

Pune Institute of Computer Technology

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Department of Information Technology

Class: TE CITS

Subject: LP-II (WADL)

Assignment No.: 26

A.Y.: 2023-24

Date:

Title: Docker

Problem Statement:

Create Docker Container Environment (NVIDIA Docker or any other).

Objective:

To learn about containerization and Docker.

Theory:

Docker is a popular containerization platform that enables developers to package their applications and their dependencies into a container. These containers can then be deployed on any system with Docker installed, making it a highly portable and flexible solution for deploying applications.

NVIDIA Docker is an extension of the Docker platform that allows developers to run GPU-accelerated applications inside Docker containers. This is particularly useful for machine learning and data science applications, as these often require access to specialized hardware like GPUs.

Features of Docker -

- Docker has the ability to reduce the size of development by providing a smaller footprint of the operating system via containers.

- With containers, it becomes easier for teams across different units, such as development, QA and Operations to work seamlessly across applications.
- You can deploy Docker containers anywhere, on any physical and virtual machine and even on the cloud.
- Since Docker containers are pretty lightweight, they are very easily scalable.

Creating a Docker container environment typically involves several steps -

- Installing Docker.
- Creating a Dockerfile.
- Building the Docker image.
- Running the Docker container.

If you are using NVIDIA Docker, you will need to follow additional steps to configure the container for GPU support.

This typically involves installing the NVIDIA drivers and the NVIDIA Docker runtime on your system.

Conclusion

Using Docker containers, including NVIDIA Docker, for machine learning and data science applications can improve portability, reproducibility, scalability, and security.

It can also simplify the deployment process and make it easier to share applications with others.

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