# **Lab 3**

Author: Qadeer Hussain

Student ID: C00270632

Table of Contents

[**Lab 3** 1](#_Toc198318876)

[**Objective** 2](#_Toc198318877)

[**Kubernetes Basic Module** 2](#_Toc198318878)

[**Using Minikube to Create a Cluster** 3](#_Toc198318879)

[**Hello Minikube Tutorial** 3](#_Toc198318880)

[**Create a Minikube cluster** 3](#_Toc198318881)

[**Open the Dashboard** 3](#_Toc198318882)

[**Create a deployment** 4](#_Toc198318883)

[**Create a Service** 6](#_Toc198318884)

[**Enable addons** 7](#_Toc198318885)

[**Clean up** 8](#_Toc198318886)

[**Using kubectl to Create a Deployment** 9](#_Toc198318887)

[**Deploying your first app on Kubernetes** 9](#_Toc198318888)

[**Viewing Pods and Nodes** 10](#_Toc198318889)

[**Troubleshooting with kubectl** 10](#_Toc198318890)

[**Using a Service to Expose Your App** 12](#_Toc198318891)

[**Services and Labels** 12](#_Toc198318892)

[**Running Multiple Instances of Your App** 15](#_Toc198318893)

[**Scaling an application** 15](#_Toc198318894)

[**Performing a Rolling Update** 17](#_Toc198318895)

[**Rolling updates overview** 17](#_Toc198318896)

## **Objective**

In this lab for Kubernetes Basics the objective is to

* Deploy a containerized application on a cluster.
* Scale the deployment.
* Update the containerized application with a new software version.
* Debug the containerized application

## **Kubernetes Basic Module**

A screenshot of a computer

AI-generated content may be incorrect.

### **Using Minikube to Create a Cluster**

Begin Hello Minikube tutorial

<https://kubernetes.io/docs/tutorials/hello-minikube/>

Install Kubectl

Then continue on with running Minikube start

**Note: Windows CMD doesn’t support export or $, use kubectl get pods to copy the pod name manually instead.**

## **Hello Minikube Tutorial**

### **Create a Minikube cluster**

A computer screen with white text

AI-generated content may be incorrect.

### **Open the Dashboard**

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

### **Create a deployment**

A black screen with white text

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.

****

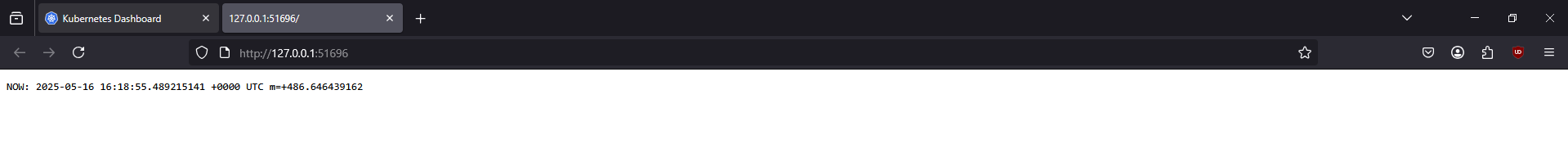
### **Create a Service**

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.



### **Enable addons**

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

### **Clean up**

A screenshot of a computer

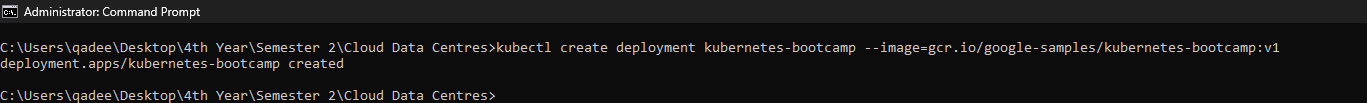
AI-generated content may be incorrect.

## **Using kubectl to Create a Deployment**

### **Deploying your first app on Kubernetes**

#### **kubectl basics**

#### **Deploy an app**



A screenshot of a computer

AI-generated content may be incorrect.

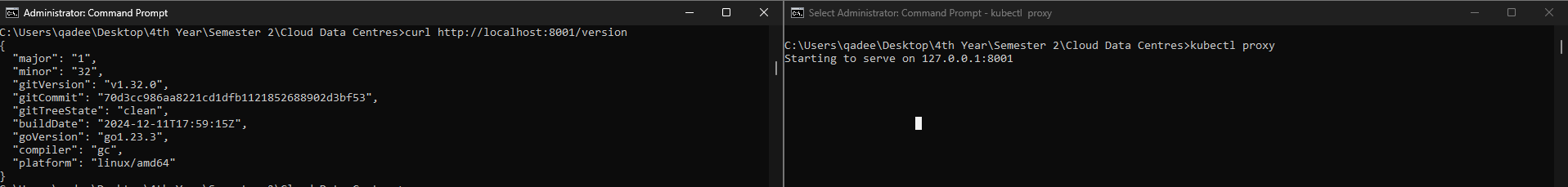
A screen shot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

#### **View the app**



A black screen with white text

AI-generated content may be incorrect.

## **Viewing Pods and Nodes**

### **Troubleshooting with kubectl**

#### **Check application configuration**

A screen shot of a computer

AI-generated content may be incorrect.

#### **Show the app in the terminal**

A black screen with white text

AI-generated content may be incorrect.

#### **Executing commands on the container**

A computer screen with white text

AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.

## **Using a Service to Expose Your App**

### **Services and Labels**

#### **Step 1: Creating a new Service**

A screen shot of a computer program

AI-generated content may be incorrect.

A black screen with white text

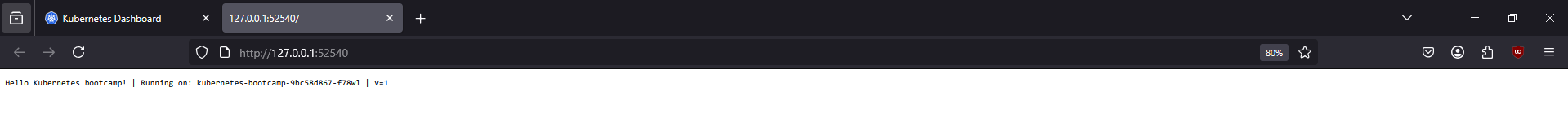
AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.

A black background with white text

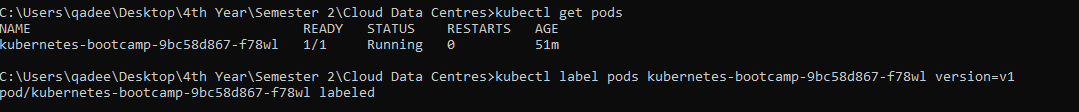
AI-generated content may be incorrect.



#### **Step 2: Using labels**

A screenshot of a computer program

AI-generated content may be incorrect.



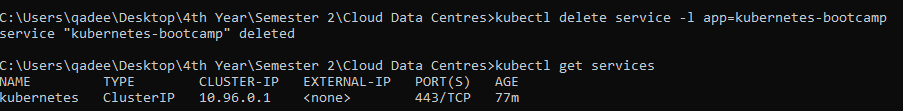
A screen shot of a computer code

AI-generated content may be incorrect.

A black background with white text

AI-generated content may be incorrect.

#### **Step 3: Deleting a service**



## **Running Multiple Instances of Your App**

### **Scaling an application**

#### **Scaling a Deployment**

A screenshot of a computer program

AI-generated content may be incorrect.

#### **Load Balancing**

A computer screen shot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

#### **Scale Down**

A screen shot of a computer

AI-generated content may be incorrect.

## **Performing a Rolling Update**

### **Rolling updates overview**

#### **Update the version of the app**

A screen shot of a computer

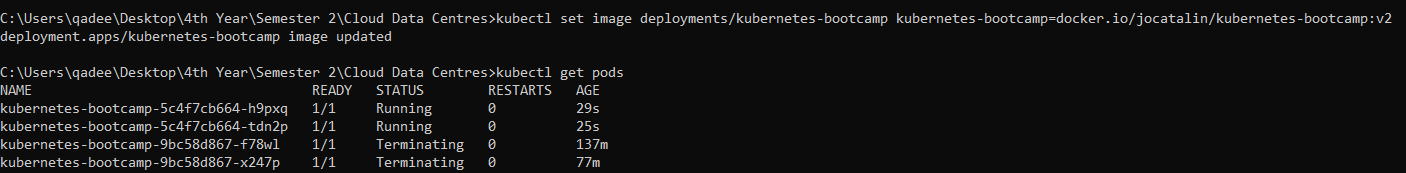
AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.



#### **Verify an update**

A black background with white text

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.

#### **Roll back an update**

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screen shot of a computer

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer program

AI-generated content may be incorrect.

