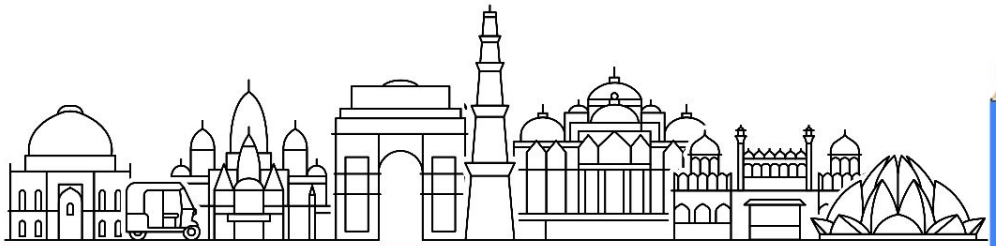
👋 Welcome aboard! 🚀 😊

Google Cloud Study Jam

An Introduction to Docker & More about containers

#2



What We are Going to Learn?

01
Recap

02
Introduction to Docker

03
Hands On Docker

04
Container Orchestration

05
What is Kubernetes

06
Web Servers

Google Developer Student Clubs
Pranveer Singh Institute of Technology

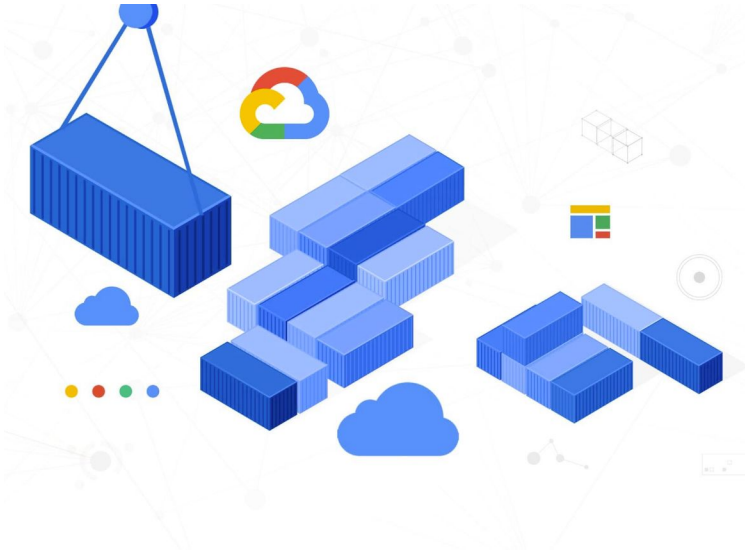
- Hello, everyone! 🌟
- I'm Harsh, and your trainer for the evening.

Harsh Misra
Cloud Lead

Get to know your fellow attendees!

Let's kick things off by introducing ourselves and connecting with new faces. 🤝✨

RECAP:Containerization



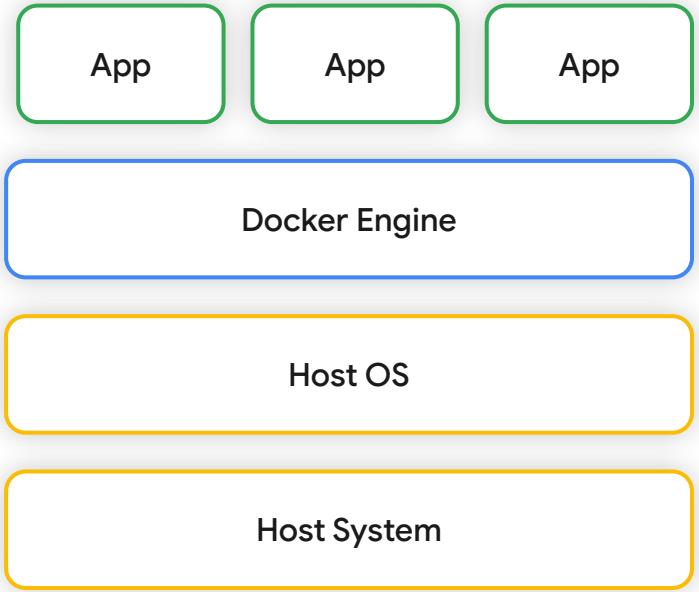
Recap to Containers

Containerization is a lightweight form of virtualization

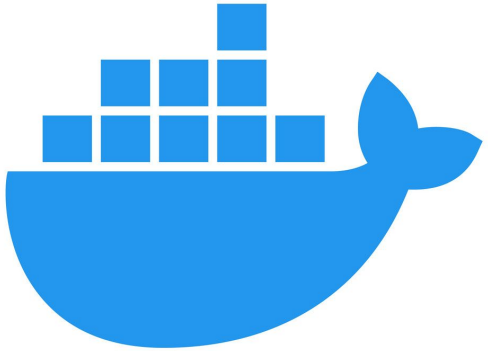
Docker is a leading platform for containerization. It provides tools and a platform to develop, deploy, and run applications in containers.

Advantages

- Portability
- Isolation
- Resource Efficiency
- Rapid Development

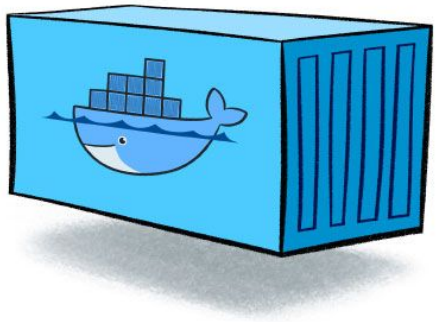


What is Docker?



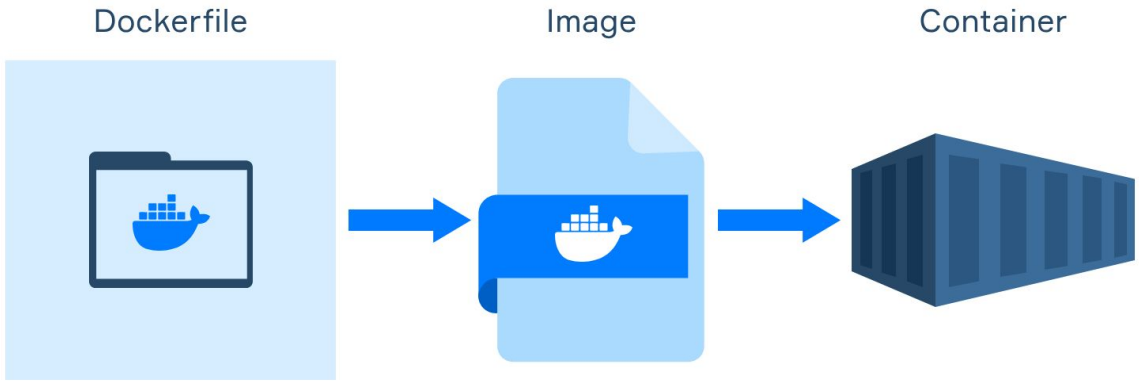
What is Docker?

- ➔ Docker is a **containerization platform** that simplifies the deployment and management of applications.
- ➔ It **packages applications and their dependencies** into isolated containers, ensuring consistency across different environments.
- ➔ Docker containers are **lightweight**, **portable**, and can **run consistently** from development to production.
- ➔ Docker is a game-changer for DevOps, enabling faster development, deployment, and scaling of applications.

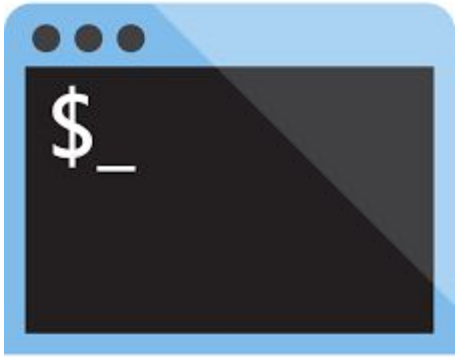


➔ **Key Concepts**:

- **Images:** Read-only templates that contain application code and dependencies.
- **Containers:** Instances of Docker images that run in isolation.
- **Dockerfile:** A script used to build Docker images.
- **Registries:** Repositories for storing and sharing Docker images.



Docker CLI



Docker CLI (Command Line Interface)

- The Docker CLI is the command-line tool used to interact with Docker and manage containers and images.
- The Docker CLI provides powerful capabilities for managing Docker resources, making it an essential tool for developers and administrators.
- Learning to use the Docker CLI efficiently is key to working effectively with Docker containers.

Common Docker CLI Commands

`docker pull` : Fetches a Docker image from a registry.

`docker run` : Creates and starts a container from an image.

`docker ps` : Lists running containers.

`docker images` : Lists available images.

`docker build` : Builds a Docker image from a Dockerfile.

`docker stop` and **`docker start`** : Stops and starts containers.

`docker rm` : Removes containers.

`docker rmi` : Removes images.

`docker exec` : Executes a command in a running container.

Let's Create Your First Container! 🚀

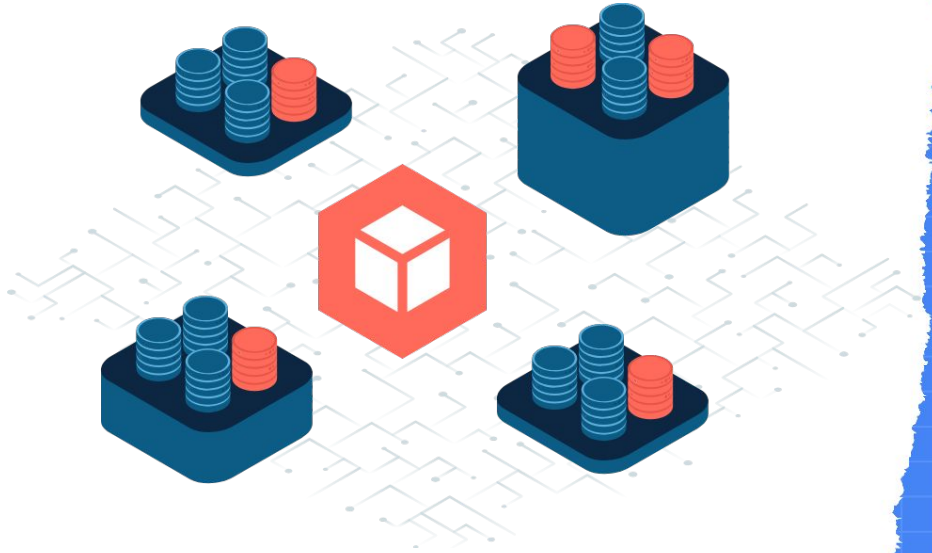
It's time to get hands-on! 🔥 Fire up your Docker Desktop or Docker environment and join us in creating your very own container.

Don't worry; it's a fantastic way to get practical experience with Docker and containerization. Get ready to dive in! 🌟

Can you guys Think and Answer these

- What if the app within the container reaches its processing limit ?
- What if we have multiple containers and they all are somehow dependent on each other for processing ?
- How will we be creating containers if we have to create 1000+ containers of 10 images ?

System Scaling



Scaling Systems and Its Importance

What is Scaling?
Scaling is the process of adjusting system resources to handle increased load or demand.

Why Scale?

- Handle Growth: As user traffic or data volume grows, scaling ensures your system can keep up.
- Improve Performance: Scaling can enhance system responsiveness and reduce latency.
- Maintain Reliability: Ensures your system remains available even during high traffic or load spikes.

Scaling is essential for meeting user expectations and maintaining a robust, responsive system.

“Flipkart fumbles on the big day as server fails”

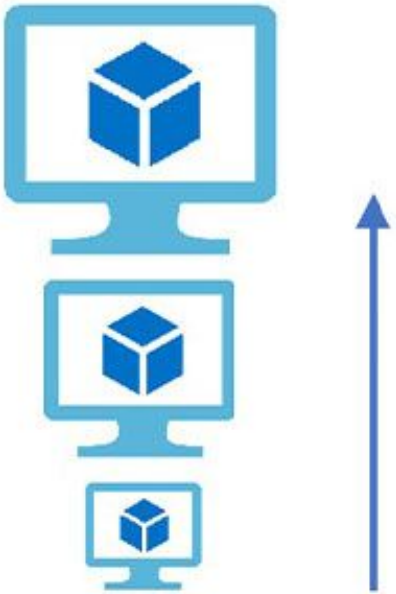
October 6, 2014

Cart flipped

- Flipkart kicked off its BigBillionDay campaign on the day Amazon’s founder Jeff Bezos came calling in Bangalore
- It was planned for October 6 (610), the flat number from where Sachin and Binny Bansal started Flipkart
- Products were priced as low as ₹1, and in some cases, discounts were as high as 80 per cent
- BigBillionDay suffered technical glitches despite Flipkart deploying an additional 1,000 engineers
- The sale came in for flak on social media, with the Twitterati terming it a sham or a scam

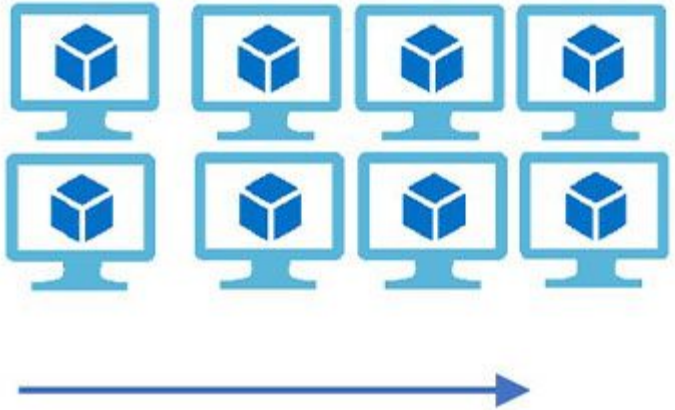
Vertical Scaling

(increase size of instances)



Horizontal Scaling

(add more instances)



Scan the QR-CODE

Get Amazing Learning Resources for Cloud Study Jams !!!

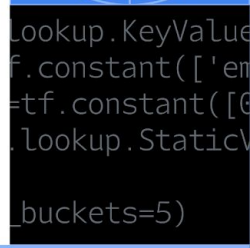
Or visit onto

https://github.com/fallen-ecstasy/Cloud-Resources

Google Developer Student Clubs
Pranveer Singh Institute of Technology

Q & A Session

Ask your Questions



Thanks for Joining !!!