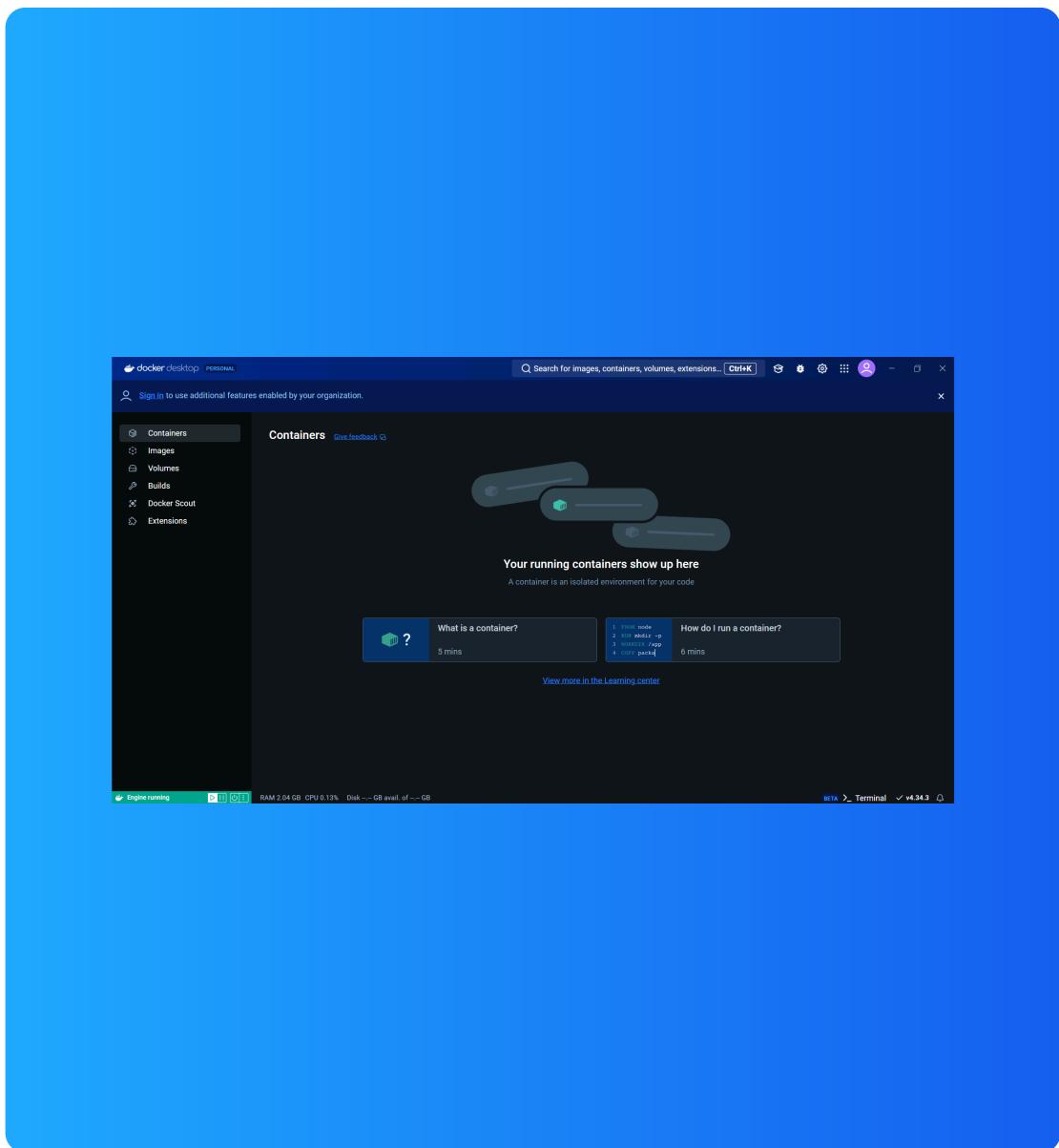




# Containers on Elastic Beanstalk



Karen Hanson





# Introducing Today's Project!

## What is Docker?

Docker is a platform for creating, deploying, and managing containerized applications. In today's project, I used Docker to build and test a custom image for my web app, then deployed it to AWS Elastic Beanstalk, enabling my application to run.

## One thing I didn't expect...

One thing I didn't expect in this project was how straightforward Elastic Beanstalk made deploying a Docker container to the cloud. I anticipated more complex configuration, but the platform handled much of the setup.

## This project took me...

This project took me approximately 1 to 2 hours. This included building the Docker image, testing it locally, setting up Elastic Beanstalk, and waiting for the deployment process to complete.



# Understanding Containers and Docker

## Containers

Containers are lightweight, standalone, and executable units of software that package an application and its dependencies together, ensuring that it runs consistently across different computing environments.

A container image is a lightweight, standalone, and executable package that includes everything needed to run a software application, including the code, runtime, libraries, and dependencies.

## Docker

Docker is a platform for building, running, and managing containerized applications consistently across environments. It is a local application for Windows and macOS that includes tools for easily managing Docker containers, images, and workflows.

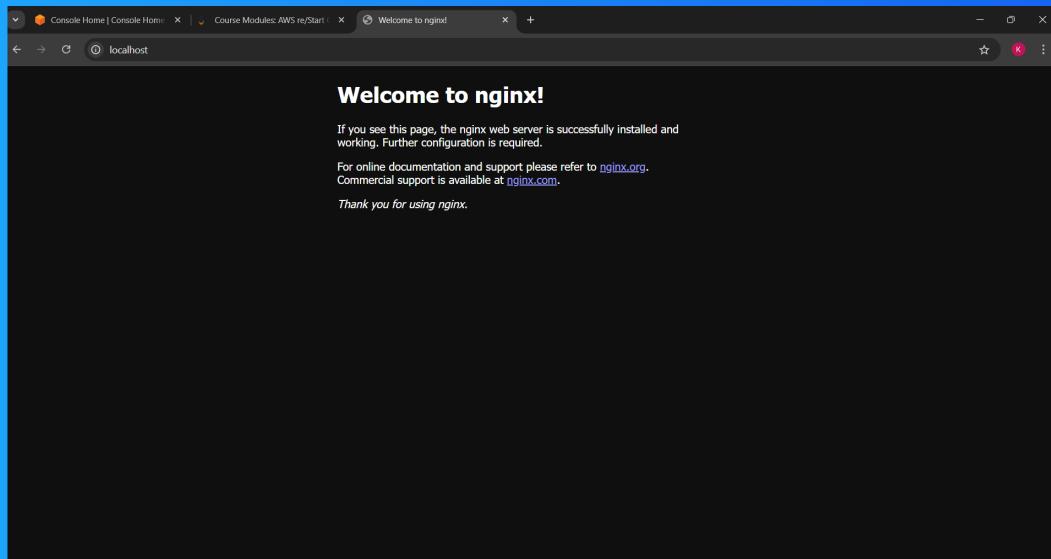
The Docker daemon is a background service that runs on the host machine and is responsible for managing Docker containers, images, networks, and volumes. It listens for Docker API requests and processes container operations.



# Running an Nginx Image

Nginx is a high-performance web server and reverse proxy server that is widely used to handle web traffic efficiently. Known for its speed and low resource usage, Nginx can serve static content, manage load balancing, and act as a proxy for HTTP etc.

The command I ran to start a new container was `docker run`, where I specified the options needed, such as `-d` to run the container in detached mode or `-p` to map ports, followed by the name of the image I wanted to use. Eg. docker run -d - -p 80:80 nginx

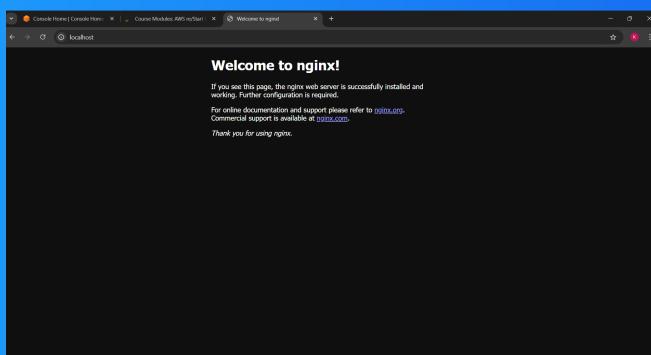


# Creating a Custom Image

The Dockerfile is a text file that contains a series of instructions and commands used to build a Docker container image. It specifies the base image to use, the software dependencies needed, environment variables, file copies, and commands to run

My Dockerfile tells Docker three things: `FROM nginx:latest` sets the base image to the latest version of Nginx, `COPY index.html /usr/share/nginx/html/` includes my custom HTML file in the container, and `EXPOSE 80` tells the container listens on port 80

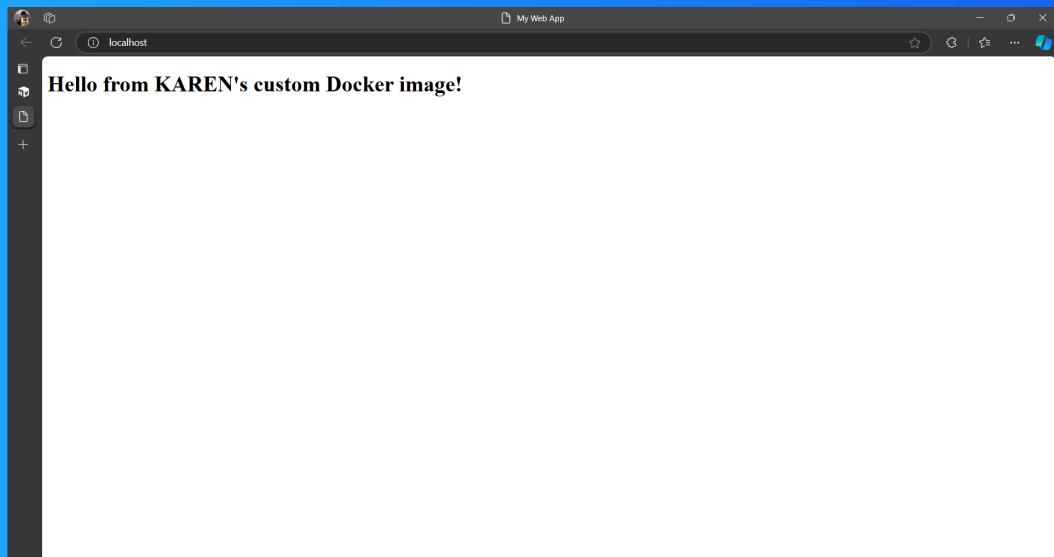
The command I used to build a custom image with my Dockerfile was `docker build -t my-web-app .`. The `-t my-web-app` flag tags the image with the name "my-web-app," making it easier to reference later.



# Running My Custom Image

There was an error when I ran my custom image because Docker was unable to bind to port 80 on my host machine, indicating that the port was already in use by another application. I resolved this by checking which service was using port 80.

In this example, the container image is the packaged file containing all the code, libraries, and dependencies needed to run my web application, built from my Dockerfile. The container is the running instance of that image, providing an isolated place

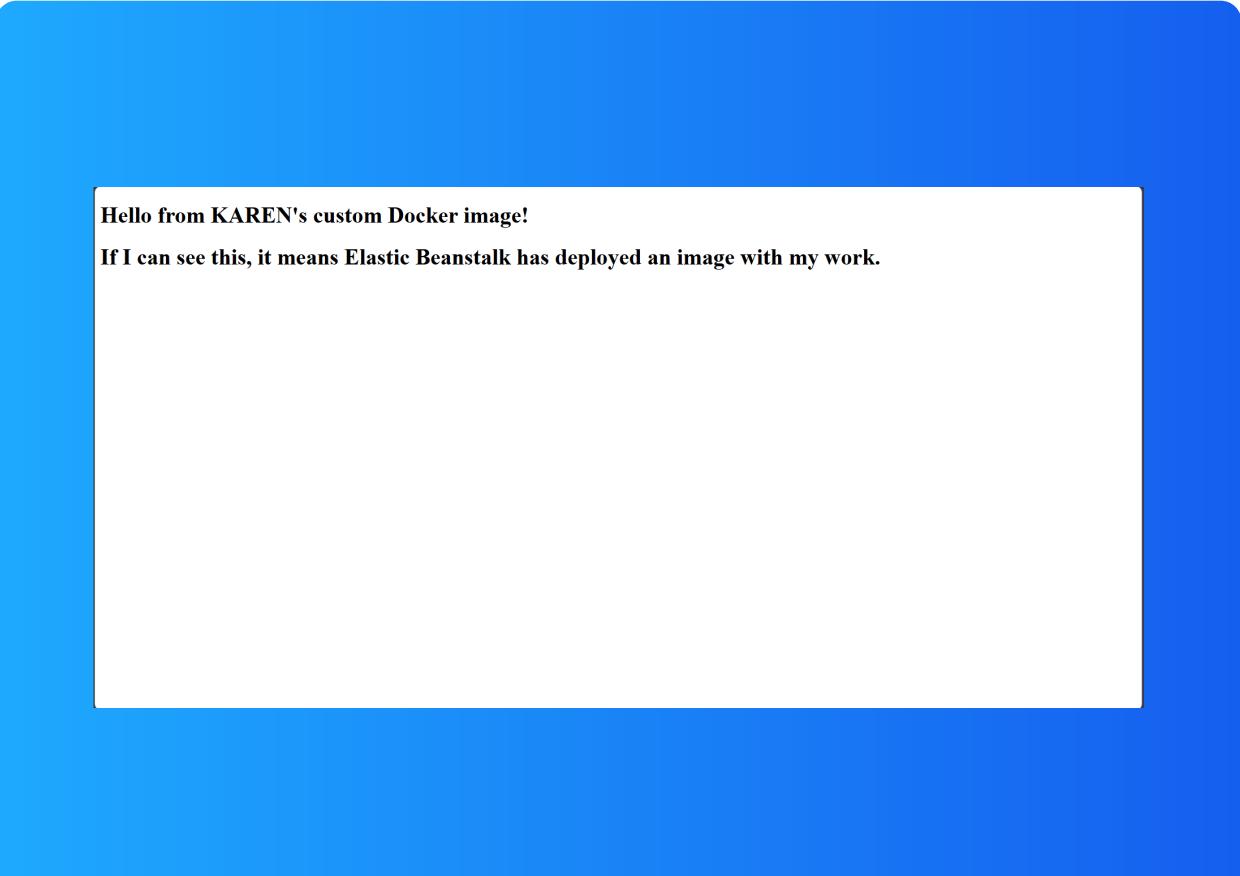




# Elastic Beanstalk

Elastic Beanstalk is a fully managed platform-as-a-service (PaaS) by AWS that simplifies application deployment and management. It allows developers to deploy applications in various languages and frameworks while automatically handling tasks.

Deploying my custom image with Elastic Beanstalk took me approximately 10 to 15 minutes. This time included creating the application and environment, uploading the image, and waiting for Elastic Beanstalk to provision the necessary resources.



Hello from KAREN's custom Docker image!  
If I can see this, it means Elastic Beanstalk has deployed an image with my work.



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