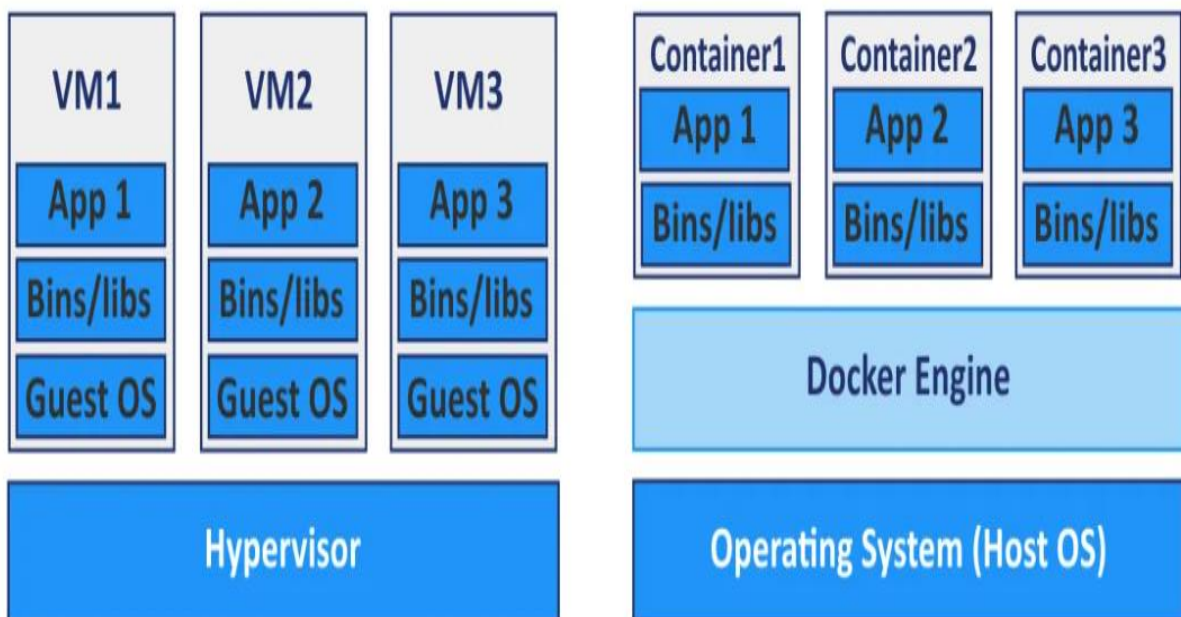NAME - PAVAN A V
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Section-'A'

DEVOPS
ASSIGNMENT - 02

1. Difference Between Hypervisor and Docker ?

HYPERVISOR	DOCKER
Hypervisors are of two types – the bare metal works directly on the hardware while type two hypervisor works on top of the operating system.	Docker, on the other hand, works on the host kernel itself. Hence, it does not allow the user to create multiple instances of operating systems.
In a single system, we can use multiple operating systems with the help of Hypervisor. This makes the system to work with multiple users with different methods even for the same program. Hence the same operation is done by different operating systems.	Docker does not allow users to create multiple instances of operating systems in the same computer but it makes virtualization by making containers in the same system. Containers help users to work separately on different or the same applications. The same operations are carried out by containers in the system.
A hypervisor allows the users to generate multiple instances of complete operating systems.	Dockers can run multiple applications or multiple instances of a single application. It does this with containers.
Hypervisors enable users to run multiple instances of complete operating systems. This makes them resource hungry. They need dedicated resources for any particular instance among the shared hardware which the hypervisor allocates during boot.	Dockers, however, do not have any such requirements. One can create as many containers as needed. Based on the application requirement and availability of processing power, the Docker provides it to the containers.

Hypervisor though, has the host OS and then also has the guest OS further. This creates two layers of the OS that are running on the hardware.	Dockers help with the agile way of working. Within each container, different sections of the program can be developed and tested.
Hypervisors are OS agnostic. They can run across Windows, Mac, and Linux.	Dockers, on the other hand, are limited to Linux only. That, however, is not a deterrent for Dockers since Linux is a strong eco-system.
More power and resources are required by the systems using hypervisors as different programs are being run on the same system with different operating systems.	Resource requirement is low as containers are working on the same operating system and this makes the system share resources within the containers.

2. Difference between Container and Virtual Machines ?

Virtual Machine	Container
VM is piece of software that allows us to install other software inside of it so you basically control it virtually as opposed to installing the software directly on the computer	Container is a software that allows different functionalities of an application independently.
VM is managed via hypervisor and uses VM hardware.	Containers give services of OS from an underlying host and also separate the applications utilizing virtual-memory hardware.
Application running on VM system can run different OS	Application running in a container environment share a single OS
VM technologies are well-known within various embedded communities.	The container has been grown on several clouds and servers with organizations like Google and Facebook. For example, all services of Google Docs get a container/instance.
VM uses a lot of system memory and large size	Container require less memory and vey light size
VM permits us for installing other software so virtually we control it as disputed to install the software on a computer directly.	The containers are software that permits distinct application's functionalities independently.
Applications executing on virtual machine system can execute distinct OS.	Applications executing within the container environment contribute to an individual OS.
VM facilitates a way for virtualizing any computer system.	Container only virtualizes the OS.
Example of VM are KVM, Xen, VMware	Example of container RancherOS, PhotonOS, containers by Docker.
VM runs in minutes due to its large size.	Containers run in seconds.
It utilizes a lot of memory of the system.	Containers utilize very less system memory.
It is highly secured.	It is less secure.

Higher overhead	Lower overhead
VM are useful when we require all of OS resources to run various applications	While container are useful when we are required to maximize the running application using minimal servers