Part 3 Solution

1. **List running containers:**
   docker ps
2. **Stop all running containers:**
   docker stop $(docker ps -q)
3. **Remove all containers:**
   docker rm $(docker ps -aq)

Step 2: Add Prometheus Configuration

We will add a Prometheus container (prom/prometheus:v2.45.2) to the docker-compose.yaml file and configure it to scrape metrics from the application.

Modify docker-compose.yaml

1. *Locate the docker-compose.yaml file from Part II.*

Add the following Prometheus service configuration:
version: '3.8'

```
services:
  application:
    image: <application-image>
    ports:
      - "<port>:<port>"
    environment:
      - METRICS_PORT=<port>
```

```
prometheus:
  image: prom/prometheus:v2.45.2
  ports:
    - "9090:9090"
  volumes:
```

2.   -
   ./prometheus.yml:/etc/prometheus/prometheus.yml
   Replace <application-image> with your application's
   Docker image and <port> with the port from Part I.5.

Create Prometheus Configuration File

1. Create a new file called prometheus.yml in the same
   directory as docker-compose.yaml.

Add the following content to the file:

```
global:
  scrape_interval: 15s

scrape_configs:
  - job_name: 'application'
    static_configs:
```

2.   - targets: ['application:<port>']
   Replace <port> with the same port as defined above.

Step 3: Start the Docker Compose Environment

Run the docker-compose command to bring up all services.

```
docker-compose up -d
```

Step 4: Verify Prometheus Access

To confirm that Prometheus is accessible, follow these steps:

1. Open a browser.
2. Navigate to http://localhost:9090.
3. Ensure the Prometheus UI loads successfully.

Step 5: Query Metrics in Prometheus

To verify the metric csvserver_records is being scraped and shows the expected value:

1. In the Prometheus UI, go to the **Query** tab.
2. Type the query csvserver_records in the query box.
3. Click on **Execute**.
4. Switch to the **Graph** tab.
5. Adjust the time range to the last 5 minutes.

You should see a straight-line graph with a value of 7.

Step 6: Troubleshooting

If the graph or metric does not appear as expected:

1. **Check Prometheus logs:**
   docker logs $(docker ps -qf "ancestor=prom/Prometheus:v2.45.2")
2. **Ensure the application's /metrics endpoint is working:** Access http://localhost:<port>/metrics in a browser or using curl:
   curl http://localhost:<port>/metrics
   Replace <port> with the application port.

3. *Verify the Prometheus configuration:* Confirm that the `prometheus.yml` file contains the correct `target` values.
4. *Restart the environment:*