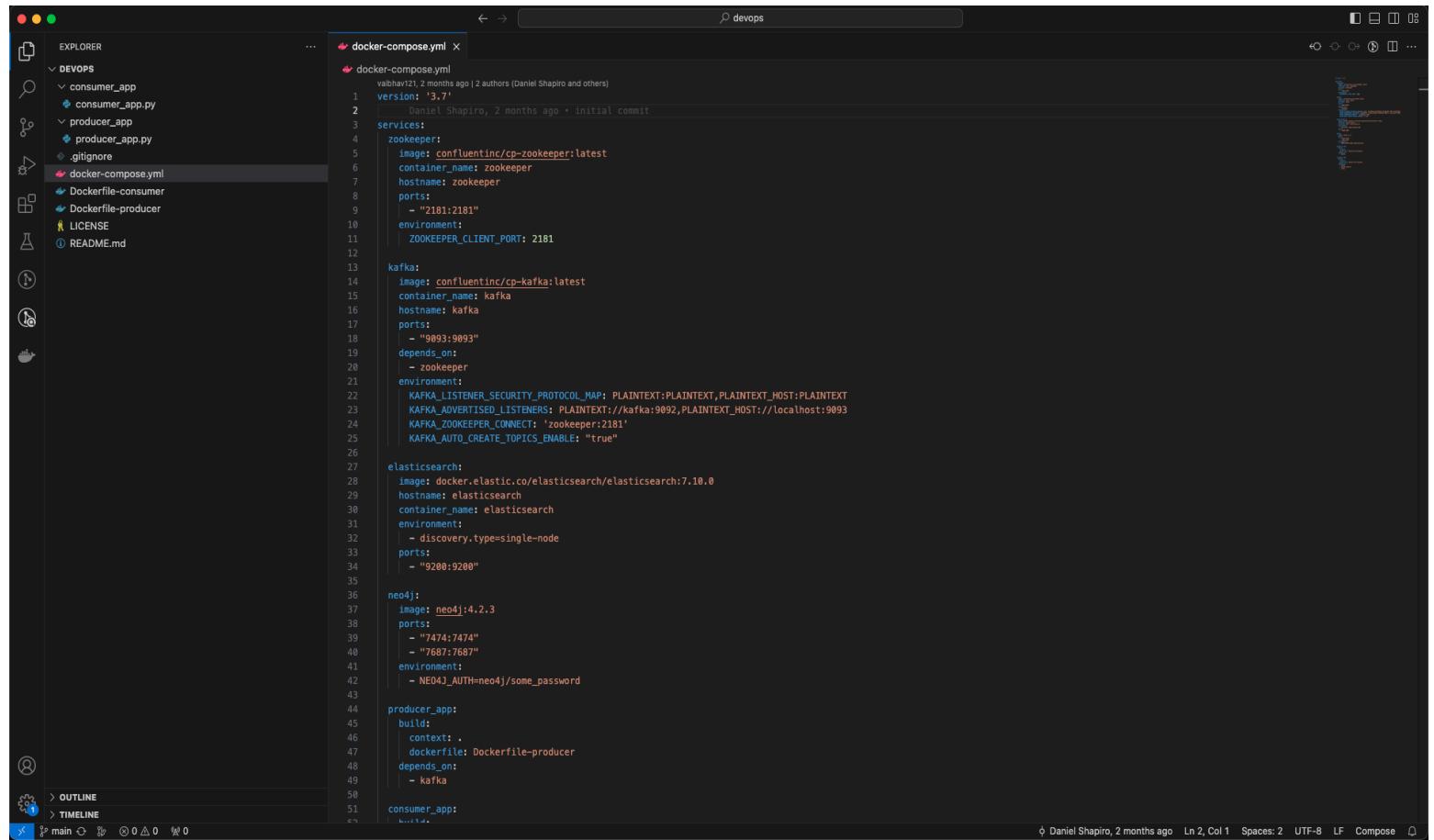


Harsh Gandhi's Assessment task

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1. Clone the code - working on a fork branch



A screenshot of a terminal window titled "devops" showing a Docker Compose file named "docker-compose.yml". The file defines several services: zookeeper, kafka, elasticsearch, neo4j, producer_app, and consumer_app. The "zookeeper" service uses the "confluentinc/cp-zookeeper" image, while "kafka" uses "confluentinc/cp-kafka". "elasticsearch" and "neo4j" also have their own specific configurations. The "producer_app" service is built from "Dockerfile-producer" and depends on "kafka". The "consumer_app" service depends on both "zookeeper" and "kafka". The file is 51 lines long and was last modified by Daniel Shapiro 2 months ago.

```
version: '3.7'
services:
  zookeeper:
    image: confluentinc/cp-zookeeper:latest
    container_name: zookeeper
    hostname: zookeeper
    ports:
      - "2181:2181"
    environment:
      ZOOKEEPER_CLIENT_PORT: 2181
  kafka:
    image: confluentinc/cp-kafka:latest
    container_name: kafka
    hostname: kafka
    ports:
      - "9093:9093"
    depends_on:
      - zookeeper
    environment:
      KAFKA_LISTENER_SECURITY_PROTOCOL_MAP: PLAINTEXT:PLAINTEXT,PLAINTEXT_HOST:PLAINTEXT
      KAFKA_ADVERTISED_LISTENERS: PLAINTEXT://kafka:9092,PLAINTEXT_HOST://localhost:9093
      KAFKA_ZOOKEEPER_CONNECT: 'zookeeper:2181'
      KAFKA_AUTO_CREATE_TOPICS_ENABLE: "true"
  elasticsearch:
    image: docker.elastic.co/elasticsearch/elasticsearch:7.10.0
    hostname: elasticsearch
    container_name: elasticsearch
    environment:
      - discovery.type=single-node
    ports:
      - "9200:9200"
  neo4j:
    image: neo4j:4.2.3
    ports:
      - "7474:7474"
      - "7687:7687"
    environment:
      - NEO4J_AUTH=neo4j/some_password
  producer_app:
    build:
      context: .
      dockerfile: Dockerfile-producer
    depends_on:
      - kafka
  consumer_app:
    depends_on:
      - kafka
      - zookeeper
```

2.Run the code - docker compose build & up

```
[+] Building 22.0s (8/14)
[+] Building 22.1s (11/14)
=> => transferring context: 2B
[+] Building 22.2s (11/15)
[+] Building 23.8s (16/16) FINISHED
=> [consumer_app internal] load build definition from Dockerfile-consumer
=> => transferring dockerfile: 436B
=> [consumer_app internal] load .dockerignore
=> => transferring context: 2B
=> [producer_app internal] load .dockerignore
=> => transferring context: 2B
=> [producer_app internal] load build definition from Dockerfile-producer
=> => transferring dockerfile: 445B
=> [producer_app internal] load metadata for docker.io/library/python:3.8-slim
=> [producer_app 1/4] FROM docker.io/library/python:3.8-slim
=> => resolve docker.io/library/python:3.8-slim@sha256:9187d27fd8f222a181292f24f8e7d6b22419d46bd9cc4506adbd2dcfae68a56
=> => sha256:475fb7b7896d093728c88af0983d8f9eca42b0f6f932fe8c231a49131c01af 6.97kB / 6.97kB
=> => sha256:578acb15483969d0034432e8f53756d4f53ba62fc8744cd7914e74897c47 3.51MB / 3.51MB
=> => sha256:108bb96a032709b460fd78ddab0c300e22d3c8eb4c854eb7d2cae46a8430ad 13.75MB / 13.75MB
=> => sha256:9187d27fd8f222a181292f24f8e7d6b22419d46bd9cc4506adbd2dcfae68a56 1.86kB / 1.86kB
=> => sha256:6d7af5932b309e2d36def659a2678439985da369c4950bae491e4e1a339d1a75 1.37kB / 1.37kB
=> => sha256:2b7e5fb1b5877c9fd2a86121673a114e615247058e10a099e700c1b5a7152c73f 245B / 245B
=> => sha256:195da115a4ff5b44e2bd7d22eb7b9730e6bd3fc5c54d699a15cc5b1e0cbaaa4 3.14MB / 3.14MB
=> => extracting sha256:578acb154839e0d0034432e8f53756d6f53ba62fc8744cd7914e74897c47
=> => extracting sha256:ac65017fc5699a3ab0e5d6e11c321fc0c664fd6b4c8744cd7914e74897c47
=> => extracting sha256:108bb96a032709b460fd78ddab0c300e22d3c8eb4c854eb7d2cae46a8430ad
=> => extracting sha256:2b7e5fb1b5877c9fd2a86121673a114e615247058e10a099e700c1b5a7152c73f
=> => extracting sha256:195da115a4ff5b44e2bd7d22eb7b9730e6bd3fc5c54d699a15cc5b1e0cbaaa4
=> [producer_app internal] load build context
=> => transferring context: 1.14kB
=> [consumer_app internal] load build context
=> => transferring context: 2.77kB
=> [consumer_app 2/4] RUN pip install kafka-python elasticsearch==7.10.0 neo4j
=> [producer_app 2/4] RUN pip install kafka-python elasticsearch neo4j confluent-kafka
=> [consumer_app 3/4] COPY ./consumer_app /app
=> [consumer_app 4/4] WORKDIR /app
=> [consumer_app] exporting to image
=> => exporting layers
=> => writing image sha256:985326ca95a3ffbbb0c83d7871a42828d981961f4b5cd2ede4fde386a340e8aa
=> => naming to docker.io/library/devops-consumer_app
=> [producer_app 3/4] COPY ./producer_app /app
=> [producer_app 4/4] WORKDIR /app
=> [producer_app] exporting to image
=> => exporting layers
=> => writing image sha256:5d4301f81c16d7dc20205a86f2102859338c59a7bc585e34003f59daac679865
=> => naming to docker.io/library/devops-producer_app
harshgandhi@Harshs-MacBook-Pro devops %
```

```
harshgandhi@Harshs-MacBook-Pro devops % docker compose up
[+] Building 0.0s (0/0)
[+] Running 6/0
  ✓ Container elasticsearch      Created
  ✓ Container zookeeper         Created
  ✓ Container devops-neo4j-1     Created
  ✓ Container kafka             Created
  ✓ Container devops-consumer_app-1 Created
  ✓ Container devops-producer_app-1 Created
Attaching to devops-consumer_app-1, devops-neo4j-1, devops-producer_app-1, elasticsearch, kafka, zookeeper
zookeeper    | ==> User
zookeeper    | uid=1000(appuser) gid=1000(appuser) groups=1000(appuser)
zookeeper    | ==> Configuring ...
devops-neo4j-1 | Warning: Some files inside "/data" are not writable from inside container. Changing folder owner to neo4j
kafka        | ==> User
kafka        | uid=1000(appuser) gid=1000(appuser) groups=1000(appuser)
kafka        | ==> Configuring ...
kafka        | Running in Zookeeper mode...
devops-producer_app-1 INFO:root:Connecting to Kafka, ES, neo4j...
```

3. Messages being passed between components

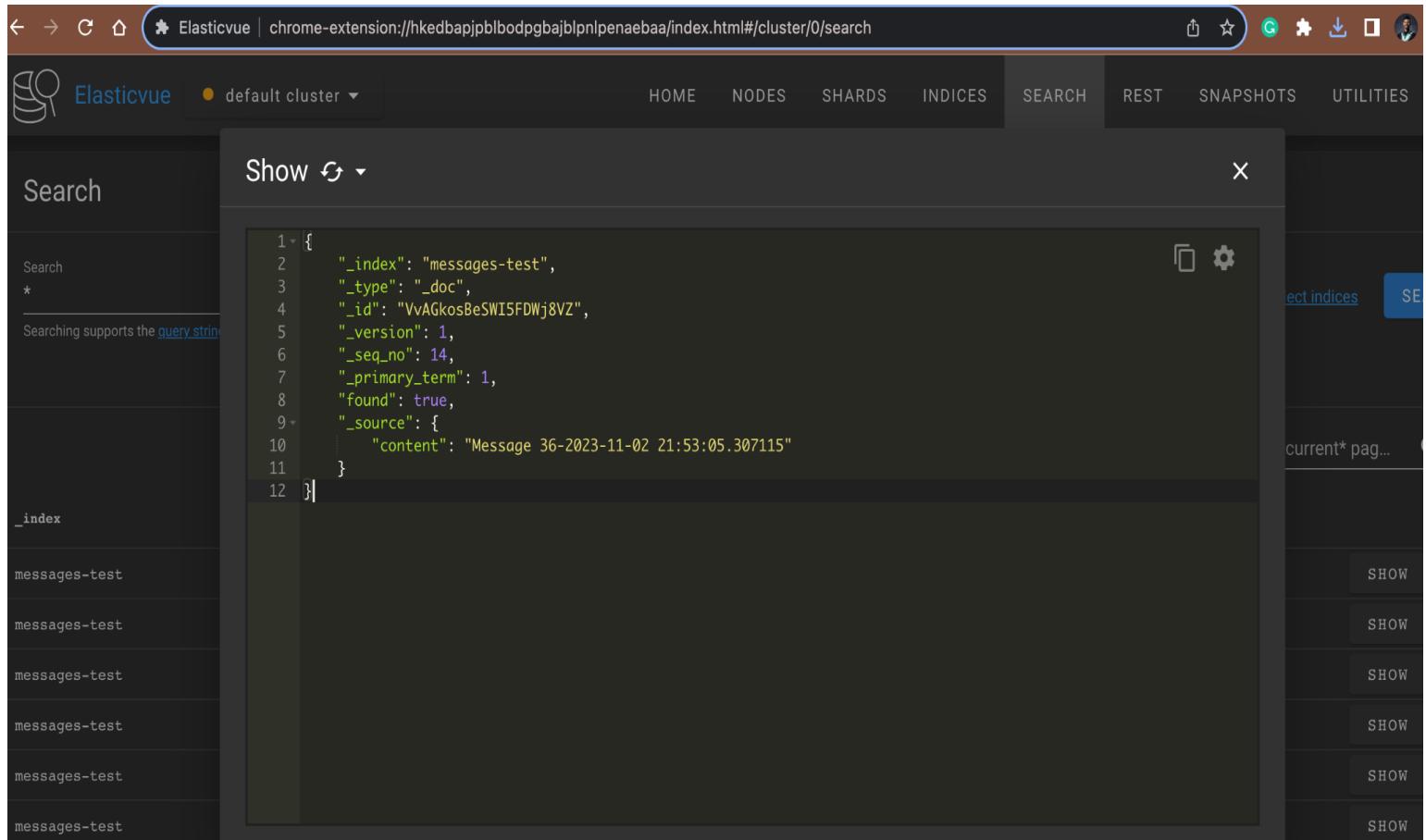
PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

```
devops-producer_app-1 | INFO:root:Sent message: b'Message 283'
devops-consumer_app-1 | INFO:root:Received message: Message 283
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.007s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 284'
devops-consumer_app-1 | INFO:root:Received message: Message 284
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 285'
devops-consumer_app-1 | INFO:root:Received message: Message 285
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 286'
devops-consumer_app-1 | INFO:root:Received message: Message 286
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 287'
devops-consumer_app-1 | INFO:root:Received message: Message 287
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.007s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 288'
devops-consumer_app-1 | INFO:root:Received message: Message 288
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.007s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 289'
devops-consumer_app-1 | INFO:root:Received message: Message 289
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.025s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 290'
devops-consumer_app-1 | INFO:root:Received message: Message 290
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.008s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 291'
devops-consumer_app-1 | INFO:root:Received message: Message 291
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 292'
devops-consumer_app-1 | INFO:root:Received message: Message 292
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 293'
devops-consumer_app-1 | INFO:root:Received message: Message 293
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 294'
devops-consumer_app-1 | INFO:root:Received message: Message 294
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 295'
devops-consumer_app-1 | INFO:root:Received message: Message 295
devops-consumer_app-1 | INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
devops-producer_app-1 | INFO:root:Sent message: b'Message 296'
```

4. Viewing data populated in Neo4j using Neo4j GUI

The screenshot shows the Neo4j Browser interface at `localhost:7474/browser/`. The top navigation bar includes icons for back, forward, search, and user profile. The main area displays a graph visualization of 300 nodes, all colored orange. A central node is highlighted with a larger orange circle and a circular legend below it, which contains four smaller colored circles (orange, blue, green, red) with corresponding labels: 'Message' (orange), 'User' (blue), 'Post' (green), and 'Comment' (red). On the left side, there is a sidebar with four tabs: 'Graph' (selected), 'Table', 'Text', and 'Code'. The 'Graph' tab shows a summary: `*(300)` and `Message(300)`. The bottom status bar shows the details of the selected node: `Message <id>: 199 content: Message 221`.

5. Content of the elastic search index at localhost:9200



The screenshot shows the Elasticview interface in a browser window. The title bar reads "Elasticview | chrome-extension://hkedbapjpblobpgbajblpnlpnaebaa/index.html#/cluster/0/search". The main navigation bar includes links for HOME, NODES, SHARDS, INDICES, SEARCH, REST, SNAPSHOTS, and UTILITIES. The "SEARCH" tab is active. A modal window titled "Show" displays a JSON document representing a single search result from the "messages-test" index. The JSON output is as follows:

```
1 {  
2   "_index": "messages-test",  
3   "_type": "_doc",  
4   "_id": "VvAGkosBeSWI5FDWj8VZ",  
5   "_version": 1,  
6   "_seq_no": 14,  
7   "_primary_term": 1,  
8   "found": true,  
9   "_source": {  
10     "content": "Message 36-2023-11-02 21:53:05.307115"  
11   }  
12 }
```

The left sidebar lists other indices: _index, messages-test, messages-test, messages-test, messages-test, messages-test, and messages-test. On the right side of the modal, there are buttons labeled "Select indices", "current* pag...", and several "SHOW" buttons corresponding to the listed indices.

6.What this code does

There are two components in the application. The first component `producer_app` connects to Kafka initially, then constantly pushes some data to Kafka's `test-topic` topic, and sleeps for one second.

The second component `consumer_app` connects to two external services, Neo4J and ElasticSearch. Once it successfully connects to all the services, it constantly fetches the information from Kafka (from the topic `test-topic`), and pushes it to Neo4J and ElasticSearch. If there is any exception during the process, it sleeps for 20 seconds and then retries.

7.Explain how would you use these messages to debug the project/pipeline

As all the services are containerized, debugging the root problem for any issues becomes harder as everything is separated. To solve this, my research suggests writing all the error messages to another service to streamline all the logs, and it will become easy to trace the appropriate error and find the root cause.

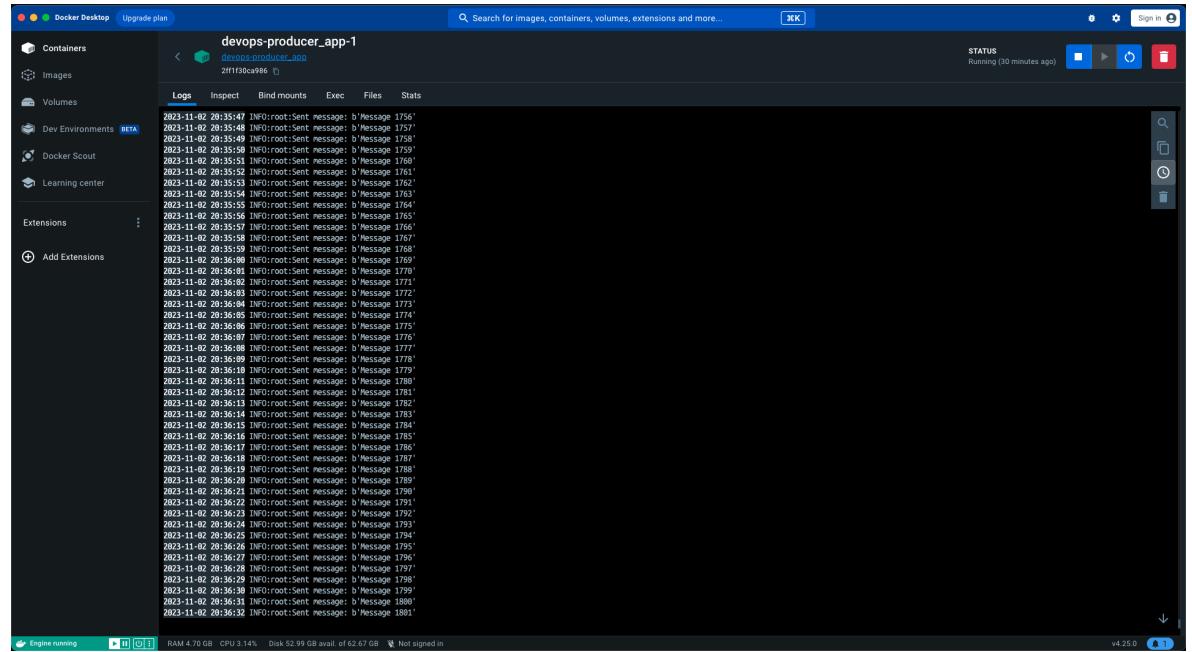
Alternatively, we can store all the logs into a common log file and batch-process them to separate the desired log type (i.e. error). These logs will help us find multiple/major issues which are causing the failure.

If that's not possible, then another alternative would be grouping all the logs using services like AWS CloudWatch. It will be really handy while dealing with large amounts of log files or several containers.

Once we find the root cause, we can perform some error debugging until we find a solution.

Screenshot of the container's log messages from Docker

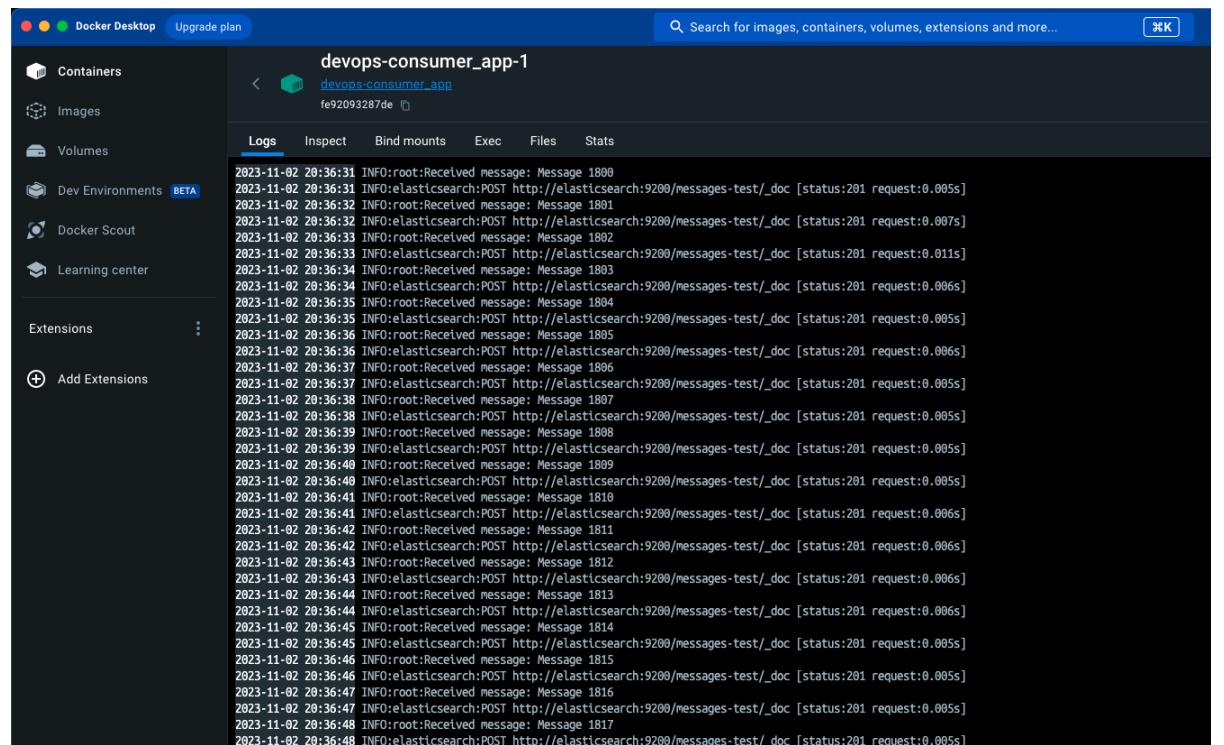
1) Producer



Docker Desktop interface showing the logs for the container `devops-producer_app-1`. The logs display numerous INFO messages from the root user, each containing a unique identifier such as 'b'Message 1756', 'b'Message 1757', etc., indicating the sending of test messages.

```
2023-11-02 20:35:47 INFO:root:Sent message: b'Message 1756'
2023-11-02 20:35:48 INFO:root:Sent message: b'Message 1757'
2023-11-02 20:35:49 INFO:root:Sent message: b'Message 1758'
2023-11-02 20:35:50 INFO:root:Sent message: b'Message 1759'
2023-11-02 20:35:51 INFO:root:Sent message: b'Message 1760'
2023-11-02 20:35:52 INFO:root:Sent message: b'Message 1761'
2023-11-02 20:35:53 INFO:root:Sent message: b'Message 1762'
2023-11-02 20:35:54 INFO:root:Sent message: b'Message 1763'
2023-11-02 20:35:55 INFO:root:Sent message: b'Message 1764'
2023-11-02 20:35:56 INFO:root:Sent message: b'Message 1765'
2023-11-02 20:35:57 INFO:root:Sent message: b'Message 1766'
2023-11-02 20:35:58 INFO:root:Sent message: b'Message 1767'
2023-11-02 20:35:59 INFO:root:Sent message: b'Message 1768'
2023-11-02 20:36:00 INFO:root:Sent message: b'Message 1769'
2023-11-02 20:36:01 INFO:root:Sent message: b'Message 1770'
2023-11-02 20:36:02 INFO:root:Sent message: b'Message 1771'
2023-11-02 20:36:03 INFO:root:Sent message: b'Message 1772'
2023-11-02 20:36:04 INFO:root:Sent message: b'Message 1773'
2023-11-02 20:36:05 INFO:root:Sent message: b'Message 1774'
2023-11-02 20:36:06 INFO:root:Sent message: b'Message 1775'
2023-11-02 20:36:07 INFO:root:Sent message: b'Message 1776'
2023-11-02 20:36:08 INFO:root:Sent message: b'Message 1777'
2023-11-02 20:36:09 INFO:root:Sent message: b'Message 1778'
2023-11-02 20:36:10 INFO:root:Sent message: b'Message 1779'
2023-11-02 20:36:11 INFO:root:Sent message: b'Message 1780'
2023-11-02 20:36:12 INFO:root:Sent message: b'Message 1781'
2023-11-02 20:36:13 INFO:root:Sent message: b'Message 1782'
2023-11-02 20:36:14 INFO:root:Sent message: b'Message 1783'
2023-11-02 20:36:15 INFO:root:Sent message: b'Message 1784'
2023-11-02 20:36:16 INFO:root:Sent message: b'Message 1785'
2023-11-02 20:36:17 INFO:root:Sent message: b'Message 1786'
2023-11-02 20:36:18 INFO:root:Sent message: b'Message 1787'
2023-11-02 20:36:19 INFO:root:Sent message: b'Message 1788'
2023-11-02 20:36:20 INFO:root:Sent message: b'Message 1789'
2023-11-02 20:36:21 INFO:root:Sent message: b'Message 1790'
2023-11-02 20:36:22 INFO:root:Sent message: b'Message 1791'
2023-11-02 20:36:23 INFO:root:Sent message: b'Message 1792'
2023-11-02 20:36:24 INFO:root:Sent message: b'Message 1793'
2023-11-02 20:36:25 INFO:root:Sent message: b'Message 1794'
2023-11-02 20:36:26 INFO:root:Sent message: b'Message 1795'
2023-11-02 20:36:27 INFO:root:Received message: Message 1796
2023-11-02 20:36:28 INFO:root:Sent message: b'Message 1797'
2023-11-02 20:36:29 INFO:root:Sent message: b'Message 1798'
2023-11-02 20:36:30 INFO:root:Sent message: b'Message 1799'
2023-11-02 20:36:31 INFO:root:Sent message: b'Message 1800'
2023-11-02 20:36:32 INFO:root:Sent message: b'Message 1801'
```

2) Consumer



Docker Desktop interface showing the logs for the container `devops-consumer_app-1`. The logs display numerous INFO messages from the root user, each containing a unique identifier such as 'b'Message 1800', 'b'Message 1801', etc., indicating the receiving of test messages sent from the producer.

```
2023-11-02 20:36:31 INFO:root:Received message: Message 1800
2023-11-02 20:36:31 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:32 INFO:root:Received message: Message 1801
2023-11-02 20:36:32 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.007s]
2023-11-02 20:36:33 INFO:root:Received message: Message 1802
2023-11-02 20:36:33 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.011s]
2023-11-02 20:36:34 INFO:root:Received message: Message 1803
2023-11-02 20:36:34 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
2023-11-02 20:36:35 INFO:root:Received message: Message 1804
2023-11-02 20:36:35 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:36 INFO:root:Received message: Message 1805
2023-11-02 20:36:36 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
2023-11-02 20:36:37 INFO:root:Received message: Message 1806
2023-11-02 20:36:37 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:38 INFO:root:Received message: Message 1807
2023-11-02 20:36:38 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:39 INFO:root:Received message: Message 1808
2023-11-02 20:36:39 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:40 INFO:root:Received message: Message 1809
2023-11-02 20:36:40 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:41 INFO:root:Received message: Message 1810
2023-11-02 20:36:41 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
2023-11-02 20:36:42 INFO:root:Received message: Message 1811
2023-11-02 20:36:42 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
2023-11-02 20:36:43 INFO:root:Received message: Message 1812
2023-11-02 20:36:43 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
2023-11-02 20:36:44 INFO:root:Received message: Message 1813
2023-11-02 20:36:44 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.006s]
2023-11-02 20:36:45 INFO:root:Received message: Message 1814
2023-11-02 20:36:45 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:46 INFO:root:Received message: Message 1815
2023-11-02 20:36:46 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:47 INFO:root:Received message: Message 1816
2023-11-02 20:36:47 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:48 INFO:root:Received message: Message 1817
2023-11-02 20:36:48 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
2023-11-02 20:36:48 INFO:elasticsearch:POST http://elasticsearch:9200/messages-test/_doc [status:201 request:0.005s]
```

3) Kafka

Docker Desktop		Upgrade plan	Search for images, containers, volumes, extensions and more...		STATUS		Sign in...	
Containers		Logs	Inspect	Bind mounts	Exec	File	Stats	...
	kafka	container:cc-kafka.latest ec88b340b083	9093_9093					
Containers								
Images								
Volumes								
Dev Environments	BETA							
Docker Scout								
Learning center								
Extensions								
Add Extensions								
Logs								
2023-11-02 20:06:25 [2023-11-03 08:06:25,909] TRACE [Broker id=1081] Handling LeaderAndIsr request correlationId 1 from controller 1081 epoch 4 starting the become-leader transition for partition test-topic-0 (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,909] INFO [ReplicaFetcherManager on broker 1081] Removed Fetcher for partitions Set(test-topic-0) (kafka.server.ReplicaFetcherManager)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,910] TRACE [Broker id=1081] Stopped Fetchers as part of LeaderAndIsr request correlationId 1 from controller 1081 epoch 4 as part of the become-leader transition for 1 partitions (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,928] INFO [Partition test-topic-0(brokers=1)] Log loaded for partition test-topic-0 with initial high watermark 401 (kafka.cluster.Partition)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,930] INFO [Broker id=1081] Leader Test topic-0 with topic id Some(d_1081S5erKQGfwBwA) started at leader epoch 0 from offset 401 with partition epoch 0, high watermark 401, ISR [1081], adding replicas [1] and removing replicas [2] (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,945] TRACE [Broker id=1081] Completed LeaderAndIsr request correlationId 1 from controller 1081 epoch 4 for the become-leader transition for partition test-topic-0 (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,964] TRACE [Controller id=1081 epoch=4] Received response LeaderAndIsrResponseData(errorCode=0, partitionNr=r0), topics=[LeaderAndIsrTopicError(topicId=d_1081S5erKQGfwBwA, partitionNr=r0, errorCode=LeaderAndIsrPartitionError(topicName='test-topic-0', partitionIndex=0, errorCode=0))]) for request LEADER_AND_ISR with correlationId 1 sent to broker Kafka:9092 (id: 1081 racks null) (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,970] INFO [Broker id=1081] Leader Test topic-0 with topic id Some(d_1081S5erKQGfwBwA) cached leader Info UpdateMetadataData(partitionEpoch=0, partitionEpochHigh=0, leaderEpoch=0, leaderEpochH=0, lsr=[1081], zkVersion=0, rrcs=[1081], offsetFromLeader=0) for partition test-topic-0 in response to UpdateMetadata request sent by controller 1081 epoch 4 with correlationId 2 (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,977] INFO [Broker id=1081] Add 1 partitions and deleted 0 partitions from metadata cache in response to UpdateMetadata request sent by controller 1081 epoch 4 with correlationId 2 (state.change.logger)								
2023-11-02 20:06:25 [2023-11-03 08:06:25,999] INFO [Controller id=1081 epoch=4] Received response UpdateMetadataResponseData(errorCode=0) for request UPDATE_METADATA with correlationId 2 sent to broker Kafka:9092 (id: 1081 rack: null) (state.change.logger)								
2023-11-02 20:06:30 [2023-11-03 08:06:30,704] INFO [Controller id=1081] Processing automatic preferred replica auto leader election (kafka.controller.KafkaController)								
2023-11-02 20:06:30 [2023-11-03 08:06:30,705] TRACE [Controller id=1081] Checking need to trigger auto leader balancing (kafka.controller.KafkaController)								
2023-11-02 20:06:30 [2023-11-03 08:06:30,708] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:06:30 [2023-11-03 08:06:30,710] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,693] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,695] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,697] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,700] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,703] INFO [Controller id=1081] Checking need to trigger auto leader balancing (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,704] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,705] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,710] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,712] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:11:30 [2023-11-03 08:11:30,717] TRACE [Controller id=1081] Checking need to trigger auto leader balancing (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,717] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,719] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,720] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,723] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,724] INFO [Controller id=1081] Checking need to trigger auto leader balancing (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,725] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,727] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,728] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,730] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,732] TRACE [Controller id=1081] Checking need to trigger auto leader balancing (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,735] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,737] INFO [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,739] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:21:30 [2023-11-03 08:21:30,740] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,724] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,724] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,725] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,727] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,728] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,730] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,732] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,734] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,736] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,738] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,740] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,742] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,744] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,746] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,748] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,750] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,752] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,754] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,756] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,758] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,760] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,762] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,764] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,766] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,768] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,770] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,772] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,774] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,776] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,778] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,780] INFO [Controller id=1081] Processing automatic preferred replica leader election (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,782] DEBUG [Controller id=1081] Topics not in preferred replica for broker 1081 Map() (kafka.controller.KafkaController)								
2023-11-02 20:26:30 [2023-11-03 08:26:30,784] TRACE [Controller id=1081] Leader imbalance ratio for broker 1081 is 0.0 (kafka.controller.KafkaController)								

4) Elastic Search

5) Neo4j

```

Logs Inspect Bind mounts Exec Files Stats
2023-11-02 19:56:21 2023-11-02 23:56:31.994+0000 INFO Started.
2023-11-02 19:56:37 2023-11-02 23:56:37.021+0000 INFO Neo4j Server shutdown initiated by request
2023-11-02 19:56:37 2023-11-02 23:56:37.021+0000 INFO Stopping...
2023-11-02 19:56:42 2023-11-02 23:56:42.349+0000 INFO Stopped.
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 INFO Directories inside '/data' are not writable from inside container. Changing folder owner to 'neo4j'.
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 DDirectories in use:
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 home: /var/lib/neo4j
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 config: /var/lib/neo4j/conf
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 logs: /logs
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 plugins: /var/lib/neo4j/plugins
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 import: /var/lib/neo4j/import
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 data: /var/lib/neo4j/data
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 certificates: /var/lib/neo4j/certificates
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 run: /var/lib/neo4j/run
2023-11-02 19:57:01 2023-11-02 23:57:01.003+0000 Starting Neo4j...
2023-11-02 19:57:07 2023-11-02 23:57:07.479+0000 INFO _____ Neo4j 4.2.3 _____
2023-11-02 19:57:09 2023-11-02 23:57:09.214+0000 INFO Performing postInitialization step for component 'security-users' with version 2 and status CURRENT
2023-11-02 19:57:09 2023-11-02 23:57:09.214+0000 INFO Updating the initial password in component 'security-users'
2023-11-02 19:57:09 2023-11-02 23:57:09.498+0000 INFO Bolt enabled on 0.0.0.0:7687.
2023-11-02 19:57:11 2023-11-02 23:57:11.352+0000 INFO Remote interface available at http://localhost:7474/
2023-11-02 19:57:11 2023-11-02 23:57:11.352+0000 INFO Started.
2023-11-02 20:02:53 2023-11-03 00:02:53.191+0000 INFO Neo4j Server shutdown initiated by request
2023-11-02 20:02:53 2023-11-03 00:02:53.191+0000 INFO Stopping...
2023-11-02 20:02:58 2023-11-03 00:02:58.258+0000 INFO Stopped.
2023-11-02 20:06:09 2023-11-03 00:06:09.000+0000 Warning: Some files inside '/data' are not writable from inside container. Changing folder owner to 'neo4j'.
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 Changed password for user 'neo4j'.
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 Directories in use:
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 home: /var/lib/neo4j
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 config: /var/lib/neo4j/conf
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 logs: /logs
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 plugins: /var/lib/neo4j/plugins
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 import: /var/lib/neo4j/import
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 data: /var/lib/neo4j/data
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 certificates: /var/lib/neo4j/certificates
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 run: /var/lib/neo4j/run
2023-11-02 20:06:13 2023-11-03 00:06:13.000+0000 Starting Neo4j...
2023-11-02 20:06:15 2023-11-03 00:06:15.784+0000 INFO Starting...
2023-11-02 20:06:15 2023-11-03 00:06:15.874+0000 INFO _____ Neo4j 4.2.3 _____
2023-11-02 20:06:21 2023-11-03 00:06:21.043+0000 INFO Performing postInitialization step for component 'security-users' with version 2 and status CURRENT
2023-11-02 20:06:21 2023-11-03 00:06:21.492+0000 INFO Updating the initial password in component 'security-users'
2023-11-02 20:06:21 2023-11-03 00:06:21.747+0000 INFO Bolt enabled on 0.0.0.0:7687.
2023-11-02 20:06:23 2023-11-03 00:06:23.724+0000 INFO Remote interface available at http://localhost:7474/
2023-11-02 20:06:23 2023-11-03 00:06:23.724+0000 INFO Started.

```

6) Zookeeper

```

Logs Inspect Bind mounts Exec Files Stats
2023-11-02 20:06:19 2023-11-03 00:06:19.242 INFO Response cache size is initialized with value 400. (org.apache.zookeeper.server.ResponseCache)
2023-11-02 20:06:19 2023-11-03 00:06:19.242 INFO Response cache size is initialized with value 400. (org.apache.zookeeper.server.ResponseCache)
2023-11-02 20:06:19 2023-11-03 00:06:19.245 INFO zookeeper.pathbstats.lotCapacity = 60 (org.apache.zookeeper.server.util.RequestPathMetricsCollector)
2023-11-02 20:06:19 2023-11-03 00:06:19.245 INFO zookeeper.pathbstats.maxSubDuration = 15 (org.apache.zookeeper.server.util.RequestPathMetricsCollector)
2023-11-02 20:06:19 2023-11-03 00:06:19.245 INFO zookeeper.pathbstats.maxWaitDuration = 6 (org.apache.zookeeper.server.util.RequestPathMetricsCollector)
2023-11-02 20:06:19 2023-11-03 00:06:19.245 INFO zookeeper.pathbstats.initialDelay = 5 (org.apache.zookeeper.server.util.RequestPathMetricsCollector)
2023-11-02 20:06:19 2023-11-03 00:06:19.245 INFO zookeeper.pathbstats.enabled = 5 (org.apache.zookeeper.server.util.RequestPathMetricsCollector)
2023-11-02 20:06:19 2023-11-03 00:06:19.246 INFO zookeeper.pathbstats.enabled = False (org.apache.zookeeper.server.util.RequestPathMetricsCollector)
2023-11-02 20:06:19 2023-11-03 00:06:19.251 INFO The max bytes for all large requests are set to 104857600. (org.apache.zookeeper.server.ZooKeeperServer)
2023-11-02 20:06:19 2023-11-03 00:06:19.251 INFO The large request threshold is set to -1 (org.apache.zookeeper.server.ZooKeeperServer)
2023-11-02 20:06:19 2023-11-03 00:06:19.251 INFO Created Server with tickTime 3000 minSessionTimeout 60000 maxSessionTimeout 60000 clientPortListenBackLog -1 datadir /var/lib/zookeeper/log/version-2 snapdir /var/lib/zookeeper/data/version-2 (org.apache.zookeeper.ZooKeeperServer)
2023-11-02 20:06:19 2023-11-03 00:06:19.301 INFO Logging initialized @1258ms on org.eclipse.jetty.util.log.Slf4jLog (org.eclipse.jetty.util.log)
2023-11-02 20:06:19 2023-11-03 00:06:19.301 WARN o.e.j.s.ServerContextHandler@f16875ff{null,STOPPED} contextPath ends with /* (org.eclipse.jetty.server.handler.ContextHandler)
2023-11-02 20:06:19 2023-11-03 00:06:19.532 WARN Empty contextPath (org.eclipse.jetty.server.handler.ContextHandler)
2023-11-02 20:06:19 2023-11-03 00:06:19.532 INFO jetty-10.0.0.M17 (org.eclipse.jetty.server.Server)
2023-11-02 20:06:19 2023-11-03 00:06:19.635 INFO NewDefaultSessionManager (org.eclipse.jetty.server.Session)
2023-11-02 20:06:19 2023-11-03 00:06:19.636 INFO NoSessionsScanner set, using defaults (org.eclipse.jetty.server.Session)
2023-11-02 20:06:19 2023-11-03 00:06:19.637 INFO Node Scavenging every 60000ms (org.eclipse.jetty.server.Session)
2023-11-02 20:06:19 2023-11-03 00:06:19.646 INFO ServletContext@e3b0c44e{null,STARTING} has uncovered http methods for path: /* (org.eclipse.jetty.security.SecurityHandler)
2023-11-02 20:06:19 2023-11-03 00:06:19.649 INFO Started o.e.j.s.ServletContextHandler@f16875ff{null,STOPPED} contextPath ends with /* (org.eclipse.jetty.server.handler.ContextHandler)
2023-11-02 20:06:19 2023-11-03 00:06:19.650 INFO NewDefaultSessionManager (org.eclipse.jetty.server.Session)
2023-11-02 20:06:19 2023-11-03 00:06:19.723 INFO Started @66ms (org.eclipse.jetty.server.Server)
2023-11-02 20:06:19 2023-11-03 00:06:19.723 INFO Started @66ms (org.eclipse.jetty.server.Server)
2023-11-02 20:06:19 2023-11-03 00:06:19.724 INFO Started AdminServer on address 0.0.0.0, port 8888 and command URL: /commands (org.apache.zookeeper.server.admin.JettyAdminServer)
2023-11-02 20:06:19 2023-11-03 00:06:19.739 INFO Using org.apache.zookeeper.server.NIOServerCnxFactory as connection factory (org.apache.zookeeper.server.ServerCnxFactory)
2023-11-02 20:06:19 2023-11-03 00:06:19.743 INFO maxConn is not configured, using default value 0. (org.apache.zookeeper.server.ServerCnxFactory)
2023-11-02 20:06:19 2023-11-03 00:06:19.746 INFO Configuring NIO connection handler with 10s sessionless connection timeout, 2 selector thread(s), 24 worker threads, and 64 kB direct buffers. (org.apache.zookeeper.server.NIOServer)
2023-11-02 20:06:19 2023-11-03 00:06:19.751 INFO Binding to port 0.0.0.0,0,0,0,2181 (org.apache.zookeeper.server.NIOServerCnxFactory)
2023-11-02 20:06:19 2023-11-03 00:06:19.751 INFO Using org.apache.zookeeper.server.watch.WatchManager as watch manager (org.apache.zookeeper.server.watch.WatchManagerFactory)
2023-11-02 20:06:19 2023-11-03 00:06:19.753 INFO Using org.apache.zookeeper.server.watch.WatchManager as watch manager (org.apache.zookeeper.server.watch.WatchManagerFactory)
2023-11-02 20:06:19 2023-11-03 00:06:19.783 INFO zookeeper.snapshotSizeFactor = 0.33 (org.apache.zookeeper.server.ZooDatabase)
2023-11-02 20:06:19 2023-11-03 00:06:19.783 INFO zookeeper.committigCount=500 (org.apache.zookeeper.server.ZooDatabase)
2023-11-02 20:06:19 2023-11-03 00:06:19.786 INFO Reading snapshot /var/lib/zookeeper/datalog/version-2 (org.apache.zookeeper.server.persistence.FileSnap)
2023-11-02 20:06:19 2023-11-03 00:06:19.805 INFO The digest in the snapshot has digest version of 2_ , with zxid as 0x0c, and digest value as 52989665286 (org.apache.zookeeper.server.DataTree)
2023-11-02 20:06:19 2023-11-03 00:06:19.837 INFO Zookeeper audit is disabled. (org.apache.zookeeper.audit.ZKAuditProvider)
2023-11-02 20:06:19 2023-11-03 00:06:19.838 INFO Zxid loaded in 20 ms (org.apache.zookeeper.server.persistence.FileTxnSnaplog)
2023-11-02 20:06:19 2023-11-03 00:06:19.838 INFO Snapshot loaded in 49 ms, highest zxid is 0x051, digest is 501819257 (org.apache.zookeeper.server.persistence.FileTxnSnaplog)
2023-11-02 20:06:19 2023-11-03 00:06:19.842 INFO Snapshot taken in 3 ms (org.apache.zookeeper.server.ZooKeeperServer)
2023-11-02 20:06:19 2023-11-03 00:06:19.862 INFO PreRequestProcessor (stdio) started, recomConfigEnabled=false (org.apache.zookeeper.server.PreRequestProcessor)
2023-11-02 20:06:19 2023-11-03 00:06:19.862 INFO zookeeper.request.throttler.shutdownTimeout = 108000 (org.apache.zookeeper.server.RequestThrottler)
2023-11-02 20:06:19 2023-11-03 00:06:19.896 INFO Using checkIntervalMs=60000 maxPerMinute=108000 maxNeverUsedIntervalMs=0 (org.apache.zookeeper.server.ContainerManager)
2023-11-02 20:06:20 2023-11-03 00:06:28.952 INFO Creating new log file: log_52 (org.apache.zookeeper.server.persistence.FileTxnLog)

```

8. How to change the docker-compose for this project into a Kubernetes deployment

I would use one of the most popular and open-source tools, called Kompose. Kompose is a conversion tool for Docker Compose to container orchestrators such as Kubernetes.

```
# We will open the mac terminal and run this command to install Kompose
curl -L
https://github.com/kubernetes/kompose/releases/download/v1.26.0/
kompose-darwin-amd64 -o kompose
```

```
# We will create a directory with an executable option
chmod +x kompose
```

```
# Move compose folder content to this location
sudo mv ./kompose /usr/local/bin/kompose
```

```
# Use kompose convert to and then kubectl apply -f docker-compose.yml, and it will
create files
```

```
#Install Kubectl
curl -LO "https://dl.k8s.io/release/$(curl -L -s
https://dl.k8s.io/release/stable.txt)/bin/darwin/amd64/kubectl"
```

```
#Download install minikube
curl -LO
https://storage.googleapis.com/minikube/releases/latest/minikube
-darwin-amd64
sudo install minikube-darwin-amd64 /usr/local/bin/minikube
```

```
Sudo minikube start -force
```

```
#Apply using kubectl
kubectl apply -f producer-app-deployment.yaml
```

The screenshots of the commands ran successfully

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS

```
● harshgandhi@Harshs-MacBook-Pro devops % curl -L https://github.com/kubernetes/kompose/releases/download/v1.26.0/kompose-darwin-amd64 -o kompose
% Total    % Received % Xferd  Average Speed   Time   Time  Current
          Dload  Upload Total Spent   Left Speed
0       0     0     0      0      0 0:--:-- 0:--:-- 0:--:-- 0
100 22.6M 100 22.6M 0      0 24.1M 0:--:-- 0:--:-- 0:--:-- 44.1M
● harshgandhi@Harshs-MacBook-Pro devops % chmod +x kompose
● harshgandhi@Harshs-MacBook-Pro devops % mkdir kubernetes
✖ harshgandhi@Harshs-MacBook-Pro devops % kompose convert
zsh: command not found: kompose
● harshgandhi@Harshs-MacBook-Pro devops % ./kompose convert
INFO Service name in docker-compose has been changed from "producer_app" to "producer-app"
INFO Service name in docker-compose has been changed from "consumer_app" to "consumer-app"
WARN Service "consumer_app" won't be created because 'ports' is not specified
WARN Service "producer_app" won't be created because 'ports' is not specified
INFO Kubernetes file "elasticsearch-service.yaml" created
INFO Kubernetes file "kafka-service.yaml" created
INFO Kubernetes file "neo4j-service.yaml" created
INFO Kubernetes file "zookeeper-service.yaml" created
INFO Kubernetes file "consumer-app-deployment.yaml" created
INFO Kubernetes file "elasticsearch-deployment.yaml" created
INFO Kubernetes file "kafka-deployment.yaml" created
INFO Kubernetes file "neo4j-deployment.yaml" created
INFO Kubernetes file "producer-app-deployment.yaml" created
INFO Kubernetes file "zookeeper-deployment.yaml" created
○ harshgandhi@Harshs-MacBook-Pro devops %
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS GITLENS zsh - kubernetes

```
● harshgandhi@Harshs-MacBook-Pro kubernetes % curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-darwin-amd64
sudo install minikube-darwin-amd64 /usr/local/bin/minikube
% Total    % Received % Xferd  Average Speed   Time   Time  Current
          Dload  Upload Total Spent   Left Speed
100 81.2M 100 81.2M 0      0 25.4M 0:00:03 0:00:03 0:--:-- 25.5M
Password:
● harshgandhi@Harshs-MacBook-Pro kubernetes % minikube start
😊 minikube v1.31.2 on Darwin 14.0
  ▪ KUBECONFIG=/etc/kubernetes/admin.conf
  ▪ Automatically selected the docker driver
  🚀 Using Docker Desktop driver with root privileges
  Starting control plane node minikube in cluster minikube
  Pulling base image ...
  Downloading Kubernetes v1.27.4 preload ...
  > preloaded-images-k8s-v18-v1...: 393.21 MiB / 393.21 MiB 100.00% 15.13 M
  > gcr.io/k8s-minikube/kicbase-v1...: 447.62 MiB / 447.62 MiB 100.00% 16.60 M
  Creating docker container (CPUs=2, Memory=4000MB) ...
  🌈 Preparing Kubernetes v1.27.4 on Docker 24.0.4 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
  ⚡ Configuring bridge CNI (Container Networking Interface) ...
✖ Exiting due to GUEST_START: failed to start node: Failed kubeconfig update: writing kubeconfig: Error creating directory: /etc/kubernetes: mkdir /etc/kubernetes: permission denied

  🐨 If the above advice does not help, please let us know:
  ↗ https://github.com/kubernetes/minikube/issues/new/choose

  Please run `minikube logs --file=logs.txt` and attach logs.txt to the GitHub issue.
```

```
● harshgandhi@Harshs-MacBook-Pro kubernetes % sudo minikube start
Password:
😊 minikube v1.31.2 on Darwin 14.0
  🚀 Using the docker driver based on existing profile
  🚨 The "docker" driver should not be used with root privileges. If you wish to continue as root, use --force.
  ⓘ If you are running minikube within a VM, consider using --driver=none:
  ⓘ https://minikube.sigs.k8s.io/docs/reference/drivers/none/
  ⚡ Tip: To remove this root owned cluster, run: sudo minikube delete
✖ Exiting due to DRV_AS_ROOT: The "docker" driver should not be used with root privileges.

● harshgandhi@Harshs-MacBook-Pro kubernetes % sudo minikube start --force
😊 minikube v1.31.2 on Darwin 14.0
  minikube skips various validations when --force is supplied; this may lead to unexpected behavior
  🚀 Using the docker driver based on existing profile
  🚨 The "docker" driver should not be used with root privileges. If you wish to continue as root, use --force.
  ⓘ If you are running minikube within a VM, consider using --driver=none:
  ⓘ https://minikube.sigs.k8s.io/docs/reference/drivers/none/
  ⚡ Tip: To remove this root owned cluster, run: sudo minikube delete
  Starting control plane node minikube in cluster minikube
  Pulling base image ...
  Updating the running docker "minikube" container ...
  🌈 Preparing Kubernetes v1.27.4 on Docker 24.0.4 ...
  📑 Verifying Kubernetes components...
  ⓘ Using image gcr.io/k8s-minikube/storage-provisioner:v5
  🌟 Enabled addons: default-storageclass
  ⓘ Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
○ harshgandhi@Harshs-MacBook-Pro kubernetes %
```

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I could follow these steps using the above commands, to run the Kubernetes cluster locally, but in the end, I am able to run the minikube within the Docker. Screenshot attached.

The screenshot shows the Docker Desktop interface. On the left, a sidebar includes 'Containers', 'Images', 'Volumes', 'Dev Environments (BETA)', 'Docker Scout', 'Learning center', 'Extensions', and an 'Add Extensions' button. The main area is titled 'Containers' with a search bar and a 'Show charts' dropdown. It displays 'Container CPU usage' at 23.76% / 1200% and 'Container memory usage' at 712.7MB / 7.48GB. A table lists two containers:

Name	Image	Status	CPU (%)	Port(s)	Last started	Actions
minikube d2a22da08923	gcr.io/k8s-minikube/kicbase v0.0	Running	23.76%	57361.22 Show all ports (5)	14 minutes ago	[Actions]
devops		Exited	0%		2 hours ago	[Actions]

At the bottom, status icons show 'Engine running', system resources (RAM 4.62 GB, CPU 3.72%, Disk 50.67 GB avail. of 62.67 GB), and a note 'Not signed in'. The version 'v4.25.0' is also visible.