

Unit 4.2 Graded Assignment

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Problem Statement:

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:

→ The docker-compose.yml file contains which services we want to run the zookeeper, broker services. Zookeeper services is being run on on port 2181.

```
docker-compose.yml u x
Assignment_4.2(kafka) > 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
```

→ In order to solve the assignment we have use the command in the code snippet we have also explained the code below.

docker exec -it broker: executes command within the docker container named broker the -it flag is used to attached to the interactive terminal.

commands.sh: commands will be read from a script file from "commands.sh."

--create --topic topica : creates a new topic in Apache Kafka with the specified topica.

--partitions 4: the number of partitions to be created for the topic 4.

--replication-factor 1: sets the replication of the topic 1.

--bootstrap-server broker:9092: This specifies the bootstrap server address for Kafka at 9092.

--list: lists the available topics in the Kafka cluster which is topica .

These commands, when executed within the "broker" container, perform operations related to topic creation, including specifying the topic name, number of partitions, and replication factor. The last command, --list, is used to retrieve a list of existing topics in the Kafka cluster.

```
$ commands.sh u X
Assignment_4.2(kafka) > $ commands.sh
1  #!/bin/bash
2
3  docker exec broker kafka-topics --create --topic topica --partitions 4 --replication-factor 1 --bootstrap-server broker:9092
4  docker exec broker kafka-topics --list --bootstrap-server broker:9092
5  |
6
```

```
saifrehman@all-MS-7035:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.2(kafka)$ docker compose down
[+] Running 3/3
 ✓ Container broker          Removed
 ✓ Container zookeeper       Removed
 ✓ Network assignment_42kafka_default Removed
saifrehman@all-MS-7035:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.2(kafka)$ docker compose up -d
[+] Running 3/3
 ✓ Network assignment_42kafka_default Created
 ✓ Container zookeeper       Started
 ✓ Container broker          Started
saifrehman@all-MS-7035:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.2(kafka)$ ./commands.sh
Created topic topica.
saifrehman@all-MS-7035:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.2(kafka)$ docker exec broker kafka-topics --describe --topic topica --bootstrap-server broker:9092
Topic: topica   TopicId: shuvmL_nYydwbdSQXazLQ PartitionCount: 4      ReplicationFactor: 1   Configs:
Topic: topica   Partition: 0    Leader: 1       Replicas: 1      Isr: 1
Topic: topica   Partition: 1    Leader: 1       Replicas: 1      Isr: 1
Topic: topica   Partition: 2    Leader: 1       Replicas: 1      Isr: 1
Topic: topica   Partition: 3    Leader: 1       Replicas: 1      Isr: 1
saifrehman@all-MS-7035:~/Documents/eme/SaifUrRehman-DEG-007/Assignment_4.2(kafka)$
```