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ASSIGNMENT 4.2

Start Kafka using docker-compose and:

1. Create a topic.
2. List Kafka topics.
3. Inspect one of them to see the number of partitions.

SOLUTION:

STEP 1:

First we created docker-compose.yml file . This docker-compose file sets up a Kafka cluster with one broker and one Zookeeper instance. It uses the images from Confluent for Kafka and Zookeeper. The broker is exposed on port 9092, and depends on Zookeeper.

```
docker-compose.yml x
docker-compose.yml
1  version: '3'
2  services:
3    zookeeper:
4      image: confluentinc/cp-zookeeper:7.0.1
5      container_name: zookeeper
6      environment:
7        ZOOKEEPER_CLIENT_PORT: 2181
8        ZOOKEEPER_TICK_TIME: 2000
9
10   broker:
11     image: confluentinc/cp-kafka:7.0.1
12     container_name: broker
13     ports:
14       - "9092:9092"
15     depends_on:
16       - zookeeper
17     environment:
18       KAFKA_BROKER_ID: 1
19       KAFKA_ZOOKEEPER_CONNECT: 'zookeeper:2181'
20       KAFKA_LISTENER_SECURITY_PROTOCOL_MAP: PLAINTEXT:PLAINTEXT,PLAINTEXT_INTERNAL:PLAINTEXT
21       KAFKA_ADVERTISED_LISTENERS: PLAINTEXT://localhost:9092,PLAINTEXT_INTERNAL://broker:29092
22       KAFKA_OFFSETS_TOPIC_REPLICATION_FACTOR: 1
23       KAFKA_TRANSACTION_STATE_LOG_MIN_ISR: 1
24       KAFKA_TRANSACTION_STATE_LOG_REPLICATION_FACTOR: 1
25     restart: always
26
```

STEP 2:

Run the docker compose up - d command to Start the Kafka broker and ZooKeeper containers.

```
(base) muhammadhussam@all-MS-7D35:~/Desktop/ASSIGN4.3/playing_with_kafka$ docker compose up -d
[+] Running 3/3
 ✓ Network playing_with_kafka_default Created
 ✓ Container zookeeper Started
 ✓ Container broker Started
(base) muhammadhussam@all-MS-7D35:~/Desktop/ASSIGN4.3/playing_with_kafka$
```

STEP 3 :

We Created the (create_kafka_topic.sh) file and we configured the create_kafka_topic.sh file so that it creates topics and presents a list of all topics after creating.

```
$ create_kafka_topic.sh X
$ create_kafka_topic.sh
1
2  #!/bin/bash
3
4  # commands to create three topics
5  docker-compose exec broker kafka-topics --create --topic my-first-topic --partitions 3 --bootstrap-server broker:9092
6  docker-compose exec broker kafka-topics --create --topic my-second-topic --bootstrap-server broker:9092
7  docker-compose exec broker kafka-topics --create --topic my-third-topic --bootstrap-server broker:9092
8
9
10
11 #listing the topics
12 docker-compose exec broker kafka-topics --list --bootstrap-server broker:9092
13
```

STEP 4:

Running create_kafka_topic.sh to run the script and display the list of all created topics.

```
Container broker started
(base) muhammadhussam@all-MS-7D35:~/Desktop/ASSIGN4.3/playing_with_kafka$ ./create_kafka_topic.sh
Created topic my-first-topic.
Created topic my-second-topic.
Created topic my-third-topic.
my-first-topic
my-second-topic
my-third-topic
```

STEP 5 :

Inspect the "my-first-topic" topic to see the number of partitions.

```
my-first-topic
(base) muhamadhussan@all-MS-7D35:~/Desktop/ASSIGN4.3/playing_with_kafka$ docker-compose exec broker kafka-topics --describe --topic my-first-topic --bootstrap-server broker:9092
Topic: my-first-topic TopicId: _ooejhAuSM6f-VLY4LT8DA PartitionCount: 3 ReplicationFactor: 1 Configs:
Topic: my-first-topic Partition: 0 Leader: 1 Replicas: 1 Isr: 1
Topic: my-first-topic Partition: 1 Leader: 1 Replicas: 1 Isr: 1
Topic: my-first-topic Partition: 2 Leader: 1 Replicas: 1 Isr: 1
(base) muhamadhussan@all-MS-7D35:~/Desktop/ASSIGN4.3/playing_with_kafka$
```