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**Class:** Msc. Computer Science

**Subject**: Cloud Computing

**Year:** 2022-23

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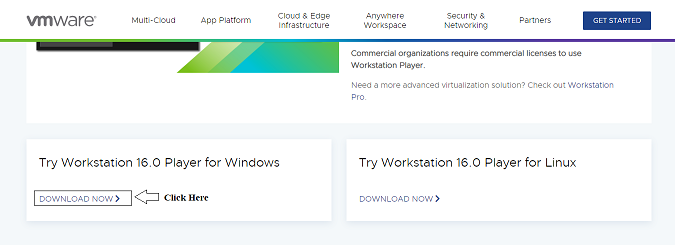
**Practical 1**

**Aim:** Implementation of Bare-metal and hosted virtualization

**Code:**

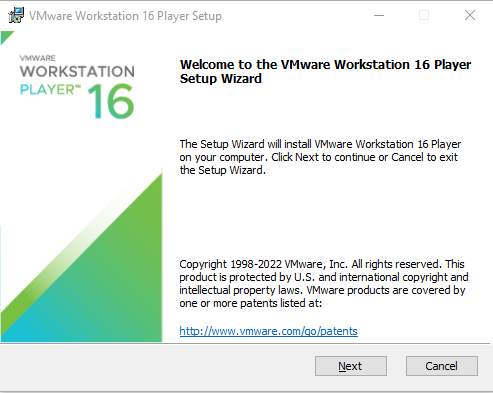
# Installation of VMWare WorkStation

## Step 1: [Click here](https://www.vmware.com/in/products/workstation-player/workstation-player-evaluation.html) and download the Work Station

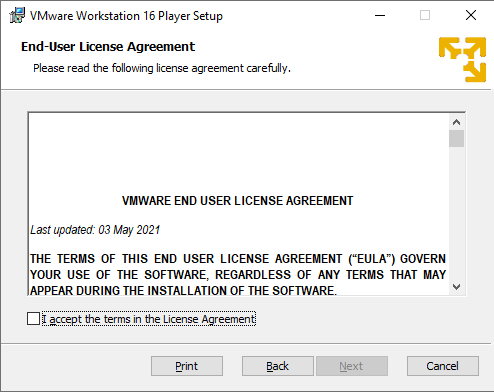


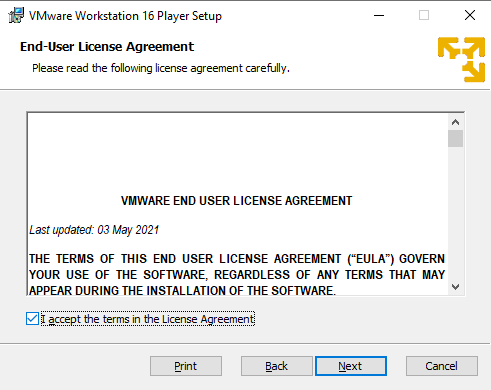
## Step 2: Once Downloaded double tap to start the installation

## Step 3: Click on Next

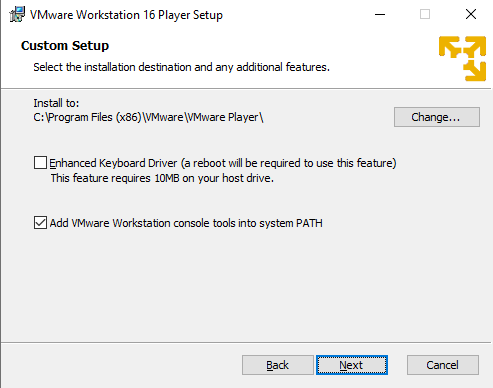


## Step 4: Check the terms and conditions and click on NEXT

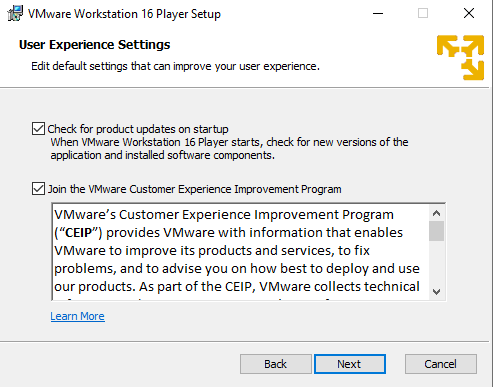




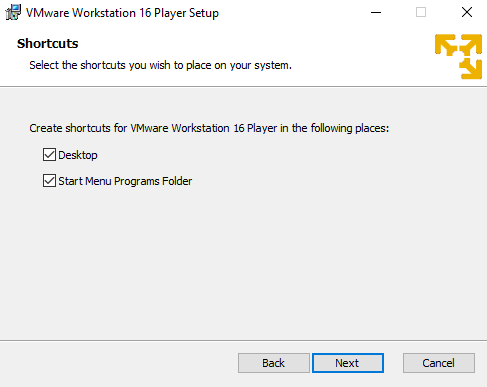
## Step 5: Keep the default setup and Click on NEXT



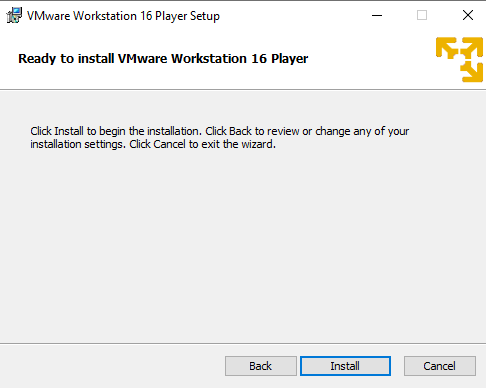
## Step 6: Click on NEXT



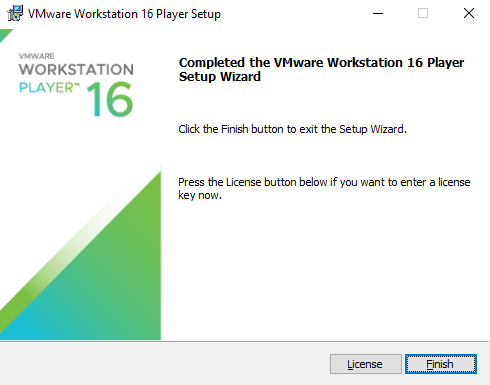
## Step 7: Click on NEXT



## Step 8: Click on INSTALL

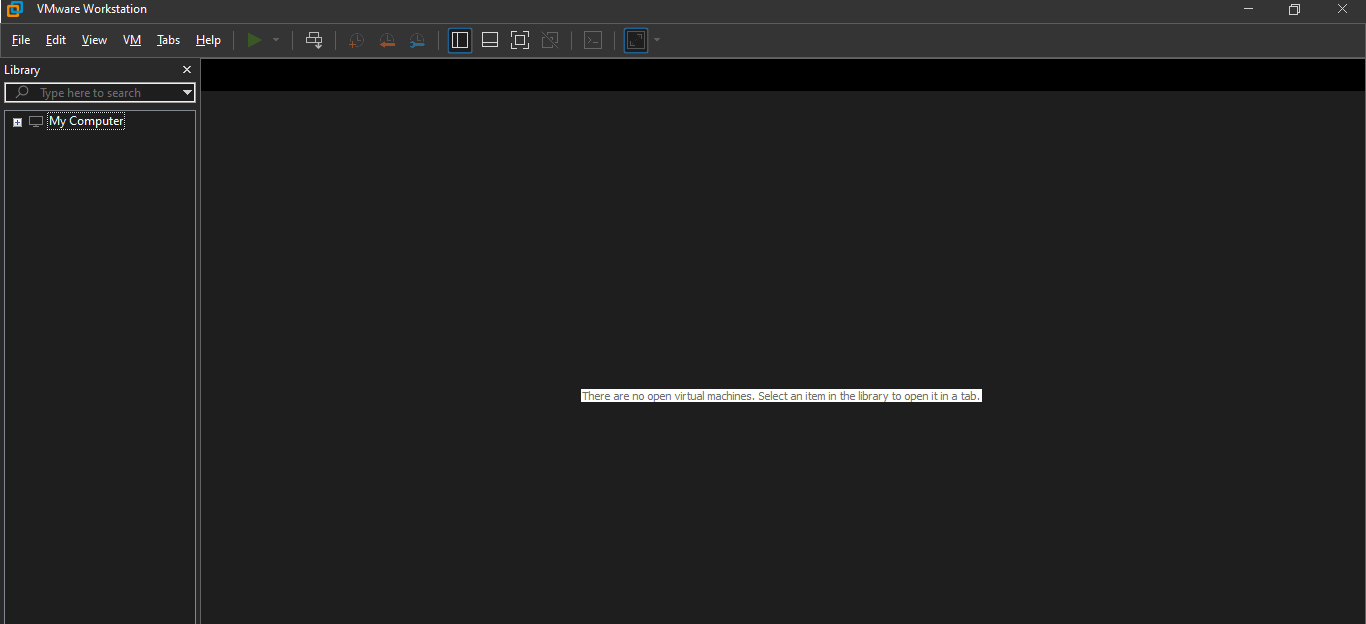


## Step 9: Once Finish the installation and you have the License Key then CLICK on the License Button and add the license key else click on FINISH

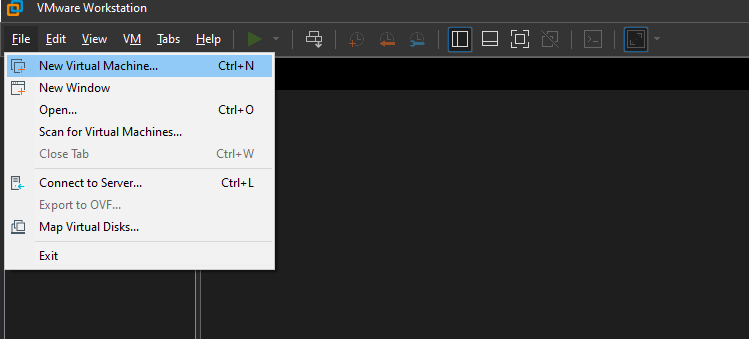


# Creation of the Virtual Machine in VMWare Workstation Pro

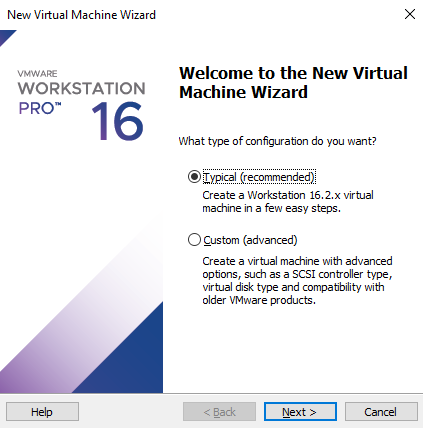
## Step 1: Open VM Ware WorkStation



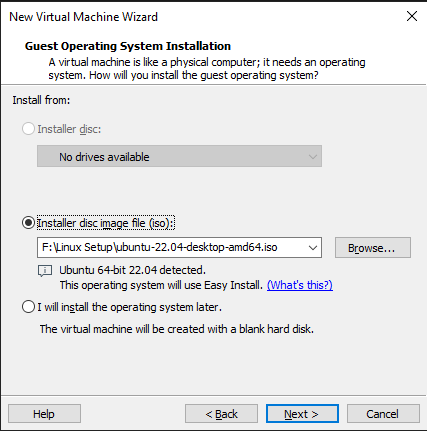
## Step 2: Click on File 🡪 Create New Virtual Machine



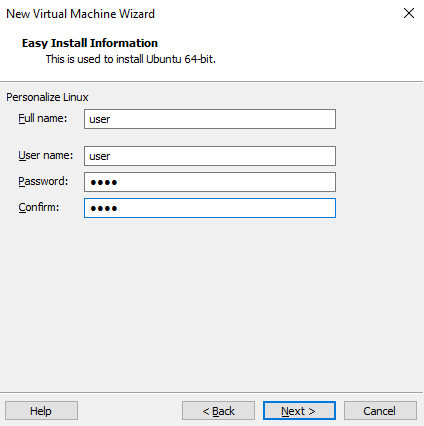
## Step 3: Select Typical and click on NEXT



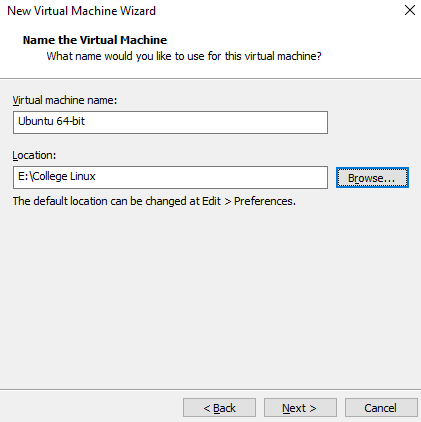
## Step 4: Click on Installer Disc\_Image file and provide the ISO file path and click on NEXT



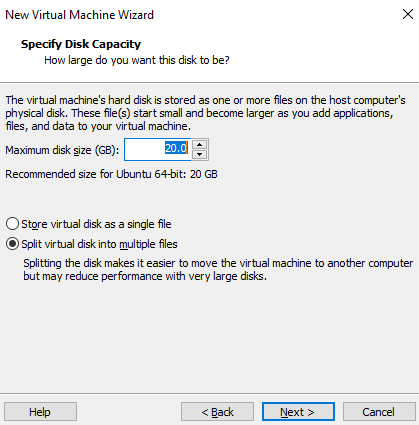
## Step 5: Provide the Full Name, Username and password and click on NEXT



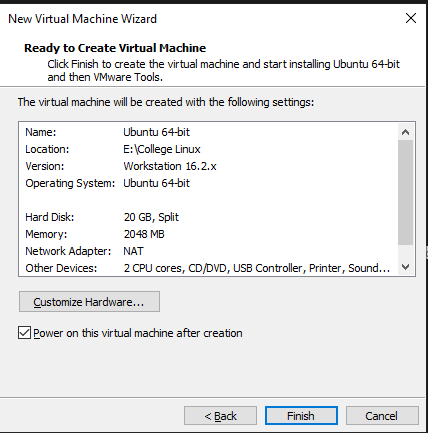
## Step 6: Provide the Virtual Machine Name and the path where to save the image



## Step 7: Provide the disk Size (Recommended 20GB) and click on NEXT



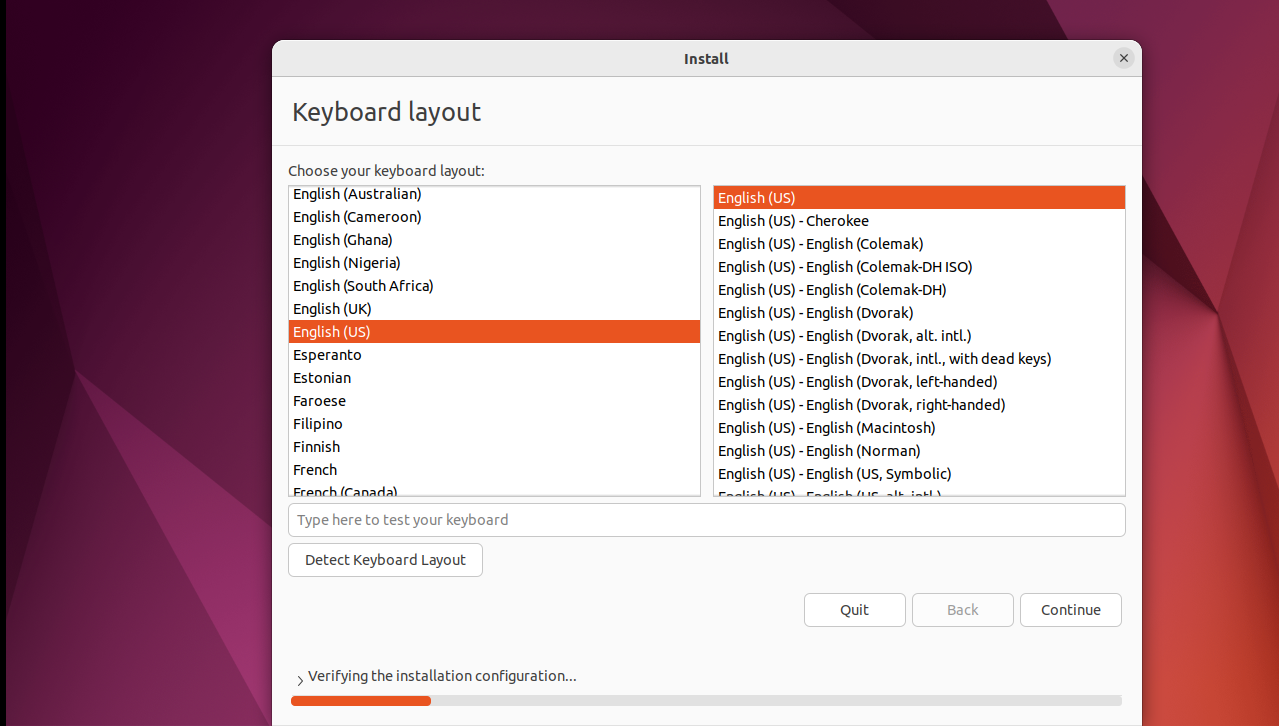
## Step 8: Click on FINISH



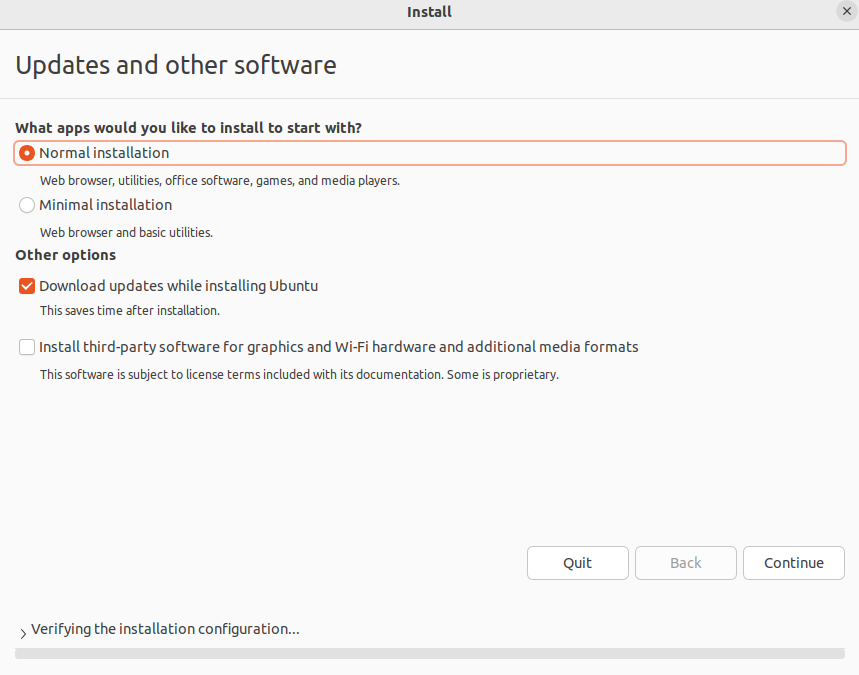
# Configuring and Installing Ubuntu

## Step 1: Run the Machine

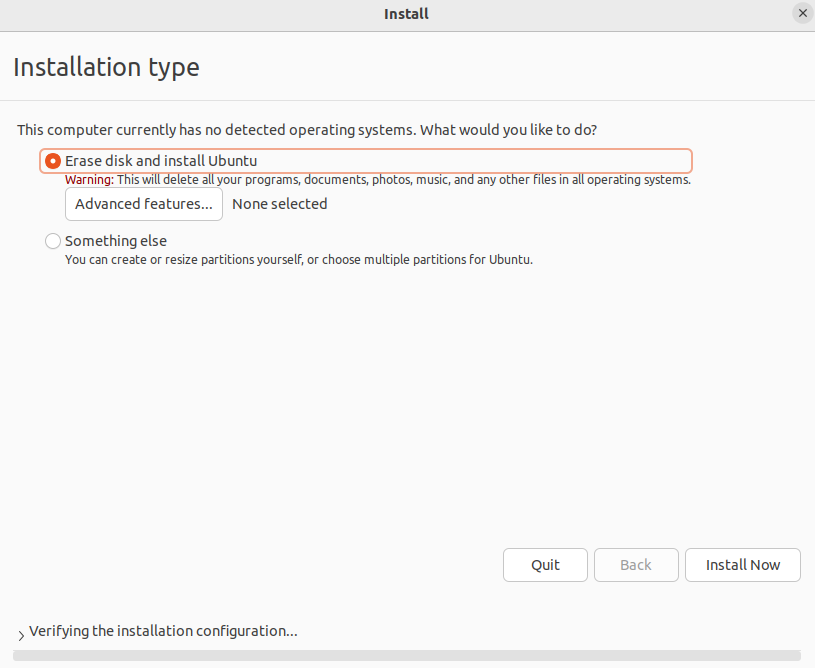
## Step 2: Select the language and click on CONTINUE

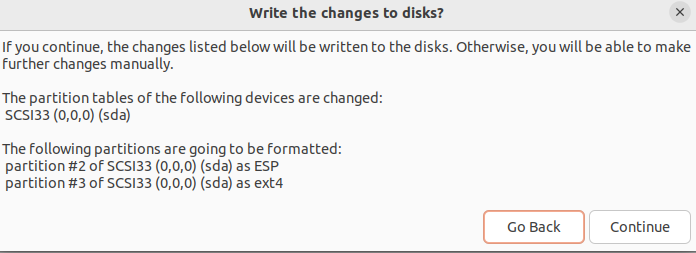


## Step 3: Click on CONTINUE



## Step 4: Click on Erase Disk and click on INSTALL

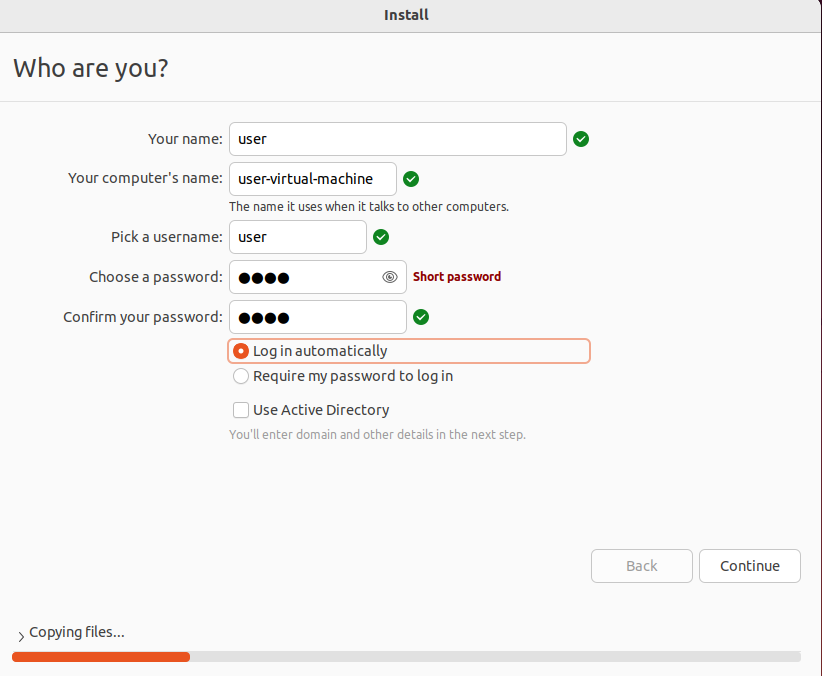


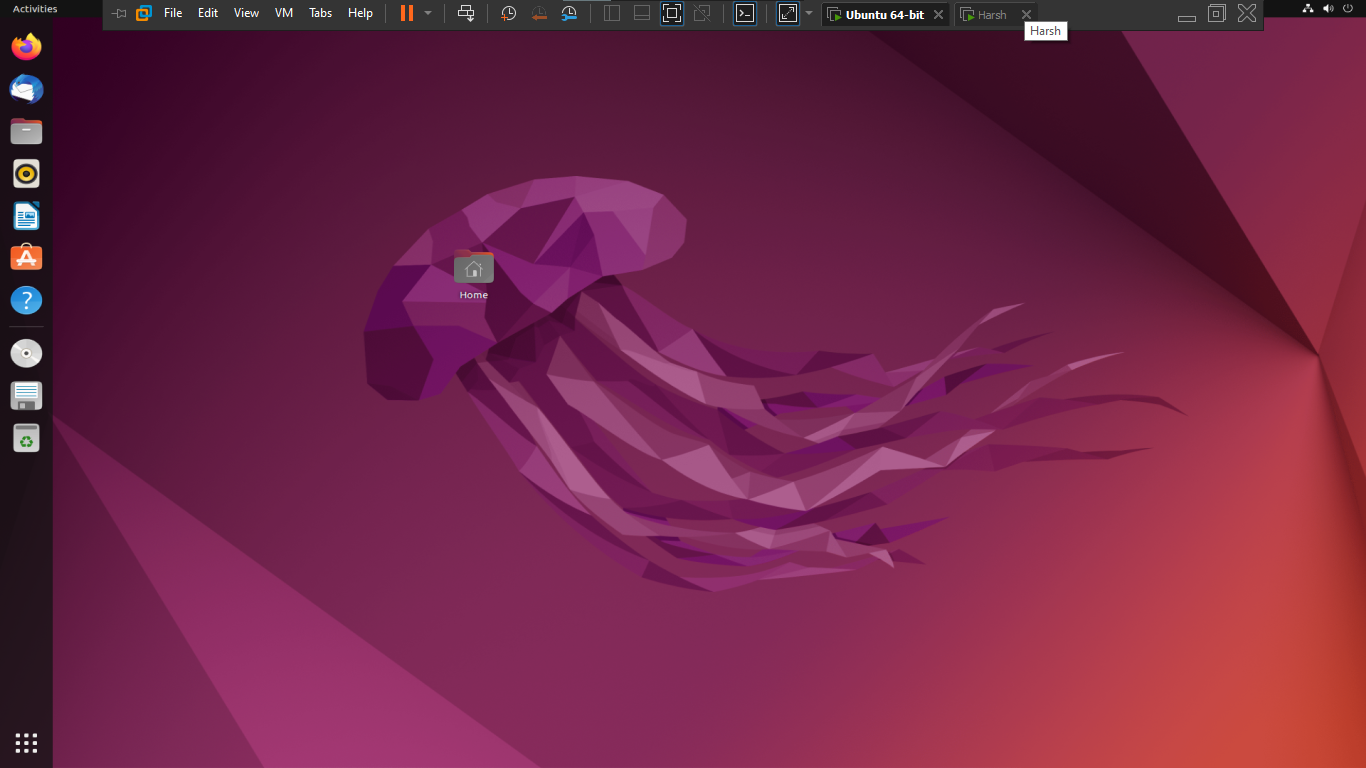


## Step 5: Select the Country and click on Continue

## 

## Step 6: Provide the Name, Username, and Password and click on Continue





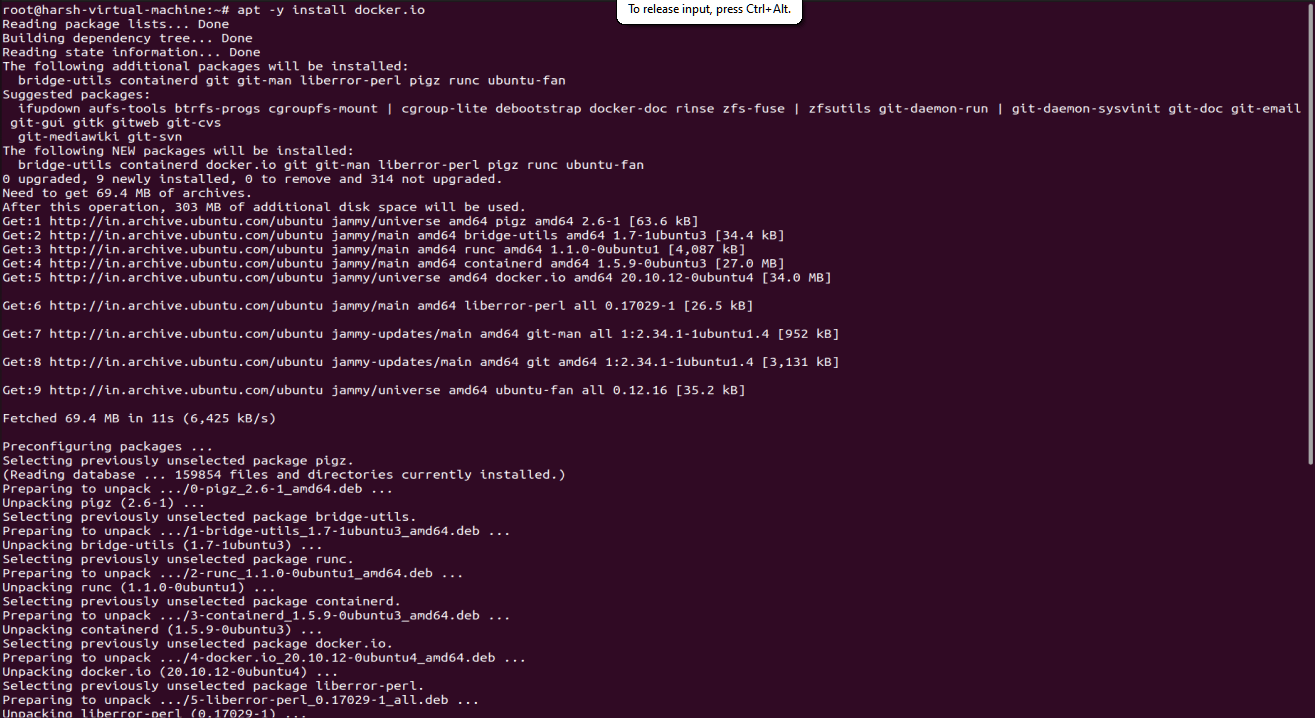
**Practical 2**

**Aim:** Implementation of containerization using Docker

**Code:**

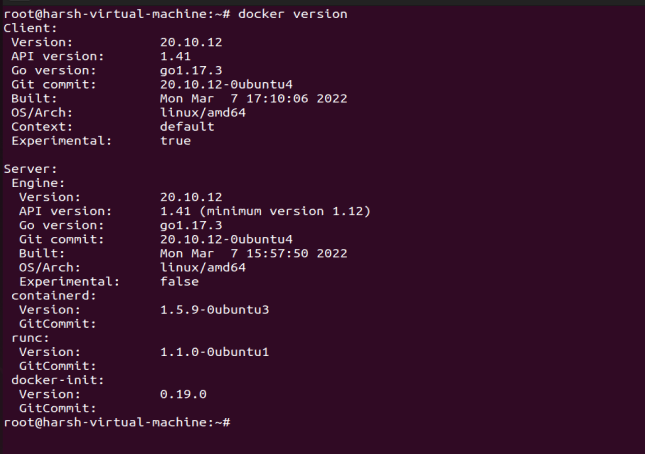
# Installation of Docker

apt -y install docker.io



# Docker Version

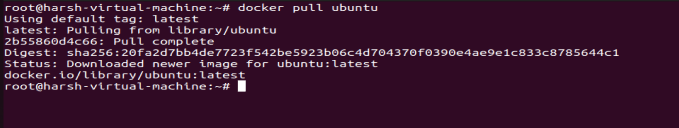
docker version



# Download an official image and create a container and output the words [Welcome to the Docker World] inside the container

## Downloading the official image

docker pull ubuntu



## Run echo inside the Container

docker run ubuntu /bin/echo "Welcome to the Docker World!"

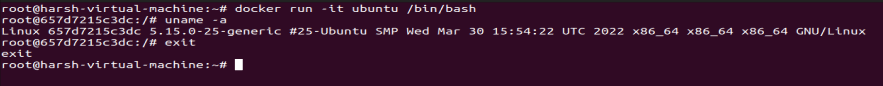


# Connect to the interactive session of a Container with [i] and [t] option like follows. If exit from the Container session, the process of a Container finishes.

docker run -it ubuntu /bin/bash

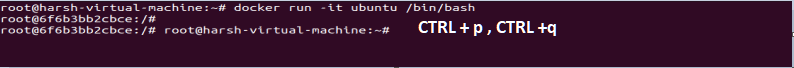
uname -a

exit



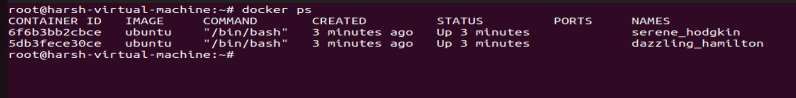
# If exit from the Container session with keeping container's process, push [Ctrl+p] and [Ctrl+q] key.

 docker run -it ubuntu /bin/bash



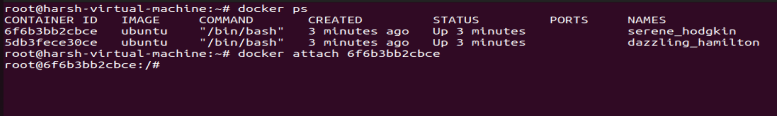
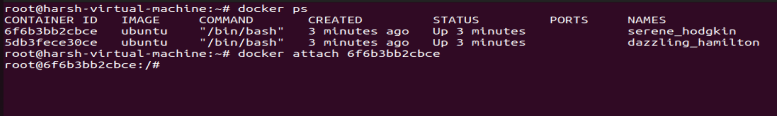
## Show docker processes

docker ps



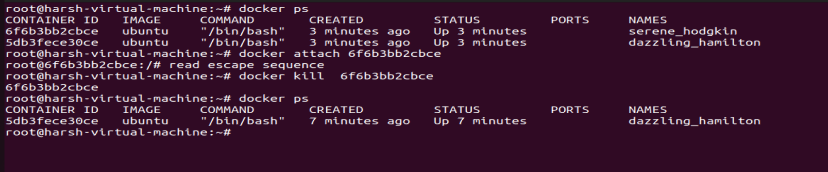
## Connect to container’s Session

docker attach 6f6b3bb2cbce



## Shutdown container’s process from Host’s console

docker kill 6f6b3bb2cbce

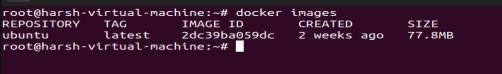


# Add Container images you created.

## For example, update official image with installing Nginx and add it as a new image for container. The container is generated every time for executing docker run command, so add the latest executed container like follows.

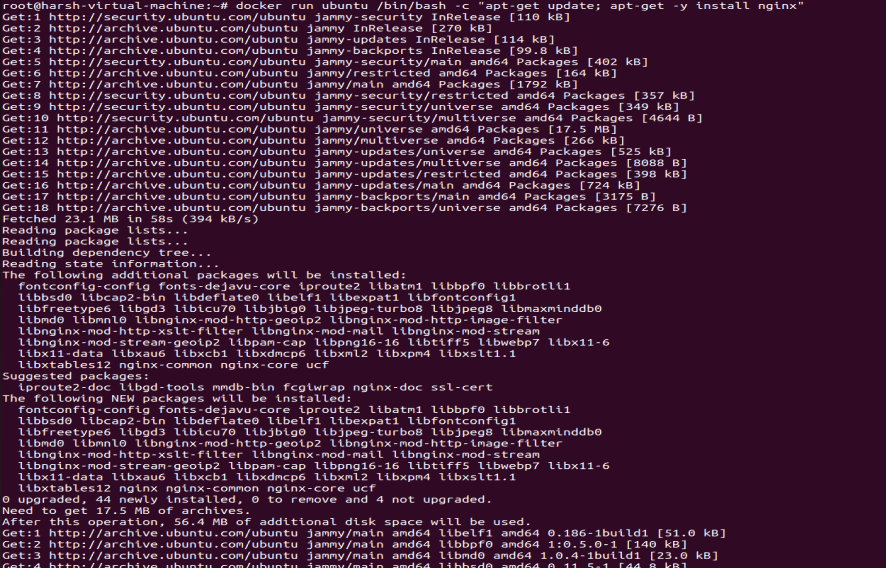
### Show images

docker images

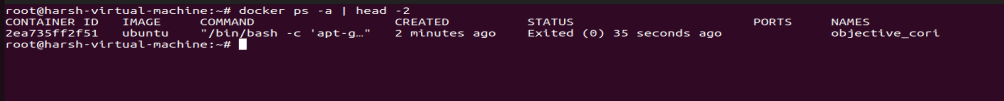


### Start a container and install nginx

docker run ubuntu /bin/bash -c "apt-get update; apt-get -y install nginx"

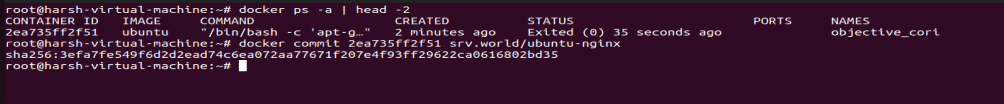


docker ps -a | head -2

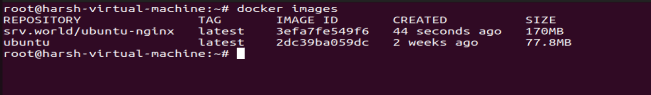


### Add the image

docker commit 2ea735ff2f51 srv.world/ubuntu-nginx

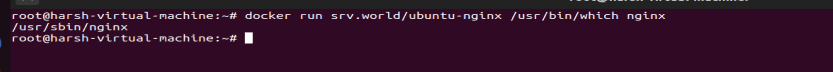


docker images



### Generate a container from the new image and execute [which] to make sure nginx exists

docker run srv.world/ubuntu-nginx /usr/bin/which nginx



**Practical 3**

**Aim:**

**Code:**

# To create an Azure storage account with the Azure portal, follow these steps:

## From the left portal menu, select Storage accounts to display a list of your storage accounts. If the portal menu isn't visible, click the menu button to toggle it on.

