Intermediate Exercises for Kubernetes

This document provides a set of exercises to implement some practical knowledge on what we’ve developed using the theory part of the session. You should be comfortable with kubectl commands before attempting this. Please review the cheat sheet from the basic section if needed.

# Exercise 1: Creating the namespaces

To create three namespaces called Dev, Test, and Prod using AKS, you can follow these steps:

1. Open the Azure Cloud Shell by clicking on the Cloud Shell icon in the Azure portal.
2. Select the PowerShell from the dropdown menu.
3. Run the following command to create the Dev namespace:

**kubectl create namespace dev**

1. Run the following command to create the Test namespace:

**kubectl create namespace test**

1. Run the following command to create the Prod namespace:

**kubectl create namespace prod**

After running these commands, you will have three namespaces called Dev, Test, and Prod created in your AKS cluster. You can verify the creation of these namespaces by running the following command:

**kubectl get namespaces**

This command will show you a list of all the namespaces in your cluster, including the ones you just created.

# Exercise 2: Use a ConfigMap to specify resources

1. From the Github Repo, download the files and upload the configmap.yaml and myapp.yaml.  
   Take a look at the configmap.yaml to see how the resources we are applying are different per each namespace.
2. Use the command **kubectl apply -f configmap.yaml**
3. Use the command **kubectl apply -f myapp.yaml -n dev**This will create the deployment with the specified configuration in the dev namespace.

1. Verify that the deployment has been created with the command **kubectl get deployment myapp.yaml -n dev**
2. Use the command **kubectl describe myapp.yaml -n dev**

Note that the -n option specifies the namespace for the deployment. If you want to apply the deployment to the test or prod namespace, replace dev with the appropriate namespace name in the above command.

# Exercise 3: Apply a Deployment using Kustomize

1. Create the dev, test, and prod namespaces:

**kubectl create namespace dev**

**kubectl create namespace test**

**kubectl create namespace prod**

1. Create a directory structure to hold the Kubernetes deployment files:  
   First change directory to clouddrive using **cd clouddrive**

**mkdir myapp   
mkdir myapp/dev  
mkdir myap/test  
mkdir myapp/prod**

1. Create the kustomization file under the myapp directory as **kustomization.yaml**
2. Create the deployment file under each environment for **myapp/dev myapp/test and myapp/prod**
3. Create a kustomization file under each environment for **myapp/dev myapp/test and myapp/prod**
4. Apply the dev deployment using:  
   **kubectl apply -k ./dev**
5. Apply the test deployment using:  
   **kubectl apply -k ./dev**
6. Apply the prod deployment using:  
   **kubectl apply -k ./dev**