
Docker For Beginners

Workshop Agenda

Part-1

- What is Docker
- Life without Docker
- Life with Docker
- Docker Setup
- Docker Architecture

Part-2

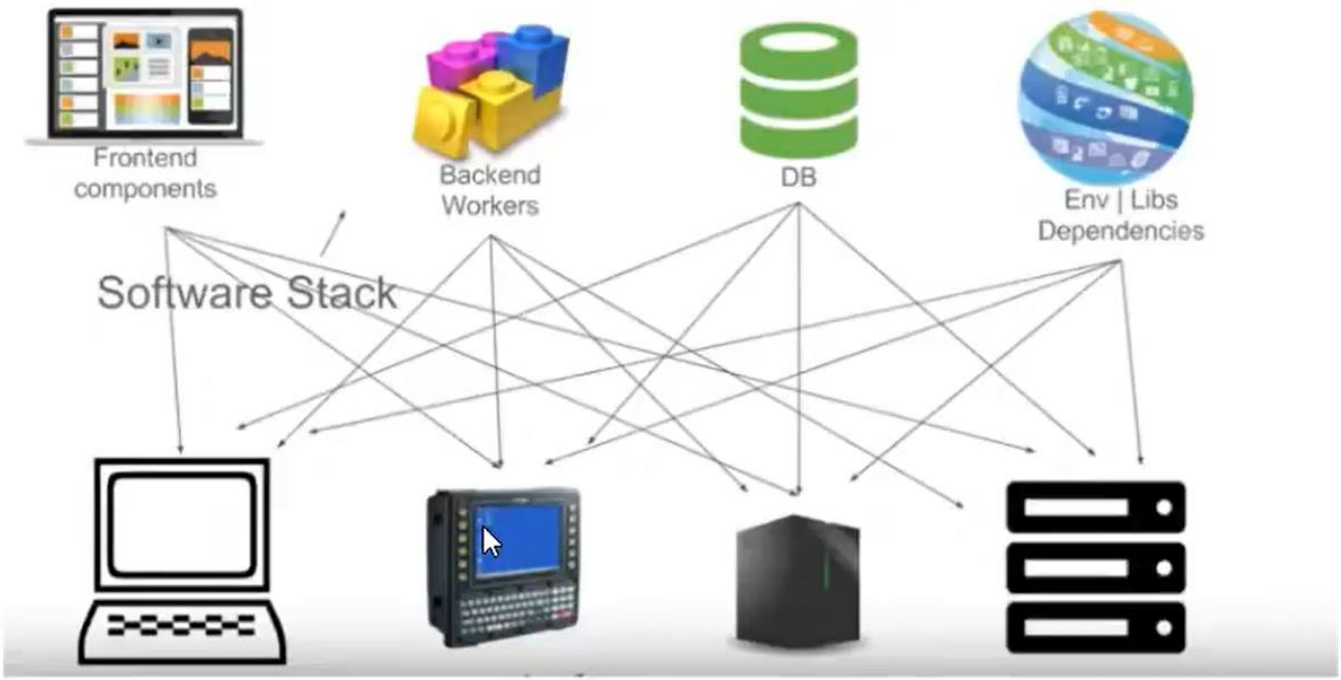
- Docker Hub
- Docker Registry
- Docker Images
- Docker Containers
- Dockerizing Spring Boot App

Application Development Stack

- HTML content and templates
- CSS style sheets
- Client-side JavaScript including frameworks such as Angular or React
- Build tools such as maven or Gradle
- Web servers such as Apache
- Server-side runtimes and frameworks including Node.js, PHP, Python, Ruby, .NET, Java etc.
- Databases such as MySQL, Maria DB, SQL Server, or MongoDB
- Other services for caching, message queues (Redis & Kafka)
- Git and GitHub for source control

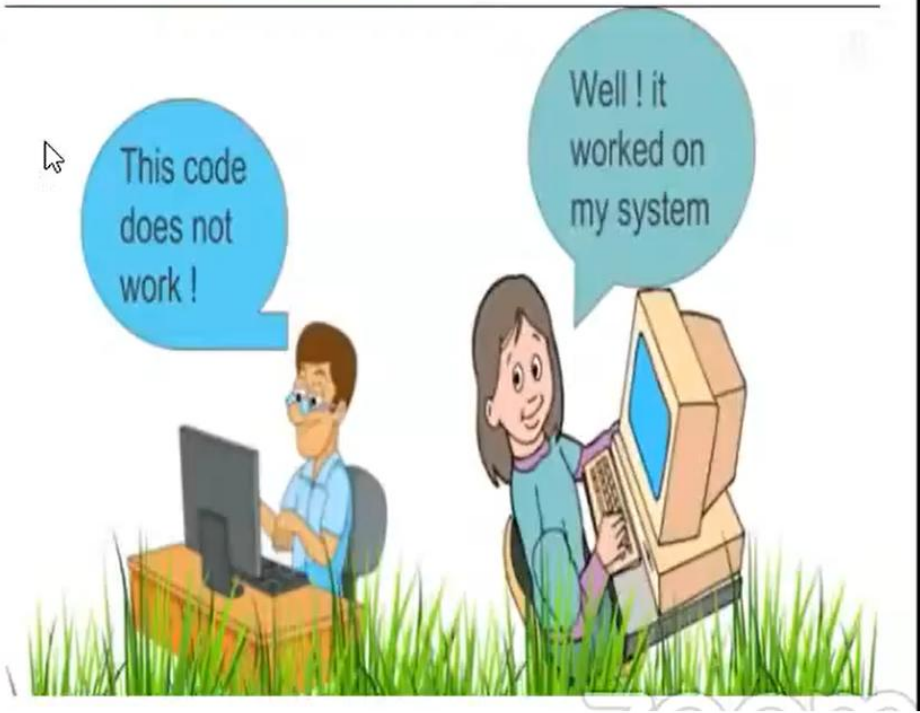
Setting Up Development Stack

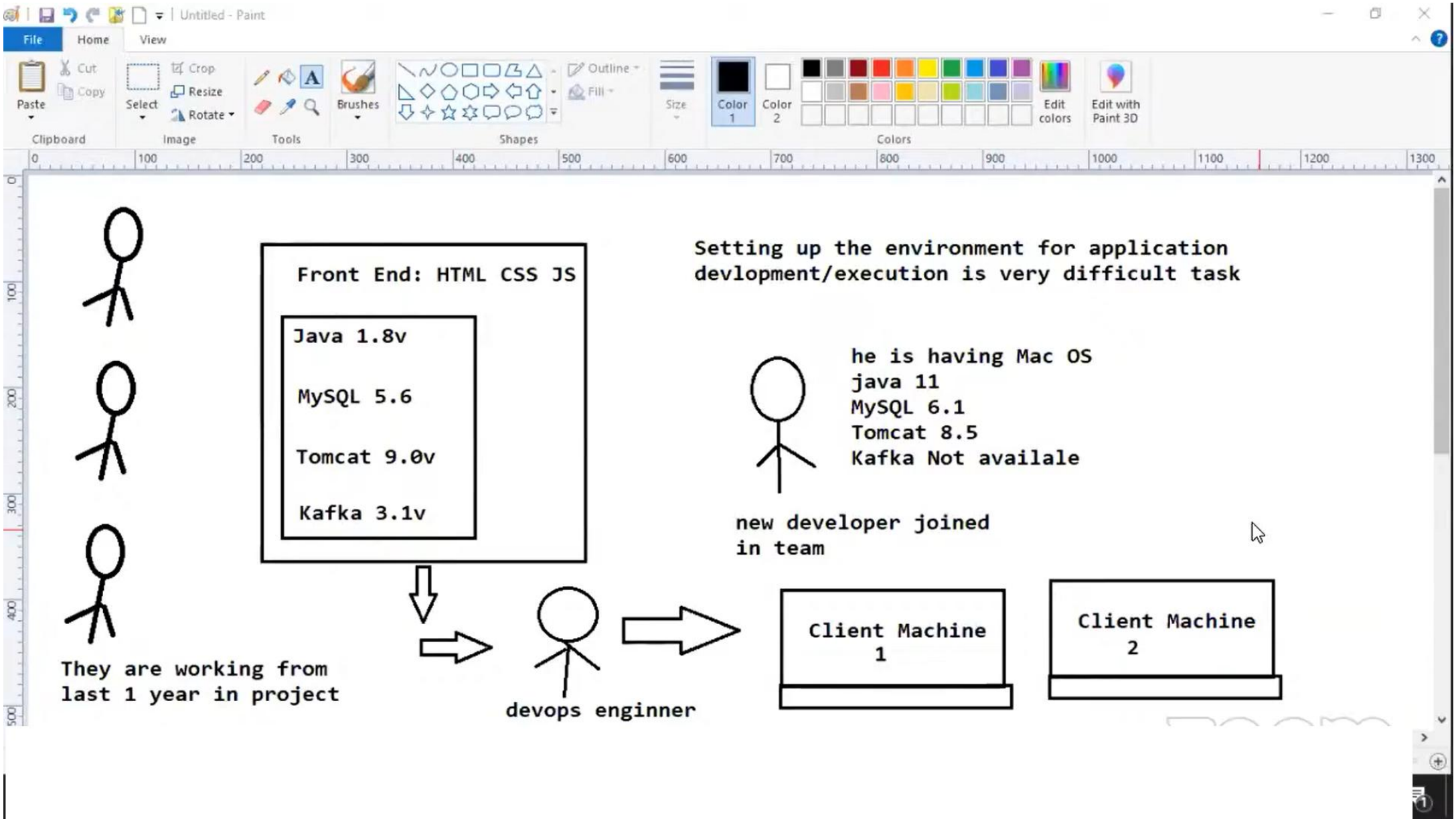
problem
not possible
setup
for laptop
mobile
server
all softwares

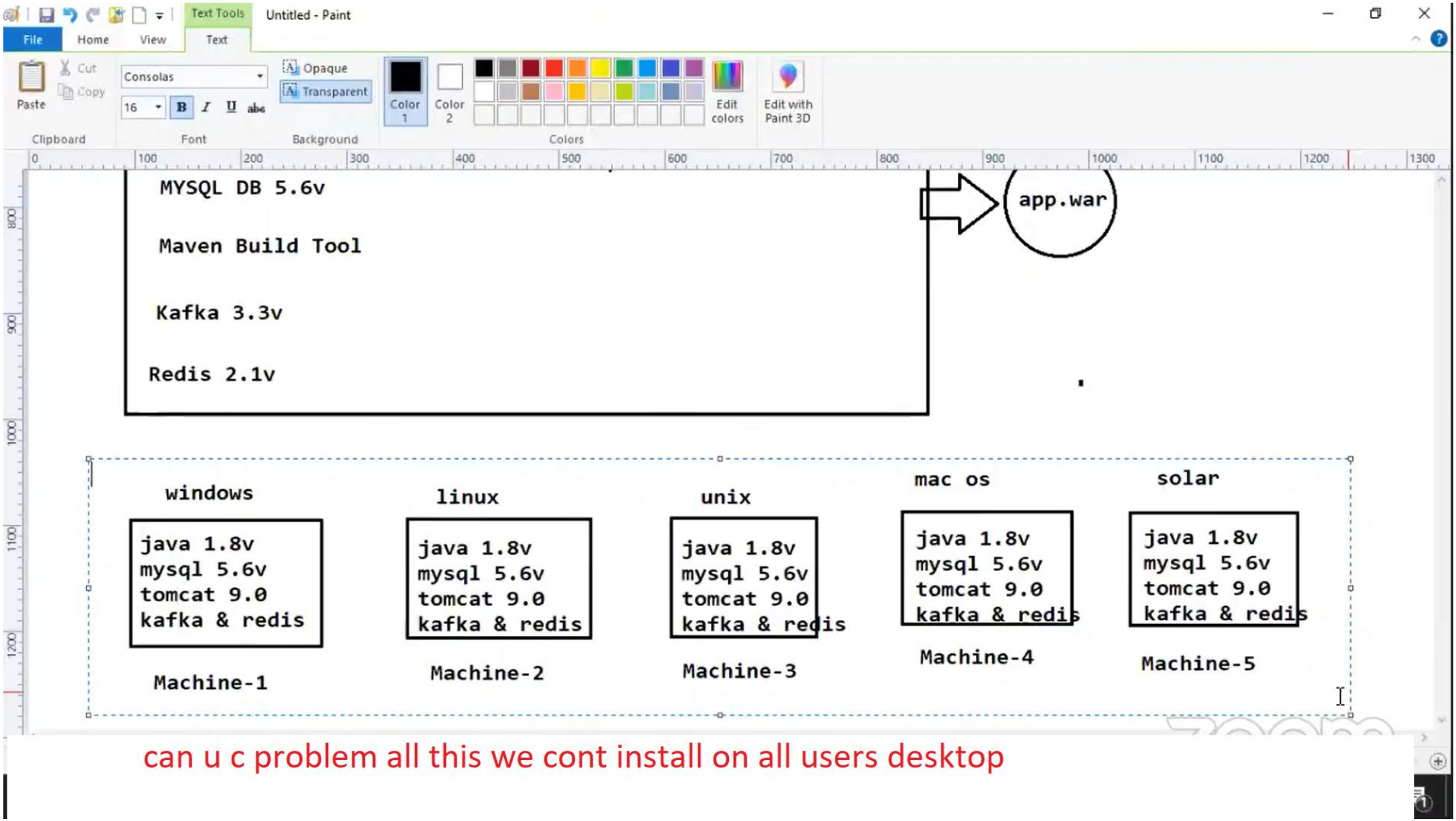


Issues with Development Stack Setup

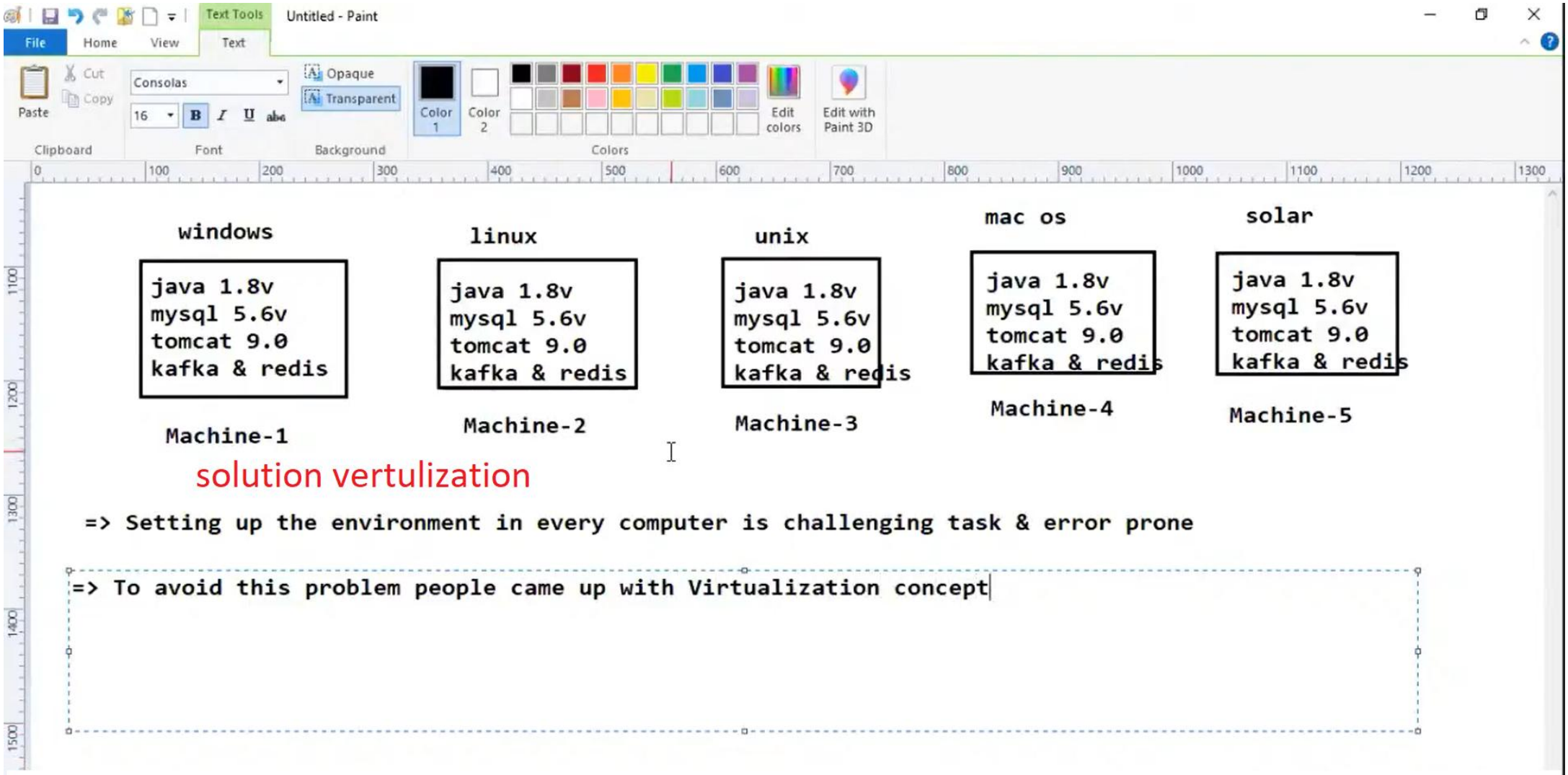
- You use a Mac OS , they use Windows
- You developed the app using Java 1.8v, they have Java 11v installed
- You used MongoDB v3.6, they're using v4.2




Untitled - Paint
File
Home
View
Paste
Cut
Copy
Select
Crop
Resize
Rotate
Brushes
Outline
Fill
Size
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Image
Tools
Shapes
Colors
Front End: HTML CSS JS
Java 1.8v
MySQL 5.6
Tomcat 9.0v
Kafka 3.1v
Setting up the environment for application devlopment/execution is very difficult task
he is having Mac OS
java 11
MySQL 6.1
Tomcat 8.5
Kafka Not availale
new developer joined in team
They are working from last 1 year in project
devops enginner
Client Machine 1
Client Machine 2



can u c problem all this we cont install on all users desktop

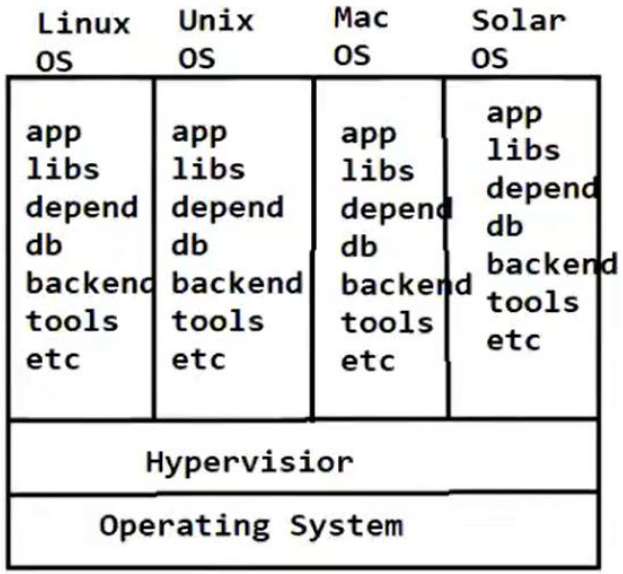

Text Tools
Untitled - Paint
File
Home
View
Text
Paste
Cut
Copy
Consolas
16
Opaque
Transparent
Color 1
Color 2
Edit colors
Edit with Paint 3D
Clipboard
Font
Background
Colors
windows
java 1.8v
mysql 5.6v
tomcat 9.0
kafka & redis
Machine-1
linux
java 1.8v
mysql 5.6v
tomcat 9.0
kafka & redis
Machine-2
unix
java 1.8v
mysql 5.6v
tomcat 9.0
kafka & redis
Machine-3
mac os
java 1.8v
mysql 5.6v
tomcat 9.0
kafka & redis
Machine-4
solar
java 1.8v
mysql 5.6v
tomcat 9.0
kafka & redis
Machine-5
solution vertulization
=> Setting up the environment in every computer is challenging task & error prone
=> To avoid this problem people came up with Virtualization concept

Untitled - Paint

File Home View

Paste Cut Copy Select Crop Resize Rotate Brushes Outline Fill Size Color 1 Color 2 Edit colors Edit with Paint 3D

Clipboard Image Tools Shapes Colors

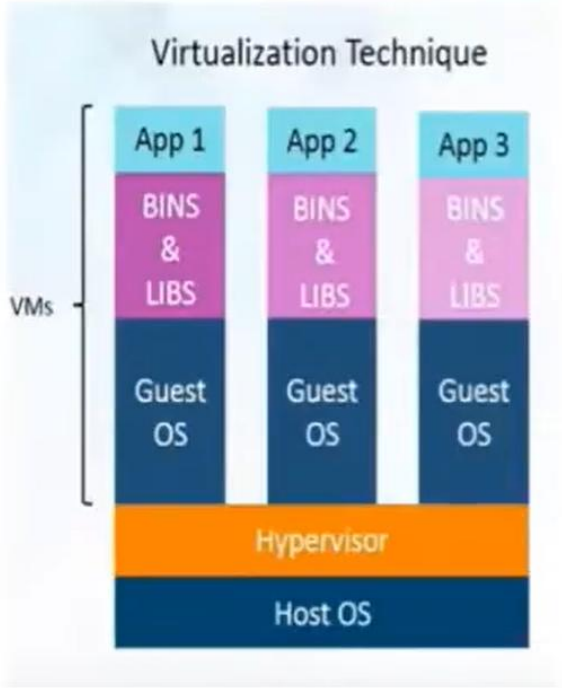


to run my project on multiple operating systems i use virtulization

736, 1844px 1341 × 9999px 100%

Type here to search Desktop 28°C ENG 10:16 05-12-2021

Virtualization



Advantages

- Multiple OS In Same Machine
- Easy Maintenance & Recovery
- Lower Total Cost Of Ownership

Disadvantages

- Multiple VMs Lead To Unstable Performance
- Hypervisors Are Not As Efficient As Host OS
- Long Boot-Up Process (Approx. 1 Minute)

the reason y u cont use vitulization

=> In order to develop/run the application we have to setup infrastructure

=> Setting up infrastructure is challengins task & error prone

=> To simplify infrastructure we used to follow Virtualization concept

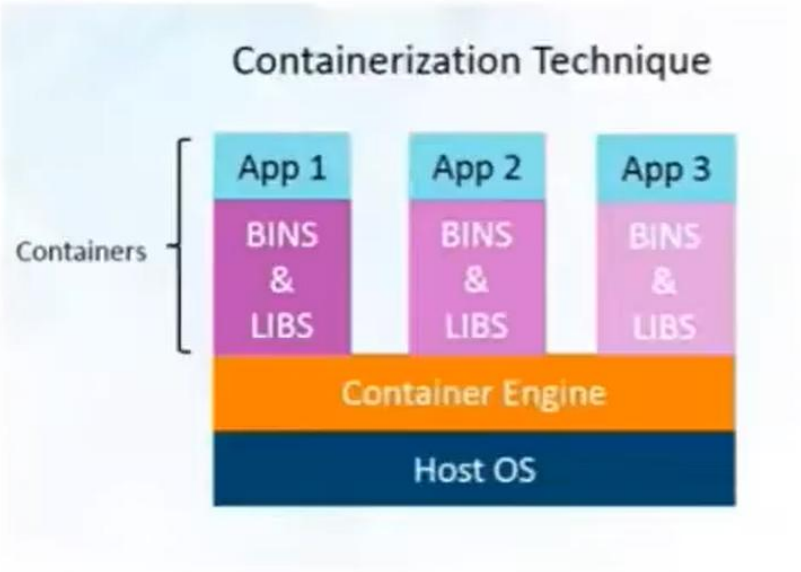
=> With Virtualization support we can install Guest OS in Host OS
(Installing Linux OS in Windows OS using Hyper V)

=> With VM concept our machine will become unstable

=> Performance of the machine will become slow if we use VM concept

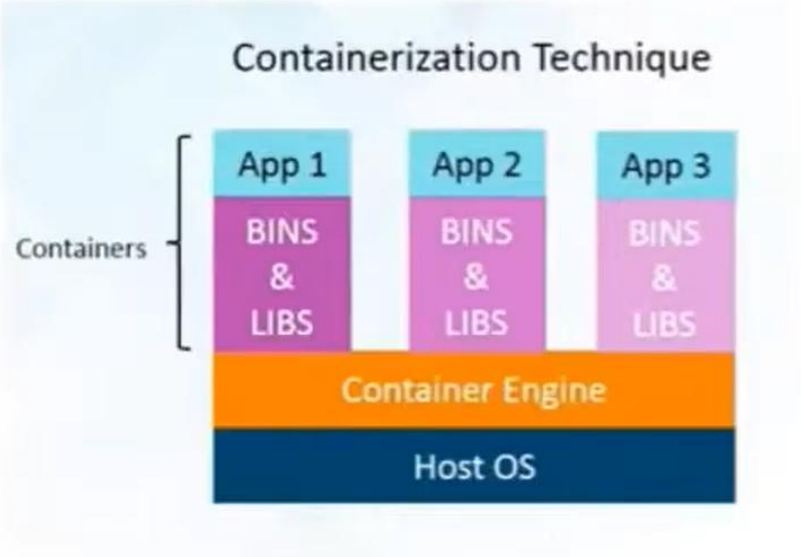
=> To avoid prblems of Virtualizaiton concept Containerization concept came into Picture

Containerization



no need to install multiple operating sysytem only one operatingsysytem needed
use container
with windows-linex mac etc

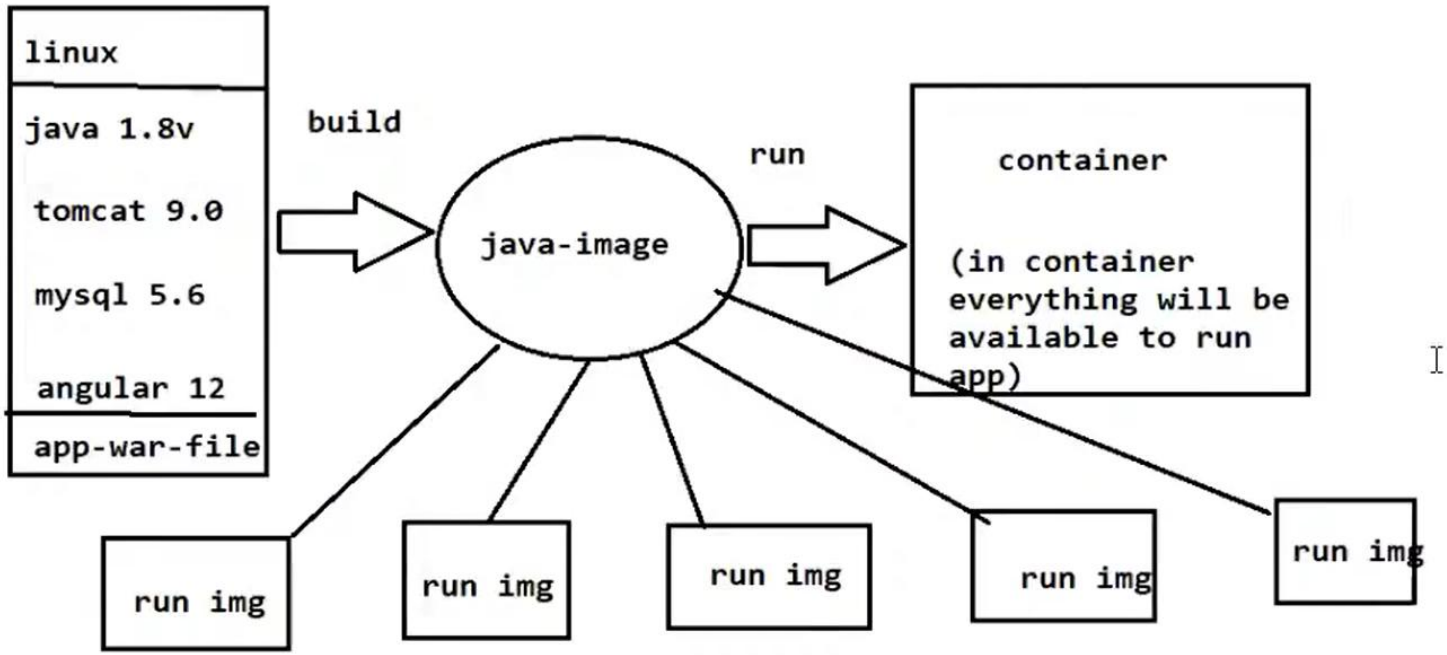
Containerization



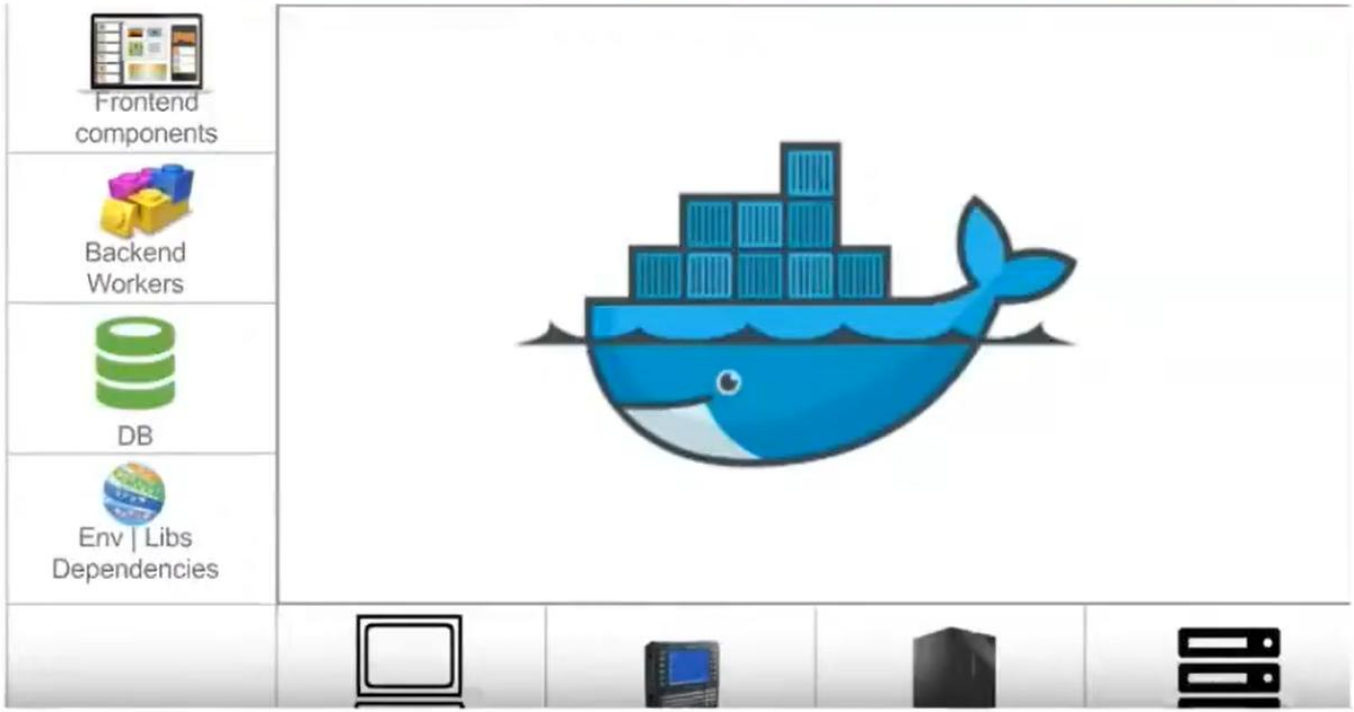
Advantages Over Virtualization

- Containers On Same OS Kernel Are Lighter & Smaller
- Better Resource Utilization Compared To VMs
- Short Boot-Up Process ($1/20^{th}$ of a second)

now what ever u want u
create one image and
run on container

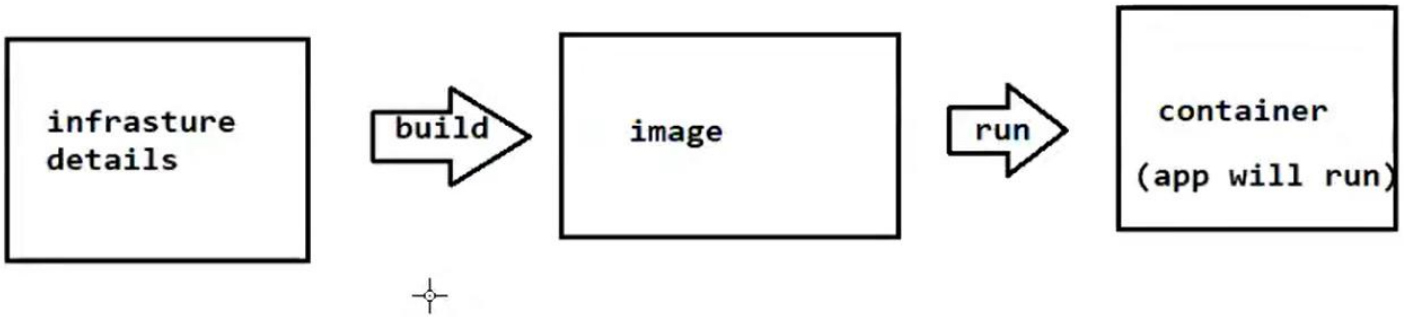


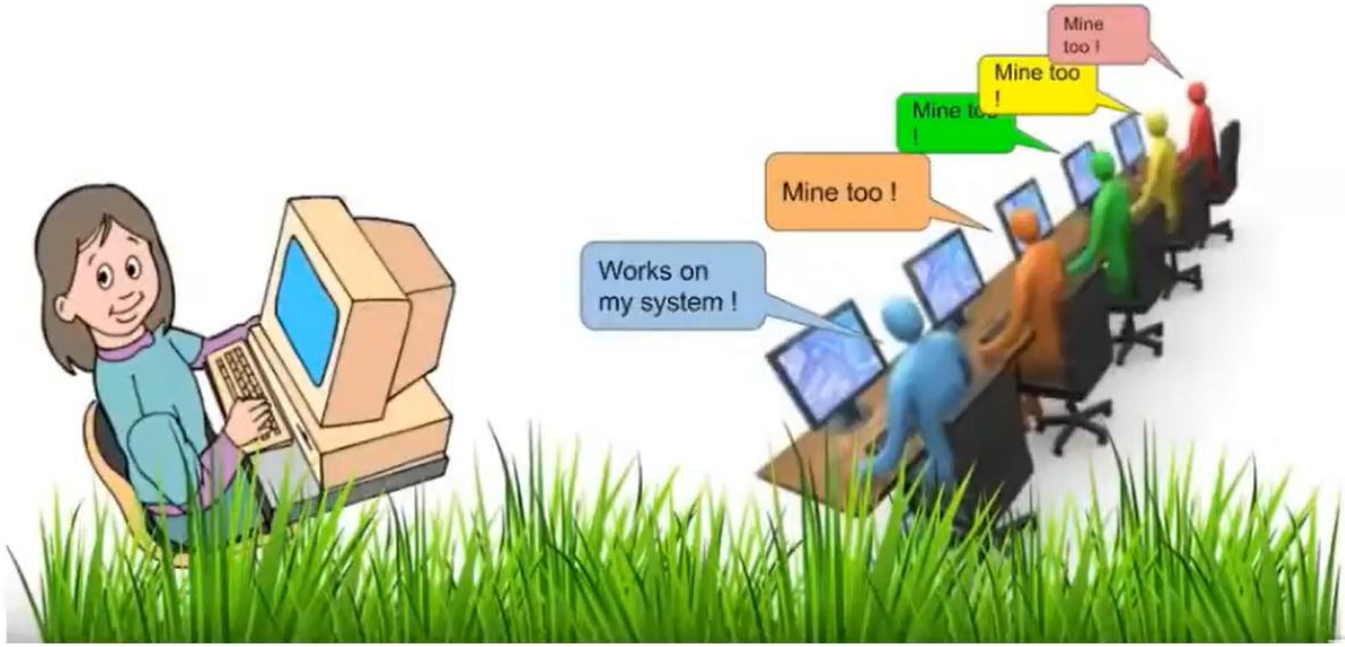
Containerization



generally it takes 8hours
to setup the project
but if we use containers
only one munite

all linex java html css etc




Mine too !
Mine too !
Mine too !
Mine too !
Works on my system !

What is Docker ?

- Docker is a platform for packaging, deploying, and running applications
- Docker enables you to separate your applications from your infrastructure so you can deliver software quickly
- Docker packages software into standardized units called containers that have everything the software needs to run including libraries, system tools, code, and runtime
- By taking advantage of Docker's methodologies for shipping, testing, and deploying code quickly, you can significantly reduce the delay between writing code and running it in production

Docker Architecture