**Question 1**

1. **What is Docker, and why is it used?**  
   Docker is an open-source platform that enables developers to build, deploy, and manage applications in lightweight, portable containers. These containers package an application and its dependencies, ensuring consistency across environments.  
     
   **Why it's used:**
   * Simplifies application deployment.
   * Ensures consistent environments (e.g., avoids "works on my machine" issues).
   * Supports scalability and microservices architectures.
2. **Difference between a Docker image and a Docker container:**
   * **Docker Image:** A read-only blueprint that contains the application and all its dependencies. It's a template used to create containers.
   * **Docker Container:** A runtime instance of a Docker image. It's the execution environment for the application. Containers can be started, stopped, and modified while images remain static.
3. **Benefits of using Docker in software development:**
   * Portability: Works uniformly across different environments.
   * Efficient resource usage: Lightweight compared to virtual machines.
   * Rapid deployment: Speeds up development and deployment processes.
   * Isolation: Ensures applications run in separate environments without conflicts.

**Question 2**

**Task 1: Pull and Run a Container**

1. **Pull the official Nginx image:** docker pull nginx
2. **Run a container named my-nginx:** docker run --name my-nginx -p 8080:80 -d nginx
3. **Verify Nginx is running:**  
   Open browser and browse the URL: http://localhost:8080

**Task 2: Inspect and Stop the Container**

1. **Inspect the container’s details:**
   * **IP Address:** docker inspect my-nginx | Select-String "IPAddress"
   * **Mount points:** docker inspect my-nginx | Select-String "Mounts"
2. **Stop and remove the container:**For **stop** => docker stop my-nginx

For **remove** => docker rm my-nginx

**Question 3**

**Task 3: Create a Custom Image**

1. **Set up the folder structure:**  
   mkdir my-app  
    cd my-app

Create the following two files:

* + Dockerfile
  + index.html

1. **Content of index.html:**

html

Copy code

<html>

<body>

<h1>Welcome to My Custom Docker Container!</h1>

</body>

</html>

1. **Content of Dockerfile:**

dockerfile

FROM nginx:latest

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

1. **Build the image with the name custom-nginx:**

docker build -t custom-nginx .

1. **Run a container from the custom image:**

docker run --name custom-nginx-container -p 8081:80 -d custom-nginx

1. **Verify the container is running:**  
   Open browser and navigate to: http://localhost:8081