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Assignment 08

AIM: To build an image for sample web application using Dockerfile.

LO1: To understand the fundamentals of DevOps engineering and be fully proficient with DevOps terminologies, concepts, benefits, and deployment options to meet your business requirements.

LO5: To understand the concept of containerization and analyze the containerization of OS images and deployment of applications over Docker.

THEORY:

Docker is a popular platform for developing, shipping, and running applications in containers. Containers are lightweight, portable, and self-sufficient environments that contain all the necessary components to run an application, including the code, runtime, libraries, and dependencies. Docker provides a way to package applications and their dependencies into a standardized format, making it easier to deploy and manage software across different environments, such as development, testing, and production.

1. **Docker Images:** Docker images are read-only templates that contain an application's code, runtime, libraries, and dependencies. Images are used as a basis for creating containers. Images can be built from Dockerfiles, which are plain text files containing instructions for building an image layer by layer.
2. **Docker Containers:** Containers are instances of Docker images that run in isolated environments on the host system. Each container has its own filesystem, processes, networking, and resource constraints. Containers are lightweight, fast to start, and can be easily moved between different Docker hosts.

LIFECYCLE OF A CONTAINER

Creating a Container: To create a Docker container, you typically start with a Docker image. You can use a pre-built image from a registry or build your own using a Dockerfile. The Docker image is essentially a snapshot of a container's filesystem and configuration.

Running a Container: To run a container, you use the docker run command, specifying the image and any additional options or configurations.

When you run a container, Docker: Allocates resources (CPU, memory, etc.) as per your specifications. Creates a unique instance of the container from the image. Starts the container's processes.

Container Execution: The container executes the processes defined in its image. These processes can be your application, services, or any command specified in the Dockerfile or provided when starting the container.

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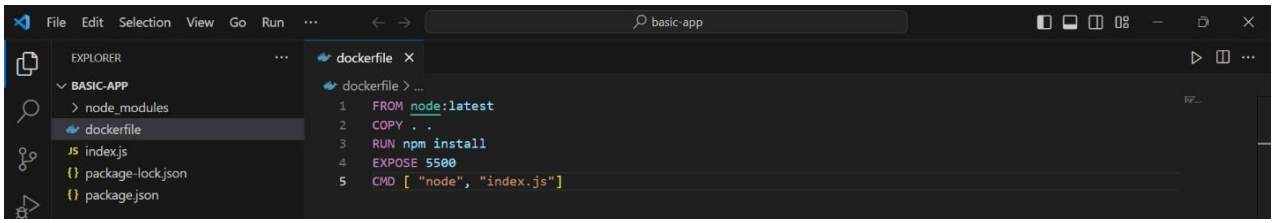
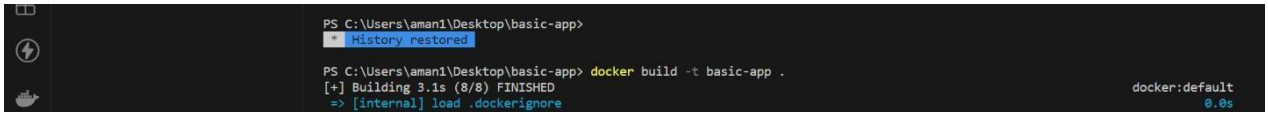
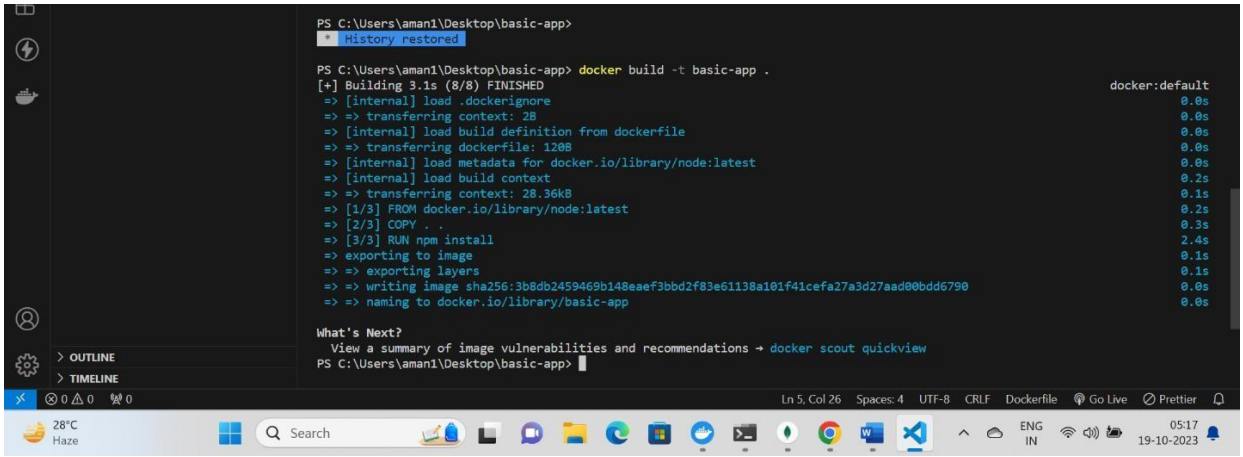
1. Creating image for simple node application



2. Creating an image in the docker through command line



3. Final building process in the docker image application



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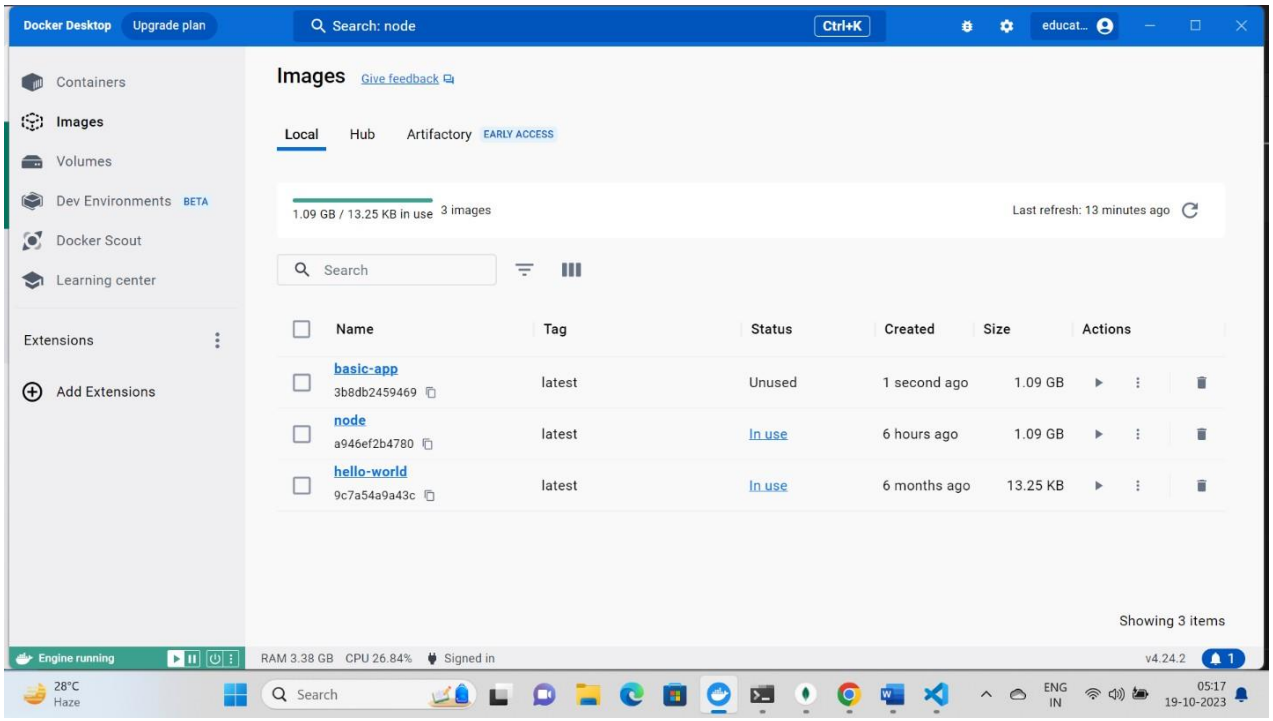

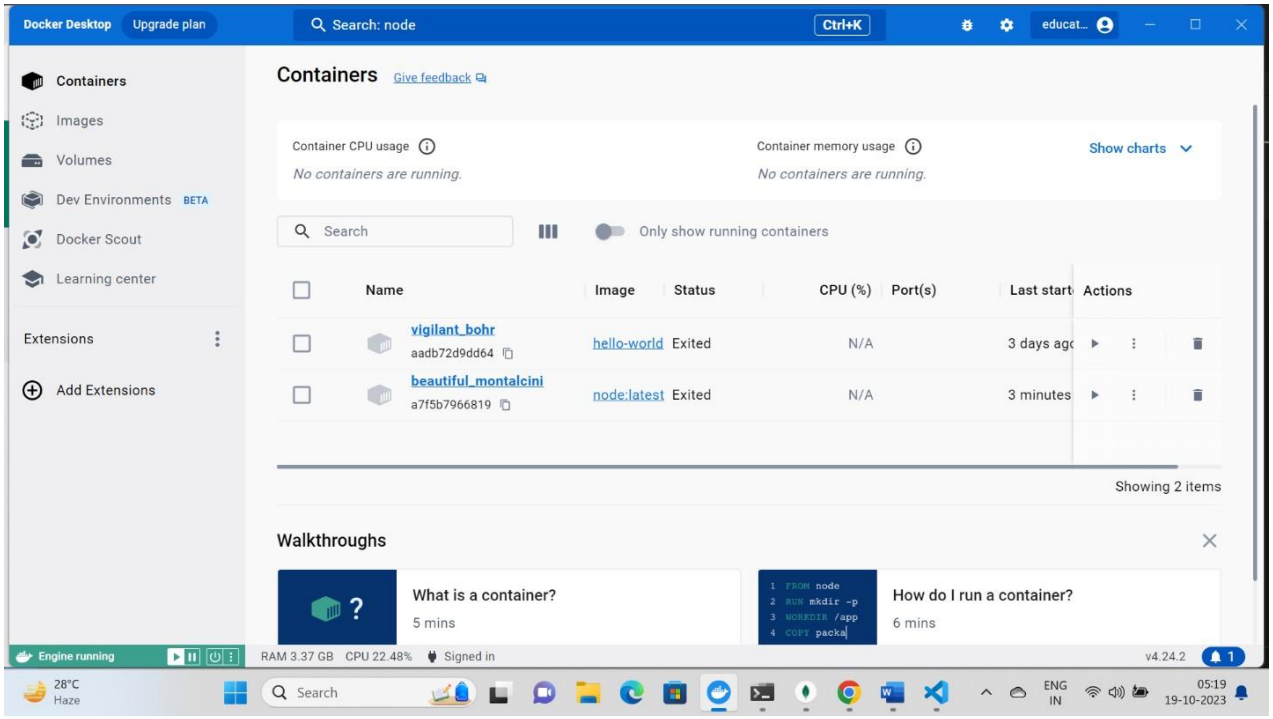

CONCLUSION:

Here, we have studied about building of docker image for application.