

Cloud Computing Networks (IT425)

Lab Assignment 1

Due to Thursday, March 28, 2024, at 11:59 PM

➤ **Assignment Rules:**

- Assignment is for a **group of 2**.
- It contains **two parts**, follow instructions stated.
- You will deliver a **document** file with maximum of **6 pages**.
- Convert document to pdf format.
- Name the document file with the following format **firststudentID**
secoundstudentID Ass#1.
- Submit your file to the following form [link](#)

➤ **Part 1 search report:**

This part explores the difference between virtual machines and containers and their architecture. The advantages and disadvantages of both technologies. Search the web to get answers to the following questions.

In your document put number of question and state answer to each question:

1. What are the differences between virtualization and containerization?
2. What is the architecture of a virtual machine and a container?
3. What is Docker?
4. What is a Docker file, Docker image, and Docker container?
5. State differences between Kubernetes and Docker?

➤ **Part 2 Lab task:**

This part is practice of what we took in the lab. We will simulate the following scenario with one server and one laptop. As we don't have physical server so we will simulate it as virtual machine. Follow steps and take screenshots and insert them into your document.



1. Use the following shared folder [link](#) to get software's.
2. From shared folder, install **VMware Workstation** and use license in txt file.
3. After installing workstation, import a virtual machine appliance.
 - **File > open.**
 - **Select ESXi6.ova** from shared folder. It is a preinstalled VM that has ESXi installed on it.
4. Start the VM:
 - If an error occurs while running VM it can be that you need to enable Virtualization (VT-x/AMD-V) on bios, follow these instructions.
<https://www.youtube.com/watch?v=MOuTxfzCvMY>
https://support.hp.com/us-en/document/ish_5637142-5637191-16
<https://support.lenovo.com/eg/en/solutions/ht500006-how-to-enable-virtualization-technology-on-lenovo-computers>
 - If you have an error according to Hyper-V the hypervisor of Microsoft, you should disable it as follow:

<https://learn.microsoft.com/en-us/troubleshoot/windows-client/application-management/virtualization-apps-not-work-with-hyper-v>

- If VM worked continue.
5. ESXi configuration:
 - After booting the ESXi click f2 and enter your username **root** password **vmwarecourse** then click **configure management network > ipv4 configuration**. Make sure that option using dynamic ipv4 is selected then escape and take **screenshot 1** with ipv4 configuration.
 - Now click **ctrl+alt** to get out VM.
 6. Remote connection to ESXi host:
 - Go to your browser and type IP that you found in ESXi. Your ESXi VM should get a private IP address as we select NAT option in network settings.
 - Hit enter then click **advanced** then **proceed** and go to host client page login and take **screenshot 2**.
 7. Create Empty VM on ESXi:
 - Go to create VM then create new VM.
 - Name it anything and choose any options then finish.
 - Go to **Virtual Machine Tab** on the left side and click on your VM name.
 - Take **screenshot 3**.
 8. Datastore:
 - Go to **Storage Tab**
 - Click **Datastore browser** then go to folder of VM you created open it.
 - Browse VM files on datastore take **screenshot 4**.
 9. Export VM:
 - You can export important VM and share it with others in ova or ovf format.
 - Go to **Virtual Machine Tab** again then right click on your VM. click on Export and download ova file take **screenshot 5**.