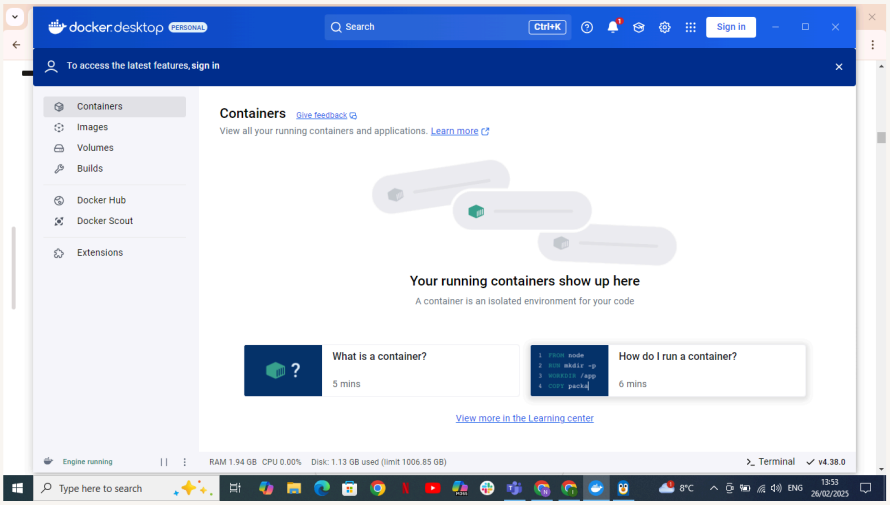
nextwork.org

Containers on Elastic Beanstalk

Negbe Pierre



Negbe Pierre
NextWork Student

Introducing Today's Project!

What is Docker?

Docker is a tool that allows applications to run in isolated environments called containers. In today's project, I used Docker to build a custom container image, run it locally, and deploy it to AWS Elastic Beanstalk, making my app accessible online

One thing I didn't expect...

One thing I didn't expect in this project was running into port allocation issues when starting my container. Debugging and fixing it taught me more about Docker networking.

This project took me...

100 minutes

Negbe Pierre
NextWork Student

Understanding Containers and Docker

Containers

Containers are lightweight, portable, and self-sufficient units that package applications with their dependencies. They are useful because they ensure consistency across environments, making deployment and scaling more efficient.

A container image is a lightweight, standalone, and executable package that includes everything needed to run a containerized application—code, runtime, libraries, and dependencies. It ensures consistency across multiple environments.

Docker

Docker is a platform that allows developers to build, ship, and run applications in containers. Docker Desktop is a GUI-based tool that provides a local development environment to easily create, manage, and test containers on a PC or Mac.

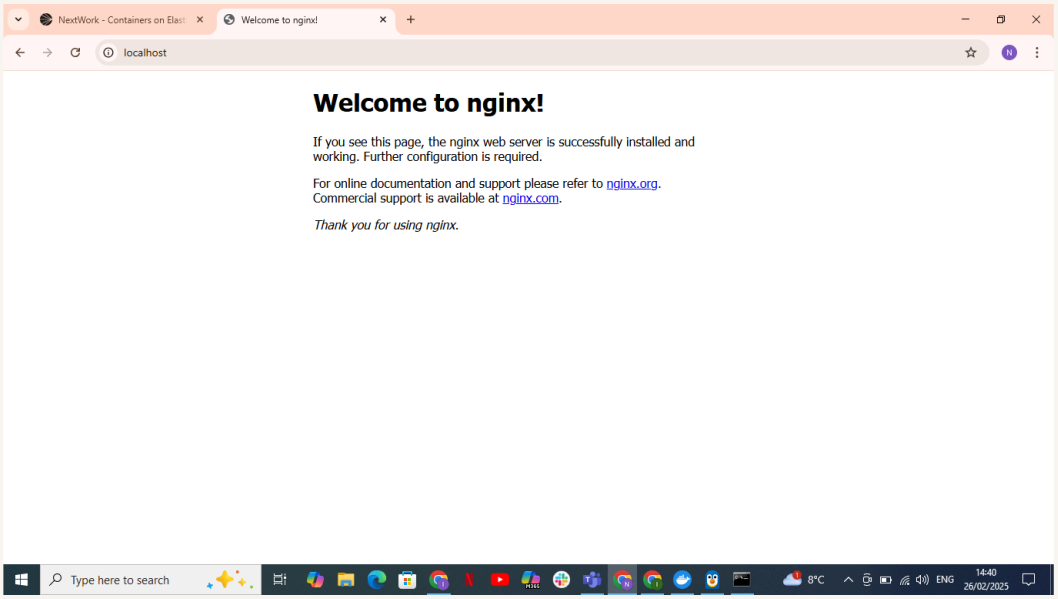
The Docker daemon is a background service that manages Docker containers on a system. It listens for API requests, handles container creation, execution, and networking, and communicates with the Docker CLI to automate containerized workflows

Negbe Pierre
NextWork Student

Running an Nginx Image

Nginx is a high-performance, open-source web server and reverse proxy known for its speed, scalability, and reliability. It efficiently handles static content, load balancing, and caching, making it ideal for web applications and microservices.

The command I ran to start a new container was docker run -d -p 80:80 nginx. This runs an Nginx container in detached mode, mapping port 80 of the container to port 80 on the host, making it accessible via a web browser.



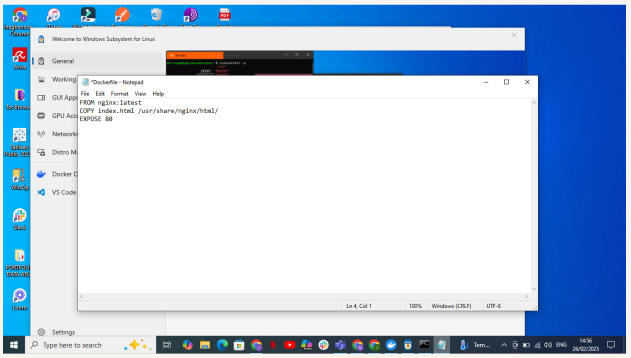
Negbe Pierre
NextWork Student

Creating a Custom Image

The Dockerfile is a set of instructions that define how to build a custom container image. It starts with FROM nginx:latest, copies index.html into the Nginx web server directory, and exposes port 80.

My Dockerfile tells Docker three things: use the latest Nginx image as a base (FROM nginx:latest), replace the default web page with index.html (COPY index.html /usr/share/nginx/html/), and expose port 80 (EXPOSE 80) for web traffic

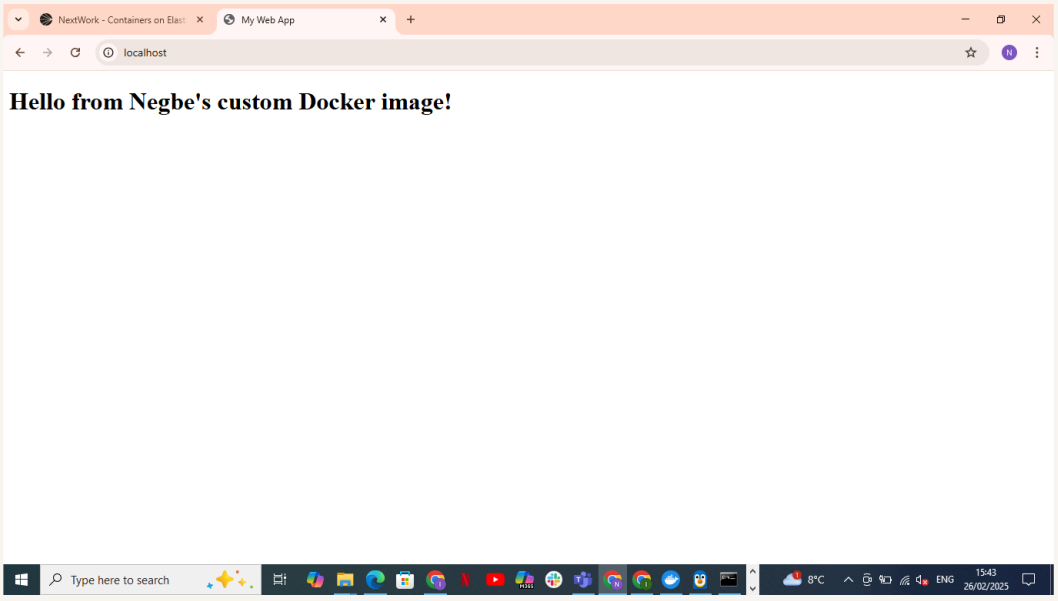
The command I used to build a custom image with my Dockerfile was docker build -t my-web-app . The . at the end of the command means Docker should look for the Dockerfile in the current directory and use it to build the image



Running My Custom Image

There was an error when I ran my custom image because port 80 was already in use. I resolved this by checking running containers with docker ps, stopping the conflicting container, and restarting my container on a different port using docker run -d -

In this example, the container image is the blueprint that tells Docker the application code, dependencies, libraries, etc., that should go into a container. The container is the actual software created from this image, running the web server display

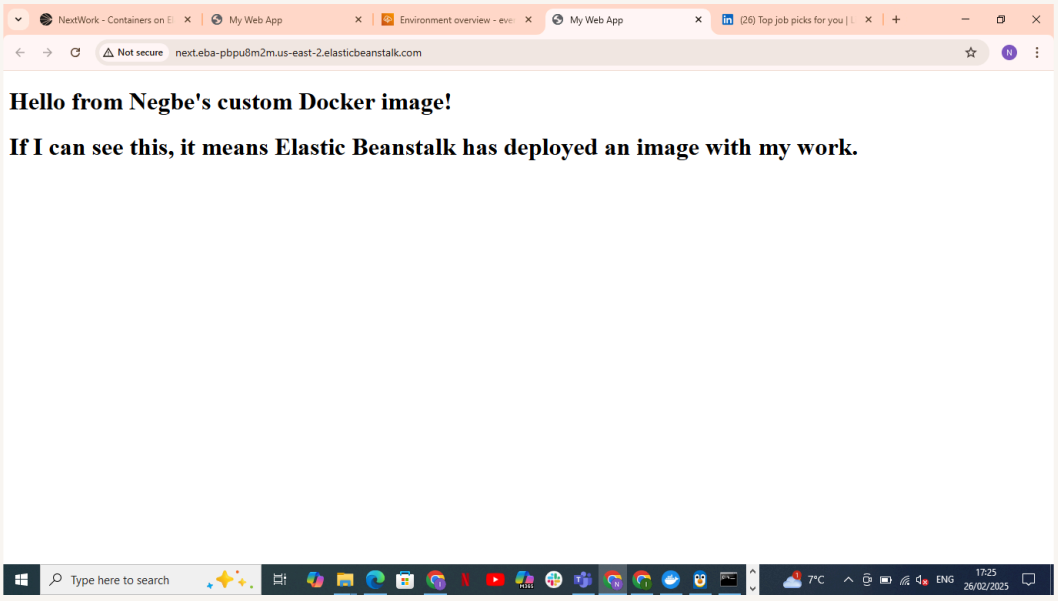


Negbe Pierre
NextWork Student

Elastic Beanstalk

Elastic Beanstalk is an AWS service that simplifies deploying, managing, and scaling applications. It supports multiple languages and automatically handles infrastructure, load balancing, and scaling, letting developers focus on writing code

Deploying my custom image with Elastic Beanstalk took me around 5 minutes. The process involved uploading my Docker ZIP file, waiting for AWS to provision resources, and verifying my live application URL. Now my app is accessible online!



NextWork.org

Everyone should be in a job they love.

Check out nextwork.org for more projects