VERSION  APP VERSION  DESCRIPTION
brigade/brigade      1.8.0          v1.4.0      Brigade provides event-driven scripting of Kube...
brigade/brigade-github-app 0.7.1          v0.4.1      The Brigade GitHub App, an advanced gateway for...
brigade/brigade-github-oauth 0.3.0          v0.20.0     The legacy OAuth GitHub Gateway for Brigade
brigade/brigade-k8s-gateway 0.3.0          v0.1.0      A Helm chart for Kubernetes
brigade/brigade-project 1.1.0          v1.0.0      Create a Brigade project
brigade/kashti        0.6.0          v0.4.0      A Helm chart for Kubernetes

C:\Users\YASHWANTH>helm search repo k8s
NAME                CHART VERSION  APP VERSION  DESCRIPTION
brigade/brigade-k8s-gateway 0.3.0          v0.1.0      A Helm chart for Kubernetes

C:\Users\YASHWANTH>

```

Installing an application using helm chart :

```

C:\Users\YASHWANTH>docker run -d -p 80:80 docker/getting-started
Unable to find image 'docker/getting-started:latest' locally
latest: Pulling from docker/getting-started
540db06ca938: Pull complete
6ae30078c3da: Pull complete
8da81141e74e: Pull complete
b2e41dd2ded0: Pull complete
7f40e809fb2d: Pull complete
758848c48411: Pull complete
23ded5c3e3fe: Pull complete
38a847d4d941: Pull complete
Digest: sha256:10555bb0c50e13fc4dd965ddb5f00e948ffa53c13ff15dc8c85b7ab65e1f240b
Status: Downloaded newer image for docker/getting-started:latest
347ccf36e6fd9a11ff12064941a2d507e4845d1df78dd94e59b3a7049babe88

C:\Users\YASHWANTH>docker run -d -p 80:80 docker/getting-started
e2a0f5bee6784ac87b6fafd2248a71a8fb99955122c9468a82bb53efd37d4d66
docker: Error response from daemon: driver failed programming external connectivity on endpoint condensing_shockley (9d5ac9b4559b7f354defa88b5a25148d7d5b31aa17008616490371c7b0855113): Bind for 0.0.0.0:80 fail
ed: port is already allocated.

C:\Users\YASHWANTH>kubectl version
Client Version: version.Info{Major:"1", Minor:"22", GitVersion:"v1.22.2", GitCommit:"8b5a19147530eac9476b0ab82980b4088bbc1b2", GitTreeState:"clean", BuildDate:"2021-09-15T21:38:50Z", GoVersion:"go1.16.8", Compi
ler:"gc", Platform:"windows/amd64"}
Server Version: version.Info{Major:"1", Minor:"21", GitVersion:"v1.21.4", GitCommit:"3cce4a82b44f032d0cd1a1790e6d2f5a55d20aae", GitTreeState:"clean", BuildDate:"2021-08-11T18:10:22Z", GoVersion:"go1.16.7", Compi
ler:"gc", Platform:"linux/amd64"}

C:\Users\YASHWANTH>helm install yash brigade/brigade-k8s-gateway
NAME: yash
LAST DEPLOYED: Tue Sep 28 19:03:30 2021
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
Release name: yash

C:\Users\YASHWANTH>

```

```
Command Prompt
C:\Users\YASHWANTH>helm search hub stable/mysql
URL https://artifacthub.io/packages/helm/kanister/k... CHART VERSION 0.32.0 APP VERSION 5.7.14 DESCRIPTION MySQL w/ Kanister support based on stable/mysql

C:\Users\YASHWANTH>helm search repo mysql
NAME CHART VERSION APP VERSION DESCRIPTION
bitnami/mysql 8.8.8 8.0.26 Chart to create a Highly available MySQL cluster
bitnami/phpmyadmin 8.2.13 5.1.1 phpMyAdmin is an mysql administration frontend
bitnami/mariadb 9.6.0 10.5.12 Fast, reliable, scalable, and easy to use open-...
bitnami/mariadb-cluster 1.0.2 10.2.14 DEPRECATED Chart to create a Highly available M...
bitnami/mariadb-galera 5.13.5 10.5.12 MariaDB Galera is a multi-master database clust...

C:\Users\YASHWANTH>helm install yash bitnami/mysql
Error: INSTALLATION FAILED: cannot re-use a name that is still in use

C:\Users\YASHWANTH>helm install team9 bitnami/mysql
NAME: team9
LAST DEPLOYED: Tue Sep 28 19:09:02 2021
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
** Please be patient while the chart is being deployed **

Tip:

  Watch the deployment status using the command: kubectl get pods -w --namespace default

Services:

  echo Primary: team9-mysql.default.svc.cluster.local:3306

Execute the following to get the administrator credentials:

  echo Username: root
  MYSQL_ROOT_PASSWORD=$(kubectl get secret --namespace default team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)

To connect to your database:

  1. Run a pod that you can use as a client:

      kubectl run team9-mysql-client --rm --tty -i --restart='Never' --image docker.io/bitnami/mysql:8.0.26-debian-10-r60 --namespace default --command -- bash

  2. To connect to primary service (read/write):

      mysql -h team9-mysql.default.svc.cluster.local -uroot -p"$MYSQL_ROOT_PASSWORD"

To upgrade this helm chart:
```

```
Command Prompt

To upgrade this helm chart:

  1. Obtain the password as described on the 'Administrator credentials' section and set the 'root.password' parameter as shown below:

      ROOT_PASSWORD=$(kubectl get secret --namespace default team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)
      helm upgrade --namespace default team9 bitnami/mysql --set auth.rootPassword=$ROOT_PASSWORD

C:\Users\YASHWANTH>helm search repo mysql
NAME CHART VERSION APP VERSION DESCRIPTION
bitnami/mysql 8.8.8 8.0.26 Chart to create a Highly available MySQL cluster
bitnami/phpmyadmin 8.2.13 5.1.1 phpMyAdmin is an mysql administration frontend
bitnami/mariadb 9.6.0 10.5.12 Fast, reliable, scalable, and easy to use open-...
bitnami/mariadb-cluster 1.0.2 10.2.14 DEPRECATED Chart to create a Highly available M...
bitnami/mariadb-galera 5.13.5 10.5.12 MariaDB Galera is a multi-master database clust...

C:\Users\YASHWANTH>helm install yash-team9 bitnami/mysql
NAME: yash-team9
LAST DEPLOYED: Tue Sep 28 19:10:45 2021
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
** Please be patient while the chart is being deployed **

Tip:

  Watch the deployment status using the command: kubectl get pods -w --namespace default

Services:

  echo Primary: yash-team9-mysql.default.svc.cluster.local:3306

Execute the following to get the administrator credentials:

  echo Username: root
  MYSQL_ROOT_PASSWORD=$(kubectl get secret --namespace default yash-team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)

To connect to your database:

  1. Run a pod that you can use as a client:

      kubectl run yash-team9-mysql-client --rm --tty -i --restart='Never' --image docker.io/bitnami/mysql:8.0.26-debian-10-r60 --namespace default --command -- bash

  2. To connect to primary service (read/write):

      mysql -h yash-team9-mysql.default.svc.cluster.local -uroot -p"$MYSQL_ROOT_PASSWORD"

To upgrade this helm chart:
```

Checking status :

```
Command Prompt

To upgrade this helm chart:

1. Obtain the password as described on the 'Administrator credentials' section and set the 'root.password' parameter as shown below:

    ROOT_PASSWORD=$(kubectl get secret --namespace default yash-team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)
    helm upgrade --namespace default yash-team9 bitnami/mysql --set auth.rootPassword=$ROOT_PASSWORD

C:\Users\YASHWANTH>helm list
NAME                NAMESPACE    REVISION    UPDATED                               STATUS    CHART              APP VERSION
team9               default       1           2021-09-28 19:09:02.6853296 +0530 IST deployed  mysql-8.8.8        8.0.26
yash                default       1           2021-09-28 19:03:30.6693753 +0530 IST deployed  brigade-k8s-gateway-0.3.0
yash-team9          default       1           2021-09-28 19:10:45.9414781 +0530 IST deployed  mysql-8.8.8        8.0.26

C:\Users\YASHWANTH>helm status team9
NAME: team9
LAST DEPLOYED: Tue Sep 28 19:09:02 2021
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
** Please be patient while the chart is being deployed **

Tip:

    Watch the deployment status using the command: kubectl get pods -w --namespace default

Services:

    echo Primary: team9-mysql.default.svc.cluster.local:3306

Execute the following to get the administrator credentials:

    echo Username: root
    MYSQL_ROOT_PASSWORD=$(kubectl get secret --namespace default team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)

To connect to your database:

1. Run a pod that you can use as a client:

    kubectl run team9-mysql-client --rm --tty -i --restart='Never' --image docker.io/bitnami/mysql:8.0.26-debian-10-r60 --namespace default --command -- bash

2. To connect to primary service (read/write):

    mysql -h team9-mysql.default.svc.cluster.local -uroot -p"$MYSQL_ROOT_PASSWORD"

To upgrade this helm chart:
```

Update chart and uninstalling an application by maintaining history and rollbacking :

Command Prompt

1. Obtain the password as described on the 'Administrator credentials' section and set the 'root.password' parameter as shown below:

```
ROOT_PASSWORD=$(kubectl get secret --namespace default team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)
helm upgrade --namespace default team9 bitnami/mysql --set auth.rootPassword=$ROOT_PASSWORD
```

```
C:\Users\YASHWANTH>helm uninstall team9 --keep-history
release "team9" uninstalled
```

```
C:\Users\YASHWANTH>helm list
```

NAME	NAMESPACE	REVISION	UPDATED	STATUS	CHART	APP VERSION
yash	default	1	2021-09-28 19:03:30.6693753 +0530 IST	deployed	brigade-k8s-gateway-0.3.0	
yash-team9	default	1	2021-09-28 19:10:45.9414781 +0530 IST	deployed	mysql-8.8.8	8.0.26

```
C:\Users\YASHWANTH>helm list --all
```

NAME	NAMESPACE	REVISION	UPDATED	STATUS	CHART	APP VERSION
team9	default	1	2021-09-28 19:09:02.6853296 +0530 IST	uninstalled	mysql-8.8.8	8.0.26
yash	default	1	2021-09-28 19:03:30.6693753 +0530 IST	deployed	brigade-k8s-gateway-0.3.0	
yash-team9	default	1	2021-09-28 19:10:45.9414781 +0530 IST	deployed	mysql-8.8.8	8.0.26

```
C:\Users\YASHWANTH>helm repo update
```

Hang tight while we grab the latest from your chart repositories...

...Successfully got an update from the "kubernetes-dashboard" chart repository

...Successfully got an update from the "brigade" chart repository

...Successfully got an update from the "bitnami" chart repository

Update Complete. ☺Happy Helming!☺

```
C:\Users\YASHWANTH>helm list
```

NAME	NAMESPACE	REVISION	UPDATED	STATUS	CHART	APP VERSION
yash	default	1	2021-09-28 19:03:30.6693753 +0530 IST	deployed	brigade-k8s-gateway-0.3.0	
yash-team9	default	1	2021-09-28 19:10:45.9414781 +0530 IST	deployed	mysql-8.8.8	8.0.26

```
C:\Users\YASHWANTH>helm list --all
```

NAME	NAMESPACE	REVISION	UPDATED	STATUS	CHART	APP VERSION
team9	default	1	2021-09-28 19:09:02.6853296 +0530 IST	uninstalled	mysql-8.8.8	8.0.26
yash	default	1	2021-09-28 19:03:30.6693753 +0530 IST	deployed	brigade-k8s-gateway-0.3.0	
yash-team9	default	1	2021-09-28 19:10:45.9414781 +0530 IST	deployed	mysql-8.8.8	8.0.26

```
C:\Users\YASHWANTH>helm rollback team9
```

Error: release: not found

```
C:\Users\YASHWANTH>helm rollback team9 1
```

Error: could not convert revision to a number: strconv.Atoi: parsing "1": invalid syntax

```
C:\Users\YASHWANTH>helm rollback team9 1
```

Rollback was a success! Happy Helming!

```
C:\Users\YASHWANTH>helm status team9
```

NAME: team9

LAST DEPLOYED: Tue Sep 28 19:16:44 2021

NAMESPACE: default

STATUS: deployed

Command Prompt

NAME: team9

LAST DEPLOYED: Tue Sep 28 19:16:44 2021

NAMESPACE: default

STATUS: deployed

REVISION: 2

TEST SUITE: None

NOTES:

** Please be patient while the chart is being deployed **

Tip:

Watch the deployment status using the command: kubectl get pods -w --namespace default

Services:

echo Primary: team9-mysql.default.svc.cluster.local:3306

Execute the following to get the administrator credentials:

echo Username: root

MYSQL_ROOT_PASSWORD=\$(kubectl get secret --namespace default team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)

To connect to your database:

1. Run a pod that you can use as a client:

```
kubectl run team9-mysql-client --rm --tty -i --restart='Never' --image docker.io/bitnami/mysql:8.0.26-debian-10-r60 --namespace default --command -- bash
```

2. To connect to primary service (read/write):

```
mysql -h team9-mysql.default.svc.cluster.local -uroot -p"$MYSQL_ROOT_PASSWORD"
```

To upgrade this helm chart:

1. Obtain the password as described on the 'Administrator credentials' section and set the 'root.password' parameter as shown below:

```
ROOT_PASSWORD=$(kubectl get secret --namespace default team9-mysql -o jsonpath="{.data.mysql-root-password}" | base64 --decode)
helm upgrade --namespace default team9 bitnami/mysql --set auth.rootPassword=$ROOT_PASSWORD
```

```
C:\Users\YASHWANTH>helm --all
```

Error: unknown flag: --all

```
C:\Users\YASHWANTH>helm list --all
```

NAME	NAMESPACE	REVISION	UPDATED	STATUS	CHART	APP VERSION
team9	default	2	2021-09-28 19:16:44.4934678 +0530 IST	deployed	mysql-8.8.8	8.0.26
yash	default	1	2021-09-28 19:03:30.6693753 +0530 IST	deployed	brigade-k8s-gateway-0.3.0	
yash-team9	default	1	2021-09-28 19:10:45.9414781 +0530 IST	deployed	mysql-8.8.8	8.0.26

```
C:\Users\YASHWANTH>
```

