**3. Implementing Docker on Cloud Platforms**

b. Document the steps to install Docker on EC2 instances in AWS, Azure VMs, and GCP instances.

1. Installing Docker on AWS EC2 Instance (Amazon Linux 2 / Ubuntu)

Step 1: Connect to Your EC2 Instance

Step 2: Update Packages

Step 3: Install Docker

Step 4: Start and Enable Docker Service

Step 5: Add User to Docker Group

Step 6: Verify Docker Installation

2. Installing Docker on Azure Virtual Machine (Ubuntu / CentOS)

Step 1: Connect to Your Azure VM

Step 2: Update System Packages

Step 3: Install Docker

Step 4: Start and Enable Docker Service

Step 5: Add User to Docker Group

Step 6: Verify Docker Installation

3. Installing Docker on Google Cloud Platform (GCP) Compute Instance (Debian / Ubuntu / CentOS)

Step 1: Connect to Your GCP Instance

Step 2: Update Packages

Step 3: Install Docker

Step 4: Start and Enable Docker Service

Step 5: Add User to Docker Group

Step 6: Verify Docker Installation

c. Create a sample Dockerfile that sets up a basic web server (e.g., NGINX) and save it as “Dockerfile.”

FROM nginx:latest

# Set the working directory

WORKDIR /usr/share/nginx/html

# Copy custom index.html to the container

COPY index.html /usr/share/nginx/html/index.html

# Expose port 80 to allow external connections

EXPOSE 80

# Start NGINX when the container launches

CMD ["nginx", "-g", "daemon off;"]

d. Include instructions on how to build and run the Docker container from the Dockerfile.

Building and Running a Docker Container from a Dockerfile

1. Ensure Docker is Installed  
   If you haven't installed Docker, download and install it from Docker’s official website.
2. Navigate to the Directory  
   Open a terminal or command prompt and navigate to the directory where your Dockerfile is located.

cd /path/to/your/dockerfile

1. Build the Docker Image

docker build -t my-image-name .

1. Run the Docker Container

docker run -d -p 8080:80 --name my-container-name my-image-name

1. Verify the Running Container

docker ps

1. Stopping and Removing the Container

docker rm my-container-name

1. Remove the Docker Image

docker rmi my-image-name